CKD



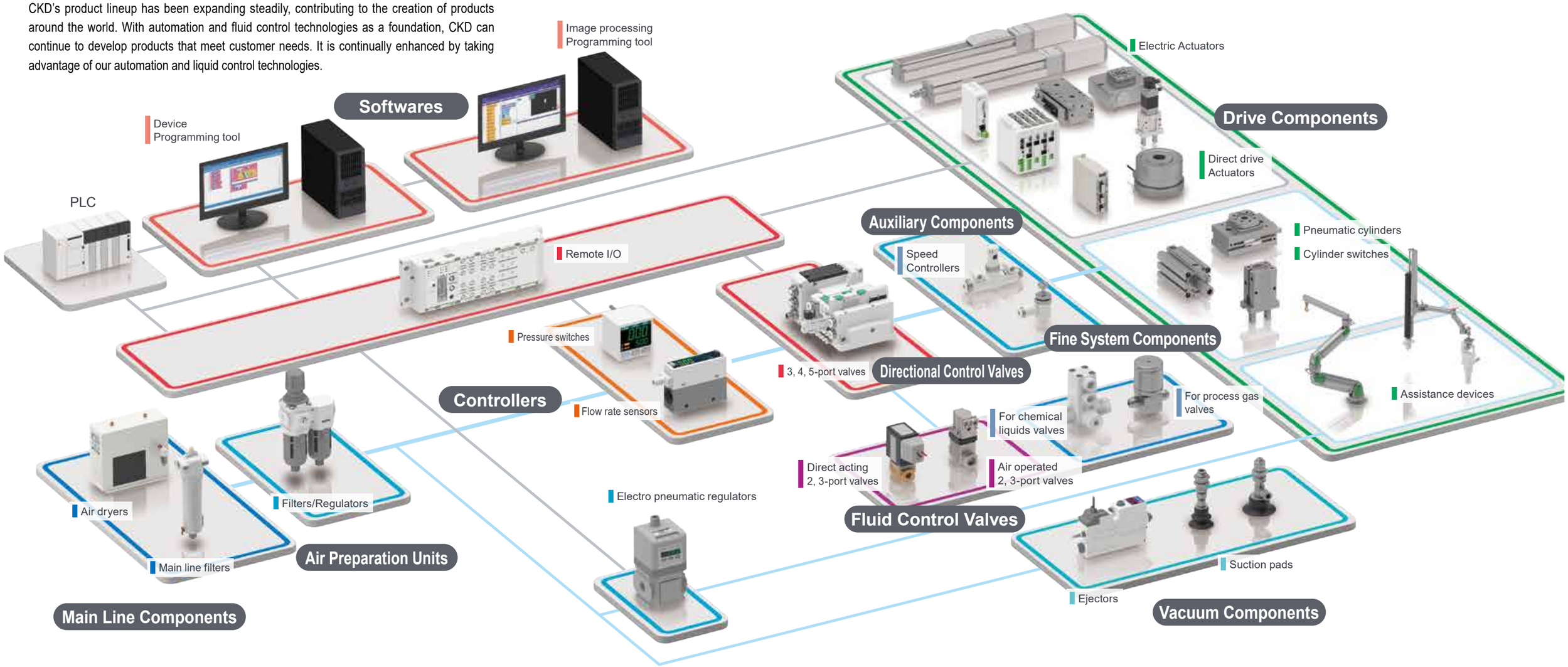
Pneumatic Cylinders ①

General Type

CKD products seen from their configuration images

Both Air and Electric. From software to I/O units

CKD's product lineup has been expanding steadily, contributing to the creation of products around the world. With automation and fluid control technologies as a foundation, CKD can continue to develop products that meet customer needs. It is continually enhanced by taking advantage of our automation and liquid control technologies.



CKD products by application

High Durability Components
HP Series

Long Service Life
Environmental Resistance

HP
HIGH PRODUCTIVITY


CC-1421AA

For Food Manufacturing Processes
FP Series

FP Food Process™


CC-1271AA

For Outdoor Use WP Series

WEATHER PROOF


CC-1276A

Rechargeable Battery Manufacturing Process P4 Series

Material restrictions
1/5 or less dust generation rate


CC-1226AA

For Clean Components
P5/P7 Series

Low particle generation exhaust port


CB-033SA

Guide to the CKD catalog

Learn more about each product category in the booklet catalog



RJ-001

The Digest Catalog allows you to search for components you are looking for by overview

Detailed specifications are available in the respective Booklet and WEB catalogs.

Main Line Component Products
Gas Generators

Air Dryers | Main Line Filters | Condensate Drains | Nitrogen gas extraction units

RJ-009AA



Refining and pressure adjusting components
Auxiliary Components

Filters | Regulators | Pressure gauges | Speed controllers | Silencers | Fittings | Tubes

RJ-007AA



Sensors/Controllers

Pressure switches | Flow rate sensors | Flow rate controllers | Air sensors

RJ-008AA



Precision / Vacuum Components

Air bearings | Ejector systems | Vacuum pump systems | Suction Pads

RJ-010AA



Fluid Control Valves

Solenoid valves | Air operated valves | Ball valves

RJ-013AA



Wet Fine System/High Purity Chemical Liquid System

CB-031A

Dry Fine System/High Purity Gas Control System Components

CB-035A



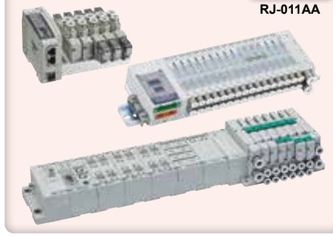
Learn more on the WEB

https://www.ckd.co.jp/kiki/en/

Directional Control Valves (1)

Plug-in Block Manifolds | 3, 4, 5-port valves | Remote I/O

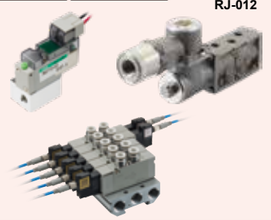
RJ-011AA



Directional Control Valves (2)

2, 3, 5-port valve | Explosion-proof | Air operated valve | Manual selector valve

RJ-012



Pneumatic Cylinders (1)

Standard

RJ-002AA



Pneumatic Cylinders (2)

Space saving structures

RJ-003AA



Pneumatic Cylinders (3)

With linear guide | With guide

RJ-004AA



Pneumatic Cylinders (4)

Rodless | With brake | Clamps | Oscillation / Rotation

RJ-005AA



Pneumatic Cylinders (5)

Hands | Chucks | Grippers

RJ-006AA



Visual Programming Tool for Image Processing

Facilea

CC-1548AA

Facilea AI

CC-1623A

Device Visual Programming Tool

ExiaStudio

CC-1579AA



Electric Actuators

ROBODEX Pulse

RJ-014AA



Electric Actuators

ROBODEX Std.

CB-055A



Electric Actuators

ROBODEX Servo

CC-1275AA CC-1436AA



ABSODEX

ABSODEX

CC-1614AA



INDEX

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You can select by the appearance and product overview of each series.

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Website Guide Intro 19
Model Selection System Guide Intro 20

Precautions for Use
●Pneumatic Equipment Notes Intro 39
●General Notes for Pneumatic Cylinders Intro 41
*For precautions regarding each product, always read the individual precautions for each model series in the main text.

Technical Data Intro 22

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Protective Structure Intro 37

CE Marking Ending 30

CKD RoHS Compliance Ending 32

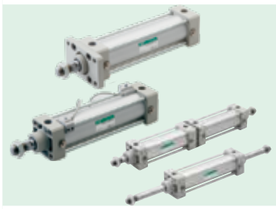
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International System of Units (SI Units)
Circuit Diagram Symbol List
Posted on the CKD website.
https://www.ckd.co.jp/kiki/en/

General Type
>>> P. 1

Cylinder Switches
>>> P. 971

Product Group		Product Name	Page
	Pencil Shaped Cylinders >>> P. 7	SCP□3	12
	Small Bore Cylinders >>> P. 105	CMK2	110
	Small Bore Cylinders >>> P. 293	CMA2	296
	Round Shaped Cylinders >>> P. 319	SCM	324
	Tie Rod Cylinders >>> P. 483	SCG	490
	Selex Cylinders (Medium Bore) >>> P. 619	SCA2	626
	Selex Cylinders (Large Bore) >>> P. 867	SCS2	872
	Cylinder Switches >>> P. 971	M Series/R Series/T Series/K Series F Series/H Series/V Series/E Series	971

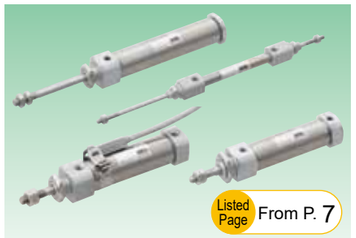
Search by Product System List

Products can be selected by series, appearance and product overview.

General-type >>> Pneumatic Cylinders ① P. 1

Standard, small bore size cylinders **(ø2.5 to ø16)**

Pencil shaped compact cylinder



Pencil Shaped Cylinders

SCP□3

Series	Also known as...	Bore size (ø)	Page
SCPD3	Single Rod Type	6, 10, 16	12
SCPS	Single Acting, Push Type	2.5, 4	22
SCPS3	Single Acting, Push Type	6, 10, 16	22
SCPH3	Single Acting, Retracting Type		22
SCPD3-T	Heat resistant type	6, 10, 16	34
SCPD3-□C	With Rubber Air Cushion		38
SCPD3-F	Low speed type		46
SCPD3-O	Low Speed Type		52
SCPD3-D	Double rod type		58
SCPD3-Z	With Speed Controller	10, 16	66
SCP□3-M	Non-Rotating Type		74
SCPD3-K	High Load Type	6, 10, 16	84
SCP□3-V	With Valve	10, 16	92

Standard, small bore size cylinders **(ø20 to ø40)**

Stainless steel tube for high corrosion resistance



Small Bore Cylinders

CMK2

Series	Also known as...	Bore size (ø)	Page
CMK2	Single rod type	20, 25, 32, 40	110
CMK2-S	Single Acting, Push Type		126
CMK2-SR	Single Acting, Retracting Type		138
CMK2-P	Stroke adjustable (push type)		150
CMK2-R	Stroke adjustable (pull type)		160
CMK2-T	Heat resistant type		170
CMK2-□C	With rubber air-cushioning		174
CMK2-C	Air-cushioning type		182
CMK2-Q	Drop Prevention type		194
CMK2-F	Fine speed		206
CMK2-D	Dual rod type		212
CMK2-B	Back-to-back		220
CMK2-M	Anti-rotation type		228
CMK2-Z	Built-in Speed Controller		240
CMK2-H	Low Hydraulic Pressure Type		252
CMK2-G2/G3	Coolant proof		258
CMK2-JG2/JG3	Stainless Steel		274

Standard, small bore size cylinders **(ø20 to ø40)**

Maintenance-enabled disassembly type



Compact Cylinders

CMA2

Series	Also known as...	Bore size (ø)	Page
CMA2	Single rod type	20, 30, 40	296
CMA2-E	Direct Type		310

General Type/Medium Bore Cylinders **(ø20 to ø100)**

Smart type with abundant bore sizes and options



Round Shaped Cylinder

SCM

Series	Also known as...	Bore size (ø)	Page
SCM	Single Rod Type	20 to 100	324
SCM-X	Single Acting, Push Type	20 to 40	340
SCM-Y	Single Acting, Retracting Type		350
SCM-P	Stroke Adjustable Type (Push)	20 to 63	360
SCM-R	Stroke Adjustable Type (Pull)		368
SCM-T	Heat resistant type	20 to 100	376
SCM-Q	Drop prevention type		380
SCM-F	Low speed type	20 to 40	396
SCM-O	Low Speed Type	20 to 100	402
SCM-U	Low Friction Type		408
SCM-D	Double rod type		414
SCM-B	Back-to-Back Type	20 to 63	424
SCM-W	Two-Stage Type		432
SCM-W4	Tandem Type		442
SCM-M	Non-Rotating Type		452
SCM-LD	Direct Foot Type		462

General Type/Medium Bore Cylinders **(ø32 to ø100)**

Environmentally friendly tie-rod cylinder



Tie Rod Cylinder

SCG

Series	Also known as...	Bore size (ø)	Page
SCG	Single Rod Type	32 to 100	490
SCG-Q	Drop prevention type		514
SCG-O	Low Speed Type		538
SCG-U	Low Friction Type		544
SCG-D	Double rod type		550
SCG-M	Non-Rotating Type	32 to 63	564
SCG-G	Heavy-Duty Scraper Type	32 to 100	576
SCG-G2/G3	Cutting Oil Resistant Type	40 to 100	588
SCG-G4	Sputter adhesion prevention type	32 to 100	598

General Type/Medium Bore Cylinders **(ø40 to ø100)**

Robust type with No. 1 reliability



Selex Cylinder

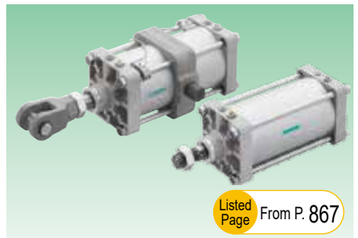
SCA2

Series	Also known as...	Bore size (ø)	Page
SCA2	Single Rod Type	40, 50, 63, 80, 100	626
SCA2-P	Stroke Adjustable Type (Push)		648
SCA2-R	Stroke Adjustable Type (Pull)		662
SCA2-T	Heat resistant type		674
SCA2-Q2	Drop prevention type		686
SCA2-O	Low Friction Type		706
SCA2-U	Low Friction Type		712
SCA2-D	Double rod type		718
SCA2-B	Back-to-Back Type		736
SCA2-W	Two-Stage Type		748
SCA2-K	Steel Tube Type		762
SCA2-H	Low Hydraulic Pressure Type		774
SCA2-G	Scraper Type		780
SCA2-G2/G3	Cutting Oil Resistant Type		798
SCA2-G1/G4	Sputter adhesion prevention type		814
SCA2-V	With Valve		830

Space-Saving Type >>> Pneumatic Cylinders ② Catalog No. RJ-003AA

General Type/Large Bore Cylinder **(ø125 to ø250)**

Wide variations and high rigidity



Large Bore Cylinders

SCS2

Series	Also known as...	Bore size (ø)	Page
SCS2	Lubricated Type	125, 140, 160, 180, 200, 250	872
SCS2-N	Non-Lube Type		872
SCS2-P	Stroke Adjustable Type (Push)		886
SCS2-T	Heat resistant type		896
SCS2-D	Double Rod Type/Lubricated Type		906
SCS2-ND	Double Rod Type/Non-Lube Type		906
SCS2-B	Back-to-Back Type		916
SCS2-W	Two-Stage Type		924
SCS2-H	Low Hydraulic Pressure Type		934
SCS2-G	Heavy-Duty Scraper Type		946

Space-Saving/Super Compact **(ø12 to ø200)**

Wide variations/Switch mountable on 4 surfaces compact type



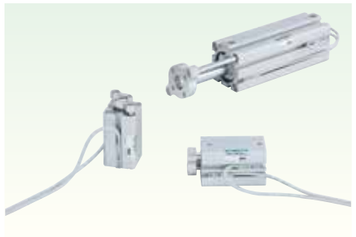
Compact Cylinders

SSD2

Series	Also known as...	Bore size (ø)
SSD2	Single Rod Type	12 to 200
SSD2-K	High Load Type	12 to 100
SSD2-L	Long stroke	
SSD2-X	Push Type	12 to 50
SSD2-Y	Retracting Type	
SSD2-T1	Heat resistant type	12 to 100
SSD2-T1L	With Heat Resistant Cylinder Switch	16 to 63
SSC2-K-□C	High Load Type/With Rubber Air Cushion	20 to 100
SSD2-Q	Drop prevention type	
SSD2-F/SSD2-KF	Fine Speed Type/High Load/Fine Speed Type	12 to 100
SSD2-O	Low Speed Type	
SSD2-KU	High Load/Low Friction Type	20 to 100
SSD2-D	Double rod type	12 to 200
SSD2-B	Back-to-Back Type	12 to 100
SSD2-W	Two-Stage Type	
SSD2-M	Non-Rotating Type	12 to 63
SSD2-DM	Double Rod/Non-Rotating Type	
SSD2-G	Heavy-Duty Scraper Type	20 to 100
SSD2-G2/G3	Cutting Oil Resistant Type	16 to 100
SSD2-KG2/KG3	High Load/Cutting Oil Resistant Type	
SSD2-G1	Coil Scraper Type	25 to 100
SSD2-G4	Sputter adhesion prevention type	
SSD2-KG1	High Load/Coil Scraper Type	
SSD2-KG4	High Load/Spatter Adhesion Prevention Type	
SSD2-DG1	Double Rod/Coil Scraper Type	
SSD2-DG4	Double Rod/Spatter Adhesion Prevention Type	
SSD2-G5	Environment Resistant Scraper Type	20 to 100
SSD2-KG5	High Load/Environment Resistant Scraper Type	
SSD2-L4	With Strong Magnetic Field Resistant Switch	40 to 100
SSD2-G1L4	With Strong Magnetic Field Resistant Switch/With Coil Scraper	
SSD2-KL4	High Load/With Strong Magnetic Field Resistant Switch	
SSD2-KG1L4	High Load/With Strong Magnetic Field Resistant Switch/With Coil Scraper	

Space-Saving/Guided/Super Compact **(ø12 to ø100)**

SSD2 series equipped with guide rod



Guided Compact Cylinders

SSG

Series	Also known as...	Bore size (ø)
SSG	Single Rod Type	12 to 100

Cylinder Switches

>>> Pneumatic Cylinders ① P. 971

Wide variety available



Cylinder Switches

Series	Page
2-Color Indicator Solid State Cylinder Switch	978
Strong Magnetic Field Resistant Cylinder Switch	979
M Series	982
R Series	984
T Series	986
Water-resistant Cylinder Switch	990
Magnetic Field Resistant Cylinder Switch	992
K Series	994
F Series	996
H Series	998
V Series	999
E Series	1,000

Search by Product System List

Products can be selected by series, appearance and product overview.

Space-Saving Type >>> Pneumatic Cylinders ② Catalog No. RJ-003AA

Space-Saving/Super Compact **(ø12 to ø160)**

Compact type with abundant bore sizes and options



Compact Cylinders

SSD

Series	Also known as...	Bore size (ø)
SSD	Single Rod Type	12 to 160
SSD-K	Single Rod High Load Type	12 to 100
SSD-X	Single Acting, Push Type	12, 16, 20, 25, 32, 40, 50
SSD-Y	Single Acting, Retracting Type	
SSD-T	Heat resistant type	12 to 100
SSD-T1L	With Heat Resistant Cylinder Switch	16 to 63
SSD-K-□C	High Load Type/ With Rubber Air Cushion	32 to 100
SSD-Q	Drop prevention type	16 to 100
SSD-F	Low speed type	12 to 100
SSD-KF	High Load Type/ Fine Speed Type	
SSD-O	Low Speed Type	
SSD-KU	High Load/Low Friction Type	20 to 100
SSD-D	Double rod type	12 to 160
SSD-B	Back-to-Back Type	12 to 100
SSD-W	Two-Stage Type	
SSD-M	Non-Rotating Type	12 to 63
SSD-G2/G3	Cutting Oil Resistant Type	16 to 100
SSD-K G2/ G3	High Load, Cutting Oil Resistant Type	
SSD-G1/G4	Sputter adhesion prevention type	25 to 100
SSD-K G1/ G4	High Load, Spatter Adhesion Prevention Type	
SSD-D G1/ G4	Double Rod, Spatter Adhesion Prevention Type	
SSD-G5	Environment Resistant Scraper Type	20 to 100
SSD-KG5	High Load/ Environment Resistant Scraper Type	20 to 100
SSD-L4	With Strong Magnetic Field Resistant Switch	40 to 100
SSD-G1L4	With Strong Magnetic Field Resistant Switch/ With Coil Scraper	
SSD-KL4	High Load Type With Strong Magnetic Field Resistant Switch	
SSD-KG1L4	High Load Type With Strong Magnetic Field Resistant Switch/ With Coil Scraper	

Space-Saving/Compact Single Acting Type **(ø6 to ø15)**

Thumb-sized with fully threaded outer diameter



Cartridge Cylinders

CAT

Series	Also known as...	Bore size (ø)
CAT	Single Acting, Push Type	6, 10, 15

Space-Saving/Multi-Surface Mount Type **(ø6 to ø32)**

More compact than conventional products, direct mount



Compact Cylinders

SMG

Series	Also known as...	Bore size (ø)
SMG	Single Rod Type	6 to 32
SMG-X	Push Type	
SMG-Y	Retracting Type	
SMG-F	Low speed type	
SMG-M	Non-Rotating Type	

Space-Saving/Direct Mount Type **(ø4 to ø10)**

Direct mounting possible from 4 directions



Small Direct Cylinders

MDC2

Series	Also known as...	Bore size (ø)
MDC2	Single Rod Type	4, 6, 8, 10
MDC2-X	Push Type	
MDC2-Y	Retracting Type	
MDC2-F	Low speed type	

Space-Saving/Compact Cylinder **(ø6 to ø16)**

SSD Small Bore Series. With high-precision guide also available



Compact Cylinders

MSD

Series	Also known as...	Bore size (ø)
MSD	Single Rod Type	6, 8
MSD-X	Single Acting, Push Type	
MSD-Y	Single Acting, Retracting Type	
MSD-K	High Load Type	6, 8, 12, 16
MSD-F	Low speed type	6, 8
MSD-KF	High Load Type/ Fine Speed Type	6, 8, 12, 16

Space-Saving/Flat Type **(ø25 to ø63)**

Mountable even in narrow spaces. With rotation stop function



Flat Cylinder Compact Demi

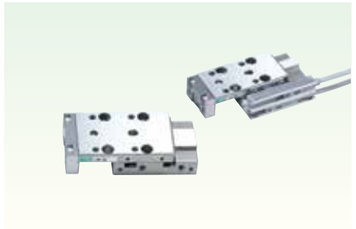
FC□

Series	Also known as...	Bore size (ø)
FCS	Single Acting, Push Type	25, 32, 40, Equivalent to 50, 63
FCH	Single Acting, Retracting Type	
FCD	Single Rod Type	
FCD-D	Double rod type	
FCD-K	With Cushion	

With Linear Guide >>> Pneumatic Cylinders ③ Catalog No. RJ-004AA

With High-Precision Guide **(ø4.5 to ø8)**

High precision and rigidity in a compact size



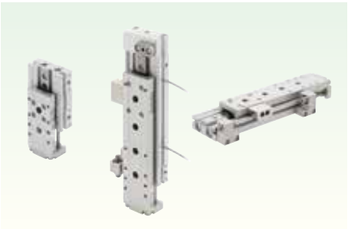
Linear Slide Cylinders

LCM

Series	Also known as...	Bore size (ø)
LCM	Single Rod Type	4.5 to 8
LCM-P	Stroke Adjustable Type (Push)	
LCM-R	Stroke Adjustable Type (Push/ Retract)	
LCM-A	Side Mount Type	

With High-Precision Guide **(ø6 to ø25)**

Thorough weight reduction, increased rigidity



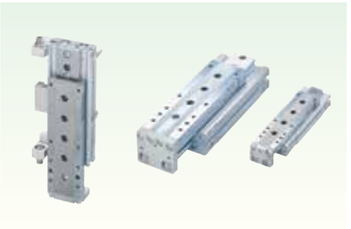
Linear Slide Cylinders

LCR

Series	Also known as...	Bore size (ø)
LCR	Basic type	6 to 25
LCR-Q	Drop prevention type	8 to 25
LCR-F	Low speed type	12, 16, 20, 25

With High-Precision Guide **(ø6 to ø25)**

Emphasis on high precision and high rigidity. Easier to use



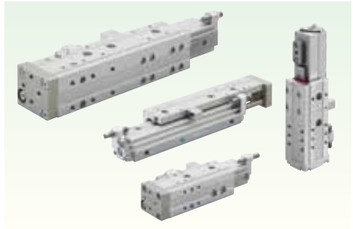
Linear Slide Cylinders

LCG

Series	Also known as...	Bore size (ø)
LCG	Single Rod Type	6 to 25
LCG-Q	Drop prevention type	8 to 25

With High-Precision Guide **(ø12 to ø20)**

Standardly equipped with specs frequently used by customers



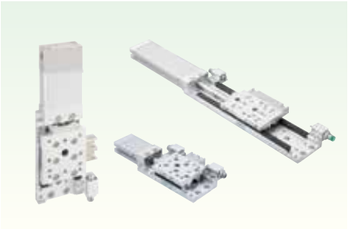
Linear Slide Cylinders

LCW

Series	Also known as...	Bore size (ø)
LCW	Single Rod Type	12 to 20
LCW-Q	Drop prevention type	

With High-Precision Guide **(ø25, ø32)**

Ideal for space-saving applications due to thorough Low Profilening



Low Profile Linear Slide Cylinders

LCX

Series	Also known as...	Bore size (ø)
LCX	Single Rod Type	25, 32
LCX-Q	Drop prevention type	
LCX-□L	Long stroke	
LCX-Q-□L	Fall Prevention Type/Long Stroke	

Guided Compact Cylinder **(ø6 to ø16)**

SSD small bore series. With high-precision guide also available



Compact Cylinders

MSDG

Series	Also known as...	Bore size (ø)
MSDG-L	Guided Type	6, 8, 12, 16
MSDG-LF	Guided Type/Fine Speed Type	12, 16

Search by Product System List

Products can be selected by series, appearance and product overview.

Guided >>> Pneumatic Cylinders ③ Catalog No.RJ-004AA

Guided Cylinders **(ø6, ø10)**

Extremely small guided space-saving type



Guided Cylinders

STM

Series	Also known as...	Bore size (ø)
STM-M/B	Single Rod Type	6, 10

Guided Cylinders **(ø12 to ø100)**

Environmentally friendly product. Improved load resistance



Guided Cylinders

STG

Series	Also known as...	Bore size (ø)
STG-M/B	Single Rod Type	12 to 100
STG-M/B-□C	Rubber Air Cushion Type	32 to 63
STG-M/B C	Air Cushion Type	16 to 63
STG-M/B Q	Drop prevention type	20 to 63
STG-M/B G	Heavy-Duty Scraper Type	
STG-M/B G1	Coil Scraper Type	
STG-MG2/MG3	Cutting Oil Resistant Type	
STG-M/B G4	Sputter adhesion prevention type	40 to 63
STG-MG5	Environment Resistant Scraper Type	20 to 100
STG-K	Heavy-Duty Guide Rod Type	32, 50

Guided Cylinders **(ø8 to ø100)**

Abundant bore sizes and variations



Guided Cylinders

STS/STL

Series	Also known as...	Bore size (ø)
ST S/L-M/B	Single Rod Type	8 to 100
ST S/L-M/B P	Stroke Adjustable Type (Push)	8 to 80
ST S/L-M/B T	Heat resistant type	12 to 80
ST S/L-M/B T2	Packing Material: Fluoro Rubber	
ST S/L-M/B-□C	Rubber Air Cushion Type	32 to 80
ST S/L-M/B C	Air Cushion Type	25 to 80
ST S/L-M/B Q	Drop prevention type	20 to 80
ST S/L-M/B F	Low speed type	8 to 80
ST S/L-M/B O	Low Speed Type	
ST S/L-M/B G	Heavy-Duty Scraper Type/	20 to 80
ST S/L-M/B G1	Coil Scraper Type	
ST S/L-M/B G 2/3	Cutting Oil Resistant Type	
ST S/L-M/B G4	Sputter adhesion prevention type	40 to 80
ST S/L-M/B V	Valve Mounted Type	20 to 63

Twin Rod Cylinder **(ø6 to ø32)**

High non-rotating accuracy with twin rods. For P&P applications



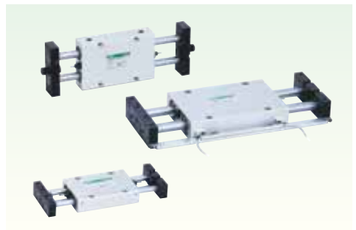
Twin Rod Cylinders

STR2

Series	Also known as...	Bore size (ø)
STR2-M/B	Standard type	6, 10, 16, 20, 25, 32
STR2-M/B Q	Drop prevention type	16, 20, 25, 32
STR2-M/B O	Low Speed Type	6, 10, 16, 20, 25, 32
STR2-M/B F	Low speed type	10, 16, 20, 25, 32
STR2-M/B D	Double rod type	6, 10, 16, 20, 25, 32

Unit Cylinder **(ø10 to ø32)**

Stable positioning accuracy with double/double rod structure



Unit Cylinders

UCA2

Series	Also known as...	Bore size (ø)
UCA2	Sleeve Bearing Type	10, 16, 25, 32
UCA2-B	Rolling Bearing Type	

Rodless Type >>> Pneumatic Cylinders ④ Catalog No.RJ-005AA

Rodless Type/Basic Type **(ø12 to ø100)**

Abundant bore sizes and variations



Rodless Cylinders

SRL3

Series	Also known as...	Bore size (ø)
SRL3	Standard type	Equivalent to 12, 16, 20, 25, 32, 40, 50, 63, 80, 100
SRL3-J	Full Cowl Type	
SRL3-G	With Resin Guide	
SRL3-Q	With Fall Prevention Function	
SRL3-GQ	With Resin Guide/ With Fall Prevention Function	

Rodless Type/With High-Precision Guide **(ø12 to ø25)**

Integrated high-precision LM guide



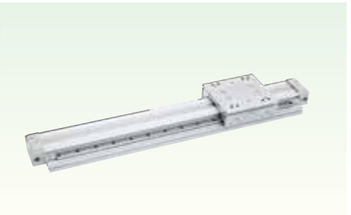
Rodless Cylinder with High-Precision Guide

SRG3

Series	Also known as...	Bore size (ø)
SRG3	Standard type	12, 16, Equivalent to 20, 25

Rodless Type/With High-Precision Guide **(ø25 to ø63)**

High-precision LM guide adopted on 2 axes. Rigidity also UP



Rodless Cylinder with High-Precision Guide

SRM3

Series	Also known as...	Bore size (ø)
SRM3	Double Acting Type	Equivalent to 25, 32, 40, 63
SRM3-Q	Double Acting Type/Fall Prevention Type	

Magnet Type With High-Precision Guide **(ø10 to ø25)**

High-precision LM guide integrated into MRL2



Magnet Type Rodless Cylinder High-Precision Guide Type

MRG2

Series	Also known as...	Bore size (ø)
MRG2	Double Acting Type	10, 16, 25

Rodless Type/With Brake **(ø12 to ø63)**

Type with high-reliability brake



Rodless Cylinder with Brake

SRT3

Series	Also known as...	Bore size (ø)
SRT3	Double Acting Type	Equivalent to 12, 16, 20, 25, 32, 42, 50, 63

Rodless Type/Magnet Type **(ø6 to ø32)**

Rodless, further space-saving



Magnet Type Rodless Cylinders

MRL2

Series	Also known as...	Bore size (ø)
MRL2	Basic type	6, 10, 16, 20, 25, 32
MRL2-G	Simple Guide Type/1 Piston	
MRL2-W	Simple Guide Type/2 Pistons	
MRL2-F	Low speed type	

Rodless Type/Shuttle Mover **(ø25)**

Rodless with a curve. Flexible layout possible



Shuttle Mover Standard/High Load Type

SM-25

Series	Also known as...	Bore size (ø)
SM-25	Standard Type	25
	High Load Type	

Search by Product System List

Products can be selected by series, appearance and product overview.

With Brake/With Lock >>> Pneumatic Cylinders ④ Catalog No.RJ-005AA

With Brake/Small/Medium Bore (ø16 to ø40)

High-performance compact brake for pencil type, etc.



Brake Cylinders (Small/Medium Bore Size)

ULK

Series	Also known as...	Bore size (ø)
ULK	Single Rod Type	20, 25, 32, 40
ULK-V	With Valve	20, 25, 32, 40

With Brake/Small/Medium Bore (ø20 to ø40)

Reliable brake equipped on CMK2/CMA2



Brake Cylinders (Small/Medium Bore Size)

JSK2/JSM2

Series	Also known as...	Bore size (ø)
Crimped Type		
JSK2	Single Rod Type	20, 25, 32, 40
JSK2-V	With Valve	
Serviceable Type		
JSM2	Single Rod Type	20, 30, 40
JSM2-V	With Valve	

With Brake/Medium Bore (ø40 to ø100)

Reliable brake mechanism equipped on SCG



Tie Rod Cylinders with Brake

JSG

Series	Also known as...	Bore size (ø)
JSG	Single Rod Type	40, 50 63, 80, 100
JSG-V	With Brake Release Valve	

With Brake/Medium/Large Bore **(ø40 to ø180)**

Brake equipped on reliable robust cylinder



Brake Cylinders (Medium/Large Bore)

JSC3/JSC4

Series	Also known as...	Bore size (ø)
JSC3	Single Rod Type	40 to 100
JSC4	Single Rod Type	125 to 180
JSC3-V	With Valve for Brake	40 to 100
JSC3-H	Low Hydraulic Pressure Type	40 to 100
JSC4-H	Low Hydraulic Pressure Type	125 to 180
JSC3-T	Heat resistant type	40 to 100
JSC4-T	Heat resistant type	125 to 180

With Fall Prevention **(ø20 to ø100)**

Fall prevention function equipped on compact SSD



Compact Cylinders with Drop Prevention

USSD

Series	Also known as...	Bore size (ø)
USSD	Single Rod Type	20, 25, 32, 40, 50, 63, 80, 100
USSD-K	High Load Type	

With Fall Prevention **(ø25 to ø63)**

Fall prevention function equipped on Flat Cylinder FCD Series



Flat Cylinders with Free Position Drop Prevention

UFCD

Series	Also known as...	Bore size (ø)
UFCD-KL	Single Rod Type/ With Cushion	25 to 63

With Fall Prevention (ø40 to ø100)

Fall prevention possible at any position



Medium Bore Size Cylinders with Free Position Fall Prevention

USC

Series	Also known as...	Bore size (ø)
USC	Single Rod Type	40 to 100
USC-G1	With Coil Scraper	

Lock Unit >>> Pneumatic Cylinders ④ Catalog No.RJ-005AA

Light. Slim lock unit

Fixing, "Improved safety", "Drop prevention" possible



Lock Units

UB

Series	Applicable Shaft Diameter
UB	8, 16

Brake Unit

Only the brake part of the Brake Cylinder is unitized



Brake Units

JSB3

Series	Rod Diameter
JSB3	16, 20, 25, 30, 35, 40, 45

Brake for LM Guide

Reliable brake mounted on LM guide



Linear Guide Lock

LMB

Series
LMB

Lock Unit

Compact and high holding for linear guide



Linear Guide Lock

LML

Series
LML

With Valve >>> Pneumatic Cylinders ④ Catalog No. RJ-005AA

With Valve/Medium Bore Cylinder **(ø20 to ø40)**

High-performance solenoid valve equipped on CMK2 series



Compact Cylinders with Valve

CKV2

Series	Also known as...	Bore size (ø)
CKV2	Single Rod Type	20, 25, 32, 40
CKV2-M	Non-Rotating Type	

With Valve **(ø50, 75, 100)**

Boasts long-standing reliability



Cell Cylinders

CAV2/COV$^{P}_{N}$2

Series	Also known as...	Bore size (ø)
CAV2	Double Solenoid/ Lubricated Type	50, 75, 100
COVP2	Single Solenoid/Energize to Extend Type/Lubricated Type	
COVN2	Single Solenoid/Energize to Retract Type/Lubricated Type	
CAV2-N	Double Solenoid/ Non-Lube Type	
COVP2-N	Single Solenoid/Energize to Extend Type/Non-Lube Type	
COVN2-N	Single Solenoid/Energize to Retract Type/Non-Lube Type	

Others with valve

In addition, the following "Cylinder with Valve" lineup is available.

Product Name	Series	Bore size (ø)	Catalog No.
Pencil Shaped Cylinder	SCPS3-V SCPD3-V	10, 16	P. 92
Selex Cylinder	SCA2-V	40, 50, 63, 80, 100	P. 830
Guided Cylinder	ST S/L-M/B V	20 to 63	RJ-004AA
Brake Cylinder	ULK-V	20, 25, 32, 40	RJ-005AA
	JSK2-V	20, 25, 32, 40	RJ-005AA
	JSM2-V	20, 25, 32, 40	RJ-005AA
	JSG-V	40, 50, 63, 80, 100	RJ-005AA
	JSC3-V	40, 50, 63, 80, 100	RJ-005AA
Selex Rotary	RV3S V/W RV3D V/W	0.98 to 66.6 (Torque size)	RJ-005AA

Search by Product System List

Products can be selected by series, appearance and product overview.

Clamp >>> Pneumatic Cylinders ④ Catalog No.RJ-005AA

Clamp Cylinders **(ø40 to ø80)**

Dedicated clamp cylinder



Clamp Cylinders

CAC4

Series	Also known as...	Bore size (ø)
CAC4	Single Rod Type	40, 50, 63, 80
CAC4-G4	Sputter adhesion prevention type	40, 50, 63, 80

Clamp Cylinders with Fall Prevention **(ø50, ø63)**

Drop prevention function equipped on clamp cylinder



Clamp Cylinders with Fall Prevention

UCAC2

Series	Also known as...	Bore size (ø)
UCAC2	Single Rod Type	50, 63

Clamp Cylinders **(ø32, ø40)**

Dedicated for clamping, contributes to weight reduction of welding jigs



Lightweight Clamp Cylinders

CAC-N

Series	Also known as...	Bore size (ø)
CAC-N	Single Rod Type	32, 40

Clamp Cylinders with Fall Prevention **(ø32, ø40)**

Equipped with free position fall prevention function



Lightweight Clamp Cylinders

UCAC-N

Series	Also known as...	Bore size (ø)
UCAC-N	With Fall Prevention	32, 40

Rotary Clamps **(ø12 to ø63)**

Simple design for compact clamping



Rotary Clamp Cylinders

RCS2

Series	Also known as...	Bore size (ø)
RCS2	Single Rod Type	12 to 63
RCS2-T2	Packing Material Fluoro Rubber	
RCS2-G4	Sputter adhesion prevention type	32 to 63

Rotary Clamps **(ø16 to ø63)**

Ideal for clamping in limited spaces



Rotary Clamp Cylinders

RCC2

Series	Also known as...	Bore size (ø)
RCC2	Single Rod Type	16 to 63
RCC2-G4	Sputter adhesion prevention type	20 to 63

Pin Clamp Cylinder

Workpiece positioning and clamping possible with one unit



Pin Clamp Cylinders

PCC

Series	Also known as...	Bore size (ø)
PCC	Single Rod Type	50
PCC-Q	Drop prevention type	

Special >>> Pneumatic Cylinders ④ Catalog No.RJ-005AA

Space-Saving/Compact With Vacuum Pad **(ø6, ø10)**

Suction pad equipped on rod end



Compact Cylinders with Vacuum Pad

MVC

Series	Also known as...	Bore size (ø)
MVC	Single Rod Type	6, 10

Stopper Cylinders **(ø20 to ø50)**

Space-saving type with excellent lateral load resistance



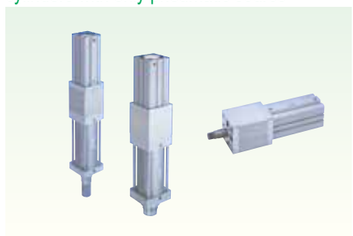
Stopper Cylinders

STK

Series	Also known as...	Bore size (ø)
STK	Rod End/Shape: Round Bar Type	20, 32, 40, 50
STK-Y	Single acting, Retracting type, Round bar rod end shape	
STK-Y1	Spring Contained Type/Rod End Shape: Round Bar Type	
STK-M	Rod End Shape: Chamfered Type	
STK-MY	Single Acting/ Retracting Type/ Rod End Shape: Chamfered Type	
STK-MY1	Spring Contained Type/ Rod End Shape: Chamfered Type	
STK-JY	Single Acting/Retracting Type/Rod End Shape: Roller Type	
STK-JY1	Spring loaded type, Roller rod end shape	

Mechanical Power Cylinders

Achieves high thrust comparable to hydraulic cylinders with only pneumatic source



Mechanical Power Cylinders

MCP

Series	Also known as...	Bore size (ø)
MCP-W	Fast Forward + Intensification	For 2t/For 5t
MCP-S	Intensifier Only	

Guideless Cylinders **(ø40 to ø100)**

Non-rotating without guide, excellent lateral load resistance



Guideless Cylinders

GLC

Series	Also known as...	Bore size (ø)
GLC	Single Rod Type	40 to 100

Balancer Units **(ø50 to ø100)**

Lightly supports heavy objects with only air source



Balancer Units

BBS

Series	Also known as...	Bore size (ø)
BBS-A	Automatic Pressure Adjustment Type	50 to 100
BBS-O	Fixed Pressure Adjustment Type	

Unit Components XZ-Axis Compound Unit

Selectable X-axis (payload), selectable Z-axis.



New Handling System

NHS

Series	Variation Name
NSR	X-axis Module
NHS-H	Z-axis Module (HRL)
NHS-S	Z-axis Module (STL-B)

Search by Product System List

Products can be selected by series, appearance and product overview.

Special >>> Pneumatic Cylinders ④ Catalog No.RJ-005AA

Guided Single Axis Units

Low Profile and High Rigidity



Hybrid Robots

HRL

Series	Variation Name
HRL-1	Guided Single Axis Unit

Length Measurement Function/Cylinder/Gripper

Length measurement function equipped on compact cylinder/gripper



Cylinders/Grippers with Linear Norm Sensor

LN

Series	Also known as...	Bore size (ø)
SSD-LN SSD-O-LN	Cylinder with Sensor Super Compact Type	12 to 50
BHA-LN	Cross Roller Parallel Gripper with Sensor	12, 16, 20, 25
BHG-LN	Cross Roller Parallel Gripper with Rubber Cover and Sensor	12, 16, 20, 25
BHE-LN	Centering Gripper with Sensor	12, 16, 20, 25

High Speed Type >>> Pneumatic Cylinders ④ Catalog No.RJ-005AA

High Speed Type/High Speed Cylinders **(ø20 to ø63)**

High-speed operation at 2000 mm/s. High cushion capacity



High Energy Absorption Cylinders

HCM

Series	Also known as...	Bore size (ø)
HCM	Single Rod Type	20 to 63

High Speed Type/High Speed Cylinders **(ø20 to ø100)**

High-speed operation at 3000 mm/s. High cushion capacity



High Speed Cylinders

HCA

Series	Also known as...	Bore size (ø)
HCA	Single Rod	20, 25, 32, 40, 50, 63, 80, 100

Swiveling/Rotating Type >>> Pneumatic Cylinders ④ Catalog No.RJ-005AA

Swiveling/Rotating Type 0.7 to 5.6 N·m

Rack & pinion type, compact Swiveling type



Selex Rotary

RRC

Series	Variation Name	Torque Size
RRC	Rack & Pinion Type	0.7 to 5.6

***Torque size (N·m, at 0.5 MPa)**

Swiveling/Rotating Type 0.5 to 8.0 N·m

Table type actuator. High precision type also available

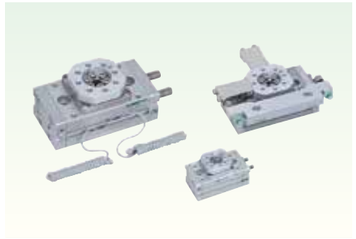


Table Type Rotary Actuators

GRC

Series	Variation Name	Torque Size
GRC	Basic type	0.5 to 8.1
GRC-K	High-Precision Type	1.0 to 8.1
GRC-F	Low speed type	0.5 to 8.1
GRC-KF	High-Precision Type/Low Speed Type	1.0 to 8.1

***Torque size (N·m, at 0.5 MPa)**

Swiveling/Rotating Type 0.12 to 0.66 N·m

Vane type. Abundant torque sizes.



Selex Rotary Vane Types

RV3□

Series	Variation Name	Torque Size
Compact		
RV3S	Single Vane Type	0.12 to 3.19
RV3D	Double Vane Type	0.28 to 7.70
RV3S V/W	Single Vane Type/With Valve	0.98 to 3.19
RV3D V/W	Double Vane Type/With Valve	2.11 to 7.70
RV3SA	Angle Adjustable Single Vane Type	0.31 to 3.19
RV3DA	Angle Adjustable Double Vane Type	0.71 to 7.70
Large		
RV3S (Large)	Single Vane Type	4.7 to 102
RV3D (Large)	Double Vane Type	10.1 to 206
RV3S V/W	Single Vane Type with Valve	4.7 to 27.9
RV3D V/W	Double Vane Type with Valve	10.1 to 66.6
RV3SH	Single Vane Type Low Hydraulic Pressure Type	4.7 to 102
RV3DH	Double Vane Type Low Hydraulic Pressure Type	10.1 to 206
RVC	Shock Absorber	

***Torque size (N·m, at 0.5 MPa)**

Related Components >>> Pneumatic Cylinders ④ Catalog No.RJ-005AA

Shock Absorbers (Absorption Capacity 1 to 720 J)

3 models available to suit application



Shock Absorbers

SKL, NCK, SCK, FCK

Series	Variation Name	Absorption Energy
Fixed Type		
SKL	–	0.2 to 3.6
NCK	–	1 to 200
Adjustable Type		
SCK	–	0.049 to 588
FCK-L	Low Speed Type	1.5 to 79.3
FCK-M	Medium Speed Type	1.8 to 720
FCK-H	High Speed Type	

Absorption Energy: J

Free Joints (Size M3 to M45)

For preventing misalignment when mounting cylinder. 3 types available



Free Joints

FJ

Series
FJ

Simple Type Floating Connectors

For preventing misalignment when mounting cylinder. Simple type.



Simple Flow Controllers

FK

Series
FK

Search by Product System List

Products can be selected by series, appearance and product overview.

Grippers >>> Pneumatic Cylinders ⑤ Catalog No. RJ-006AA

Wide variety available including Low Profile, Lightweight, and Wide types



Parallel Grippers

Series	Also known as...	Bore size (ø)
LSH-HP1 LSHL-HP1	Linear Slide Gripper (HP Series)	6 to 32
LSHM-HP2	Linear Slide Gripper with Length Measurement Function (HP Series)	10 to 25
LSH	Linear Slide Gripper (Standard Type)	10 to 25
FH100	Feather Gripper (Mini Parallel Gripper)	10 to 25
BSA2	Ultra Compact Cross Roller Parallel Gripper	6
BHA	Compact Cross Roller Parallel Gripper	12 to 25
BHG	Compact Cross Roller Parallel Gripper with Rubber Cover	12 to 25

Series	Also known as...	Bore size (ø)
BHE	Centering Gripper	12 to 32
LHA	Linear Guide Gripper	6 to 32
LHAG	With rubber cover Linear Guide Gripper	12 to 32
HAP-1C	Parallel Gripper	15
HAP	Parallel Gripper	20 to 40
HKP	Cross Roller Parallel Gripper	32 to 80
HCP	Horizontal Parallel Gripper	12 to 32
HGP	Long Stroke Parallel Gripper	25



Low Profile Parallel Grippers

Series	Also known as...	Bore size (ø)
LST-HP1	Low Profile Long Stroke Gripper	8x2 to 20x2
LSTM-HP2	Low Profile Long Stroke Gripper with Length Measurement Function	12x2 to 20x2
HLF2	Long Stroke Low Profile Gripper	8x2 to 20x2
HLA/HLB	Low Profile Parallel Gripper	12 to 20
HLAG/ HLBG	Low Profile Parallel Gripper with Rubber Cover	12 to 20
HLC	Low Profile Long Stroke Parallel Gripper	8x2 to 30x2
HLD	Ultra Low Profile Parallel Gripper	8x4 to 20x4



Wide Parallel Grippers

Series	Also known as...	Bore size (ø)
HMC-HP1	Wide Parallel Gripper	10x2 to 40x2
HMF	Compact Wide Parallel Gripper	12x2 to 40x2
HMF-G	Cutting Oil Resistant Specification Compact Wide Parallel Gripper	16x2 to 25x2
HMFB	Large Wide Parallel Gripper with Linear Guide	25x2 to 40x2
HFP	Wide Parallel Gripper	16x2 to 40x2



Pivot Grippers

Series	Also known as...	Bore size (ø)
FH500	Feather Gripper (Mini Pivot Gripper)	10 to 20
HBL	Pivot Gripper	15 to 40
HJL	Toggle Gripper	32 to 63
HMD	180-degree Opening/ Closing Low Profile Wide Angle Gripper	12 to 25
HDL	180-degree Opening/ Closing Wide Angle Gripper	25 to 40
HJD	180-degree Opening/ Closing High Gripping Force Wide Angle Gripper	32 to 63



Mechanical Grippers

Series	Variation Name	Cylinder Bore (ø)
BHA-FC	Mechanical Gripper	12 to 32

Chucks >>> Pneumatic Cylinders ⑤ Catalog No. RJ-006AA

Compact and powerful. Wide variety available



3-Jaw Chucks

Series	Also known as...	Bore size (ø)
CKW-HP1	3-Jaw Chuck	16 to 50
CKWL-HP1	3-Jaw Long Stroke Chuck	16 to 40
CKL2	Powerful Chuck	16 to 100
CKLG2	Powerful Chuck with Rubber Cover	20 to 100
CKL2-HC	Drop Prevention Type Powerful Chuck	32 to 80
CKH2	High Gripping Force Powerful Chuck	50 to 100
CKLB2	2-Direction Powerful Chuck (Parallel Gripper)	20 to 100
CKG	3-Jaw Bearing Chuck	16 to 50
CK	3-Jaw Long Stroke Chuck	25 to 44
CKA	3-Direction Low Profile Chuck	16 to 100
CKS	Low Profile Chuck	8x3 to 32x3
CKS-F	Low Profile Chuck (Hollow Type)	16x3 to 50x3
CKF	Hollow Chuck	30 to 80
CKJ	Ultra Long Stroke Chuck	12x6 to 50x6



Mechanical Chuck

Series	Variation Name	Cylinder Bore (ø)
CKL2-FC	Mechanical Chuck	20 to 40

Robot Peripheral Components

>>> Pneumatic Cylinders ⑤ Catalog No. RJ-006AA



Auto Gripper Changers

Series	Variation Name
CHC	Auto Gripper Changer

Grippers for Collaborative Robots

>>> Pneumatic Cylinders ⑤ Catalog No. RJ-006AA

Compact and lightweight with high gripping force due to air drive



Grippers for Collaborative Robots

Series	Also known as...	Bore size (ø)
RLSH/RHLF/ RCKL-UR	UNIVERSAL ROBOTS Official Certified Gripper	RLSH: ø20 RHLF: ø16x2 RCKL: ø40
RLSH/RHLF/ RCKL-TM	OMRON ROBOT Official Certified Gripper	
RLSH/RHLF/ RCKL-TM	TECHMAN ROBOT Official Certified Gripper	
RLSH/RHLF/ RCKL-FN	FANUC Robot Gripper compatible with CRX Series	
RLSH/RHLF/ RCKL-YS	YASKAWA MOTOMAN Robot Gripper compatible with HC10DTP Series	
RLSH/RHLF/ RCKL-JK	JAKA Robot Gripper compatible with Zu Series	
RLSH/RHLF/ RCKL-KW	Kawasaki Robot duAro Series K-AddOn Registered Gripper	

CKD How to use CAD data

Free download!

This is what makes CKD's CAD great!

Comprehensive list of CKD's leading products



Japanese, English, Chinese (Simplified and Traditional), and Korean are supported.

Simultaneous with new product launch

NEW Model No. AX1R

ABSODEX



Supports various data formats



More than 25 types of 2D and more than 35 types of 3D

Supports PDF and JPEG formats!

*To use 3D CAD, you must register as a CKD plus member.

CKD plus How to register as a member

STEP 1

From the CKD components product top page, click "New member registration"



STEP 2.

Enter your name, company name, contact information, and email address

Registration complete!

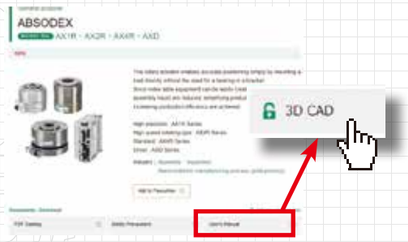


Easy registration in 2 STEPS

How to download CAD

STEP 1

Click on "3D CAD" from the product detail page



STEP 2.

Select model No.

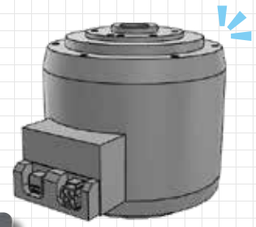
STEP 3

Download complete!

❶ Specify CAD format

❷ Generate CAD data

Download CAD



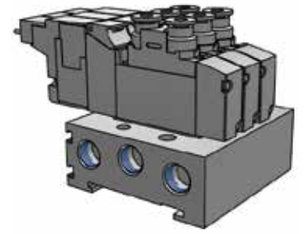
Pneumatic valve manifold specifications and CAD data are easily available on the Web.

Specifications are available



Manifold specifications for pneumatic valves can be prepared and shipped assembled to the customer.

Get CAD data



2D and 3D CAD data available for pneumatic valve manifold assemblies

Specifications and download method of CAD data

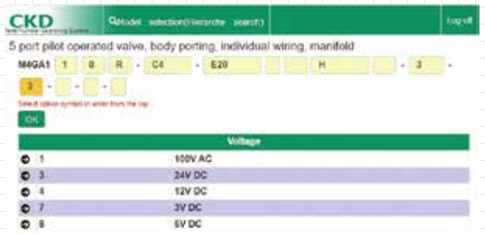
STEP 1

CKD components product TOP page > Product details page >Click "Manifold specifications sheet"



STEP 2.

Select model No.



STEP 3

Create specifications sheet



STEP 4

Download complete!



Significantly reduces work time

●For specifications output, Specification output Click

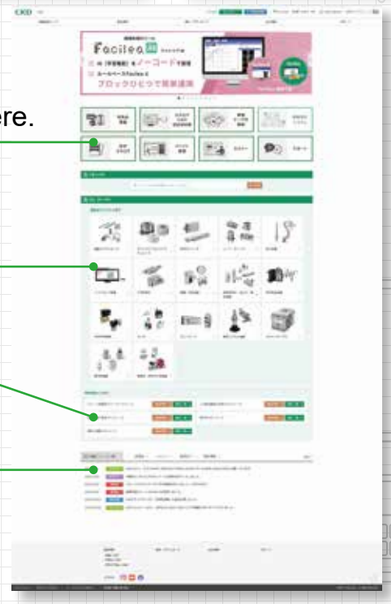
●If downloading CAD data 2D/3D CAD Click

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Website Guide

Various information is provided on our website.
Please make use of it.

Catalogs	CAD	Instruction Manuals
Maintenance Parts	Software	Model Selection
FAQ	Technical Information	Standard Compliant Product Information
Columns	Event Information	Seminars



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Various information is published by product axis and application.

Model Selection System Guide

About Using the Model Selection System

We provide a system that supports the selection of the following items. Please use it when selecting models and designing.

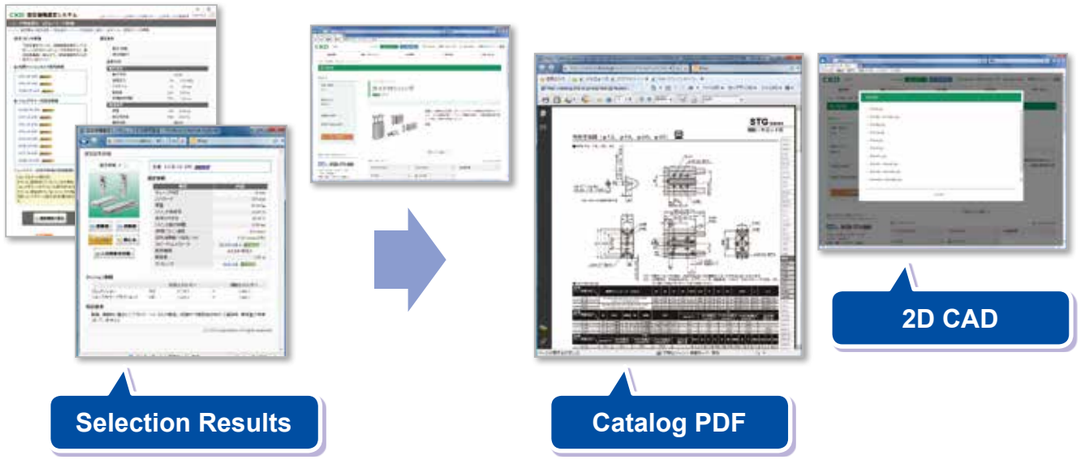
Published on our website

This system is for selecting products according to your application and operating conditions.



*Downloadable software may not be able to be downloaded due to your company's security policy. In that case, please contact us.

Link from selection results to catalog PDFs and CAD data!



No registration required, available anytime!

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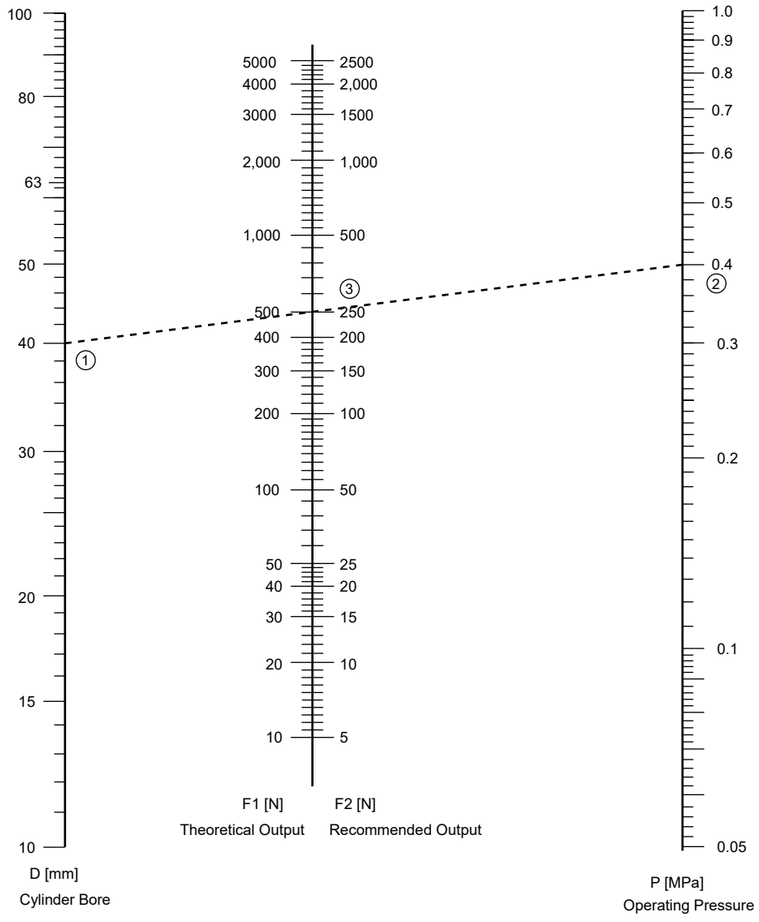
https://www.ckd.co.jp/en/

Technical Data

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Cylinder Bore Selection Nomogram

● For bore 10 mm to 100 mm, rod push direction



This nomogram was created using the following formula.

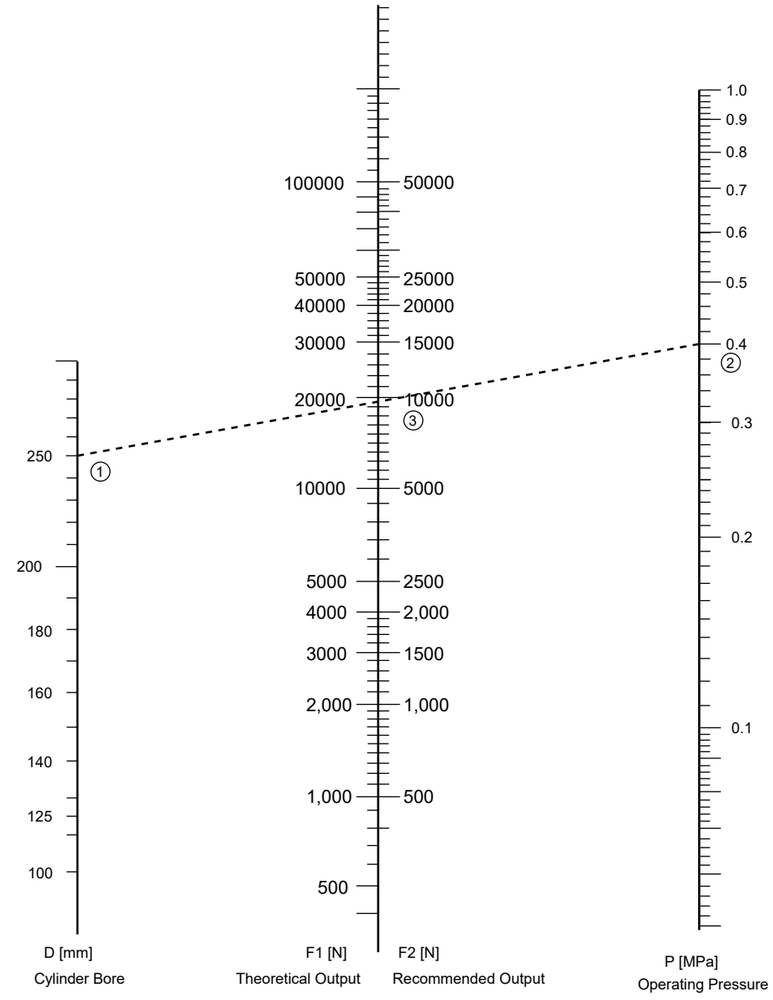
$$F_1 = \frac{\pi}{4} \times D^2 \cdot P$$

However, F_1: Theoretical output [N]
F_2: Recommended output (at 50% efficiency) [N]
D: Cylinder bore [mm]
P: Operating pressure [MPa]

(Example) What is the theoretical output when operating a ø40 bore cylinder at an air pressure of 0.4 MPa
(Answer) Connect D and P to find the point on F, and obtain a theoretical output F ≈ 500 N.

Cylinder Bore Selection Nomogram

● For bore 100 mm to 250 mm, rod push direction



This nomogram was created using the following formula.

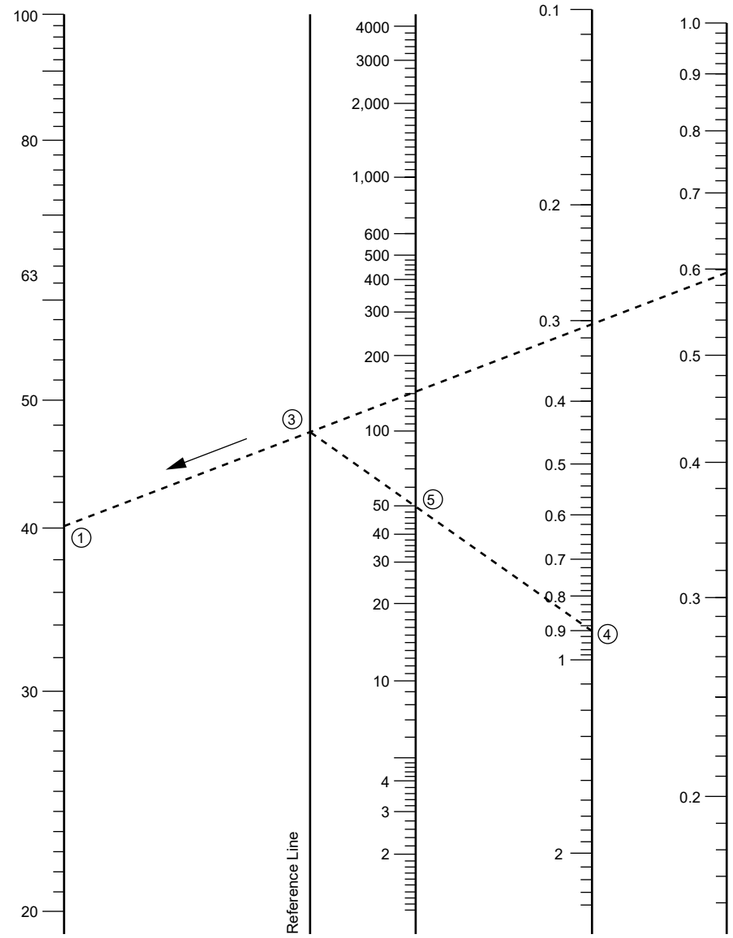
$$F_1 = \frac{\pi}{4} \times D^2 \cdot P$$

However, F_1: Theoretical output [N]
F_2: Recommended output (at 50% efficiency) [N]
D: Cylinder bore [mm]
P: Operating pressure [MPa]

(Example) What is the theoretical output when operating a ø250 bore cylinder at an air pressure of 0.4 MPa
(Answer) Connect D and P to find the point on F, and obtain a theoretical output F ≈ 19000 N.

Required Flow Rate during Cylinder Operation (Bore 100 mm or less)

● Q: Required flow rate per 100 mm stroke L/min



1. Calculation Formula for Required Flow Rate during Cylinder Operation

The required flow rate is the instantaneous flow rate when the cylinder is operating. This is different from the cylinder's air consumption, so please do not confuse them.

$$Q = \frac{\pi}{4} \cdot D^2 \frac{L}{t} \cdot \frac{P + 0.1013}{0.1013} \times 10^{-6} \times 60$$

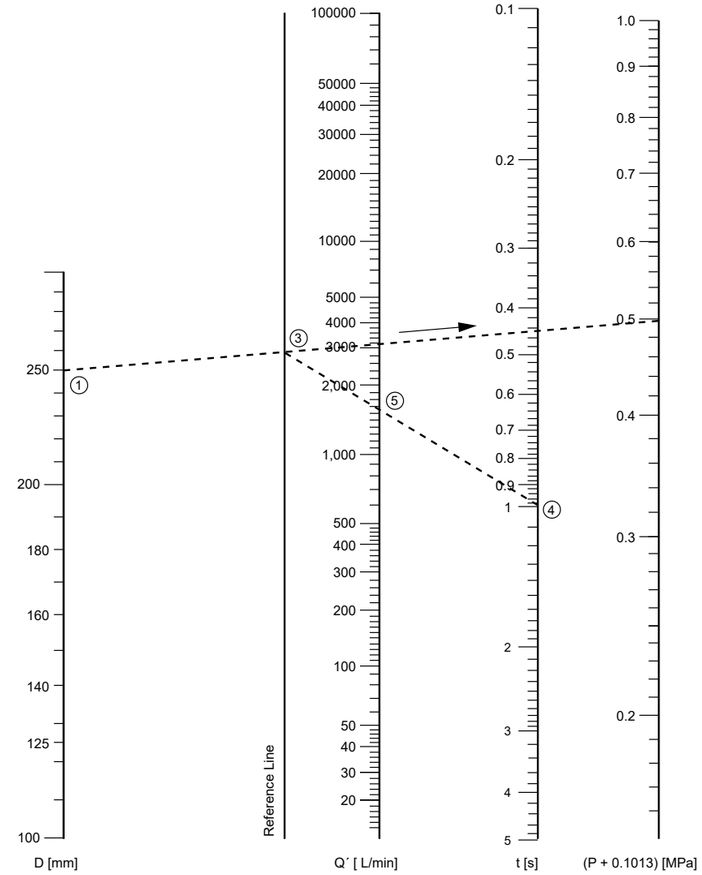
Q: Flow rate [L/min] (ANR)
D: Cylinder bore [mm]
L: Stroke [mm]
t: Stroke travel time [s]
P: Operating Pressure (MPa)

(Example 1, figure above)
What is the required flow rate when operating a ø40 bore cylinder at an air pressure of 0.5 MPa with a stroke of 100 mm per 0.9 s?
(Answer) Find the point on the relationship line from D and (P+0.1013), and obtain Q' = 50 (L/min) from the point on the relationship line and t.

(Example 2, figure right)
What is the required air volume when operating a ø250 bore cylinder at an air pressure of 0.4 MPa with a stroke of 100 mm per 1 s?
(Answer) Find the point on the relationship line from D and (P+0.1013), and obtain Q' = 1450 (L/min) from the point on the relationship line and t.

Required Flow Rate during Cylinder Operation (Bore 100 to 250 mm)

● Q: Required flow rate per 100 mm stroke L/min



2. Cylinder Air Consumption Calculation Formula (per hour)

Air consumption per hour is the air consumption due to cylinder operation wiLow Profile a certain period, and it is the air volume consumed inside the cylinder and in the piping between the cylinder and the switching valve. Regardless of cylinder speed, it is different from the required air flow rate during operation.

$QT = (Q_1 + Q_2 + (2 \times Q_3)) \times n$ [For double acting cylinder]

QT: Air consumption per minute [L/min] (ANR)
n: Cylinder operations per minute [cycles/min]
Q1: Air consumption during push stroke [L] (ANR)
Q2: Air consumption during pull stroke [L] (ANR)
Q3: Piping volume from directional control valve to each port of the cylinder [ℓ] (ANR)

$$Q1 = \frac{\pi}{4} \cdot D^2 \times L \times 10^{-6} \times \left(\frac{P + 0.1013}{0.1013}\right)$$

$$Q2 = \frac{\pi}{4} \cdot (D^2 - d^2) \times L \times 10^{-6} \times \left(\frac{P + 0.1013}{0.1013}\right)$$

$$Q3 = \frac{\pi}{4} \cdot d_3^2 \times L_3 \times 10^{-6} \times \left(\frac{P}{0.1013}\right)$$

D: Cylinder bore [mm]
d: Piston rod outer diameter [mm]
L: Cylinder stroke [mm]
L3 : Piping length from directional control valve to cylinder port [mm]
d3 : Piping inner diameter from directional control valve to cylinder port [mm]
P: Operating pressure [MPa] (gauge pressure)
(Note: 1L = 1 dm 3 .)

(Example) Cylinder bore 100 mm, Rod diameter 30 mm, Stroke 800 mm, Operating pressure 0.5 MPa, 5 operations per minute
Piping tube inner diameter 7 mm, Piping tube length 2000 mm

$$Q1 = \frac{\pi}{4} \times 100^2 \times 800 \times 10^{-6} \times \left(\frac{0.5 + 0.1013}{0.1013}\right) = 37.3$$

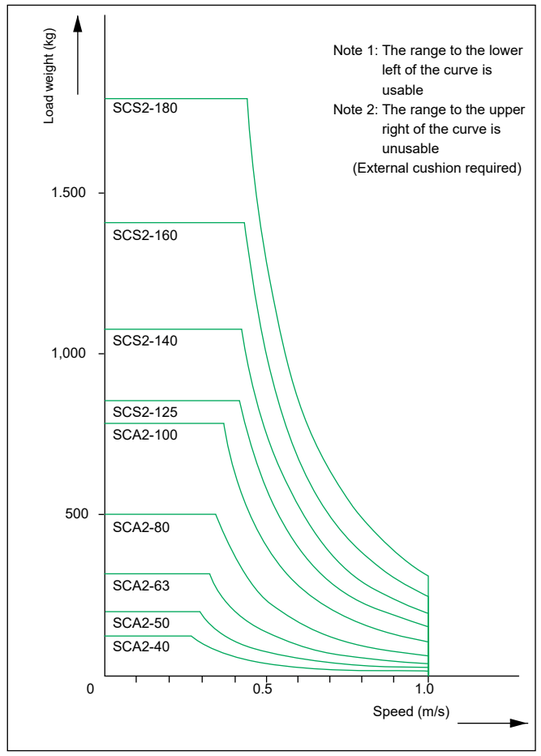
$$Q2 = \frac{\pi}{4} \times (100^2 - 30^2) \times 800 \times 10^{-6} \times \left(\frac{0.5 + 0.1013}{0.1013}\right) = 33.9$$

$$Q3 = \frac{\pi}{4} \times 7^2 \times 2000 \times 10^{-6} \times \left(\frac{0.5}{0.1013}\right) = 0.4$$

$QT = (37.3 + 33.9 + (2 \times 0.4)) \times 5 = 360$ [L/min] (ANR)

Allowable absorption energy value: With Cushion

Allowable Absorption Energy Value Graph with Cushion



(Note)
About how to calculate kinetic energy
The average speed of the cylinder is calculated by $ua=\frac{L}{T}$.

ua : Average speed (m/s)
L : Cylinder stroke (m)
T : Operating Time (s)

In contrast, the cylinder speed just before entering the cushion can be found with the following simple formula.

$um : =\frac{L}{T} \times (1 + 1.5 \times w)$
um : Speed just before entering cushion (m/s)
w : Decimal representation of cylinder load factor (0.3 for 30%, 0.5 for 50%)

When calculating kinetic energy or using a graph, use this value of um as the speed.

●Cushion
The purpose of the cushion is to absorb the kinetic energy held by the piston by utilizing the compressibility of air, and to prevent the piston and cover from impacting at the stroke end. Therefore, the cushion is not intended to operate the piston at low speed near the stroke end.
The table below shows the kinetic energy that can be absorbed by the cushion. If the kinetic energy exceeds this value or if you want to avoid bouncing due to air compressibility, please consider a separate shock absorber.

$$\text{Kinetic energy (J)} = \frac{1}{2} \times \text{Load weight (kg)} \times [\text{Speed (m/s)}]^2$$

Absorption Energy Value with Cushion

1.SCA2, JSC3

Bore size (mm)	Effective Cushion Length (mm)	Allowable Absorption Energy (J)
ø40	14.6	4.29
ø50	16.6	8.37
ø63	16.6	15.8
ø80	20.6	27.9
ø100	23.6	49.8

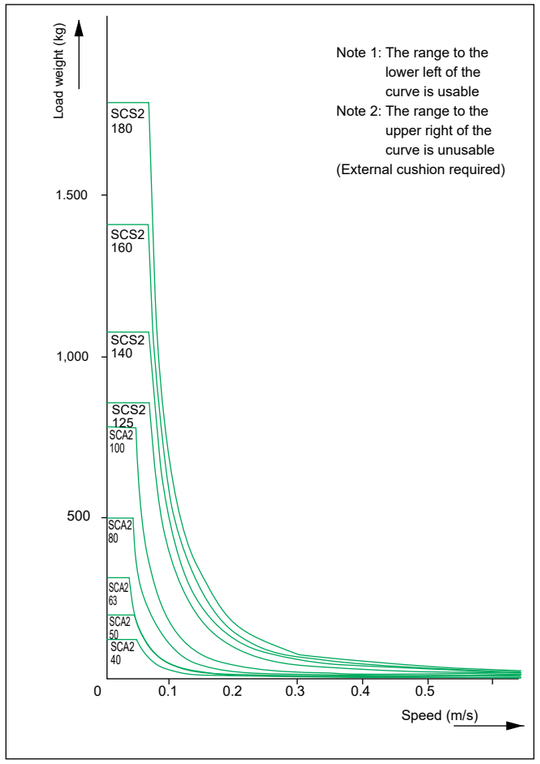
2.SCG, SCM, JSG

Bore size (mm)	Effective Cushion Length (mm)	Allowable Absorption Energy (J)	Remarks
ø20	8.1	0.8	SCM
ø25	8.1	1.2	only
ø32	8.6	2.5	
ø40	8.6	3.7	
ø50	13.4	8.0	
ø63	13.4	14.4	
ø80	15.4	25.4	
ø100	15.4	45.6	

3.SCS2, JSC4

Bore size (mm)	Effective Cushion Length (mm)	Allowable Absorption Energy (J)
ø125	21.6	63.5
ø140	21.6	91.5
ø160	21.6	116
ø180	21.6	152
ø200	26.6	233
ø250	26.6	362

Allowable absorption energy value: Without Cushion



1. Allowable absorption energy without cushion
The allowable absorption energy for each model is as shown in the table below.

Allowable absorption energy without cushion

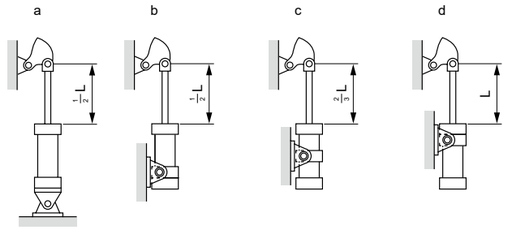
Unit: J

Code / Bore size (mm)	SCM Note 1	SCA2	SCS2	CAV2/ COV2
ø40	–	0.067	–	–
ø50	0.057	0.079	–	0.072
ø63	0.057	0.079	–	–
ø75	–	–	–	0.154
ø80	0.112	0.201	–	–
ø100	0.153	0.301	–	0.154
ø125	–	–	0.371	–
ø140	–	–	0.386	–
ø160	–	–	0.386	–
ø180	–	–	0.958	–
ø200	–	–	1.08	–
ø250	–	–	2.32	–

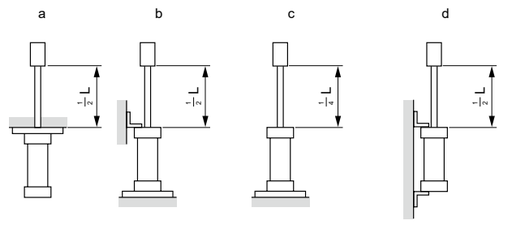
Note 1: This is the absorption energy without cushion for cushion symbols "R" and "H".

Relationship between Dimensions by Mounting Type and Max. Stroke (L)

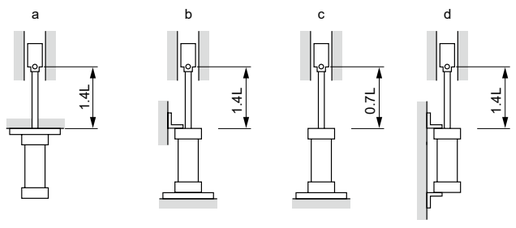
1 For double end pin joint



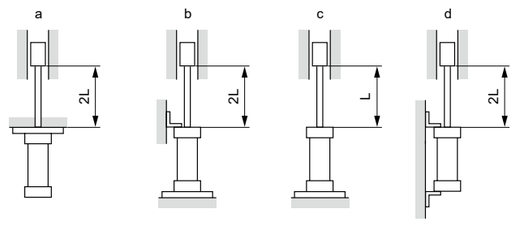
2 Rod end free



3 Rod end guided (pin joint)



4 Cylinder fixed, rod end guided



Max. Stroke

Pencil Shaped Cylinder SCP*3 Series			
D (mm) / F0 (N)	ø6	ø10	ø16
5	570		
10	405	720	
30	230	415	650
50		320	500
100			355

CMA2/CMK2/JSM2 Series			
D (mm) / F0 (N)	ø20	ø25, ø30, ø32	ø40
50	2020		
100	1440	2040	
200	1,000	1440	2,000
400		1,000	1500
600			1160
800			980

SCG/SCA2/JSG/JSC3					
D (mm) / F0 (N)	ø40	ø50	ø63	ø80	ø100
200	2600	4100			
400	1810	2900	2900		
600	1500	2400	2400	3600	
800	1280	2,000	2,000	3140	4500
1,000		1820	1820	2800	4000
1500			1480	2300	3300
2,000				1980	2840
2500				1760	2560
3000				1600	2300
3500					2140
4000					2,000
5000					1800

SCS2						
D (mm) / F0 (N)	ø125	ø140	ø160	ø180	ø200	ø250
1500	3700	3700				
2,000	3200	3200				
2500	2900	2900	4600			
3000	2600	2600	4100	5300		
3500	2400	2400	3800	5000	5900	
4000	2300	2300	3600	4600	5600	
5000	2,000	2,000	3200	4100	5000	7400
6000	1900	1900	2900	3800	4600	6800
7000	1700	1700	2700	3500	4200	6200
8000		1600	2500	3300	3900	5800
9000		1500	2400	3100	3700	5500
10000			2300	2900	3500	5200
15000				2400	2900	4200
20000					2500	3600
25000						3300
30000						3000

JSC4				
D (mm) / F0 (N)	ø125	ø140	ø160	ø180
1500	4600			
2,000	3900	3900		
2500	3500	3500	4600	
3000	3200	3200	4100	5300
3500	3000	3000	3800	5000
4000	2800	2800	3600	4600
5000	2500	2500	3200	4100
6000	2300	2300	2900	3800
7000	2100	2100	2700	3500
8000		2,000	2500	3300
9000		1880	2400	3100
10000			2300	2900
15000				2400

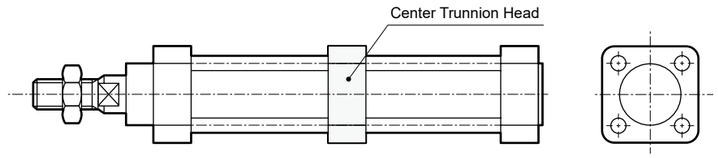
D: Cylinder bore [mm]
F0: Load [N]
L: Max. Stroke [mm]

Request
The values in the table are calculated values. If the stroke exceeds the maximum stroke stated in the specifications section for each model, please consult us.

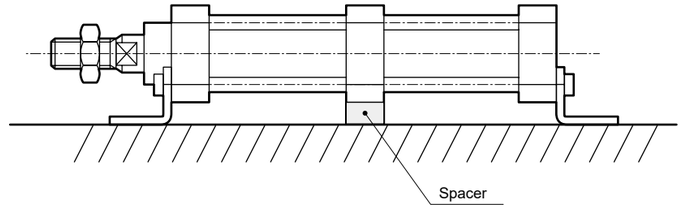
Precautions for Exceeding Max. Stroke

⚠ Caution: If exceeding the max. stroke described on the "Specifications" page for each model, note the following points.

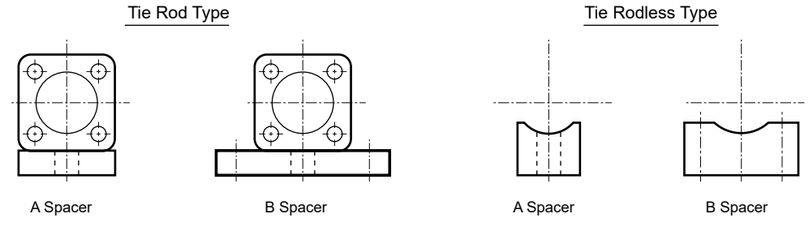
1. Min. Operating Pressure
   Starting pressure increases due to deflection of the piston rod inside the cylinder.
2. Piston Rod Buckling
   It becomes difficult unless used in a state where the internal stopper that brings the piston into contact with the cylinder cover is effective. When using by hitting an external stopper, please refer to the technical data "Relationship between dimensions according to mounting type and maximum stroke (L) (Intro Page 29)".
3. Tie Rod Reinforcement
   A center trunnion head is inserted to prevent the tie rod from deflecting and touching the cylinder tube.



4. Cylinder Tube Deflection Prevention
   When mounted horizontally, tube deflection prevention is necessary. Consider deflection prevention using the center trunnion head inserted for tie rod reinforcement.



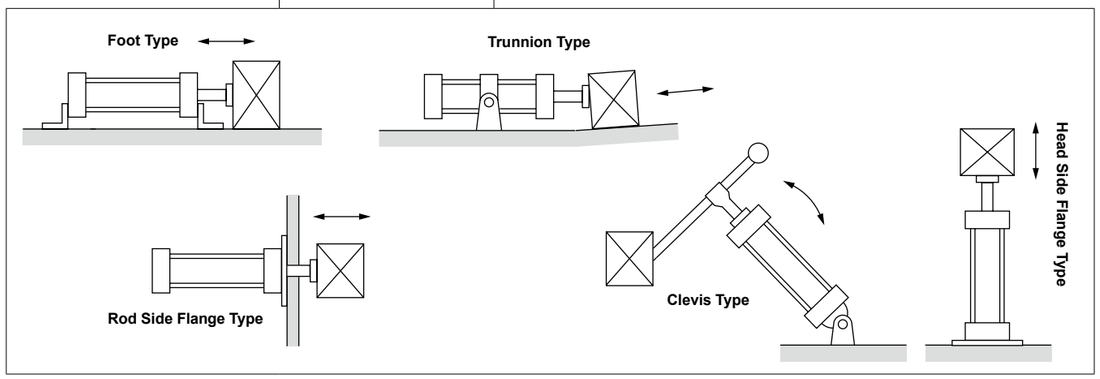
*The spacer in the diagram below is made to order.



How to Determine Cylinder Mounting Type

Since the piston of a cylinder moves in only one direction, select the cylinder mounting type according to the direction of load movement as shown below.

Direction of Load Movement	Mounting type	Precautions
During operation, the load moves linearly.	Foot Flange	Fix the cylinder body so that the direction of load movement and the direction of piston movement are parallel.
	Trunnion Clevis	Adopt the mounting type on the left if the stroke is long or if the direction of load movement and the direction of piston movement are not parallel and in the same direction. However, be careful not to apply lateral load to the piston rod or bushing.
During operation, the load Swivels wiLow Profile one plane.	Trunnion Clevis	Align the Swiveling direction of the clevis or trunnion supporting the cylinder with the Swiveling direction of the load. Also, align the Swiveling direction of the rod end fitting. When a lateral load acts on the bushing, the value of the lateral load should be wiLow Profile 1/20 of the cylinder output.
During operation, the load Swivels in all directions.	Trunnion Clevis	Use a knuckle for the connecting fitting between the rod and the load. When a lateral load acts on the bushing, the value of the lateral load should be wiLow Profile 1/20 of the cylinder output.



Bellows Max. Operating Temperature

Code	Bellows Material	Max. Ambient Temperature	Instantaneous Max. Temperature
J	Nylon Tarpaulin	60°C	100°C
	Polyolefin Elastomer	100°C	200°C
K	Neoprene Sheet	100°C	200°C
L	Silicone Rubber Glass Cloth	250°C	400°C

Instantaneous maximum temperature is the temperature when sparks, chips, etc. instantaneously hit the bellows.

Air Compressor, Air Tank Selection

For compressors and tanks, it is necessary to select a model that accounts for 10 to 20% leakage loss in piping and switching valves in addition to the actual air consumption. Generally, the piston displacement described in compressor manufacturer catalogs is a theoretical value, so about 70% based on volumetric efficiency is the effective value. Therefore, select a compressor model with a piston displacement twice the air consumption.

Selection of Air Compressor for Intermittent Use (Operation)

For intermittent use, installing an air tank allows a small air compressor to perform a large amount of work. In other words, it is sufficient to install an air tank with a capacity that does not drop to the maximum operating pressure even if a pressure drop occurs due to high air consumption while cylinders, etc. are operating, and a compressor that can replenish compressed air by the time the cylinder performs its next operation.

Air Tank Capacity

$$Vt = \frac{Vs}{(Pt-Ps) \times 10.2}$$

Vt : Tank capacity (ℓ)
Vs : Air consumption per cycle (ℓ) (ANR)
Pt : Tank pressure (MPa)
Ps : Maximum cylinder operating pressure

Inspection of Type 2 pressure vessels

Based on the Ministry of Labour Ordinance, cylinders falling under the following categories must be inspected by the Japan Boiler Association.

①Cylinders with a rated pressure exceeding 0.2 MPa and an internal volume exceeding 0.04 m³

②Cylinders with a rated pressure exceeding 0.2 MPa, a cylinder tube inner diameter of 200 mm or more, and a body length (cylinder tube length) of 1000 mm or more

$$V = \frac{D^2 \times S \times 3.14}{4 \times 10^9}$$

V: Cylinder internal volume (m³)
D: Tube Inner Diameter (mm)
S: Shell length (cylinder tube length) (mm)

Japan Boiler Association Website Address
http://www.jbanet.or.jp/

[Technical Reference Data] Dimensional Tolerances for Commonly Used Fits, Excerpted from JIS B 0401:1998

MEMO

Tolerances used for shafts

Classification of Basic Dimensions (mm)		Shaft Tolerance Class Unit: µm								
Over	Up to and including	d9	e8	e11	f7	f8	h6	h7	h8	h9	p6
-	3	-20 -45	-14 -28	-14 -74	-6 -16	-6 -20	0 -6	0 -10	0 -14	0 -25	+12 +6
3	6	-30 -60	-20 -38	-20 -95	-10 -22	-10 -28	0 -8	0 -12	0 -18	0 -30	+20 +12
6	10	-40 -76	-25 -47	-25 -115	-13 -28	-13 -35	0 -9	0 -15	0 -22	0 -36	+24 +15
10	14	-50 -93	-32 -59	-32 -142	-16 -34	-16 -43	0 -11	0 -18	0 -27	0 -43	+29 +18
14	18										
18	24	-65 -117	-40 -73	-40 -170	-20 -41	-20 -53	0 -13	0 -21	0 -33	0 -52	+35 +22
24	30										
30	40	-80 -142	-50 -89	-50 -210	-25 -50	-25 -64	0 -16	0 -25	0 -39	0 -62	+42 +26
40	50										
50	65	-100 -174	-60 -106	-60 -250	-30 -60	-30 -76	0 -19	0 -30	0 -46	0 -74	+51 +32
65	80										
80	100	-120 -207	-72 -126	-72 -292	-36 -71	-36 -90	0 -22	0 -35	0 -54	0 -87	+59 +37

Tolerances used for holes

Classification of Basic Dimensions (mm)		Shaft Tolerance Class Unit: µm					
Over	Up to and including	F7	H6	H7	H8	H9	H10
-	3	+16 +6	+6 0	+10 0	+14 0	+25 0	+40 0
3	6	+22 +10	+8 0	+12 0	+18 0	+30 0	+48 0
6	10	+28 +13	+9 0	+15 0	+22 0	+36 0	+58 0
10	14	+34 +16	+11 0	+18 0	+27 0	+43 0	+70 0
14	18						
18	24	+41 +20	+13 0	+21 0	+33 0	+52 0	+84 0
24	30						
30	40	+50 +25	+16 0	+25 0	+39 0	+62 0	+100 0
40	50						
50	65	+60 +30	+19 0	+30 0	+46 0	+74 0	+120 0
65	80						
80	100	+71 +36	+22 0	+35 0	+54 0	+87 0	+140 0

Regarding Notation Method for Flow Characteristics

1. Display of Flow Characteristics

The flow rate display in the specifications section of the catalog is shown as follows.

Target Components	Display	Unit	Standard
Pneumatic Components	Display compliant with New JIS	C, b	ISO 6358: 1989 "Pneumatic fluid power — Components using compressible fluids — Methods for testing the flow-rate characteristics" JIS B 8390: 2000 (ISO 6358 Translation)
	Conventional Display	S	JIS B 8373:1993 'Pneumatic 2-port solenoid valves' JIS B 8374:1993 "Pneumatic 3-port solenoid valves" JIS B 8375:1993 "Pneumatic 4, 5-port solenoid valves" JIS B 8379:1995 "Pneumatic silencers"
		Cv	ANSI(NFPA)T3. 21. 3:1990

2. Explanation

The flow rate characteristics of solenoid valves were conventionally displayed using effective area S, but JIS was revised (JIS B 8390: 2000), and they are now displayed by a pair of sonic conductance C and critical pressure ratio b.

- Sonic Conductance C: Value obtained by dividing the weight flow rate passing through equipment in a choked flow state by the product of the upper limit absolute pressure and the density in the standard state. (sonic conductance) S ≈ 5.0 C (Sizing as per conventional methods is possible with C.)
- Critical Pressure Ratio b: Pressure ratio (downstream pressure / upstream pressure) at which flow becomes choked when smaller than this value (critical pressure ratio)
- Effective cross-sectional area S (mm²): The cross-sectional area value of an ideal orifice without friction or contraction, derived by calculation from the pressure change wiLow Profile an air tank when air is released in a choked flow state from equipment included to the air tank.

*Choked flow: Flow where upstream pressure is higher than downstream pressure and velocity reaches sonic speed at a certain point in the equipment. The weight flow rate of gas is proportional to the upstream pressure and does not depend on the downstream pressure. (Choked flow)

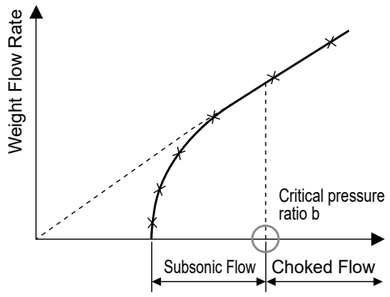


Fig. 1 Weight flow rate characteristics versus upstream pressure

Flow rate calculation formula

It is expressed as follows in practical units.

$\frac{P_2+0.1}{P_1+0.1} \leq b$, choked flow

$$Q=600\times C\,(P_1+0.1)\sqrt{\frac{293}{273+t}} \quad \text{.....(1)}$$

$\frac{P_2+0.1}{P_1+0.1} > b$, subsonic flow

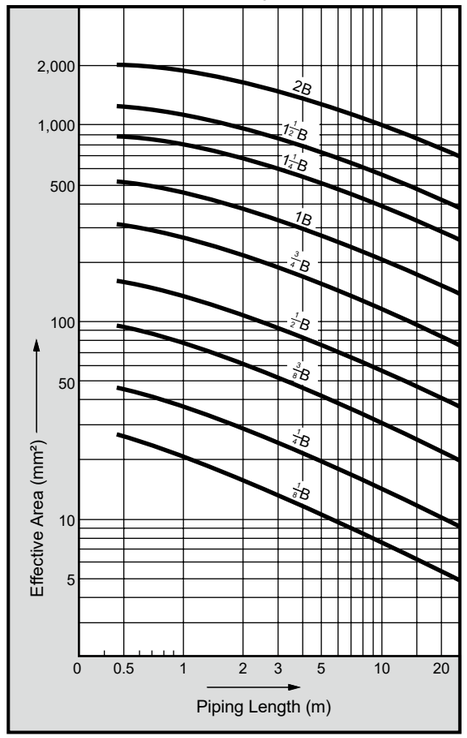
$$Q=600\times C\,(P_1+0.1)\sqrt{1-\left[\frac{\frac{P_2+0.1}{P_1+0.1}-b}{1-b}\right]^2}\sqrt{\frac{293}{273+t}} \quad \text{.....(2)}$$

Q: Air Flow Rate [dm³/min (ANR)]: The SI unit dm³ (cubic decimeter) may also be expressed as L (liter). 1 dm³ = 1 L
C: Sonic conductance [dm³/(s·bar)]
b: Critical pressure ratio [−]
P_1: Upstream pressure [MPa]
P_2: Downstream pressure [MPa]
t: Temperature [°C]

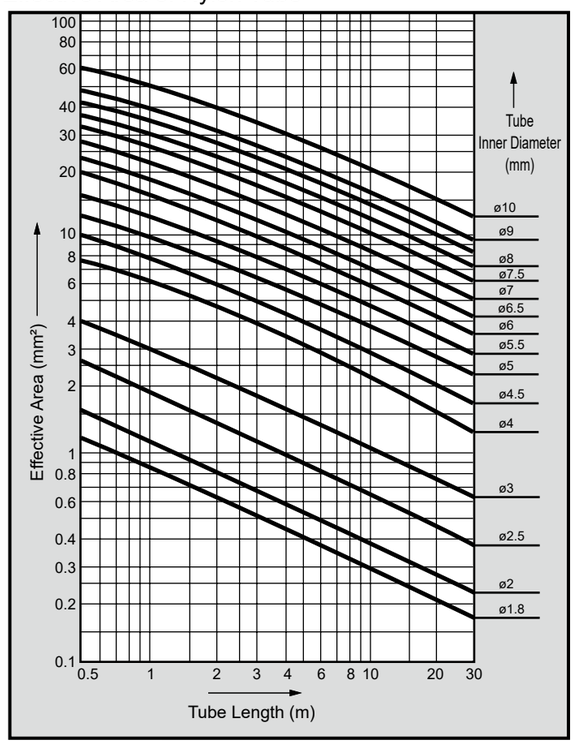
When calculating with the effective area S, substitute the value C obtained by C = S/5 into the above formula.
For subsonic flow, substitute b = 0.5 into equation (2).

Effective Area of Steel Pipe/Nylon Tube and Recommended Maximum Flow Rate Table for Gas Pipe

Effective Area of Steel Pipe



Effective Area of Nylon Tube



Recommended Maximum Flow Rate Table for Gas Pipe

Nominal Dimension	1/8B	1/4B	3/8B	1/2B	3/4B	1B	1 1/4B	1 1/2B
Pressure Drop MPa (Note 1)	0.124	0.0707	0.0576	0.0425	0.0276	0.0209	0.0133	0.0105
Inlet Pressure MPa	Recommended Maximum Flow Rate (L/min)							
0.05	127	244	518	838	1,465	2,460	3,870	5,150
0.1	146	282	598	965	1,690	2,828	4,460	5,950
0.15	163	314	668	1,076	1,885	3,150	4,960	6,630
0.2	179	344	730	1,180	2,060	3,450	5,430	7,280
0.3	206	395	840	1,360	2,375	3,900	6,300	8,400
0.4	230	442	940	1,520	2,660	4,450	7,000	9,360
0.5	252	485	1,030	1,660	2,920	4,875	7,700	10,250
0.6	272	523	1,110	1,800	3,140	5,250	8,300	11,050
0.7	292	558	1,185	1,920	3,350	5,620	8,870	11,800
0.8	308	592	1,260	2,035	3,560	5,970	9,430	12,570
0.9	324	623	1,325	2,140	3,745	6,290	9,900	13,220
1.0	340	654	1,395	2,250	3,930	6,600	10,400	13,880
1.2	370	717	1,510	2,450	4,280	7,150	11,250	15,040
1.4	398	763	1,625	2,624	4,590	7,700	12,100	16,200
1.5	410	790	1,680	2,710	4,740	7,930	12,550	16,780

(Note 1: Inlet Pressure = 0.5 MPa
Gas Pipe Length: 10 m)

(Remarks)
For main lines where the piping distance is long, it is necessary to consider the degree of pressure drop that occurs at the end of the main line when air flows. Recommended maximum flow rate means the maximum flow rate that can be recommended wiLow Profile a range where the pressure drop relative to the piping length is acceptable, judged from practical use. Therefore, it does not mean that no more flow can pass, but that flowing more will result in a larger pressure drop.

Protective Structure

● Protection Structure

■ IEC (International Electrotechnical Commission: International Electrotechnical Commission) Standard (IEC60529)

■ JIS C 0920 : 2003

IP − □ □ — Protection Characteristic Code (International Protection)

1st Characteristic Numeral
(Protection class against ingress of foreign solid objects)

1st Characteristic Numeral	Degree of Protection	
0	No protection	
1	◯ø50 mm	Solid objects with a diameter of 50 mm or more do not ingress.
2	◯ø12.5 mm	Solid objects with a diameter of 12.5 mm or more do not ingress.
3	2.5 mm	Solid objects with a diameter of 2.5 mm or more do not ingress.
4	1 mm	Solid objects with a diameter of 1.0 mm or more do not ingress.
5	Dust-protected	Dust does not ingress in a quantity sufficient to interfere with the normal operation and safety of the equipment.
6	Dust-tight	No ingress of dust inside.

2nd Characteristic Numeral
(Degree of protection against ingress of water)

2nd Characteristic Numeral	Degree of Protection	
0	No protection	
1	Protection against vertically falling water drops	No harmful effects from vertically falling water drops.
2	Protection against vertically dripping water when tilted up to 15 degrees (15°)	No harmful effects from water drops falling at an inclination of up to 15 degrees from vertical on either side.
3	Protection against spraying water	No harmful effects from water sprayed at an angle of up to 60 degrees from vertical on either side.
4	Protection against splashing water	No harmful effects from splashing water from any direction.
5	Protection against water jets	No harmful effects from water jets from a nozzle from any direction.
6	Protection against powerful water jets	No harmful effects from strong direct jets of water from any direction.
7	Protection against immersion in water	Water does not ingress when immersed in water under defined conditions.
8	Protection against continuous immersion in water	Can be used when continuously immersed in water.

MEMO

Safety Precautions

Be sure to read this section before use.

When designing and manufacturing equipment using CKD products, the manufacturer is obligated to ensure that the safety of the mechanism, pneumatic control circuit and/or water control circuit and the system that runs the electrical controls are secured.
It is important to select, use, handle and maintain CKD products appropriately to ensure their safe usage.
Observe warnings and precautions to ensure device safety.
Check that device safety is ensured, and manufacture a safe device.

WARNING

1 This product is designed and manufactured as a general industrial machine part. It must be handled by an operator having sufficient knowledge and experience.

2 Use this product in accordance with specifications.

This product must be used wiLow Profile its stated specifications. In addition, never modify or additionally machine this product.
This product is intended for use in general industrial machinery equipment or parts. It is not intended for use outdoors (except for products with outdoor specifications) or for use under the following conditions or environments. (Note that this product can be used when CKD is consulted prior to its usage and the customer consents to CKD product specifications. The customer should provide safety measures to avoid danger in the event of problems.)

❶ Use for applications requiring safety, including nuclear energy, railways, aircraft, marine vessels, vehicles, medical devices, devices or applications in contact with beverages or foodstuffs, amusement devices, emergency cutoff circuits, press machines, brake circuits, or safety devices or applications.
❷ Use for applications where life or assets could be significantly affected, and special safety measures are required.

3 Observe organization standards and regulations, etc., related to the safety of the device design and control, etc.

ISO4414,JIS B 8370(Pneumatic fluid power - General rules and safety requirements for systems and their components)
JFPS2008(Principles for pneumatic cylinder selection and use)
Including the High Pressure Gas Safety Act, Industrial Safety and Health Act, other safety rules, organization standards and regulations, etc.

4 Do not handle, pipe, or remove devices before confirming safety.

❶ Inspect and service the machine and devices after confirming safety of the entire system related to this product.
❷ Note that there may be hot or charged sections even after operation is stopped.
❸ When inspecting or servicing the device, turn OFF the energy source (air supply or water supply), and turn OFF power to the facility. Discharge any compressed air from the system, and pay enough attention to possible water leakage and leakage of electricity.
❹ When starting or restarting a machine or device that incorporates pneumatic components, make sure to secure system safety, such as pop-out prevention measures.

5 Observe the warnings and cautions on the following pages to prevent accidents.

■ Precautions are ranked as “DANGER”, “WARNING”, and “CAUTION” in this section.

DANGER:	In the case where the product operation is mishandled and/or when the urgency of a dangerous situation is high, it may lead to fatalities or serious injuries.
WARNING:	A dangerous situation may occur if handling is mistaken, leading to fatal or serious injuries.
CAUTION:	A dangerous situation may occur if handling is mistaken, leading to minor injuries or property damage.

Note that some items indicated with “CAUTION” may lead to serious results depending on the conditions.
All items contain important information and must be observed.

Warranty

1 Warranty period

The product specified herein is warranted for one (1) year from the date of delivery to the location specified by the customer.

2 Warranty coverage

If the product specified herein fails for reasons attributable to CKD wiLow Profile the warranty period specified above, CKD will promptly provide a replacement for the faulty product or a part thereof or repair the faulty product at one of CKD’s facilities free of charge.
However, following failures are excluded from this warranty:

1) Failure caused by handling or use of the product under conditions and in environments not conforming to those stated in the catalog, the Specifications, or the Instruction Manual.
2) Failure caused by use of the product exceeding its durability (cycles, distance, time, etc.) or caused by consumable parts.
3) Failure not caused by the product.
4) Failure caused by use not intended for the product.
5) Failure caused by modifications/alterations or repairs not carried out by CKD.
6) Failure caused by reasons unforeseen at the level of technology available at the time of delivery.
7) Failure caused by acts of nature and disasters beyond control of CKD.

The warranty stated herein covers only the delivered product itself. Any loss or damage induced by failure of the delivered product is excluded from this warranty.
Note: For details on the durability and consumable parts, contact your nearest CKD sales office.

3 Compatibility check

The customer is responsible for confirming the compatibility of CKD products with the customer’s systems, machines and equipment.

Precautions for export

1 Security Trade Control

The products in this catalog and their related technologies may require approval before export or provision. For the sake of maintaining world peace and safety, there may be cases in which approval under the Foreign Exchange and Foreign Trade Control Law is required in advance, depending on the country to where the product or related technology is being exported or provided.
The scope of products and related technologies requiring approval are listed in the Export Trade Control Order Appendix Table 1 or Foreign Exchange Order Appendix Table.
The Export Trade Control Order Appendix Table 1 and Foreign Exchange Order Appendix Table contain the following two types of information.

- “List controls” specified for items 1 to 15
- “Catch-all controls” that do not indicate specifications by item, but restriction by application (Section 16)

Products that require authorization or the range of relevant technology

- List control, which is specified in item 1 to 15
  - Listed in the “Export Trade Control Order Appendix Table 1” or “Foreign Exchange Order Appendix Table”
- Catch-all control restricted by application (item 16)
  - Listed in the “Export Trade Control Order Appendix Table 1” or “Foreign Exchange Order Appendix Table”

An application for approval is received by the Security Export Licensing Division of the Ministry of Economy, Trade and Industry or local bureaus of the Ministry of Economy, Trade and Industry.

2 Products and related technologies in this catalog

The products and related technologies in this catalog are subject to the catch-all control of the Foreign Exchange and Foreign Trade Control Law.
When exporting or providing the products or related technologies in this catalog, ensure that they are not used for arms or weapons.

3 Contact

Contact your local CKD Sales Office for information on the Security Trade Control of products and related technologies in this catalog.

*For cylinder switches, please check P. 1026.

During Design / Selection

1. Specification Confirmation

Warning

■Use wiLow Profile the product's specified operating range.

The products described in this catalog are designed to be used only in compressed air systems. Do not use at pressures or temperatures outside the specification range, as this may cause damage or malfunction. (See specifications). If using fluids other than compressed air and low hydraulic pressure, please consult us.

■If product dimensional accuracy is required, please consult us separately.

Dimensional tolerances for pneumatic cylinders are set based on JIS B8368. If accuracy is required, please inquire in advance.

2. Design for Safety

Warning

■If the force changes due to twisting of the sliding parts of the machine, there is a danger that the cylinder's piston rod may fly out. In such cases, there is a risk of injury to the human body, such as getting hands or feet caught, and damage to the machine, so make adjustments so that the machine moves smoothly and design it so that it does not cause injury to the human body.

■If there is a risk of danger to the human body, install a protective cover.

If the drive part of the cylinder poses a risk of danger to personnel, install a protective cover. Design the structure so that personnel cannot enter the cylinder's operating range or directly touch that area.

■Consider the possibility of circuit pressure drop due to power outages, etc.

When using a cylinder for a clamping mechanism, if the circuit pressure drops due to a power outage, etc., the clamping force will decrease and there is a risk that the workpiece may come off. Therefore, incorporate a safety device to prevent injury or damage to personnel or machinery. Lifting devices and lifts also require consideration for fall prevention.

■Consider the possibility of power source failure.

For equipment controlled by power sources such as pneumatic, hydraulic, or electric, take measures to prevent injury or damage to personnel or equipment even if these power sources fail.

■Design a circuit to prevent sudden projection.

When driving a cylinder with an exhaust center type directional control valve, or when starting after exhausting residual pressure in the circuit, if one side of the piston is pressurized from a state where the air in the cylinder is exhausted, the driven object will project at high speed. In such cases, there is a risk of injury to the human body, such as getting hands or feet caught, and damage to the machine, so design a fly-out prevention circuit.

■Consider the operating state during an emergency stop.

When a safety device activates and the machine stops due to a system abnormality such as an emergency stop or power outage, design the system so that cylinder operation does not cause injury to personnel or damage to equipment/devices.

■Consider the operating state when restarting after an emergency stop or abnormal stop.

Design the system so that restarting does not cause harm to personnel or damage to equipment. Also, if it is necessary to reset the cylinder to the starting position, design a safe control device.

■Take necessary measures in advance to prevent adverse effects on people or Low Profilegs if this product malfunctions.

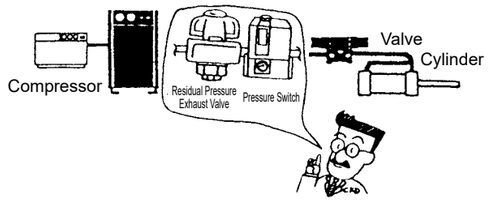
Caution

■Use wiLow Profile a range where the piston does not collide and break at the stroke end. When a piston with inertial force collides with the cover at the stroke end and stops, use wiLow Profile the allowable absorption energy range.

■Install a speed controller on the cylinder. Use wiLow Profile the operating piston speed range of each cylinder.

■Install a "pressure switch" and "residual pressure exhaust valve" on the compressed air supply side of the equipment.

●The pressure switch prevents operation if the set pressure is not reached. The residual pressure exhaust valve discharges the compressed air remaining in the pneumatic circuit and prevents accidents due to the operation of pneumatic equipment due to residual pressure.



■The load factor for fall prevention cylinders should be 50% or less.

3. Design by Application

Warning

■When a deceleration circuit or shock absorber is necessary.

If the speed of the driven object is high or its mass is large, it will be difficult to absorb the impact with only the cylinder's cushion. Therefore, provide a circuit to decelerate before entering the cushion, or use an external shock absorber to mitigate the impact. In this case, sufficiently consider the rigidity of the machinery.

■When inertia, vibration, etc. occur

When mounting a cylinder on a moving object (X-axis module, pallet, etc.), design it considering the inertia, vibration, etc. that occur when the moving object stops.

■About Intermediate Stop

When performing an intermediate stop of the cylinder piston with a 3-position closed center type directional control valve, it is difficult to stop at an accurate and precise position like low hydraulic pressure due to the compressibility of air. Also, since valves and cylinders do not guarantee zero air leakage, it may not be possible to hold the stop position for a long time. If long-term stop position holding is required, please consult us.

4. Operating Environment

Warning

■Install the product avoiding rain, water, direct sunlight, and high humidity.

■Do not use the product in an atmosphere where there is a risk of corrosion.

Use in such an environment will cause damage and malfunction. Also, even for plated materials used for piston rods, tie rods, etc. in cylinders, plating is not applied to machined parts (thread width, cut surface). Rust can occur even in a general environment, so take necessary measures.

■In dusty places or places exposed to water droplets, oil droplets, cutting oil, or coolant, install a cover, etc.

If there is a lot of dust, use a type with a heavy-duty scraper. If liquid scatters, use a cutting oil resistant type.

■If the ambient temperature is 5°C or less, moisture in the circuit may freeze, causing malfunctions such as operational defects. Therefore, remove moisture and prevent freezing.

Caution

■When using a cylinder with a valve with AC voltage, humming noise may occur depending on the operating conditions. If humming noise is a problem depending on the operating environment, select DC voltage.

■Some models use oil-impregnated bearings, and oil may be discharged to the outside of the cylinder. Be careful when using in locations where oil discharge is undesirable.

5. Durability

Warning

■Durability varies depending on usage conditions and model characteristics.

Caution

■Bellows are consumable parts. Replace as necessary.

6. Pneumatic Source

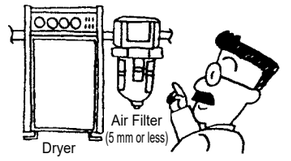
Warning

■Use clean, dry compressed air.

Do not use compressed air if it contains chemicals, synthetic oils containing organic solvents, salt, corrosive gases, etc., as this will cause damage or malfunction.

Caution

■Use dry compressed air that does not generate drain in the piping.



●Drain occurs if there is a temperature drop inside pneumatic piping or pneumatic equipment.

●If the piping volume is larger than the cylinder volume (atmospheric pressure equivalent volume), condensed water droplets will accumulate as drain without the compressed air in the cylinder being completely discharged at each switching of the solenoid valve.

● Drain enters the air passages inside pneumatic equipment, momentarily blocking the passages and causing malfunction.

●Rust generated by drain will cause pneumatic equipment failure.

●Drain washes away lubricating oil, causing poor lubrication.

■Use of ultra-dry air is unsuitable for standard pneumatic equipment. Use equipment compatible with ultra-dry air.

●Ultra-dry compressed air shortens the life of pneumatic components.

● Use a solenoid valve for DC voltage drive.

■Use compressed air free from oxidized oil, tar, carbon, etc., from the air compressor.

●Oxidized oil, tar, carbon, etc., entering and adhering inside pneumatic equipment increases the resistance of sliding parts, causing malfunction.

● Lubricating oil mixed with oxidized oil, tar, carbon, etc., will wear down the sliding parts of pneumatic equipment.

■Use compressed air that does not contain solid foreign matter.

●Solid contaminants in the compressed air can enter pneumatic equipment, causing wear on sliding parts or sticking phenomena; therefore, please install an air filter with a filtration rating of 5 µm or less.

●Perform regular maintenance inspections of the compressor.

7. Usage Method

Caution

■It is initially lubricated, so it can be used without lubrication. If lubricating, use turbine oil Class 1 (non-additive) ISO-VG32. Also, if lubrication is stopped midway, malfunction will occur due to the loss of the initial lubricant, so be sure to continue lubrication. It is necessary to decide whether to adopt a non-lubricated or lubricated specification for pneumatic equipment and ensure that the chosen method is reliably managed.

■Provide intermediate support for long-stroke cylinders. For long stroke cylinders, provide intermediate support to prevent rod sag, tube deflection, and rod damage due to vibration or external load.

■Use wiLow Profile the maximum stroke according to the mounting type. See End of Volume P. 70.

■ Cylinders with air cushions experience speed changes at the beginning of movement.

For cylinders with air cushion, speed changes occur when the cushion ring comes off the cushion packing at the beginning of movement. Depending on conditions such as speed controller placement and adjustment, piping diameter, air pressure, and cushion needle opening, the change may become large. If it is necessary to prevent this, please consult us.

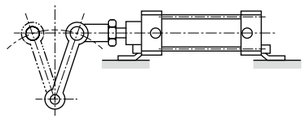
■ Avoid using multiple cylinders in synchronization as much as possible.

Synchronization cannot be achieved, causing twisting of the piston rod and leading to malfunction. If synchronous operation is necessary, be sure to provide a separate guide device with rigidity.

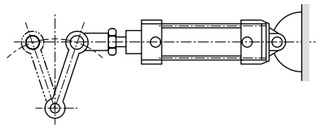
■ When installing clevises and trunnions, confirm that they can rotate freely without interference during the full stroke operation of the cylinder before use.

■ If the direction of load movement changes with operation, use a Swiveling type cylinder (clevis type, trunnion type) where the cylinder itself can rotate by a certain angle. Also, install the connecting fitting at the rod end so that it moves in the same direction as the cylinder body's movement.

■ Do not connect a fixed type cylinder to an arm that performs circular motion. In this case, connect it to an oscillating type cylinder.



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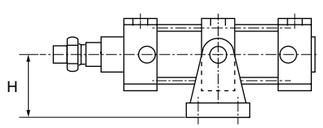


OK

■ To prevent breakage of the piston rod end screw, wear of the bushing, seizure, etc., connect the piston rod end and the load with a free joint or simple flow controller, etc., so that there is no twisting at any position of the stroke.

■ If the clearance between the clevis or trunnion and the mating bearing is large, a bending action will occur on the pin or shaft. Therefore, do not make this clearance too large. (Recommended fit H10/e8)

■ In the figure below, if the height H from the mounting surface of the bearing bracket to the bearing position is large, a large force will be generated on the mounting part of the bracket by the cylinder force, which may cause damage to bolts, etc.



■ Cylinders may have slight oil seepage from sliding parts, packings, and gaskets. Be careful when using in locations where oil seepage is undesirable.

■ Precautions for Using Relief Port

Exhaust treatment type (P. 72) cannot be used for vacuum sweeping. And vice versa. This will cause particle scattering or defects, so absolutely do not do it.

8. Securing Space

⚠ Caution

■ Ensure space around the cylinder for mounting, removal, wiring, and piping work.

9. Clearly Stated in Instruction Manual

⚠ Caution

■ Clearly state the maintenance conditions in the equipment's instruction manual.

● Product functionality may significantly decrease, and safety may not be ensured depending on usage status, operating environment, and maintenance. Proper maintenance allows the product to fully demonstrate its functions.

During Installation, Mounting, and Adjustment

1. Installation

⚠ Warning

■ When mounting the cylinder, protect the load from falling or tipping over.

⚠ Caution

■ Do not remove the cylinder packaging bag or the dust-proof port seal for the piping port until just before performing piping.

● If the dust-proof port seal for the piping port is removed before piping connection work, foreign matter may enter the cylinder from the piping port, causing failure, malfunction, etc.

■ If the cylinder mass is 15 kg or more, use a lifting tool.

■ Do not hit or grip objects with the cylinder tube and piston rod sliding parts, causing scratches or dents. The Bore size is manufactured with precise tolerances, so even slight deformation can cause malfunction. Scratches or dents on the piston rod sliding part will damage packings and cause air leakage.

■ If the direction of load movement is not parallel to the piston rod axis, twisting may occur in the piston rod and main body (tube), posing a risk of the piston rod flying out. Twisting can also cause seizure, damage, etc. Be sure to align the piston rod axis with the direction of load movement.

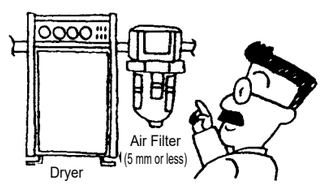
■ Prevent seizure of rotating parts. Apply grease to rotating parts (pins, etc.) to prevent seizure.

2. Pneumatic Source

⚠ Caution

■ Install a pneumatic filter immediately before the circuit using the pneumatic equipment.

● Install an air dryer and filter to remove moisture in the piping. Also, to remove rust, foreign matter, and drain, install a filter near the directional control valve (primary side).



■ When supplying compressed air after completing pipe connections, supply it so that high pressure is not applied suddenly.

● Piping connections may come off, and piping tubes may spring out, causing accidents.

● If compressed air is supplied too slowly, sealing pressure may not be generated depending on the solenoid valve's internal seal mechanism, potentially causing air leakage.

● The cylinder may operate suddenly.

3. Piping

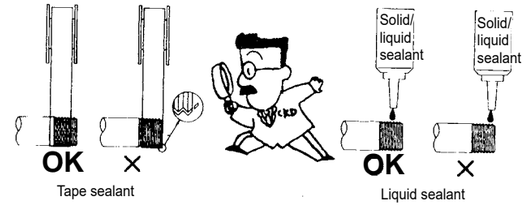
⚠ Caution

■ When piping, refer to the instruction manual and ensure connection ports, etc., are not mistaken.

● This will cause malfunction.

■ When connecting piping, wrap sealing tape clockwise from a position 2 threads or more inward from the tip of the pipe thread.

● If sealant tape protrudes beyond the threaded part of the piping, it will be cut by screwing in, and the cut piece will enter the interior, causing failure.



■ Ensure that piping connected to the cylinder does not detach due to vibration, loosening, or pulling phenomena.

● If the exhaust side piping of the pneumatic circuit detaches, cylinder speed control will become impossible.

● In the case of a chuck holding mechanism, the chuck will release, creating a dangerous situation.

■ When using nylon tubes or urethane tubes, pay attention to the following.

● In atmospheres where spatter scatters, use flame-resistant tubes or metal pipes.

■ Use corrosion-resistant piping materials such as galvanized pipes, stainless steel pipes, nylon tubes, rubber hoses, etc.

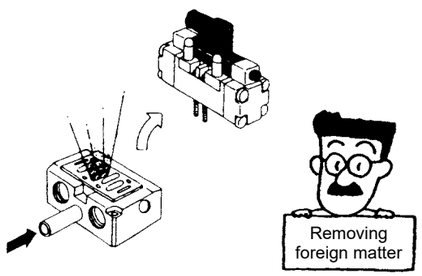
■ Tighten with the appropriate torque during piping connection.
- The purpose is to prevent air leaks and screw damage.
- To avoid damaging the threads, first tighten by hand, then use a tool.



[Reference Value] See instruction manual.

Connection Thread	Tightening Torque (N·m)
M3	0.3 to 0.6
M5	1 to 1.5
Rc 1/8	3 to 5
Rc 1/4	6 to 8
Rc 3/8	13 to 15
Rc 1/2	16 to 18
Rc 3/4	19 to 40
Rc 1	41 to 70

■ When piping, be sure to perform flushing immediately before connecting to pneumatic equipment.
- It is necessary that foreign matter that entered during piping does not enter the pneumatic components.



4. Confirmation before Operation

⚠ Warning

■ Before operating, confirm that there is no looseness or abnormality in the load or cylinder mounting fasteners.

■ Do not use until it is confirmed that the equipment operates properly.
After installation, repair, or modification, connect compressed air or electricity, perform appropriate functional tests and leak tests, and confirm that installation is normal.

■ Confirm that there is no mechanical interference or abnormality in the operating system.

■ Gradually increase and set the pressure while confirming that there is no abnormality in the operation of the equipment.

■ Starting with the exhaust side at atmospheric pressure is dangerous as the rod may fly out. When starting, always apply pressure to the exhaust side cylinder chamber.

⚠ Caution

■ When piping connection is complete and compressed air is supplied, be sure to confirm that there are no air leaks in all parts of the piping connection.
- Apply leak detection fluid with a brush to the piping connection parts to confirm there are no air leaks.

■ Be sure to read the instruction manual.
Read carefully and understand the contents before using the product. Also, keep it so that you can check it at any time.

5. Adjustment

⚠ Warning

■ When adjusting speed with a speed controller, adjust by gradually opening the needle from the closed state. Starting speed adjustment in the open state is dangerous as the rod may fly out.

■ The effectiveness of the cushion with air cushion is adjusted at the time of shipment, but readjust it with the cushion needle according to the load and piston speed when using.
Gradually open the needle from the closed state to adjust the cushioning effect. Note that if the cushion needle is loosened too much, there will be no cushioning effect, and it may fall off. After adjustment, tighten and fix the needle nut (hexagon nut). Use wiLow Profile the allowable kinetic energy value. If used exceeding the allowable value, the product may be damaged.

■ When the cylinder is driven, do not enter the driving range of the cylinder or put your hands in.

During Use / Maintenance

1. Maintenance and Inspection

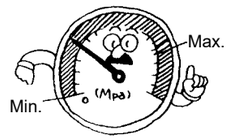
⚠ Warning

■ Perform maintenance inspections carefully according to the instruction manual.
Mishandling will cause damage or malfunction of equipment or devices.

⚠ Caution

■ Implement daily and periodic inspections systematically so that maintenance management is performed correctly.
- Insufficient maintenance management will significantly impair product functionality, leading to reduced lifespan, damage, malfunction, and other defects or accidents.

① Supply Compressed Air Pressure Management
- Is the set pressure being supplied? Does the pressure gauge indicate the set pressure while the equipment is operating?



② Pneumatic Filter Management
- Is drain being discharged normally? Is the contamination status of the bowl and element normal?

③ Compressed Air Leakage Management at Piping Connections
- Is the condition of the connection parts of moving parts, in particular, normal?

④ Solenoid Valve Operating Status Management
- Is there any delay in operation, and is the exhaust state normal?

⑤ Pneumatic Actuator Operating Status Management
- Is operation smooth?

Is the end-of-stroke stop status normal?
Is the connection with the load normal?

⑥ Lubricator Management
- Is oil level adjustment normal?

⑦ Lubricating Oil Management
- Is the supplied lubricating oil genuine?

■ If air leakage increases or equipment does not operate normally, do not use.
- After repair or modification, connect compressed air or electricity, perform appropriate functional inspections and leak tests, and confirm normal operation.

■ After a long period of disuse, confirm normal operation when restarting.

■ Replace consumable parts that have exceeded their rated life with new ones during periodic inspections.
Do not use consumable parts that have been stored for 5 years or more.

■ Store consumable parts in a cool, dark place away from direct sunlight.

■ If lubrication of sliding surfaces deteriorates or they become dry, periodically apply lithium grease (general type) or fluorine grease (heat-resistant, low-speed, low-friction, P7 type, etc.). Before applying grease, be sure to remove foreign matter from the sliding surfaces. If the type of grease used is unknown, please contact us.

2. Effect of Fluorine Grease

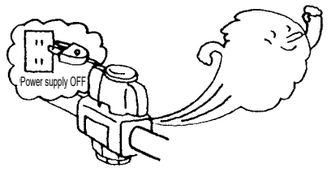
⚠ Warning

■ If you smoke cigarettes, etc., with hands that have fluorine grease from cylinders using fluorine grease (heat-resistant, low-speed, low-friction, P7, etc.), harmful gases will be generated, which may harm the human body, so please be careful.

3. Removal

⚠ Warning

■ Removal of Equipment and Supply/Exhaust of Compressed Air
When removing equipment, confirm that measures to prevent the driven object from falling or running away have been taken, then shut off the supply air and connected power, and exhaust the compressed air in the system before proceeding. When restarting, confirm that projection prevention measures have been taken, then proceed with caution.



■ When removing the load from a double-rod cylinder, be sure to do so with the piston rod width across flats on the load side fixed. Please note that if this is done without fixing the piston rod on the load side, the fastening part (threaded part) of the piston rod may loosen.

■ Perform cylinder removal work after taking measures to prevent the load from falling or tipping over.

4. Disassembly / Assembly

⚠ Warning

■ Disassemble the cylinder after removing it from the equipment.

■ When performing disassembly and assembly, ensure it is done by a worker who has acquired specialized knowledge.
After disassembly and reassembly, perform leak and operation tests before reassembling onto the equipment.

■When disassembling a single-acting cylinder, be very careful as parts may fly out due to the spring.

■Install and remove the rod metal using appropriate pliers (C-type retaining ring installation tool).

■Even when using appropriate pliers (C-type retaining ring installation tool), the retaining ring may detach from the tip of the pliers, fly off, and cause damage to personnel and surrounding equipment, so be careful.
Also, when installing, confirm that it is securely in the retaining ring groove before supplying air.

⚠Caution

■When performing maintenance such as replacing consumable parts, disassemble and reassemble on a test bench, etc., in a clean atmosphere free of dust, and perform a functional inspection to ensure the equipment operates normally.

MEMO

General Type Cylinders

	Page
Pencil Shaped Cylinders **SCP□3** Series	7
Small Bore Cylinders **CMK2** Series	105
Small Bore Cylinders **CMA2** Series	293
Round Shaped Cylinders **SCM** Series	319
Tie Rod Cylinders **SCG** Series	483
Medium Bore Cylinders **SCA2** Series	619
Large Bore Cylinders **SCS2** Series	867

General Type

Features		Model No./Appearance	Bore Size ø (mm)								Bore Size ø (mm)															
			2.5	4	6	8	10	12	15		16	20	25	30	32	40	50	63	80	100	125	140	160	180	200	250
			Max. Stroke (mm) (Producible Stroke (mm)) Note 1																							
General Type	Pencil shaped compact cylinder	**SCP□3** 	10	20	100 (105)		200 (210)				260 (270)															
	Stainless steel tube adopted Crimped Type	**CMK2** 										750			750											
	Maintainable dismountable type	**CMA2** 										700 (1000)		700 (1200)		700 (1500)										
	Abundant variations Most compact among general types	**SCM** 										1,000			1,000	1500										
Tie Rod	Compact type among tie rods	**SCG** 													(700)	600 (800) (1200)		700 (1400)	800 (1500)							
	Robust type with No. 1 reliability Abundant variations	**SCA2** 														(1600)	600 (2,000)		700 (2500)	800						
	Compatible with ø125 and above	**SCS2** 																			800 (2,000)		900	1,000	1200	

Note 1: Bore Size and Stroke represent typical models. For details, refer to the catalog specifications.

General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending

General Type Variation List

Variation Name/Model No.			SCP□3					CMK2				CMA2		
			2.5	4	6	10	16	20	25	32	40	20	30	40
Single Rod		-			100	200	260	750				700		
	High Load	K			100*	200*	260*							
Single Acting	Push	X Note 3	10	20	100	120		300						
	Retract	Y Note 3			100	120		300						
Stroke Adjustment	Push	P						430	400					
	Retract	R						750						
Fall Prevention		Q/Q2						750						
Non-Rotating		M				200	260	750						
Changes in Shape or Work	Double Rod	D			60	120		480	450					
	Back-to-Back	B						750						
	Two-Stage	W												
	Tandem [Output x2]	W4												
Speed or Friction Reduction	Fine Speed [Ultra-Low Speed Operation (1 mm/s~)]	F			100	200	260	750						
	Low Speed [Low Speed Operation (10 mm/s~)] Note 2	O			100	200	260							
	Low Friction [Minimizes sliding resistance]	U												
Environment Resistant	Heat Resistant	T			100	200	260	750						
	Scraper [Prevents intrusion of debris]	G												
	Coil Scraper/Spatter Adhesion Prevention	G1/G4												
	Cutting Oil Resistant	G2/G3												
	Environment Resistant Scraper [Prevents fine metal particles]	G5												
Other	With Rubber Air Cushion	C			100	200	260	750						
	Built-in Speed Controller	Z				200*	260*	750						
	Steel Tube	K												
	Stainless Steel/Water Resistant	JG2/JG3						750						
	Direct Mount	E/LD										700		
	Low Hydraulic Pressure	H						750						
	With Valve	V				200*	260*							

SCM								Tie Rod														
								SCA2					SCG						SCS2			
20	25	32	40	50	63	80	100	40	50	63	80	100	32	40	50	63	80	100	125	140	160	180	200	250
Maximum Stroke (mm) Note 1																								
1,000			1500					600		700	800		600				700	800	800			900	1000	1200
200																								
200																								
600								600		700	800								800			900	1,000	1200
1,000			1500							700	800													
1,000			1500					600		700	800		600				700	800						
600													600											
600								600		700	800		600				700	800	800			900	1,000	1200
500			750					600		700	800								800			900	1,000	1200
600								600		700	800								800			900	1,000	1200
600																								
500																								
1,000			1500					600		700	800		600				700	800						
1,000			1500					600		700	800		600				700	800						
1,000			1500					600		700	800								800			900	1,000	1200
1,000			1500					600		700	800								800			900	1,000	1200
								600		700	800		600				700	800	800			900	1,000	1200
								600		700	800		600				700	800						
								600		700	800		600				700	800						
								600		700	800													
300																								
								600		700	800								800			900	1,000	1200
								600		700	800													

Note 1: Bore Size and stroke represent typical models. For details, refer to the catalog specifications.
Note 2: For SCA2, it is a low friction type (low friction at low pressure).
Note 3: For SCP□, push type (SCPS/SCPS3) and retract type (SCPH3-) are available. For CMK2, push type (-S-) and retract type (-SR-) are available.
Note 4: "*" indicates a custom product.

General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending

General Type

SCP□3

Pencil Shaped Cylinder®

ø6, ø10, ø16

Overview

This series is the smallest bore (ø6 to ø16), ultra-compact, and lightest among general type cylinders.



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Pencil Shaped Cylinder SCP□3 Series

●: Standard, ◎: Option, ○: Custom Products, : Not manufacturable

Variation	Model No. / Circuit Diagram Symbol	Bore size (mm)	Standard Stroke (mm) 15	30	45	60	Minimum Stroke (mm)	Maximum Stroke (mm)	Producible Stroke (mm)	Intermediate stroke (mm) increments	Mounting type: Basic type 00	Double Side Axial Foot Type LB	Single Side Axial Foot Type, Rod Side LS	Rod Side Flange Type FA	Double Clevis Type CB	Accessories: Single Knuckle I	Double Knuckle Y	Single Bracket B1	Double Yoke Bracket B2	Switch	Page
Double Acting/ Single Rod Type	SCPD3 SCPD3-L	ø6	●	●	●	●	5	100	105	1	●		●	●						◎	12
		ø10	●	●	●	●		200	210		●		●	●	●	◎	◎	◎	◎		
		ø16	●	●	●	●		260	270		●		●	●	●	◎	◎	◎	◎		
Single Acting, Push Type	SCPS3 SCPS3-L	ø6	●	●	●	●	5	100	105	1	●		●	●						◎	22
		ø10, ø16	●	●	●	●		120	120		●		●	●	●	◎	◎	◎	◎		
Single Acting, Retracting Type	SCPH3 SCPH3-L	ø6	●	●	●	●	5	100	105	1	●		●	●						◎	22
		ø10, ø16	●	●	●	●		120	120		●		●	●	●	◎	◎	◎	◎		
Double Acting/ Heat Resistant Type	SCPD3-T	ø6	●	●	●	●	5	100	100	1	●		●	●							34
		ø10	●	●	●	●		200	200		●		●	●	●	◎	◎	◎	◎		
		ø16	●	●	●	●		260	260		●		●	●	●	◎	◎	◎	◎		
Double Acting/ With Rubber Air Cushion	SCPD3-□C SCPD3-L-□C	ø6	●	●	●	●	5	100	100	1	●		●	●						◎	38
		ø10	●	●	●	●		200	200		●		●	●	●	◎	◎	◎	◎		
		ø16	●	●	●	●		260	260		●		●	●	●	◎	◎	◎	◎		
Double Acting/Fine Speed Type	SCPD3-F SCPD3-LF	ø6	●	●	●	●	5	100	100	1	●		●	●						◎	46
		ø10	●	●	●	●		200	200		●		●	●	●	◎	◎	◎	◎		
		ø16	●	●	●	●		260	260		●		●	●	●	◎	◎	◎	◎		
Double Acting/Low Speed Type	SCPD3-O SCPD3-OL	ø6	●	●	●	●	5	100	100	1	●		●	●						◎	52
		ø10	●	●	●	●		200	200		●		●	●	●	◎	◎	◎	◎		
		ø16	●	●	●	●		260	260		●		●	●	●	◎	◎	◎	◎		
Double Acting/ Double Rod Type	SCPD3-D SCPD3-DL	ø6	●	●	●	●	5	60	60	1	●	●	●	●						◎	58
		ø10, ø16	●	●	●	●		120	120		●	●	●	●		◎	◎				
Single Acting, Non-Rotating Type	SCPS3-M SCPS3-ML	ø10, ø16	●	●	●	●	5	120	120	1	●		●	●	●	◎	◎	◎	◎	◎	74
Double Acting, Non-Rotating Type	SCPD3-M SCPD3-ML	ø10	●	●	●	●	5	200	210	1	●		●	●	●	◎	◎	◎	◎	◎	74
		ø16	●	●	●	●		260	270		●		●	●	●	◎	◎	◎	◎		

Note: For the SCPS Single Acting, Push Type (ø2.5, ø4), please refer to P. 22.

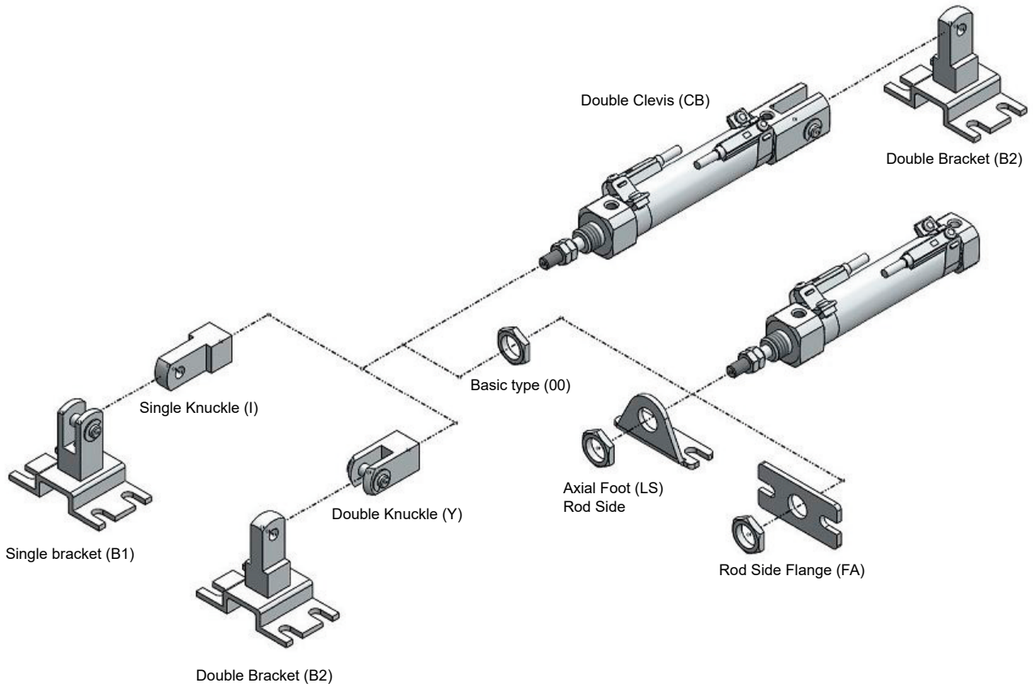
About Custom Products

The following variations are also supported.

Variation	Model No.	Bore size (mm)	Page
Double Acting/ Double Rod/ Heat Resistant Type	SCPD3-DT	ø6	58
		ø10	
		ø16	
Double Acting, with Speed Controller	SCPD3-Z SCPD3-ZL	ø10	66
		ø16	
Double Acting, High Load Type	SCPD3-K SCPD3-KL	ø6	84
		ø10	
		ø16	

Variation	Model No.	Bore size (mm)	Page
Single Acting, with Valve	SCPS3-V SCPS3-VL	ø10	92
		ø16	
Double Acting, with Valve	SCPD3-V SCPD3-VL	ø10	92
		ø16	

Combination of Mounting Brackets and Accessories



Combination Availability Table for Variations and Option Items

◎ Mark: Option
○ Mark: Custom Products
△ Mark: Manufacturable depending on conditions (Please consult)
× Mark: Not manufacturable

Note 1: Applicable when using single acting type (S/H) as double acting method. Overall length increases when based on single acting type.
Note 2: Frictional resistance is higher compared to the standard ultra low speed type (or fine speed type). Please consult after confirming operating conditions.
Note 3: Low speed performance cannot be satisfied in the cushion range.
Note 4: Valve-equipped specifications are only compatible with axial port positions. (The "O" code is not required.)

Category		Category	Variation													Piping thread		Cushion	Option	
			Double Acting Single Rod Type	Single Acting, Push Type	Single Acting, Retracting Type	Double Acting Double Rod Type	Non-Rotating Type	With Speed Controller	With Valve	With Cylinder Switch	High Load Type	Heat resistant type (120°C)	Low Speed Type	Ultra Low Speed Type	NPT	G	With Rubber Air Cushion	Rod Nut Material (Stainless Steel)	Port Position Axial Direction
		Code	None	S	H	D	M	Z	V	L	K	T	O	F	N	G	C	M	O
Variation	Double Acting Single Rod Type	SCPD3		Note 1	Note 1										×	×		○	◎
	Single Acting, Push Type	SCPS3				×	◎	×	○	◎	×	×	×	×	×	×	×	○	◎
	Single Acting, Retracting Type	SCPH3				×	×	×	×	◎	×	×	×	×	×	×	×	○	×
	Double Acting Double Rod Type	SCPD3-D					◎	○	×	◎	○	○	Note 2	Note 2	×	×	○	○	×
	Non-Rotating Type	M						×	○	◎	×	×	Note 2	×	×	×	○	○	◎
	With Speed Controller	Z							×	○	×	×	○	×	×	×	×	○	○
	With Valve	V								○	○	×	×	×	×	×	×	○	Note 4
	With Cylinder Switch	L									○	×	◎	◎	×	×	◎	○	○
	High Load Type	K										×	Note 2	Note 2	×	×	○	○	○
	Heat Resistant Type (120°C)	T											×	×	×	×	×	○	◎
	Low Speed Type	O												×	×	×	Note 3	○	◎
	Ultra Low Speed Type	F													×	×	Note 3	○	○
Piping thread	NPT	N														×	×	×	×
	G	G															×	×	×
Cushion	With Rubber Air Cushion	C																○	◎
Option	Rod Nut Material (Stainless Steel)	M																	○
	Port Position Axial Direction	O																	
Accessories	Cylinder Switch	Shown Separately	◎	◎	◎	◎	◎	○	○	◎	○	×	◎	◎				◎	◎
	Single Knuckle	I	◎	◎	◎	◎	◎	○	○	◎	○	◎	◎	◎				◎	◎
	Double Knuckle	Y	◎	◎	◎	◎	◎	○	○	◎	○	◎	◎	◎				◎	◎
	B1 Bracket	B1	◎	◎	◎	◎	◎	○	○	◎	○	◎	◎	◎				◎	◎
	B2 Bracket	B2	◎	◎	◎	◎	◎	○	○	◎	○	◎	◎	◎				◎	◎

[Model No. Notation Method]

SCPD3 - D M L F - FA - 10 - 50 - ( ) - T2H3 - D - Y

1. Model No.
2. Mounting Style: Rod Side Flange Type
3. Bore Size: ø10 mm
4. Stroke: 50 mm
5. Head Side Port Direction: Vertical Direction
6. Switch Model No.: Solid State Switch T2H, Lead wire length 3 m
7. Number of Switches: With 2 pcs
8. Accessories: Double Knuckle

Variation
Double Rod/Non-Rotating Type/With Switch/Ultra Low Speed Type
* Enter symbols in order from left to right in the table above.
* For fine speed type, enter "F" after switch presence/absence.

Option
* Enter symbols in order from left to right in the table above.



Pencil Shaped Cylinder Double Acting Single Rod Type

SCPD3 Series

●Bore size: ø6, ø10, ø16

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Without magnet for switch)

SCPD3 - 00 - 10 - 15 - O ——— Y
Model No. ❶ ❷ ❸ ❹ ❼

With Switch
(Built-in magnet for switch)

SCPD3-L - 00 - 10 - 15 - O - T2H - R - Y
Model No. ❶ Mounting type ❷ Bore size ❸ Stroke ❹ Head Side Port Direction ❺ Switch Model No. ❻ Number of Switches ❼ Accessories

❶Mounting type

Mounting brackets are included to the product and shipped.

Code	Contents	
00	Basic type	
LS	Axial Foot Type (Rod Side)	
FA	Rod Side Flange Type	
CB	Double Clevis Type (Pin and retaining ring included) (ø10, ø16)	

*1

*1: If port direction is "0" (axial), mounting type "CB" cannot be selected.

❷Bore size (mm)

Code	Content
6	ø6
10	ø10
16	ø16

❸Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø6	5 to 100	Every 1 mm
ø10	5 to 200	
ø16	5 to 260	

Note: For minimum stroke with switch, refer to P. 14.

❹Head Side Port Direction

Code	Content	
Blank	Vertical Direction	
O	Axial Direction	

Note: If port direction is "0" (axial), mounting type "CB" cannot be selected.

❺Switch Model No.

For switch details, please refer to page 971. Switches are included to the product and shipped.

	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (PNP)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*5

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

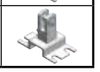
*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❼Accessories *2

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (pin and retaining ring included)	
	B1	Single Bracket	
	B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.
*2: Accessories cannot be selected for ø6.

About Custom Product Specifications

Code	Contents
Rod End Shape Modification	Refer to Ending 11.

Clean Specification (Catalog No. CB-033SAA)

Dust prevention structure usable in cleanrooms

SCPD3 - F - ... - P7□
SCPD3 - ..... - P5□

Rechargeable Battery Compatible Specification (Catalog No. CC-1226AA)

●Design compatible with rechargeable battery manufacturing process

SCPD3 - ..... - P4□

*Please contact us for details.

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCPD3 - ..... - FP1

High Durability Components HP Series (Catalog No. CC-1421AA)

Long-life actuator that contributes to productivity improvement with stable operation

SCPD3 - ..... - HP□

*For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

SCPD3 - T0H - 6
❺ Switch Model No. ❷ Bore size

●Switch Body (with Fixed Bracket)

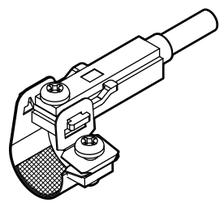
SCPD3 - T0H
❺ Switch Model No.

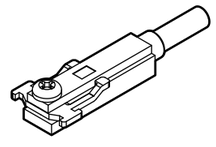
●Mounting Bracket Set + Fixed Bracket

SCPD3 - TS - 6
❷ Bore size

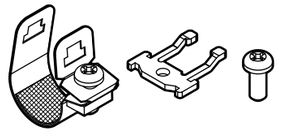
●Mounting bracket set

SCPD3 - T - 6
❷ Bore size





Note) T-type standard switch and fixing bracket Phillips pan head screw are different.



For purchases of 20 or more, items will be packed together.



For purchases of 20 or more, items will be packed together.

Specifications

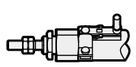
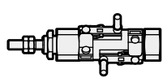
Item		SCPD3 SCPD3-L		
Bore size	mm	ø6	ø10	ø16
Actuation method		Double Acting Type		
Operating Fluid		Compressed Air		
Max. Operating Pressure	MPa	1.0		
Min. Operating Pressure	MPa	0.15	0.1	
Proof Pressure	MPa	1.6		
Ambient Temperature	°C	-10 to 60 (Provided that freezing does not occur)		
Port Size		M5		
Stroke tolerance	mm	+1.0 0		
Operating piston speed	mm/s	50 to 750		
Cushion		Rubber Cushion		
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)		
Allowable Absorption Energy	J	0.012	0.041	0.162

Stroke

Bore size (mm)		Standard Stroke (mm)	Maximum Stroke (mm)	Producible Stroke (mm)	Min. Stroke (mm)
SCPD3	ø6	15, 30, 45, 60	100	105	5
	ø10		200	210	
	ø16		260	270	

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

	With 1 pc.		With 2 pcs.	
Diagram	 Rod Side Mounting	 Head Side Mounting	 For different surface mounting	
Min. Stroke	T0, 5, T2 (W), T3 (W)	T2WL	T0, 5, T2 (W), T3 (W)	T2WL
	5 mm	30 mm	5 mm	30 mm

Cylinder Mass

(Unit: g)

Item / Bore size (mm)	Mounting Bracket Mass: Foot Type LS	Mounting Bracket Mass: Flange Type FA	Mounting Bracket Mass: Clevis Type CB	Product Mass at Stroke 0 mm	Added Mass per Stroke = 10 mm	Switch Mass (Per switch)	Switch Mounting Bracket Mass
ø6	6	4	-	13	1	Refer to the weight listed in the switch specifications on P. 971.	2
ø10	6	4	4	21	2		
ø16	15	12	10	42	3		

(Example) Product mass of SCPD3-L-LS-10-30-T0H-D

- ●Mounting Bracket Weight (Foot type): ..... 6 g
- ●Product Weight at Stroke = 0 mm: .....21 g
- ●Added Weight at Stroke = 30 mm: ..... 2×30/10= 6 g
- ●Switch Weight: ..... 2×(18+2)=40 g
- ●Product Weight: ..... 6+21+6+40=73 g

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa: 0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø6	Push	–	4.24	5.65	8.48	11.3	14.1	17.0	19.8	22.6	25.4	28.3
	Pull	–	3.18	4.24	6.36	8.48	10.6	12.7	14.8	17.0	19.1	21.2
ø10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0	62.8	70.7	78.5
	Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2	52.8	59.4	66.0
ø16	Push	20.1	30.2	40.2	60.3	80.4	1.01 × 10²	1.21 × 10²	1.41 × 10²	1.61 × 10²	1.81 × 10²	2.01 × 10²
	Pull	18.1	27.2	36.3	54.4	72.6	90.7	1.09 × 10²	1.27 × 10²	1.45 × 10²	1.63 × 10²	1.81 × 10²

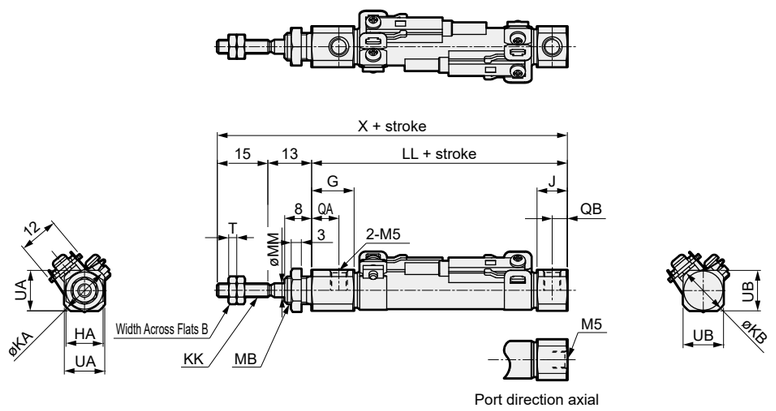
Mounting Bracket Model No. Notation Method

Bore size (mm) / Mounting bracket	ø6	ø10	ø16
Foot (LS)	P2-LS-6	P2-LS-10	P2-LS-16
Flange (FA)	P2-FA-6	P2-FA-10	P2-FA-16

Note: Foot (LS) type mounting brackets come as 1 pc./set.

Outline Dimension Drawing

●SCPD3-(L) Basic Type (OO)

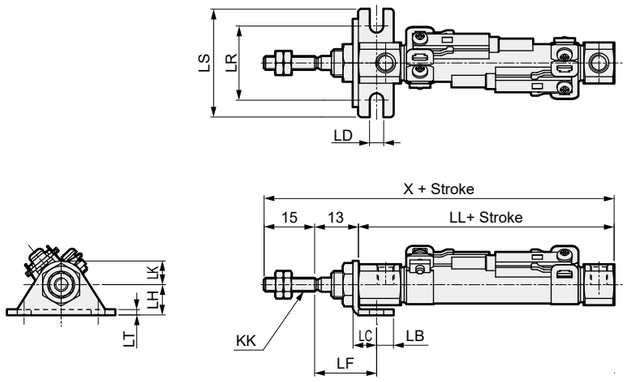


Port direction axial

Code / Bore size (mm)	Basic Type (OO) Basic Dimensions															
	B	G	HA	J	KA	KB	KK	LL	MB	MM	QA	QB	T	UA	UB	X
ø6	5.5	17	8	8	13.5	13.5 (10)	M3	47	M6	3	13	4	1.8	11	11 (9)	75
ø10	7	12.5	11	9	14.5	14.5	M4	46	M8 × 1.0	4	8	4.5	2.4	12	12	74
ø16	8	13	14	9	21.5	21.5	M5	46	M10 × 1.0	5	8.5	4.5	3.2	18	18	74

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
*2: Values in ( ) are for port direction axial type.
***3: For dimensions of models with switches, see P. 101.**
***4: For outline dimension drawings of accessories, see P. 19.**

● Single Side Axial Foot Type (LS)

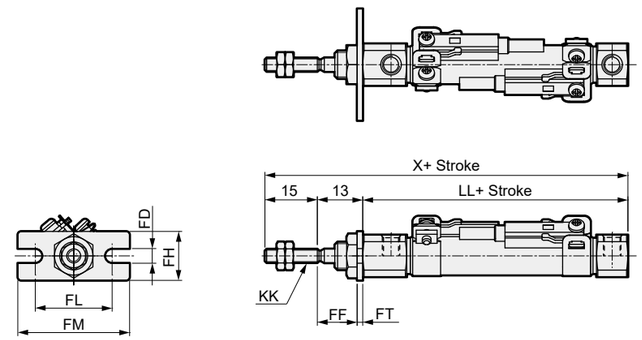


Code / Bore size (mm)	Single Side Axial Foot Type (LS) Mounting Dimensions											
	KK	LL	X	LB	LC	LD	LF	LH	LK	LR	LS	LT
ø6	M3	47	75	5	7	4.2	18.4	9	7	22	32	1.6
ø10	M4	46	74	5	7	4.2	18.4	9	7	22	32	1.6
ø16	M5	46	74	6	9	5.2	19.7	14	10	29	42	2.3

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

Outline Dimension Drawing

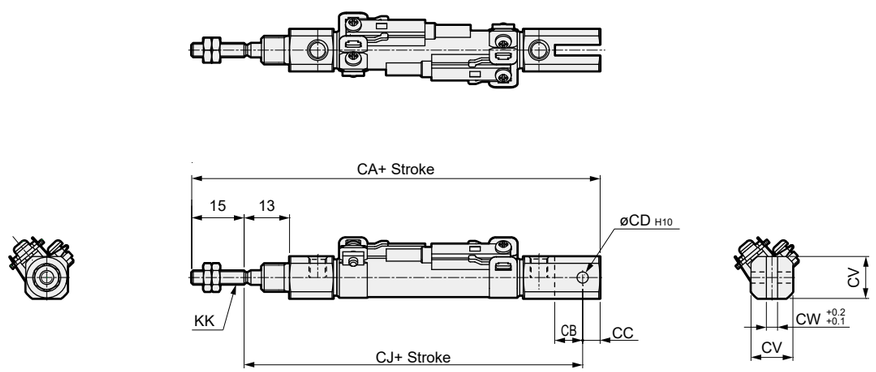
● Rod Side Flange Type (FA)



Code / Bore size (mm)	Rod Side Flange Type (FA) Mounting Dimensions								
	KK	LL	X	FD	FF	FH	FL	FM	FT
ø6	M3	47	75	4.2	11.4	14	22	32	1.6
ø10	M4	46	74	4.2	11.4	14	22	32	1.6
ø16	M5	46	74	5.2	10.7	20	29	42	2.3

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

● Double clevis type (CB)

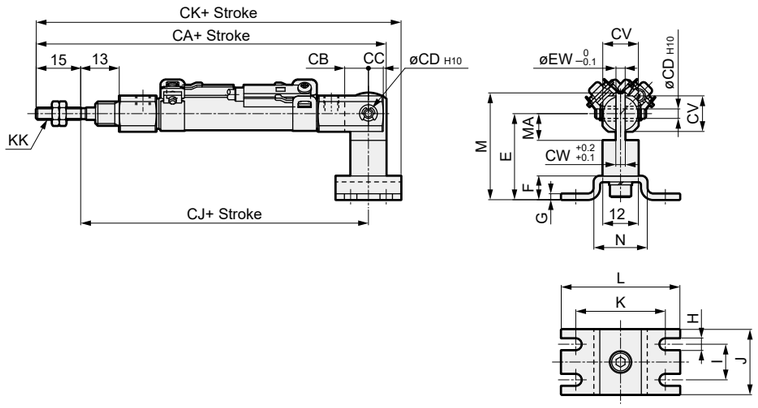


Code / Bore size (mm)	Double Clevis Type (CB) Mounting Dimensions							
	KK	CA	CB	CC	CD	CJ	Cv	CW
ø10	M4	87	8	5	3.2	67	12	3.2
ø16	M5	94	10	10	5	69	18	6.5

*1: The thread depth of ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
*2: Pin and retaining clip are attached.
***3: For dimensions of models with switches, see P. 101.**
***4: For outline dimension drawings of accessories, see P. 19.**

Outline Dimension Drawing

●Double Clevis Type (CB) With Single Bracket (Option Symbol B1)



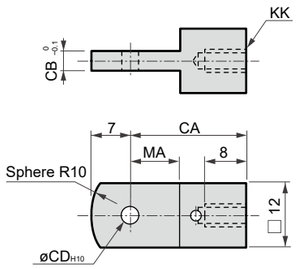
Code	Double Clevis Type (CB) With Single Bracket (Option Symbol B1) Mounting Dimensions										
Bore size (mm)	KK	CA	CB	CC	CD	CJ	CK	Cv	CW	E	EW
ø10	M4	87	8	5	3.2	67	107	12	3.2	29	3.1
ø16	M5	94	10	10	5	69	118	18	6.5	35	6.4

Code										
Bore size (mm)	F	G	H	I	J	K	L	M	N	MA
ø10	8	2	4.2	12	22	30.2	40	36	18	9
ø16	10	2.3	5.2	16	28	35.2	48	42	20	14

*1: The thread depth of ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
*2: Pin and retaining clip are attached.
***3: For dimensions of models with switches, see P. 101.**
***4: For outline dimension drawings of accessories, see P. 19.**

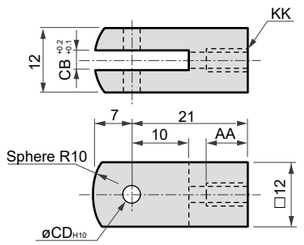
Accessories Outline Dimension Drawing

●Single Knuckle (I) Material: Steel, Zinc Chromate



Model No.	Applicable	CA	CB	CD	KK	MA	Weight (g)
P2-I-10	ø10	21	3.1	3.2	M4	9	17
P2-I-16	ø16	25	6.4	5	M5	14	21

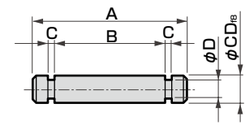
● Double Knuckle (Y) Material: Steel, Zinc Chromate



Model No.	Applicable	AA	CB	CD	KK	Weight (g)
P2-Y-10	ø10	8	3.2	3.2	M4	25
P2-Y-16	ø16	11	6.5	5	M5	20

Note: The pin and retaining ring are included.

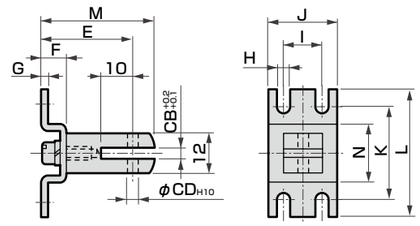
●Pin for Knuckle Bracket (P) Clevis
Material: Stainless Steel



Model No.	Applicable Bore Size (mm)	Applicable	A	B	C	CD	D	Weight (g)
P2-P-10	ø10	Knuckle/Bracket/Clevis	17	13	0.6	3.2	2.5	1.2
P2-P-10Z		Clevis for Z	20	16				1.4
P2-P-16	ø16	Knuckle/Bracket	18	13	0.7	5	4	3.0
P2-P-16A		Clevis	24	19	0.7	5	4	3.9

*1: The pin and retaining clip for use with the double knuckle are included with the product.
*2: Retaining ring is attached.

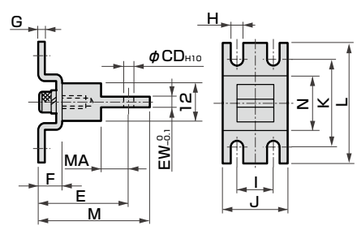
●Double Bracket (B2) Material: Steel, Zinc Chromate



Model No.	Applicable	CD	E	CB	F	G	H	I	J	K	L	M	N	Weight (g)
P2-B2-10	ø10	3.2	29	3.2	8	2	4.2	12	22	30.2	40	36	18	44
P2-B2-16	ø16	5	31	6.5	10	2.3	5.2	16	28	35.2	48	38	20	44

Note: The pin and retaining ring are included.

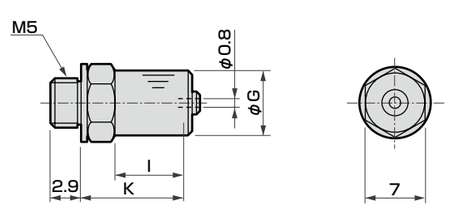
●Single Bracket (B1) Material: Steel, Zinc Chromate



Model No.	Applicable	CD	E	EW	F	G	H	I	J	K	L	M	N	MA	Weight (g)
P2-B1-10	ø10	3.2	29	3.1	8	2	4.2	12	22	30.2	40	36	18	9	37
P2-B1-16	ø16	5	35	6.4	10	2.3	5.2	16	28	35.2	48	42	20	14	48

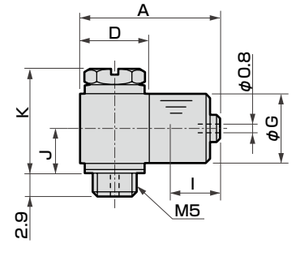
Hose Nipple for Pencil Cylinder (Sales Unit: 10 pcs/bag)

●Barb Fitting Straight/FCS



Model No.	Applicable Tube Outer Diameter	G	I	K	Weight (g)	Effective Area (mm^2)
FCS4-M5P	ø4	7	4.3	11.7	3.2	0.35
FCS6-M5P	ø6	9	5	12.4	4.5	0.35

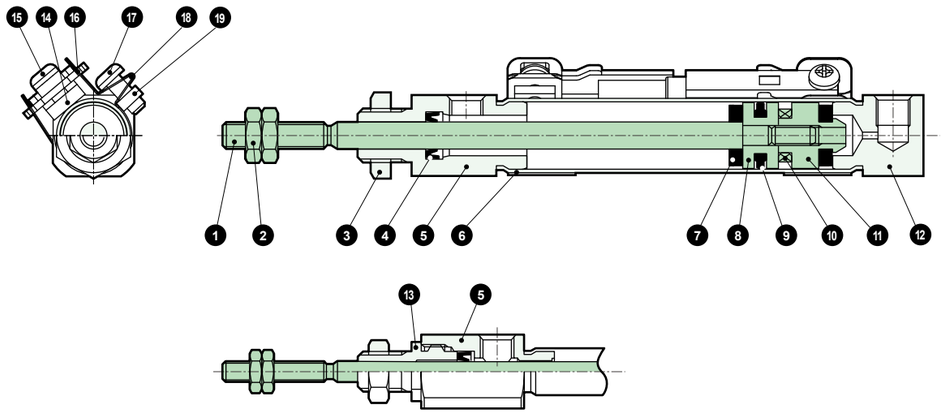
●Elbow/FCL



Model No.	Applicable Tube Outer Diameter	A	D	G	I	J	K	Weight (g)	Effective Area (mm^2)
FCL4-M5P	ø4	16.1	8	7	4.3	5.1	11.6	6.8	0.35
FCL6-M5P	ø6	17.8	9	9	5	6.1	13.6	10.1	0.35

Internal Structure Diagram / Material

●Double Acting Type
SCPD3-(L)



For ø6

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		11	Spacer	Aluminum Alloy	
2	Rod Nut	Steel	Nickel Plating	12	Head Cover	Aluminum Alloy	Hard Anodized
3	Hexagon Nut	Steel	Nickel Plating	13	Rod Metal	Aluminum Alloy	Hard Anodized
4	Rod Packing	Nitrile Rubber		With Switch			
5	Rod Cover	Aluminum Alloy	Hard Anodized	14	Switch		
6	Cylinder Tube	Stainless Steel		15	Phillips Pan Head Screw	Stainless Steel	
7	Cushion Rubber	Urethane Rubber		16	Fixing Bracket	Stainless Steel	
8	Piston	Aluminum Alloy		17	Phillips Pan Head Screw	Stainless Steel	
9	Piston Packing	Nitrile Rubber		18	Band	Stainless Steel	
10	Magnet		With switch only	19	Fixing Nut	Stainless Steel	

Do not disassemble

Mounting Bracket Material

Mounting type	Material
Foot (LS)	Steel
Flange (FA)	Steel

MEMO

General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending



Pencil Cylinder Single Acting/Push Type / Single Acting/Retracting Type

SCPS/SCPS3/SCPH3 Series

●Bore Size: ø2.5, ø4, ø6, ø10, ø16

Circuit Diagram Symbol



RoHS

Model No. Notation Method

SCPS – 00 – 2.5 – 5

Model No. | Mounting Type Basic Type | ❶ Bore size | ❷ Stroke

❶Bore size (mm)

Code	Content	
2.5	ø2.5	
4	ø4	

❷Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø2.5	5 to 10	Every 1 mm
ø4	5 to 20	

Model No. Notation Method

Without Switch
(Without magnet for switch)

SCPS3 – 00 – 10 – 15 – O ——— Y
❶ ❷ ❸ ❹ ❺ ❽

With Switch
(Built-in magnet for switch)

SCPS3-L – 00 – 10 – 15 – O – T2H – R – Y
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Model No. | ❷ Mounting type | ❸ Bore size | ❹ Stroke | ❺ Head Side Port Direction | ❻ Switch Model No. | ❼ Number of Switches | ❽ Accessories

❶ Model No.

Code	Contents
SCPS3	Single Acting, Push Type
SCPS3-L	Single Acting/Push Type/With Switch
SCPH3	Single Acting, Retracting Type
SCPH3-L	Single Acting/Retracting Type/With Switch

❷Mounting type

Mounting brackets are attached to the product and shipped.

Code	Contents	SCPS3	SCPH3
00	Basic type		
LS	Single Side Axial Foot Type (Rod Side)		
FA	Rod Side Flange Type		
*1 CB	Double Clevis Type (Pin and retaining ring attached) (ø10, ø16)		

*1: ❺When port direction is "O" (axial), mounting style "CB" cannot be selected.

❸Bore size (mm)

Code	Content
6	ø6
10	ø10
16	ø16

❹Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø6	5 to 100	Every 1 mm
ø10	5 to 120	
ø16	5 to 120	

Note: For minimum stroke with switch, refer to P. 24.

❺Head Side Port Direction

Code	Content	
Blank	Vertical Direction	
*1 *2 O	Axial Direction	

*1: If port direction is "0" (axial), mounting type "CB" cannot be selected.
*2: SCPH3(-L) cannot be selected.

Switch Model No.

For switch details, please refer to P. 971. Switches are attached to the product and shipped.

	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Contact / Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

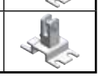
*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (pin and retaining ring attached)	
	B1	Single Bracket	
	B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.
*2: Accessories cannot be selected for ø6.

About Custom Product Specifications

Code	Contents
Rod End Shape Modification	Refer to End of Volume P. 11.

*For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

SCPD3 – T0H – 6
❻ Switch Model No. | ❸ Bore size

●Switch Body (with Fixed Bracket)

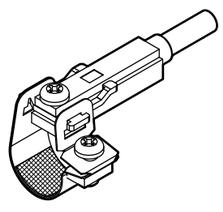
SCPD3 – T0H
❻ Switch Model No.

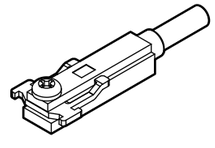
●Mounting Bracket Set + Fixed Bracket

SCPD3 – TS – 6
❸ Bore size

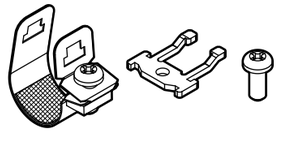
●Mounting bracket set

SCPD3 – T – 6
❸ Bore size





Note) T-type standard switch and fixing bracket Phillips pan head screw are different.



For purchases of 20 or more, items will be packed together.



For purchases of 20 or more, items will be packed together.

Specifications

Item		SCPS		SCPS3 SCPS3-L			SCPH3 SCPH3-L		
Bore size	mm	ø2.5	ø4	ø6	ø10	ø16	ø6	ø10	ø16
Actuation method		Single Acting, Push Type					Single Acting, Retracting Type		
Operating Fluid		Compressed Air							
Max. Operating Pressure	MPa	1.0							
Min. Operating Pressure	MPa	0.35		0.3	0.15		0.39	0.2	
Proof Pressure	MPa	1.6							
Ambient Temperature	°C	-10 to 60 (Provided that freezing does not occur)							
Port Size		Fitting for Tube (Tube ø2.5 × ø4)		M5					
Stroke tolerance	mm	+0.5 0		+1.0 0					
Operating piston speed	mm/s	50 to 300		50 to 750					
Cushion		None		Rubber Cushion					
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)							
Allowable Absorption Energy	J	1.5×10^{-4}	4×10^{-4}	0.012	0.041	0.162	0.012	0.041	0.162

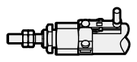
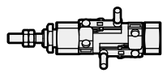
Note: Do not leave single acting cylinders pressurized. If left pressurized, the piston rod may not return by spring load when the pressure is released.

Stroke

Bore size (mm)		Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
SCPS	ø2.5	5, 10	10	5
	ø4	5, 10, 15, 20	20	
SCPS3 SCPH3	ø6	15, 30, 45, 60	100	
	ø10		120	
	ø16			

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

	With 1 pc.		With 2 pcs.	
Diagram	 Rod Side Mounting	 Head Side Mounting	 For different surface mounting	
Min. Stroke	T0, 5, T2 (W), T3 (W)	T2WL	T0, 5, T2 (W), T3 (W)	T2WL
	5 mm	30 mm	10 mm	30 mm

Single Acting Type Spring Load (SCPS/SCPS3/SCPH3)

(Unit: N)

Bore size (mm)	At Stroke 0 mm	At Full Stroke Operation
ø2.5	0.73	1.17
ø4	1.76	2.84
ø6	1.7	3.7
ø10	3.2	7.5
ø16	6.4	14.9

Cylinder Mass

●SCPS3/SCPH3 (Unit: g)

Item	Mounting Bracket Mass			Product Mass at Stroke 0 mm	Added Mass per Stroke = 10 mm	Switch Mass (Per switch)	Switch Mounting Bracket Weight
Bore size (mm)	Foot Type LS	Flange Type FA	Clevis Type CB				
ø6	6	4	-	9	2	Refer to the weight listed in the switch specifications on P. 971.	2
ø10	6	4	4	20	4		
ø16	15	12	10	35	8		

(Example) Product mass of SCPS3-L-LS-10-30-T0H-D
- ●Mounting Bracket Weight (Foot type): ..... 6 g
- ●Product Weight at Stroke = 0 mm: .....20 g
- ●Added Weight at Stroke = 30 mm: ..... 4×30/10=12 g
- ●Switch Weight: ..... 2×(18+2)=40 g
- ●Product Weight: ..... 6+20+12+40=78 g

●SCPS (Unit: g)

Stroke	5st	10st
Bore size (mm)		
ø2.5	1.6	1.7
ø4	7	8

Theoretical Thrust Table

●SCPS (Unit: N)

Bore size (mm)	Operating Pressure MPa							
	0.35	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø2.5	0.694	0.793	1.28	1.78	2.27	2.76	3.25	3.74
ø4	1.92	2.19	3.44	4.70	5.96	7.21	8.47	9.73

● SCPS3

Bore size (mm)	Operating Pressure MPa									
	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø6	–	–	4.8	7.6	10.4	13.3	16.1	18.9	21.7	24.6
ø10	6.2	8.2	16.1	23.9	31.8	39.6	47.5	55.3	63.2	71.0
ø16	19.0	25.3	45.4	65.5	85.6	105.7	125.8	145.9	166.1	186.2

● SCPH3

Bore size (mm)	Operating Pressure MPa								
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø6	–	–	4.8	6.9	9.0	11.1	13.3	15.4	17.5
ø10	5.7	12.3	18.9	25.5	32.1	38.7	45.3	51.9	58.5
ø16	21.4	39.5	57.7	75.8	94.0	112.1	130.2	148.4	166.5

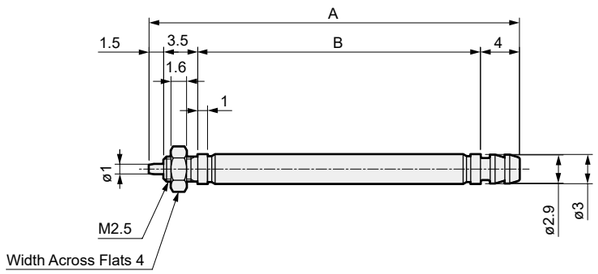
Mounting Bracket Model No. Notation Method

Bore size (mm) / Mounting bracket	ø6	ø10	ø16
Foot (LS)	P2-LS-6	P2-LS-10	P2-LS-16
Flange (FA)	P2-FA-6	P2-FA-10	P2-FA-16

Note: Foot (LS) type mounting brackets come as 1 pc./set.

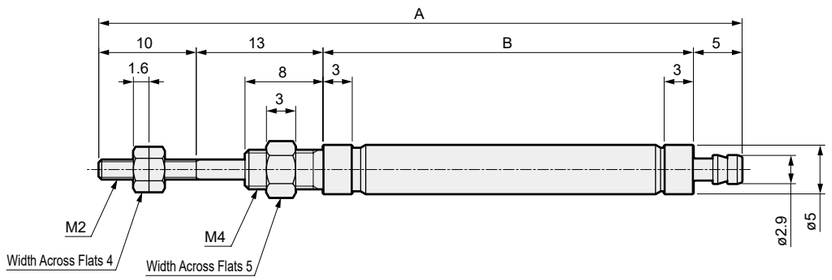
Outline Dimension Drawing

●SCPS Basic Type (00) ø2.5



Code / Stroke (mm)	A	B
5	33	24
10	38	29

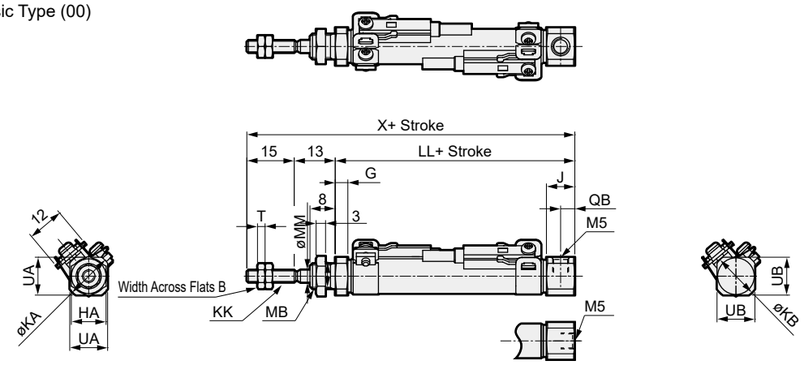
●SCPS Basic Type (00) ø4



Code / Stroke (mm)	A	B
5	60.5	32.5
10	65.5	37.5
15	81.0	53.0
20	86.0	58.0

Outline Dimension Drawing

●SCPS3-(L) Basic Type (00)



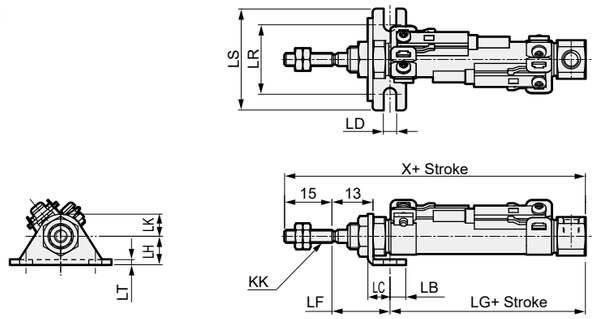
Port direction axial

Code / Bore size (mm)	Basic Type (00) Basic Dimensions															
	B	G	HA	J	KA	KB	KK	LL								
								15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less
ø6	5.5	3	8	8	10.5	13 (10.5)	M3	43.5	48.5	63.5	68.5	83.5	88.5	103.5	-
ø10	7	4	11	9	14.5	14.5	M4	47	52	62	67	77	82	92	97
ø16	8	4	14	9	21.5	21.5	M5	47	52	62	67	77	82	92	97

Code / Bore size (mm)	MB	MM	QB	T	UA	UB	X							
							15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less
ø6	M6	3	4	1.8	9	11 (9)	71.5	76.5	91.5	96.5	111.5	116.5	131.5	-
ø10	M8 × 1.0	4	4.5	2.4	12	12	75	80	90	95	105	110	120	125
ø16	M10 × 1.0	5	4.5	3.2	18	18	75	80	90	95	105	110	120	125

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
*2: Dimensions in ( ) are for head side port direction "O" (axial).
***3: For dimensions of models with switches, see P. 101.**
***4: For outline dimension drawings of accessories, see P. 19.**

●Single Side Axial Foot Type (LS)



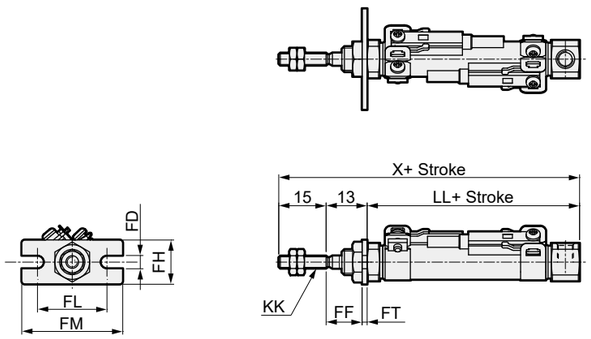
Code / Bore size (mm)	Single Side Axial Foot Type (LS) Mounting Dimensions												
	KK	X								LB	LC	LD	LF
		15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120				
ø6	M3	71.5	76.5	91.5	96.5	111.5	116.5	131.5	-	5	7	4.2	18.4
ø10	M4	75	80	90	95	105	110	120	125	5	7	4.2	18.4
ø16	M5	75	80	90	95	105	110	120	125	6	9	5.2	19.7

Code / Bore size (mm)	LG								LH	LK	LR	LS	LT
	15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120					
ø6	38.1	43.1	58.1	63.1	78.1	83.1	98.1	-	9	7	22	32	1.6
ø10	41.6	46.6	56.6	61.6	71.6	76.6	86.6	91.6	9	7	22	32	1.6
ø16	40.3	45.3	55.3	60.3	70.3	75.3	85.3	90.3	14	10	29	42	2.3

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)

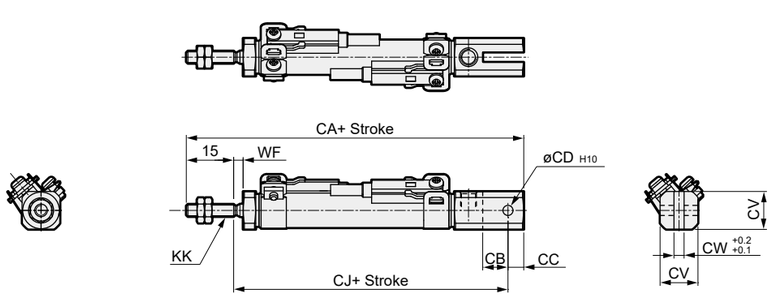


Code / Bore size (mm)	Rod Side Flange Type (FA) Mounting Dimensions: KK	LL: 15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120
ø6	M3	43.5	48.5	63.5	68.5	83.5	88.5	103.5	-
ø10	M4	47	52	62	67	77	82	92	97
ø16	M5	47	52	62	67	77	82	92	97

Code / Bore size (mm)	X: 15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120	FD	FF	FH	FL	FM	FT
ø6	71.5	76.5	91.5	96.5	111.5	116.5	131.5	-	4.2	11.4	14	22	32	1.6
ø10	75	80	90	95	105	110	120	125	4.2	11.4	14	22	32	1.6
ø16	75	80	90	95	105	110	120	125	5.2	10.7	20	29	42	2.3

***1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.**
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

●Double clevis type (CB)



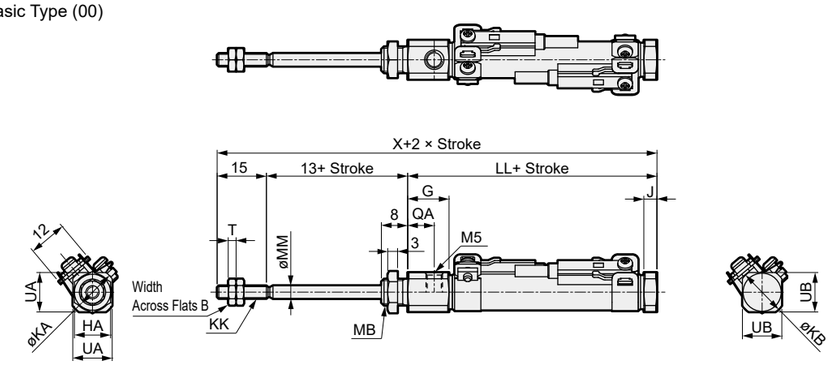
Code / Bore size (mm)	Double Clevis Type (CB) Mounting Dimensions: KK	CA: 15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120	CB	CC	CD	CJ: 15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120
ø10	M4	80	92	104	116	128	140	152	164	8	5	3.2	60	72	84	96	108	120	132	144
ø16	M5	87	99	111	123	135	147	159	171	10	10	5	62	74	86	98	110	122	134	146

Code / Bore size (mm)	Cv	CW	WF: 15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120
ø10	12	3.2	5	12	14	21	23	30	32	39
ø16	18	6.5	5	12	14	21	23	30	32	39

***1: Pin and retaining clip are attached.**
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

Outline Dimension Drawing

●SCPH3-(L) Basic Type (00)

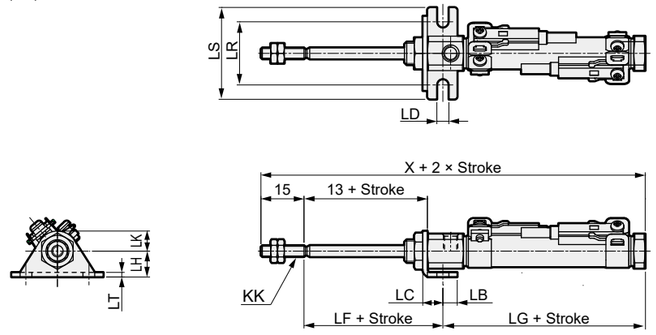


Code / Bore size (mm)	Basic Type (00) Basic Dimensions: B	G	HA	J	KA	KB	KK	LL: 15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120
ø6	5.5	17	8	3	13.5	10.5	M3	52.5	57.5	72.5	77.5	92.5	97.5	112.5	-
ø10	7	12.5	11	4	14.5	14.5	M4	51	56	66	71	81	86	96	101
ø16	8	13	14	4	21.5	21.5	M5	51	56	66	71	81	86	96	101

Code / Bore size (mm)	MB	MM	QA	T	UA	UB	X: 15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120
ø6	M6	3	13	1.8	11	9	80.5	85.5	100.5	105.5	120.5	125.5	140.5	-
ø10	M8 × 1.0	4	8	2.4	12	12	79	84	94	99	109	114	124	129
ø16	M10 × 1.0	5	8.5	3.2	18	18	79	84	94	99	109	114	124	129

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

●Single Side Axial Foot Type (LS)



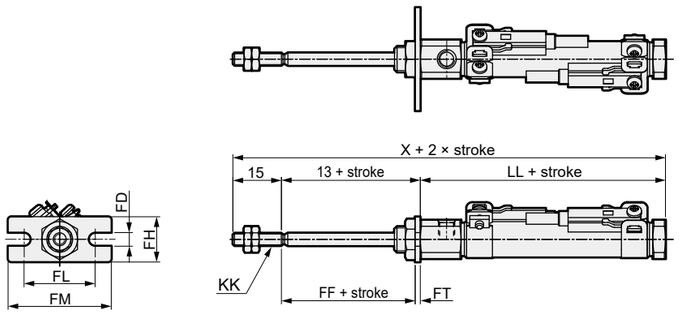
Code / Bore size (mm)	Single Side Axial Foot Type (LS) Mounting Dimensions: KK	X: 15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120	LB	LC	LD	LF
ø6	M3	80.5	85.5	100.5	105.5	120.5	125.5	140.5	-	5	7	4.2	18.4
ø10	M4	79	84	94	99	109	114	124	129	5	7	4.2	18.4
ø16	M5	79	84	94	99	109	114	124	129	6	9	5.2	19.7

Code / Bore size (mm)	LG: 15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120	LH	LK	LR	LS	LT
ø6	47.1	52.1	67.1	72.1	87.1	92.1	107.1	-	9	7	22	32	1.6
ø10	45.6	50.6	60.6	65.6	75.6	80.6	90.6	95.6	9	7	22	32	1.6
ø16	44.3	49.3	59.3	64.3	74.3	79.3	89.3	94.3	14	10	29	42	2.3

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)

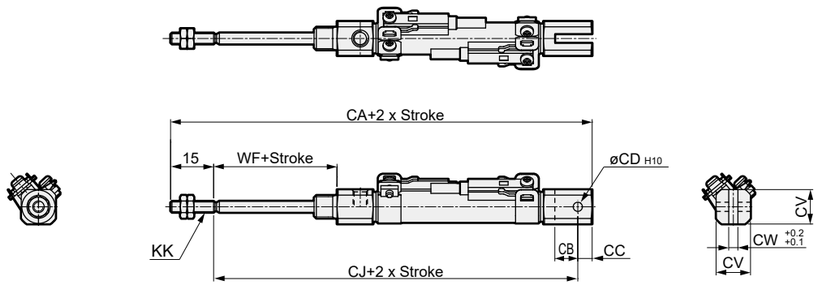


Code	Rod Side Flange Type (FA) Mounting Dimensions									
Bore size (mm)	KK	LL								
		15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120
ø6	M3	52.5	57.5	72.5	77.5	92.5	97.5	112.5	-
ø10	M4	51	56	66	71	81	86	96	101
ø16	M5	51	56	66	71	81	86	96	101

Code														
Bore size (mm)	X								FD	FF	FH	FL	FM	FT
	15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120						
ø6	80.5	85.5	100.5	105.5	120.5	125.5	140.5	-	4.2	11.4	14	22	32	1.6
ø10	79	84	94	99	109	114	124	129	4.2	11.4	14	22	32	1.6
ø16	79	84	94	99	109	114	124	129	5.2	10.7	20	29	42	2.3

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

●Double clevis type (CB)



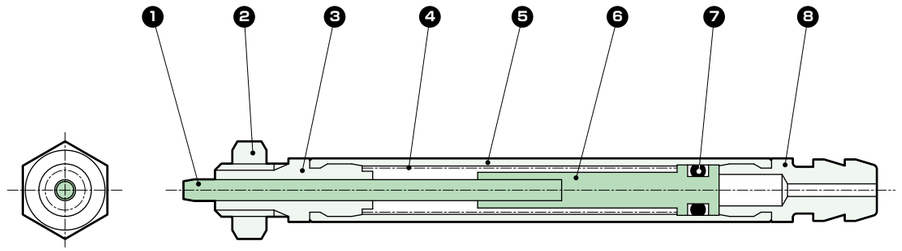
Code	Double Clevis Type (CB) Mounting Dimensions																			
Bore size (mm)	KK	CA								CB	CC	CD	CJ							
		15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120				15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120
ø10	M4	94	106	118	130	142	154	166	178	8	5	3.2	74	86	98	110	122	134	146	158
ø16	M5	101	113	125	137	149	161	173	185	10	10	5	76	88	100	112	124	136	148	160

Code										
Bore size (mm)	Cv	CW	WF							
			15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120
ø10	12	3.2	15	22	24	31	33	40	42	49
ø16	18	6.5	15	22	24	31	33	40	42	49

***1: The thread depth of ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.**
***2: Pin and retaining clip are attached.**
***3: For dimensions of models with switches, see P. 101.**
***4: For outline dimension drawings of accessories, see P. 19.**

Internal Structure Diagram / Material

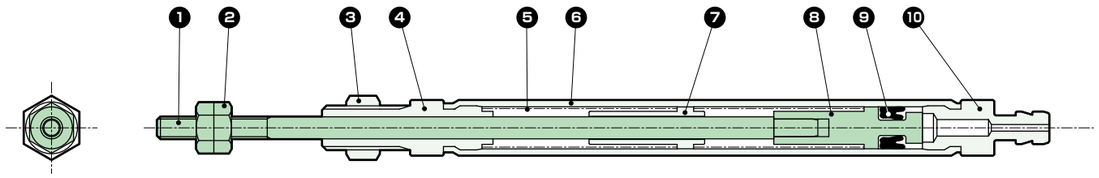
●Single Acting
SCPS
• ø2.5



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		5	Cylinder Tube	Stainless Steel	
2	Hexagon Nut	Copper Alloy		6	Piston	Copper Alloy	
3	Rod Cover	Copper Alloy		7	Piston Packing	Nitrile Rubber	
4	Coil Spring	Piano Wire		8	Head Cover	Copper Alloy	

• ø4

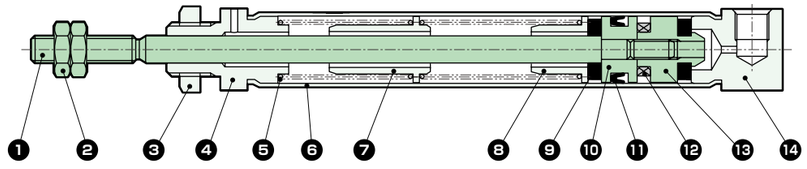


Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		6	Cylinder Tube	Stainless Steel	
2	Rod Nut	Copper Alloy		7	Spring Retainer	Copper Alloy	
3	Hexagon Nut	Copper Alloy		8	Piston	Copper Alloy	
4	Rod Cover	Copper Alloy		9	Piston Packing	Nitrile Rubber	
5	Coil Spring	Piano Wire		10	Head Cover	Copper Alloy	

Internal Structure Diagram / Material

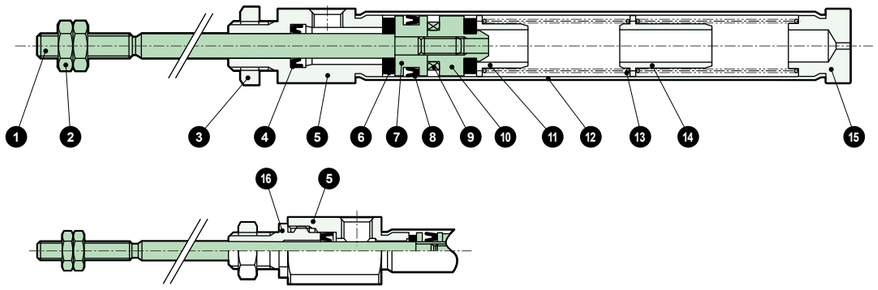
●Single Acting, Push Type
SCPS3
SCPS3-L (with Switch)



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		8	Spring Retainer (B)	Aluminum Alloy	
2	Rod Nut	Steel	Nickel Plating	9	Cushion Rubber	Urethane Rubber	
3	Hexagon Nut	Steel	Nickel Plating	10	Piston	Aluminum Alloy	
4	Rod Cover	Aluminum Alloy	Hard Anodized	11	Piston Packing	Nitrile Rubber	
5	Coil Spring	Piano Wire	Zinc Chromate	12	Magnet		With switch only
6	Cylinder Tube	Stainless Steel		13	Spacer	Aluminum Alloy	
7	Spring Retainer (A)	Aluminum Alloy		14	Head Cover	Aluminum Alloy	Hard Anodized

●Single Acting, Retracting Type
SCPH3
SCPH3-L (with Switch)



For ø6

Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		9	Magnet		With switch only
2	Rod Nut	Steel	Nickel Plating	10	Spacer	Aluminum Alloy	
3	Hexagon Nut	Steel	Nickel Plating	11	Spring Retainer (A)	Aluminum Alloy	
4	Rod Packing	Nitrile Rubber		12	Cylinder Tube	Stainless Steel	
5	Rod Cover	Aluminum Alloy	Hard Anodized	13	Coil Spring	Piano Wire	Zinc Chromate
6	Cushion Rubber	Urethane Rubber		14	Spring Retainer (B)	Aluminum Alloy	
7	Piston	Aluminum Alloy		15	Head Cover	Aluminum Alloy	Hard Anodized
8	Piston Packing	Nitrile Rubber		16	Rod Metal	Aluminum Alloy	Hard Anodized

MEMO



Pencil Cylinder, Double Acting, Heat Resistant Type

SCPD3-T Series

● Bore size: ø6, ø10, ø16

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

SCPD3-T - 00 - 10 - 15 - O —— Y

- SCPD3-T: Model No.
- 00: ❶Mounting type
- 10: ❷Bore Size
- 15: ❸Stroke
- O: ❹Head Side Port Direction
- Y: ❺Accessories

❶Mounting type Mounting brackets are attached to the product and shipped.

Code	Contents	
00	Basic type	
LS	Single Side Axial Foot Type (Rod Side)	
FA	Rod Side Flange Type	
*1 CB	Double Clevis Type (Pin and Retaining Ring Attached) (ø10, ø16)	

*1: ❹When port direction is "O" (axial), mounting style "CB" cannot be selected.

❷Bore size (mm)

Code	Content
6	ø6
10	ø10
16	ø16

❸Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø6	5 to 100	Every 1 mm
ø10	5 to 200	
ø16	5 to 260	

❹Head Side Port Direction

Code	Content	
Blank	Vertical Direction	
*1 O	Axial Direction	

*1: When port direction is "O" (axial), mounting style "CB" cannot be selected.

❺Accessories

Code	Content	
*1 I	Single Knuckle	
*1 Y	Double Knuckle (pin and retaining ring attached)	
B1	Single Bracket	
B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.
*2: Accessories cannot be selected for ø6.

About Custom Product Specifications

Code	Contents
Rod End Shape Modification	Refer to End of Volume P. 11.

*For combinations of variations and options, see P. 11.

Specifications

Item		SCPD3-T		
Bore size	mm	ø6	ø10	ø16
Actuation method		Double Acting/Heat Resistant Type		
Operating Fluid		Compressed Air		
Max. Operating Pressure	MPa	1.0		
Min. Operating Pressure	MPa	0.15	0.1	
Proof Pressure	MPa	1.6		
Ambient Temperature	°C	5 to 120		
Port Size		M5		
Stroke tolerance	mm	+1.0 0		
Operating piston speed	mm/s	50 to 750		
Cushion		Rubber Cushion		
Lubrication		Not Available		
Allowable Absorption Energy	J	0.012	0.041	0.162

Stroke

Bore size (mm)		Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
SCPD3-T	ø6	15, 30, 45, 60	100	5
	ø10		200	
	ø16		260	

Note: Intermediate strokes can be produced in 1 mm increments.

Cylinder Mass

(Unit: g)

Model	Item / Bore size (mm)	Mounting Bracket Mass Foot Type LS	Flange Type FA	Clevis Type CB	Product Mass at Stroke 0 mm	Added Mass per Stroke = 10 mm
SCPD3-T	ø6	6	4	-	13	1
	ø10	6	4	4	21	2
	ø16	15	12	10	42	3

(Example) Product Weight of SCPD3-T-LS-10-30
- ●Mounting Bracket Weight (Foot type): ..... 6 g
- ●Product Weight at Stroke = 0 mm: .....21 g
- ●Added Weight at Stroke = 30 mm: ..... 2×30/10=6 g
- ●Product Weight: .....6+21+6=33 g

Theoretical Thrust Table

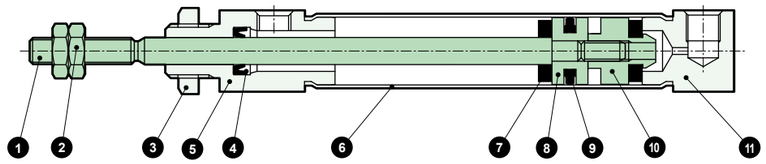
(Unit: N)

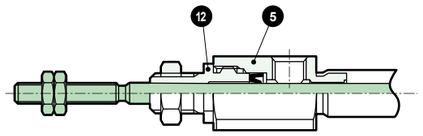
Bore size (mm)	Operating Direction	Operating Pressure MPa 0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø6	Push	–	4.24	5.65	8.48	11.3	14.1	17.0	19.8	22.6	25.4	28.3
	Pull	–	3.18	4.24	6.36	8.48	10.6	12.7	14.8	17.0	19.1	21.2
ø10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0	62.8	70.7	78.5
	Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2	52.8	59.4	66.0
ø16	Push	20.1	30.2	40.2	60.3	80.4	1.01 × 10²	1.21 × 10²	1.41 × 10²	1.61 × 10²	1.81 × 10²	2.01 × 10²
	Pull	18.1	27.2	36.3	54.4	72.6	90.7	1.09 × 10²	1.27 × 10²	1.45 × 10²	1.63 × 10²	1.81 × 10²

Outline Dimension Drawing

Same as Double Acting, Single Rod Type SCPD3 Series. Refer to P. 16 to 18.
However, it does not come with a switch.

Internal Structure Diagram / Material



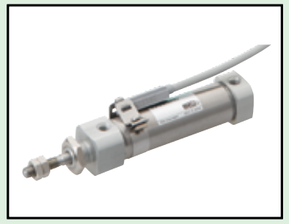


For ø6

Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		7	Cushion Rubber	Fluoro Rubber	
2	Rod Nut	Steel	Nickel Plating	8	Piston	Aluminum Alloy	
3	Hexagon Nut	Steel	Nickel Plating	9	Piston Packing	Fluoro Rubber	
4	Rod Packing	Fluoro Rubber		10	Spacer	Aluminum Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized	11	Head Cover	Aluminum Alloy	Hard Anodized
6	Cylinder Tube	Stainless Steel		12	Rod Metal	Aluminum Alloy	Hard Anodized

MEMO



Pencil Cylinder, Double Acting, with Rubber Air Cushion

SCPD3-□C Series

Bore size: ø6, ø10, ø16

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Without magnet for switch)

SCPD3	-	00	-	10	C	-	15	-	O			I
Model No.		❶		❷			❸		❹			❼

With Switch
(Built-in magnet for switch)

SCPD3-L	-	00	-	10	C	-	15	-	O	-	T2H	-	R	-	I
Model No.		❶ Mounting type		❷ Bore size	With Rubber Air Cushion		❸ Stroke		❹ Head Side Port Direction		❺ Switch Model No.		❻ Number of Switches		❼ Options/ Accessories

❶Mounting type

Mounting brackets are attached to the product and shipped.

Code	Contents	
00	Basic type	
LS	Single Side Axial Foot Type (Rod Side)	
FA	Rod Side Flange Type	
*1 CB	Double Clevis Type (ø10, ø16)	

*1: When port direction is "0", "CB" cannot be manufactured.

❷Bore size (mm)

Code	Content
6	ø6
10	ø10
16	ø16

❸Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø6	5 to 100	Every 1 mm
ø10	5 to 200	
ø16	5 to 260	

Note: For minimum stroke with switch, refer to P. 40.

❹Head Side Port Direction

Code	Content	
Blank	Vertical Direction	
*1 O	Axial Direction	

*1: When port direction is "0", "CB" cannot be manufactured.

❺Switch Model No.

For switch details, please refer to P. 971. Switches are attached to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
*5 W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❻Options/Accessories

Code	Content	
*1 I	Single Knuckle	
*1 Y	Double Knuckle (pin and retaining ring attached)	
B1	Single Bracket	
B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.
*2: Options/accessories cannot be selected for ø6.

About Custom Product Specifications

Code	Contents
Rod End Shape Modification	Refer to End of Volume P. 11.

*For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

SCPD3	-	T0H	-	6
		❺ Switch Model No.		❷ Bore size

●Switch Body (with Fixed Bracket)

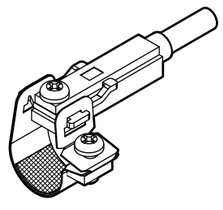
SCPD3	-	T0H
		❺ Switch Model No.

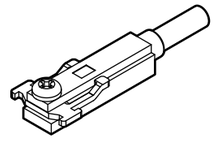
●Mounting Bracket Set + Fixed Bracket

SCPD3	- TS -	6
		❷ Bore size

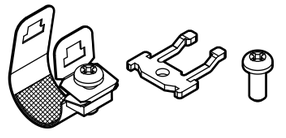
●Mounting bracket set

SCPD3	- T -	6
		❷ Bore size





Note) T-type standard switch and fixing bracket Phillips pan head screw are different.



For purchases of 20 or more, items will be packed together.



For purchases of 20 or more, items will be packed together.

Specifications

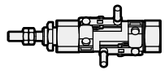
Item		SCPD3-□C, SCPD3-L-□C		
Bore size	mm	ø6	ø10	ø16
Actuation method		Double Acting Type		
Operating Fluid		Compressed Air		
Max. Operating Pressure	MPa	1.0		
Min. operating pressure	MPa	0.3		0.2
Proof Pressure	MPa	1.6		
Ambient Temperature	°C	-10 to 60 (Provided that freezing does not occur)		
Port Size		M5		
Stroke tolerance	mm	+1.0 0		
Operating piston speed	mm/s	50 to 750 (Use within allowable absorbed energy.)		
Cushion		Rubber Air Cushion		
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)		
Allowable Absorption Energy	J	0.012	0.041	0.162

Stroke

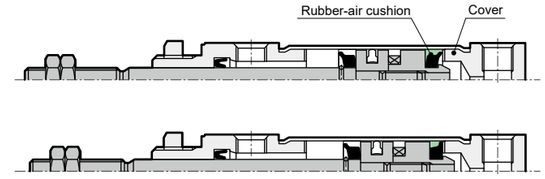
Bore size (mm)	Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
ø6	15, 30, 45, 60	100	5
ø10		200	
ø16		260	

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

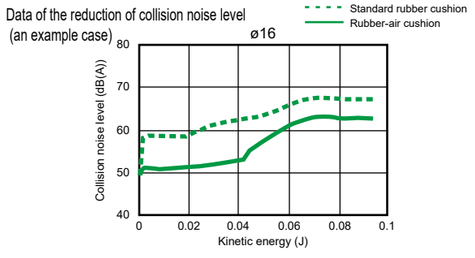
	With 1 pc.		With 2 pcs.	
Diagram	 Rod Side Mounting	 Head Side Mounting	 For different surface mounting	
Min. Stroke	T0, 5, T2 (W), T3 (W)	T2WL	T0, 5, T2 (W), T3 (W)	T2WL
	5 mm	30 mm	10 mm	30 mm

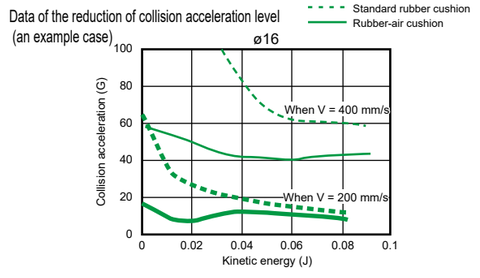
■Rubber Air Cushion Mechanism



Explanation at Pull

When the piston operates and the rubber air cushion contacts the cover, an enclosed air space is formed in the ▭ part. The air in this enclosed space is compressed as the piston operates, absorbing energy. At the stroke end, energy absorption due to the compressive strain of the rubber air cushion is also added.





Cylinder Mass

(Unit: g)

Model	Item / Bore size (mm)	Mounting Bracket Mass: Foot Type LS	Mounting Bracket Mass: Flange Type FA	Mounting Bracket Mass: Clevis Type CB	Product Mass at Stroke 0 mm	Added Mass per Stroke = 10 mm	Switch Mass (Per switch)	Switch Mounting Bracket Mass
SCPD3-□C	ø6	6	4	-	13	1	Refer to the weight listed in the switch specifications on P. 971.	2
	ø10	6	4	4	21	2		
	ø16	15	12	10	42	3		

(Example) Product Weight of SCPD3-L-LS-10C-30-T0H-D

- ●Mounting Bracket Weight (Foot type): ..... 6 g
- ●Product Weight at Stroke = 0 mm: .....21 g
- ●Added Weight at Stroke = 30 mm: ..... 2×30/10= 6 g
- ●Switch Weight: ..... 2×(18+2)=40 g
- ●Product Weight: ..... 6+21+6+40=73 g

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa: 0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø6	Push	–	8.48	11.3	14.1	17.0	19.8	22.6	25.4	28.3
	Pull	–	6.36	8.48	10.6	12.7	14.8	17.0	19.1	21.2
ø10	Push	–	23.6	31.4	39.3	47.1	55.0	62.8	70.7	78.5
	Pull	–	19.8	26.4	33.0	39.6	46.2	52.8	59.4	66.0
ø16	Push	40.2	60.3	80.4	1.01 × 10²	1.21 × 10²	1.41 × 10²	1.61 × 10²	1.81 × 10²	2.01 × 10²
	Pull	36.3	54.4	72.6	90.7	1.09 × 10²	1.27 × 10²	1.45 × 10²	1.63 × 10²	1.81 × 10²

Mounting Bracket Model No. Notation Method

Bore size (mm) / Mounting bracket	ø6	ø10	ø16
Foot (LS)	P2-LS-6	P2-LS-10	P2-LS-16
Flange (FA)	P2-FA-6	P2-FA-10	P2-FA-16

Note: Foot (LS) type mounting brackets come as 1 pc./set.

Outline Dimension Drawing

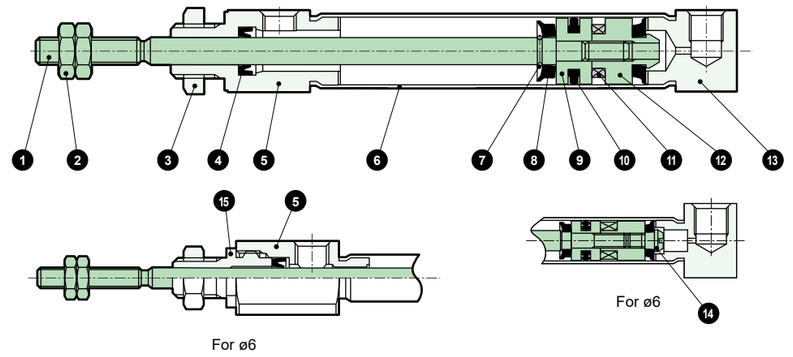
Same as Double Acting, Single Rod Type SCPD3 Series. Refer to P. 16 to 18.

Internal Structure Diagram / Material

●With Rubber Air Cushion

SCPD3-□C

SCPD3-L-□C (with Switch)

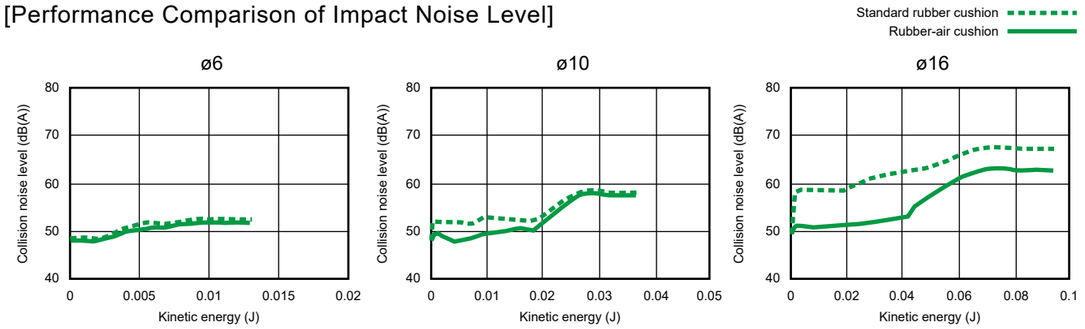


Do not disassemble

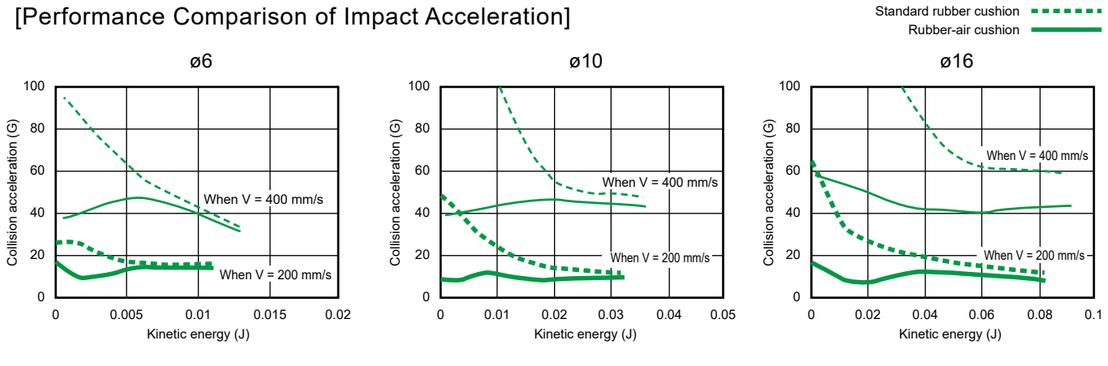
Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		9	Piston	Aluminum Alloy	
2	Rod Nut	Steel	Nickel Plating	10	Piston Packing	Nitrile Rubber	
3	Hexagon Nut	Steel	Nickel Plating	11	Magnet		With switch only
4	Rod Packing	Nitrile Rubber		12	Spacer	Aluminum Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized	13	Head Cover	Aluminum Alloy	Hard Anodized
6	Cylinder Tube	Stainless Steel		14	Pin	Stainless Steel	ø6 only
7	Retaining Ring	Stainless Steel		15	Rod Metal	Aluminum Alloy	Hard Anodized
8	Rubber Air Cushion	Hydrogenated Nitrile Rubber					

Technical Data

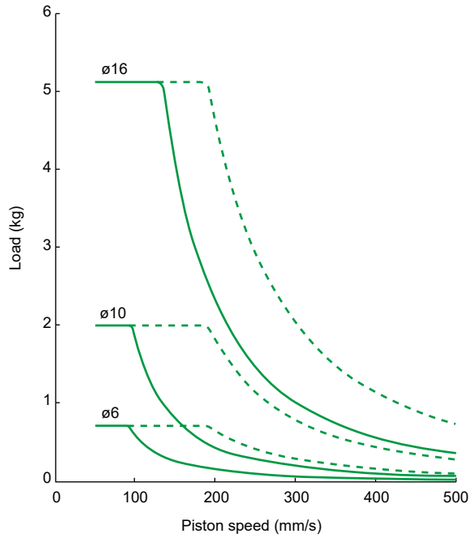
[Performance Comparison of Impact Noise Level]



[Performance Comparison of Impact Acceleration]



[Recommended Energy Range]



The usable range is to the lower left of the curve. Use is possible even in the range indicated by --- in the diagram, but it is recommended to use within the range of the solid line to achieve more effective noise reduction and damping effects.

MEMO

General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending



Pencil Cylinder, Double Acting, Fine Speed Type

SCPD3-F Series

●Bore size: ø6, ø10, ø16

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Without magnet for switch)

SCPD3-F – LS – 10 – 15 ——— I

Model No. ❶ ❷ ❸ ❻

With Switch
(Built-in magnet for switch)

SCPD3-LF – LS – 10 – 15 – T2H – R – I

Model No. ❶ Mounting type ❷ Bore size ❸ Stroke ❹ Switch Model No. ❺ Number of Switches ❻ Accessories

❶Mounting type
Mounting brackets are attached to the product and shipped.

Code	Contents	
00	Basic type	
LS	Single Side Axial Foot Type (Rod Side)	
FA	Rod Side Flange Type	
CB	Double Clevis Type (Pin and retaining ring attached) (ø10, ø16)	

❷Bore size (mm)

Code	Content
6	ø6
10	ø10
16	ø16

❸Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø6	5 to 100	Every 1 mm
ø10	5 to 200	
ø16	5 to 260	

Note: For minimum stroke with switch, refer to P. 48.

❹Switch Model No.

For switch details, please refer to P. 971. Switches are attached to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

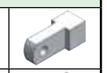
*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❺Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❻Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (pin and retaining ring attached)	
	B1	Single Bracket	
	B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.
*2: Accessories cannot be selected for ø6.

About Custom Product Specifications

Code	Contents
Rod End Shape Modification	Refer to End of Volume P. 11.

Clean Specification (Catalog No. CB-033SAA)

Dust prevention structure usable in cleanrooms

SCPD3 – F – ... – P7□

SCPD3 – F – ... – P5□

* For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

SCPD3 – T0H – 6

❹ Switch Model No. ❷ Bore size

●Switch Body (with Fixed Bracket)

SCPD3 – T0H

❹ Switch Model No.

●Mounting Bracket Set + Fixed Bracket

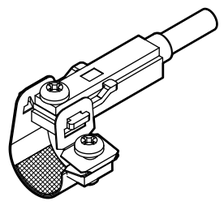
SCPD3 – TS – 6

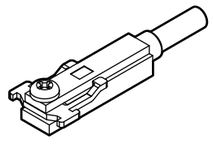
❷ Bore size

●Mounting bracket set

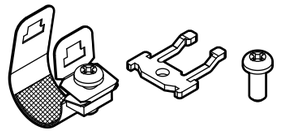
SCPD3 – T – 6

❷ Bore size





Note) T-type standard switch and fixing bracket Phillips pan head screw are different.



For purchases of 20 or more, items will be packed together.



For purchases of 20 or more, items will be packed together.

Specifications

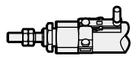
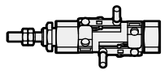
Item		SCPD3-F / SCPD3-LF (with Switch)		
Bore size	mm	ø6	ø10	ø16
Actuation method		Double Acting Type		
Operating Fluid		Compressed Air		
Max. Operating Pressure	MPa	1.0		
Min. Operating Pressure	MPa	0.15	0.1	
Proof Pressure	MPa	1.6		
Ambient Temperature	°C	5 to 60		
Port Size		M5		
Stroke tolerance	mm	+1.0 0		
Operating piston speed	mm/s	1 to 200		
Cushion		Rubber Cushion		
Lubrication		Not Available		
Allowable Absorption Energy	J	0.012	0.041	0.162

Stroke

Bore size (mm)		Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
SCPD3-F SCPD3-LF	ø6	15, 30, 45, 60	100	5
	ø10		200	
	ø16		260	

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

	With 1 pc.		With 2 pcs.	
Diagram	 Rod Side Mounting	 Head Side Mounting	 For different surface mounting	
Min. Stroke	T0, 5, T2 (W), T3 (W)	T2WL	T0, 5, T2 (W), T3 (W)	T2WL
	5 mm	30 mm	10 mm	30 mm

Cylinder Mass

(Unit: g)

Model	Item / Bore size (mm)	Mounting Bracket Mass: Foot Type LS	Mounting Bracket Mass: Flange Type FA	Mounting Bracket Mass: Clevis Type CB	Product Mass at Stroke 0 mm	Added Mass per Stroke = 10 mm	Switch Mass (Per switch)	Switch Mounting Bracket Mass
SCPD3-F	ø6	6	4	-	13	1	Refer to the weight listed in the switch specifications on P. 971.	2
	ø10	6	4	4	21	2		
	ø16	15	12	10	42	3		

(Example) Product Weight of SCPD3-LF-LS-10-30-T0H-D
- ●Mounting Bracket Weight (Foot type): ..... 6 g
- ●Product Weight at Stroke = 0 mm: .....21 g
- ●Added Weight at Stroke = 30 mm: .....2×30/10= 6 g
- ●Switch Weight: ..... 2×(18+2)=40 g
- ●Product Weight: ..... 6+21+6+40=73 g

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa: 0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø6	Push	–	4.24	5.65	8.48	11.3	14.1	17.0	19.8	22.6	25.4	28.3
	Pull	–	3.18	4.24	6.36	8.48	10.6	12.7	14.8	17.0	19.1	21.2
ø10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0	62.8	70.7	78.5
	Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2	52.8	59.4	66.0
ø16	Push	20.1	30.2	40.2	60.3	80.4	1.01 × 10²	1.21 × 10²	1.41 × 10²	1.61 × 10²	1.81 × 10²	2.01 × 10²
	Pull	18.1	27.2	36.3	54.4	72.6	90.7	1.09 × 10²	1.27 × 10²	1.45 × 10²	1.63 × 10²	1.81 × 10²

Mounting Bracket Model No. Notation Method

Bore size (mm) / Mounting bracket	ø6	ø10	ø16
Foot (LS)	P2-LS-6	P2-LS-10	P2-LS-16
Flange (FA)	P2-FA-6	P2-FA-10	P2-FA-16

Note: Foot (LS) type mounting brackets come as 1 pc./set.

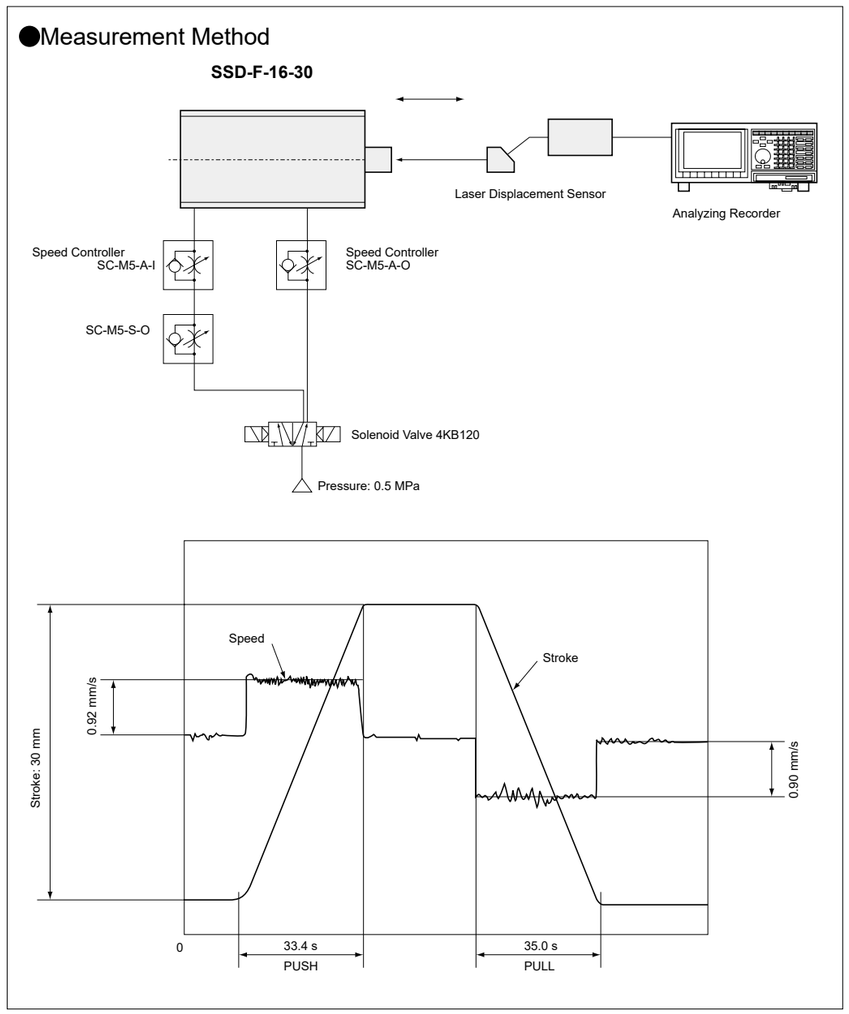
Outline Dimension Drawing

Same as Double Acting, Single Rod Type SCPD3 Series. Refer to P. 16 to 18.

Measurement Method

Measurement Data

●Measurement Method



MEMO

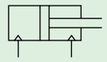
General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending



Pencil Cylinder, Double Acting, Low Speed Type

SCPD3-O Series

●Bore size: ø6, ø10, ø16

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Without magnet for switch)

SCPD3-O – 00 – 10 – 15 – O ——— Y

Model No. ❶ ❷ ❸ ❹ ❼

With Switch
(Built-in magnet for switch)

SCPD3-OL – 00 – 10 – 15 – O – T2H – R – Y

Model No. ❶ Mounting type ❷ Bore size ❸ Stroke ❹ Head Side Port Direction ❺ Switch Model No. ❻ Number of Switches ❼ Accessories

❶Mounting type

Mounting brackets are attached to the product and shipped.

Code	Contents	
00	Basic type	
LS	Axial Foot Type (Rod Side)	
FA	Rod Side Flange Type	
CB	Double Clevis Type (Pin and retaining ring attached) (ø10, ø16)	

*1

*1: If port direction is "0" (axial), mounting type "CB" cannot be selected.

❷Bore size (mm)

Code	Content
6	ø6
10	ø10
16	ø16

❸Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø6	5 to 100	Every 1 mm
ø10	5 to 200	
ø16	5 to 260	

Note: For minimum stroke with switch, refer to P. 54.

❹Head Side Port Direction

Code	Content	
Blank	Vertical Direction	
O	Axial Direction	

*1

*1: If port direction is "0" (axial), ❶mounting type "CB" cannot be selected.

❺Switch Model No.

For switch details, please refer to P. 971. Switches are attached to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❼Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (pin and retaining ring attached)	
	B1	Single Bracket	
	B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.
*2: Accessories cannot be selected for ø6.

About Custom Product Specifications

Code	Contents
Rod End Shape Modification	Refer to End of Volume P. 11.

*For combinations of variations and options, see P. 11.

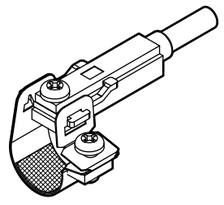
Switch Single Unit Model No. Notation Method

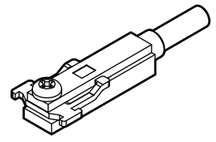
●Switch body + Mounting bracket set: SCPD3 – T0H – 6
❺ Switch Model No. ❷ Bore size

●Switch Body (with Fixed Bracket): SCPD3 – T0H
❺ Switch Model No.

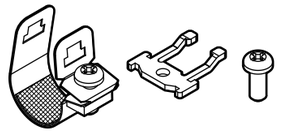
●Mounting Bracket Set + Fixed Bracket: SCPD3 – TS – 6
❷ Bore size

●Mounting bracket set: SCPD3 – T – 6
❷ Bore size





Note) T-type standard switch and fixing bracket Phillips pan head screw are different.



For purchases of 20 or more, items will be packed together.



For purchases of 20 or more, items will be packed together.

Specifications

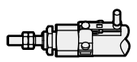
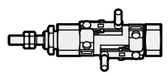
Item		SCPD3-O SCPD3-OL		
Bore size	mm	ø6	ø10	ø16
Actuation method		Double Acting/Low Speed Type		
Operating Fluid		Compressed Air		
Max. Operating Pressure	MPa	1.0		
Min. operating pressure	MPa	0.15	0.1	
Proof Pressure	MPa	1.6		
Ambient Temperature	°C	-10 to 60 (Provided that freezing does not occur)		
Port Size		M5		
Stroke tolerance	mm	+1.0 0		
Operating piston speed	mm/s	10 to 200		
Cushion		Rubber Cushion		
Lubrication		Not Available		
Allowable Absorption Energy	J	0.012	0.041	0.162

Stroke

Bore size (mm)		Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
SCPD3-O	ø6	15, 30, 45, 60	100	5
	ø10		200	
	ø16		260	

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

	With 1 pc.		With 2 pcs.	
Diagram	 Rod Side Mounting	 Head Side Mounting	 For different surface mounting	
Min. Stroke	T0, 5, T2 (W), T3 (W)	T2WL	T0, 5, T2 (W), T3 (W)	T2WL
	5 mm	30 mm	10 mm	30 mm

Cylinder Mass

(Unit: g)

Model	Item / Bore size (mm)	Mounting Bracket Mass: Foot Type LS	Mounting Bracket Mass: Flange Type FA	Mounting Bracket Mass: Clevis Type CB	Product Mass at Stroke 0 mm	Added Mass per Stroke = 10 mm	Switch Mass (Per switch)	Switch Mounting Bracket Mass
SCPD3-O	ø6	6	4	-	13	1	Refer to the weight listed in the switch specifications on P. 971.	2
	ø10	6	4	4	21	2		
	ø16	15	12	10	42	3		

(Example) Product Weight of SCPD3-OL-LS-10-30-T0H-D
- ●Mounting Bracket Weight (Foot type): ..... 6 g
- ●Product Weight at Stroke = 0 mm: .....21 g
- ●Added Weight at Stroke = ... 30 mm: 2×30/10=6 g
- ●Switch Weight: ..... 2×(18+2)=40 g
- ●Product Weight: ..... 6+21+6+40=73 g

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa: 0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø6	Push	–	4.24	5.65	8.48	11.3	14.1	17.0	19.8	22.6	25.4	28.3
	Pull	–	3.18	4.24	6.36	8.48	10.6	12.7	14.8	17.0	19.1	21.2
ø10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0	62.8	70.7	78.5
	Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2	52.8	59.4	66.0
ø16	Push	20.1	30.2	40.2	60.3	80.4	1.01 × 10²	1.21 × 10²	1.41 × 10²	1.61 × 10²	1.81 × 10²	2.01 × 10²
	Pull	18.1	27.2	36.3	54.4	72.6	90.7	1.09 × 10²	1.27 × 10²	1.45 × 10²	1.63 × 10²	1.81 × 10²

Mounting Bracket Model No. Notation Method

Bore size (mm) / Mounting bracket	ø6	ø10	ø16
Foot (LS)	P2-LS-6	P2-LS-10	P2-LS-16
Flange (FA)	P2-FA-6	P2-FA-10	P2-FA-16

Note: Foot (LS) type mounting brackets come as 1 pc./set.

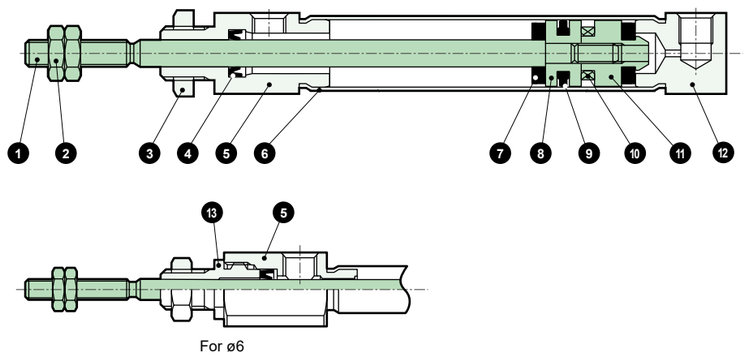
Outline Dimension Drawing

Same as Double Acting, Single Rod Type SCPD3 Series. Refer to P. 16 to 18.

Internal Structure Diagram / Material

●Double Acting Type

SCPD3-O(L)



For ø6

Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		8	Piston	Aluminum Alloy	
2	Rod Nut	Steel	Nickel Plating	9	Piston Packing	Nitrile Rubber	
3	Hexagon Nut	Steel	Nickel Plating	10	Magnet		With switch only
4	Rod Packing	Nitrile Rubber		11	Spacer	Aluminum Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized	12	Head Cover	Aluminum Alloy	Hard Anodized
6	Cylinder Tube	Stainless Steel		13	Rod Metal	Aluminum Alloy	Hard Anodized
7	Cushion Rubber	Urethane Rubber					

Mounting Bracket Material

Mounting type	Material
Foot (LS)	Steel
Flange (FA)	Steel

MEMO



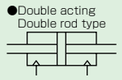
Pencil Cylinder, Double Acting, Double Rod Type

SCPD3-D/SCPD3-DT Series

●Bore size: ø6, ø10, ø16

DT is Custom Order Product

Circuit Diagram Symbol



RoHS

Model No. Notation Method

Without Switch
(Without magnet for switch)

SCPD3-D – LS – 10 – 15 ——— I

With Switch
(Built-in magnet for switch)

SCPD3-DL – LS – 10 – 15 – T2H – R – I

❶ Model No.	❷ Mounting type	❸ Bore size	❹ Stroke	❺ Switch Model No.	❻ Number of Switches	❼ Accessories

❶ Model No.

Code	Contents
SCPD3-D	Double rod type
SCPD3-DL	Double Rod Type, with Switch
SCPD3-DT	Double Rod Heat Resistant (Custom Order Product)

❷ Mounting type

Mounting brackets are attached to the product and shipped.

Code	Contents	
00	Basic type	
LS	Single Side Axial Foot Type (Rod Side)	
LB	Double Side Axial Foot Type	
FA	Rod Side Flange Type	

❸ Bore size (mm)

Code	Content
6	ø6
10	ø10
16	ø16

❹ Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø6	5 to 60	Every 1 mm
ø10	5 to 120	
ø16	5 to 120	

Note: For minimum stroke with switch, refer to P. 60.

❺ Switch Model No.

For switch details, please refer to P. 971. Switches are attached to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	

*1: For "□" in the switch model number, enter the code selected from the ""Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.
*5: Switch cannot be selected for SCPD3-DT (Double Rod Heat Resistant Type).

***Lead wire length, connector specification**

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*6: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻ Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❼ Accessories

Code	Contents	
I	Single Knuckle	
Y	Double Knuckle (pin and retaining ring attached)	

*2: Accessories cannot be selected for ø6.

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCPD3-D – ..... – FP1

About Custom Product Specifications

Code	Contents
Rod End Shape Modification	Refer to End of Volume P. 11.

*For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

SCPD3 – T0H – 6
5 Switch Model No.
3 Bore size

●Switch Body (with Fixed Bracket)

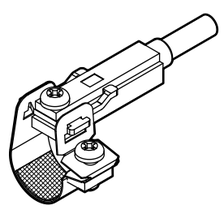
SCPD3 – T0H
5 Switch Model No.

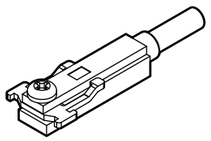
●Mounting Bracket Set + Fixed Bracket

SCPD3 – TS – 6
3 Bore size

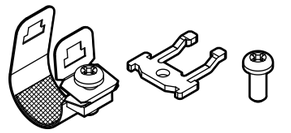
●Mounting bracket set

SCPD3 – T – 6
3 Bore size





Note) T-type standard switch and fixing bracket Phillips pan head screw are different.



For purchases of 20 or more, items will be packed together.



For purchases of 20 or more, items will be packed together.

Specifications

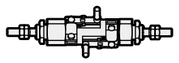
Item		SCPD3-D SCPD3-DL			SCPD3-DT		
Bore size	mm	ø6	ø10	ø16	ø6	ø10	ø16
Actuation method		Double Acting/Double Rod Type			Double Acting, Double Rod Heat Resistant Type		
Operating Fluid		Compressed Air					
Max. Operating Pressure	MPa	1.0					
Min. Operating Pressure	MPa	0.2	0.1		0.2	0.1	
Proof Pressure	MPa	1.6					
Ambient Temperature	°C	-10 to 60 (Provided that freezing does not occur)			5 to 120		
Port Size		M5					
Stroke tolerance	mm	+1.0 0					
Operating piston speed	mm/s	50 to 750			50 to 750		
Cushion		Rubber Cushion					
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)			Not Available		
Allowable Absorption Energy	J	0.012	0.041	0.162	0.012	0.041	0.162

Stroke

Bore size (mm)	Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
ø6	15, 30, 45, 60	60	5
ø10		120	
ø16			

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

	With 1 pc.		With 2 pcs.	
Diagram	 Rod Side Mounting	 Head Side Mounting	 For different surface mounting	
Min. Stroke	T0, 5, T2 (W), T3 (W)	T2WL	T0, 5, T2 (W), T3 (W)	T2WL
	5 mm	30 mm	10 mm	30 mm

Cylinder Mass

(Unit: g)

Model	Item / Bore size (mm)	Mounting Bracket Mass: Foot Type LS	Foot Type LB	Flange Type FA	Product Mass at Stroke 0 mm	Added Mass per Stroke = 10 mm	Switch Mass (Per switch)	Switch Mounting Bracket Mass
SCPD3-D SCPD3-DT	ø6	6	12	4	18	2	Refer to the weight listed in the switch specifications on P. 971.	2
	ø10	6	12	4	28	3		
	ø16	15	30	12	55	5		

(Example) Product Weight of SCPD3-DL-LS-10-30-TOH-D
- ●Mounting Bracket Weight (Foot type): ..... 6 g
- ●Product Weight at Stroke = 0 mm: .....28 g
- ●Added Weight at Stroke = 30 mm: ..... 2×3/10=9 g
- ●Switch Weight: ..... 2×(18+2)=40 g
- ●Product Weight: ..... 6+28+9+40=83 g

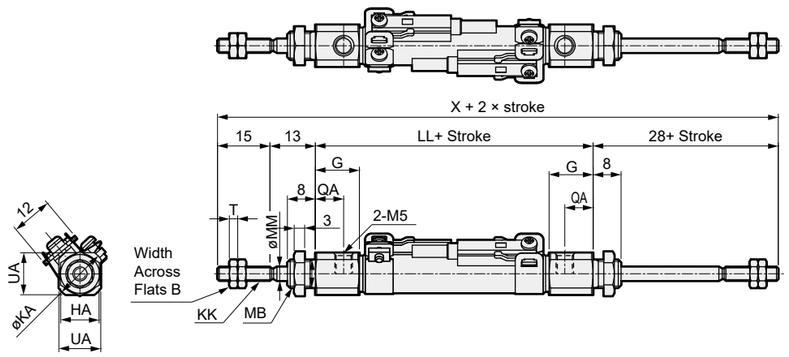
Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa: 0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø6	Push/Pull	–	–	4.24	6.36	8.48	10.6	12.7	14.8	17.0	19.1	21.2
ø10	Push/Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2	52.8	59.4	66.0
ø16	Push/Pull	18.1	27.2	36.3	54.4	72.6	90.7	1.09 × 10²	1.27 × 10²	1.45 × 10²	1.63 × 10²	1.81 × 10²

Outline Dimension Drawing

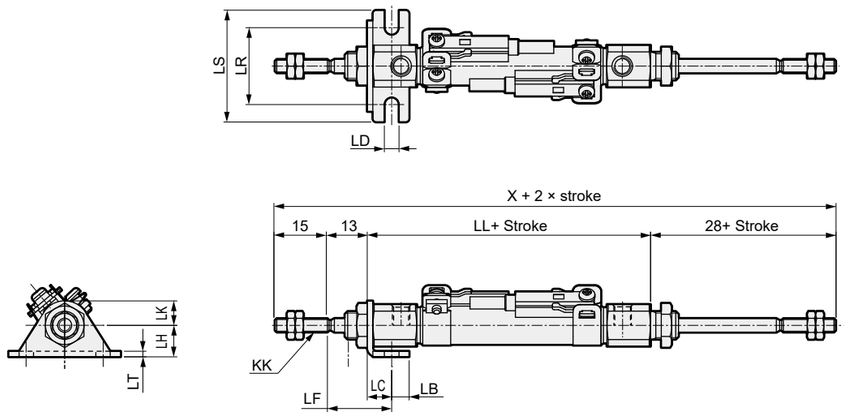
●SCPD3-D (L), DT Basic Type (OO)



Code / Bore size (mm)	Basic Type (OO) Basic Dimensions											
	B	G	HA	KA	KK	LL	MB	MM	QA	T	UA	X
ø6	5.5	17	8	13.5	M3	56	M6	3	13	1.8	11	112
ø10	7	12.5	11	14.5	M4	54.5	M8 × 1.0	4	8	2.4	12	110.5
ø16	8	13	14	21.5	M5	55	M10 × 1.0	5	8.5	3.2	18	111

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

●Single Side Axial Foot Type (LS)

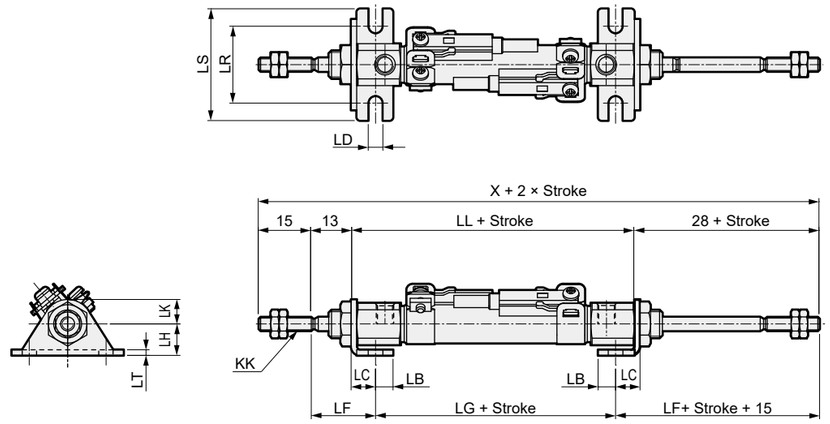


Code / Bore size (mm)	Single Side Axial Foot Type (LS) Mounting Dimensions											
	KK	LL	X	LB	LC	LD	LF	LH	LK	LR	LS	LT
ø6	M3	56	112	5	7	4.2	18.4	9	7	22	32	1.6
ø10	M4	54.5	110.5	5	7	4.2	18.4	9	7	22	32	1.6
ø16	M5	55	111	6	9	5.2	19.7	14	10	29	42	2.3

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

Outline Dimension Drawing

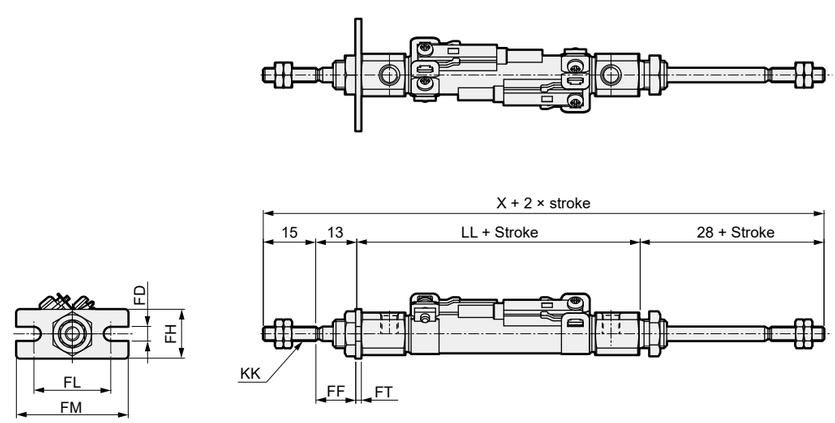
●Both Sides Axial Foot Type (LB)



Code / Bore size (mm)	Both Sides Axial Foot Type (LB) Mounting Dimensions											
	KK	LL	X	LB	LC	LD	LF	LH	LG	LK	LR	LS	LT
ø6	M3	56	112	5	7	4.2	18.4	9	45.2	7	22	32	1.6
ø10	M4	54.5	110.5	5	7	4.2	18.4	9	43.7	7	22	32	1.6
ø16	M5	55	111	6	9	5.2	19.7	14	41.6	10	29	42	2.3

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

●Rod Side Flange Type (FA)

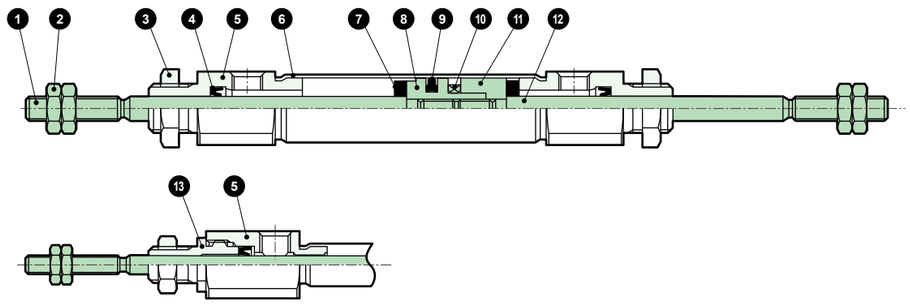


Code / Bore size (mm)	Rod Side Flange Type (FA) Mounting Dimensions								
	KK	LL	X	FD	FF	FH	FL	FM	FT
ø6	M3	56	112	4.2	11.4	14	22	32	1.6
ø10	M4	54.5	110.5	4.2	11.4	14	22	32	1.6
ø16	M5	55	111	5.2	10.7	20	29	42	2.3

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

Internal Structure Diagram / Material

●Double rod type
SCPD3-D
SCPD3-DL (with Switch)



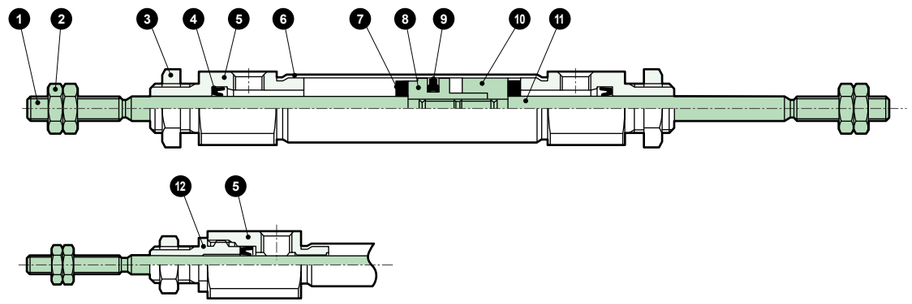
For ø6

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod 1	Stainless Steel		8	Piston	Aluminum Alloy	
2	Rod Nut	Steel	Nickel Plating	9	Piston Packing	Nitrile Rubber	
3	Hexagon Nut	Steel	Nickel Plating	10	Magnet		With switch only
4	Rod Packing	Nitrile Rubber		11	Spacer	Aluminum Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized	12	Piston Rod 2	Stainless Steel	
6	Cylinder Tube	Stainless Steel		13	Rod Metal	Aluminum Alloy	Hard Anodized
7	Cushion Rubber	Urethane Rubber					

Do not disassemble

Internal Structure Diagram / Material

●Double Rod Heat Resistant Type
SCPD3-DT



For ø6

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod 1	Stainless Steel		7	Cushion Rubber	Fluoro Rubber	
2	Rod Nut	Steel	Nickel Plating	8	Piston	Aluminum Alloy	
3	Hexagon Nut	Steel	Nickel Plating	9	Piston Packing	Fluoro Rubber	
4	Rod Packing	Fluoro Rubber		10	Spacer	Aluminum Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized	11	Piston Rod 2	Stainless Steel	
6	Cylinder Tube	Stainless Steel		12	Rod Metal	Aluminum Alloy	Hard Anodized

Do not disassemble

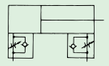


Pencil Cylinder
Double Acting, with Speed Controller

SCPD3-Z Series

●Bore size: ø10, ø16

Circuit Diagram Symbol



Custom Products

RoHS

Model No. Notation Method

Without Switch
(Without magnet for switch)

SCPD3-Z – LS – 10 – 15 ——— I

Model No. ❶ ❷ ❸ ❻

With Switch
(Built-in magnet for switch)

SCPD3-ZL – LS – 10 – 15 – T2H – R – I

Model No. ❶ Mounting type ❷ Bore size ❸ Stroke ❹ Switch Model No. ❺ Number of Switches ❻ Accessories

❶Mounting type

Mounting brackets are attached to the product and shipped.

Code	Contents	
00	Basic type	
LS	Single Side Axial Foot Type (Rod Side)	
FA	Rod Side Flange Type	
CB	Double Clevis Type (Pin and retaining ring attached)	

❷Bore size (mm)

Code	Content
10	ø10
16	ø16

❸Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø10	5 to 200	Every 1 mm
ø16	5 to 260	

Note: For minimum stroke with switch, refer to P. 68.

❹Switch Model No.

For switch details, please refer to P. 971. Switches are attached to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	*3
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	

*5

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

***Lead wire length, connector specification**

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❺Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❻Accessories

Code	Contents	
I	Single Knuckle	
Y	Double Knuckle (pin and retaining ring attached)	

Note: I and "Y" cannot be selected simultaneously.

About Custom Product Specifications

Code	Contents
Rod End Shape Modification	Refer to End of Volume P. 11.

*For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

SCPD3 – T0H – 6

❹ Switch Model No. ❷ Bore size

●Switch Body (with Fixed Bracket)

SCPD3 – T0H

❹ Switch Model No.

●Mounting Bracket Set + Fixed Bracket

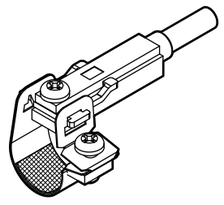
SCPD3 – TS – 6

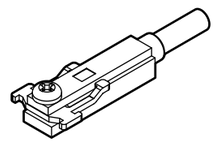
❷ Bore size

●Mounting bracket set

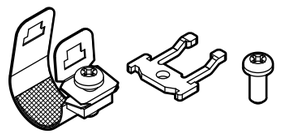
SCPD3 – T – 6

❷ Bore size





Note) T-type standard switch and fixing bracket Phillips pan head screw are different.



For purchases of 20 or more, items will be packed together.



For purchases of 20 or more, items will be packed together.

Specifications

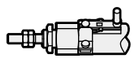
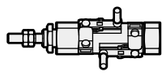
Item		SCPD3-Z / SCPD3-ZL	
Bore size	mm	ø10	ø16
Actuation method		Double Acting, with Speed Controller	
Operating Fluid		Compressed Air	
Max. Working Pressure	MPa	1.0	
Min. Operating Pressure	MPa	0.1	
Proof Pressure	MPa	1.6	
Ambient Temperature	°C	-10 to 60 (No freezing)	
Port Size		M5	
Stroke tolerance	mm	$^{+1.0}_{0}$	
Operating Piston Speed	mm/s	50 to 750	
Cushion		Rubber Cushion	
Lubrication		Not Required (When lubricating, use Turbine Oil ISO VG32)	
Allowable Absorbed Energy	J	0.041	0.162

Stroke

Bore size (mm)	Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
ø10	15, 30, 45, 60	200	5
ø16		260	

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

	With 1 pc.		With 2 pcs.	
Diagram	 Rod Side Mounting	 Head Side Mounting	 For different surface mounting	
Min. Stroke	T0, 5, T2 (W), T3 (W)	T2WL	T0, 5, T2 (W), T3 (W)	T2WL
	5 mm	30 mm	10 mm	30 mm

Cylinder Mass

(Unit: g)

Model	Stroke / Bore size (mm)	Without Switch 15 st	30 st	45 st	60 st	With Switch (2 Switches Attached) 15 st	30 st	45 st	60 st	Switch Mounting Bracket Mass	Switch Mass (Per Switch)
SCPD3-Z	ø10	36	41	46	51	84	89	94	99	2	Refer to the weight listed in the switch specifications on P. 971.
	ø16	66	74	82	90	114	122	130	138		

Mounting Bracket Mass

(Unit: g)

Applicable Bore size	Mounting type: Foot Type LS	Flange Type FA	Clevis Type CB
ø10	6	4	4
ø16	15	12	10

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa 0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0	62.8	70.7	78.5
	Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2	52.8	59.4	66.0
ø16	Push	20.1	30.2	40.2	60.3	80.4	1.01 × 10²	1.21 × 10²	1.41 × 10²	1.61 × 10²	1.81 × 10²	2.01 × 10²
	Pull	18.1	27.2	36.3	54.4	72.6	90.7	1.09 × 10²	1.27 × 10²	1.45 × 10²	1.63 × 10²	1.81 × 10²

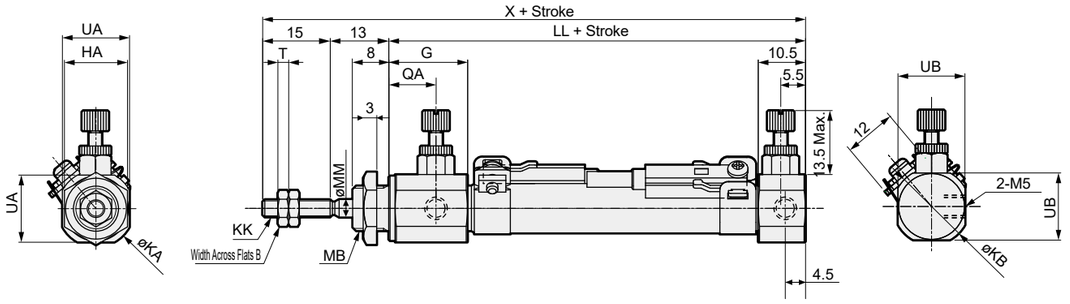
Mounting Bracket Model No. Notation Method

Bore size (mm) / Mounting bracket	ø10	ø16
Foot (LS)	P2-LS-10M	P2-LS-16M
Flange (FA)	P2-FA-10M	P2-FA-16M

Note: Foot (LS) type mounting brackets come as 1 pc./set.

Outline Dimension Drawing

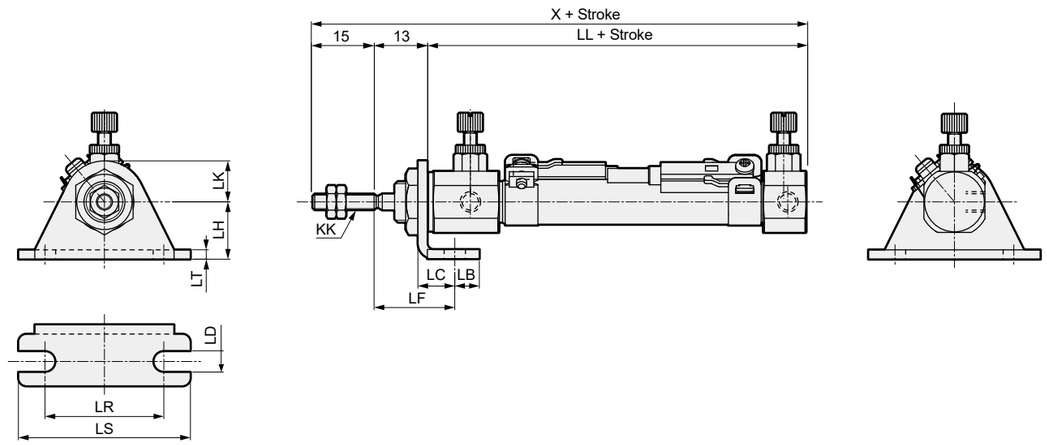
●SCPD3-Z(L) Basic Type (OO)



Code	Basic Type (OO) Basic Dimensions													
Bore size (mm)	B	G	HA	KA	KB	KK	LL	MB	MM	QA	T	UA	UB	X
ø10	7	17.5	14	17.5	17.5	M4	52.5	M10 × 1.0	4	10.5	2.4	15	15	80.5
ø16	8	18	17	21.5	21.5	M5	52.5	M12 × 1.0	5	11	3.2	18	18	80.5

*1: The thread depth of ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

●Single Side Axial Foot Type (LS)

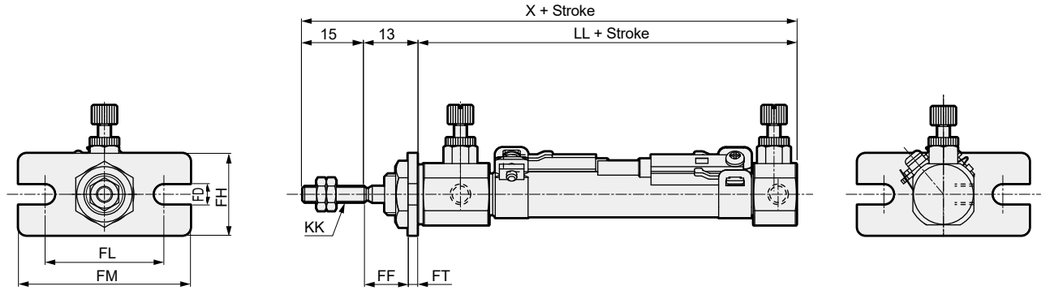


Code	Single Side Axial Foot Type (LS) Mounting Dimensions											
Bore size (mm)	KK	LL	X	LB	LC	LD	LF	LH	LK	LR	LS	LT
ø10	M4	52.5	80.5	6	9	5.2	19.7	14	10	29	42	2.3
ø16	M5	52.5	80.5	6	9	5.2	19.7	14	10	29	42	2.3

*1: The thread depth of ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

Outline Dimension Drawing

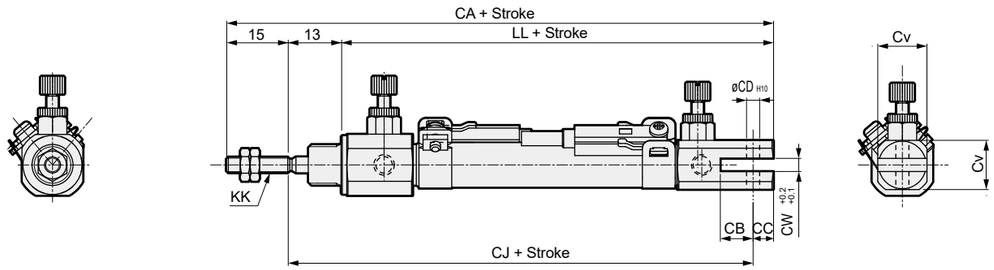
●Rod Side Flange Type (FA)



Code	Rod Side Flange Type (FA) Mounting Dimensions								
Bore size (mm)	KK	LL	X	FD	FF	FH	FL	FM	FT
ø10	M4	52.5	80.5	5.2	10.7	20	29	42	2.3
ø16	M5	52.5	80.5	5.2	10.7	20	29	42	2.3

*1: The thread depth of the ø10 port is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

●Double clevis type (CB)

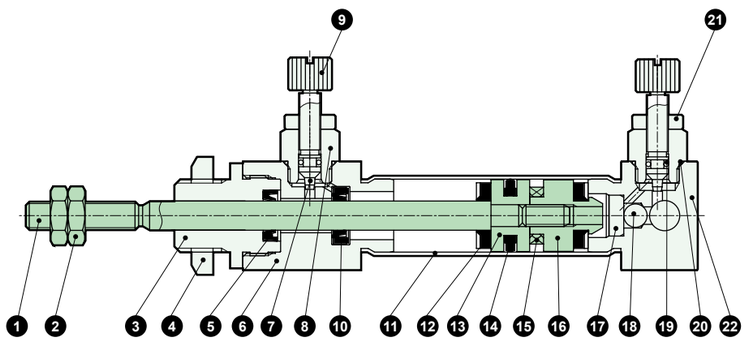


Code	Double Clevis Type (CB) Mounting Dimensions								
Bore size (mm)	KK	LL	CA	CB	CC	CD	CJ	Cv	CW
ø10	M4	65.5	93.5	8	5	3.2	73.5	15	3.2
ø16	M5	72.5	100.5	10	10	5	75.5	18	6.5

*1: The thread depth of the ø10 port is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

Internal Structure Diagram / Material

●Double Acting, with Speed Controller
SCPD3-Z
SCPD3-ZL (with Switch)



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		12	Cushion Rubber	Urethane Rubber	
2	Rod Nut	Steel	Nickel Plating	13	Piston	Aluminum Alloy	
3	Rod Metal	Aluminum Alloy	Hard Anodized	14	Piston Packing	Nitrile Rubber	
4	Hexagon Nut	Steel	Nickel Plating	15	Magnet		With switch only
5	Rod Packing	Nitrile Rubber		16	Spacer	Aluminum Alloy	
6	Rod Cover	Aluminum Alloy	Hard Anodized	17	Check Ball Retainer	Aluminum Alloy	
7	Needle B	Stainless Steel		18	Check Ball	Urethane Rubber	
8	Needle Holder	Aluminum Alloy	Hard Anodized	19	O-ring	Nitrile Rubber	
9	Knob	Aluminum Alloy	Chromate	20	O-ring	Nitrile Rubber	
10	Check Packing	Nitrile Rubber		21	Lock Nut	Aluminum Alloy	Chromate
11	Cylinder Tube	Stainless Steel		22	Head Cover	Aluminum Alloy	Hard Anodized

MEMO



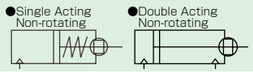
Pencil Shaped Cylinder

Single Acting, Push, Non-Rotating **SCPS-M Series**

Double Acting, Non-Rotating **SCPD3-M Series**

●Bore size: ø10, ø16

Circuit Diagram Symbol



RoHS

Model No. Notation Method

Without Switch
(Without magnet for switch)

SCPD3-M - **LS** - **10** - **15** - **O** ——— **I**

With Switch
(Built-in magnet for switch)

SCPD3-ML - **LS** - **10** - **15** - **O** - **T2H** - **R** - **I**

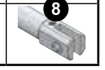
❶ Model No.	❷ Mounting type	❸ Bore size	❹ Stroke	❺ Head Side Port Direction	❻ Switch Model No.	❼ Number of Switches	❽ Accessories

❶ Model No.

Code	Contents
SCPS3-M	Single Acting Push, Non-Rotating Type
SCPS3-ML	Single Acting Push, Non-Rotating Type, with Switch
SCPD3-M	Double Acting, Non-Rotating Type
SCPD3-ML	Double Acting, Non-Rotating Type, with Switch

❷ Mounting type

Mounting brackets are included to the product and shipped.

Code	Contents	
00	Basic type	
LS	Single Side Axial Foot Type (Rod Side)	
FA	Rod Side Flange Type	
CB	Double Clevis Type (Pin and retaining ring included)	

*1

*1: ❺If port direction is "0" (axial), mounting type "CB" cannot be selected.

❸ Bore size (mm)

Code	Content
10	ø10
16	ø16

❹ Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø10	5 to 200 (5 to 120)	Every 1 mm
ø16	5 to 260 (5 to 120)	

*1: For minimum stroke with switch, refer to P. 76.
*2: ( ) indicates SCPS3-M (L).

❺ Head Side Port Direction

Code	Content	
Blank	Vertical Direction	
*1 O	Axial Direction	

*1: If port direction is "0" (axial), ❷mounting type "CB" cannot be selected.

❻ Switch Model No.

For switch details, please refer to page 971. Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

***Lead wire length, connector specification**

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
*5 W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

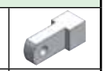
*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❼ Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❽ Accessories

Code	Content	
*1 I	Single Knuckle	
*1 Y	Double Knuckle (pin and retaining ring included)	
B1	Single Bracket	
B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCPD3-M - ..... - **FP1**

About Custom Product Specifications

Code	Contents
Rod End Shape Modification	Refer to Ending 11.

*For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

SCPD3 - **T0H** - **6**

❻ Switch Model No. ❸ Bore size

●Switch Body (with Fixed Bracket)

SCPD3 - **T0H**

❻ Switch Model No.

●Mounting Bracket Set + Fixed Bracket

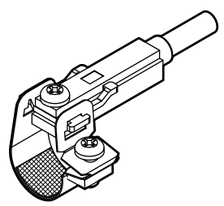
SCPD3 - **TS** - **6**

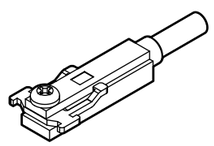
❸ Bore size

●Mounting bracket set

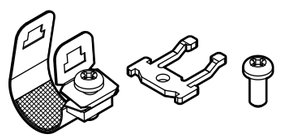
SCPD3 - **T** - **6**

❸ Bore size





Note) T-type standard switch and fixing bracket Phillips pan head screw are different.



For purchases of 20 or more, items will be packed together.



For purchases of 20 or more, items will be packed together.

Specifications

Item		SCPS3-M SCPS3-ML		SCPD3-M SCPD3-ML	
Bore size	mm	ø10	ø16	ø10	ø16
Actuation method		Single Acting, Non-Rotating Type		Double Acting, Non-Rotating Type	
Operating Fluid		Compressed Air			
Max. Operating Pressure	MPa	1.0			
Min. operating pressure	MPa	0.15		0.1	
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	-10 to 60 (Provided that freezing does not occur)			
Port Size		M5			
Stroke tolerance	mm	+1.0 0			
Operating piston speed	mm/s	50 to 750			
Cushion		Rubber Cushion			
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)			
Non-Rotating Accuracy (Note)		±2°			
Allowable Absorption Energy	J	0.041	0.162	0.041	0.162

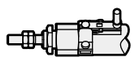
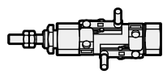
Note: Value at 0 stroke. (Excluding piston rod deflection.)

Stroke

Bore size (mm)		Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
SCPS3-M	ø10	15, 30, 45, 60	120	5
	ø16			
SCPD3-M	ø10		200	
	ø16		260	

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

	With 1 pc.		With 2 pcs.	
Diagram	 Rod Side Mounting	 Head Side Mounting	 For different surface mounting	
Min. Stroke	T0, 5, T2 (W), T3 (W)	T2WL	T0, 5, T2 (W), T3 (W)	T2WL
	5 mm	30 mm	5 mm	30 mm

Single Acting Type Spring Load (SCPS3-M)

(Unit: N)

Bore size (mm)	At Stroke 0 mm	At Full Stroke Operation
ø10	3.2	7.5
ø16	6.4	14.9

Cylinder Weight

(Unit: g)

Model	Item / Bore size (mm)	Mounting Bracket Weight: Foot Type LS	Flange Type FA	Clevis Type CB	Product Weight at Stroke 0 mm	Added Weight per Stroke = 10 mm	Switch Weight (Per switch)	Switch Mounting Bracket Weight
SCPS3-M	ø10	6	4	4	20	4	Please refer to the weight listed in the switch specifications on P. 971.	2
	ø16	15	12	10	35	8		
SCPD3-M	ø10	6	4	4	21	2		
	ø16	15	12	10	42	3		

(Example) Product Weight of SCPS3-ML-LS-10-30-T0H-D
- ●Mounting Bracket Weight (Foot Type)..... 6 g
- ●Product Weight at Stroke = 0 mm .....20 g
- ●Added Weight at Stroke = 30 mm: ..... 4×30/10=12 g
- ●Switch Weight: ..... 2×(18+2)=40 g
- ●Product Weight: ..... 6+20+12+40=78 g

Theoretical Thrust Table

●SCPS3-M

(Unit: N)

Bore size (mm)	Operating Pressure MPa: 0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø10	7.01	9.34	17.2	25.0	32.9	40.8	48.6	56.5	64.3	72.2
ø16	21.5	28.7	48.8	68.9	89.0	1.09 × 10²	1.29 × 10²	1.49 × 10²	1.69 × 10²	1.90 × 10²

●SCPD3-M

Bore size (mm)	Operating Direction	Operating Pressure MPa: 0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0	62.8	70.7	78.5
	Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2	52.8	59.4	66.0
ø16	Push	20.1	30.2	40.2	60.3	80.4	1.01 × 10²	1.21 × 10²	1.41 × 10²	1.61 × 10²	1.81 × 10²	2.01 × 10²
	Pull	18.1	27.2	36.3	54.4	72.6	90.7	1.09 × 10²	1.27 × 10²	1.45 × 10²	1.63 × 10²	1.81 × 10²

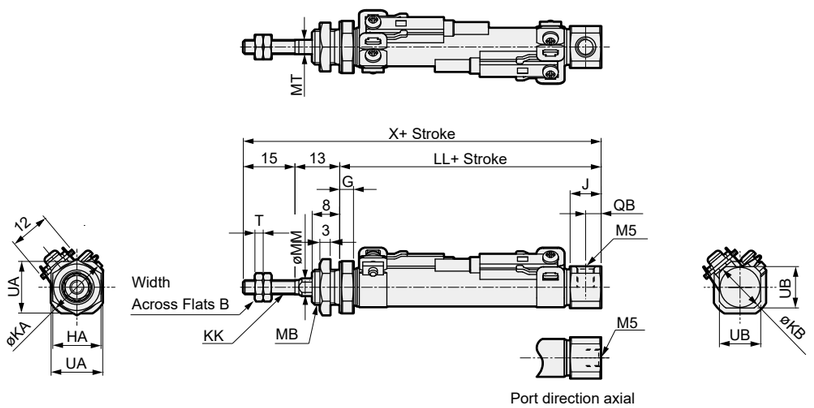
Mounting Bracket Model No. Notation Method

Bore size (mm) / Mounting bracket	ø10	ø16
Foot (LS)	P2-LS-10M	P2-LS-16M
Flange (FA)	P2-FA-10M	P2-FA-16M

Note: Foot (LS) type mounting brackets come as 1 pc./set.

Outline Dimension Drawing

●SCPS3-M (L) Basic Type (00)

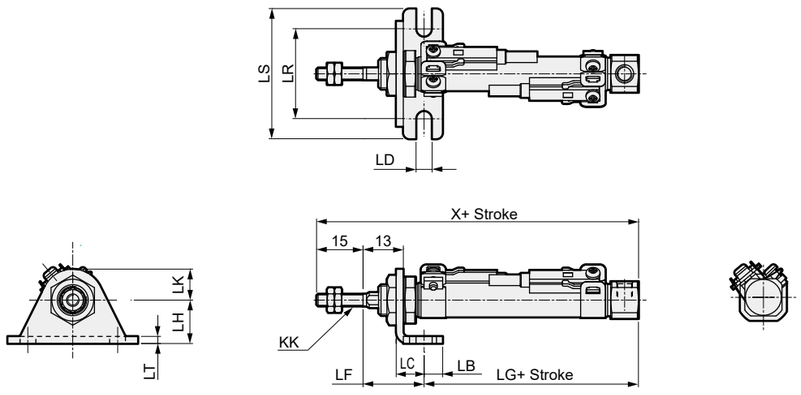


Code / Bore size (mm)	Basic Type (00) Basic Dimensions															
	B	G	HA	J	KA	KB	KK	LL								
								15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less
ø10	7	4	14	9	17.5	14.5	M4	47	52	62	67	77	82	92	97
ø16	8	4	17	9	21.5	21.5	M5	47	52	62	67	77	82	92	97

Code / Bore size (mm)	MB	MM	MT	QB	T	UA	UB	X							
								15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less
ø10	M10 × 1.0	5	4	4.5	2.4	15	12	75	80	90	95	105	110	120	125
ø16	M12 × 1.0	6	5	4.5	3.2	18	18	75	80	90	95	105	110	120	125

*1: The thread depth of the ø10 port is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

●Single Side Axial Foot Type (LS)



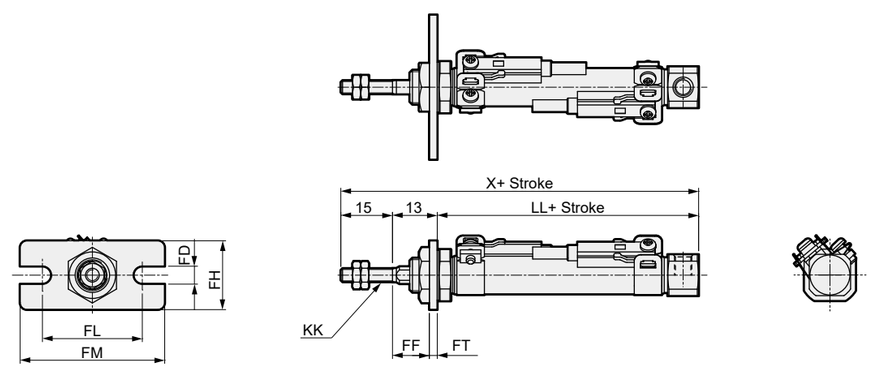
Code / Bore size (mm)	Single Side Axial (LS) Mounting Dimensions													
	KK	X								LB	LC	LD	LF
		15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less				
ø10	M4	75	80	90	95	105	110	120	125	6	9	5.2	19.7
ø16	M5	75	80	90	95	105	110	120	125	6	9	5.2	19.7

Code / Bore size (mm)	LG								LH	LK	LR	LS	LT
	15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less					
ø10	40.3	45.3	55.3	60.3	70.3	75.3	85.3	90.3	14	10	29	42	2.3
ø16	40.3	45.3	55.3	60.3	70.3	75.3	85.3	90.3	14	10	29	42	2.3

*1: The thread depth of the ø10 port is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)

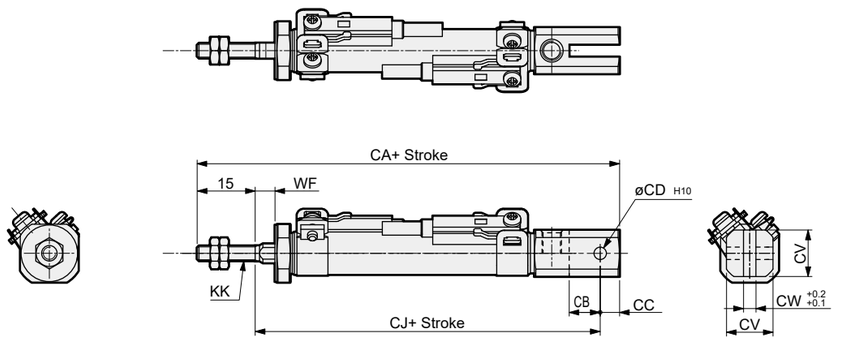


Code / Bore size (mm)	Rod Side Flange Type (FA) Mounting Dimensions								
	KK	LL							
		15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less
ø10	M4	47	52	62	67	77	82	92	97
ø16	M5	47	52	62	67	77	82	92	97

Code / Bore size (mm)	X								FD	FF	FH	FL	FM	FT
	15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less						
ø10	75	80	90	95	105	110	120	125	5.2	10.7	20	29	42	2.3
ø16	75	80	90	95	105	110	120	125	5.2	10.7	20	29	42	2.3

*1: The thread depth of the ø10 port is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

●Double Clevis Type (CB) with Pin



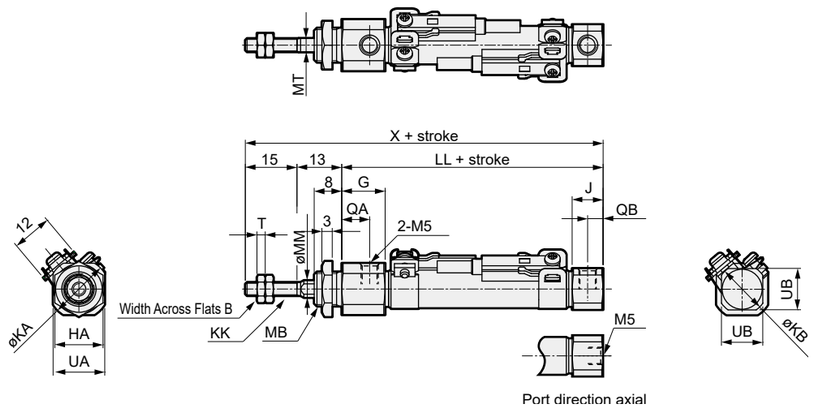
Code / Bore size (mm)	Double Clevis Type (CB) Mounting Dimensions																				
	KK	CA									CB	CC	CD	CJ							
		15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less					15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less
ø10	M4	80	92	104	116	128	140	152	164	8	5	3.2	60	72	84	96	108	120	132	144	
ø16	M5	87	99	111	123	135	147	159	171	10	10	5	62	74	86	98	110	122	134	146	

Code / Bore size (mm)	Cv	CW	WF								
			15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less	
ø10	12	3.2	5	12	14	21	23	30	32	39	
ø16	18	6.5	5	12	14	21	23	30	32	39	

*1: The thread depth of the ø10 port is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
***2: For dimensions of models with switches, see P. 101.**
***3: For outer dimensions diagram of accessories, refer to P. 19.**

Outline Dimension Drawing

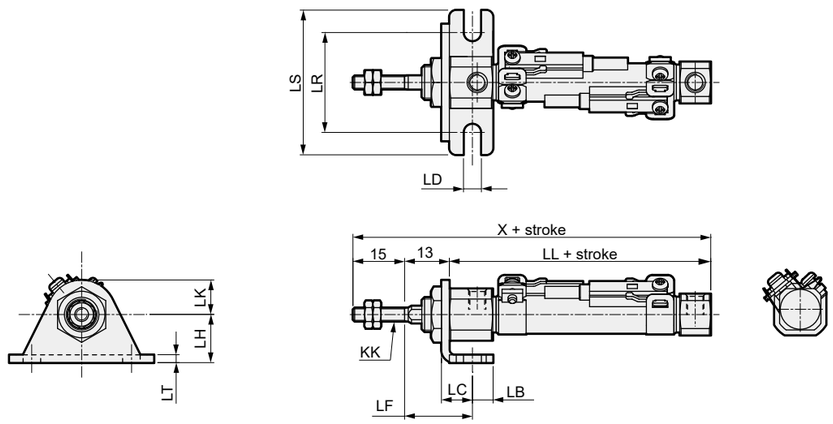
●SCPD3-M (L) Basic Type (00)



Code / Bore size (mm)	Basic Type (OO) Basic Dimensions															
	B	HA	G	J	KA	KB	KK	LL	MB	MM	MT	QA	QB	T	UA	UB	X
ø10	7	14	12.5	9	17.5	14.5	M4	46	M10 × 1.0	5	4	8	4.5	2.4	15	12	74
ø16	8	17	13.0	9	21.5	21.5	M5	46	M12 × 1.0	6	5	8.5	4.5	3.2	18	18	74

***1: For dimensions of models with switches, see P. 101.**
***2: For outer dimensions diagram of accessories, refer to P. 19.**

●Single Side Axial Foot Type (LS)

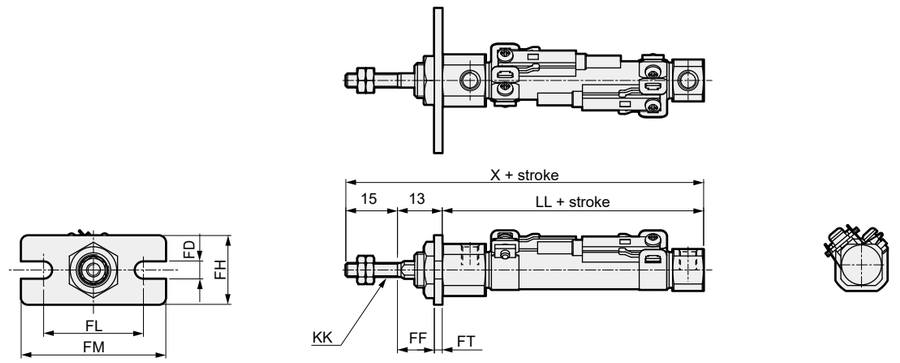


Code / Bore size (mm)	Single Side Axial Foot Type (LS) Mounting Dimensions											
	KK	LL	X	LD	LH	LB	LT	LC	LK	LR	LS	LF
ø10	M4	46	74	5.2	14	6	2.3	9	10	29	42	19.7
ø16	M5	46	74	5.2	14	6	2.3	9	10	29	42	19.7

***1: For dimensions of models with switches, see P. 101.**
***2: For outer dimensions diagram of accessories, refer to P. 19.**

Outline Dimension Drawing

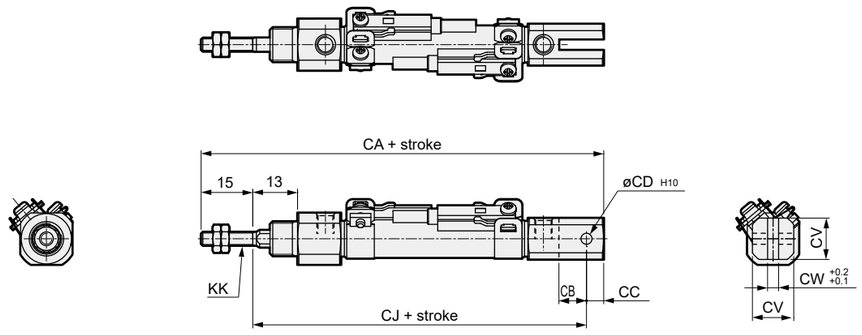
●Rod Side Flange Type (FA)



Code / Bore size (mm)	Rod Side Flange Type (FA) Mounting Dimensions								
	KK	LL	X	FH	FD	FT	FL	FM	FF
ø10	M4	46	74	20	5.2	2.3	29	42	10.7
ø16	M5	46	74	20	5.2	2.3	29	42	10.7

***1: For dimensions of models with switches, see P. 101.**
***2: For outer dimensions diagram of accessories, refer to P. 19.**

● Double Clevis Type (CB) with Pin

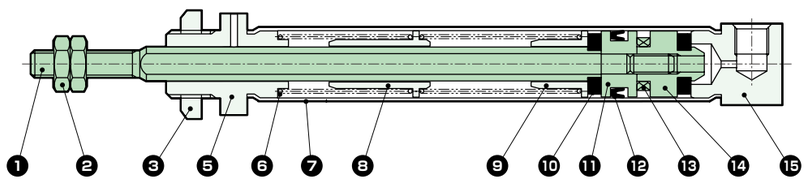


Code / Bore size (mm)	Double Clevis Type (CB) Mounting Dimensions							
	KK	Cv	CW	CD	CB	CC	CJ	CA
ø10	M4	12	3.2	3.2	8	5	67	87
ø16	M5	18	6.5	5	10	10	69	94

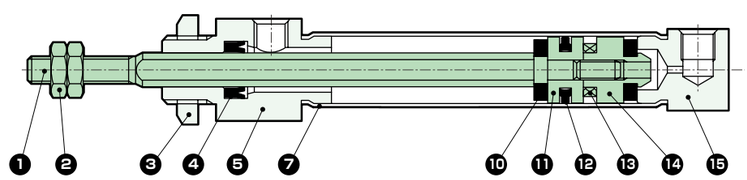
***1: For dimensions of models with switches, see P. 101.**
***2: For outer dimensions diagram of accessories, refer to P. 19.**

Internal Structure Diagram / Material

● Single Acting, Non-Rotating Type
SCPS3-M
SCPS3-ML (with Switch)



● Double Acting, Non-Rotating Type
SCPD3-M
SCPD3-ML (with Switch)



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		9	Spring Retainer (B)	Aluminum Alloy	
2	Rod Nut	Steel	Nickel Plating	10	Cushion Rubber	Urethane Rubber	
3	Hexagon Nut	Steel	Nickel Plating	11	Piston	Aluminum Alloy	
4	Rod Packing	Nitrile Rubber		12	Piston Packing	Nitrile Rubber	
5	Rod Cover	Aluminum Alloy	Hard Anodized	13	Magnet		With switch only
6	Coil Spring	Piano Wire	Zinc Chromate	14	Spacer	Aluminum Alloy	
7	Cylinder Tube	Stainless Steel		15	Head Cover	Aluminum Alloy	Hard Anodized
8	Spring Retainer (A)	Aluminum Alloy					

MEMO

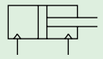
General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending



Pencil Shaped Cylinder Double Acting, High Load Type

SCPD3-K Series

- Port Size: M5
- Bore size: ø6, ø10, ø16

Circuit Diagram Symbol 

Custom Products

RoHS

Model No. Notation Method

Without Switch
(Without magnet for switch)

SCPD3-K	00	10	15	O		I
Model No.	❶	❷	❸	❹		❼

With Switch
(Built-in magnet for switch)

SCPD3-KL	00	10	15	O	T2H	R	I
Model No.	❶ Mounting type	❷ Bore size	❸ Stroke	❹ Head Side Port Direction	❺ Switch Model No.	❻ Number of Switches	❼ Accessories

❶Mounting type

Mounting brackets are included to the product and shipped.

Code	Contents	
00	Basic type	
LS	Single Side Axial Foot Type (Rod Side)	
FA	Rod Side Flange Type	
CB	Double Clevis Type (Pin and retaining ring included) (ø10, ø16)	

❷Bore size (mm)

Code	Content
6	ø6
10	ø10
16	ø16

❸Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø6	5 to 100	Every 1 mm
ø10	5 to 200	
ø16	5 to 260	

Note: For minimum stroke with switch, refer to P. 86.

❹Head Side Port Direction

Code	Content	
Blank	Vertical Direction	
*1 O	Axial Direction	

*1: If port direction is "0" (axial), mounting type "CB" cannot be selected.

❺Switch Model No.

For switch details, please refer to page 971. Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	*3
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
*5 W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❼Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (pin and retaining ring included)	
	B1	Single Bracket	
	B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.
*2: Accessories cannot be selected for ø6.

About Custom Product Specifications

Code	Contents
Rod End Shape Modification	Refer to Ending 11.

*For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

SCPD3	-	T0H	-	6
		❺ Switch Model No.		❷ Bore size

●Switch Body (with Fixed Bracket)

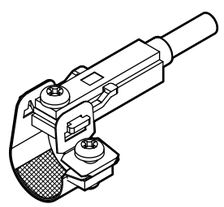
SCPD3	-	T0H
		❺ Switch Model No.

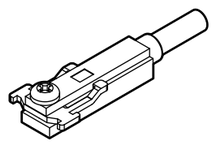
●Mounting Bracket Set + Fixed Bracket

SCPD3	-	TS	-	6
				❷ Bore size

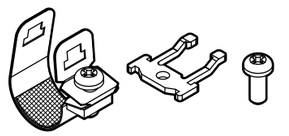
●Mounting bracket set

SCPD3	-	T	-	6
				❷ Bore size





Note) T-type standard switch and fixing bracket Phillips pan head screw are different.



For purchases of 20 or more, items will be packed together.



For purchases of 20 or more, items will be packed together.

Specifications

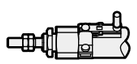
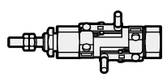
Item		SCPD3-K / SCPD3-KL		
Bore size	mm	ø6	ø10	ø16
Actuation method		Double Acting, High Load Type		
Operating Fluid		Compressed Air		
Max. Working Pressure	MPa	1.0		
Min. Operating Pressure	MPa	0.15	0.1	
Proof Pressure	MPa	1.6		
Ambient Temperature	°C	-10 to 60 (No freezing)		
Port Size		M5		
Stroke tolerance	mm	+1.0 0		
Operating Piston Speed	mm/s	50 to 750		
Cushion		Rubber Cushion		
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)		
Allowable Absorbed Energy	J	0.012	0.041	0.162

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ø6	15, 30, 45, 60	100	5
ø10		200	
ø16		260	

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

	With 1 pc.		With 2 pcs.	
Diagram	 Rod Side Mounting	 Head Side Mounting	 For different surface mounting	
Min. Stroke	T0, 5, T2 (W), T3 (W)	T2WL	T0, 5, T2 (W), T3 (W)	T2WL
	5 mm	30 mm	10 mm	30 mm

Cylinder Weight

[Unit: g]

Model	Stroke / Bore size (mm)	Without Switch 15 st	30 st	45 st	60 st	With Switch (2 Switches Attached) 15 st	30 st	45 st	60 st	Switch Mounting Bracket Weight	Switch Weight (Per Switch)
SCPD3-K	ø6	15	17	19	21	65	67	69	71	2	Refer to the weight listed in the switch specifications on P. 971.
	ø10	27	30	33	36	80	83	86	89		
	ø16	64	69	74	79	118	123	128	133		

Mounting Bracket Weight

(Unit: g)

Applicable Bore size	Mounting type Foot Type LS	Flange Type FA	Clevis Type CB
ø6	6	4	–
ø10	6	4	4
ø16	15	12	10

Allowable Lateral Load

[Unit: g]

Model	Bore size (mm)	Stroke 15 st	30 st	45 st	60 st
SCPD3-K	ø6	132	109	93	81
	ø10	338	277	234	203
	ø16	861	705	597	518

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa 0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø6	Push	–	4.24	5.65	8.48	11.3	14.1	17.0	19.8	22.6	25.4	28.3
	Pull	–	3.18	4.24	6.36	8.48	10.6	12.7	14.8	17.0	19.1	21.2
ø10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0	62.8	70.7	78.5
	Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2	52.8	59.4	66.0
ø16	Push	20.1	30.2	40.2	60.3	80.4	1.01 × 10²	1.21 × 10²	1.41 × 10²	1.61 × 10²	1.81 × 10²	2.01 × 10²
	Pull	18.1	27.2	36.3	54.4	72.6	90.7	1.09 × 10²	1.27 × 10²	1.45 × 10²	1.63 × 10²	1.81 × 10²

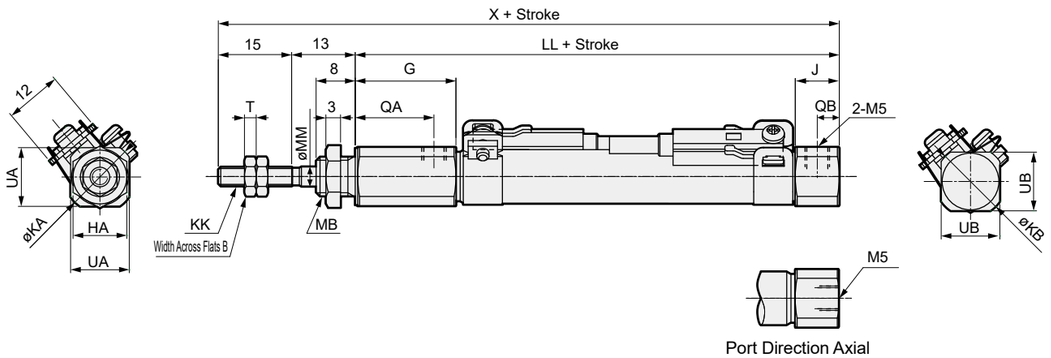
Mounting Bracket Model No. Notation Method

Bore size / Mounting bracket	ø6	ø10	ø16
Foot (LS)	P2-LS-6	P2-LS-10	P2-LS-16
Flange (FA)	P2-FA-6	P2-FA-10	P2-FA-16

Note: Foot (LS) type mounting brackets come as 1 pc./set.

Outline Dimension Drawing

●Double Acting, High Load Type
Basic Type (00)

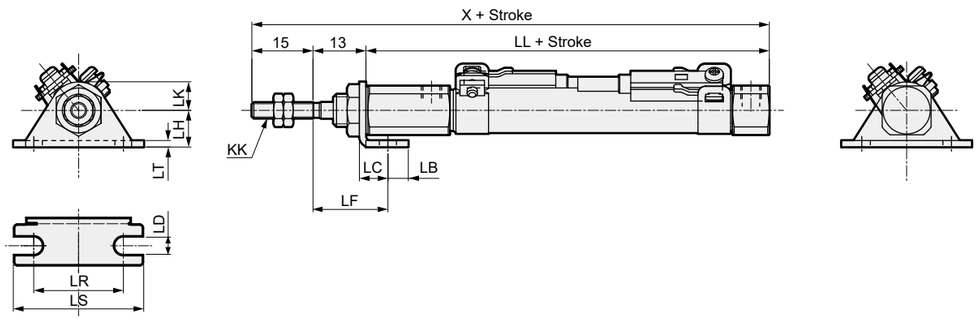


Port Direction Axial

Code	Basic Type (OO) Basic Dimensions															
Bore size (mm)	B	G	HA	J	KA	KB	KK	LL	MB	MM	QA	QB	T	UA	UB	X
ø6	5.5	20	8	8	13.5	13.5	M3	55	M6	3	16	4	1.8	11	11 (8)	83
ø10	7	20.5	11	9	14.5	14.5	M4	59	M8 × 1.0	4	16	4.5	2.4	12	12	87
ø16	8	21	14	9	21.5	21.5	M5	62	M10 × 1.0	5	16.5	4.5	3.2	18	18	90

*1: Dimensions in ( ) are for head side port direction "0" axial type.
***2: For outer dimensions diagram of accessories, refer to P. 19.**
***3: For dimensions of models with switches, see P. 101.**

● Single Side Axial Foot Type (LS)

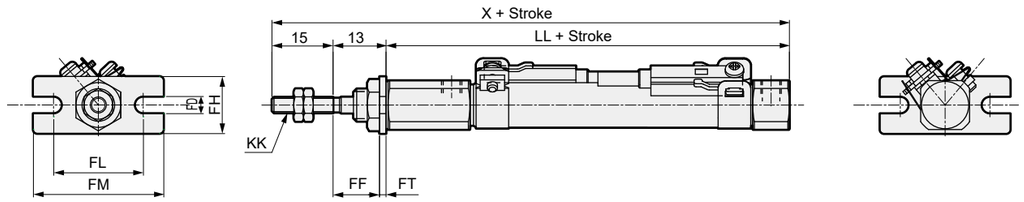


Code	Single Side Axial Foot Type (LS) Mounting Dimensions											
Bore size (mm)	KK	LL	X	LB	LC	LD	LF	LH	LK	LR	LS	LT
ø6	M3	55	83	5	7	4.2	18.4	9	7	22	32	1.6
ø10	M4	59	87	5	7	4.2	18.4	9	7	22	32	1.6
ø16	M5	62	90	6	9	5.2	19.7	14	10	29	42	2.3

***1: For outer dimensions diagram of accessories, refer to P. 19.**
***2: For dimensions of models with switches, see P. 101.**

Outline Dimension Drawing

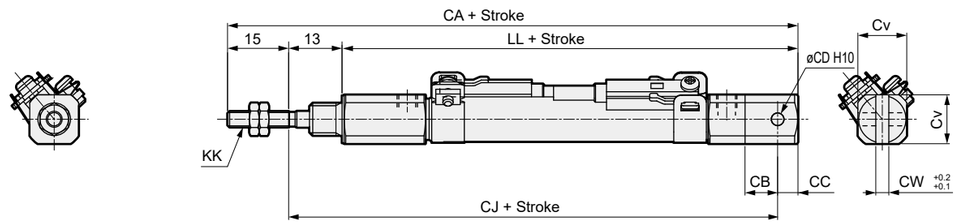
●Rod Side Flange Type (FA)



Code	Rod Side Flange Type (FA) Mounting Dimensions								
Bore size (mm)	KK	LL	X	FD	FF	FH	FL	FM	FT
ø6	M3	55	83	4.2	11.4	14	22	32	1.6
ø10	M4	59	87	4.2	11.4	14	22	32	1.6
ø16	M5	62	90	5.2	10.7	20	29	42	2.3

***1: For outer dimensions diagram of accessories, refer to P. 19.**
***2: For dimensions of models with switches, see P. 101.**

●Double clevis type (CB)

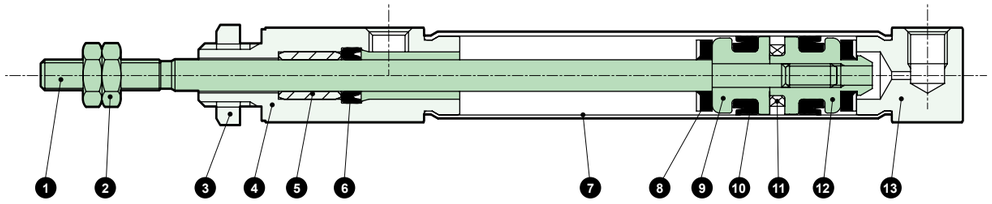


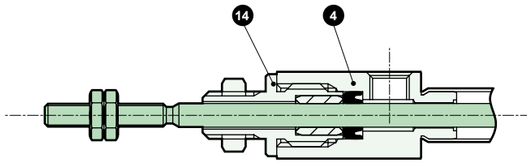
Code	Double Clevis Type (CB) Mounting Dimensions							
Bore size (mm)	KK	CA	CB	CC	CD	CJ	Cv	CW
ø10	M4	100	8	5	3.2	80	12	3.2
ø16	M5	110	10	10	5	85	18	6.5

***1: For outer dimensions diagram of accessories, refer to P. 19.**
***2: For dimensions of models with switches, see P. 101.**

Internal Structure Diagram / Material

●Double Acting, High Load Type
SCPD3-K
SCPD3-KL (with Switch)





For ø6

Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		8	Cushion Rubber	Urethane Rubber	
2	Rod Nut	Steel	Nickel Plating	9	Piston (R)	Aluminum Alloy	Chromate
3	Hexagon Nut	Steel	Nickel Plating	10	Piston Packing	Nitrile Rubber	
4	Rod Cover	Aluminum Alloy	Hard Anodized	11	Magnet		With switch only
5	Bushing	Bearing Alloy		12	Piston (H)	Aluminum Alloy	Chromate
6	Rod Packing	Nitrile Rubber		13	Head Cover	Aluminum Alloy	Hard Anodized
7	Cylinder Tube	Stainless Steel		14	Rod Metal	Aluminum Alloy	Hard Anodized

MEMO

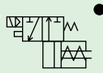
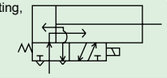
General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending



Pencil Shaped Cylinder Single Acting/with Valve, Double Acting/with Valve

SCPS3-V Series
SCPD3-V Series

●Bore size: ø10, ø16

Circuit Diagram Symbols ●Single Acting, with Valve  ●Double Acting, with Valve 

Custom Products

RoHS

Model No. Notation Method

Without Switch
(Without magnet for switch)

SCPD3-V – LS – 10 – 15 – 1 ——— I

With Switch
(Built-in magnet for switch)

SCPD3-VL – LS – 10 – 15 – 1 – T2H – R – I

❶	❷	❸	❹	❺	❻	❼	❽
Model No.	Mounting type	Bore size	Stroke	Valve voltage	Switch Model No.	Number of Switches	Accessories

❶ Model No.

Code	Contents
SCPS3-V	Single Acting Push with Valve
SCPS3-VL	Single Acting Push with Valve With Switch
SCPD3-V	Double Acting with Valve
SCPD3-VL	Double Acting with Valve With Switch

❷ Mounting type

Mounting brackets are included to the product and shipped.

Code	Contents	
00	Basic type	
LS	Single Side Axial Foot Type	
LB	Double Side Axial Foot Type	
FA	Rod Side Flange Type	

*1

*1: In the case of single acting push (SCPS3), "LB" cannot be selected.

❸ Bore size (mm)

Code	Content
10	ø10
16	ø16

❹ Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø10	15 to 200 (15 to 120)	Every 1 mm
ø16	15 to 260 (15 to 120)	

*1: For minimum stroke with switch, refer to P. 94.
*2: ( ) indicates SCPS3-V.

❺ Valve voltage

Code	Content
1	100 VAC
2	200 VAC
3	24 VDC

❻ Switch Model No.

For switch details, please refer to page 971. Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	*3
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	

*5

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❼ Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs

❽ Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (pin and retaining ring included)	
	B1	Single Bracket	
	B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

Code	Contents
Rod End Shape Modification	Refer to End of Volume P. 11.

*For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set
SCPD3 – T0H – 6
❻ Switch Model No. ❸ Bore size

Note) T-type standard switch and fixing bracket Phillips pan head screw are different.

●Switch Body (with Fixed Bracket)
SCPD3 – T0H
❻ Switch Model No.

For purchases of 20 or more, items will be packed together.

●Mounting Bracket Set + Fixed Bracket
SCPD3 – TS – 6
❸ Bore size

For purchases of 20 or more, items will be packed together.

●Mounting bracket set
SCPD3 – T – 6
❸ Bore size

For purchases of 20 or more, items will be packed together.

Specifications

Item		SCPS3-V / SCPS3-VL		SCPD3-V / SCPD3-VL	
Bore size	mm	ø10	ø16	ø10	ø16
Actuation method		Single Acting, with Valve		Double Acting, with Valve	
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1		0.7	
Min. Operating Pressure	MPa	0.15			
Proof Pressure	MPa	1.5		1.05	
Ambient Temperature	°C	-10 to 50 (No freezing)			
Port Size		M5			
Stroke tolerance	mm	$^{+1.0}_{0}$ (to 60), $^{+1.5}_{0}$ (61 to 120)		$^{+1.0}_{0}$ (to 120), ($^{+1.5}_{0}$ 121 to 200: ø10, 121 to 260: ø16)	
Operating Piston Speed	mm/s	50 to 750			
Cushion		Rubber Cushion			
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)			
Manual Override		Non-locking Push Type			
Allowable Absorbed Energy	J	0.041	0.162	0.041	0.162
Solenoid Valve Specifications					
Applicable Valve Series		P5132 (SCPS3-V, SCPS3-VL) P5142 (SCPD3-V, SCPD3-VL)			
Rated Voltage	V	100 VAC (50/60 Hz)	200 VAC (50/60 Hz)	24 VDC	
Starting Current (A)		0.056 / 0.044	0.034 / 0.026	0.075	
Holding Current (A)		0.028 / 0.022	0.017 / 0.013	0.075	
Power consumption	W	1.8 / 1.4	2.1 / 1.6	1.8	
Voltage Fluctuation Range		±10%			
Heat Resistance Class		Class B (Molded Coil)			
Temperature Rise	°C	45			

Note: Note: For details on the valve, refer to "Directional Control Valves ②" (Catalog No. RJ-012AA).

Stroke

Bore size (mm)			Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
SCPS3-V	Single Acting	ø10	15, 30, 45, 60	120	15
		ø16			
SCPD3-V	Double Acting	ø10	15, 30, 45, 60	200	
		ø16		260	

Note: About Intermediate Stroke: Manufacturable every 1 mm.

Min. Stroke with Switch

Diagram	With 1 pc.			With 2 pcs.		
	Rod Side Mounting / Head Side Mounting			For different surface mounting		
Min. Stroke	T2, 3, T3P, T2*R	T0, 5, T2W, T3W	T2WL	T2, 3, T3P, T2*R	T0, 5, T2W, T3W	T2WL
	5 mm (10 mm)	5 mm (15 mm)	30 mm	10 mm	10 mm (15 mm)	30 mm

Note: Values in ( ) are the min. stroke length with switch of the straight switch lead wire.

Cylinder Weight

(Unit: g)

Model	Stroke / Bore size (mm)	Without Switch 15 st	30 st	45 st	60 st	With Switch (2 Switches Attached) 15 st	30 st	45 st	60 st	Switch Mounting Bracket Weight	Switch Weight (Per Switch)
SCPS3-V	ø10	89	96	103	110	139	146	153	160	2	Refer to the weight listed in the switch specifications on P. 971.
	ø16	107	121	135	149	159	173	187	201		
SCPD3-V	ø10	131	134	138	142	181	184	188	192		
	ø16	151	156	161	166	203	208	213	218		

Mounting Bracket Weight

(Unit: g)

Applicable Bore size	Mounting type: Foot Type LS	Foot Type LB	Flange Type FA
ø10	6	12	4
ø16	15	30	12

Single Acting Type Spring Load (SCPS3-V)

(Unit: N)

Bore size (mm)	At 0 mm Stroke	At Full Stroke Operation
ø10	3.2	7.5
ø16	6.4	14.9

Theoretical Thrust Table

●SCPS3-V

(Unit: N)

Bore size (mm)	Operating Pressure MPa 0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø10	7.01	9.34	17.2	25.0	32.9	40.8	48.6	56.5	64.3	72.2
ø16	21.5	28.7	48.8	68.9	89.0	1.09 × 10²	1.29 × 10²	1.49 × 10²	1.69 × 10²	1.90 × 10²

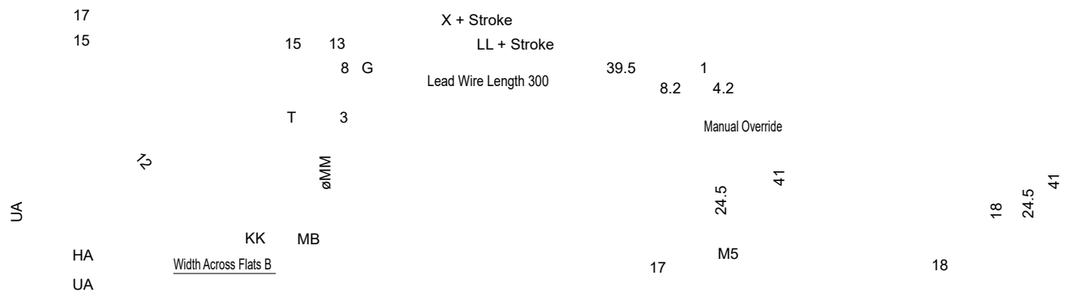
●SCPD3-V

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa 0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø10	Push	11.8	15.7	23.6	31.4	39.3	47.1	55.0
	Pull	9.90	13.2	19.8	26.4	33.0	39.6	46.2
ø16	Push	30.2	40.2	60.3	80.4	1.01 × 10²	1.21 × 10²	1.41 × 10²
	Pull	27.2	36.3	54.4	72.6	90.7	1.09 × 10²	1.27 × 10²

Outline Dimension Drawing

●SCPS3-V (L) Basic Type (00)

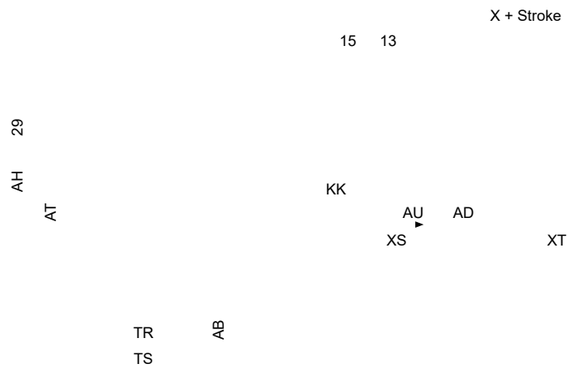


Code	Basic Type (OO) Basic Dimensions											
Bore size (mm)	B	G	HA	KK	LL							
					15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less
ø10	7	4	11	M4	55	60	70	75	85	90	100	105
ø16	8	4	14	M5	55	60	70	75	85	90	100	105

Code												
Bore size (mm)	MB	MM	T	UA	X							
					15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less
ø10	M8 × 1.0	4	2.4	12	86.2	91.2	101.2	106.2	116.2	121.2	131.2	136.2
ø16	M10 × 1.0	5	3.2	18	86.2	91.2	101.2	106.2	116.2	121.2	131.2	136.2

***1: For outer dimensions diagram of accessories, refer to P. 19.**
***2: For dimensions of models with switches, see P. 101.**

●Single Side Axial Foot Type (LS)



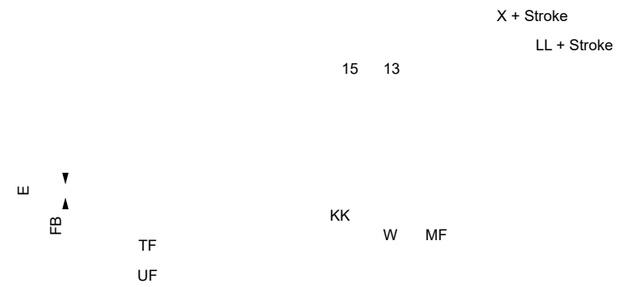
Code	Single Side Axial Foot Type (LS) Mounting Dimensions												
Bore size (mm)	KK	X								AB	AH	AD	AU
		15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less				
ø10	M4	86.2	91.2	101.2	106.2	116.2	121.2	131.2	136.2	4.2	9	5	7
ø16	M5	86.2	91.2	101.2	106.2	116.2	121.2	131.2	136.2	5.2	14	6	9

Code												
Bore size (mm)	AT	TR	TS	XS	XT							
					15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less
ø10	1.6	22	32	18.4	49.6	54.6	64.6	69.6	79.6	84.6	94.6	99.6
ø16	2.3	29	42	19.7	48.3	53.3	63.3	68.3	78.3	83.3	93.3	98.3

***1: For outer dimensions diagram of accessories, refer to P. 19.**
***2: For dimensions of models with switches, see P. 101.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)



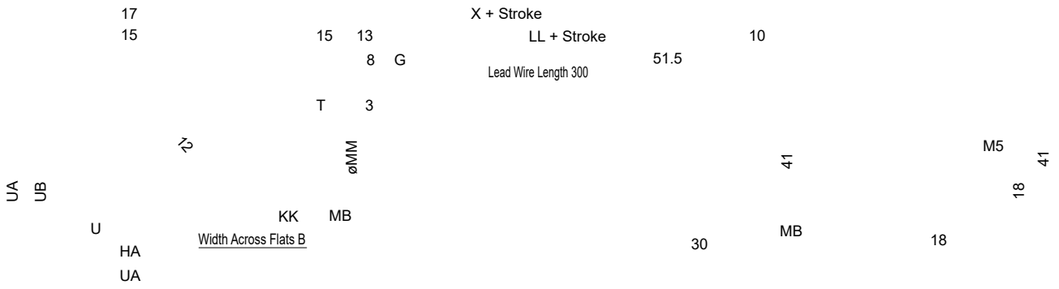
Code	Rod Side Flange Type (FA) Mounting Dimensions								
Bore size (mm)	KK	LL							
		15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less
ø10	M4	55	60	70	75	85	90	100	105
ø16	M5	55	60	70	75	85	90	100	105

Code														
Bore size (mm)	X								E	FB	MF	TF	UF	W
	15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less						
ø10	86.2	91.2	101.2	106.2	116.2	121.2	131.2	136.2	14	4.2	1.6	22	32	11.4
ø16	86.2	91.2	101.2	106.2	116.2	121.2	131.2	136.2	20	5.2	2.3	29	42	10.7

***1: For outer dimensions diagram of accessories, refer to P. 19.**
***2: For dimensions of models with switches, see P. 101.**

Outline Dimension Drawing

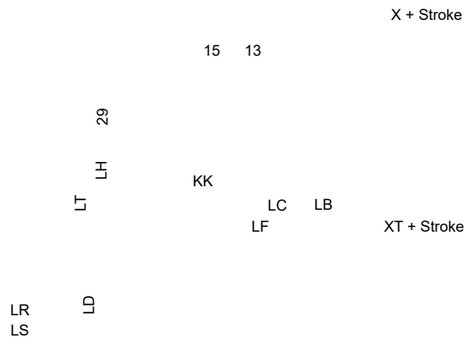
●SCPD3-V (L) Basic Type (00)



Code	Basic Type (00) Basic Dimensions											
Bore size	B	HA	G	KK	LL	MB	MM	T	U	UA	UB	X
ø10	7	11	12.5	M4	67	M8 × 1.0	4	2.4	21	12	8	105
ø16	8	14	13	M4	67	M10 × 1.0	5	3.2	21	18	8	105

***1: For outer dimensions diagram of accessories, refer to P. 19.**
***2: For dimensions of models with switches, see P. 101.**

●Single Side Axial Foot Type (LS)

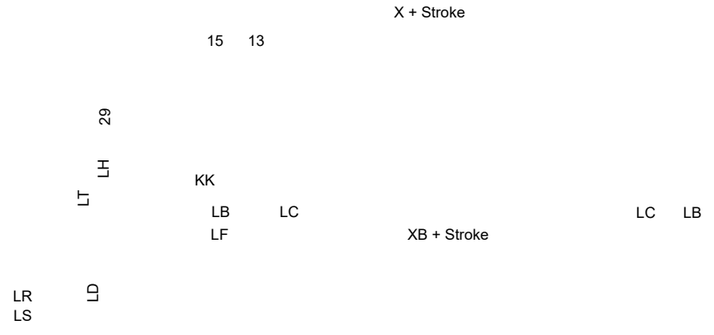


Code	Single Side Axial Foot Type (LS) Mounting Dimensions										
Bore size	KK	X	LD	LH	LB	LT	LC	LR	LS	LF	XT
ø10	M4	105	4.2	9	5	1.6	7	22	32	18.4	61.6
ø16	M5	105	5.2	14	6	2.3	9	29	42	19.7	60.3

***1: For outer dimensions diagram of accessories, refer to P. 19.**
***2: For dimensions of models with switches, see P. 101.**

Outline Dimension Drawing

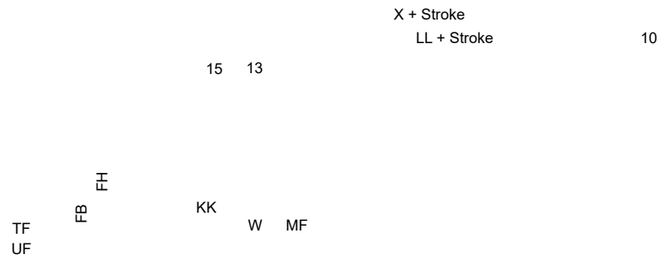
●Both Sides Axial Foot Type (LB)



Code	Both Sides Axial Foot Type (LB) Mounting Dimensions										
Bore size	KK	X	LD	LH	LB	LT	LC	LR	LS	XB	LF
ø10	M4	105	4.2	9	5	1.6	7	22	32	81	6
ø16	M5	105	5.2	14	6	2.3	9	29	42	85	4

***1: For outer dimensions diagram of accessories, refer to P. 19.**
***2: For dimensions of models with switches, see P. 101.**

●Rod Side Flange Type (FA)

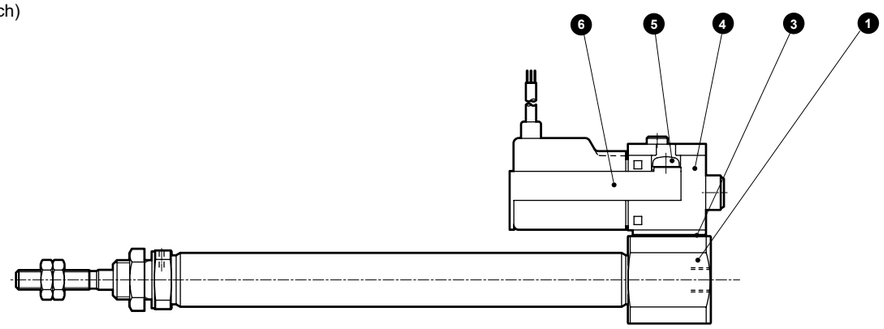


Code	Rod Side Flange Type (FA) Mounting Dimensions									
Bore size	KK	LL	X	FB	FH	MF	TF	UF	W
ø10	M4	67	105	4.2	14	1.6	22	32	11.4
ø16	M5	67	105	5.2	20	2.3	29	42	10.7

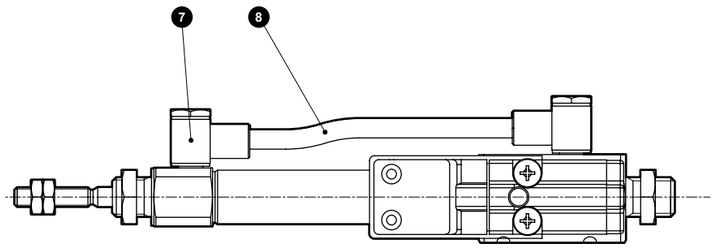
***1: For outer dimensions diagram of accessories, refer to P. 19.**
***2: For dimensions of models with switches, see P. 101.**

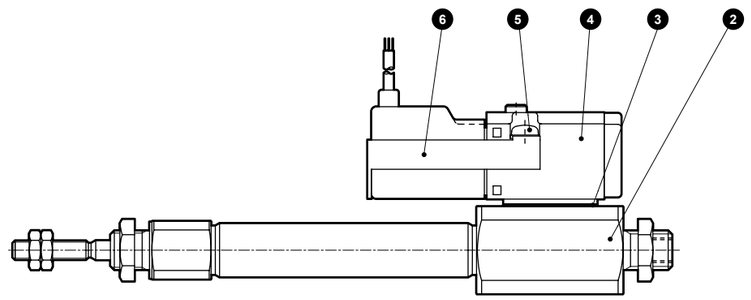
Internal Structure Diagram / Materials (with Switch)

●Single Acting, with Valve
SCPS3-V
SCPS3-VL (with Switch)



●Double Acting, with Valve
SCPD3-V
SCPD3-VL (with Switch)





Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Pencil Shaped Cylinder, Single Acting Type		SCPS3 (CKD)	5	Pan Head Screw	Steel	Zinc Chromate
2	Pencil Shaped Cylinder, Double Acting Type		SCPD3 (CKD)	6	Shielding Plate	Steel	With Switch Only
3	Gasket	Nitrile Rubber		7	Fitting		FCL (CKD)
4	Solenoid Valve		Single acting is 3-port valve, double acting is 4-port valve	8	Nylon Tubing	Nylon	

SCP□3 Series Outer Dimensions Diagram with Switch

● T0H/V, T5H/V, T2H/V, T2□R3, T3(P)H/V, T2WH/V, T3WH/V, T2WLH/V

• SCPD3-L / SCPD3-L-□C / SCPD3-LF / SCPD3-OL / SCPD3-ML / SCPD3-ZL / SCPD3-KL / SCPD3-VL, SCPS3-L / SCPS3-ML / SCPS3-VL / SCPH3-L



• SCPD3-DL



Code / Bore size (mm)	P	T0, T5, T2, T2□R3, T3, T3P		T2W, T3W, T2WL	
		RD	HD	RD	HD
ø6	11.5	2	2	4	3.5
ø10	13.5	3.5	2.5	5.5	4
ø16	17.0	2	3.5	3.5	5

Code / Bore size (mm)	P	T0, T5, T2, T2□R3, T3, T3P									T2W, T3W, T2WL								
		RD								HD	RD								HD
		15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less		15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less	
ø6	11.5	12	17	32	37	52	57	72	-	2	14	19	34	39	54	59	74	-	3.5
ø10	13.5	13.5	18.5	28.5	33.5	43.5	48.5	58.5	63.5	2.5	15	20	30	35	45	50	60	65	4
ø16	17.0	11.5	16.5	26.5	31.5	41.5	46.5	56.5	61.5	3.5	13.5	18.5	28.5	33.5	43.5	48.5	58.5	6.5	5

Code / Bore size (mm)	P	T0, T5, T2, T2□R3, T3, T3P									T2W, T3W, T2WL								
		RD	HD								RD	HD							
			15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less		15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less
ø6	11.5	2	12	17	32	37	52	57	72	-	4	13.5	18.5	33.5	38.5	53.5	58.5	73.5	-
ø10	13.5	3.5	12	17	27	32	42	47	57	62	5.5	14	19	29	34	44	49	59	64
ø16	17.0	2	13.5	18.5	28.5	33.5	43.5	48.5	58.5	63.5	3.5	15	20	30	35	45	50	60	65

Code / Bore size (mm)	P	T0, T5, T2, T2□R3, T3, T3P	T2W, T3W, T2WL
		RD	RD
ø6	11.5	2	4
ø10	13.5	5.5	7.5
ø16	17.0	4	6

Note: Refer to How to order for each variation when switch is not mountable.

To Use This Product Safely

Be sure to read this before use. For general cylinder information, see Intro 41, and for cylinder switches, see P. 1026.

Individual Precautions: Pencil Shaped Cylinder SCP□3 Series

During Design / Selection

1. With Rubber Air Cushion SCPD3-□C

Caution

■ Due to the structure, if the air supply is cut off, the stroke end position cannot be maintained. Please be careful. When detecting the stroke end with a switch, it may be outside the detection range, so set the switch position in an air-pressurized state.

2. Ultra Low Speed Type SCPD3-F

Caution

■ Use without lubrication.
- Lubrication may change characteristics.

■ Install the speed controller near the cylinder.
- If installed far from the cylinder, adjustment will be unstable.
- SC-M3/M5-F, SC3W, SCD-M3/M5-F series speed controllers are recommended.

■ Generally, the higher the air pressure and the lower the load factor, the more stable the speed.
- Use with a load factor of 50% or less.

■ Speed control with a meter-out circuit provides stability.
- When driving a single-rod cylinder at creep speed in the PUSH direction, if the load resistance is small, a flying-out phenomenon may occur at the start of operation. As countermeasures, use circuits b, c, or d. Circuit d is the most stable.

(Guideline for lurching occurrence)
Lurching occurs in the following cases:
• Thrust > Resistance
*Resistance: *Resistance: Thrust due to residual pressure on exhaust side (For creep speed type, intake pressure = residual pressure) + [For horizontal use: Frictional force due to load / For vertical use: Dead weight of the load]

■ Do not apply lateral load to the cylinder.
- Operation becomes unstable when lateral load is applied.

■ Avoid use in places with vibration.
- Operation becomes unstable due to the influence of vibration.

3. With Valve SCP□3-V

Caution

■ If the energization time exceeds 20 minutes, the service life may be reduced.

■ Do not use a meter-in speed controller. Depending on the control flow rate, it may not operate at the minimum operating pressure. Consult with CKD.

During Use

1. Common

Caution

■ Do not force piping in such a way that lateral force is applied to the cylinder tube.
The cylinder tube may tilt, causing malfunction.

■ Do not turn the cover.
- When mounting the cylinder and screwing pipe fittings into the ports, if the cover rotates, there is a risk of damage from the cover joint.

■ When fixing a workpiece to the tip of the piston rod, ensure that tightening torque is not applied to the cylinder body.

■ When tightening the hex nut (Part No. 3 in the internal structure and parts list on P. 20), tighten within the following tightening torque range.
ø6: 1.46 N•m ±10%
ø10: 4.09 N•m ±10%
ø16: 8.78 N•m ±10%

■ This cylinder is a non-disassembly type, so do not apply excessive force to the end cover or tube.

2. Single Acting Type SCPS, SCPS3, SCPH3

Caution

■ For single acting cylinders, do not use push types in a way that applies load during piston rod retraction, or pull types in a way that applies load during piston rod extension.
The cylinder's built-in spring only has force to return the piston rod, so if a load is applied, it will not return to the stroke end.

■ For single acting types, a breather hole is provided on the cover surface, so be careful not to block the hole during installation.
This will cause malfunction.

■ Do not leave single acting cylinders pressurized.
If left pressurized, the piston rod may not return by spring load when the pressure is released.

3. With Rubber Air Cushion SCPD3-□C

Caution

■ Due to changes in cushion rigidity from long-term storage, the stroke may be slightly shorter than the standard value at low pressure settings. Perform a break-in operation by operating it several times or by reciprocating it at a high supply pressure.

4. Ultra Low Speed Type SCPD3-F

Caution

■ Make adjustments such as alignment so that no lateral load is applied to the cylinder. Also, adjust and install so that there is no twisting with respect to the sliding guide.
- Operation will become unstable if there are fluctuations in load or resistance.
- Guides with a large difference between static friction and dynamic friction will result in unstable operation.

5. Non-Rotating Type SCPS3-M, SCPD3-M

Caution

■ For non-rotating types, ensure that no rotational torque is applied to the piston rod.
The bushing will deform, reducing service life.

■ The direction of the piston rod's width across flats is manufactured to be parallel to the side of the rod cover, but accuracy is not guaranteed.

For precautions regarding mounting, installation, adjustment, use, and maintenance, please see "Precautions for Use" in this catalog and the CKD Components Product website (https://www.ckd.co.jp/kiki/en/) →"Model No." → Instruction Manual

General Type

CMK2

Small bore size cylinder

ø20, ø25, ø32, ø40

Overview

A medium bore size (ø20 to ø40) series among general cylinders, featuring high corrosion resistance and long service life. This is a crimped type cylinder with abundant variations.



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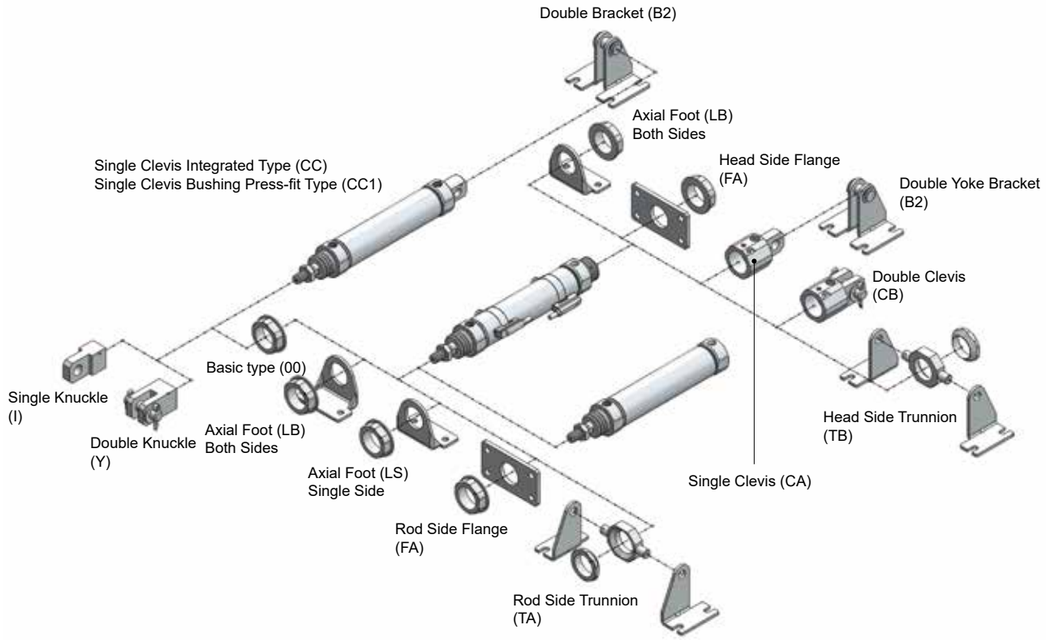
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●: Standard, ◎: Option, ○: Custom Products, : Not manufacturable

Variation	Model No. Circuit Diagram Symbol	Bore size (mm)	Standard Stroke (mm)								Min. Stroke (mm)	Max. Stroke (mm)	Intermediate Stroke (Per mm)	Mounting type											Option						Accessories			Switch	Page
			25	50	75	100	150	200	250	300				Basic type	Axial Foot Type, Both Sides		Axial Foot Type, Single Side	Rod Side Flange Type	Head Side Flange Type	Single Clevis Type	Single Clevis Integrated Type	Single Clevis Bushing Press-fit Type	Double Clevis Type	Rod Side Trunnion Type	Head Side Trunnion Type	Bellows (100°C)	Bellows (250°C)	With Push-in Fitting, Straight	With Push-in Fitting, Elbow	(Stainless Steel) Piston Rod Material Change	Boss Cut	Single Knuckle	Double Knuckle	Double Yoke Bracket		
														00	LB		LS	FA	FB	CA	CC	CC1	CB	TA	TB	J	L	F	FE	M	V	I	Y	B2		
Double Acting Type	CMK2	ø20, ø25, ø32, ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	110
Single Acting, Push Type	CMK2-S	ø20, ø25	●	●	●	●	●				5	300	1	●	●		●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	126
		ø32, ø40	●	●	●	●	●	●				300		●	●		●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎		
Single Acting, Pull Type	CMK2-SR	ø20, ø25	●	●	●	●	●				5	300	1	●	●		●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	138
		ø32, ø40	●	●	●	●	●	●				300		●	●		●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎		
Double Acting, Stroke Adjustment Type (Push)	CMK2-P	ø20, ø25	●	●	●	●	●	●	●	●	25	450	1	●	●		●	●	●					●	●	◎	◎	◎	◎	◎		◎	◎	◎	◎	150
		ø32	●	●	●	●	●	●	●	●		430		●	●		●	●	●					●	●	◎	◎	◎	◎	◎		◎	◎	◎		
		ø40	●	●	●	●	●	●	●	●		400		●	●		●	●	●					●	●	◎	◎	◎	◎	◎		◎	◎	◎		
Double Acting, Stroke Adjustment Type (Pull)	CMK2-R	ø20, ø25, ø32, ø40	●	●	●	●	●	●	●	●	25	750	1	●	●		●	●	●					●	●	◎	◎	◎	◎	◎		◎	◎	◎	◎	160
Double Acting/Heat Resistant Type	CMK2-T	ø20, ø25, ø32, ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		●	●	●	●	●	●	●	●	●		◎			◎	◎	◎	◎	◎		170
Double Acting with Rubber Air Cushion	CMK2-□C	ø20, ø25, ø32, ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	○	○	○	○	174
Double Acting Air Cushion Type	CMK2-C	ø20, ø25, ø32, ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	182
Double Acting, Drop Prevention Type	CMK2-Q	ø20, ø25, ø32, ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		●	●	●	●	○ *1	○ *1	●	● *2	● *1			◎	◎	◎	○ *1	◎	◎	◎	◎	194
Double Acting/ Fine Speed Type	CMK2-F	ø20, ø25, ø32, ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		●	●	●	●	●	●	●	●	●						◎	◎	◎	◎	◎	206
Double Acting/ Double Rod Type	CMK2-D	ø20, ø25	●	●	●	●	●	●	●	●	5	500	1	●	●		●	●						●		◎	◎	◎	◎	◎		◎	◎	◎	◎	212
		ø32	●	●	●	●	●	●	●	●		480		●	●		●	●						●		◎	◎	◎	◎	◎		◎	◎	◎		
		ø40	●	●	●	●	●	●	●	●		450		●	●		●	●						●		◎	◎	◎	◎	◎		◎	◎	◎		
Double Acting, Back-to-Back Type	CMK2-B	ø20, ø25, ø32, ø40	●	●	●	●	●	●	●	●	5	750	1	●	●			●								◎	◎	◎	◎	◎		◎	◎	◎	◎	220
Double Acting, Non-Rotating Type	CMK2-M	ø20, ø25, ø32, ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	228
Double Acting with Built-in Speed Controller	CMK2-Z	ø20, ø25, ø32, ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		●	●	●	●	●	○	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	240
Double Acting, Low Hydraulic Pressure Type	CMK2-H	ø20, ø25, ø32, ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		●	●	●	●	●	●	●	●	●	◎	◎			◎	◎	◎	◎	◎	◎	252
Double Acting, Coolant Proof Type	CMK2-G2/G3	ø20, ø25, ø32, ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		●	●	●	●	●	●	●	●	●			○ *3	○ *3			◎	◎	◎	◎	258
Double Acting, All Stainless Steel Exterior, Water Resistance	CMK2-JG2/JG3	ø20, ø25, ø32, ø40	○	○	○	○	○	○	○	○	5	750	1	○	○		○	○	○		○										○	○	○		○	274

*1: Can be selected when rod side drop prevention is included. *2: Can be selected when head side drop prevention is included. *3: Can be selected in the case of G2.

Combination of Mounting Brackets and Accessories



Combination Availability Table for Variations and Option Items

◎Mark: Option
○Mark: Custom Products
△Mark: Manufacturable depending on conditions
(Please consult)
× Mark: Not manufacturable

*1: Specify the cylinder to which the position locking mechanism is attached. Also, specify whether to attach it to the rod side or head side. (Indicate with a schematic diagram)
*2: Specify the cylinder to attach non-rotation.
*3: Cushion can be attached to the cover side where the position locking mechanism is not attached. (Example: In the case of CMK2-Q-32-ST-H, a cushion can be included with the rod side)
*4: Frictional resistance is higher compared to the standard ultra low speed type (or fine speed type).
*5: Low speed performance cannot be satisfied in the cushion region at the stroke end.
*6: Compatible with operating temperatures of 100°C or less.
*7: Low speed performance may not be satisfied due to the repulsive force of the bellows.
*8: Only rod side drop prevention type is supported.
*9: Piston rod and nut of G2 and G3 are stainless steel (M) as standard. (The M code is not required.)
*10: Piston rod material of the rotation-stop type is stainless steel (M) as standard. (If M is selected, the rod nut material will also be stainless steel.)
*11: Only head side drop prevention type is supported.

Category		Category	Variation																				Piping thread		Cushion	Option								
			Double Acting Basic Type	Single Acting, Push Type	Single Acting, Pull Type	Double Acting Double Rod Type	Back-to-Back Type	Stroke Adjustable Type (Push)	Stroke Adjustable Type (Pull)	With Fall Prevention	Non-Rotating Type	With Air Cushion	With Speed Controller	Low Hydraulic Pressure Type	Heat resistant type (120°C)	Ultra Low Speed Type	Coolant Proof Scraper Type (NBR)	Coolant Proof Scraper Type (FKM)	Double Acting, All Stainless Steel Exterior, Water Resistant Type	NPT	G	With Rubber Air Cushion	With Bellows (Polyolefin Material)	With Bellows (Silicone Rubber Material)	With Push-in Fitting	Piston Rod Material (Stainless Steel)	Boss Cut	With Non-locking Manual Override	With Locking Manual Override
		Code	None	S	SR	D	B	P	R	Q	M	C	Z	H	T	F	G2	G3	JG2/3	NN	GN	C	J	L	F/FE	M	V	M0	M1
Variation	Double Acting Basic Type	Blank		×	×																												
	Single Acting, Push Type	S			×	×	○	△	○	×	△	×	×	×	△	×	△	△	△	○	○	×	◎	◎	◎	◎	◎	◎	×	×
	Single Acting, Pull Type	SR				×	○	△	×	×	△	×	×	×	△	×	△	△	△	○	○	×	◎	◎	◎	◎	◎	◎	×	×
	Double Acting Double Rod Type	D					×	×	×	○	○	○	○	○	○	*4	○	○	△	○	○	○	◎	◎	◎	◎	◎	×	×	×
	Back-to-Back Type	B						×	×	*1	*2	○	○	○	○	○	○	○	△	○	○	○	◎	◎	◎	◎	◎	×	×	×
	Stroke Adjustable Type (Push)	P							×	*11	○	×	○	○	○	*4	×	×	×	○	○	×	◎	◎	◎	◎	◎	×	×	×
	Stroke Adjustable Type (Pull)	R								*8	○	×	×	×	○	○	○	○	×	○	○	×	◎	◎	◎	◎	◎	×	×	×
	With Fall Prevention	Q									×	*3	×	×	×	×	×	×	×	○	○	×	△	△	◎	◎	*8	◎	◎
	Non-Rotating Type	M										×	×	×	×	×	×	×	×	○	○	×	◎	◎	◎	*10	◎	×	×
	With Air Cushion	C											×	×	*5	△	×	×	○	○	×	◎	◎	◎	◎	◎	×	×
	With Speed Controller	Z												×	×	△	×	×	○	○	×	◎	◎	◎	◎	◎	×	×
	Low Hydraulic Pressure Type	H													×	△	×	×	○	○	×	◎	◎	◎	◎	◎	×	×
	Heat Resistant Type (120°C)	T														×	×	×	○	○	×	*6	◎	×	◎	◎	×	×
	Ultra Low Speed Type	F															×	×	○	○	*5	*7	*7	×	◎	◎	×	×
	Coolant Proof Scraper Type (NBR)	G2																×	○	○	○	×	×	○	*9	○	×	×
	Coolant Proof Scraper Type (FKM)	G3																	○	○	×	×	×	×	*9	○	×	×
	Double Acting, Stainless Steel Exterior, Water Resist.	JG2/3																		△	△	△	×	×	×		○	×	×
Piping thread	NPT	NN																			×	○	×	×	×	×	×	×	×
	G	GN																				○	×	×	×	×	×	×	×
Cushion	With Rubber Air Cushion	C																					○	○	○	○	○	×	×
Option	With Bellows (Polyolefin Material)	J																						×	○	○	○	○	○
	With Bellows (Silicone Rubber Material)	L																							○	○	○	○	○
	With Push-in Fitting	F / FE																								○	○	○	○
	Piston Rod Material (Stainless Steel)	M																									○	○	○
	Boss Cut	V																										*8	*8
	With Non-locking Manual Override	M0																											×
	With Locking Manual Override	M1																											
Accessories	Cylinder Switch	Shown Separately	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	×	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	Single Knuckle	I	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	Double Knuckle	Y	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	B2 Bracket	B2	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	△	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

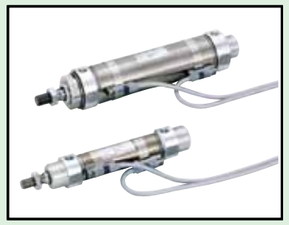
[Model No. Notation Method]

CMK2 – D G2 – LB – 40 – (3) – 50 – T2WLH3 – D – ( ) – Y

- CMK2: Model No.
- D G2: Variation — Double Rod, Coolant Proof Scraper Type (*Enter codes in order from left to right in the table above.)
- ❶ LB: Mounting Style: Both Sides Foot Type
- ❷ 40: Bore size: ø40 mm
- ❸ (blank): Port Thread Type: Rc Thread
- ❹ 50: Stroke: 50 mm
- ❺ T2WLH3: Switch Model No.: Water proof improving switch, lead wire length 3 m
- ❻ D: Number of Switches: With 2 pcs
- ❼ ( ): Option: None
- ❽ Y: Accessories: Double Knuckle

***Enter codes in order from left to right in the table above.**

*1: Back-to-back type has two cylinders. When indicating each variation, use the following method.
• If only S1 has a variation, enter the variation code before the S1 stroke. (Example) CMK2-B-32-H25-50: Only S1 is low hydraulic pressure type.
• If only S2 has a variation, enter the variation code before the S2 stroke. (Example) CMK2-B-32-25-H50: Only S2 is low hydraulic pressure type.
• If S1 and S2 have the same variation, enter the variation code before the bore size. (Example) CMK2-BH-32-25-50: Both S1 and S2 are low hydraulic pressure type.

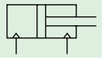


Small bore size cylinder
Double Acting/Single Rod Type

CMK2 Series

● Bore size: ø20, ø25, ø32, ø40

Circuit Diagram Symbol



RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

CMK2 – 00 – 20 – [ ] – 100 ——— Y

Model No. ❶ ❷ ❸ ❹ ❽

With Switch
(Built-in magnet for switch)

CMK2 – 00 – 20 – [ ] – 100 – T0H – R – V – Y

Model No. ❶ Mounting type ❷ Bore size ❸ Piping thread type ❹ Stroke ❺ Switch Model No. ❻ Number of Switches ❼ Option ❽ Accessories

Mounting brackets are included with the product upon shipment. However, if bellows are included and the mounting brackets are LB, LS, FA, or TA, they will be shipped assembled.

❶ Mounting type

	Code	Contents	
	00	Basic type	
	LB	Axial Foot Type (Both Sides)	
*1	LS	Axial Foot Type (Single Side)	
	FA	Rod Side Flange Type	
	FB	Head Side Flange Type	
	CA	Single Clevis Type	
	CC	Single Clevis Integrated Type	
	CC1	Single Clevis, Bushing Press-fit Type	
	CB	Double Clevis Type (Pin and Washer Split Pin Attached)	
	TA	Rod Side Trunnion Type	
	TB	Head Side Trunnion Type	

*1: Single side foot type (LS type) has a max. stroke of 50 mm.

❷ Bore size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

Piping thread type

Code	Content
Blank	Rc Thread
NN	NPT Thread (Custom Order Product)
GN	G Thread (Custom Order Product)

❹ Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20	5 to 750	Every 1 mm
ø25	5 to 750	
ø32	5 to 750	
ø40	5 to 750	

Note: For minimum stroke with switch and maximum/minimum stroke with bellows, refer to P. 112.

❺ Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp / Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T5V□	T5V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T5V□	T5V□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T5V□	T5V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻ Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

Note: The maximum number of switches that can be installed is 3. If 4 or more are required, please order the insufficient switch mounting brackets separately by individual model number.

❽ Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Washer Split Pin Attached)	
	B2	Double Yoke Bracket (Pin and Retaining Ring Attached)	

*1: "I" and "Y" cannot be selected at the same time.

❼ Option

	Code	Contents	Max. Ambient Temperature	Instantaneous Max. Temperature	
	J	Bellows	100°C	200°C	
	L		250°C	400°C	
*1	F	With Push-in Fitting (Straight)			
*1	FE	With Push-in Fitting (Elbow)			
*3	M	Piston Rod Material (Stainless Steel)			
	V	Boss Cut			

*1: For F: With Push-in fitting (Straight) and FE: With Push-in fitting (Elbow), the applicable tube O.D. is ø6.
*2: Instantaneous maximum temperature is the temperature when fire, chips, etc. momentarily contact the bellows.
*3: When Bore size ø20 or 25 is selected, the piston rod material is already stainless steel. (If M is selected, the rod nut material will also be stainless steel.)

About Custom Product Specifications

For details, see P. 287.

Code	Contents
-XJ9	Without Bellows
-T2	Fluorine Packing Type
-A2	With 2 Rod Nuts
-O	Low Speed Type
Rod End Shape Modification	Refer to End of Volume P. 11.

Model No. Example)
CMK2 – ..... – XJ9

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

● Uses food-grade lubricant usable in food manufacturing processes

CMK2 – ..... – FP1

Rechargeable Battery Compatible Specification (Catalog No. CC-1226AA)

● Structure usable in secondary battery manufacturing processes

CMK2 – ..... – P4□

*Please contact us for details.

High Durability Components HP Series (Catalog No. CC-1421AA)

● **Long-life actuator that can contribute to productivity improvement with stable operation**

CMK2 – ..... – HP□

*For combinations of variations and options, see P. 109.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

CMK2 – T0H – 20

❺ Switch Model No. ❷ Bore size

●Switch body only

SW – T0H

❺ Switch Model No.

●Mounting bracket set

CMK2 – T – 20

Mounting bracket ❷ Bore size

Specifications

Item		CMK2			
Bore size	mm	ø20	ø25	ø32	ø40
Actuation method		Double Acting Type			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.1			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	-10 to 60 (No freezing)			
Port Size		Rc1/8			
Stroke tolerance	mm	$^{+2.0}_{0}$ (Up to 200) $^{+2.4}_{+0}$ (Over 200,)			
Operating Piston Speed	m/s	50 to 500			
Cushion		Rubber Cushion			
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)			
Allowable Absorbed Energy	J	0.166	0.308	0.424	0.639

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke		Min. Stroke	
		Without Bellows	With Bellows	Without Bellows Bellows "L"	Bellows "J"
ø20	25, 50, 75, 100, 150, 200, 250 300	750	750	5	25
ø25					
ø32					
ø40					

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: Single side foot type (LS type) has a maximum stroke of 50 mm.
*3: For bellows "J" with a stroke of less than 25 mm, please inquire each time.

Min. Stroke with Switch

(Unit: mm)

Number of Switches	1					2				
	Solid State			Reed		Solid State			Reed	
Bore size (mm)	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8
ø20	10					25	30	35	25	35
ø25	10					25	30	35	25	35
ø32	10					25	30	35	25	35
ø40	10					25	30	35	25	35

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore size (mm)	Product Weight at Stroke (S) = 0 mm								Switch Weight (Per Piece)	Switch Rail + Band Weight	Added Weight per S = 10 mm
	Basic Type (00)	Axial Foot Type (LB)	Axial Foot Type (LS)	Flange Type (FA/FB)	Single Clevis Type (CA)	Clevis Type (CC)	Double clevis type (CB)	Trunnion Type (TA/TB)			
ø20	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	of P. 971 Please refer to the weight listed in the switch specifications.	0.005	0.01
ø25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
ø32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
ø40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

(Example) Product Weight of CMK2-FA-32-50-T0H-D

Product Weight at S = 0 mm: 0.45 kg
Added weight at S=50 mm.... Added weight at S=10 mm $0.02 \times \frac{\text{Product Stroke (50)}}{10} = 0.10$ kg
Weight of 2 switches: 0.036 kg
Weight of switch rail + 2 bands: 0.018 kg
Product Weight ..... 0.45 kg+0.1 kg+0.036 kg+0.018 kg=0.604 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	23.6	35.3	47.1	70.7	94.2	1.18×10^2	1.41×10^2	1.65×10^2	1.88×10^2	2.12×10^2	2.36×10^2
ø25	Push	49.1k	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	37.8	56.7	75.6	1.13×10^2	1.51×10^2	1.89×10^2	2.27×10^2	2.64×10^2	3.02×10^2	3.40×10^2	3.78×10^2
ø32	Push	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.10×10^2	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

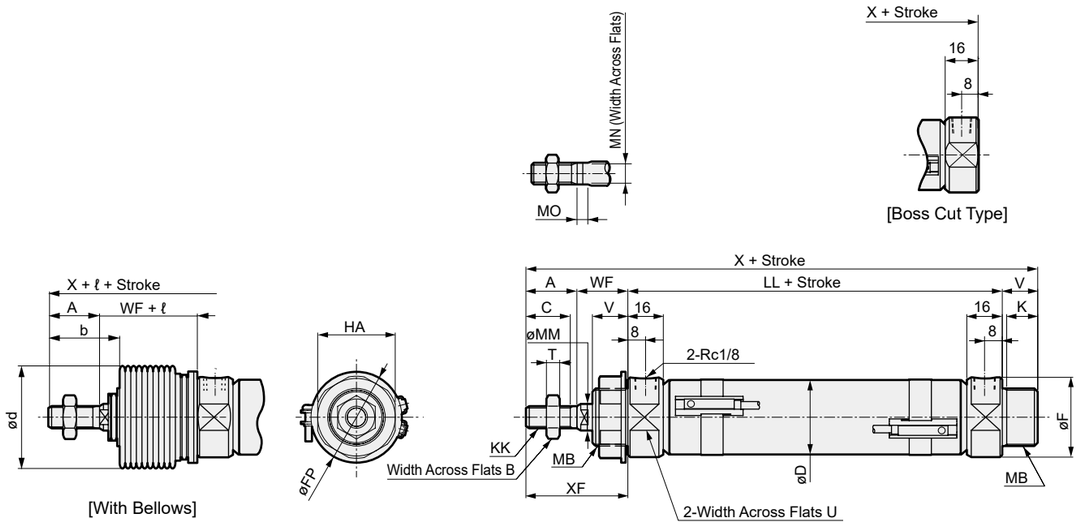
Mounting Bracket Model No. Notation Method

Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Basic Type (00) *3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial Foot Type (LB/LS)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40
Single Clevis Type (CA)	M1-CA-20	M1-CA-30	M1-CA-30	M1-CA-30
Double clevis type (CB)	M1-CB-20	M1-CB-30	M1-CB-30	M1-CB-30

*1: For axial foot type and flange type mounting brackets, mounting nuts and toothed washers are included. Also, for trunnion type, mounting nuts are included.
*2: For axial foot type (both sides), 2 sets of "M1-LB-□1" from the table above are required.
*3: Only mounting nuts and toothed lock washers are included. One set is included with the basic type (00) of the product, but use this if additional sets are required.

Outline Dimension Drawing

●Basic Type (OO)



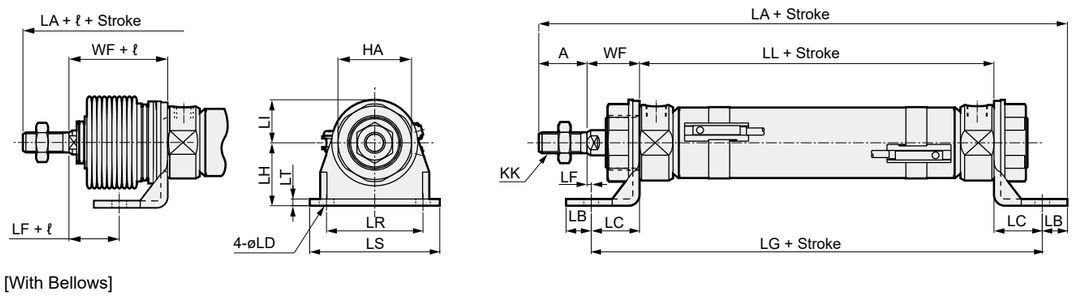
Code	Basic Type (OO) Basic Dimensions																			
Bore size (mm)	A	B	C	D	F	FP	HA	K	KK	LL	MB	MM	MN	MO	T	U	V	WF	X	XF
ø20	20	13	18	21.4	28	29	26	12	M8 × 1.0	66	M18 × 1.5	10	8	5	5	24	14	24	124	44
ø25	23	17	20	26.4	32	41	35	14	M10 × 1.25	69	M26 × 1.5	12	10	5	6	30	16	23	131	46
ø32	23	17	20	33.6	36	41	35	14	M10 × 1.25	69	M26 × 1.5	12	10	5	6	34	16	23	131	46
ø40	25	19	22	41.6	45	41	35	14	M12 × 1.5	73	M26 × 1.5	14	12	6	7	43	16	23	137	48

Code	With Bellows			Boss Cut Type
Bore size (mm)	b	d	ℓ	X
ø20	30	30	(Stroke / 3) + 6	110
ø25	32	46	(Stroke / 3.25) + 7	115
ø32	32	46	(Stroke / 3.25) + 7	115
ø40	34	46	(Stroke / 3.25) + 7	121

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

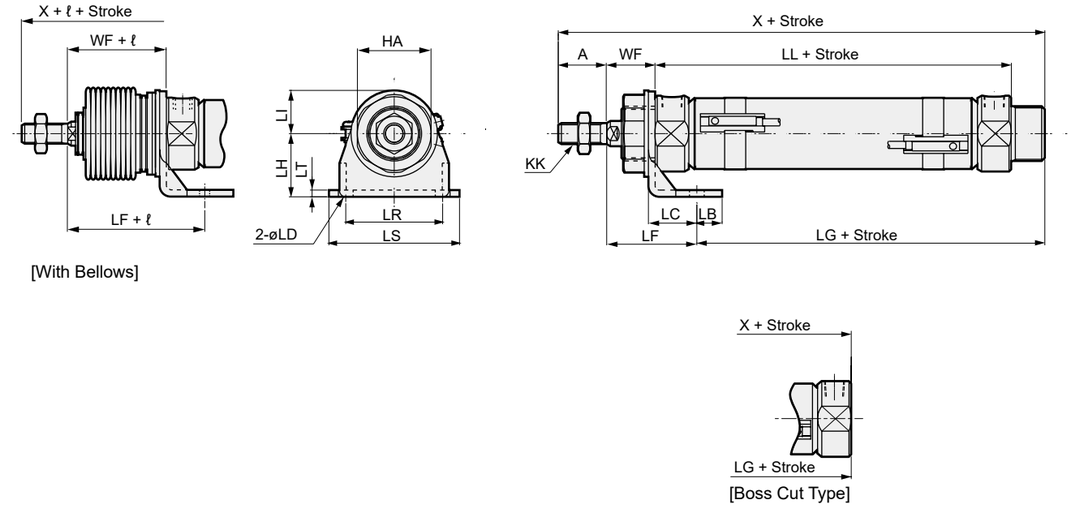
●Axial Foot Type (LB)



Code	Axial Foot Type (LB) Mounting Dimensions															With Bellows
Bore size (mm)	A	HA	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LI	LR	LS	LT	ℓ
ø20	20	26	M8 × 1.0	66	24	138	10	18	6	6	102	25	15	30	44	3.2	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	69	23	150	12	23	7	0	115	30	20.5	46	62	3.2	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	69	23	150	12	23	7	0	115	30	20.5	46	62	3.2	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	73	23	156	12	23	7	0	119	30	22.5	46	62	3.2	(Stroke / 3.25) + 7

***1: Round up the ℓ dimension to the nearest whole number.**
***2: For dimensions with each switch, see P.284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Single Side Axial Foot Type (LS)

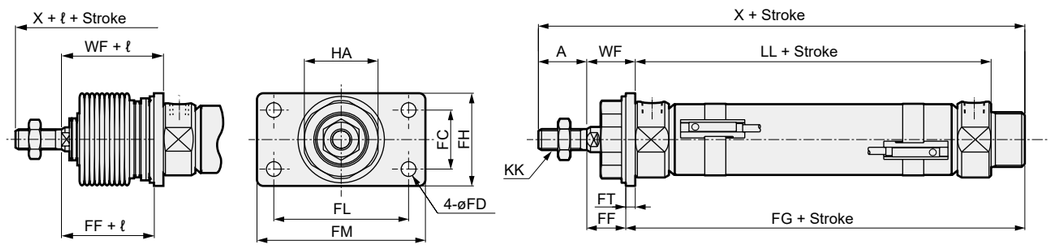


Code	Single Side Axial Foot Type (LS) Mounting Dimensions															With Bellows	Boss Cut Type	
Bore size (mm)	A	HA	KK	LL	WF	X	LB	LC	LD	LF	LG	LH	LI	LR	LS	LT	ℓ	X	LG
ø20	20	26	M8 × 1.0	66	24	124	10	18	6	38.8	65.2	25	15	30	44	3.2	(Stroke / 3) + 6	110	51.2
ø25	23	35	M10 × 1.25	69	23	131	12	23	7	42.8	65.2	30	20.5	46	62	3.2	(Stroke / 3.25) + 7	115	49.2
ø32	23	35	M10 × 1.25	69	23	131	12	23	7	42.8	65.2	30	20.5	46	62	3.2	(Stroke / 3.25) + 7	115	49.2
ø40	25	35	M12 × 1.5	73	23	137	12	23	7	42.8	69.2	30	22.5	46	62	3.2	(Stroke / 3.25) + 7	121	53.2

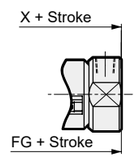
*1: Max. stroke is 50 mm.
*2: Round up the ℓ dimension to the nearest whole number.
*3: For dimensions with each switch, see P. 284 to P. 286.
***4: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)



[With Bellows]

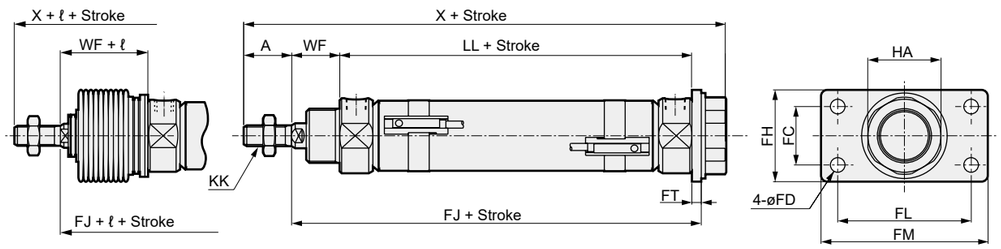


[Boss Cut Type]

Code	Rod Side Flange Type (FA) Mounting Dimensions													With Bellows	Boss Cut Type	
Bore size (mm)	A	KK	LL	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	HA	ℓ	X	FG
ø20	20	M8 × 1.0	66	24	124	20	6	20.8	83.2	34	40	54	3.2	26	(Stroke / 3) + 6	110	69.2
ø25	23	M10 × 1.25	69	23	131	28	7	18.5	89.5	44	64	80	4.5	35	(Stroke / 3.25) + 7	115	73.5
ø32	23	M10 × 1.25	69	23	131	28	7	18.5	89.5	44	64	80	4.5	35	(Stroke / 3.25) + 7	115	73.5
ø40	25	M12 × 1.5	73	23	137	28	7	18.5	93.5	44	64	80	4.5	35	(Stroke / 3.25) + 7	121	77.5

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Head Side Flange Type (FB)



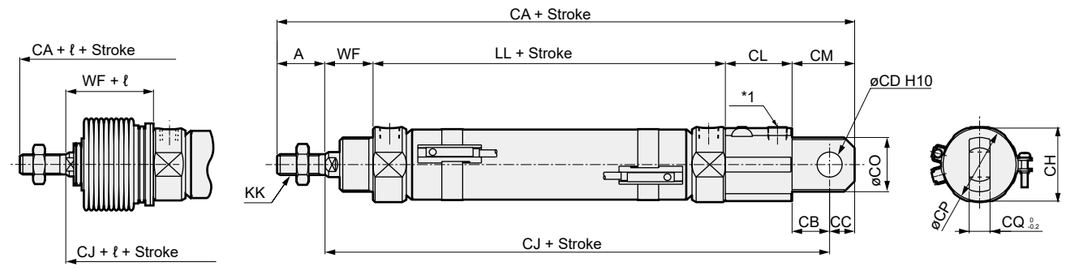
[With Bellows]

Code	Head Side Flange Type (FB) Mounting Dimensions												With Bellows
Bore size (mm)	A	KK	LL	WF	X	FC	FD	FH	FJ	FL	FM	FT	HA	ℓ
ø20	20	M8 × 1.0	66	24	124	20	6	34	93.2	40	54	3.2	26	(Stroke / 3) + 6
ø25	23	M10 × 1.25	69	23	131	28	7	44	96.5	64	80	4.5	35	(Stroke / 3.25) + 7
ø32	23	M10 × 1.25	69	23	131	28	7	44	96.5	64	80	4.5	35	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	73	23	137	28	7	44	100.5	64	80	4.5	35	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

● Single Clevis Type (CA)

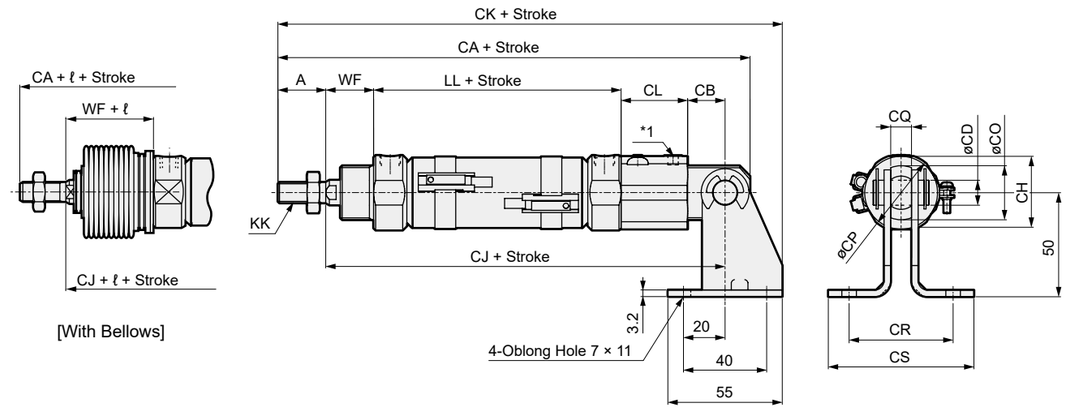


[With Bellows]

Code	Single Clevis Type (CA) Mounting Dimensions															With Bellows
Bore size (mm)	A	KK	LL	WF	CA	CB	CC	CD	CH	CJ	CL	CM	CO	CP	CQ	ℓ
ø20	20	M8 × 1.0	66	24	165	14	10	10	26	135	31	24	22	28	8	(Stroke / 3) + 6
ø25	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	10	(Stroke / 3.25) + 7
ø32	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	10	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	73	23	183	18	12	12	35	146	32	30	26	37	10	(Stroke / 3.25) + 7

*1: Not a piping port.
*2: Round up the ℓ dimension to the nearest whole number.
***3: For dimensions with each switch, see P. 284 to P. 286.**
***4: For outer dimensions diagram of accessories, refer to P. 123.**

●Single Clevis Type (CA) with Bracket (Option code B2)



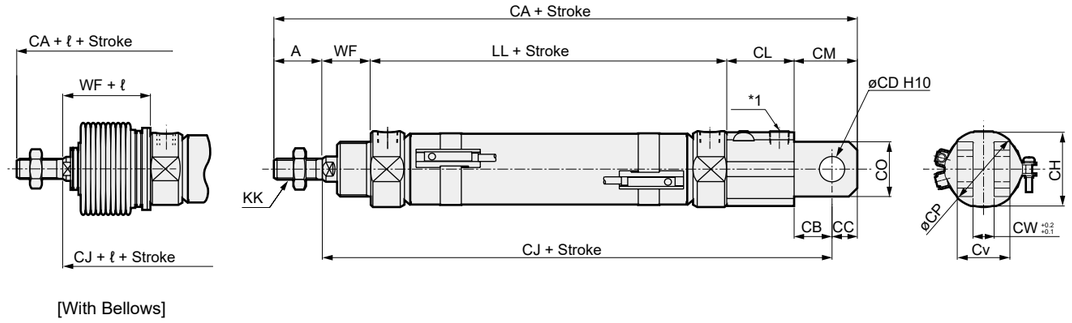
[With Bellows]

Code	Single Clevis Type (CA) with Bracket (B2) Mounting Dimensions																With Bellows
Bore size (mm)	A	KK	LL	WF	CA	CB	CD	CH	CJ	CK	CL	CO	CP	CQ	CR	CS	ℓ
ø20	20	M8 × 1.0	66	24	165	14	10	26	135	182.5	31	22	28	8	48	68	(Stroke / 3) + 6
ø25	23	M10 × 1.25	69	23	177	18	12	35	142	192.5	32	26	37	10	50	70	(Stroke / 3.25) + 7
ø32	23	M10 × 1.25	69	23	177	18	12	35	142	192.5	32	26	37	10	50	70	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	73	23	183	18	12	35	146	198.5	32	26	37	10	50	70	(Stroke / 3.25) + 7

*1: Not a piping port.
*2: Round up the ℓ dimension to the nearest whole number.
***3: For dimensions with each switch, see P.284 to P. 286.**
***4: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Double clevis type (CB)



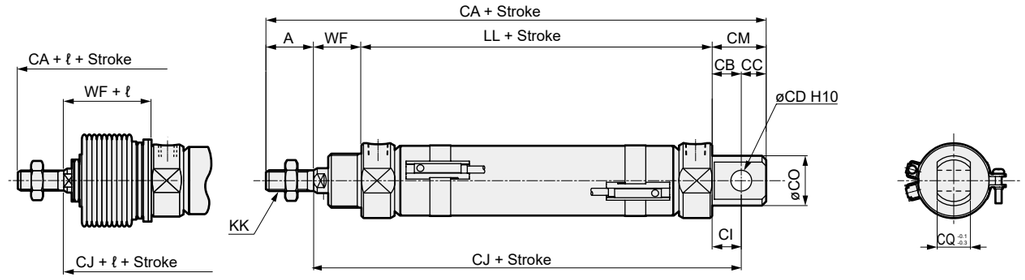
[With Bellows]

Code	Double Clevis Type (CB) Mounting Dimensions																With Bellows
Bore size (mm)	A	KK	LL	WF	CA	CB	CC	CD	CH	CJ	CL	CM	CO	CP	Cv	CW	ℓ
ø20	20	M8 × 1.0	66	24	165	14	10	10	26	135	31	24	22	28	19	8	(Stroke / 3) + 6
ø25	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	25	10	(Stroke / 3.25) + 7
ø32	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	25	10	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	73	23	183	18	12	12	35	146	32	30	26	37	25	10	(Stroke / 3.25) + 7

*1: Not a piping port.
*2: Round up the ℓ dimension to the nearest whole number.
***3: For dimensions with each switch, see P. 284 to P. 286.**
***4: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Single Clevis Integrated Type (CC)
●Single Clevis Bushing Press-fit Type (CC1)

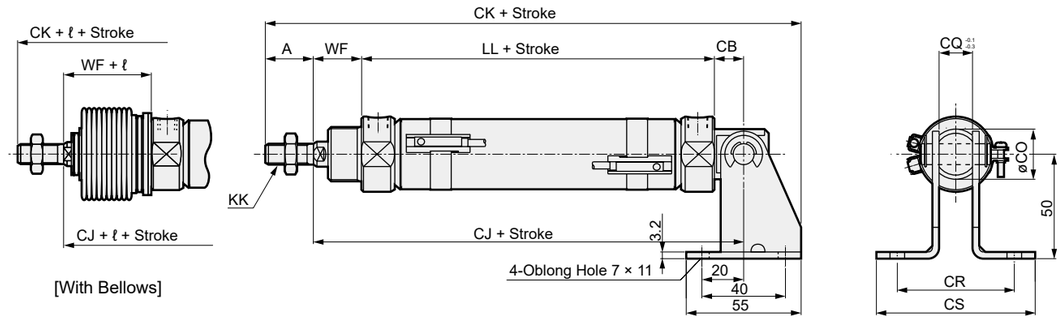


[With Bellows]

Code	Single Clevis Integrated Type (CC), Bushing Press-fit Type (CC1) Mounting Dimensions												With Bellows
Bore size (mm)	A	KK	LL	WF	CA	CB	CC	CD	CJ	CI	CM	CO	CQ	ℓ
ø20	20	M8 × 1.0	66	24	131	12	9	8	102	11	21	22	16	(Stroke / 3) + 6
ø25	23	M10 × 1.25	69	23	136	12	9	8	104	11	21	24	16	(Stroke / 3.25) + 7
ø32	23	M10 × 1.25	69	23	141	14	12	10	106	13	26	24	16	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	73	23	151	16	14	12	112	15	30	30	20	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P.284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Single Clevis Integrated Type (CC) with Bracket (Option Code B2)
●Single Clevis Bushing Press-fit Type (CC1) with Bracket (Option Code B2)



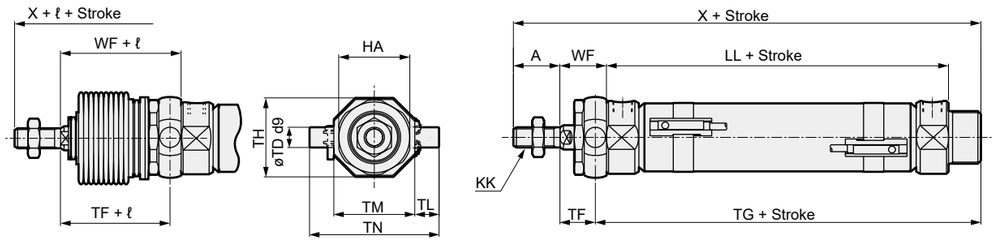
[With Bellows]

Code	Single Clevis Integrated Type (CC), Bushing Press-fit Type (CC1) with Bracket (Option code B2) Mounting Dimensions										With Bellows
Bore size (mm)	A	KK	LL	WF	CJ	CK	CO	CQ	CR	CS	ℓ
ø20	20	M8 × 1.0	66	24	102	149.5	22	16	56	76	(Stroke / 3) + 6
ø25	23	M10 × 1.25	69	23	104	154.5	24	16	56	76	(Stroke / 3.25) + 7
ø32	23	M10 × 1.25	69	23	106	156.5	24	16	56	76	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	73	23	112	164.5	30	20	60	80	(Stroke / 3.25) + 7

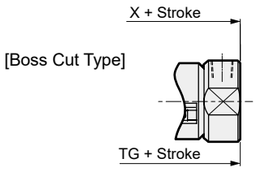
*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Rod side trunnion type (TA)



[With Bellows]

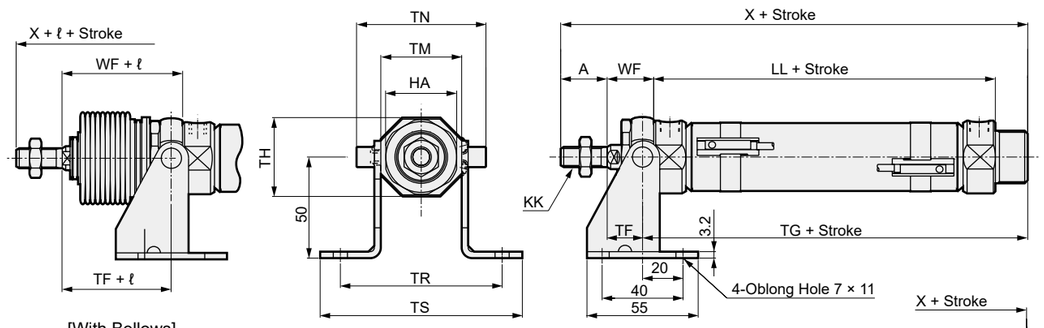


[Boss Cut Type]

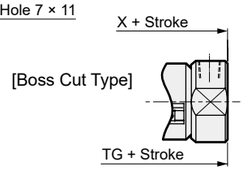
Code	Rod Side Trunnion Type (TA) Mounting Dimensions													With Bellows	Boss Cut Type	
Bore size (mm)	A	HA	KK	LL	WF	X	TD	TF	TG	TH	TL	TM	TN	ℓ	X	TG
ø20	20	26	M8 × 1.0	66	24	124	8	19.5	84.5	29.5	8	30	46	(Stroke / 3) + 6	110	70.5
ø25	23	35	M10 × 1.25	69	23	131	10	17.5	90.5	39	12	40	64	(Stroke / 3.25) + 7	115	74.5
ø32	23	35	M10 × 1.25	69	23	131	10	17.5	90.5	39	12	40	64	(Stroke / 3.25) + 7	115	74.5
ø40	25	35	M12 × 1.5	73	23	137	10	17.5	94.5	44	9.5	53	72	(Stroke / 3.25) + 7	121	78.5

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Rod side trunnion type (TA) with bracket (Option code B2)



[With Bellows]



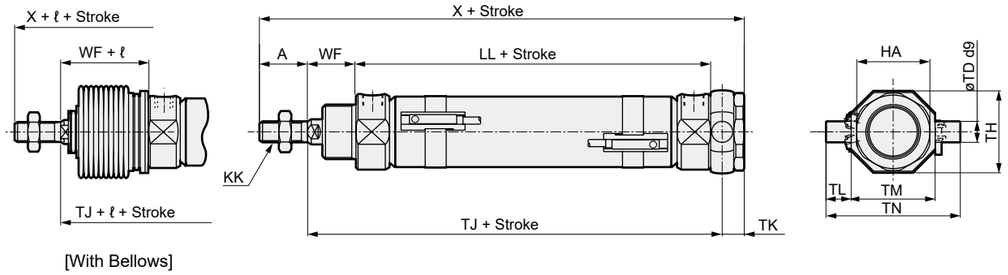
[Boss Cut Type]

Code	Rod Side Trunnion Type (TA) with Bracket (Option code B2) Mounting Dimensions													With Bellows	Boss Cut Type	
Bore size (mm)	A	HA	KK	LL	WF	X	TF	TG	TH	TM	TN	TR	TS	ℓ	X	TG
ø20	20	26	M8 × 1.0	66	24	124	19.5	84.5	29.5	30	46	70	90	(Stroke / 3) + 6	110	70.5
ø25	23	35	M10 × 1.25	69	23	131	17.5	90.5	39	40	64	80	100	(Stroke / 3.25) + 7	115	74.5
ø32	23	35	M10 × 1.25	69	23	131	17.5	90.5	39	40	64	80	100	(Stroke / 3.25) + 7	115	74.5
ø40	25	35	M12 × 1.5	73	23	137	17.5	94.5	44	53	72	93	113	(Stroke / 3.25) + 7	121	78.5

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Head Side Trunnion Type (TB)

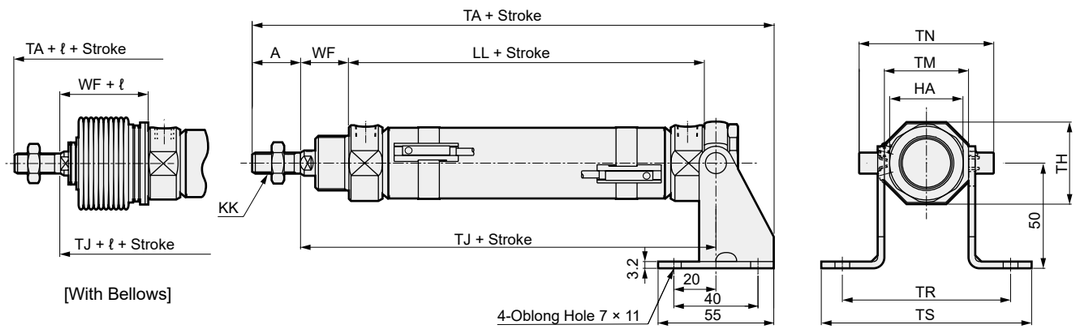


[With Bellows]

Code	Head Side Trunnion Type (TB) Mounting Dimensions													With Bellows
Bore size (mm)	A	HA	KK	LL	WF	X	TD	TH	TJ	TK	TL	TM	TN	ℓ
ø20	20	26	M8 × 1.0	66	24	124	8	29.5	94.5	9.5	8	30	46	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	69	23	131	10	39	97.5	10.5	12	40	64	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	69	23	131	10	39	97.5	10.5	12	40	64	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	73	23	137	10	44	101.5	10.5	9.5	53	72	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Head side trunnion type (TB) with bracket (Option code B2)



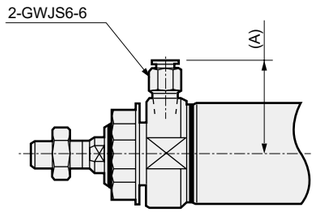
[With Bellows]

Code	Head Side Trunnion Type (TB) With Bracket (Option code B2) Mounting Dimensions												With Bellows
Bore size (mm)	A	HA	KK	LL	WF	TA	TH	TJ	TM	TN	TR	TS	ℓ
ø20	20	26	M8 × 1.0	66	24	142	29.5	94.5	30	46	70	90	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	69	23	148	39	97.5	40	64	80	100	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	69	23	148	39	97.5	40	64	80	100	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	73	23	154	44	101.5	53	72	93	113	(Stroke / 3.25) + 7

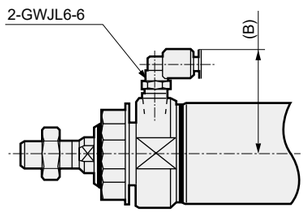
*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outer Dimensions Diagram with Option

●With Push-in Fitting (-F)



●With Push-in Fitting (-FE)

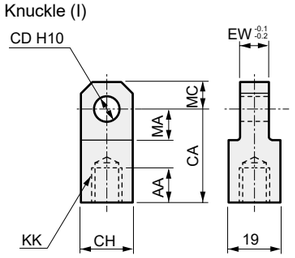


Code / Bore size (mm)	A	B
ø20	30.5	34.5
ø25	32.5	36.5
ø32	34.5	38.5
ø40	39	43

Accessories Outline Dimension Drawing

●Single Knuckle (I)

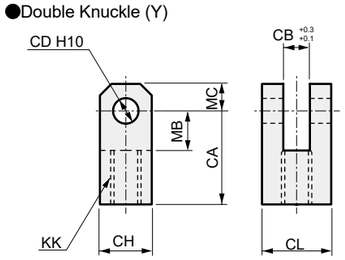
Material: Steel
Zinc Chromate



Model No.	Applicable Bore size (mm)	AA	CA	CD	CH	EW	KK	MA	MC	Weight (g)
M1-I-20	20	14	30	10	19	8	M8 × 1.0	13	10	60
M1-I-30	25, 32	14	36	12	25	10	M10 × 1.25	16	12	106
M1-I-40	40	14	36	12	25	10	M12 × 1.5	16	12	100

●Double Knuckle (Y)

Material: Steel
Zinc Chromate

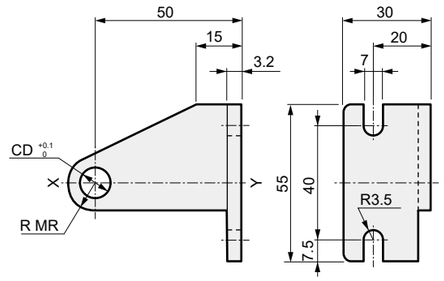


Model No.	Applicable Bore size (mm)	CA	CB	CD	CH	CL	KK	MB	MC	Weight (g)
M1-Y-20	20	30	8	10	19	19	M8 × 1.0	13	10	99
M1-Y-30	25, 32	36	10	12	25	25	M10 × 1.25	16	12	197
M1-Y-40	40	36	10	12	25	25	M12 × 1.5	16	12	193

Note: A pin, a washer and a split pin are included.

●Double Bracket (B2)

Material: Steel, Zinc chromate

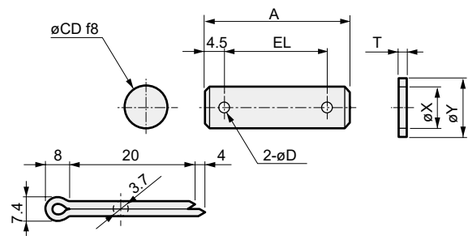


	Model No.	Applicable Model	Applicable Bore size (mm)	CD	MR	Weight (g)
*2	M1-B2-20-CC	CMK2-CCAA	20, 25	8	8	145
*2	M1-B2-30-CC	(Single Clevis	32	10	11	163
*2	M1-B2-40-CC	Integrated Type)	40	12	11	170
*2	M1-B2-30-CA	CMK2-CAAA	20	10	11	158
*2	M1-B2-40-CA	(Single Clevis Type)	25, 32, 40	12	11	162
	M1-B2-20-TA	CMK2-TA/TB	20	8	8	132
	M1-B2-30-TA	(Trunnion Type)	25, 32, 40	10	11	142

*1: A pair consists of two symmetrical pieces with respect to the XY line.
*2: Retaining ring and pin are included.

●Pin for Double Knuckle (P)

Material: Steel, Zinc chromate

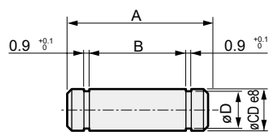


Model No.	Applicable Bore size (mm)	A	D	CD	EL	T	X	Y	Weight (g)
M1-P-20	20	37	4	10	28	1.6	10.5	18	29
M1-P-30	25, 32, 40	46	4	12	37	2.3	12.5	22	50

Note: A pin, a washer and a split pin are included with the rod clevis.

●Pin for Double Bracket (P1) (P2)

Material: Steel
Zinc Chromate

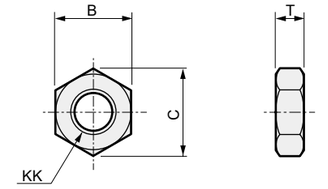


Model No.	Applicable Model	Applicable Bore size (mm)	A	B	CD	D	To Be Used Retaining ring	Weight (g)
M1-P1-20	CMK2-CC	20, 25	33	28	8	7	E-type 7	13
M1-P1-30	CMK2-CC1	32	33	28	10	9	E-type 9	21
M1-P1-40		40	37	32	12	9	E-type 9	32
M1-P2-20	CMK2-CA	20	25	20	10	9	E-type 9	16
M1-P2-30		25, 32, 40	27	22	12	9	E-type 9	24

*1: When selecting eye bracket CA or eye bracket integrated CC or eye bracket bush press-fit CC1 and clevis bracket, a pin and a snap ring are attached to the product.
*2: Retaining ring is included.

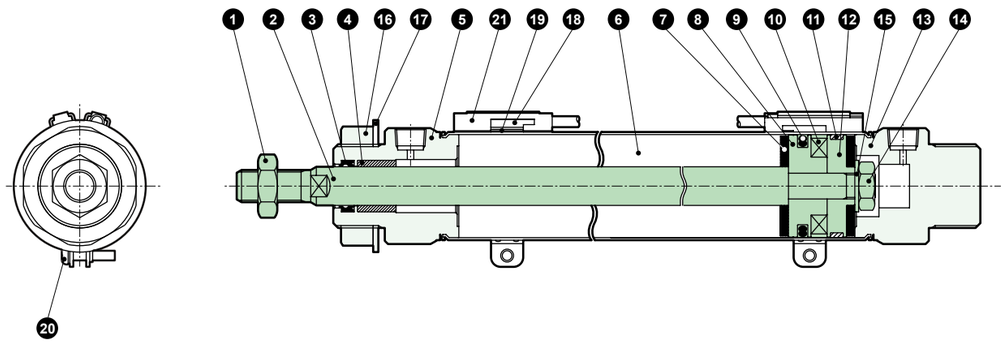
●Rod Nut (NR)

Material: Steel
Zinc Chromate



Model No.	Applicable Bore size (mm)	B	C	KK	T	Weight (g)
M1-NR-20	20	13	15	M8 × 1.0	5	3.6
M1-NR-30	25, 32	17	19.6	M10 × 1.25	6	7.8
M1-NR-40	40	19	21.9	M12 × 1.5	7	10

Internal Structure Diagram / Material



Do not disassemble

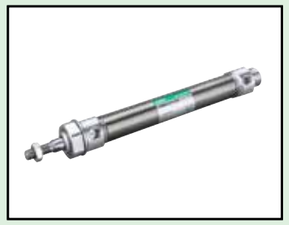
Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	11	Wear Ring	Polyacetal	
2	Piston Rod	ø20, ø25: Stainless Steel ø32, ø40: Carbon Steel	Industrial Hard Chrome Plating	12	Piston B	Aluminum Alloy	
				13	Head Cover	Aluminum Alloy	
3	Rod Packing	Nitrile Rubber		14	Hexagon Nut	Steel	Zinc Chromate
4	Bushing	ø20: Bearing Alloy ø25, ø32, ø40: Oil Impregnated Bearing Alloy		15	Spacer	Steel	Zinc Chromate (ø20 to ø32 only)
				16	Nut	Steel	Zinc Chromate
5	Rod Cover	Aluminum Alloy		17	Toothed Lock Washer	Steel	Zinc Chromate
6	Cylinder Tube	Stainless Steel		With Switch			
7	Cushion Rubber	Urethane Rubber		18	Switch		
8	Piston A	Aluminum Alloy		19	Band	Stainless Steel	
9	Piston Packing	Nitrile Rubber		20	Pan Head Screw	Stainless Steel	
10	Magnet	Plastic		21	Switch Rail	Stainless Steel	

Mounting Bracket Material

Mounting type	Material
Foot (LB / LS)	Steel
Flange (FA / FB)	Steel
Trunnion (TA / TB)	Steel
Single Clevis (CA)	Steel
Double Clevis (CB)	Steel

Note: Mounting brackets are included with the product upon shipment. However, when bellows are included and the mounting brackets are LB, LS, FA, or TA, they will be shipped assembled.

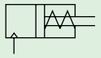
MEMO



Small bore size cylinder
Single Acting, Push Type

CMK2-S Series

●Bore Size: ø20, ø25, ø32, ø40

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

CMK2-S – 00 – 20 – [ ] – 100 ——— M I

Model No. ❶ ❷ ❸ ❹ ❼ ❽

With Switch
(Built-in magnet for switch)

CMK2-S – 00 – 20 – [ ] – 100 – T0H – R – M I

Model No. ❶ Mounting type ❷ Bore size ❸ Piping thread type ❹ Stroke ❺ Switch Model No. ❻ Number of Switches ❼ Option ❽ Accessories

Mounting brackets are included with the product and shipped. However, if bellows are included and the mounting brackets are LB, LS, FA, or TA, they will be shipped assembled.

❶Mounting type

	Code	Content	
	00	Basic type	
	LB	Axial Foot Type (Both Sides)	
*1	LS	Axial Foot Type (Single Side)	
	FA	Rod Side Flange Type	
	FB	Head Side Flange Type	
	CA	Single Clevis Type	
	CC	Single Clevis Integrated Type	
	CC1	Single Clevis, Bushing Press-fit Type	
	CB	Double Clevis Type (Pin and Washer Split Pin Attached)	
	TA	Rod Side Trunnion Type	
	TB	Head Side Trunnion Type	

*1: Single side foot type (LS type) has a max. stroke of 50 mm.

❷Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

❸Piping thread type

Code	Content
Blank	Rc Thread
NN	NPT Thread (Custom Order Product)
GN	G Thread (Custom Order Product)

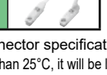
❹Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20	5 to 300	Every 1 mm
ø25	5 to 300	
ø32	5 to 300	
ø40	5 to 300	

Note: For minimum stroke with switch and maximum/minimum stroke with bellows, refer to P. 128.

❺Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T5V□	T5V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*5

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m T0H
3 m T0H 3
5 m T0H 5

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

❻Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

Note: The maximum number of switches that can be installed is 3. If 4 or more are required, please order the insufficient switch mounting brackets separately by individual model number.

❽Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Washer Split Pin Attached)	
	B2	Double Yoke Bracket (Pin and Retaining Ring Attached)	

*1: "I" and "Y" cannot be selected at the same time.

❼Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
	J	Bellows	100°C	200°C	
	L		250°C	400°C	
*1	F	With Push-in Fitting (Straight)			
*1	FE	With Push-in Fitting (Elbow)			
*3	M	Piston Rod Material (Stainless Steel)			
	V	Boss Cut			

*1: For F: With Push-in fitting (Straight) and FE: With Push-in fitting (Elbow), the applicable tube O.D. is ø6.
*2: Instantaneous maximum temperature is the temperature when fire, chips, etc. momentarily contact the bellows.
*3: When Bore size ø20 or 25 is selected, the piston rod material is already stainless steel. (If M is selected, the rod nut material will also be stainless steel.)

About Custom Product Specifications

For details, see P. 287.

Code	Content
-XJ9	Without Bellows
-T2	Fluorine Packing Type
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
CMK2-S – ..... – XJ9

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

● Uses food-grade lubricant usable in food manufacturing processes

CMK2-S – ..... – FP1

*For combinations of variations and options, see P. 109.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

CMK2 – T0H – 20

❺ Switch Model No. ❷ Bore size

●Switch body only

SW – T0H

❺ Switch Model No.

●Mounting bracket set

CMK2 – T – 20

Mounting bracket ❷ Bore size

Specifications

Item		CMK2-S			
Bore Size	mm	ø20	ø25	ø32	ø40
Actuation method		Single Acting, Push Type			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.2			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	-10 to 60 (No freezing)			
Port Size		Rc1/8			
Stroke tolerance	mm	$^{+2.0}_{0}$ (Up to 200), $^{+2.4}_{0}$ (Over 200)			
Operating Piston Speed	mm/s	50 to 500			
Cushion		Rubber Cushion			
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)			
Allowable Absorbed Energy	J	0.166	0.308	0.424	0.639

Note: Do not leave single acting cylinders pressurized. If left pressurized, the piston rod may not return by spring force when the pressure is released.

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke		Min. Stroke	
		Without Bellows	With Bellows	Without Bellows Bellows "L"	Bellows "J"
ø20	25, 50, 75, 100, 150	300	300	5	25
ø25					
ø32	25, 50, 75, 100, 150, 200				
ø40					

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: Single side foot type (LS type) has a maximum stroke of 50 mm.
*3: For bellows "J" with a stroke of less than 25 mm, please inquire.

Min. Stroke with Switch

(Unit: mm)

Number of Switches	1					2				
	Solid State			Reed		Solid State			Reed	
Bore Size (mm)	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8
ø20	10					25	30	35	25	35
ø25	10					25	30	35	25	35
ø32	10					25	30	35	25	35
ø40	10					25	30	35	25	35

Spring Load

(Unit: N)

Bore Size (mm)	Stroke (mm)	25	50	75	100	150	200	250	300
ø20	At Stroke 0 mm	11.9	11.8	11.8	11.8	11.8	11.8	11.8	11.8
	At Full Stroke Operation	31	38	31.5	38	38	38	38	38
ø25	At Stroke 0 mm	12.1	12.5	12.5	12.5	12.5	12.5	12.5	12.5
	At Full Stroke Operation	30.4	40.2	33.1	40.2	40.2	40.2	40.2	40.2
ø32	At Stroke 0 mm	24.5	24.3	24.5	24.3	24.3	24.3	24.3	24.3
	At Full Stroke Operation	52.9	54.9	54.9	54.9	54.9	54.9	54.9	54.9
ø40	At Stroke 0 mm	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4
	At Full Stroke Operation	78.4	100	82.3	100	100	100	100	100

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm								Switch Weight (Per Piece)	Switch Rail + Band Weight	Added Weight per S = 10 mm
	Basic Type (00)	Axial Foot Type (LB)	Axial Foot Type (LS)	Flange Type (FA/FB)	Single Clevis Type (CA)	Clevis Type (CCAA)	Double clevis type (CB)	Trunnion Type (TA/TB)			
ø20	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	Please refer to the weight listed in the switch specifications on P. 971.	0.005	0.01
ø25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
ø32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
ø40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

Item/Mounting Style / Bore Size (mm)	Stroke (S) Added Weight							
	25 or Less	Over 25, to 50 or Less	Over 50, to 75 or Less	Over 75 to 100 or Less	Over 100, to 150 or Less	Over 150, to 200 or Less	Over 200, to 250 or Less	Over 250, to 300 or Less
ø20	0.04	0.05	0.09	0.09	0.14	0.18	0.23	0.27
ø25	0.05	0.06	0.12	0.12	0.18	0.24	0.29	0.35
ø32	0.09	0.11	0.23	0.22	0.32	0.43	0.53	0.64
ø40	0.13	0.16	0.31	0.31	0.47	0.62	0.78	0.93

(Example) Product Weight of CMK2-S-FA-32-50-T0H-D

Product Weight at S = 0 mm: .....0.45 kg
Added weight at S=50 mm..... Added weight at S=10 mm 0.02 × $\frac{\text{Product Stroke (50)}}{10}$ = 0.10 kg
Added Weight by S .....0.11 kg
Weight of 2 switches: .....0.036 kg
Weight of switch rail + 2 bands: ....0.018 kg
Product weight..... 0.45 kg+0.10 kg+0.10 kg+0.036 kg+0.018 kg=0.704 kg

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Pressure MPa								
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	25	56	88	1.19×10^2	1.50×10^2	1.82×10^2	2.13×10^2	2.45×10^2	2.76×10^2
ø25	58	1.07×10^2	1.56×10^2	2.05×10^2	2.55×10^2	3.04×10^2	3.53×10^2	4.02×10^2	4.51×10^2
ø32	1.06×10^2	1.86×10^2	2.67×10^2	3.47×10^2	4.28×10^2	5.08×10^2	5.88×10^2	6.69×10^2	7.49×10^2
ø40	1.51×10^2	2.77×10^2	4.03×10^2	5.28×10^2	6.54×10^2	7.80×10^2	9.10×10^2	1.03×10^3	1.16×10^3

Note: The load above indicates thrust excluding the spring force at the push end.

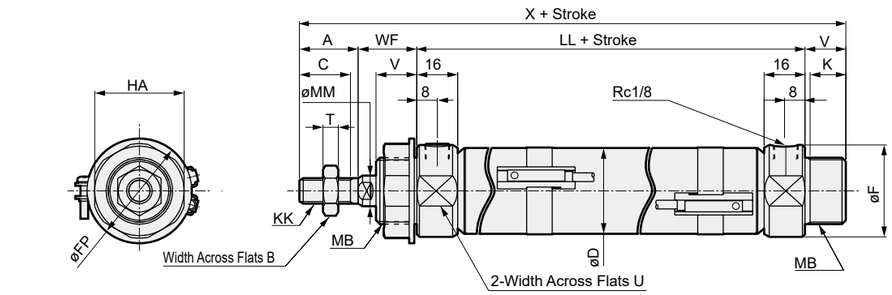
Mounting Bracket Model No. Notation Method

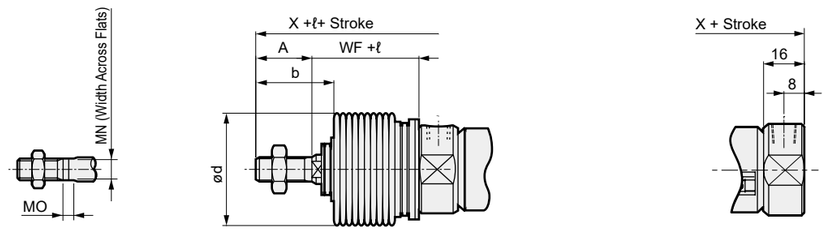
Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Basic Type (00) *3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial Foot Type (LB/LS)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40
Single Clevis Type (CA)	M1-CA-20	M1-CA-30	M1-CA-30	M1-CA-30
Double clevis type (CB)	M1-CB-20	M1-CB-30	M1-CB-30	M1-CB-30

*1: For axial foot type and flange type mounting brackets, mounting nuts and toothed washers are included. Also, for trunnion type, mounting nuts are included.
2: For axial foot type (both sides), 2 sets of "M1-LB-" from the table above are required.
*3: Only mounting nuts and toothed lock washers are included. One set is included with the basic type (00) of the product, but use this if additional sets are required.

Outline Dimension Drawing

●Basic Type (OO)





Code / Bore Size (mm)	Basic Type (OO) Basic Dimensions									LL						
	A	B	C	D	F	FP	HA	K	KK	25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less
ø20	20	13	18	21.4	28	29	26	12	M8 × 1.0	91	93	120	147	174	201	228
ø25	23	17	20	26.4	32	41	35	14	M10 × 1.25	94	99	129	159	189	219	249
ø32	23	17	20	33.6	36	41	35	14	M10 × 1.25	94	99	129	159	189	219	249
ø40	25	19	22	41.6	45	41	35	14	M12 × 1.5	98	103	133	163	193	223	253

Code / Bore Size (mm)	MB	MM	MN	MO	T	U	V	WF	X						
									25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less
ø20	M18 × 1.5	10	8	5	5	24	14	24	149	151	178	205	232	259	256
ø25	M26 × 1.5	12	10	5	6	30	16	23	156	161	191	221	251	281	311
ø32	M26 × 1.5	12	10	5	6	34	16	23	156	161	191	221	251	281	311
ø40	M26 × 1.5	14	12	6	7	43	16	23	162	167	197	227	257	287	317

Code / Bore Size (mm)	With Bellows			Boss Cut Type						
	b	d	ℓ	X						
				25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less
ø20	30	30	(Stroke / 3) + 6	135	137	164	191	218	245	242
ø25	32	46	(Stroke / 3.25) + 7	140	145	175	205	235	265	295
ø32	32	46	(Stroke / 3.25) + 7	140	145	175	205	235	265	295
ø40	34	46	(Stroke / 3.25) + 7	146	151	181	211	241	271	301

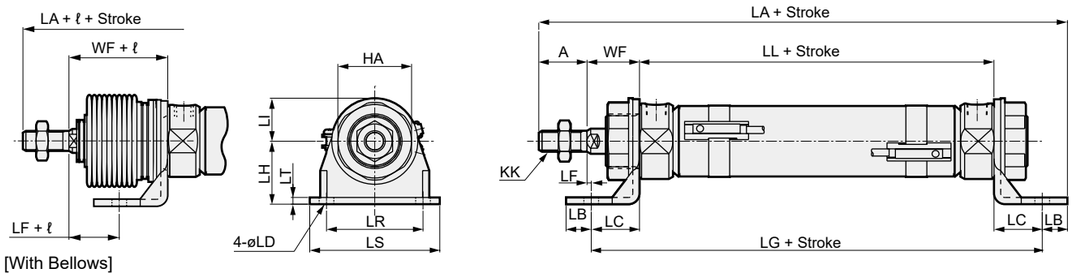
*1: Round up the ℓ dimension to the nearest whole number.

***2: For dimensions with each switch, see P. 284 to P. 286.**

***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Axial Foot Type (LB)



Code / Bore Size (mm)	Axial Foot Type (LB) Mounting Dimensions																		
	A	HA	KK	LA							LB	LC	LD	LF	LG				
				25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less					25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less
ø20	20	26	M8 × 1.0	163	165	192	219	246	273	300	10	18	6	6	127	129	156	183	210	237	264
ø25	23	35	M10 × 1.25	175	180	210	240	270	300	330	12	23	7	0	140	145	175	205	235	265	295
ø32	23	35	M10 × 1.25	175	180	210	240	270	300	330	12	23	7	0	140	145	175	205	235	265	295
ø40	25	35	M12 × 1.5	181	186	216	246	276	306	336	12	23	7	0	144	149	179	209	239	269	299

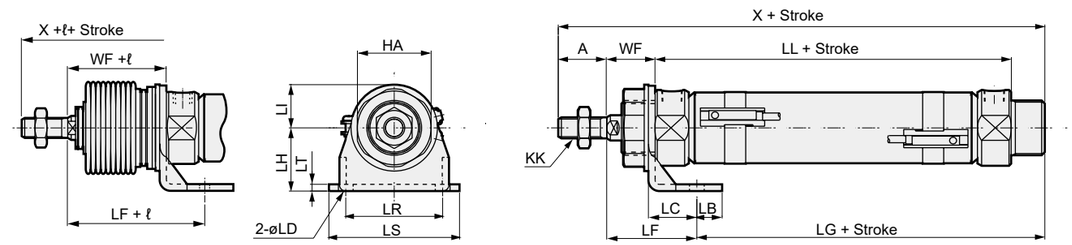
Code / Bore Size (mm)	LH	LI	LL								LR	LS	LT	WF	With Bellows
			25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less						ℓ
ø20	25	15	91	93	120	147	174	201	228		4	44	3.2	24	(Stroke / 3) + 6
ø25	30	20.5	94	99	129	159	189	219	249		5.5	62	3.2	23	(Stroke / 3.25) + 7
ø32	30	20.5	94	99	129	159	189	219	249		5.5	62	3.2	23	(Stroke / 3.25) + 7
ø40	30	20.5	98	103	133	163	193	223	253		7.5	62	3.2	23	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.

***2: For dimensions with each switch, see P. 284 to P. 286.**

***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Single Side Axial Foot Type (LS)



[With Bellows]

Code / Bore Size (mm)	Single Side Axial Foot Type (LS) Mounting Dimensions																				
	A	HA	KK	LB	LC	LD	LF	LG								LH	LI	LL					
								25 or less	25 Over 50 or less	50 Over 100 or less	100 Over 150 or Less	150 Over 200 or Less	200 Over 250 or Less	250 Over 300 or Less				25 or less	25 Over 50 or less	50 Over 100 or less	100 Over 150 or Less	150 Over 200 or Less	200 Over 250 or Less	250 Over 300 or Less
ø20	20	26	M8 × 1.0	10	18	6	38.8	90.2	92.2	119.2	146.2	173.2	200.2	227.2		25	15	91	93	120	147	174	201	228
ø25	23	35	M10 × 1.25	12	23	7	42.8	90.2	95.2	125.2	155.2	185.2	215.2	245.2		30	20.5	94	99	129	159	189	219	249
ø32	23	35	M10 × 1.25	12	23	7	42.8	90.2	95.2	125.2	155.2	185.2	215.2	245.2		30	20.5	94	99	129	159	189	219	249
ø40	25	35	M12 × 1.5	12	23	7	42.8	94.2	99.2	129.2	159.2	189.2	219.2	249.2		30	20.5	98	103	133	163	193	223	253

Code / Bore Size (mm)	LR	LS	LT	WF	With Bellows							
					X							ℓ
					25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less	
ø20	30	44	3.2	24	149	151	178	205	232	259	286	(Stroke / 3) + 6
ø25	46	62	3.2	23	156	161	191	221	251	281	311	(Stroke / 3.25) + 7
ø32	46	62	3.2	23	156	161	191	221	251	281	311	(Stroke / 3.25) + 7
ø40	46	62	3.2	23	162	167	197	227	257	287	317	(Stroke / 3.25) + 7

*1: Max. stroke is 50 mm.

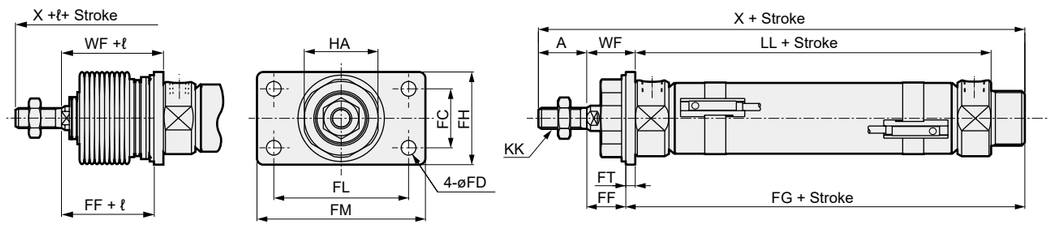
*2: Round up the ℓ dimension to the nearest whole number.

***3: For dimensions with each switch, see P. 284 to P. 286.**

***4: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)



[With Bellows]

Code / Bore Size (mm)	Rod Side Flange Type (FA) Mounting Dimensions																						
	A	FC	FD	FF	FG							FH	FL	FM	FT	HA	KK	LL					
					25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less							25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less
ø20	20	20	6	20.8	108.2	110.2	137.2	164.2	191.2	218.2	245.2	34	40	54	3.2	26	M8 × 1.0	91	93	120	147	174	201	228
ø25	23	28	7	18.5	114.5	119.5	149.5	179.5	209.5	239.5	269.5	44	64	80	4.5	35	M10 × 1.25	94	99	129	159	189	219	249
ø32	23	28	7	18.5	114.5	119.5	149.5	179.5	209.5	239.5	269.5	44	64	80	4.5	35	M10 × 1.25	94	99	129	159	189	219	249
ø40	25	28	7	18.5	118.5	123.5	153.5	183.5	213.5	243.5	273.5	44	64	80	4.5	35	M12 × 1.5	98	103	133	163	193	223	253

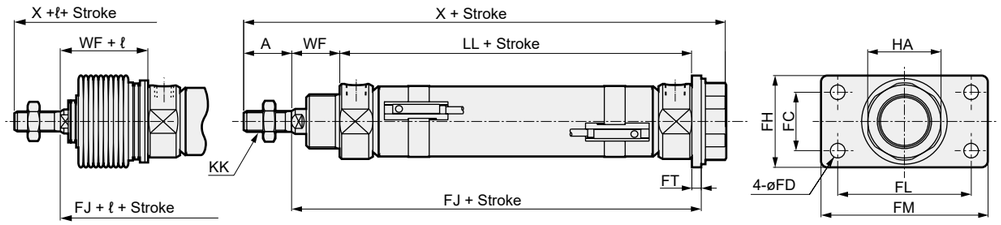
Code / Bore Size (mm)	With Bellows								
	WF	X							ℓ
		25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less	
ø20	24	149	151	178	205	232	259	286	(Stroke / 3) + 6
ø25	23	156	161	191	221	251	281	311	(Stroke / 3.25) + 7
ø32	23	156	161	191	221	251	281	311	(Stroke / 3.25) + 7
ø40	23	162	167	197	227	257	287	317	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.

***2: For dimensions with each switch, see P. 284 to P. 286.**

***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Head Side Flange Type (FB)



[With Bellows]

Code / Bore Size (mm)	Head Side Flange Type (FB) Mounting Dimensions														
	A	FC	FD	FH	FJ							FL	FM	FT	HA	KK
					25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less					
ø20	20	20	6	34	118.2	120.2	147.2	174.2	201.2	228.2	255.2	40	54	3.2	26	M8 × 1.0
ø25	23	28	7	44	121.5	126.5	156.5	186.5	216.5	246.5	276.5	64	80	4.5	35	M10 × 1.25
ø32	23	28	7	44	121.5	126.5	156.5	186.5	216.5	246.5	276.5	64	80	4.5	35	M10 × 1.25
ø40	25	28	7	44	125.5	130.5	160.5	190.5	220.5	250.5	280.5	64	80	4.5	35	M12 × 1.5

Code / Bore Size (mm)	With Bellows														
	LL							WF	X						ℓ
	25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less		25 or less	Over 25, 50 or less	Over 50, 100 or less	100 Over 150, or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less	
ø20	91	93	120	147	174	201	228	24	149	151	178	205	232	259	286	(Stroke / 3) + 6
ø25	94	99	129	159	189	219	249	23	156	161	191	221	251	281	311	(Stroke / 3.25) + 7
ø32	94	99	129	159	189	219	249	23	156	161	191	221	251	281	311	(Stroke / 3.25) + 7
ø40	98	103	133	163	193	223	253	23	162	167	197	227	257	287	317	(Stroke / 3.25) + 7

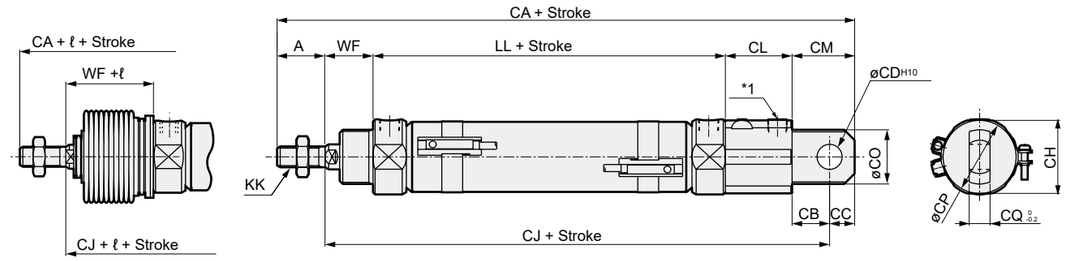
*1: Round up the ℓ dimension to the nearest whole number.

***2: For dimensions with each switch, see P. 284 to P. 286.**

***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Single Clevis Type (CA)



[With Bellows]

Code / Bore Size (mm)	Single Clevis Type (CA) Mounting Dimensions																						
	A	CA							CB	CC	CD	CH	CJ										
		25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less					25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less				
ø20	20	190	192	219	246	273	300	327	14	10	10	26	160	162	189	216	243	270	297				
ø25	23	202	207	237	267	297	327	357	18	12	12	35	167	172	202	232	262	292	322				
ø32	23	202	207	237	267	297	327	357	18	12	12	35	167	172	202	232	262	292	322				
ø40	25	208	213	243	273	303	333	363	18	12	12	35	171	176	206	236	266	296	326				

Code / Bore Size (mm)	With Bellows														
	CL	CM	CO	CP	CQ	KK	LL							WF	ℓ
							25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less		
ø20	31	24	22	28	8	M8 × 1.0	91	93	120	147	174	201	228	24	(Stroke / 3) + 6
ø25	32	30	26	37	10	M10 × 1.25	94	99	129	159	189	219	249	23	(Stroke / 3.25) + 7
ø32	32	30	26	37	10	M10 × 1.25	94	99	129	159	189	219	249	23	(Stroke / 3.25) + 7
ø40	32	30	26	37	10	M12 × 1.5	98	103	133	163	193	223	253	23	(Stroke / 3.25) + 7

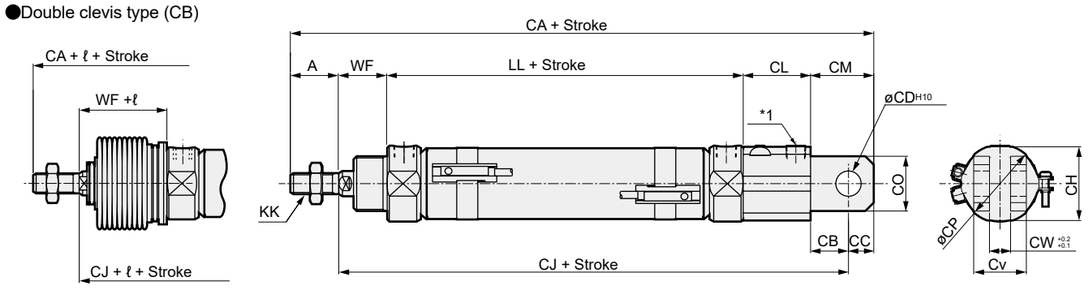
*1: Not a piping port.

*2: Round up the ℓ dimension to the nearest whole number.

***3: For dimensions with each switch, see P. 284 to P. 286.**

***4: For outer dimensions diagram of accessories, refer to P. 123.**

●Double clevis type (CB)



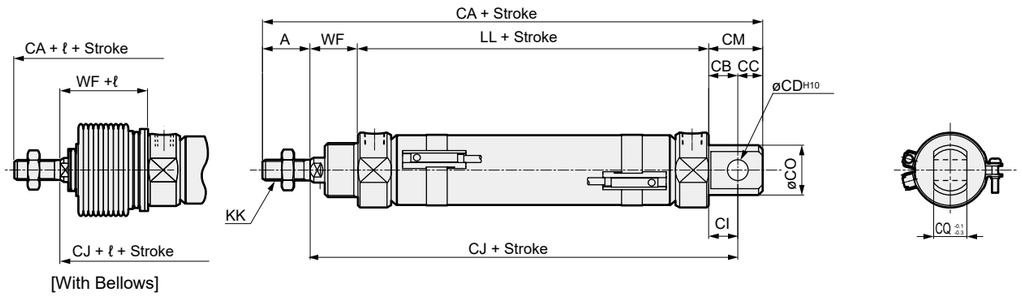
[With Bellows]

Code / Bore Size (mm)	Double Clevis Type (CB) Mounting Dimensions																						
	A	CA							CB	CC	CD	CH	CJ										
		25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less					25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less				
ø20	20	190	192	219	246	273	300	327	14	10	10	26	160	162	189	216	243	270	297				
ø25	23	202	207	237	267	297	327	357	18	12	12	35	167	172	202	232	262	292	322				
ø32	23	202	207	237	267	297	327	357	18	12	12	35	167	172	202	232	262	292	322				
ø40	25	208	213	243	273	303	333	363	18	12	12	35	171	176	206	236	266	296	326				

Code / Bore Size (mm)	With Bellows														
	CL	CM	CO	CP	Cv	CW	KK	LL						WF	ℓ
								25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less		
ø20	31	24	22	28	19	8	M8 × 1.0	91	93	120	147	174	201	228	24	(Stroke / 3) + 6
ø25	32	30	26	37	25	10	M10 × 1.25	94	99	129	159	189	219	249	23	(Stroke / 3.25) + 7
ø32	32	30	26	37	25	10	M10 × 1.25	94	99	129	159	189	219	249	23	(Stroke / 3.25) + 7
ø40	32	30	26	37	25	10	M12 × 1.5	98	103	133	163	193	223	253	23	(Stroke / 3.25) + 7

Outline Dimension Drawing

●Single Clevis Integrated Type (CC)
●Single Clevis Bushing Press-fit Type (CC1)



[With Bellows]

Code / Bore Size (mm)	A	CA: 25 or Less	CA: Over 25, 50 or less	CA: Over 50, 100 or less	CA: Over 100, 150 or Less	CA: Over 150, 200 or Less	CA: Over 200, 250 or Less	CA: Over 250, 300 or Less	CB	CC	CD	CI
ø20	20	156	158	185	212	239	266	293	12	9	8	11
ø25	23	161	166	196	226	256	286	316	12	9	8	11
ø32	23	166	171	201	231	261	291	321	14	12	10	13
ø40	25	176	181	211	241	271	301	331	16	14	12	15

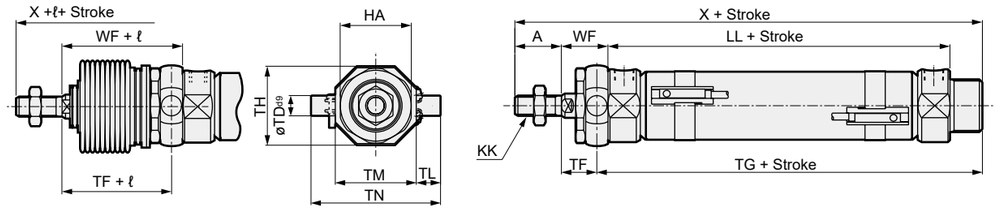
Code / Bore Size (mm)	CJ: 25 or Less	CJ: Over 25, 50 or less	CJ: Over 50, 100 or less	CJ: Over 100, 150 or Less	CJ: Over 150, 200 or Less	CJ: Over 200, 250 or Less	CJ: Over 250, 300 or Less	CM	CO	CQ	KK
ø20	127	129	156	183	210	237	264	21	22	16	M8 × 1.0
ø25	129	134	164	194	224	254	284	21	24	16	M10 × 1.25
ø32	131	136	166	196	226	256	286	26	24	16	M10 × 1.25
ø40	137	142	172	202	232	262	292	30	30	20	M12 × 1.5

Code / Bore Size (mm)	LL: 25 or Less	LL: Over 25, 50 or less	LL: Over 50, 100 or less	LL: Over 100, 150 or Less	LL: Over 150, 200 or Less	LL: Over 200, 250 or Less	LL: Over 250, 300 or Less	WF	With Bellows: ℓ
ø20	91	93	120	147	174	201	228	24	(Stroke / 3) + 6
ø25	94	99	129	159	189	219	249	23	(Stroke / 3.25) + 7
ø32	94	99	129	159	189	219	249	23	(Stroke / 3.25) + 7
ø40	98	103	133	163	193	223	253	23	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Rod side trunnion type (TA)



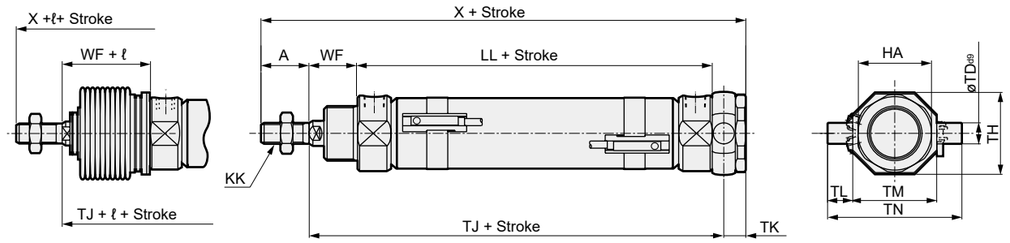
[With Bellows]

Code / Bore Size (mm)	A	HA	KK	LL: 25 or less	LL: Over 25, 50 or less	LL: Over 50, 100 or less	LL: Over 100, 150 or Less	LL: Over 150, 200 or Less	LL: Over 200, 250 or Less	LL: Over 250, 300 or Less	TD	TF	TG: 25 or Less	TG: Over 25, 50 or less	TG: Over 50, 100 or less	TG: Over 100, 150 or Less	TG: Over 150, 200 or Less	TG: Over 200, 250 or Less	TG: Over 250, 300 or Less
ø20	20	26	M8 × 1.0	91	93	120	147	174	201	228	8	19.5	109.5	111.5	138.5	165.5	192.5	219.5	246.5
ø25	23	35	M10 × 1.25	94	99	129	159	189	219	249	10	17.5	115.5	120.5	150.5	180.5	210.5	240.5	270.5
ø32	23	35	M10 × 1.25	94	99	129	159	189	219	249	10	17.5	115.5	120.5	150.5	180.5	210.5	240.5	270.5
ø40	25	35	M12 × 1.5	98	103	133	163	193	223	253	10	17.5	119.5	124.5	154.5	184.5	214.5	244.5	274.5

Code / Bore Size (mm)	TH	TL	TM	TN	WF	LL: 25 or less	LL: Over 25, 50 or less	LL: Over 50, 100 or less	LL: Over 100, 150 or Less	LL: Over 150, 200 or Less	LL: Over 200, 250 or Less	LL: Over 250, 300 or Less	With Bellows: ℓ
ø20	29.5	8	30	46	24	149	151	178	205	232	259	286	(Stroke / 3) + 6
ø25	39	12	40	64	23	156	161	191	221	251	281	311	(Stroke / 3.25) + 7
ø32	39	12	40	64	23	156	161	191	221	251	281	311	(Stroke / 3.25) + 7
ø40	44	9.5	53	72	23	162	167	197	227	257	287	317	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Head Side Trunnion Type (TB)



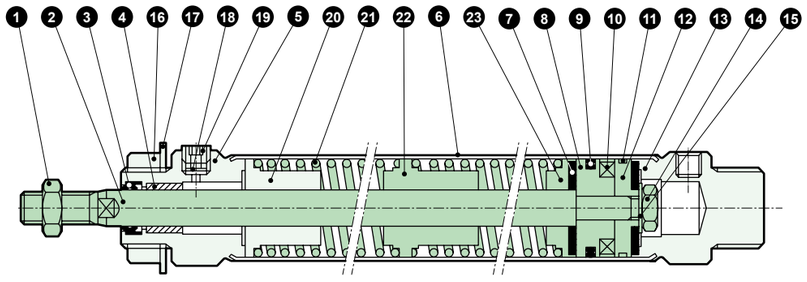
[With Bellows]

Code / Bore Size (mm)	A	HA	KK	LL: 25 or Less	LL: Over 25, 50 or less	LL: Over 50, 100 or less	LL: Over 100, 150 or Less	LL: Over 150, 200 or Less	LL: Over 200, 250 or Less	LL: Over 250 300 or Less	TD	TH	TJ: 25 or Less	TJ: Over 25, 50 or less	TJ: Over 50, 100 or less	TJ: Over 100, 150 or Less	TJ: Over 150, 200 or Less	TJ: Over 200, 250 or Less	TJ: Over 250, 300 or Less
ø20	20	26	M8 × 1.0	91	93	120	147	174	201	228	8	29.5	119.5	121.5	148.5	175.5	202.5	229.5	256.5
ø25	23	35	M10 × 1.25	94	99	129	159	189	219	249	10	39	122.5	127.5	157.5	187.5	217.5	247.5	277.5
ø32	23	35	M10 × 1.25	94	99	129	159	189	219	249	10	39	122.5	127.5	157.5	187.5	217.5	247.5	277.5
ø40	25	35	M12 × 1.5	98	103	133	163	193	223	253	10	44	126.5	131.5	161.5	191.5	221.5	251.5	281.5

Code / Bore Size (mm)	TK	TL	TM	TN	WF	X: 25 or Less	X: Over 25, 50 or less	X: Over 50, 100 or less	X: Over 100, 150 or Less	X: Over 150, 200 or Less	X: Over 200, 250 or Less	X: Over 250, 300 or Less	With Bellows: ℓ
ø20	9.5	8	30	46	24	149	151	178	205	232	259	286	(Stroke / 3) + 6
ø25	10.5	12	40	64	23	156	161	191	221	251	281	311	(Stroke / 3.25) + 7
ø32	10.5	12	40	64	23	156	161	191	221	251	281	311	(Stroke / 3.25) + 7
ø40	10.5	9.5	53	72	23	162	167	197	227	257	287	317	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Internal Structure Diagram / Material



Do not disassemble

Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate
2	Piston Rod	ø20, ø25: Stainless Steel ø32, ø40: Carbon Steel	Industrial Hard Chrome Plating
3	Rod Packing	Nitrile Rubber	
4	Bushing	ø20: Bearing Alloy ø25, ø32, ø40: Oil Impregnated Bearing Alloy	
5	Rod Cover	Aluminum Alloy	
6	Cylinder Tube	Stainless Steel	
7	Cushion Rubber	Urethane Rubber	
8	Piston A	Aluminum Alloy	
9	Piston Packing	Nitrile Rubber	
10	Magnet	Plastic	
11	Wear Ring	Polyacetal	
12	Piston B	Aluminum Alloy	
13	Head Cover	Aluminum Alloy	
14	Hexagon Nut	Steel	Zinc Chromate
15	Spacer	Steel	Zinc Chromate (ø20 to ø32 only)
16	Nut	Steel	Zinc Chromate
17	Toothed Lock Washer	Steel	Zinc Chromate
18	Stainless Steel Wire Mesh	Stainless Steel	
19	Plug	Steel	Zinc Chromate
20	Spring Retainer	Aluminum Alloy	
21	Spring	Piano Wire	Painting
22	Spring Retainer	Aluminum Alloy	
23	Spring Retainer	Aluminum Alloy	

MEMO

General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending



Small bore size cylinder
Single Acting, Pull Type

CMK2-SR Series

● Bore size: ø20, ø25, ø32, ø40

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

CMK2-SR – 00 – 20 – [ ] – 25 ——— I

Model No. ❶ ❷ ❸ ❹ ❽

With Switch
(Built-in magnet for switch)

CMK2-SR – 00 – 20 – [ ] – 25 – T0H – R – M – I

Model No. ❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Mounting type ❷ Bore size ❸ Piping thread type ❹ Stroke ❺ Switch Model No. ❻ Number of Switches ❼ Option ❽ Accessories

Mounting brackets are included with the product and shipped. However, if bellows are included and the mounting brackets are LB, LS, FA, or TA, they will be shipped assembled.

❶Mounting type

Code	Content	
00	Basic type	
LB	Axial Foot Type (Both Sides)	
*1 LS	Axial Foot Type (Single Side)	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type	
CC	Single Clevis Integrated Type	
CC1	Single Clevis, Bushing Press-fit Type	
CB	Double Clevis Type (Pin and Washer Split Pin Attached)	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

*1: Single side foot type (LS type) has a max. stroke of 50 mm.

❷Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

❸Piping thread type

Code	Content
Blank	Rc Thread
NN	NPT Thread (Custom Order Product)
GN	G Thread (Custom Order Product)

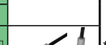
❹Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20	5 to 300	Every 1 mm
ø25	5 to 300	
ø32	5 to 300	
ø40	5 to 300	

Note: For minimum stroke with switch and maximum/minimum stroke with bellows, refer to P. 140.

❺Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T5V□	T5V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*5

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.
Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

❻Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

Note: The maximum number of switches that can be installed is 3. If 4 or more are required, please order the insufficient switch mounting brackets separately by individual model number.

❽Accessories

Code	Content	
*1 I	Single Knuckle	
*1 Y	Double Knuckle (Pin and Washer Split Pin Attached)	
B2	Double Yoke Bracket (Pin and Retaining Ring Attached)	

*1: "I" and "Y" cannot be selected at the same time.

❼Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
J	Bellows	100°C	200°C	
L		250°C	400°C	
*1 F	With Push-in Fitting (Straight)			
*1 FE	With Push-in Fitting (Elbow)			
*3 M	Piston Rod Material (Stainless Steel)			
V	Boss Cut			

*1: For F: With Push-in fitting (Straight) and FE: With Push-in fitting (Elbow), the applicable tube O.D. is ø6.
*2: Instantaneous maximum temperature is the temperature when fire, chips, etc. momentarily contact the bellows.
*3: When Bore size ø20 or 25 is selected, the piston rod material is already stainless steel. (If M is selected, the rod nut material will also be stainless steel.)

About Custom Product Specifications

For details, see P. 287.

Code	Content
-XJ9	Without Bellows
-T2	Fluorine Packing Type
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
CMK2-SR – ..... – XJ9

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

● Uses food-grade lubricant usable in food manufacturing processes

CMK2-SR – ..... – FP1

*For combinations of variations and options, see P. 109.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

CMK2 – T0H – 20

❺ Switch Model No. ❷ Bore size

●Switch body only

SW – T0H

❺ Switch Model No.

●Mounting bracket set

CMK2 – T – 20

Mounting bracket ❷ Bore size

Specifications

Item		CMK2-SR			
Bore Size	mm	ø20	ø25	ø32	ø40
Actuation method		Single Acting, Pull Type			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.2			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	-10 to 60 (No freezing)			
Port Size		Rc1/8			
Stroke tolerance	mm	$^{+2.0}_{0}$ (Up to 200), $^{+2.4}_{0}$ (Over 200,)			
Operating Piston Speed	mm/s	50 to 500			
Cushion		Rubber Cushion			
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)			
Allowable Absorbed Energy	J	0.166	0.308	0.424	0.639

Note: Do not leave single acting cylinders pressurized. If left pressurized, the piston rod may not return by spring force when the pressure is released.

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke		Min. Stroke	
		Without Bellows	With Bellows	Without Bellows Bellows "L"	Bellows "J"
ø20	25, 50, 75, 100, 150	300	300	5	25
ø25					
ø32	25, 50, 75, 100, 150, 200				
ø40					

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: Single side foot type (LS type) has a maximum stroke of 50 mm.
*3: For bellows "J" with a stroke of less than 25 mm, please inquire.

Min. Stroke with Switch

(Unit: mm)

Number of Switches	1					2				
	Solid State			Reed		Solid State			Reed	
Bore Size (mm)	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8
ø20	10					25	30	35	25	35
ø25	10					25	30	35	25	35
ø32	10					25	30	35	25	35
ø40	10					25	30	35	25	35

Spring Load

(Unit: N)

Bore size (mm)	Stroke (mm)	25	50	75	100	150	200	250	300
ø20	At Stroke 0 mm	11.9	11.8	11.8	11.8	11.8	11.8	11.8	11.8
	At Full Stroke Operation	31	38	31.5	38	38	38	38	38
ø25	At Stroke 0 mm	12.1	12.5	12.5	12.5	12.5	12.5	12.5	12.5
	At Full Stroke Operation	30.4	40.2	33.1	40.2	40.2	40.2	40.2	40.2
ø32	At Stroke 0 mm	24.5	24.3	24.5	24.3	24.3	24.3	24.3	24.3
	At Full Stroke Operation	52.9	54.9	54.9	54.9	54.9	54.9	54.9	54.9
ø40	At Stroke 0 mm	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4
	At Full Stroke Operation	78.4	100	82.3	100	100	100	100	100

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm								Switch Weight (Per Piece)	Switch Rail + Band Weight	Per S=10 mm Added Weight
	Basic type 00	Axial Foot Type (LB)	Axial Foot Type (LS)	Flange Type (FA/FB)	Single Clevis Type (CA)	Clevis Type (CC)	Double Clevis Type (CB)	Trunnion Type (TA/TB)			
ø20	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	Please refer to the weight listed in the switch specifications on P. 971.	0.005	0.01
ø25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
ø32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
ø40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

Item/Mounting Style / Bore Size (mm)	Stroke (S) Added Weight							
	25 or Less	Over 25, 50 or less	Over 50, 75 or less	Over 75 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less
ø20	0.03	0.03	0.06	0.06	0.09	0.12	0.15	0.18
ø25	0.03	0.04	0.07	0.07	0.11	0.14	0.18	0.21
ø32	0.08	0.09	0.18	0.17	0.25	0.34	0.42	0.51
ø40	0.10	0.13	0.25	0.25	0.37	0.49	0.62	0.74

(Example) Product Weight of CMK2-SR-FA-32-50-T0H-D

Product Weight at S = 0 mm: .... 0.45 kg
Added weight at S=50 mm.... Added weight at S=10 mm 0.02 × $\frac{\text{Product Stroke (50)}}{10}$ = 0.10 kg
Added Weight by S .... 0.09 kg
Weight of 2 switches: .... 0.036 kg
Weight of switch rail + 2 bands: .... 0.018 kg
Product weight. .... 0.45 kg+0.09 kg+0.10 kg+0.036 kg+0.018 kg=0.694 kg

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Pressure MPa								
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	9	33	56	80	1.03×10^2	1.27×10^2	1.50×10^2	1.74×10^2	1.98×10^2
ø25	35	73	1.11×10^2	1.49×10^2	1.87×10^2	2.24×10^2	2.62×10^2	3.00×10^2	3.38×10^2
ø32	83	1.52×10^2	2.21×10^2	2.91×10^2	3.60×10^2	4.29×10^2	4.98×10^2	5.67×10^2	6.36×10^2
ø40	1.21×10^2	2.31×10^2	3.41×10^2	4.51×10^2	5.62×10^2	6.72×10^2	7.82×10^2	8.92×10^2	1.00×10^3

Note: The load above is the pulling thrust after subtracting the spring force at the retracted end.

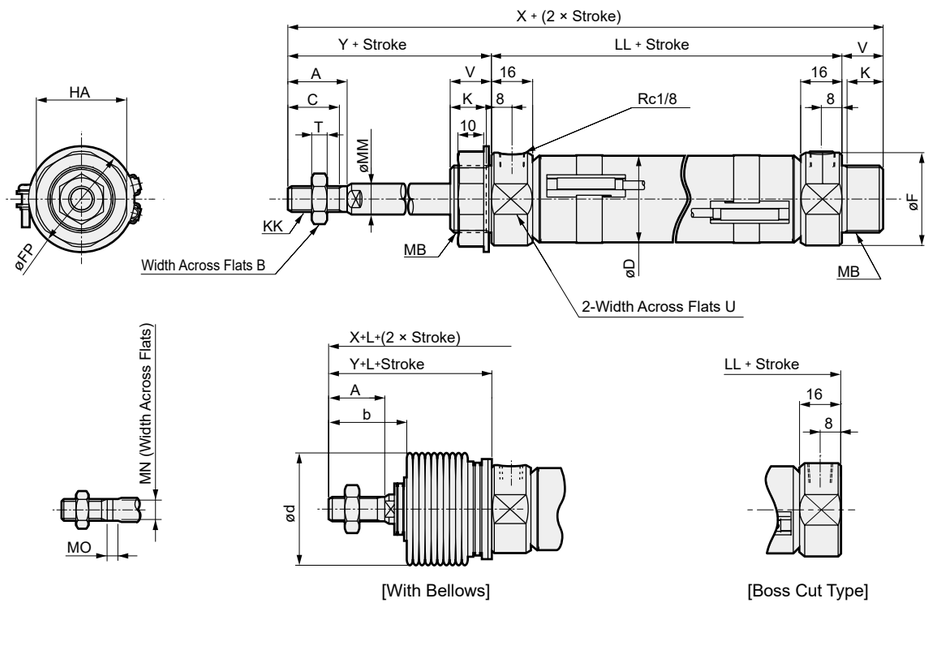
Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Basic Type (00) *3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial Foot Type (LB/LS)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40
Single Clevis Type (CA)	M1-CA-20	M1-CA-30	M1-CA-30	M1-CA-30
Double clevis type (CB)	M1-CB-20	M1-CB-30	M1-CB-30	M1-CB-30

*1: For axial foot type and flange type mounting brackets, mounting nuts and toothed washers are included. Also, for trunnion type, mounting nuts are included.
*2: For axial foot type (both sides), 2 sets of "M1-LB-□" from the table above are required.
*3: Only mounting nuts and toothed lock washers are included. One set is included with the basic type (00) of the product, but use this if additional sets are required.

Outline Dimension Drawing

●Basic Type (OO)



[With Bellows] [Boss Cut Type]

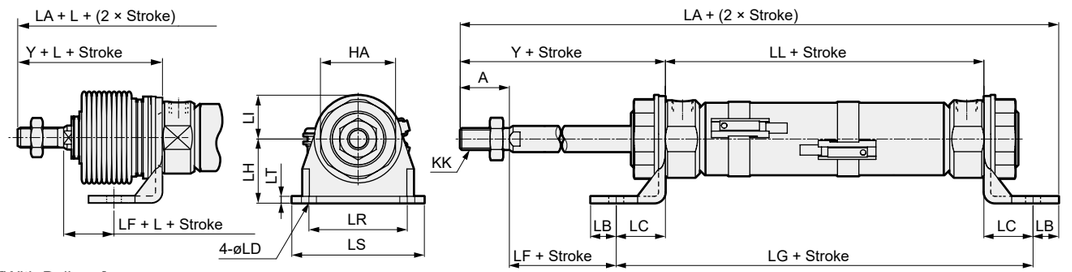
Code / Bore Size (mm)	Basic Type (OO) Basic Dimensions									LL						
	A	B	C	D	F	FP	HA	K	KK	25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less
ø20	20	13	18	21.4	28	29	26	12	M8 × 1.0	91	93	120	147	174	201	228
ø25	23	17	20	26.4	32	41	35	14	M10 × 1.25	94	99	129	159	189	219	249
ø32	23	17	20	33.6	36	41	35	14	M10 × 1.25	94	99	129	159	189	219	249
ø40	25	19	22	41.6	45	41	35	14	M12 × 1.5	98	103	133	163	193	223	253

Code / Bore Size (mm)	MB	MM	MN	MO	T	U	V	X							Y	With Bellows		
								25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less		b	d	L
ø20	M18 × 1.5	10	8	5	5	24	14	149	151	178	205	232	259	286	44	30	30	(Stroke / 3) + 6
ø25	M26 × 1.5	12	10	5	6	30	16	156	161	191	221	251	281	311	46	32	46	(Stroke / 3.25) + 7
ø32	M26 × 1.5	12	10	5	6	34	16	156	161	191	221	251	281	311	46	32	46	(Stroke / 3.25) + 7
ø40	M26 × 1.5	14	12	6	7	43	16	162	167	197	227	257	287	317	48	34	46	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Axial Foot Type (LB)



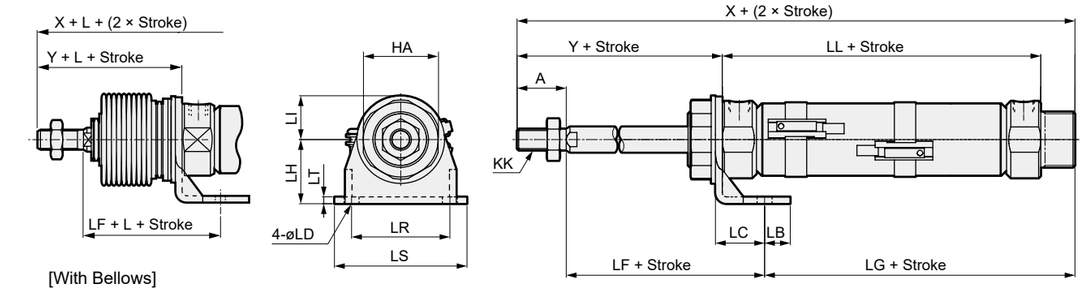
[With Bellows]

Code / Bore Size (mm)	Axial Foot Type (LB) Mounting Dimensions																				
	A	HA	KK	LA							LB	LC	LD	LF	LG						
				25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less					25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less
ø20	20	26	M8 × 1.0	163	165	192	219	246	273	300	10	18	6	6	127	129	156	183	210	237	264
ø25	23	35	M10 × 1.25	175	180	210	240	270	300	330	12	23	7	0	140	145	175	205	235	265	295
ø32	23	35	M10 × 1.25	175	180	210	240	270	300	330	12	23	7	0	140	145	175	205	235	265	295
ø40	25	35	M12 × 1.5	181	186	216	246	276	306	336	12	23	7	0	144	149	179	209	239	269	299

Code / Bore Size (mm)	LH	LI	LL								LR	LS	LT	Y	With Bellows
			25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less						L
ø20	25	15	91	93	120	147	174	201	228		4	44	3.2	44	(Stroke / 3) + 6
ø25	30	20.5	94	99	129	159	189	219	249		5.5	62	3.2	46	(Stroke / 3.25) + 7
ø32	30	20.5	94	99	129	159	189	219	249		5.5	62	3.2	46	(Stroke / 3.25) + 7
ø40	30	20.5	98	103	133	163	193	223	253		7.5	62	3.2	48	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Single Side Axial Foot Type (LS)



[With Bellows]

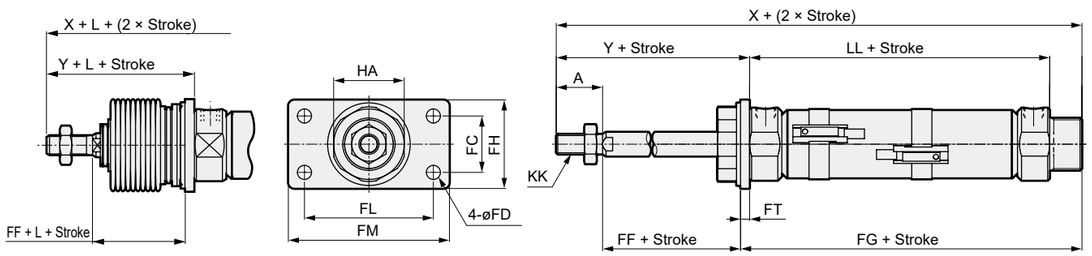
Code / Bore Size (mm)	Single Side Axial Foot Type (LS) Mounting Dimensions																				
	A	HA	KK	LB	LC	LD	LF	LG								LH	LI				
								25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less							
ø20	20	26	M8 × 1.0	10	18	6	38.8	90.2	92.2	119.2	146.2	173.2	200.2	227.2		25	15				
ø25	23	35	M10 × 1.25	12	23	7	42.8	90.2	95.2	125.2	155.2	185.2	215.2	245.2		30	20.5				
ø32	23	35	M10 × 1.25	12	23	7	42.8	90.2	95.2	125.2	155.2	185.2	215.2	245.2		30	20.5				
ø40	25	35	M12 × 1.5	12	23	7	42.8	94.2	99.2	129.2	159.2	189.2	219.2	249.2		30	20.5				

Code / Bore Size (mm)	LL							LR	LS	LT	X							Y	With Bellows
	25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less				25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less		L
ø20	91	93	120	147	174	201	228	30	44	3.2	149	151	178	205	232	259	286	44	(Stroke / 3) + 6
ø25	94	99	129	159	189	219	249	46	62	3.2	156	161	191	221	251	281	311	46	(Stroke / 3.25) + 7
ø32	94	99	129	159	189	219	249	46	62	3.2	156	161	191	221	251	281	311	46	(Stroke / 3.25) + 7
ø40	98	103	133	163	193	223	253	46	62	3.2	162	167	197	227	257	287	317	48	(Stroke / 3.25) + 7

*1: Max. stroke is 50 mm.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, see P. 284 to P. 286.**
***4: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)



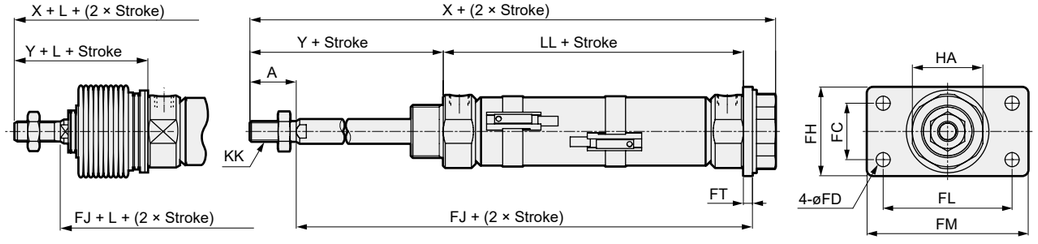
[With Bellows]

Code / Bore Size (mm)	Rod Side Flange Type (FA) Mounting Dimensions																
	A	FC	FD	FF	FG							FH	FL	FM	FT	HA	KK
					25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less						
ø20	20	20	6	20.8	108.2	110.2	137.2	164.2	191.2	218.2	245.2	34	40	54	3.2	26	M8 × 1.0
ø25	23	28	7	18.5	114.5	119.5	149.5	179.5	209.5	239.5	269.5	44	64	80	4.5	35	M10 × 1.25
ø32	23	28	7	18.5	114.5	119.5	149.5	179.5	209.5	239.5	269.5	44	64	80	4.5	35	M10 × 1.25
ø40	25	28	7	18.5	118.5	123.5	153.5	183.5	213.5	243.5	273.5	44	64	80	4.5	35	M12 × 1.5

Code / Bore Size (mm)	With Bellows															
	LL							X							Y	L
	25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less	25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less		
ø20	91	93	120	147	174	201	228	149	151	178	205	232	259	286	44	(Stroke / 3) + 6
ø25	94	99	129	159	189	219	249	156	161	191	221	251	281	311	46	(Stroke / 3.25) + 7
ø32	94	99	129	159	189	219	249	156	161	191	221	251	281	311	46	(Stroke / 3.25) + 7
ø40	98	103	133	163	193	223	253	162	167	197	227	257	287	317	48	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Head Side Flange Type (FB)



[With Bellows]

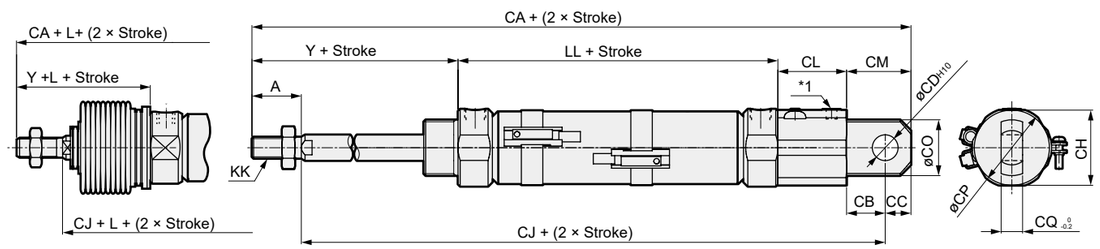
Code / Bore Size (mm)	Head Side Flange Type (FB) Mounting Dimensions															
	A	FC	FD	FH	FJ							FL	FM	FT	HA	KK
					25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less					
ø20	20	20	6	34	118.2	120.2	147.2	174.2	201.2	228.2	255.2	40	54	3.2	26	M8 × 1.0
ø25	23	28	7	44	121.5	126.5	156.5	186.5	216.5	246.5	276.5	64	80	4.5	35	M10 × 1.25
ø32	23	28	7	44	121.5	126.5	156.5	186.5	216.5	246.5	276.5	64	80	4.5	35	M10 × 1.25
ø40	25	28	7	44	125.5	130.5	160.5	190.5	220.5	250.5	280.5	64	80	4.5	35	M12 × 1.5

Code / Bore Size (mm)	With Bellows															
	LL							X							Y	L
	25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less	25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less		
ø20	91	93	120	147	174	201	228	149	151	178	205	232	259	286	44	(Stroke / 3) + 6
ø25	94	99	129	159	189	219	249	156	161	191	221	251	281	311	46	(Stroke / 3.25) + 7
ø32	94	99	129	159	189	219	249	156	161	191	221	251	281	311	46	(Stroke / 3.25) + 7
ø40	98	103	133	163	193	223	253	162	167	197	227	257	287	317	48	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Single Clevis Type (CA)



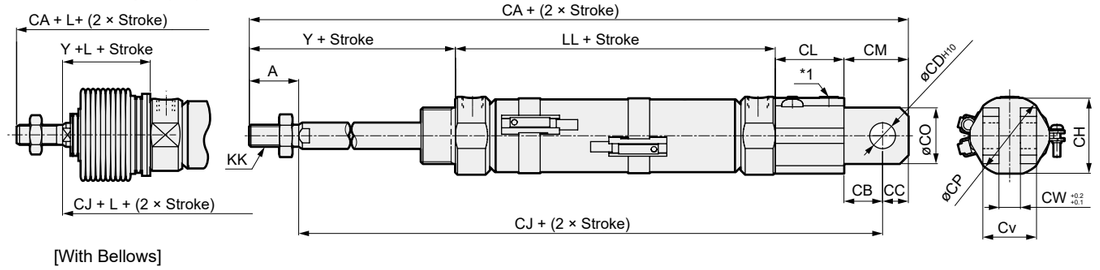
[With Bellows]

Code / Bore Size (mm)	Single Clevis Type (CA) Mounting Dimensions																			
	A	CA								CB	CC	CD	CH	CJ						
		25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less						25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less
ø20	20	190	192	219	246	273	300	327	14	10	10	26		160	162	189	216	243	270	297
ø25	23	202	207	237	267	297	327	357	18	12	12	35		167	172	202	232	262	292	322
ø32	23	202	207	237	267	297	327	357	18	12	12	35		167	172	202	232	262	292	322
ø40	25	208	213	243	273	303	333	363	18	12	12	35		171	176	206	236	266	296	326

Code / Bore Size (mm)	With Bellows															
	CL	CM	CO	CP	CQ	KK	LL							Y	L
							25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less		
ø20	31	24	22	28	8	M8 × 1.0	91	93	120	147	174	201	228	44	(Stroke / 3) + 6
ø25	32	30	26	37	10	M10 × 1.25	94	99	129	159	189	219	249	46	(Stroke / 3.25) + 7
ø32	32	30	26	37	10	M10 × 1.25	94	99	129	159	189	219	249	46	(Stroke / 3.25) + 7
ø40	32	30	26	37	10	M12 × 1.5	98	103	133	163	193	223	253	48	(Stroke / 3.25) + 7

*1: Not a piping port.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, see P. 284 to P. 286.**
***4: For outer dimensions diagram of accessories, refer to P. 123.**

●Double clevis type (CB)



[With Bellows]

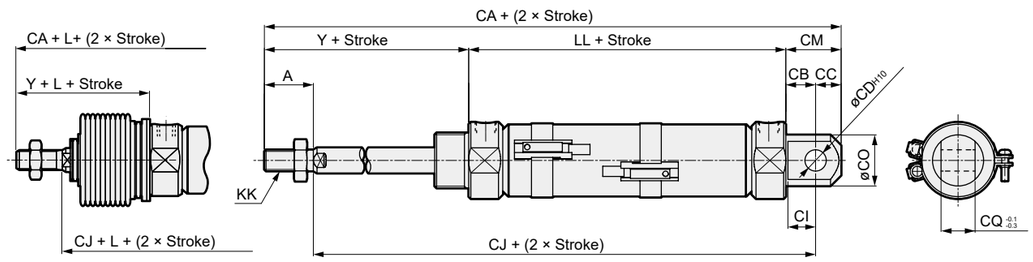
Code / Bore Size (mm)	Double Clevis Type (CB) Mounting Dimensions																			
	A	CA								CB	CC	CD	CH	CJ						
		25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less						25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less
ø20	20	190	192	219	246	273	300	327	14	10	10	26		160	162	189	216	243	270	297
ø25	23	202	207	237	267	297	327	357	18	12	12	35		167	172	202	232	262	292	322
ø32	23	202	207	237	267	297	327	357	18	12	12	35		167	172	202	232	262	292	322
ø40	25	208	213	243	273	303	333	363	18	12	12	35		171	176	206	236	266	296	326

Code / Bore Size (mm)	With Bellows															
	CL	CM	CO	CP	Cv	CW	KK	LL							Y	L
								25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less		
ø20	31	24	22	28	19	8	M8 × 1.0	91	93	120	147	174	201	228	44	(Stroke / 3) + 6
ø25	32	30	26	37	25	10	M10 × 1.25	94	99	129	159	189	219	249	46	(Stroke / 3.25) + 7
ø32	32	30	26	37	25	10	M10 × 1.25	94	99	129	159	189	219	249	46	(Stroke / 3.25) + 7
ø40	32	30	26	37	25	10	M12 × 1.5	98	103	133	163	193	223	253	48	(Stroke / 3.25) + 7

*1: Not a piping port.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, see P. 284 to P. 286.**
***4: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Single Clevis Integrated Type (CC)
●Single Clevis Bushing Press-fit Type (CC1)



[With Bellows]

Code / Bore Size (mm)	Single Clevis Integrated Type (CC), Bushing Press-fit Type (CC1) Mounting Dimensions											
	A	CA							CB	CC	CD	CI
		25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, to 150 or Less	Over 150, to 200 or Less	Over 200, to 250 or Less	Over 250, to 300 or Less				
ø20	20	156	158	185	212	239	266	293	12	9	8	11
ø25	23	161	166	196	226	256	286	316	12	9	8	11
ø32	23	166	171	201	231	261	291	321	14	12	10	13
ø40	25	176	181	211	241	271	301	331	16	14	12	15

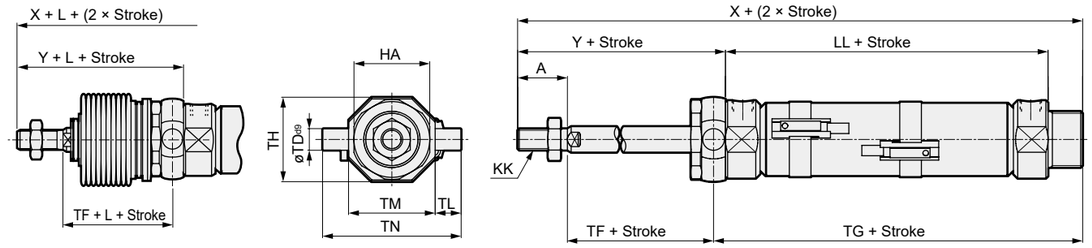
Code / Bore Size (mm)	CJ							CM	CO	CQ	KK
	25 or Less	Over 25, 50 or less	Over 50, to 100 or Less	Over 100, to 150 or Less	Over 150, to 200 or Less	Over 200, to 250 or Less	Over 250, to 300 or Less				
ø20	127	129	156	183	210	237	264	21	22	16	M8 × 1.0
ø25	129	134	164	194	224	254	284	21	24	16	M10 × 1.25
ø32	131	136	166	196	226	256	286	26	24	16	M10 × 1.25
ø40	137	142	172	202	232	262	292	30	30	20	M12 × 1.5

Code / Bore Size (mm)	LL							Y	With Bellows L
	25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less		
ø20	91	93	120	147	174	201	228	44	(Stroke / 3) + 6
ø25	94	99	129	159	189	219	249	46	(Stroke / 3.25) + 7
ø32	94	99	129	159	189	219	249	46	(Stroke / 3.25) + 7
ø40	98	103	133	163	193	223	253	48	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Rod side trunnion type (TA)



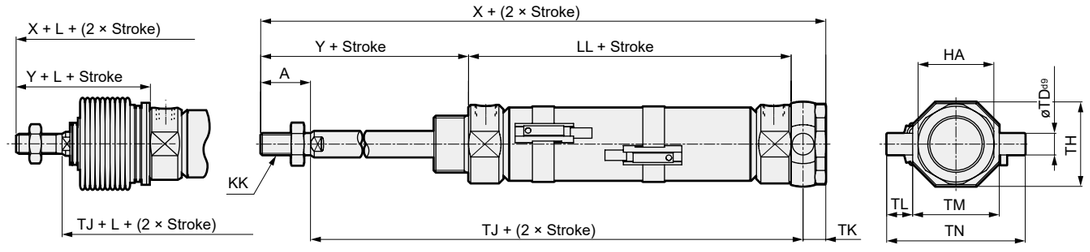
[With Bellows]

Code / Bore Size (mm)	Rod Side Trunnion Type (TA) Mounting Dimensions																			
	A	HA	KK	LL							TD	TF	TG							
				25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less			25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less	
ø20	20	26	M8 × 1.0	91	93	120	147	174	201	228	8	19.5	109.5	111.5	138.5	165.5	192.5	219.5	246.5	
ø25	23	35	M10 × 1.25	94	99	129	159	189	219	249	10	17.5	115.5	120.5	150.5	180.5	210.5	240.5	270.5	
ø32	23	35	M10 × 1.25	94	99	129	159	189	219	249	10	17.5	115.5	120.5	150.5	180.5	210.5	240.5	270.5	
ø40	25	35	M12 × 1.5	98	103	133	163	193	223	253	10	17.5	119.5	124.5	154.5	184.5	214.5	244.5	274.5	

Code / Bore Size (mm)	TH	TL	TM	TN	X							Y	With Bellows L
					25 or Less	Over 25, to 50 or Less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less		
ø20	29.5	8	30	46	149	151	178	205	232	259	286	44	(Stroke / 3) + 6
ø25	39	12	40	64	156	161	191	221	251	281	311	46	(Stroke / 3.25) + 7
ø32	39	12	40	64	156	161	191	221	251	281	311	46	(Stroke / 3.25) + 7
ø40	44	9.5	53	72	162	167	197	227	257	287	317	48	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Head Side Trunnion Type (TB)



[With Bellows]

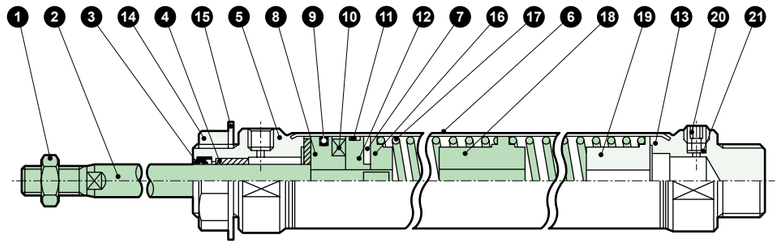
Code / Bore Size (mm)	Head Side Trunnion Type (TB) Mounting Dimensions																			
	A	HA	KK	LL							TD	TH	TJ							
				25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less			25 or less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less	
ø20	20	26	M8 × 1.0	91	93	120	147	174	201	228	8	29.5	119.5	121.5	148.5	175.5	202.5	229.5	256.5	
ø25	23	35	M10 × 1.25	94	99	129	159	189	219	249	10	39	122.5	127.5	157.5	187.5	217.5	247.5	277.5	
ø32	23	35	M10 × 1.25	94	99	129	159	189	219	249	10	39	122.5	127.5	157.5	187.5	217.5	247.5	277.5	
ø40	25	35	M12 × 1.5	98	103	133	163	193	223	253	10	44	126.5	131.5	161.5	191.5	221.5	251.5	281.5	

Code / Bore Size (mm)	TK	TL	TM	TN	X							Y	With Bellows L
					25 or Less	Over 25, to 50 or Less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less		
ø20	9.5	8	30	46	149	151	178	205	232	259	286	44	(Stroke / 3) + 6
ø25	10.5	12	40	64	156	161	191	221	251	281	311	46	(Stroke / 3.25) + 7
ø32	10.5	12	40	64	156	161	191	221	251	281	311	46	(Stroke / 3.25) + 7
ø40	10.5	9.5	53	72	162	167	197	227	257	287	317	48	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Internal Structure Diagram / Material

● CMK2-SR

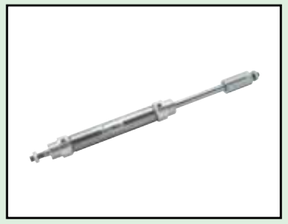


Do not disassemble

Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate
2	Piston Rod	ø20, ø25: Stainless Steel ø32, ø40: Carbon Steel	Industrial Hard Chrome Plating
3	Rod Packing	Nitrile Rubber	
4	Bushing	ø20: Bearing Alloy ø25, ø32, ø40: Oil Impregnated Bearing Alloy	
5	Rod Cover	Aluminum Alloy	
6	Cylinder Tube	Stainless Steel	
7	Cushion Rubber	Urethane Rubber	
8	Piston A	Aluminum Alloy	
9	Piston Packing	Nitrile Rubber	
10	Magnet	Plastic	
11	Wear Ring	Polyacetal Resin	
12	Piston B	Aluminum Alloy	
13	Head Cover	Aluminum Alloy	
14	Nut	Steel	Zinc Chromate
15	Toothed Lock Washer	Steel	Zinc Chromate
16	Spring Retainer	Aluminum Alloy	
17	Spring	Piano Wire	Painting
18	Spring Retainer	Aluminum Alloy	
19	Spring Retainer	Aluminum Alloy	
20	Plug	Steel	Zinc Chromate
21	Stainless Steel Wire Mesh	Stainless Steel	

MEMO

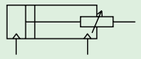
General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending



Small bore size cylinder
Double Acting, Stroke Adjustment Type (Push)

CMK2-P Series

● Bore size:ø20, ø25, ø32, ø40

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

With Switch
(Built-in magnet for switch)

	Model No.	1 Mounting type	2 Bore size	3 Piping thread type	4 Stroke	5 Stroke adjustment range	6 Switch Model No.	7 Number of Switches	8 Option	9 Accessories
Without Switch	CMK2-P	00	20		100	25			F	I
With Switch	CMK2-P	00	20		100	25	T0H	D	F	I

Mounting brackets are included with the product and shipped. However, if bellows are included and the mounting brackets are LB, LS, FA, or TA, they will be shipped assembled.

1 Mounting type

	Code	Content	
	00	Basic type	
	LB	Axial Foot Type (Both Sides)	
*1	LS	Axial Foot Type (Single Side)	
	FA	Rod Side Flange Type	
	FB	Head Side Flange Type	
	TA	Rod Side Trunnion Type	
	TB	Head Side Trunnion Type	

*1: Single side foot type (LS type) has a max. stroke of 50 mm.

2 Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

3 Piping thread type

Code	Content
Blank	Rc Thread
NN	NPT Thread (Custom Order Product)
GN	G Thread (Custom Order Product)

4 Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20	25 to 450	Every 1 mm
ø25	25 to 450	
ø32	25 to 430	
ø40	25 to 400	

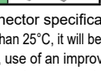
Note: For minimum stroke with switch and maximum/minimum stroke with bellows, refer to P. 152.

5 Stroke adjustment range (mm)

Code	Content
25	25
50	50

6 Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

	Code	Content
	Blank	1 m (Standard)
	3	3 m (Option)
	5	5 m (Option)
*5	W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

7 Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

Note: The maximum number of switches that can be installed is 3. If 4 or more are required, please order the insufficient switch mounting brackets separately by individual model number.

8 Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
	J	Bellows	100°C	200°C	
	L		250°C	400°C	
*1	F	With Push-in Fitting (Straight)			
*1	FE	With Push-in Fitting (Elbow)			
*3	M	Piston Rod Material (Stainless Steel)			

*1: For F: With Push-in fitting (Straight) and FE: With Push-in fitting (Elbow), the applicable tube O.D. is ø6.
*2: Instantaneous maximum temperature is the temperature when fire, chips, etc. momentarily contact the bellows.
*3: When Bore size ø20 or 25 is selected, the piston rod material is already stainless steel. (If M is selected, the rod nut material will also be stainless steel.)

9 Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Washer Split Pin Attached)	
	B2	Double Yoke Bracket (Pin and retaining ring included)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, see P. 287.

Code	Content
-XJ9	Without Bellows
-T2	Fluorine Packing Type
-A2	With 2 Rod Nuts
-O	Low Speed Type
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
CMK2-P-.....-XJ9

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

● Uses food-grade lubricant usable in food manufacturing processes

CMK2-P-.....-FP1

*For combinations of variations and options, see P. 109.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set
CMK2-T0H-20
6 Switch Model No. 2 Bore size

●Switch body only
SW-T0H
6 Switch Model No.

●Mounting bracket set
CMK2-T-20
Mounting bracket 2 Bore size

Specifications

Item		CMK2-P			
Bore Size	mm	ø20	ø25	ø32	ø40
Actuation method		Double Acting, Stroke Adjustment Type (Push)			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.15			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	-10 to 60 (No freezing)			
Port Size		Rc1/8			
Stroke tolerance	mm	$^{+2.0}_{0}$ (Up to 200), $^{+2.4}_{0}$ (Over 200,)			
Operating Piston Speed	mm/s	50 to 500			
Cushion		Rubber Cushion			
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)			
Stroke adjustment range	mm	Max. 50			
Allowable Absorbed Energy	J	0.166	0.308	0.424	0.639

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke		Min. Stroke	
		Without Bellows	With Bellows	Without Bellows	With Bellows
ø20	25, 50, 75, 100, 150, 200, 250, 300	430	350	25	25
ø25					
ø32					
ø40		400			

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: Single side foot type (LS type) has a maximum stroke of 50 mm.
*3: For strokes less than 25 mm, please inquire each time.

Min. Stroke with Switch

(Unit: mm)

Number of Switches	1					2				
	Solid State			Reed		Solid State			Reed	
Bore Size (mm)	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8
ø20	25					25	30	35	25	35
ø25	25					25	30	35	25	35
ø32	25					25	30	35	25	35
ø40	25					25	30	35	25	35

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore size (mm)	Adjustment Stroke	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	Switch Rail + Band Weight	Per S=10 mm Added Weight
		Basic type (00)	Axial Foot Type (LB)	Axial Foot Type (LS)	Flange (FA/FB)	Trunnion Type (TA/TB)			
ø20	25	0.23	0.38	0.31	0.29	0.28	Refer to the mass described in the switch specifications on P. 971	0.005	0.01
	50	0.26	0.41	0.34	0.32	0.31			
ø25	25	0.41	0.67	0.54	0.56	0.51		0.005	0.01
	50	0.49	0.75	0.62	0.64	0.59			
ø32	25	0.45	0.71	0.58	0.60	0.55		0.009	0.02
	50	0.52	0.78	0.65	0.67	0.62			
ø40	25	0.63	0.89	0.76	0.78	0.79		0.009	0.02
	50	0.71	0.97	0.84	0.86	0.87			

(Example) Product Weight of CMK2-P-FA-32-50-25T0H-D

Product Weight at S = 0 mm .... 0.60 kg
Added weight at S=50 mm.... Added weight at S=10 mm $0.02 \times \frac{\text{Product Stroke (50)}}{10} = 0.10$ kg
Weight of 2 switches: .... 0.036 kg
Weight of switch rail + 2 bands: .... 0.018 kg
Product weight .... 0.60 kg+0.1 kg+0.036 kg+0.018 kg=0.754 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push/Pull	35.3	47.1	70.7	94.2	1.18 × 10²	1.41 × 10²	1.65 × 10²	1.88 × 10²	2.12 × 10²	2.36 × 10²
ø25	Push/Pull	56.7	75.6	1.13 × 10²	1.51 × 10²	1.89 × 10²	2.27 × 10²	2.64 × 10²	3.02 × 10²	3.40 × 10²	3.78 × 10²
ø32	Push/Pull	1.04 × 10²	1.38 × 10²	2.07 × 10²	2.76 × 10²	3.46 × 10²	4.15 × 10²	4.84 × 10²	5.53 × 10²	6.22 × 10²	6.91 × 10²
ø40	Push/Pull	1.65 × 10²	2.21 × 10²	3.31 × 10²	4.41 × 10²	5.51 × 10²	6.62 × 10²	7.72 × 10²	8.82 × 10²	9.92 × 10²	1.10 × 10³

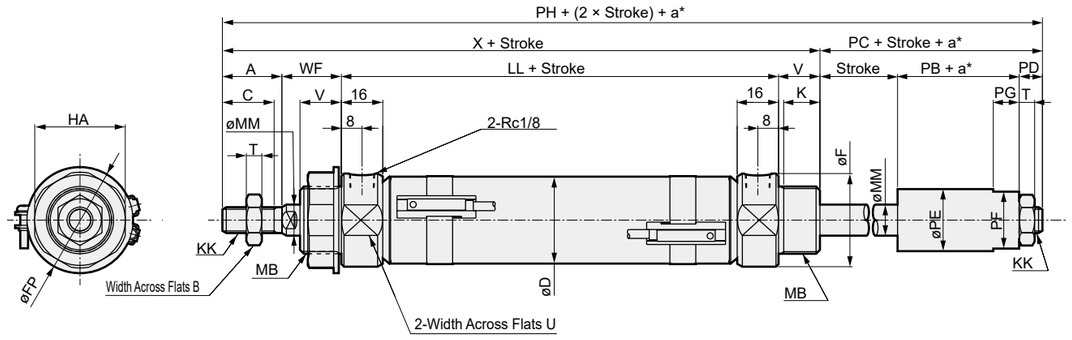
Mounting Bracket Model No. Notation Method

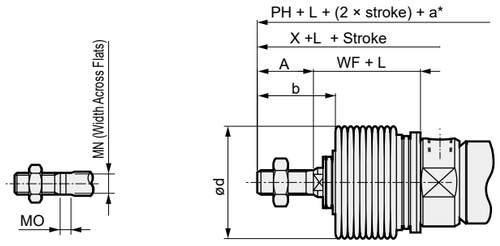
Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Basic Type (00) *3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial Foot Type (LB/LS)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40

*1: For axial foot type and flange type mounting brackets, mounting nuts and toothed washers are included. Also, for trunnion type, mounting nuts are included.
*2: For axial foot type (both sides), 2 sets of "M1-LB-□" from the table above are required.
*3: Only mounting nuts and toothed lock washers are included. One set is included with the basic type (00) of the product, but use this if additional sets are required.

Outline Dimension Drawing

●Basic Type (OO)





[With Bellows]

* "a" is the adjustment stroke.

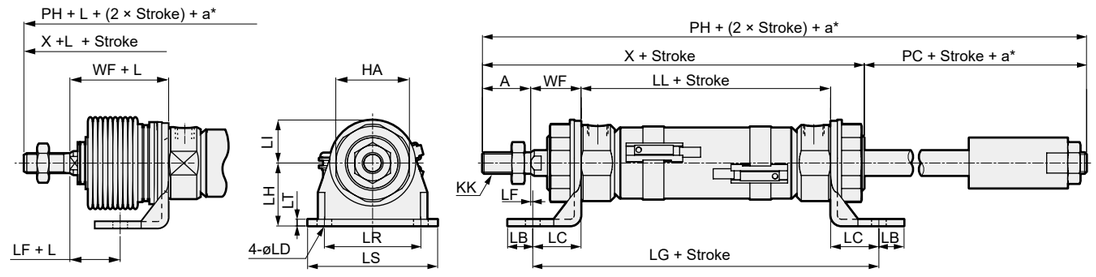
Code	Basic Type (OO) Basic Dimensions																
Bore Size (mm)	A	B	C	D	F	FP	HA	K	KK	LL	MB	MM	MN	MO	T	U	V
ø20	20	13	18	21.4	28	29	26	12	M8 × 1.0	66	M18 × 1.5	10	8	5	5	24	14
ø25	23	17	20	26.4	32	41	35	14	M10 × 1.25	69	M26 × 1.5	12	10	5	6	30	16
ø32	23	17	20	33.6	36	41	35	14	M10 × 1.25	69	M26 × 1.5	12	10	5	6	34	16
ø40	25	19	22	41.6	45	41	35	14	M12 × 1.5	73	M26 × 1.5	14	12	6	7	43	16

Code										With Bellows		
Bore Size (mm)	WF	X	PB	PC	PD	PE	PF	PG	PH	b	d	L
ø20	24	124	21	29	8	16	14	7	153	30	30	(Stroke / 3) + 6
ø25	23	131	22	31	9	24	22	10	162	32	46	(Stroke / 3.25) + 7
ø32	23	131	22	31	9	24	22	10	162	32	46	(Stroke / 3.25) + 7
ø40	23	137	22	32	10	24	22	10	169	34	46	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Axial Foot Type (LB)



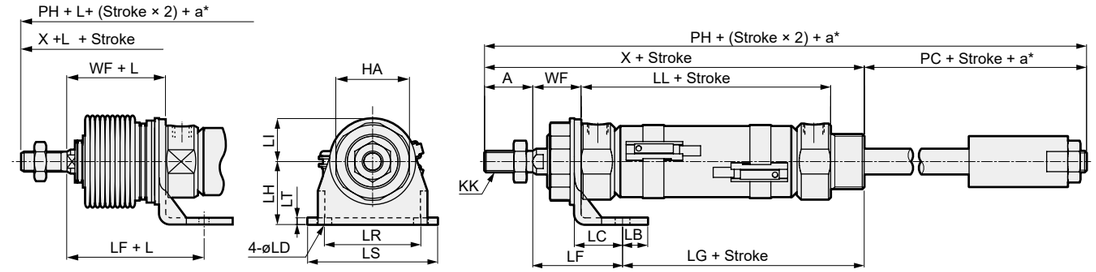
[With Bellows]

* "a" is the adjustment stroke.

Code	Axial Foot Type (LB) Mounting Dimensions																	With Bellows
Bore Size (mm)	A	HA	KK	LB	LC	LD	LF	LG	LH	LI	LL	LR	LS	LT	PC	PH	WF	X	L
ø20	20	26	M8 × 1.0	10	18	6	6	102	25	15	66	4	44	3.2	29	153	24	124	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	12	23	7	0	115	30	20.5	69	5.5	62	3.2	31	162	23	131	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	12	23	7	0	115	30	20.5	69	5.5	62	3.2	31	162	23	131	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	12	23	7	0	119	30	20.5	73	7.5	62	3.2	32	169	23	137	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Single Side Axial Foot Type (LS)



[With Bellows]

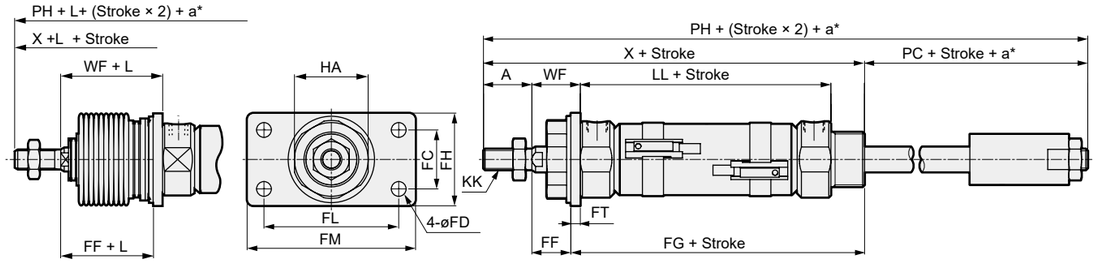
* "a" is the adjustment stroke.

Code	Single Side Axial Foot Type (LS) Mounting Dimensions																	With Bellows
Bore Size (mm)	A	HA	KK	LB	LC	LD	LF	LG	LH	LI	LL	LR	LS	LT	PC	PH	WF	X	L
ø20	20	26	M8 × 1.0	10	18	6	38.8	65.2	25	15	66	30	44	3.2	29	153	24	124	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	12	23	7	42.8	65.2	30	20.5	69	46	62	3.2	31	162	23	131	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	12	23	7	42.8	65.2	30	20.5	69	46	62	3.2	31	162	23	131	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	12	23	7	42.8	69.2	30	20.5	73	46	62	3.2	32	169	23	137	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)



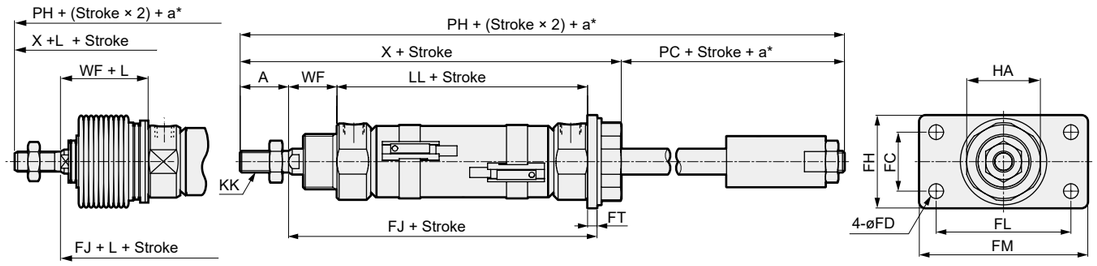
[With Bellows]

* "a" is the adjustment stroke.

Code	Rod Side Flange Type (FA) Mounting Dimensions																With Bellows
Bore Size (mm)	A	FC	FD	FF	FG	FH	FL	FM	FT	HA	KK	LL	PC	PH	WF	X	L
ø20	20	20	6	20.8	83.2	34	40	54	3.2	26	M8 × 1.0	66	29	153	24	124	(Stroke / 3) + 6
ø25	23	28	7	18.5	89.5	44	64	80	4.5	35	M10 × 1.25	69	31	162	23	131	(Stroke / 3.25) + 7
ø32	23	28	7	18.5	89.5	44	64	80	4.5	35	M10 × 1.25	69	31	162	23	131	(Stroke / 3.25) + 7
ø40	25	28	7	18.5	93.5	44	64	80	4.5	35	M12 × 1.5	73	32	169	23	137	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Head Side Flange Type (FB)



[With Bellows]

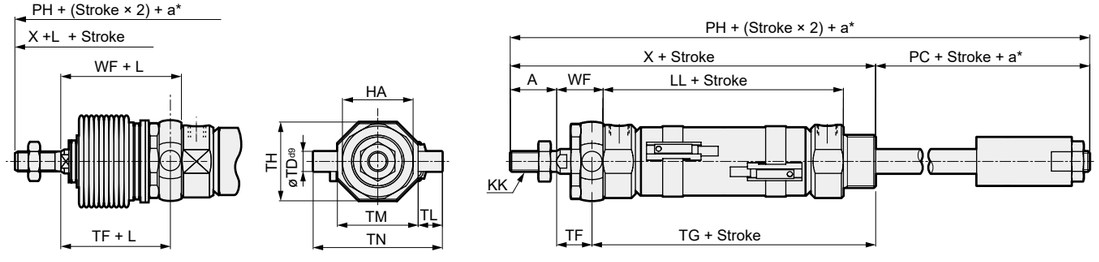
* "a" is the adjustment stroke.

Code	Head Side Flange Type (FB) Mounting Dimensions															With Bellows
Bore Size (mm)	A	FC	FD	FH	FJ	FL	FM	FT	HA	KK	LL	PC	PH	WF	X	L
ø20	20	20	6	34	93.2	40	54	3.2	26	M8 × 1.0	66	29	153	24	124	(Stroke / 3) + 6
ø25	23	28	7	44	96.5	64	80	4.5	35	M10 × 1.25	69	31	162	23	131	(Stroke / 3.25) + 7
ø32	23	28	7	44	96.5	64	80	4.5	35	M10 × 1.25	69	31	162	23	131	(Stroke / 3.25) + 7
ø40	25	28	7	44	100.5	64	80	4.5	35	M12 × 1.5	73	32	169	23	137	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Rod side trunnion type (TA)



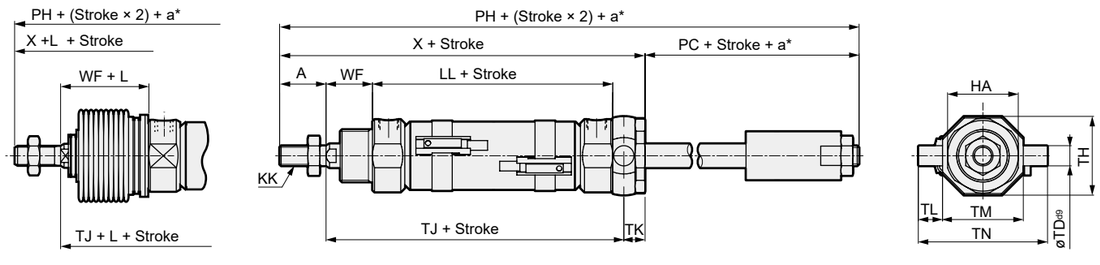
[With Bellows]

* "a" is the adjustment stroke.

Code	Rod Side Trunnion Type (TA) Mounting Dimensions															With Bellows
Bore Size (mm)	A	HA	KK	LL	TD	TF	TG	TH	TL	TM	TN	PC	PH	WF	X	L
ø20	20	26	M8 × 1.0	66	8	19.5	84.5	29.5	8	30	46	29	153	24	124	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	69	10	17.5	90.5	39	12	40	64	31	162	23	131	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	69	10	17.5	90.5	39	12	40	64	31	162	23	131	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	73	10	17.5	94.5	44	9.5	53	72	32	169	23	137	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Head Side Trunnion Type (TB)



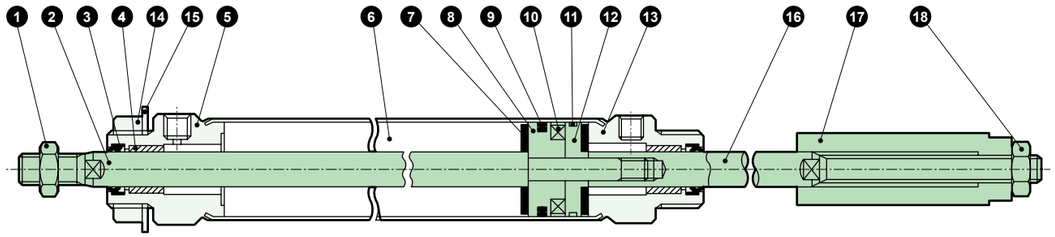
[With Bellows]

* "a" is the adjustment stroke.

Code	Head Side Trunnion Type (TB) Mounting Dimensions															With Bellows
Bore Size (mm)	A	HA	KK	LL	TD	TH	TJ	TK	TL	TM	TN	PC	PH	WF	X	L
ø20	20	26	M8 × 1.0	66	8	29.5	94.5	9.5	8	30	46	29	153	24	124	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	69	10	39	97.5	10.5	12	40	64	31	162	23	131	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	69	10	39	97.5	10.5	12	40	64	31	162	23	131	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	73	10	44	101.5	10.5	9.5	53	72	32	169	23	137	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Internal Structure Diagram / Material



Do not disassemble

Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate
2	Piston Rod	ø20, ø25: Stainless Steel ø32, ø40: Carbon Steel	Industrial Hard Chrome Plating
3	Rod Packing	Nitrile Rubber	
4	Bushing	ø20: Bearing Alloy ø25, ø32, ø40: Oil Impregnated Bearing Alloy	
5	Rod Cover	Aluminum Alloy	
6	Cylinder Tube	Stainless Steel	
7	Cushion Rubber	Urethane Rubber	
8	Piston A	Aluminum Alloy	
9	Piston Packing	Nitrile Rubber	
10	Magnet	Plastic	
11	Wear Ring	Polyacetal	
12	Piston B	Aluminum Alloy	
13	Head Cover	Aluminum Alloy	
14	Nut	Steel	Zinc Chromate
15	Toothed Lock Washer	Steel	Zinc Chromate
16	Piston Rod B	ø20, ø25: Stainless Steel ø32, ø40: Carbon Steel	Industrial Hard Chrome Plating
17	Adjusting Stopper	Steel	Zinc Chromate
18	Lock Nut	Steel	Zinc Chromate

MEMO

General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending

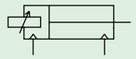


Small bore size cylinder
Double Acting, Stroke Adjustment Type (Pull)

CMK2-R Series

●Bore Size: ø20, ø25, ø32, ø40

Circuit Diagram Symbol



RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

With Switch
(Built-in magnet for switch)

	CMK2-R	00	20		100	25	T0H	D	L	I
	Model No.	1 Mounting type	2 Bore size	3 Piping thread type	4 Stroke	5 Stroke adjustment range	6 Switch Model No.	7 Number of Switches	8 Option	9 Accessories

Mounting brackets are included with the product and shipped. However, if bellows are included and the mounting brackets are LB, LS, FA, or TA, they will be shipped assembled.

1 Mounting type

Code	Content	
00	Basic type	
LB	Axial Foot Type (Both Sides)	
*1 LS	Axial Foot Type (Single Side)	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

*1: Single side foot type (LS type) has a max. stroke of 50 mm.

2 Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

3 Piping thread type

Code	Content
Blank	Rc Thread
NN	NPT Thread (Custom Order Product)
GN	G Thread (Custom Order Product)

4 Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20	25 to 750	Every 1 mm
ø25	25 to 750	
ø32	25 to 750	
ø40	25 to 750	

Note: For minimum stroke with switch and maximum/minimum stroke with bellows, refer to P. 162.

5 Stroke adjustment range (mm)

Code	Content
25	25
50	50

6 Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
*5 W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

7 Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

Note: The maximum number of switches that can be installed is 3. If 4 or more are required, please order the insufficient switch mounting brackets separately by individual model number.

8 Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
	J	Bellows	100°C	200°C	
	L		250°C	400°C	
*1	F	With Push-in Fitting (Straight)			
*1	FE	With Push-in Fitting (Elbow)			
*3	M	Piston Rod Material (Stainless Steel)			

*1: For F: With Push-in fitting (Straight) and FE: With Push-in fitting (Elbow), the applicable tube O.D. is ø6.
*2: Instantaneous maximum temperature is the temperature when fire, chips, etc. momentarily contact the bellows.
*3: When Bore size ø20 or 25 is selected, the piston rod material is already stainless steel. (If M is selected, the rod nut material will also be stainless steel.)

9 Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Washer Split Pin Attached)	
	B2	Double Yoke Bracket (Pin and retaining ring included)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, see P. 287.

Code	Content
-XJ9	Without Bellows
-T2	Fluorine Packing Type
-A2	With 2 Rod Nuts
-O	Low Speed Type
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
CMK2-R-..... -XJ9

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

● Uses food-grade lubricant usable in food manufacturing processes

CMK2-R-..... -FP1

*For combinations of variations and options, see P. 109.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

CMK2 - T0H - 20
6 Switch Model No. 2 Bore size

●Switch body only

SW - T0H
6 Switch Model No.

●Mounting bracket set

CMK2 - T - 20
Mounting bracket 2 Bore size

Specifications

Item		CMK2-R			
Bore Size	mm	ø20	ø25	ø32	ø40
Actuation method		Double Acting, Stroke Adjustment Type (Pull)			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.1			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	-10 to 60 (No freezing)			
Port Size		Rc1/8			
Stroke tolerance	mm	$^{+2.0}_{0}$ (Up to 200), $^{+2.4}_{0}$ (Over 200,)			
Operating Piston Speed	mm/s	50 to 500			
Cushion		Rubber Cushion			
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)			
Stroke adjustment range	mm	Max. 50			
Allowable Absorbed Energy	J	0.166	0.308	0.424	0.639

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke		Min. Stroke	
		Without Bellows	With Bellows	Without Bellows	With Bellows
ø20	25, 50, 75, 100, 150, 200, 250, 300	750	650	25	25
ø25					
ø32					
ø40					

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: Single side foot type (LS type) has a maximum stroke of 50 mm.
*3: For strokes less than 25 mm, please inquire each time.

Min. Stroke with Switch

(Unit: mm)

Number of Switches	1					2				
	Solid State			Reed		Solid State			Reed	
Bore Size (mm)	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8
ø20	25					25	30	35	25	35
ø25	25					25	30	35	25	35
ø32	25					25	30	35	25	35
ø40	25					25	30	35	25	35

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore size (mm)	Adjustment Stroke	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	Switch Rail + Band Weight	Added Weight per S = 10 mm
		Basic type (00)	Axial Foot Type (LB)	Axial Foot Type (LS)	Flange (FA/FB)	Trunnion Type (TA/TB)			
ø20	25	0.20	0.35	0.28	0.26	0.25	Refer to the mass described in the switch specifications on P. 971	0.005	0.01
	50	0.20	0.35	0.28	0.26	0.25			
ø25	25	0.35	0.61	0.48	0.50	0.45		0.005	0.01
	50	0.37	0.63	0.50	0.52	0.47			
ø32	25	0.39	0.65	0.52	0.54	0.49		0.009	0.02
	50	0.41	0.67	0.54	0.56	0.51			
ø40	25	0.58	0.84	0.71	0.73	0.74		0.009	0.02
	50	0.60	0.86	0.73	0.75	0.76			

(Example) Product Weight of CMK2-R-FA-32-50-25T0H-D

Product Weight at S = 0 mm.....0.54 kg
Added weight at S=50 mm..... Added weight at S=10 mm 0.02 × $\frac{\text{Product Stroke (50)}}{10}$ = 0.10 kg
Weight of 2 switches: .....0.036 kg
Weight of switch rail + 2 bands: .....0.018 kg
Product weight .....0.54 kg+0.1 kg+0.036 kg+0.018 kg=0.694 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	23.6	35.3	47.1	70.7	94.2	1.18×10^2	1.41×10^2	1.65×10^2	1.88×10^2	2.12×10^2	2.36×10^2
ø25	Push	49.1k	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	37.8	56.7	75.6	1.13×10^2	1.51×10^2	1.89×10^2	2.27×10^2	2.64×10^2	3.02×10^2	3.40×10^2	3.78×10^2
ø32	Push	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.10×10^2	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

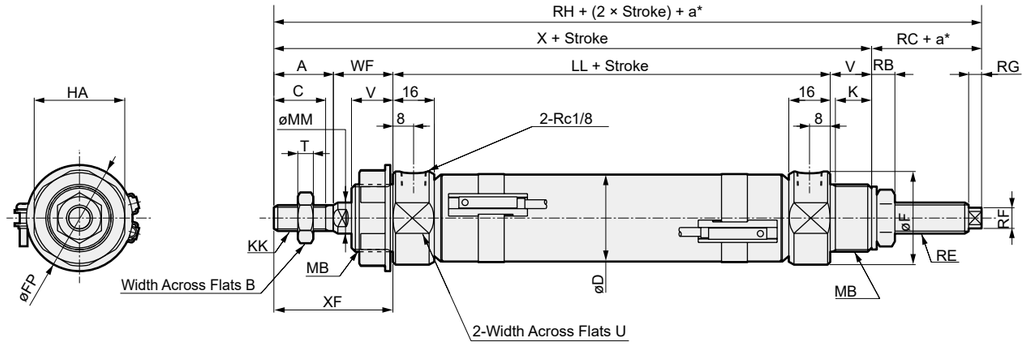
Mounting Bracket Model No. Notation Method

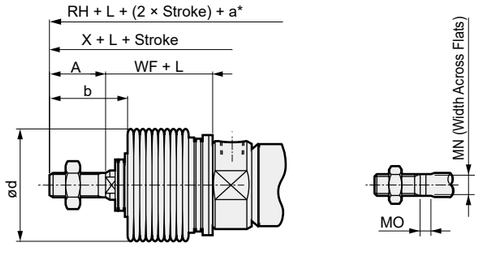
Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Basic Type (00) *3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial Foot Type (LB/LS)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40

*1: For axial foot type and flange type mounting brackets, mounting nuts and toothed washers are included. Also, for trunnion type, mounting nuts are included.
*2: For axial foot type (both sides), 2 sets of "M1-LB-□" from the table above are required.
*3: Only mounting nuts and toothed lock washers are included. One set is included with the basic type (00) of the product, but use this if additional sets are required.

Outline Dimension Drawing

●Basic Type (OO)





[With Bellows]

* "a" is the adjustment stroke.

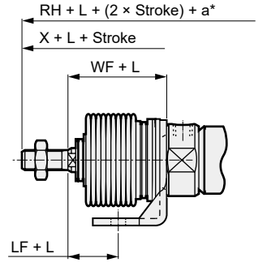
Code	Basic Type (OO) Basic Dimensions														
Bore Size (mm)	A	B	C	D	F	FP	HA	K	KK	LL	MB	MM	MN	MO	T
ø20	20	13	18	21.4	28	29	26	12	M8 × 1.0	66	M18 × 1.5	10	13	5	5
ø25	23	17	20	26.4	32	41	35	14	M10 × 1.25	69	M26 × 1.5	12	19	5	6
ø32	23	17	20	33.6	36	41	35	14	M10 × 1.25	69	M26 × 1.5	12	19	5	6
ø40	25	19	22	41.6	45	41	35	14	M12 × 1.5	73	M26 × 1.5	14	19	6	7

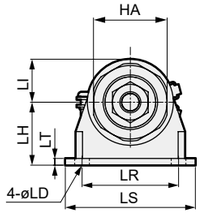
Code	With Bellows												
Bore Size (mm)	U	V	WF	X	XF	RB	RC	RE	RF	RG	RH	b	d	L
ø20	24	14	24	124	44	6.3	11	M8 × 1.0	□5.5	3	135	30	30	(Stroke / 3) + 6
ø25	30	16	23	131	46	9	17.5	M12 × 1.5	□8	5	148.5	32	46	(Stroke / 3.25) + 7
ø32	34	16	23	131	46	9	17.5	M12 × 1.5	□8	5	148.5	32	46	(Stroke / 3.25) + 7
ø40	43	16	23	137	48	9	16	M12 × 1.5	□8	5	153	34	46	(Stroke / 3.25) + 7

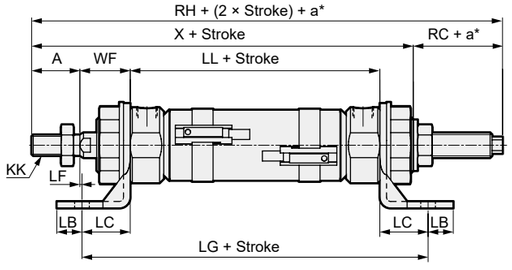
*1: Round up L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Axial Foot Type (LB)







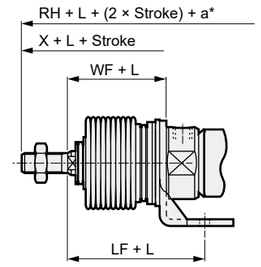
[With Bellows]

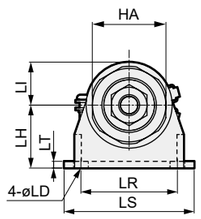
* "a" is the adjustment stroke.

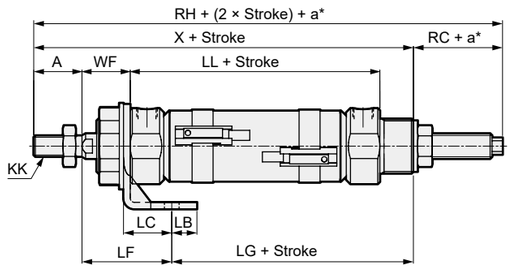
Code	Axial Foot Type (LB) Mounting Dimensions																	With Bellows
Bore Size (mm)	A	HA	KK	LB	LC	LD	LF	LG	LH	LI	LL	LR	LS	LT	RC	RH	WF	X	L
ø20	20	26	M8 × 1.0	10	18	6	6	102	25	15	66	4	44	3.2	11	135	24	124	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	12	23	7	0	115	30	20.5	69	5.5	62	3.2	17.5	148.5	23	131	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	12	23	7	0	115	30	20.5	69	5.5	62	3.2	17.5	148.5	23	131	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	12	23	7	0	119	30	20.5	73	7.5	62	3.2	16	153	23	137	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Single Side Axial Foot Type (LS)







[With Bellows]

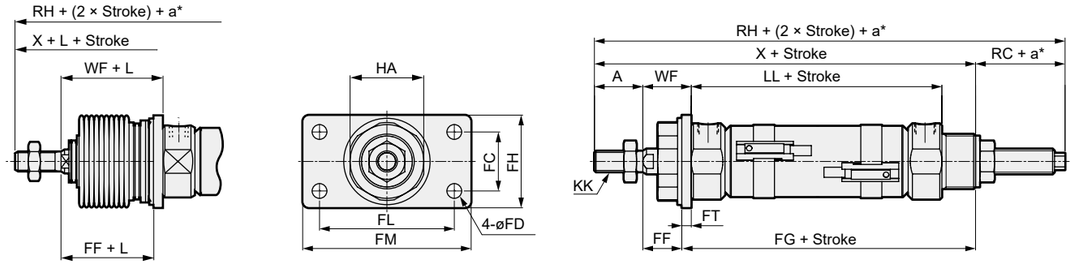
* "a" is the adjustment stroke.

Code	Single Side Axial Foot Type (LS) Mounting Dimensions																	With Bellows
Bore Size (mm)	A	HA	KK	LB	LC	LD	LF	LG	LH	LI	LL	LR	LS	LT	RC	RH	WF	X	L
ø20	20	26	M8 × 1.0	10	18	6	38.8	65.2	25	15	66	30	44	3.2	11	135	24	124	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	12	23	7	42.8	65.2	30	20.5	69	46	62	3.2	17.5	148.5	23	131	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	12	23	7	42.8	65.2	30	20.5	69	46	62	3.2	17.5	148.5	23	131	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	12	23	7	42.8	69.2	30	20.5	73	46	62	3.2	16	153	23	137	(Stroke / 3.25) + 7

*1: Max. stroke is 50 mm.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, see P. 284 to P. 286.**
***4: For outer dimensions diagram of accessories, refer P. 123.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)



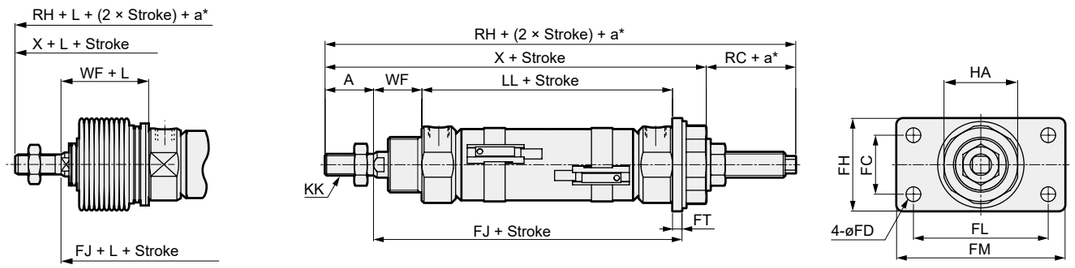
[With Bellows]

* "a" is the adjustment stroke.

Code	Rod Side Flange Type (FA) Mounting Dimensions															With Bellows
Bore Size (mm)	A	FC	FD	FF	FG	FH	FL	FM	FT	HA	KK	LL	RC	RH	WF	X	L
ø20	20	20	6	20.8	83.2	34	40	54	3.2	26	M8 × 1.0	66	11	135	24	124	(Stroke / 3) + 6
ø25	23	28	7	18.5	89.5	44	64	80	4.5	35	M10 × 1.25	69	17.5	148.5	23	131	(Stroke / 3.25) + 7
ø32	23	28	7	18.5	89.5	44	64	80	4.5	35	M10 × 1.25	69	17.5	148.5	23	131	(Stroke / 3.25) + 7
ø40	25	28	7	18.5	93.5	44	64	80	4.5	35	M12 × 1.5	73	16	153	23	137	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Head Side Flange Type (FB)



[With Bellows]

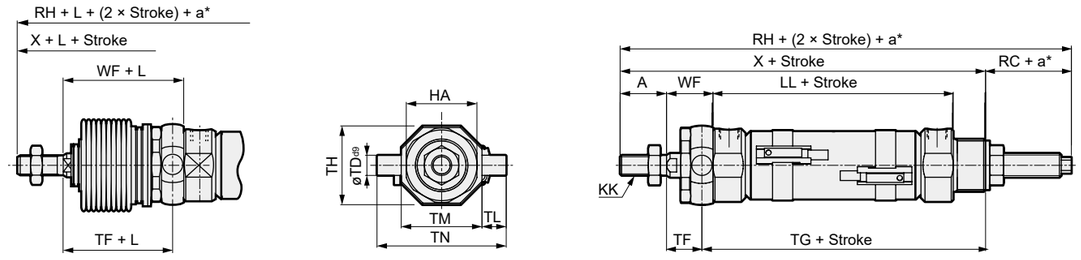
* "a" is the adjustment stroke.

Code	Head Side Flange Type (FB) Mounting Dimensions															With Bellows
Bore Size (mm)	A	FC	FD	FH	FJ	FL	FM	FT	HA	KK	LL	RC	RH	WF	X	L
ø20	20	20	6	34	93.2	40	54	3.2	26	M8 × 1.0	66	11	135	24	124	(Stroke / 3) + 6
ø25	23	28	7	44	96.5	64	80	4.5	35	M10 × 1.25	69	17.5	148.5	23	131	(Stroke / 3.25) + 7
ø32	23	28	7	44	96.5	64	80	4.5	35	M10 × 1.25	69	17.5	148.5	23	131	(Stroke / 3.25) + 7
ø40	25	28	7	44	100.5	64	80	4.5	35	M12 × 1.5	73	16	153	23	137	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Rod side trunnion type (TA)



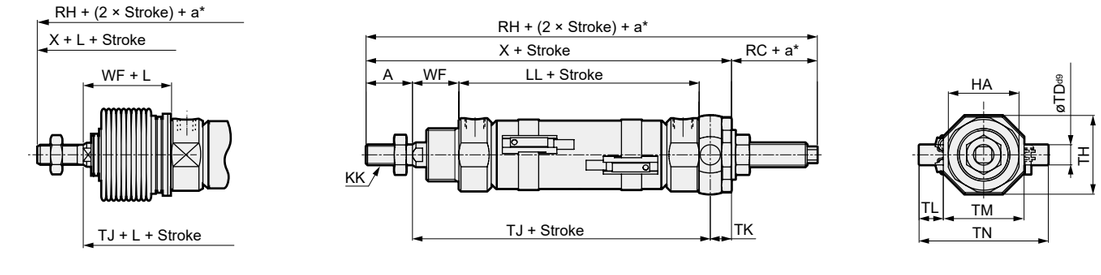
[With Bellows]

* "a" is the adjustment stroke.

Code	Rod Side Trunnion Type (TA) Mounting Dimensions															With Bellows
Bore Size (mm)	A	HA	KK	LL	TD	TF	TG	TH	TL	TM	TN	RC	RH	WF	X	L
ø20	20	26	M8 × 1.0	66	8	19.5	84.5	29.5	8	30	46	11	135	24	124	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	69	10	17.5	90.5	39	12	40	64	17.5	148.5	23	131	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	69	10	17.5	90.5	39	12	40	64	17.5	148.5	23	131	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	73	10	17.5	94.5	44	9.5	53	72	16	153	23	137	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Head Side Trunnion Type (TB)



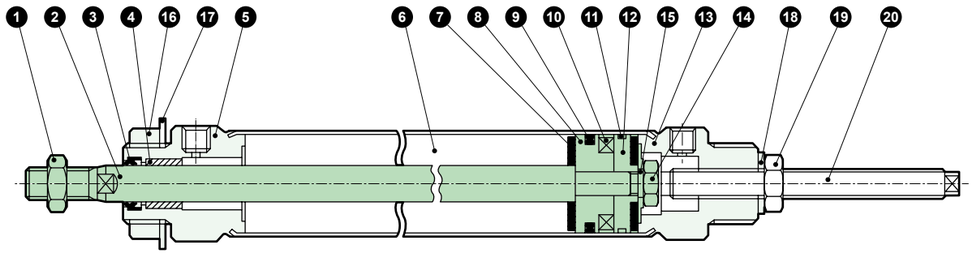
[With Bellows]

* "a" is the adjustment stroke.

Code	Head Side Trunnion Type (TB) Mounting Dimensions															With Bellows
Bore Size (mm)	A	HA	KK	LL	TD	TH	TJ	TK	TL	TM	TN	RC	RH	WF	X	L
ø20	20	26	M8 × 1.0	66	8	29.5	94.5	9.5	8	30	46	11	135	24	124	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	69	10	39	97.5	10.5	12	40	64	17.5	148.5	23	131	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	69	10	39	97.5	10.5	12	40	64	17.5	148.5	23	131	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	73	10	44	101.5	10.5	9.5	53	72	16	153	23	137	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Internal Structure Diagram / Material



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	10	Magnet	Plastic	
2	Piston Rod	ø20, ø25: Stainless Steel ø32, ø40: Carbon Steel	Industrial Hard Chrome Plating	11	Wear Ring	Polyacetal	
				12	Piston B	Aluminum Alloy	
3	Rod Packing	Nitrile Rubber		13	Head Cover	Aluminum Alloy	
4	Bushing	ø20: Bearing Alloy ø25, ø32, ø40: Oil Impregnated Bearing Alloy		14	Hexagon Nut	Steel	Zinc Chromate
				15	Spacer	Steel	Zinc Chromate (ø20 to ø32 only)
5	Rod Cover	Aluminum Alloy		16	Nut	Steel	Zinc Chromate
6	Cylinder Tube	Stainless Steel		17	Toothed Lock Washer	Steel	Zinc Chromate
7	Cushion Rubber	Urethane Rubber		18	Seal Washer	Nitrile Rubber, Steel	
8	Piston A	Aluminum Alloy		19	Lock Nut	Steel	Zinc Chromate
9	Piston Packing	Nitrile Rubber		20	Adjusting Bolt	Steel	Zinc Chromate

MEMO

General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending

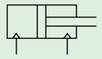


Small bore size cylinder
Double Acting/Heat Resistant Type

CMK2-T Series

● Bore size: ø20, ø25, ø32, ø40

Circuit Diagram Symbol



RoHS

Model No. Notation Method

CMK2-T – 00 – 20 [ ] – 100 – V I

Model No. ❶ Mounting type ❷ Bore size ❸ Piping thread type ❹ Stroke ❺ Option ❻ Accessories

Mounting brackets are included with the product and shipped. However, if bellows are included and the mounting brackets are LB, LS, FA, or TA, they will be shipped assembled.

❶ Mounting type

	Code	Content	
	00	Basic type	
	LB	Axial Foot Type (Both Sides)	
*1	LS	Axial Foot Type (Single Side)	
	FA	Rod Side Flange Type	
	FB	Head Side Flange Type	
	CA	Single Clevis Type	
	CC	Single Clevis Integrated Type	
	CC1	Single Clevis, Bushing Press-fit Type	
	CB	Double Clevis Type (Pin and Washer Split Pin Attached)	
	TA	Rod Side Trunnion Type	
	TB	Head Side Trunnion Type	

*1: Single side foot type (LS type) has a max. stroke of 50 mm.

❷ Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

❸ Piping thread type

Code	Content
Blank	Rc Thread
NN	NPT Thread (Custom Order Product)
GN	G Thread (Custom Order Product)

❹ Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20	5 to 750	Every 1 mm
ø25	5 to 750	
ø32	5 to 750	
ø40	5 to 750	

Note: For minimum stroke with switch and maximum/minimum stroke with bellows, refer to P. 172.

❺ Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
	J	Bellows	250°C	400°C	
*2	M	Piston Rod Material (Stainless Steel)			
	V	Boss Cut			

*1: Instantaneous maximum temperature is the temperature when sparks, chips, etc. instantaneously hit the bellows.
*2: When Bore size ø20, 25 is selected, the piston rod material is already stainless steel. (If M is selected, the rod nut material will also be stainless steel.)

❻ Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Washer Split Pin Attached)	
	B2	Double Yoke Bracket (Pin and retaining ring included)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, see P. 287.

Code	Content
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)

CMK2-T–.....–XJ9

*For combinations of variations and options, see P. 109.

Specifications

Item		CMK2-T			
Bore Size	mm	ø20	ø25	ø32	ø40
Actuation method		Double Acting/Heat Resistant Type			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.1			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	5 to 120			
Port Size		Rc1/8			
Stroke tolerance	mm	$^{+2.0}_{0}$ (Up to 200), $^{+2.4}_{0}$ (Over 200,)			
Operating Piston Speed	mm/s	50 to 500			
Cushion		Rubber Cushion			
Lubrication		Not Available			
Allowable Absorbed Energy	J	0.166	0.308	0.424	0.639

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke		Min. Stroke
		Without Bellows	With Bellows	Without Bellows, With Bellows
ø20	25, 50, 75, 100, 150, 200, 250, 300	750	650	5
ø25				
ø32				
ø40				

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: Single side foot side (LS type) has a max. stroke of 50 mm.

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm								Added Weight per S = 10 mm
	Basic Type (00)	Axial Foot Type (LB)	Axial Foot Type (LS)	Flange Type (FA/FB)	Single Clevis Type (CA)	Clevis Type (CCAA)	Double clevis type (CB)	Trunnion Type (TA/TB)	
ø20	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	0.01
ø25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36	0.01
ø32	0.29	0.55	0.42	0.44	0.53	0.29	0.53	0.39	0.02
ø40	0.47	0.73	0.60	0.62	0.71	0.49	0.71	0.63	0.02

(Example) Product Weight of CMK2-T-FA-32-50

Product Weight at S = 0 mm ...0.44 kg
Added weight at S=50 mm..... Added weight at S=10 mm 0.02 × $\frac{\text{Product Stroke (50)}}{10}$ = 0.10 kg
Product weight .....0.44 kg+0.1 kg=0.54 kg

Theoretical Thrust Table

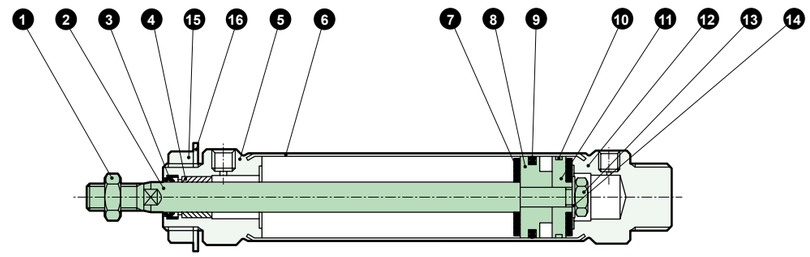
(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	31.4	47.1	62.8	94.2	1.26 × 10²	1.57 × 10²	1.88 × 10²	2.20 × 10²	2.51 × 10²	2.83 × 10²	3.14 × 10²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18 × 10²	1.41 × 10²	1.65 × 10²	1.88 × 10²	2.12 × 10²	2.36 × 10²
ø25	Push	49.1k	73.6	98.2	1.47 × 10²	1.96 × 10²	2.45 × 10²	2.95 × 10²	3.44 × 10²	3.93 × 10²	4.42 × 10²	4.91 × 10²
	Pull	37.8	56.7	75.6	1.13 × 10²	1.51 × 10²	1.89 × 10²	2.27 × 10²	2.64 × 10²	3.02 × 10²	3.40 × 10²	3.78 × 10²
ø32	Push	80.4	1.21 × 10²	1.61 × 10²	2.41 × 10²	3.22 × 10²	4.02 × 10²	4.83 × 10²	5.63 × 10²	6.43 × 10²	7.24 × 10²	8.04 × 10²
	Pull	69.1	1.04 × 10²	1.38 × 10²	2.07 × 10²	2.76 × 10²	3.46 × 10²	4.15 × 10²	4.84 × 10²	5.53 × 10²	6.22 × 10²	6.91 × 10²
ø40	Push	1.26 × 10²	1.88 × 10²	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²	1.01 × 10³	1.13 × 10³	1.26 × 10³
	Pull	1.10 × 10²	1.65 × 10²	2.21 × 10²	3.31 × 10²	4.41 × 10²	5.51 × 10²	6.62 × 10²	7.72 × 10²	8.82 × 10²	9.92 × 10²	1.10 × 10³

Outline Dimension Drawing

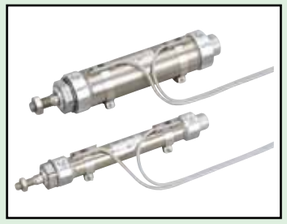
Same as double acting/single rod type. See P. 114 to P. 121. However, switches are not included.

Internal Structure Diagram / Material



Do not disassemble

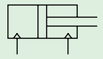
Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	8	Piston A	Aluminum Alloy	
2	Piston Rod	ø20, ø25: Stainless Steel	Industrial Hard Chrome	9	Piston Packing	Fluoro Rubber	
		ø32, ø40: Carbon Copper	Plating	10	Wear Ring	Fabric-Reinforced Phenolic Resin	
3	Rod Packing	Fluoro Rubber		11	Piston B	Aluminum Alloy	
4	Bushing	ø20: Bearing Alloy ø25, ø32, ø40: Oil Impregnated Bearing Alloy		12	Head Cover	Aluminum Alloy	
				13	Hexagon Nut	Steel	Zinc Chromate
5	Rod Cover	Aluminum Alloy		14	Spacer	Steel	Zinc Chromate (ø20 to ø32 only)
6	Cylinder Tube	Stainless Steel		15	Nut	Steel	Zinc Chromate
7	Cushion Rubber	Fluoro Rubber		16	Toothed Lock Washer	Steel	Zinc Chromate



Small bore size cylinder
Double Acting/With Rubber Air Cushion

CMK2-□C Series

● Bore size: ø20, ø25, ø32, ø40
Connection Port Size: Rc1/8

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

CMK2 - 00 - 20 [ ] C - 100 ——— V Y

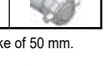
With Switch
(Built-in magnet for switch)

CMK2 - 00 - 20 [ ] C - 100 - T0H - R - V Y

	Model No.	❶ Mounting type	Bore size	❸ Piping thread type	With Rubber Air Cushion	❹ Stroke	❺ Switch Model No.	❻ Number of Switches	❼ Option	❽ Accessories
	CMK2	00	20		C	100	T0H	R	V	Y

Mounting brackets are included with the product and shipped. However, if bellows are included and the mounting brackets are LB, LS, FA, or TA, they will be shipped assembled.

❶Mounting type

	Code	Content	
	00	Basic type	
	LB	Axial Foot Type (Both Sides)	
*1	LS	Axial Foot Type (Single Side)	
	FA	Rod Side Flange Type	
	FB	Head Side Flange Type	
	CA	Single Clevis Type	
	CC	Single Clevis Integrated Type	
	CC1	Single Clevis, Bushing Press-fit Type	
	CB	Double Clevis Type (Pin and Washer Split Pin Attached)	
	TA	Rod Side Trunnion Type	
	TB	Head Side Trunnion Type	

*1: Single side foot type (LS type) has a max. stroke of 50 mm.

❷Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

❹Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20	5 to 750	Every 1 mm
ø25	5 to 750	
ø32	5 to 750	
ø40	5 to 750	

Note: For minimum stroke with switch and maximum/minimum stroke with bellows, refer to P. 176.

❺Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp / Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20/7 to 10	5 to 50	T8H□	T8V□	

*5

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

❻Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

Note: The maximum number of switches that can be installed is 3. If 4 or more are required, please order the insufficient switch mounting brackets separately by individual model number.

❽Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Washer Split Pin Attached)	
	B2	Double Yoke Bracket (Pin and retaining ring included)	

*1: "I" and "Y" cannot be selected at the same time.

❼Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
	J	Bellows	100°C	200°C	
	L		250°C	400°C	
*1	F	With Push-in Fitting (Straight)			
*1	FE	With Push-in Fitting (Elbow)			
*3	M	Piston Rod Material (Stainless Steel)			
	V	Boss Cut			

*1: For F: With Push-in fitting (Straight) and FE: With Push-in fitting (Elbow), the applicable tube O.D. is ø6.
*2: Instantaneous maximum temperature is the temperature when fire, chips, etc. momentarily contact the bellows.
*3: When Bore size ø20 or 25 is selected, the piston rod material is already stainless steel. (If M is selected, the rod nut material will also be stainless steel.)

About Custom Product Specifications

For details, see P. 287.

Code	Content
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
-O	Low Speed Type
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
CMK2-□C - ..... - XJ9

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

● Uses food-grade lubricant usable in food manufacturing processes

CMK2-□C - ..... - FP1

*For combinations of variations and options, see P. 109.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

CMK2 - T0H - 20
5 Switch Model No. 2 Bore size

●Switch body only

SW - T0H
5 Switch Model No.

●Mounting bracket set

CMK2 - T - 20
Mounting bracket 2 Bore size

Specifications

Item		CMK2			
Bore size		ø20	ø25	ø32	ø40
Actuation method		Double Acting Type			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.2			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	-10 to 60 (No freezing)			
Port Size		Rc1/8			
Stroke tolerance	mm	$^{+2.0}_{0}$ (Up to 200), $^{+2.4}_{0}$ (Over 200,)			
Operating Piston Speed	mm/s	50 to 500 (Use within absorption energy.)			
Cushion		Rubber Air Cushion			
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)			
Allowable Absorbed Energy	J	0.089	0.137	0.179	0.278

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke		Min. Stroke	
		Without Bellows	With Bellows	Without Bellows Bellows "L"	Bellows "J"
ø20	25, 50, 75, 100, 150, 200, 250 300	750	650	5	25
ø25					
ø32					
ø40					

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: Single side foot type (LS type) has a maximum stroke of 50 mm.
*3: For bellows "J", if stroke is less than 25 mm, please inquire.

Min. Stroke with Switch

(Unit: mm)

Number of Switches	1					2				
	Solid State			Reed		Solid State			Reed	
Bore Size (mm)	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8
ø20	10					25	30	35	25	35
ø25	10					25	30	35	25	35
ø32	10					25	30	35	25	35
ø40	10					25	30	35	25	35

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm								Switch Weight (Per Piece)	Switch Rail + Band Weight	Added Weight per S = 10 mm
	Basic Type (00)	Axial Foot Type (LB)	Axial Foot Type (LS)	Flange Type (FA/FB)	Single Clevis Type (CA)	Clevis Type (CCAA)	Double clevis type (CB)	Trunnion Type (TA/TB)			
ø20	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	Please refer to the weight listed in the switch specifications on P. 971.	0.005	0.01
ø25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
ø32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
ø40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

(Example) Product Weight of CMK2-FA-32C-50-T0H-D

Product Weight at S = 0 mm: ....0.45 kg
Added weight at S=50 mm..... Added weight at S=10 mm 0.02 × $\frac{\text{Product Stroke (50)}}{10}$ = 0.10 kg
Weight of 2 switches: .....0.036 kg
Weight of switch rail + 2 bands: ..... 0.018 kg
Product Weight .....0.45 kg+0.1 kg+0.036 kg+0.018 kg=0.604 kg

Theoretical Thrust Table

(Unit: N)

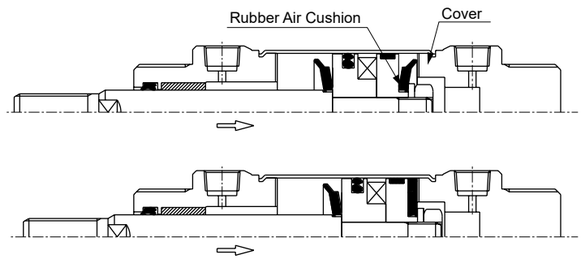
Bore size (mm)	Operating Direction	Operating Pressure MPa								
		0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	62.8	94.2	1.26 × 10²	1.57 × 10²	1.88 × 10²	2.20 × 10²	2.51 × 10²	2.83 × 10²	3.14 × 10²
	Pull	47.1	70.7	94.2	1.18 × 10²	1.41 × 10²	1.65 × 10²	1.88 × 10²	2.12 × 10²	2.36 × 10²
ø25	Push	98.2	1.47 × 10²	1.96 × 10²	2.45 × 10²	2.95 × 10²	3.44 × 10²	3.93 × 10²	4.42 × 10²	4.91 × 10²
	Pull	75.6	1.13 × 10²	1.51 × 10²	1.89 × 10²	2.27 × 10²	2.64 × 10²	3.02 × 10²	3.40 × 10²	3.78 × 10²
ø32	Push	1.61 × 10²	2.41 × 10²	3.22 × 10²	4.02 × 10²	4.83 × 10²	5.63 × 10²	6.43 × 10²	7.24 × 10²	8.04 × 10²
	Pull	1.38 × 10²	2.07 × 10²	2.76 × 10²	3.46 × 10²	4.15 × 10²	4.84 × 10²	5.53 × 10²	6.22 × 10²	6.91 × 10²
ø40	Push	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²	1.01 × 10³	1.13 × 10³	1.26 × 10³
	Pull	2.21 × 10²	3.31 × 10²	4.41 × 10²	5.51 × 10²	6.62 × 10²	7.72 × 10²	8.82 × 10²	9.92 × 10²	1.10 × 10³

Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket		ø20	ø25	ø32	ø40
Basic Type (00)	*3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial Foot Type (LB/LS)		M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)		M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)		M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40
Single Clevis Type (CA)		M1-CA-20	M1-CA-30	M1-CA-30	M1-CA-30
Double clevis type (CB)		M1-CB-20	M1-CB-30	M1-CB-30	M1-CB-30

*1: For axial foot type and flange type mounting brackets, mounting nuts and toothed washers are included. For trunnion type, mounting nuts are included.
*2: For axial foot type (both sides), 2 sets of "M1-LB-□" from the table above are required.
*3: Only mounting nuts and toothed lock washers are included. One set is included with the basic type (00) of the product, but use this if additional sets are required.

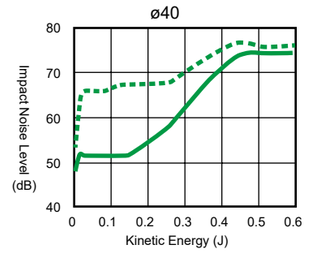
■ Rubber air cushion mechanism



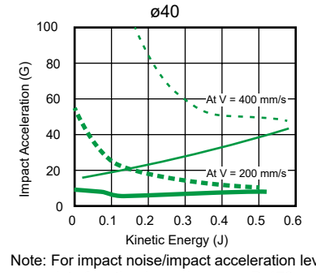
Explanation at Pull

When the piston operates and the rubber air cushion contacts the cover, an enclosed air space is formed in the ■ part. The air in this enclosed space is compressed as the piston operates, absorbing energy. At the stroke end, energy absorption due to the compressive strain of the rubber air cushion is also added.

Impact Noise Level Reduction Data (Example)



Impact Acceleration Level Reduction Data (Example)

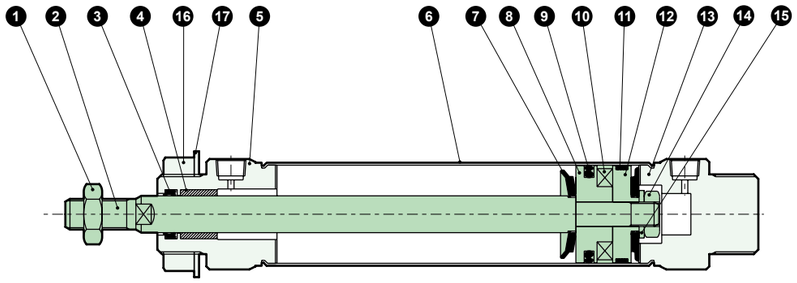


Note: For impact noise/impact acceleration level reduction data for other bore sizes, see P. 179.

Outline Dimension Drawing

Same as double acting/single rod type. See P. 114 to P. 121.

Internal Structure Diagram / Material



Do not disassemble

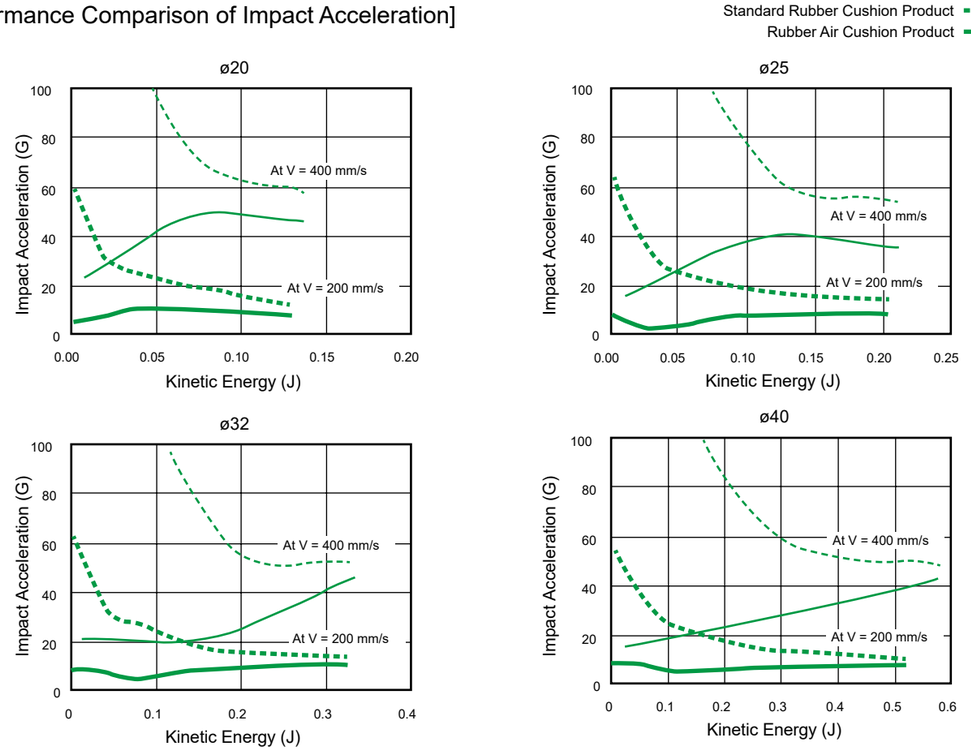
Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate
2	Piston Rod	ø20ø25: Stainless Steel ø32ø40: Carbon Steel	Industrial Hard Chrome Plating
3	Rod Packing	Nitrile Rubber	
4	Bushing	ø20: Bearing Alloy ø25, ø32, ø40: Oil Impregnated Bearing Alloy	
5	Rod Cover	Aluminum Alloy	
6	Cylinder Tube	Stainless Steel	
7	Rubber Air Cushion	Hydrogenated Nitrile Rubber	
8	Piston A	Aluminum Alloy	

Part No.	Part Name	Material	Remarks
9	Piston Packing	Nitrile Rubber	
10	Magnet	Plastic	
11	Wear Ring	Polyacetal Resin	
12	Piston B	Aluminum Alloy	
13	Head Cover	Aluminum Alloy	
14	Hexagon Nut	Steel	Zinc Chromate
15	Spacer	Steel	Zinc Chromate (ø20 to ø32 only)
16	Nut	Steel	Zinc Chromate
17	Toothed Lock Washer	Steel	Zinc Chromate

Technical Data

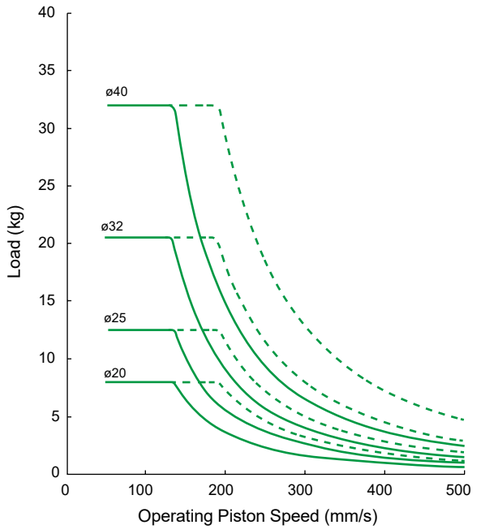
[Performance Comparison of Impact Noise Level]

[Performance Comparison of Impact Acceleration]



Technical Data

[Allowable Energy Value]



The usable range is to the lower left of the curve. Use is possible even in the range indicated by in the figure, but it is recommended to use within the solid line range to more effectively exhibit the noise reduction and damping effects.

MEMO

General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending

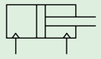


Small bore size cylinder
Double Acting/With Air Cushion

CMK2-C Series

● Bore size: ø20, ø25, ø32, ø40

● Double acting type

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

With Switch
(Built-in magnet for switch)

	CMK2-C	00	20		100	T0H	R	V	I
	Model No.	❶ Mounting type	❷ Bore size	❸ Piping thread type	❹ Stroke	❺ Switch Model No.	❻ Number of Switches	❼ Option	❽ Accessories

Mounting brackets are included with the product and shipped. However, if bellows are included and the mounting brackets are LB, LS, FA, or TA, they will be shipped assembled.

❶ Mounting type

	Code	Content	
	00	Basic type	
	LB	Axial Foot Type (Both Sides)	
*1	LS	Axial Foot Type (Single Side)	
	FA	Rod Side Flange Type	
	FB	Head Side Flange Type	
	CA	Single Clevis Type	
	CC	Single Clevis Integrated Type	
	CC1	Single Clevis, Bushing Press-fit Type	
	CB	Double Clevis Type (Pin and Washer Split Pin Attached)	
	TA	Rod Side Trunnion Type	
	TB	Head Side Trunnion Type	

*1: Single side foot type (LS type) has a max. stroke of 50 mm.

❷ Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

❸ Piping thread type

Code	Content
Blank	Rc Thread
NN	NPT Thread (Custom Order Product)
GN	G Thread (Custom Order Product)

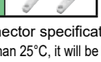
❹ Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20	5 to 750	Every 1 mm
ø25	5 to 750	
ø32	5 to 750	
ø40	5 to 750	

Note: For minimum stroke with switch and maximum/minimum stroke with bellows, refer to P. 184.

❺ Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*5

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

❻ Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

Note: The maximum number of switches that can be installed is 3. If 4 or more are required, please order the insufficient switch mounting brackets separately by individual model number.

❽ Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Washer Split Pin Attached)	
	B2	Double Yoke Bracket (Pin and retaining ring included)	

*1: "I" and "Y" cannot be selected at the same time.

❼ Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
	J	Bellows	100°C	200°C	
	L		250°C	400°C	
*1	F	With Push-in Fitting (Straight)			
*1	FE	With Push-in Fitting (Elbow)			
*3	M	Piston Rod Material (Stainless Steel)			
	V	Boss Cut			

*1: For F: With Push-in fitting (Straight) and FE: With Push-in fitting (Elbow), the applicable tube O.D. is ø6.
*2: Instantaneous maximum temperature is the temperature when fire, chips, etc. momentarily contact the bellows.
*3: When Bore size ø20 or 25 is selected, the piston rod material is already stainless steel. (If M is selected, the rod nut material will also be stainless steel.)

About Custom Product Specifications

For details, see P. 287.

Code	Content
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
-O	Low Speed Type
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
CMK2-C-..... -XJ9

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

● Uses food-grade lubricant usable in food manufacturing processes

CMK2-C-..... -FP1

*For combinations of variations and options, see P. 109.

Switch Single Unit Model No. Notation Method

● Switch body + Mounting bracket set

CMK2	T0H	20
	❺ Switch Model No.	❷ Bore size

● Switch body only

SW	T0H
	❺ Switch Model No.

● Mounting bracket set

CMK2	T	20
	Mounting bracket	❷ Bore size

Specifications

Item		CMK2-C			
Bore Size	mm	ø20	ø25	ø32	ø40
Actuation method		Double Acting/With Air Cushion			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.1			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	-10 to 60 (No freezing)			
Port Size		Rc 1/8			
Stroke tolerance	mm	$^{+2.0}_{0}$ (Up to 200), $^{+2.4}_{0}$ (Over 200,)			
Operating Piston Speed	mm/s	50 to 700			
Cushion		Air Cushion			
Effective Cushion Length	mm	12			
Allowable Absorbed Energy	J	0.34	0.46	0.88	1.27
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)			

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke		Min. Stroke	
		Without Bellows	With Bellows	Without Bellows Bellows "L"	Bellows "J"
ø20	25, 50, 75, 100, 150, 200, 250 300	750	650	5	25
ø25					
ø32					
ø40					

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: Single side foot type (LS type) has a maximum stroke of 50 mm.
*3: For bellows "J" with a stroke of less than 25 mm, please inquire each time.

Min. Stroke with Switch

(Unit: mm)

Number of Switches	1					2				
	Solid State			Reed		Solid State			Reed	
Bore Size (mm)	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8
ø20	10					25	30	35	25	35
ø25	10					25	30	35	25	35
ø32	10					25	30	35	25	35
ø40	10					25	30	35	25	35

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm								Switch Weight (Per Piece)	Switch Rail + Band Weight	Added Weight per S = 10 mm
	Basic type 00	Axial Foot Type (LB)	Axial Foot Type (LS)	Flange Type (FA/FB)	Single Clevis Type (CA)	Clevis Type (CC)	Double Clevis Type (CB)	Trunnion Type (TA/TB)			
ø20	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	Please refer to the weight listed in the switch specifications of P. 971	0.005	0.01
ø25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
ø32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
ø40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

(Example) Product Weight of CMK2-C-FA-32-50-T0H-D

Product Weight at S = 0 mm: .... 0.45 kg
Added weight at S=50 mm.... Added weight at S=10 mm $0.02 \times \frac{\text{Product Stroke (50)}}{10} = 0.10$ kg
Weight of 2 switches: .... 0.036 kg
Weight of switch rail + 2 bands: .... 0.018 kg
Product Weight ..... 0.45 kg+0.1 kg+0.036 kg+0.018 kg=0.604 kg

(Unit: N)

Theoretical Thrust Table

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	31.4	47.1	62.8	94.2	1.26 × 10²	1.57 × 10²	1.88 × 10²	2.20 × 10²	2.51 × 10²	2.83 × 10²	3.14 × 10²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18 × 10²	1.41 × 10²	1.65 × 10²	1.88 × 10²	2.12 × 10²	2.36 × 10²
ø25	Push	49.1k	73.6	98.2	1.47 × 10²	1.96 × 10²	2.45 × 10²	2.95 × 10²	3.44 × 10²	3.93 × 10²	4.42 × 10²	4.91 × 10²
	Pull	37.8	56.7	75.6	1.13 × 10²	1.51 × 10²	1.89 × 10²	2.27 × 10²	2.64 × 10²	3.02 × 10²	3.40 × 10²	3.78 × 10²
ø32	Push	80.4	1.21 × 10²	1.61 × 10²	2.41 × 10²	3.22 × 10²	4.02 × 10²	4.83 × 10²	5.63 × 10²	6.43 × 10²	7.24 × 10²	8.04 × 10²
	Pull	69.1	1.04 × 10²	1.38 × 10²	2.07 × 10²	2.76 × 10²	3.46 × 10²	4.15 × 10²	4.84 × 10²	5.53 × 10²	6.22 × 10²	6.91 × 10²
ø40	Push	1.26 × 10²	1.88 × 10²	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²	1.01 × 10³	1.13 × 10³	1.26 × 10³
	Pull	1.10 × 10²	1.65 × 10²	2.21 × 10²	3.31 × 10²	4.41 × 10²	5.51 × 10²	6.62 × 10²	7.72 × 10²	8.82 × 10²	9.92 × 10²	1.10 × 10³

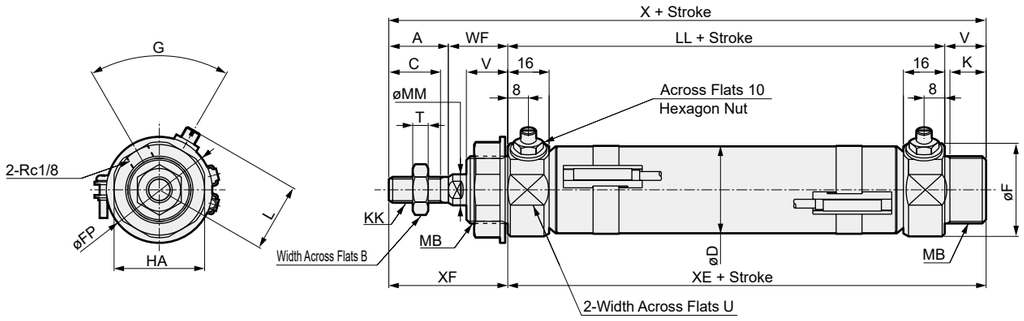
Mounting Bracket Model No. Notation Method

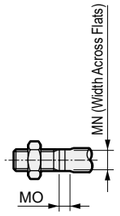
Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Basic Type (00) *3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial Foot Type (LB/LS)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40
Single Clevis Type (CA)	M1-CA-20	M1-CA-30	M1-CA-30	M1-CA-30
Double clevis type (CB)	M1-CB-20	M1-CB-30	M1-CB-30	M1-CB-30

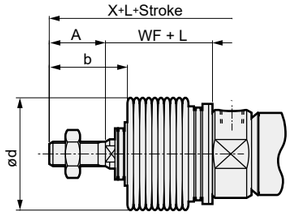
*1: For axial foot type and flange type mounting brackets, mounting nuts and toothed washers are included. Also, for trunnion type, mounting nuts are included.
*2: For axial foot type (both sides), 2 sets of "M1-LB-□" from the table above are required.
*3: Only mounting nuts and toothed lock washers are included. One set is included with the basic type (00) of the product, but use this if additional sets are required.

Outline Dimension Drawing

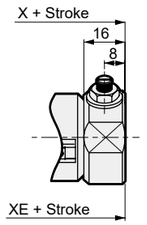
● Basic type (00)







[With Bellows]



[Boss Cut Type]

Code / Bore Size (mm)	A	B	C	D	F	FP	G	HA	K	KK	L	LL	MB	MM	MN	MO
ø20	20	13	18	21.4	28	29	70	26	12	M8 × 1.0	23 to 25	66	M18 × 1.5	10	8	5
ø25	23	17	20	26.4	32	41	60	35	14	M10 × 1.25	25 to 27	69	M26 × 1.5	12	10	5
ø32	23	17	20	33.6	36	41	60	35	14	M10 × 1.25	25 to 26.5	69	M26 × 1.5	12	10	5
ø40	25	19	22	41.6	45	41	60	35	14	M12 × 1.5	31.5 to 33	73	M26 × 1.5	14	12	6

Code								With Bellows			Boss Cut Type	
Bore Size (mm)	T	U	V	WF	X	XE	XF	b	d	L	X	XE
ø20	5	24	14	24	124	80	44	30	30	(Stroke / 3) + 6	110	66
ø25	6	30	16	23	131	85	46	32	46	(Stroke / 3.25) + 7	115	69
ø32	6	34	16	23	131	85	46	32	46	(Stroke / 3.25) + 7	115	69
ø40	7	43	16	23	137	89	48	34	46	(Stroke / 3.25) + 7	121	73

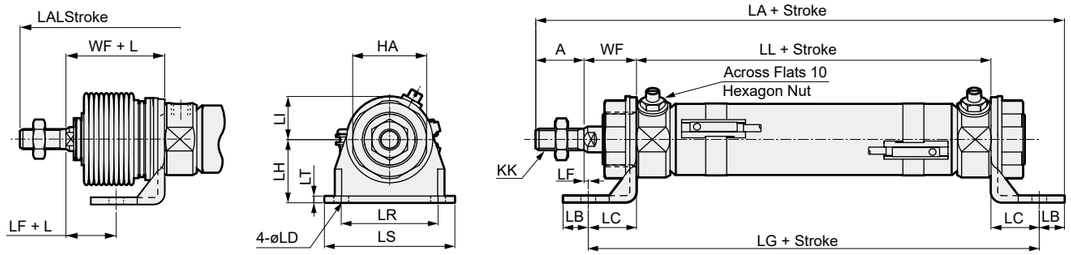
*1: Round up the L dimension to the nearest whole number.

***2: For dimensions with each switch, see P. 284 to P. 286.**

***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Axial Foot Type (LB)



[With Bellows]

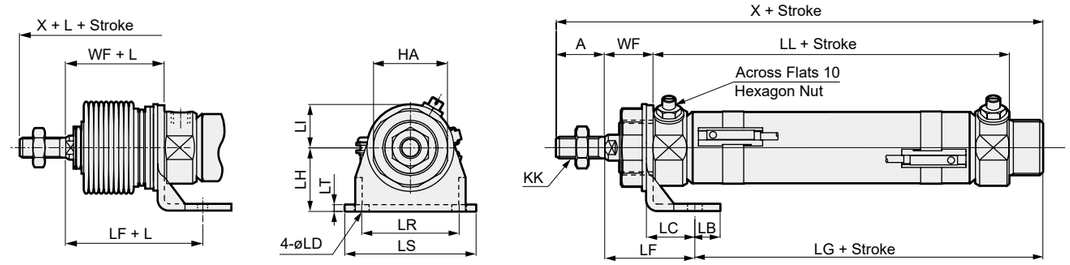
Code / Bore Size (mm)	A	HA	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LI	LR	LS	LT	With Bellows L
ø20	20	26	M8 × 1.0	66	24	138	10	18	6	6	102	25	15	30	44	3.2	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	69	23	150	12	23	7	0	115	30	20.5	46	62	3.2	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	69	23	150	12	23	7	0	115	30	20.5	46	62	3.2	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	73	23	156	12	23	7	0	119	30	22.5	46	62	3.2	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.

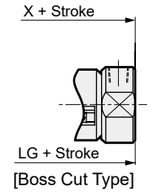
***2: For dimensions with each switch, see P. 284 to P. 286.**

***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Single Side Axial Foot Type (LS)



[With Bellows]



[Boss Cut Type]

Code / Bore Size (mm)	A	HA	KK	LL	WF	X	LB	LC	LD	LF	LG	LH	LI	LR	LS	LT	With Bellows L	Boss Cut Type X	Boss Cut Type LG
ø20	20	26	M8 × 1.0	66	24	124	10	18	6	38.8	65.2	25	15	30	44	3.2	(Stroke / 3) + 6	110	51.2
ø25	23	35	M10 × 1.25	69	23	131	12	23	7	42.8	65.2	30	20.5	46	62	3.2	(Stroke / 3.25) + 7	115	49.2
ø32	23	35	M10 × 1.25	69	23	131	12	23	7	42.8	65.2	30	20.5	46	62	3.2	(Stroke / 3.25) + 7	115	49.2
ø40	25	35	M12 × 1.5	73	23	137	12	23	7	42.8	69.2	30	22.5	46	62	3.2	(Stroke / 3.25) + 7	121	53.2

*1: Max. stroke is 50 mm.

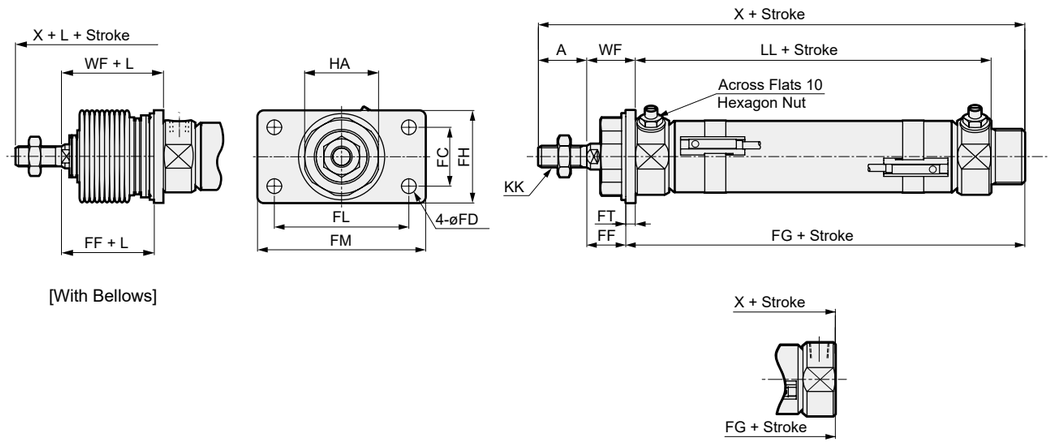
*2: Round up the L dimension to the nearest whole number.

***3: For dimensions with each switch, see P. 284 to P. 286.**

***4: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)



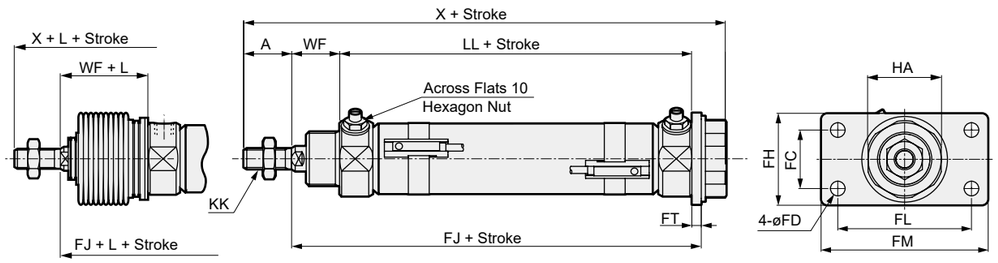
[With Bellows]

[Boss Cut Type]

Code	Rod Side Flange Type (FA) Mounting Dimensions														With Bellows	Boss Cut Type	
Bore Size (mm)	A	HA	KK	LL	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	L	X	FG
ø20	20	26	M8 × 1.0	66	24	124	20	6	20.8	83.2	34	40	54	3.2	(Stroke / 3) + 6	110	69.2
ø25	23	35	M10 × 1.25	69	23	131	28	7	18.5	89.5	44	64	80	4.5	(Stroke / 3.25) + 7	115	73.5
ø32	23	35	M10 × 1.25	69	23	131	28	7	18.5	89.5	44	64	80	4.5	(Stroke / 3.25) + 7	115	73.5
ø40	25	35	M12 × 1.5	73	23	137	28	7	18.5	93.5	44	64	80	4.5	(Stroke / 3.25) + 7	121	77.5

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Head Side Flange Type (FB)



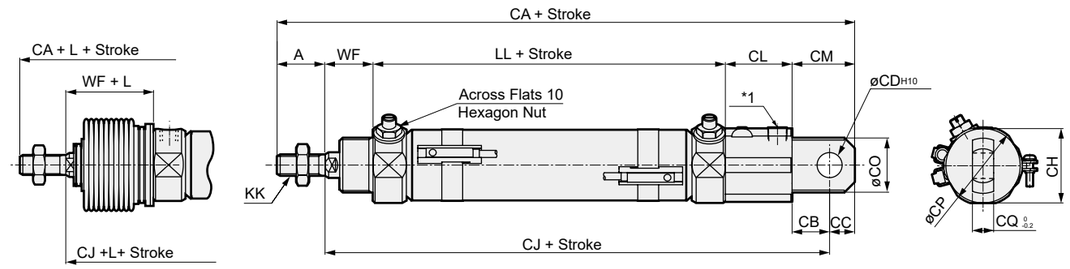
[With Bellows]

Code	Head Side Flange Type (FB) Mounting Dimensions												With Bellows
Bore Size (mm)	A	HA	KK	LL	WF	X	FC	FD	FH	FJ	FL	FM	FT	L
ø20	20	26	M8 × 1.0	66	24	124	20	6	34	93.2	40	54	3.2	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	69	23	131	28	7	44	96.5	64	80	4.5	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	69	23	131	28	7	44	96.5	64	80	4.5	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	73	23	137	28	7	44	100.5	64	80	4.5	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Single Clevis Type (CA)

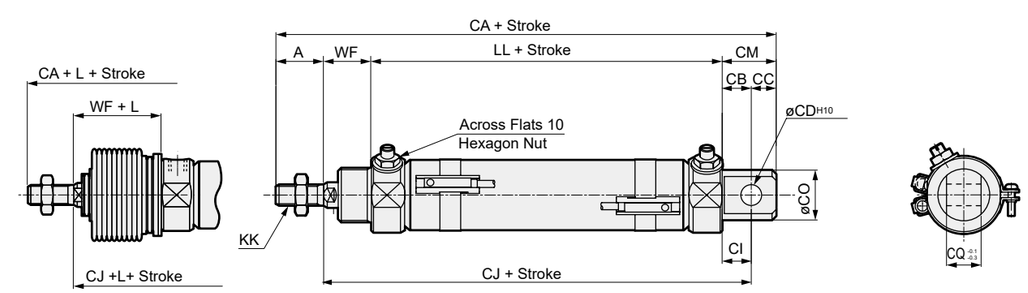


[With Bellows]

Code	Single Clevis Type (CA) Mounting Dimensions															With Bellows
Bore Size (mm)	A	KK	LL	WF	CA	CB	CC	CD	CH	CJ	CL	CM	CO	CP	CQ	L
ø20	20	M8 × 1.0	66	24	165	14	10	10	26	135	31	24	22	28	8	(Stroke / 3) + 6
ø25	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	10	(Stroke / 3.25) + 7
ø32	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	10	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	73	23	183	18	12	12	35	146	32	30	26	37	10	(Stroke / 3.25) + 7

*1: Not a piping port.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, see P. 284 to P. 286.**
***4: For outer dimensions diagram of accessories, refer to P. 123.**

●Single Clevis Integrated Type (CC)
●Single Clevis Bushing Press-fit Type (CC1)



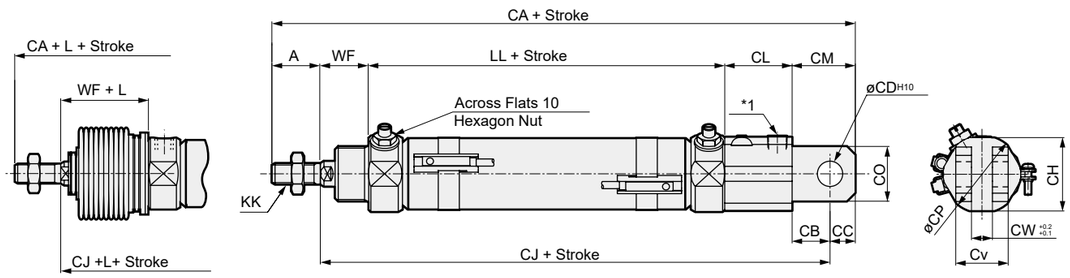
[With Bellows]

Code	Single Clevis Integrated Type (CC), Bushing Press-fit Type (CC1) Mounting Dimensions													With Bellows
Bore Size (mm)	A	KK	LL	WF	CA	CB	CC	CD	CJ	CI	CM	CO	CQ	L
ø20	20	M8 × 1.0	66	24	131	12	9	8	102	11	21	22	16	(Stroke / 3) + 6
ø25	23	M10 × 1.25	69	23	136	12	9	8	104	11	21	24	16	(Stroke / 3.25) + 7
ø32	23	M10 × 1.25	69	23	141	14	12	10	106	13	26	24	16	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	73	23	151	16	14	12	112	15	30	30	20	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Double clevis type (CB)



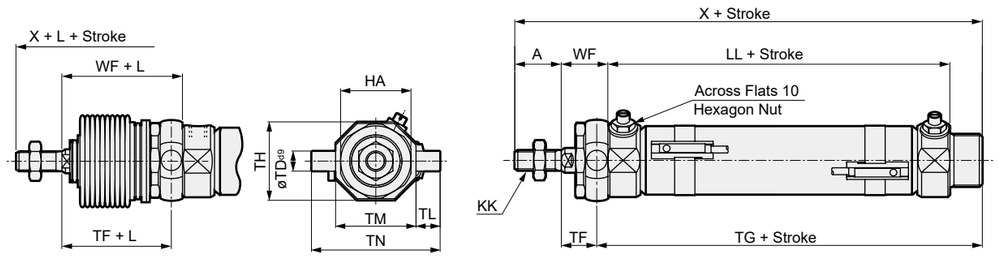
[With Bellows]

Code	Double Clevis Type (CB) Mounting Dimensions																With Bellows
Bore Size (mm)	A	KK	LL	WF	CA	CB	CC	CD	CH	CJ	CL	CM	CO	CP	Cv	CW	L
ø20	20	M8 × 1.0	66	24	165	14	10	10	26	135	31	24	22	28	19	8	(Stroke / 3) + 6
ø25	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	25	10	(Stroke / 3.25) + 7
ø32	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	25	10	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	73	23	183	18	12	12	35	146	32	30	26	37	25	10	(Stroke / 3.25) + 7

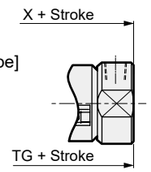
*1: Not a piping port.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, see P. 284 to P. 286.**
***4: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Rod side trunnion type (TA)



[With Bellows]

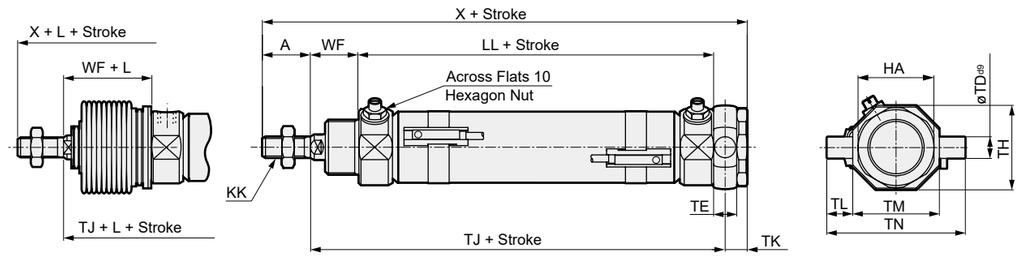


[Boss Cut Type]

Code	Rod Side Trunnion Type (TA) Mounting Dimensions													With Bellows	Boss Cut Type	
Bore Size (mm)	A	HA	KK	LL	WF	X	TD	TF	TG	TH	TL	TM	TN	L	X	TG
ø20	20	26	M8 × 1.0	66	24	124	8	19.5	84.5	29.5	8	30	46	(Stroke / 3) + 6	110	70.5
ø25	23	35	M10 × 1.25	69	23	131	10	17.5	90.5	39	12	40	64	(Stroke / 3.25) + 7	115	74.5
ø32	23	35	M10 × 1.25	69	23	131	10	17.5	90.5	39	12	40	64	(Stroke / 3.25) + 7	115	74.5
ø40	25	35	M12 × 1.5	73	23	137	10	17.5	94.5	44	9.5	53	72	(Stroke / 3.25) + 7	121	78.5

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Head Side Trunnion Type (TB)

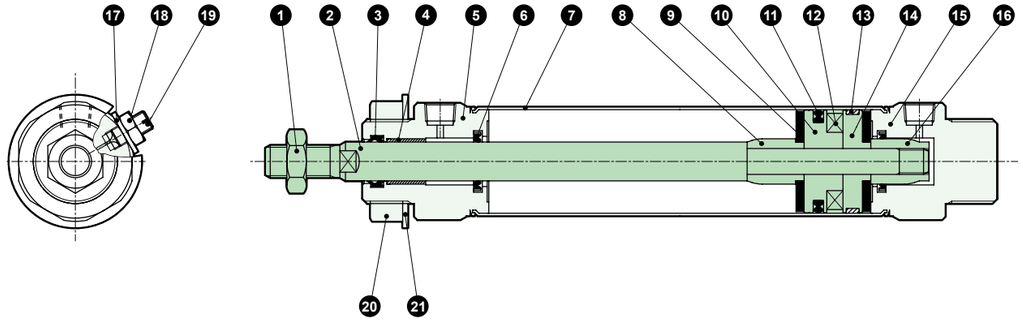


[With Bellows]

Code	Head Side Trunnion Type (TB) Mounting Dimensions													With Bellows
Bore Size (mm)	A	HA	KK	LL	WF	X	TD	TE	TH	TJ	TK	TL	TM	TN	L
ø20	20	26	M8 × 1.0	66	24	124	8	9	29.5	94.5	9.5	8	30	46	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	69	23	131	10	11	39	97.5	10.5	12	40	64	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	69	23	131	10	11	39	97.5	10.5	12	40	64	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	73	23	137	10	11	44	101.5	10.5	9.5	53	72	(Stroke / 3.25) + 7

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Internal Structure Diagram / Material

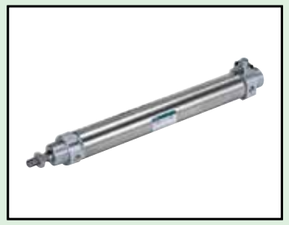


Do not disassemble

Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate
2	Piston Rod	ø20, ø25: Stainless Steel ø32, ø40: Carbon Steel	Industrial Hard Chrome Plating
3	Rod Packing	Nitrile Rubber	
4	Bushing	ø20, ø25, ø32: Bearing Alloy ø40: Oil-Impregnated Bearing Alloy	
5	Rod Cover	Aluminum Alloy	
6	Cushion Packing	Urethane Rubber	
7	Cylinder Tube	Stainless Steel	
8	Cushion Ring A	Aluminum Alloy	
9	Cushion Rubber	Urethane Rubber	
10	Piston A	Aluminum Alloy	
11	Piston Packing	Nitrile Rubber	
12	Magnet	Plastic	
13	Wear Ring	Polyacetal	
14	Piston B	Aluminum Alloy	
15	Head Cover	Aluminum Alloy	
16	Cushion Ring B	Aluminum Alloy	
17	Seal Washer	Nitrile Rubber, Steel	
18	Hexagon Nut	Steel	Zinc Chromate
19	Cushion Adjusting Needle	Copper	Zinc Chromate
20	Nut	Steel	Zinc Chromate
21	Toothed Lock Washer	Steel	Zinc Chromate

MEMO

General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending

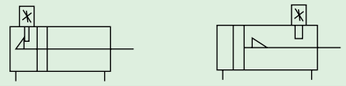


Small bore size cylinder
Double Acting, Drop Prevention Type

CMK2-Q Series

●Bore Size: ø20, ø25, ø32, ø40

Circuit Diagram Symbol



RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

CMK2-Q – 00 – 20 – 25 – R – M I

Model No. ❶ ❷ ❸ ❹ ❺

With Switch
(Built-in magnet for switch)

CMK2-Q – 00 – 20 – 25 – R – T0H – R – M I

Model No. ❶ Mounting type ❷ Bore size ❸ Piping thread type ❹ Stroke ❺ Fall prevention mechanism ❻ Switch Model No. ❼ Number of Switches ❽ Option ❾ Accessories

❶Mounting type

Mounting brackets are included with the product and shipped.

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and Washer Split Pin Attached)	
*1 TA	Rod Side Trunnion Type	
*1 TB	Head Side Trunnion Type	

*1: TA with rod side drop prevention and TB with head side drop prevention cannot be manufactured.

❷Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

❸Piping thread type

Code	Content
Blank	Rc Thread
NN	NPT Thread (Custom Order Product)
GN	G Thread (Custom Order Product)

❹Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20	5 to 750	Every 1 mm
ø25	5 to 750	
ø32	5 to 750	
ø40	5 to 750	

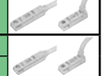
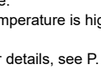
Note: For minimum stroke with switch, refer to P. 196.

❺Fall prevention mechanism

Code	Content	
R	Rod Side With Fall Prevention	
H	Head Side With Fall Prevention	

❻Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp / Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	1-Color Off-Delay Type	2-wire	—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❼Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

Note: The maximum number of switches that can be installed is 3. If 4 or more pcs are required, please arrange for the shortage of switch mounting brackets separately.

❽Option

	Code	Content	
*1	F	With Push-in Fitting (Straight)	
*1	FE	With Push-in Fitting (Elbow)	
*3	M	Piston Rod Material (Stainless Steel)	
*2	M0	Non-Locking Manual Device (Release bolt attached)	
*2	M1	Locking Manual Device	

*1: For F: With Push-in fitting (Straight) and FE: With Push-in fitting (Elbow), the applicable tube O.D. is ø6.
*2: If "M0" or "M1" is not selected as an option, it will be a non-locking manual device only. Release bolt is not included.
*3: When Bore size ø20 or 25 is selected, the piston rod material is already stainless steel. (If M is selected, the rod nut material will also be stainless steel.)

❾Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Washer Split Pin Attached)	
	B2	Double Yoke Bracket (Pin and retaining ring included)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, see P. 287.

Code	Content
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
CMK2-Q – ..... – XJ9

Rechargeable Battery Compatible Specification (Catalog No. CC-1226AA)

●Design compatible with rechargeable battery manufacturing process

CMK2-Q – ..... – P4*

*Please contact us for details.

*For combinations of variations and options, see P. 109.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

CMK2 – T0H – 20

❻ Switch Model No. ❷ Bore size

●Switch body only

SW – T0H

❻ Switch Model No.

●Mounting bracket set

CMK2 – T – 20

Mounting bracket ❷ Bore size

Specifications

Item		CMK2-Q			
Bore Size	mm	ø20	ø25	ø32	ø40
Actuation method		Double Acting, Drop Prevention Type			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.15			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	-10 to 60 (No freezing)			
Port Size		Rc 1/8			
Stroke tolerance	mm	$^{+2.0}_{0}$ (Up to 200), $^{+2.4}_{0}$ (Over 200,)			
Operating Piston Speed	mm/s	50 to 500			
Cushion		Rubber Cushion			
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)			
Fall prevention mechanism		Head Side or Rod Side			
Holding Force	N	Max. Thrust × 0.7			
Allowable Absorbed Energy	J	0.166	0.308	0.424	0.639

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke
ø20	25, 50, 75, 100, 150, 200, 250, 300	750	750
ø25			
ø32			
ø40			

Note: Intermediate strokes can be produced in 1 mm increments.

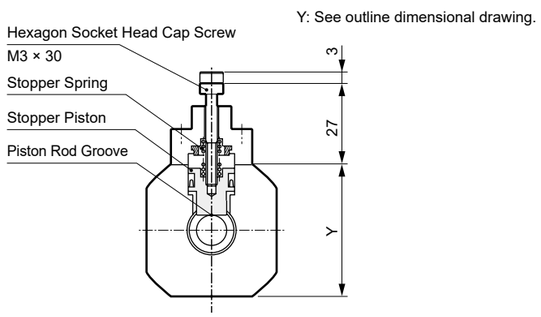
Min. Stroke with Switch

(Unit: mm)

Number of Switches	1					2				
	Solid State			Reed		Solid State			Reed	
Bore Size (mm)	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8
ø20	10					25	30	35	25	35
ø25	10					25	30	35	25	35
ø32	10					25	30	35	25	35
ø40	10					25	30	35	25	35

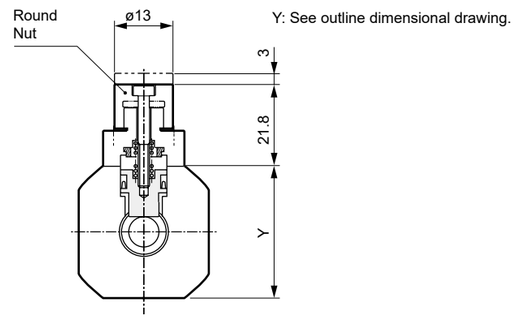
[Explanation of Manual Device]

● Non-locking manual override (Option code: M0) 00



Screw the hexagon socket head cap screw (M3 × 30) into the stopper piston, and if you pull the bolt 3 mm with a force of 20 N or more, the stopper piston will move and the lock will be released. (No load horizontal mounting, opposite side port pressurized) Also, when you release your hand, the stopper piston returns to its original position by the built-in spring, and if it enters the piston rod groove, the piston is locked.

● Locking manual override (Option code: M1) 00



When the round nut is turned to the left (counterclockwise), the stopper piston moves and the lock is released. Also, when turned to the right (clockwise) to the lock position, the stopper piston returns, and if it enters the piston rod groove, the piston is locked.

⚠ Before use, be sure to read the precautions for use for Fall Prevention Type on P. 288 to P. 290.

Cylinder Weight

●CMK2-Q-H

(Unit: kg)

Item/Mounting Style / Bore size (mm)	Product Weight at Stroke (S) = 0 mm								Switch Weight (Per Piece)	Switch Rail + Band Weight	Added Weight per S = 10 mm
	Basic type 00	Axial Foot Type (LB)	Axial Foot Type (LS)	Flange Type (FA/FB)	Single Clevis Type (CA)	Clevis Type (CCAA)	Double Clevis Type (CB)	Trunnion Type (TA/TB)			
ø20	0.20	0.35	0.28	0.26	0.35	0.21	0.35	0.25	Refer to the weight listed in the switch specifications on P. 971.	0.005	0.01
ø25	0.29	0.55	0.42	0.44	0.53	0.29	0.53	0.39		0.005	0.01
ø32	0.32	0.58	0.45	0.47	0.56	0.32	0.56	0.42		0.009	0.02
ø40	0.51	0.77	0.64	0.66	0.75	0.53	0.75	0.67		0.009	0.02

●CMK2-Q-R

(Unit: kg)

Item/Mounting Style / Bore size (mm)	Product Weight at Stroke (S) = 0 mm								Switch Weight (Per Piece)	Switch Rail + Band Weight	Added Weight per S = 10 mm
	Basic Type (00)	Axial Foot Type (LB)	Axial Foot Type (LS)	Flange Type (FA/FB)	Single Clevis Type (CA)	Clevis Type (CC)	Double Clevis Type (CB)	Trunnion Type (TA/TB)			
ø20	0.19	0.34	0.27	0.25	0.34	0.20	0.34	0.24	Refer to the weight listed in the switch specifications on P. 971.	0.005	0.01
ø25	0.29	0.55	0.42	0.44	0.53	0.29	0.53	0.39		0.005	0.01
ø32	0.32	0.58	0.45	0.47	0.56	0.32	0.56	0.42		0.009	0.02
ø40	0.50	0.76	0.63	0.65	0.74	0.52	0.74	0.66		0.009	0.02

(Example) Product mass of CMK2-Q-FA-32-50-R-T0H-D

Product mass at S = 0 mm: ..... 0.47 kg
Added weight at S=50 mm..... Added weight at S=10 mm 0.02 × $\frac{\text{Product Stroke (50)}}{10}$ = 0.10 kg
Weight of 2 switches: .....0.036 kg
Weight of switch rail + 2 bands: ..0.018 kg
Product weight .....0.47 kg + 0.1 kg + 0.036 kg + 0.018 kg = 0.624 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	47.1	62.8	94.2	1.26 × 10²	1.57 × 10²	1.88 × 10²	2.20 × 10²	2.51 × 10²	2.83 × 10²	3.14 × 10²
	Pull	35.3	47.1	70.7	94.2	1.18 × 10²	1.41 × 10²	1.65 × 10²	1.88 × 10²	2.12 × 10²	2.36 × 10²
ø25	Push	73.6	98.2	1.47 × 10²	1.96 × 10²	2.45 × 10²	2.95 × 10²	3.44 × 10²	3.93 × 10²	4.42 × 10²	4.91 × 10²
	Pull	56.7	75.6	1.13 × 10²	1.51 × 10²	1.89 × 10²	2.27 × 10²	2.64 × 10²	3.02 × 10²	3.40 × 10²	3.78 × 10²
ø32	Push	1.21 × 10²	1.61 × 10²	2.41 × 10²	3.22 × 10²	4.02 × 10²	4.83 × 10²	5.63 × 10²	6.43 × 10²	7.24 × 10²	8.04 × 10²
	Pull	1.04 × 10²	1.38 × 10²	2.07 × 10²	2.76 × 10²	3.46 × 10²	4.15 × 10²	4.84 × 10²	5.53 × 10²	6.22 × 10²	6.91 × 10²
ø40	Push	1.88 × 10²	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²	1.01 × 10²	1.13 × 10³	1.26 × 10³
	Pull	1.65 × 10²	2.21 × 10²	3.31 × 10²	4.41 × 10²	5.51 × 10²	6.62 × 10²	7.72 × 10²	8.82 × 10²	9.92 × 10²	1.10 × 10³

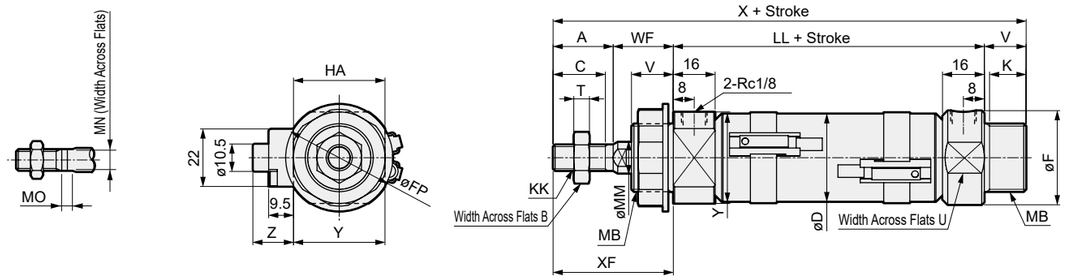
Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Basic Type (00) *3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial Foot Type (LB)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40
Single Clevis Type (CA)	M1-CA-20	M1-CA-30	M1-CA-30	M1-CA-30
Double clevis type (CB)	M1-CB-20	M1-CB-30	M1-CB-30	M1-CB-30

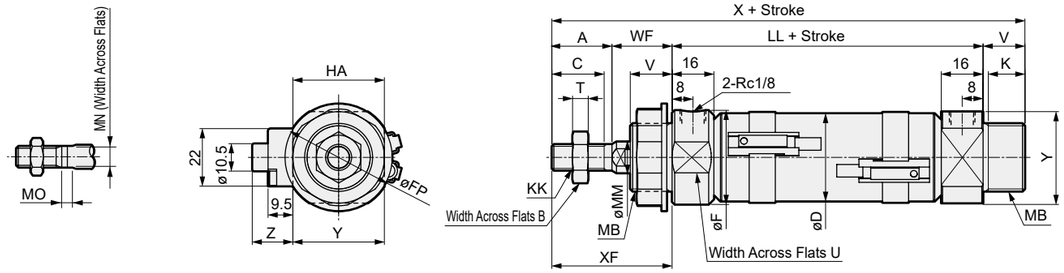
*1: For axial foot type and flange type mounting brackets, mounting nuts and toothed washers are included. Also, for trunnion type, mounting nuts are included.
*2: For axial foot type (both sides), 2 sets of "M1-LB-□" from the table above are required.
*3: Only mounting nuts and toothed lock washers are included. One set is included with the basic type (00) of the product, but use this if additional sets are required.

Outline Dimension Drawing

● Basic Type (00)
(With rod side fall prevention)



(With head side fall prevention)



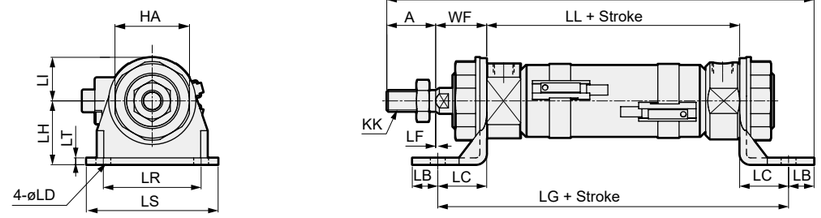
Code	Basic Type (00) Basic Dimensions										
Bore Size (mm)	A	B	C	D	FP	HA	K	KK	LL	MB	MM
ø20	20	13	18	21.4	29	26	12	M8 × 1.0	66	M18 × 1.5	10
ø25	23	17	20	26.4	41	35	14	M10 × 1.25	69	M26 × 1.5	12
ø32	23	17	20	33.6	41	35	14	M10 × 1.25	69	M26 × 1.5	12
ø40	25	19	22	41.6	41	35	14	M12 × 1.5	73	M26 × 1.5	14

Code									
Bore Size (mm)	MN	MO	T	V	WF	X	XF	Y	Z
ø20	8	5	5	14	24	124	44	31	15.5
ø25	10	5	6	16	23	131	46	35	15.5
ø32	10	5	6	16	23	131	46	35	15.5
ø40	12	6	7	16	23	137	48	43	15.5

*1: For outline dimensions with manual device, refer to the diagram in [Explanation of Manual Device] on P. 196.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

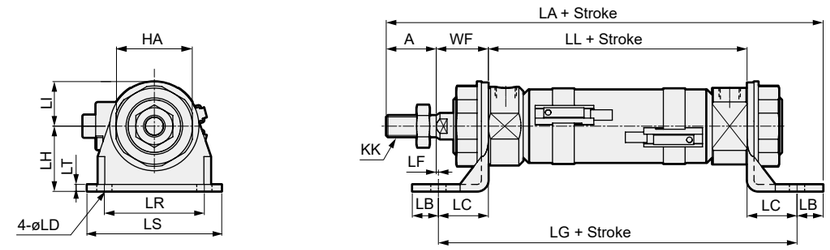
● Axial Foot Type (LB)
(With rod side fall prevention)



Code	Axial Foot Type (LB) Mounting Dimensions															
Bore Size (mm)	A	HA	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LI	LR	LS	LT
ø20	20	26	M8 × 1.0	66	24	138	10	18	6	6	102	25	15	30	44	3.2
ø25	23	35	M10 × 1.25	69	23	150	12	23	7	0	115	30	20.5	46	62	3.2
ø32	23	35	M10 × 1.25	69	23	150	12	23	7	0	115	30	20.5	46	62	3.2
ø40	25	35	M12 × 1.5	73	23	156	12	23	7	0	119	30	22.5	46	62	3.2

***1: For dimensions with each switch, see P. 284 to P. 286.**
***2: For outer dimensions diagram of accessories, refer to P. 123.**

(With head side fall prevention)

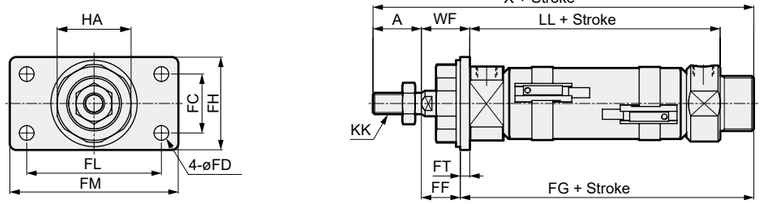


Code	Axial Foot Type (LB) Mounting Dimensions															
Bore Size (mm)	A	HA	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LI	LR	LS	LT
ø20	20	26	M8 × 1.0	66	24	138	10	18	6	6	102	25	15	30	44	3.2
ø25	23	35	M10 × 1.25	69	23	150	12	23	7	0	115	30	20.5	46	62	3.2
ø32	23	35	M10 × 1.25	69	23	150	12	23	7	0	115	30	20.5	46	62	3.2
ø40	25	35	M12 × 1.5	73	23	156	12	23	7	0	119	30	22.5	46	62	3.2

***1: For dimensions with each switch, see P. 284 to P. 286.**
***2: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

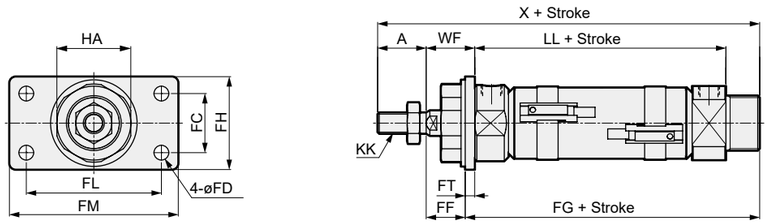
● Rod Side Flange Type (FA)
(With rod side fall prevention)



Code	Rod Side Flange Type (FA) Mounting Dimensions														
Bore Size (mm)	A	HA	KK	LL	WF	X	FC	FD	FF	FG	FH	FL	FM	FT
ø20	20	26	M8 × 1.0	66	24	124	20	6	20.8	83.2	34	40	54	3.2
ø25	23	35	M10 × 1.25	69	23	131	28	7	18.5	89.5	44	64	80	4.5
ø32	23	35	M10 × 1.25	69	23	131	28	7	18.5	89.5	44	64	80	4.5
ø40	25	35	M12 × 1.5	73	23	137	28	7	18.5	93.5	44	64	80	4.5

***1: For dimensions with each switch, see P. 284 to P. 286.**
***2: For outer dimensions diagram of accessories, refer to P. 123.**

(With head side fall prevention)

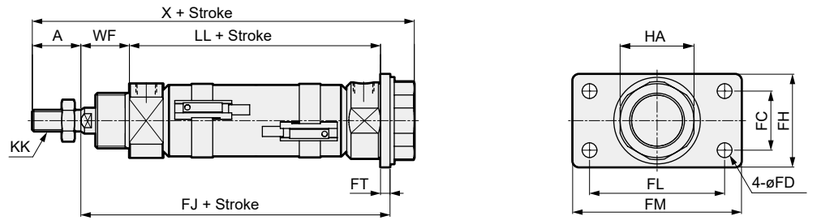


Code	Rod Side Flange Type (FA) Mounting Dimensions															
Bore Size (mm)	A	HA	F	KK	LL	WF	X	FC	FD	FF	FG	FH	FL	FM	FP	FT
ø20	20	26	28	M8 × 1.0	66	24	124	20	6	20.8	83.2	34	40	54	29	3.2
ø25	23	35	32	M10 × 1.25	69	23	131	28	7	18.5	89.5	44	64	80	41	4.5
ø32	23	35	36	M10 × 1.25	69	23	131	28	7	18.5	89.5	44	64	80	41	4.5
ø40	25	35	45	M12 × 1.5	73	23	137	28	7	18.5	93.5	44	64	80	41	4.5

***1: For dimensions with each switch, see P. 284 to P. 286.**
***2: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

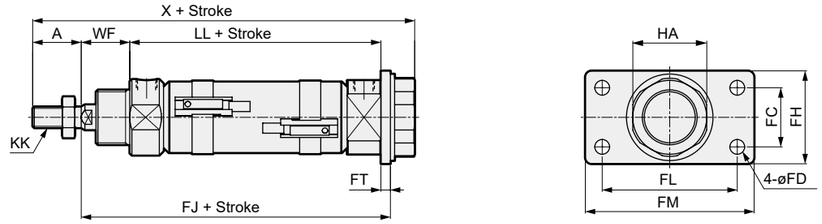
● Head Side Flange Type (FB)
(With rod side fall prevention)



Code	Head Side Flange Type (FB) Mounting Dimensions												
Bore Size (mm)	A	HA	KK	LL	WF	X	FC	FD	FH	FJ	FL	FM	FT
ø20	20	26	M8 × 1.0	66	24	124	20	6	34	93.2	40	54	3.2
ø25	23	35	M10 × 1.25	69	23	131	28	7	44	96.5	64	80	4.5
ø32	23	35	M10 × 1.25	69	23	131	28	7	44	96.5	64	80	4.5
ø40	25	35	M12 × 1.5	73	23	137	28	7	44	100.5	64	80	4.5

***1: For dimensions with each switch, see P. 284 to P. 286.**
***2: For outer dimensions diagram of accessories, refer to P. 123.**

(With head side fall prevention)

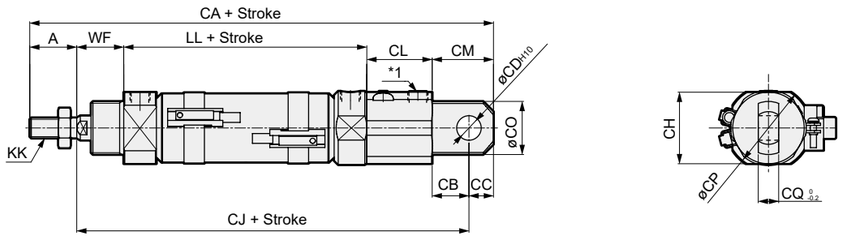


Code	Head Side Flange Type (FB) Mounting Dimensions													
Bore Size (mm)	A	HA	KK	LL	WF	X	FC	FD	FH	FJ	FL	FM	FT
ø20	20	26	M8 × 1.0	66	24	124	20	6	34	93.2	40	54	3.2
ø25	23	35	M10 × 1.25	69	23	131	28	7	44	96.5	64	80	4.5
ø32	23	35	M10 × 1.25	69	23	131	28	7	44	96.5	64	80	4.5
ø40	25	35	M12 × 1.5	73	23	137	28	7	44	100.5	64	80	4.5

***1: For dimensions with each switch, see P. 284 to P. 286.**
***2: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

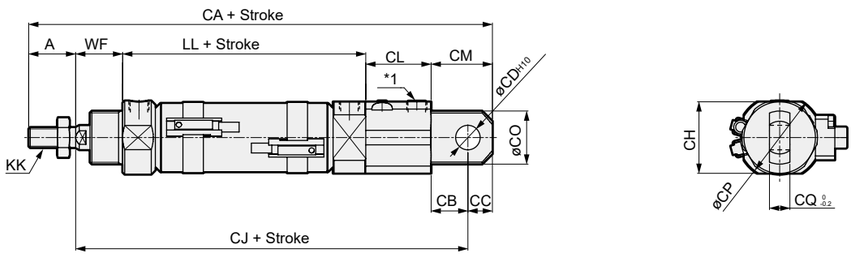
● Single Yoke Clevis Type (CA)
(With rod side fall prevention)



Code	Single Clevis Type (CA) Mounting Dimensions														
Bore Size (mm)	A	KK	LL	WF	CA	CB	CC	CD	CH	CJ	CL	CM	CO	CP	CQ
ø20	20	M8 × 1.0	66	24	165	14	10	10	26	135	31	24	22	28	8
ø25	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	10
ø32	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	10
ø40	25	M12 × 1.5	73	23	183	18	12	12	35	146	32	30	26	37	10

*1: Not a piping port.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

(With head side fall prevention)

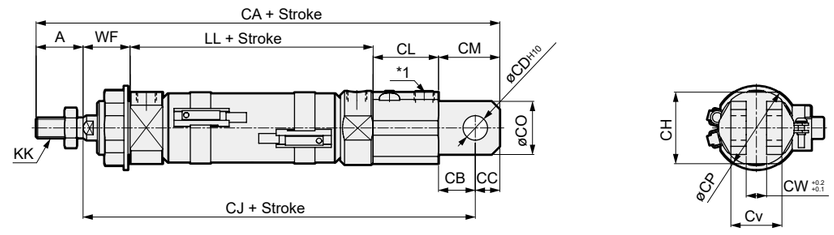


Code	Single Clevis Type (CA) Mounting Dimensions														
Bore Size (mm)	A	KK	LL	WF	CA	CB	CC	CD	CH	CJ	CL	CM	CO	CP	CQ
ø20	20	M8 × 1.0	66	24	165	14	10	10	26	135	31	24	22	28	8
ø25	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	10
ø32	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	10
ø40	25	M12 × 1.5	73	23	183	18	12	12	35	146	32	30	26	37	10

*1: Not a piping port.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

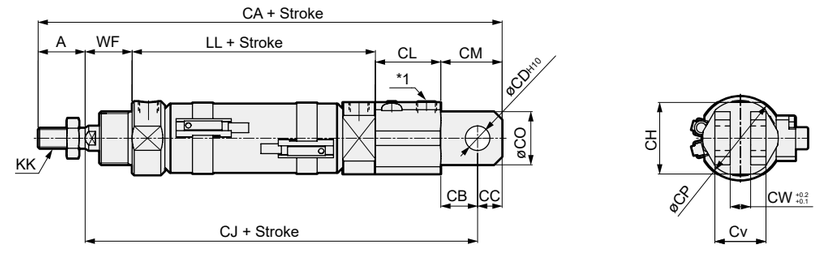
● Double Knuckle Clevis Type (CB)
(With rod side fall prevention)



Code	Double Clevis Type (CB) Mounting Dimensions															
Bore Size (mm)	A	KK	LL	WF	CA	CB	CC	CD	CH	CJ	CL	CM	CO	CP	Cv	CW
ø20	20	M8 × 1.0	66	24	165	14	10	10	26	135	31	24	22	28	19	8
ø25	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	25	10
ø32	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	25	10
ø40	25	M12 × 1.5	73	23	183	18	12	12	35	146	32	30	26	37	25	10

*1: Not a piping port.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

(With head side fall prevention)

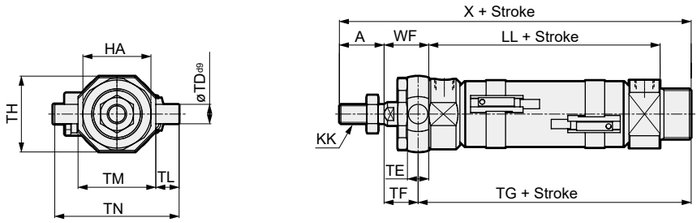


Code	Double Clevis Type (CB) Mounting Dimensions															
Bore Size (mm)	A	KK	LL	WF	CA	CB	CC	CD	CH	CJ	CL	CM	CO	CP	Cv	CW
ø20	20	M8 × 1.0	66	24	165	14	10	10	26	135	31	24	22	28	19	8
ø25	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	25	10
ø32	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	25	10
ø40	25	M12 × 1.5	73	23	183	18	12	12	35	146	32	30	26	37	25	10

*1: Not a piping port.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

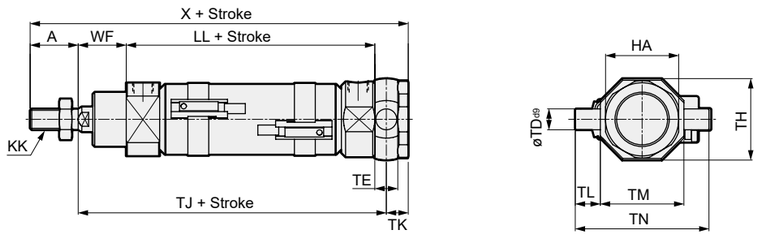
●Rod Side Trunnion Type (TA)
(With head side fall prevention)



Code	Rod Side Trunnion Type (TA) Mounting Dimensions													
Bore Size (mm)	A	HA	KK	LL	WF	X	TD	TE	TF	TG	TH	TL	TM	TN
ø20	20	26	M8 × 1.0	66	24	124	8	9	19.5	84.5	29.5	8	30	46
ø25	23	35	M10 × 1.25	69	23	131	10	11	17.5	90.5	39	12	40	64
ø32	23	35	M10 × 1.25	69	23	131	10	11	17.5	90.5	39	12	40	64
ø40	25	35	M12 × 1.5	73	23	137	10	11	17.5	94.5	44	9.5	53	72

***1: For dimensions with each switch, see P. 284 to P. 286.**
***2: For outer dimensions diagram of accessories, refer to P. 123.**

●Head Side Trunnion Type (TB)
(With rod side fall prevention)

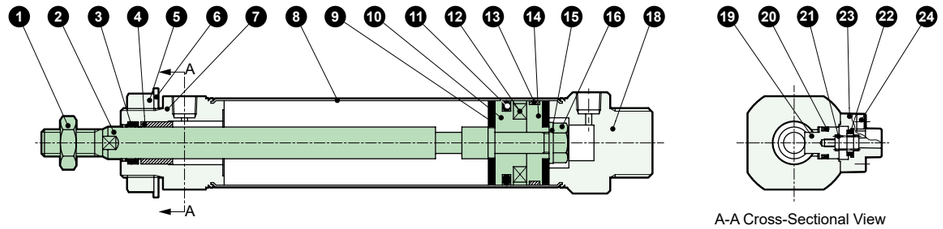


Code	Head Side Trunnion Type (TB) Mounting Dimensions													
Bore Size (mm)	A	HA	KK	LL	WF	X	TD	TE	TH	TJ	TK	TL	TM	TN
ø20	20	26	M8 × 1.0	66	24	124	8	9	29.5	94.5	9.5	8	30	46
ø25	23	35	M10 × 1.25	69	23	131	10	11	39	97.5	10.5	12	40	64
ø32	23	35	M10 × 1.25	69	23	131	10	11	39	97.5	10.5	12	40	64
ø40	25	35	M12 × 1.5	73	23	137	10	11	44	101.5	10.5	9.5	53	72

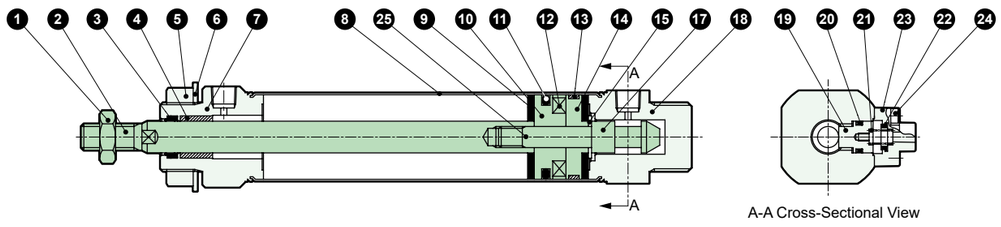
***1: For dimensions with each switch, see P. 284 to P. 286.**
***2: For outer dimensions diagram of accessories, refer to P. 123.**

Internal Structure Diagram / Material

●CMK2-Q (Rod Side Fall Prevention)



●CMK2-Q (Head Side Fall Prevention)



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	13	Wear Ring	Polyacetal	
2	Piston Rod	ø20, ø25: Stainless Steel	Industrial Hard Chrome Plating	14	Piston (B)	Aluminum Alloy	
		ø32, ø40: Steel		15	Spacer	Steel	Zinc Chromate (*1)
3	Rod Packing	Nitrile Rubber		16	Nut	Steel	Zinc Chromate
4	Bushing	ø20: Bearing Alloy		17	Sleeve	Steel	Nitriding Treatment
		ø25, ø32, ø40: Oil Impregnated Bearing Alloy		18	Head Cover	Aluminum Alloy	
5	Nut	Steel	Zinc Chromate	19	Stopper Piston	Steel	Nitriding Treatment
6	Toothed Lock Washer	Steel	Zinc Chromate	20	Piston Packing (B)	Nitrile Rubber	
7	Rod Cover	Aluminum Alloy		21	Spring	Steel	Painting
8	Cylinder Tube	Stainless Steel		22	Cushion Rubber (B)	Urethane Rubber	
9	Cushion Rubber (A)	Urethane Rubber		23	Stopper Cover	Aluminum Alloy	Chromate
10	Piston (A)	Aluminum Alloy		24	Hexagon Socket Head Cap Screw	Alloy Steel	Zinc Chromate
11	Piston Packing (A)	Nitrile Rubber		25	Spring Pin	Steel	Black Oxide or Phosphate Coating
12	Magnet	Plastic					

*1: For ø40 with rod side fall prevention, ⑮ spacer is not included.

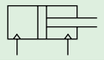


Small bore size cylinder
Double Acting/Fine Speed Type

CMK2-F Series

●Bore Size: ø20, ø25, ø32, ø40

Circuit Diagram
Symbol



RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

CMK2-F – LB – 20 – [ ] – 100 ——— V I

Model No. ❶ ❷ ❸ ❹ ❽ ❽

With Switch
(Built-in magnet for switch)

CMK2-F – LB – 20 – [ ] – 100 – T0H – R – V – I

Model No. ❶ Mounting type ❷ Bore size ❸ Piping thread type ❹ Stroke ❺ Switch Model No. ❻ Number of Switches ❼ Option ❽ Accessories

❶Mounting type

Mounting brackets are included with the product and shipped.

Code	Content	
00	Basic type	
LB	Double Side Axial Foot Type	
*1 LS	Single Side Axial Foot Type (Rod Side)	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type	
CC	Single Clevis Integrated Type	
CB	Double Clevis Type (Pin and Washer Split Pin Attached)	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

*1: Single side foot type (LS type) has a max. stroke of 50 mm.

❷Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

❸Piping thread type

Code	Content
Blank	Rc Thread
NN	NPT Thread (Custom Order Product)
GN	G Thread (Custom Order Product)

❹Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20	5 to 750	Every 1 mm
ø25	5 to 750	
ø32	5 to 750	
ø40	5 to 750	

Note: For minimum stroke with switch, refer to P. 208.

❺Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*5

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

❻Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

Note: The maximum number of switches that can be installed is 3. If 4 or more are required, please order the insufficient switch mounting brackets separately by individual model number.

❼Option

	Code	Content	
*1	M	Piston Rod Material (Stainless Steel)	
	V	Boss Cut	

*1: When Bore size ø20 or 25 is selected, the piston rod material is already stainless steel. (If M is selected, the rod nut material will also be stainless steel.)

❽Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Washer Split Pin Attached)	
	B2	Double Yoke Bracket (Pin and retaining ring included)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, see P. 287.

Code	Content
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
CMK2-F – ..... – XJ9

*For combinations of variations and options, see P. 109.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

CMK2 – T0H – 20

❺ Switch Model No. ❷ Bore size

●Switch body only

SW – T0H

❺ Switch Model No.

●Mounting bracket set

CMK2 – T – 20

Mounting bracket ❷ Bore size

Specifications

Item		CMK2-F			
Bore Size	mm	ø20	ø25	ø32	ø40
Actuation method		Double Acting Type			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.1			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	5 to 60			
Port Size		Rc 1/8			
Stroke tolerance	mm	$^{+2.0}_{0}$ (Up to 200), $^{+2.4}_{0}$ (Over 200,)			
Operating Piston Speed	mm/s	1 to 200			
Cushion		Rubber Cushion			
Lubrication		Lubrication Not Possible			
Allowable Absorbed Energy	J	0.166	0.308	0.424	0.639

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke
ø20, ø25, ø32, ø40	25, 50, 75, 100, 150, 200, 250, 300	750	5

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: Single side foot type (LS type) has a maximum stroke of 50 mm.

Min. Stroke with Switch

(Unit: mm)

Number of Switches	1					2				
	Solid State			Reed		Solid State			Reed	
Bore Size (mm)	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8
ø20	10					25	30	35	25	35
ø25	10					25	30	35	25	35
ø32	10					25	30	35	25	35
ø40	10					25	30	35	25	35

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm								Switch Weight (Per Piece)	Switch Rail + Band Weight	Added Weight per S = 10 mm
	Basic type 00	Axial Foot Type (LB)	Axial Foot Type (LS)	Flange Type (FA/FB)	Single Clevis Type (CA)	Clevis Type (CC)	Double Clevis Type (CB)	Trunnion Type (TA/TB)			
ø20	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	Refer to the mass described in the switch specifications on P. 971	0.005	0.01
ø25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
ø32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
ø40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

(Example) Product Weight of CMK2-F-FA-32-50-T0H-D

Product Weight at S = 0 mm: .....0.45 kg
Added weight at S=50 mm..... Added weight at S=10 mm 0.02 × $\frac{\text{Product Stroke (50)}}{10}$ = 0.10 kg
Weight of 2 switches: .....0.036 kg
Weight of switch rail + 2 bands: ..0.018 kg
Product Weight .....0.45 kg+0.1 kg+0.036 kg+0.018 kg=0.604 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	31.4	47.1	62.8	94.2	1.26 × 10²	1.57 × 10²	1.88 × 10²	2.20 × 10²	2.51 × 10²	2.83 × 10²	3.14 × 10²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18 × 10²	1.41 × 10²	1.65 × 10²	1.88 × 10²	2.12 × 10²	2.36 × 10²
ø25	Push	49.1k	73.6	98.2	1.47 × 10²	1.96 × 10²	2.45 × 10²	2.95 × 10²	3.44 × 10²	3.93 × 10²	4.42 × 10²	4.91 × 10²
	Pull	37.8	56.7	75.6	1.13 × 10²	1.51 × 10²	1.89 × 10²	2.27 × 10²	2.64 × 10²	3.02 × 10²	3.40 × 10²	3.78 × 10²
ø32	Push	80.4	1.21 × 10²	1.61 × 10²	2.41 × 10²	3.22 × 10²	4.02 × 10²	4.83 × 10²	5.63 × 10²	6.43 × 10²	7.24 × 10²	8.04 × 10²
	Pull	69.1	1.04 × 10²	1.38 × 10²	2.07 × 10²	2.76 × 10²	3.46 × 10²	4.15 × 10²	4.84 × 10²	5.53 × 10²	6.22 × 10²	6.91 × 10²
ø40	Push	1.26 × 10²	1.88 × 10²	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²	1.01 × 10³	1.13 × 10³	1.26 × 10³
	Pull	1.10 × 10²	1.65 × 10²	2.21 × 10²	3.31 × 10²	4.41 × 10²	5.51 × 10²	6.62 × 10²	7.72 × 10²	8.82 × 10²	9.92 × 10²	1.10 × 10³

Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Basic Type (00) *3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial Foot Type (LB/LS)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40
Single Clevis Type (CA)	M1-CA-20	M1-CA-30	M1-CA-30	M1-CA-30
Double clevis type (CB)	M1-CB-20	M1-CB-30	M1-CB-30	M1-CB-30

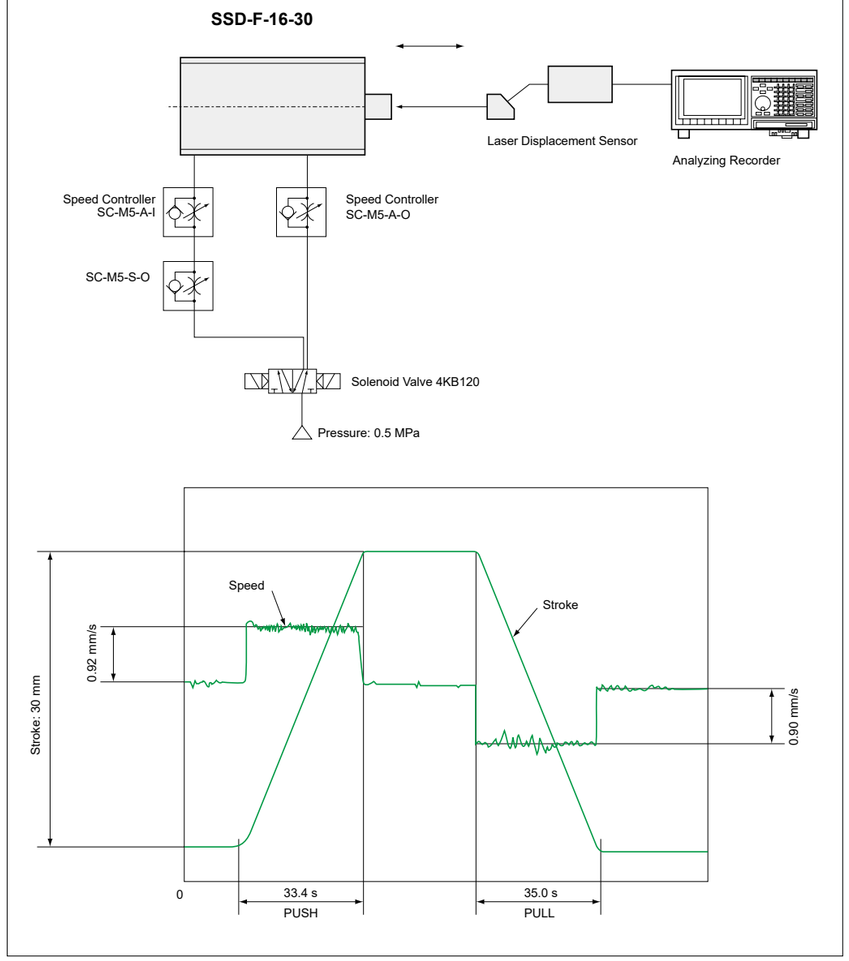
*1: For axial foot type and flange type mounting brackets, mounting nuts and toothed washers are included. Also, for trunnion type, mounting nuts are included.
*2: For axial foot type (both sides), 2 sets of "M1-LB-□1" from the table above are required.
*3: Only mounting nuts and toothed lock washers are included. One set is included with the basic type (00) of the product, but use this if additional sets are required.

Outline Dimension Drawing

Same as double acting/single rod type CMK2 series. See P. 114 to P. 121.

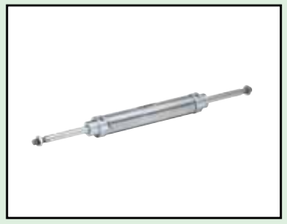
Measurement Data

●Measurement Method



MEMO

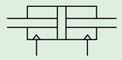
General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending



Small bore size cylinder
Double Acting/Double Rod Type

CMK2-D Series

●Bore Size: ø20, ø25, ø32, ø40

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

CMK2-D - 00 - 20 - 100 - J I

Model No. ❶ ❷ ❸ ❹ ❼ ❽

With Switch
(Built-in magnet for switch)

CMK2-D - 00 - 20 - 100 - T0H - R - J I

Model No. ❶ Mounting type ❷ Bore size ❸ Piping thread type ❹ Stroke ❺ Switch Model No. ❻ Number of Switches ❼ Option ❽ Accessories

Mounting brackets are included with the product and shipped. However, if bellows are included and the mounting brackets are LB, LS, FA, or TA, they will be shipped assembled.

❶Mounting type

Code	Content	
00	Basic type	
LB	Axial Foot Type (Both Sides)	
*1 LS	Axial Foot Type (Single Side)	
FA	Rod Side Flange Type	
TA	Rod Side Trunnion Type	

*1: Single side foot type (LS type) has a max. stroke of 50 mm.

❷Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

❸Piping thread type

Code	Content
Blank	Rc Thread
NN	NPT Thread (Custom Order Product)
GN	G Thread (Custom Order Product)

❹Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20	5 to 500	Every 1 mm
ø25	5 to 550	
ø32	5 to 480	
ø40	5 to 450	

Note: For minimum stroke with switch and maximum/minimum stroke with bellows, refer to P. 214.

❺Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. 00 If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

***Lead wire length, connector specification**

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
*5 W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

Note: The maximum number of switches that can be installed is 3. If 4 or more are required, please order the insufficient switch mounting brackets separately by individual model number.

❽Accessories

Code	Content	
I	Single Knuckle	
Y	Double Knuckle (Pin and Washer Split Pin Attached)	
B2	Double Yoke Bracket (Pin and retaining ring included)	

❼Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
J	Bellows	100°C	200°C	
L		250°C	400°C	
*1 F	With One-touch Fitting (Straight)			
*1 FE	With One-touch Fitting (Elbow)			
*3 M	Piston Rod Material (Stainless Steel)			

*1: For F: With Push-in fitting (Straight) and FE: With Push-in fitting (Elbow), the applicable tube O.D. is ø6.
*2: Instantaneous maximum temperature is the temperature when sparks, chips, etc. instantaneously hit the bellows.
*3: When Bore size ø20 or 25 is selected, the piston rod material is already stainless steel. (If M is selected, the rod nut material will also be stainless steel.)

About Custom Product Specifications

For details, see P. 287.

Code	Content
-XJ9	Without Bellows
-T2	Fluorine Packing Type
-A2	With 2 Rod Nuts
-O	Low Speed Type
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)

CMK2-D - ..... - XJ9

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

CMK2-D - ..... - FP1

*For combinations of variations and options, see P. 109.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

CMK2 - T0H - 20

5 Switch Model No. 2 Bore size

●Switch body only

SW - T0H

5 Switch Model No.

●Mounting bracket set

CMK2 - T - 20

Mounting bracket 2 Bore size

Specifications

Item		CMK2-D			
Bore Size	mm	ø20	ø25	ø32	ø40
Actuation method		Double Acting/Double Rod Type			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.15			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	-10 to 60 (No freezing)			
Port Size		Rc1/8			
Stroke tolerance	mm	$^{+2.0}_{0}$ (Up to 200), $^{+2.4}_{0}$ (Over 200,)			
Operating Piston Speed	mm/s	50 to 500			
Cushion		Rubber Cushion			
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)			
Allowable Absorbed Energy	J	0.166	0.308	0.424	0.639

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke		Min. Stroke	
		Without Bellows	With Bellows	Without Bellows Bellows "L"	Bellows "J"
ø20	25, 50, 75, 100, 150, 200, 250 300	480	300	5	25
ø25					
ø32					
ø40		450			

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: Single side foot type (LS type) has a maximum stroke of 50 mm.
*3: For bellows "J" with stroke less than 25 mm, please inquire each time.

Min. Stroke with Switch

(Unit: mm)

Number of Switches	1					2				
	Solid State			Reed		Solid State			Reed	
Bore Size (mm)	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8
ø20	10					25	30	35	25	35
ø25	10					25	30	35	25	35
ø32	10					25	30	35	25	35
ø40	10					25	30	35	25	35

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	Switch Rail + Band Weight	Added Weight per S = 10 mm
	Basic type 00	Axial Foot Type (LB)	Axial Foot Type (LS)	Flange Type (FA/FB)	Trunnion Type (TA/TB)			
ø20	0.21	0.36	0.29	0.27	0.26	Refer to the mass described in the switch specifications on P. 971	0.005	0.02
ø25	0.32	0.58	0.45	0.47	0.42		0.005	0.02
ø32	0.36	0.62	0.49	0.51	0.46		0.009	0.03
ø40	0.57	0.83	0.70	0.72	0.73		0.009	0.03

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push/Pull	35.3	47.1	70.7	94.2	1.18 × 10²	1.41 × 10²	1.65 × 10²	1.88 × 10²	2.12 × 10²	2.36 × 10²
ø25	Push/Pull	56.7	75.6	1.13 × 10²	1.51 × 10²	1.89 × 10²	2.27 × 10²	2.64 × 10²	3.02 × 10²	3.40 × 10²	3.78 × 10²
ø32	Push/Pull	1.04 × 10²	1.38 × 10²	2.07 × 10²	2.76 × 10²	3.46 × 10²	4.15 × 10²	4.84 × 10²	5.53 × 10²	6.22 × 10²	6.91 × 10²
ø40	Push/Pull	1.65 × 10²	2.21 × 10²	3.31 × 10²	4.41 × 10²	5.51 × 10²	6.62 × 10²	7.72 × 10²	8.82 × 10²	9.92 × 10²	1.10 × 10³

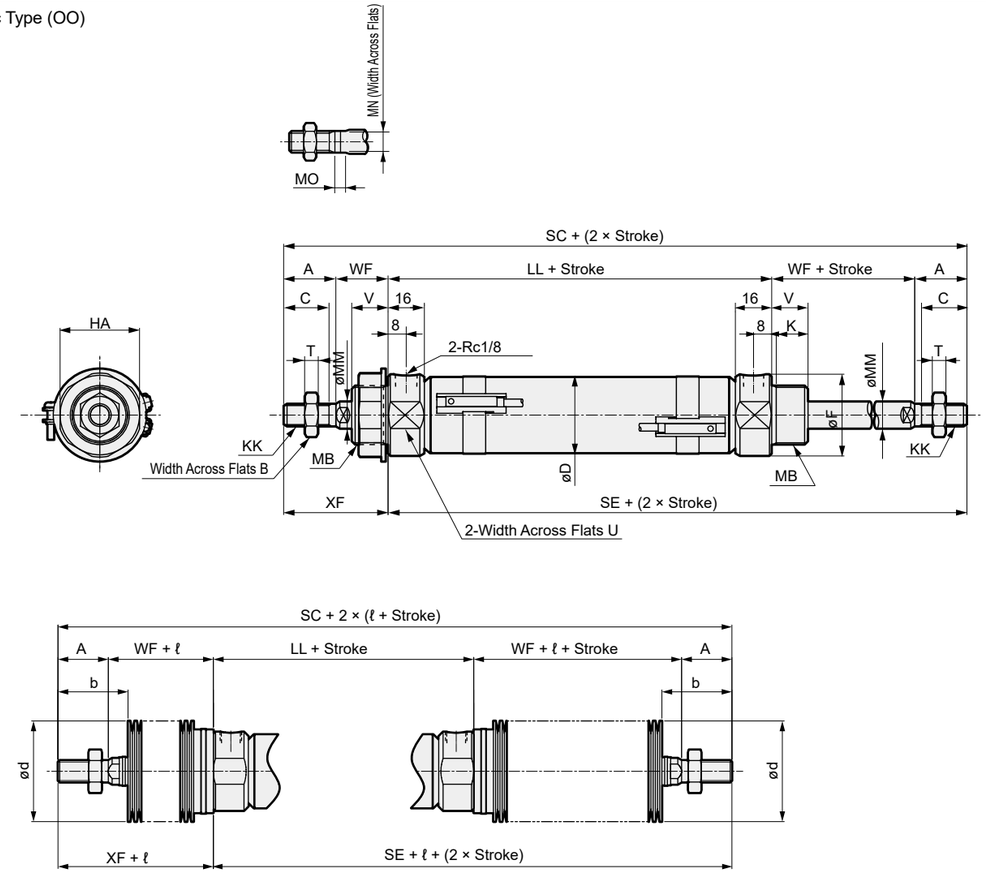
Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket		ø20	ø25	ø32	ø40
Basic Type (00)	*3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial Foot Type (LB/LS)		M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)		M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)		M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40

*1: For axial foot type and flange type mounting brackets, mounting nuts and toothed washers are included. Also, for trunnion type, mounting nuts are included.
*2: For axial foot type (both sides), 2 sets of "M1-LB-□" from the table above are required.
*3: Only mounting nuts and toothed lock washers are included. One set is included with the basic type (00) of the product, but use this if additional sets are required.

Outline Dimension Drawing

●Basic Type (OO)



[With Bellows]

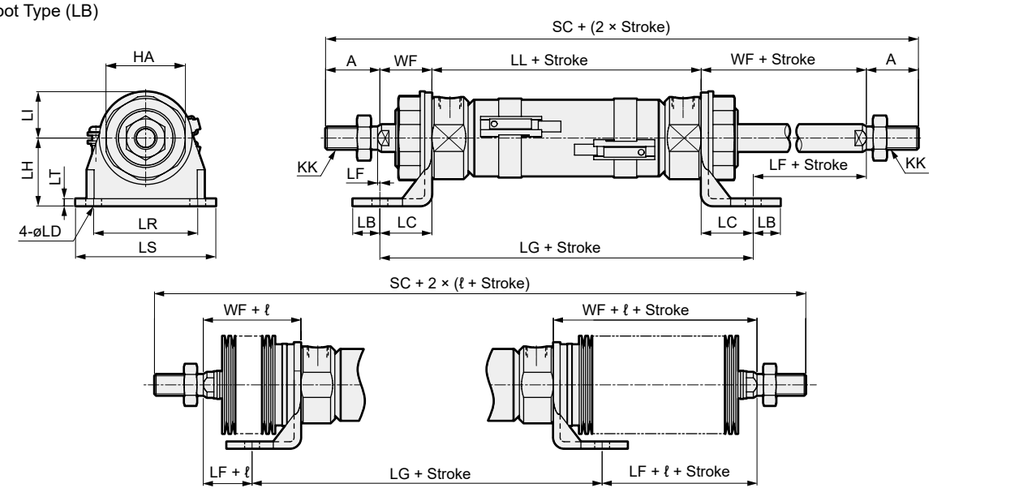
Code	Basic Dimensions of Basic Type (OO)																		
Bore Size (mm)	A	B	C	D	F	HA	K	KK	LL	MB	MM	MN	MO	T	U	V	WF	XF	SE
ø20	20	13	18	21.4	28	26	12	M8 × 1.0	66	M18 × 1.5	10	8	5	5	24	14	24	44	154	110
ø25	23	17	20	26.4	32	35	14	M10 × 1.25	69	M26 × 1.5	12	10	5	6	30	16	23	46	161	115
ø32	23	17	20	33.6	36	35	14	M10 × 1.25	69	M26 × 1.5	12	10	5	6	34	16	23	46	161	115
ø40	25	19	22	41.6	45	35	14	M12 × 1.5	73	M26 × 1.5	14	12	6	7	43	16	23	48	169	121

Code	With Bellows		
Bore Size (mm)	b	d	ℓ
ø20	30	30	(Stroke / 3) + 6
ø25	32	46	(Stroke / 3.25) + 7
ø32	32	46	(Stroke / 3.25) + 7
ø40	34	46	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.
*2: The position of the width across flats for wrench on left and right sides is not fixed.
***3: For dimensions with each switch, see P. 284 to P. 286.**
***4: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Axial Foot Type (LB)

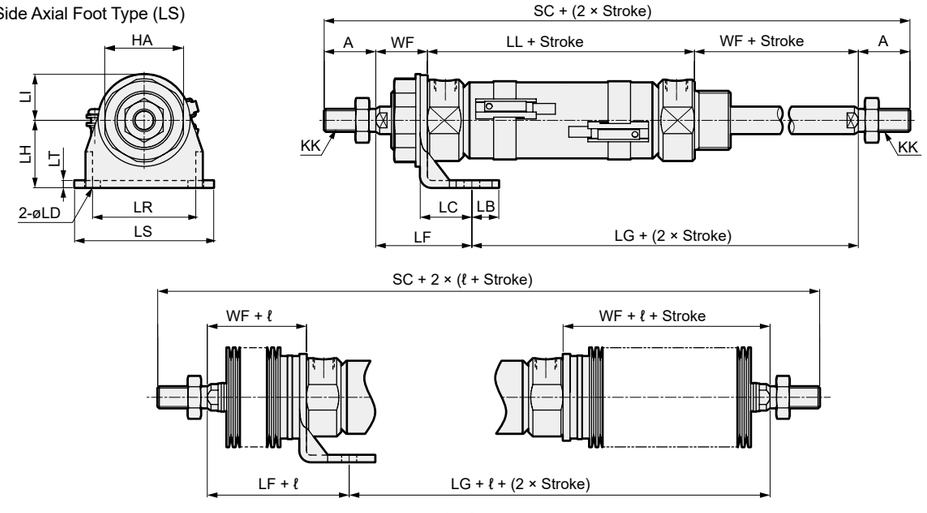


[With Bellows]

Code	Axial Foot Type (LB) Mounting Dimensions																With Bellows
Bore Size (mm)	A	HA	KK	LA	LB	LC	LD	LF	LG	LH	LI	LL	LR	LS	LT	SC	WF	ℓ
ø20	20	26	M8 × 1.0	138	10	18	6	6	102	25	15	66	4	44	3.2	154	24	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	150	12	23	7	0	115	30	20.5	69	5.5	62	3.2	161	23	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	150	12	23	7	0	115	30	20.5	69	5.5	62	3.2	161	23	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	156	12	23	7	0	119	30	20.5	73	7.5	62	3.2	169	23	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Single Side Axial Foot Type (LS)



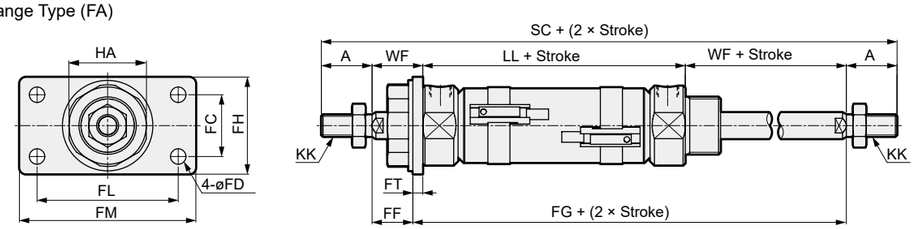
[With Bellows]

Code	Single Side Axial Foot Type (LS) Mounting Dimensions															With Bellows
Bore Size (mm)	A	HA	KK	LB	LC	LD	LF	LG	LH	LI	LL	LR	LS	LT	SC	WF	ℓ
ø20	20	26	M8 × 1.0	10	18	6	38.8	89.2	25	15	66	30	44	3.2	154	24	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	12	23	7	42.8	88.2	30	20.5	69	46	62	3.2	161	23	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	12	23	7	42.8	88.2	30	20.5	69	46	62	3.2	161	23	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	12	23	7	42.8	92.2	30	20.5	73	46	62	3.2	169	23	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)



[With Bellows]

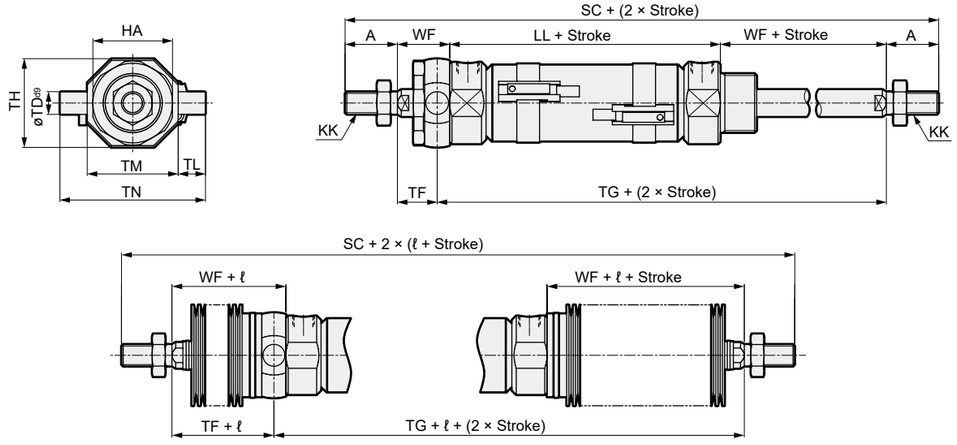
Code	Rod Side Flange Type (FA) Mounting Dimensions														With Bellows
Bore Size (mm)	A	FC	FD	FF	FG	FH	FL	FM	FT	HA	KK	LL	SC	WF	ℓ
ø20	20	20	6	20.8	107.2	34	40	54	3.2	24	M8 × 1.0	66	154	24	(Stroke / 3) + 6
ø25	23	28	7	18.5	112.5	44	64	80	4.5	35	M10 × 1.25	69	161	23	(Stroke / 3.25) + 7
ø32	23	28	7	18.5	112.5	44	64	80	4.5	35	M10 × 1.25	69	161	23	(Stroke / 3.25) + 7
ø40	25	28	7	18.5	116.5	44	64	80	4.5	35	M12 × 1.5	73	169	23	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.

***2: For dimensions with each switch, see P. 284 to P. 286.**

***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Rod side trunnion type (TA)



[With Bellows]

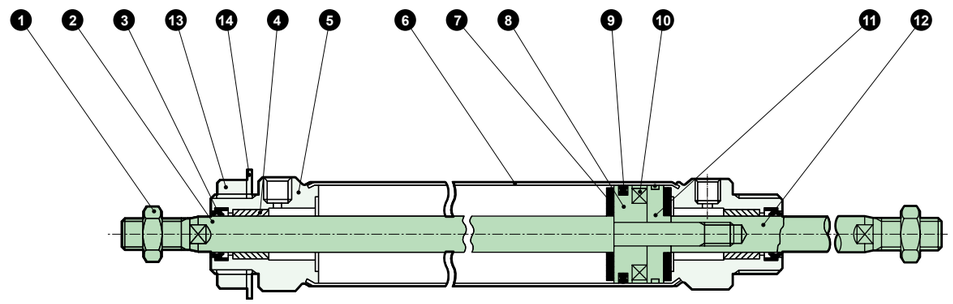
Code	Rod Side Trunnion Type (TA) Mounting Dimensions													With Bellows
Bore Size (mm)	A	HA	KK	LL	TD	TF	TG	TH	TL	TM	TN	SC	WF	ℓ
ø20	20	26	M8 × 1.0	66	8	19.5	108.5	29.5	8	30	46	154	24	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	69	10	17.5	113.5	39	12	40	64	161	23	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	69	10	17.5	113.5	39	12	40	64	161	23	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	73	10	17.5	117.5	44	9.5	53	72	169	23	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.

***2: For dimensions with each switch, see P. 284 to P. 286.**

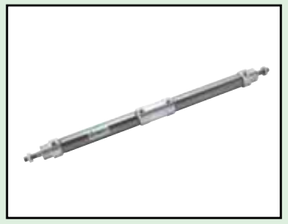
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Internal Structure Diagram / Material



Do not disassemble

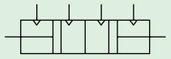
Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	8	Piston A	Aluminum Alloy	
2	Piston Rod A	ø20, ø25: Stainless Steel	Industrial Hard Chrome	9	Piston Packing	Nitrile Rubber	
		ø32, ø40: Carbon Steel	Plating	10	Magnet	Plastic	
3	Rod Packing	Nitrile Rubber		11	Piston B	Aluminum Alloy	
4	Bushing	ø20: Bearing Alloy		12	Piston Rod B	ø20, ø25: Stainless Steel	Industrial Hard Chrome
		ø25, ø32, ø40: Oil Impregnated Bearing Alloy				ø32, ø40: Carbon Steel	Plating
5	Rod Cover	Aluminum Alloy		13	Nut	Steel	Zinc Chromate
6	Cylinder Tube	Stainless Steel		14	Toothed Lock Washer	Steel	Zinc Chromate
7	Cushion Rubber	Urethane Rubber					



Small bore size cylinder
Double Acting, Back-to-Back Type

CMK2-B Series

● Bore size: ø20, ø25, ø32, ø40

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

CMK2-B – 00 – 20 – [ ] – 25 (S1 Stroke of Cylinder 1) – 50 (S2 Stroke of Cylinder 2) – J – I

Model No. ❶ ❷ ❸ ❹ ❹ ❼ ❽

With Switch
(Built-in magnet for switch)

CMK2-B – 00 – 20 – [ ] – 25 – T0H – D – 50 – T0H – R – J – I

Model No. ❶ ❷ ❸ ❹ ❺ ❻ ❹ ❺ ❻ ❼ ❽

❶ Mounting type; ❷ Bore size; ❸ Piping thread type; ❹ Stroke; ❺ Switch Model No.; ❻ Number of Switches; ❹ Stroke; ❺ Switch Model No.; ❻ Number of Switches; ❼ Option; ❽ Accessories

Cylinder 1 (❹ ❺ ❻) Cylinder 2 (❹ ❺ ❻)

Mounting brackets are included with the product and shipped. However, if bellows are included and mounting brackets are LB or FA, they will be shipped assembled.

❶ Mounting type

Code	Content	
00	Basic type	
LB	Axial Foot Type (Both Sides)	
FA	Rod Side Flange Type	

❷ Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

❸ Piping thread type

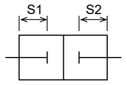
Code	Content
Blank	Rc Thread
NN	NPT Thread (Custom Order Product)
GN	G Thread (Custom Order Product)

❹ Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20	5 to 750	Every 1 mm
ø25	5 to 750	
ø32	5 to 750	
ø40	5 to 750	

Note: For minimum stroke with switch and maximum/minimum stroke with bellows, refer to P. 222.

Stroke of cylinder 1: 25 mm Indicated by S1
+ Stroke of cylinder 2: 50 mm Indicated by S2
Total stroke 75 mm S1 + S2



❺ Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp / Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻ Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

Note: The maximum number of switches that can be installed is 3. If 4 or more are required, please order the insufficient switch mounting brackets separately by individual model number.

❽ Accessories

Code	Content	
I	Single Knuckle	
Y	Double Knuckle (Pin and Washer Split Pin Attached)	

❼ Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
	J	Bellows	100°C	200°C	
	L		250°C	400°C	
*1	F	With One-touch Fitting (Straight)			
*1	FE	With One-touch Fitting (Elbow)			
*3	M	Piston Rod Material (Stainless Steel)			

*1: For F: With Push-in fitting (Straight) and FE: With Push-in fitting (Elbow), the applicable tube O.D. is ø6.
*2: Instantaneous maximum temperature is the temperature when sparks, chips, etc. instantaneously hit the bellows.
*3: When Bore size ø20 or 25 is selected, the piston rod material is already stainless steel. (If M is selected, the rod nut material will also be stainless steel.)

About Custom Product Specifications

For details, see P. 287.

Code	Content
-XJ9	Without Bellows
-T2	Fluorine Packing Type
-A2	With 2 Rod Nuts
-O	Low Speed Type
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
CMK2-B – ..... – XJ9

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

● Uses food-grade lubricant usable in food manufacturing processes

CMK2-B – ..... – FP1

*For combinations of variations and options, see P. 109.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set
CMK2 – T0H – 20
❺ Switch Model No. ❷ Bore size

●Switch body only
SW – T0H
❺ Switch Model No.

●Mounting bracket set
CMK2 – T – 20
Mounting bracket ❷ Bore size

Specifications

Item		CMK2-B			
Bore Size	mm	ø20	ø25	ø32	ø40
Actuation method		Double Acting, Back-to-Back Type			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.1			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	-10 to 60 (No freezing)			
Port Size		Rc 1/8			
Stroke tolerance	mm	$^{+2.0}_{0}$ (Up to 200), $^{+2.4}_{0}$ (Over 200,)			
Operating Piston Speed	mm/s	50 to 500			
Cushion		Rubber Cushion			
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)			
Allowable Absorbed Energy	J	0.166	0.308	0.424	0.639

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke		Min. Stroke	
		Without Bellows	With Bellows	Without Bellows Bellows "L"	Bellows "J"
ø20	25, 50, 75, 100, 150, 200, 250, 300	750	650	5	25
ø25					
ø32					
ø40					

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: For bellows "J" with stroke less than 25 mm, please inquire each time.

Min. Stroke with Switch

(Unit: mm)

Number of Switches	1					2				
	Solid State			Reed		Solid State			Reed	
Bore Size (mm)	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8
ø20	10					25	30	35	25	35
ø25	10					25	30	35	25	35
ø32	10					25	30	35	25	35
ø40	10					25	30	35	25	35

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm			Added Weight			Switch Weight (Per Piece)	Switch Rail + Band Weight	Added Weight per S = 10 mm
	Basic type 00	Axial Foot Type (LB)	Flange Type (FA/FB)	Basic type 00	Axial Foot Type (LB)	Flange Type (FA)			
ø20	0.17	0.32	0.23	0.03	0.18	0.09	Refer to the mass described in the switch specifications on P. 971	0.005	0.01
ø25	0.26	0.52	0.41	0.03	0.29	0.18		0.005	0.01
ø32	0.30	0.56	0.45	0.05	0.31	0.20		0.009	0.02
ø40	0.48	0.74	0.63	0.10	0.36	0.25		0.009	0.02

(Example) Product Weight of CMK2-B-FA-32-50-T0H-D-50-TOH-R
(S_1 / S_2)

[Weight of S_1]
Product Weight at S = 0 mm: ....0.45 kg
Added weight at S=50 mm.... Added weight at S=10 mm $0.02 \times \frac{\text{Product Stroke (50)}}{10} = 0.10$ kg
Weight of 2 switches: ....0.036 kg
Weight of switch rail + 2 bands: ....0.018 kg
Weight of S_1.....0.45 kg+0.1 kg+0.036 kg+0.018 kg=0.604 kg

[Weight of S_2]
Product Weight at S = 0 mm: ....0.45 kg
Added weight at S=50 mm.... Added weight at S=10 mm $0.02 \times \frac{\text{Product Stroke (50)}}{10} = 0.10$ kg
Weight of 2 switches: ....0.036 kg
Weight of switch rail + 2 bands: ....0.018 kg
Weight of S_2.....0.45 kg+0.10 kg+0.036 kg+0.018 kg=0.604 kg
Product Weight (Weight of S_1 + Weight of S_2 + Added Weight)...
...0.604 kg + 0.604 kg + 0.20 kg = 1.408 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction*	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	31.4	47.1	62.8	94.2	1.26 × 10²	1.57 × 10²	1.88 × 10²	2.20 × 10²	2.51 × 10²	2.83 × 10²	3.14 × 10²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18 × 10²	1.41 × 10²	1.65 × 10²	1.88 × 10²	2.12 × 10²	2.36 × 10²
ø25	Push	49.1k	73.6	98.2	1.47 × 10²	1.96 × 10²	2.45 × 10²	2.95 × 10²	3.44 × 10²	3.93 × 10²	4.42 × 10²	4.91 × 10²
	Pull	37.8	56.7	75.6	1.13 × 10²	1.51 × 10²	1.89 × 10²	2.27 × 10²	2.64 × 10²	3.02 × 10²	3.40 × 10²	3.78 × 10²
ø32	Push	80.4	1.21 × 10²	1.61 × 10²	2.41 × 10²	3.22 × 10²	4.02 × 10²	4.83 × 10²	5.63 × 10²	6.43 × 10²	7.24 × 10²	8.04 × 10²
	Pull	69.1	1.04 × 10²	1.38 × 10²	2.07 × 10²	2.76 × 10²	3.46 × 10²	4.15 × 10²	4.84 × 10²	5.53 × 10²	6.22 × 10²	6.91 × 10²
ø40	Push	1.26 × 10²	1.88 × 10²	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²	1.01 × 10³	1.13 × 10³	1.26 × 10³
	Pull	1.10 × 10²	1.65 × 10²	2.21 × 10²	3.31 × 10²	4.41 × 10²	5.51 × 10²	6.62 × 10²	7.72 × 10²	8.82 × 10²	9.92 × 10²	1.10 × 10³

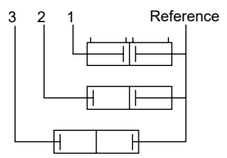
Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket		ø20	ø25	ø32	ø40
Basic Type (00)	*3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial Foot Type (LB)		M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA)		M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30

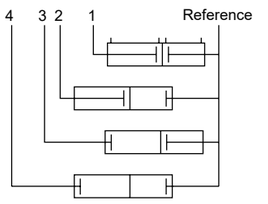
*1: Mounting nuts and toothed lock washers are included to each mounting bracket.
*2: For axial foot type (both sides), 2 sets of "M1-LB-□" from the table above are required.
*3: Only mounting nuts and toothed lock washers are included. One set is included with the basic type (00) of the product, but use this if additional sets are required.

Usage Example

3 positions can be obtained when combining the same stroke.

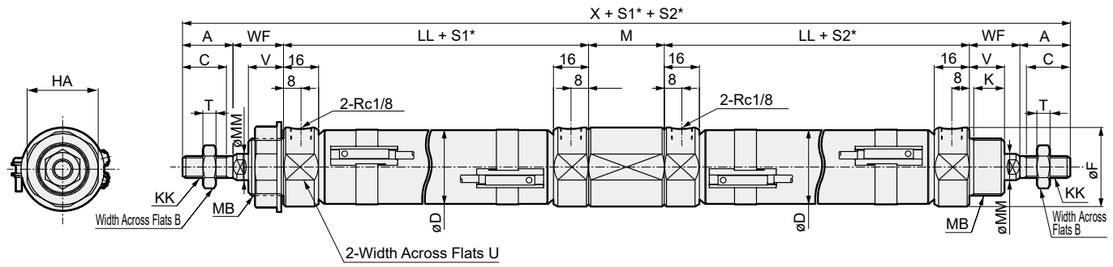


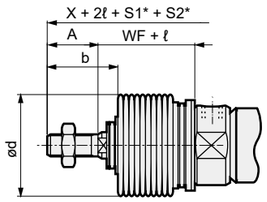
4 positions can be obtained when combining different strokes.



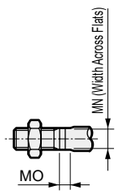
Outline Dimension Drawing

●Basic Type (OO)





[With Bellows]



* S1 = Stroke of Cylinder 1,
S2 = Stroke of Cylinder 2

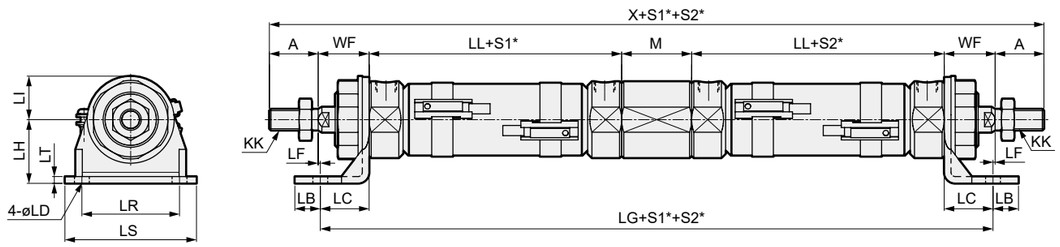
Code	Basic Type (OO) Basic Dimensions												
Bore Size (mm)	A	B	C	D	F	HA	K	KK	LL	M	MB	MM	MN
ø20	20	13	18	21.4	28	26	12	M8 × 1.0	66	29 to 30.5	M18 × 1.5	10	8
ø25	23	17	20	26.4	32	35	14	M10 × 1.25	69	33 to 34.5	M26 × 1.5	12	10
ø32	23	17	20	33.6	36	35	14	M10 × 1.25	69	33 to 34.5	M26 × 1.5	12	10
ø40	25	19	22	41.6	45	35	14	M12 × 1.5	73	33 to 34.5	M26 × 1.5	14	12

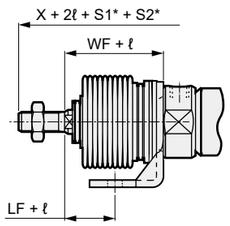
Code							With Bellows		
Bore Size (mm)	MO	T	U	V	WF	X	b	d	ℓ
ø20	5	5	24	14	24	249 to 250.5	30	30	(Stroke / 3) + 6
ø25	5	6	30	16	23	263 to 264.5	32	46	(Stroke / 3.25) + 7
ø32	5	6	34	16	23	263 to 264.5	32	46	(Stroke / 3.25) + 7
ø40	6	7	43	16	23	275 to 276.5	34	46	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**
*4: For back-to-back type, port alignment is adjusted with spacers, so X and M dimensions have a tolerance of 0 to 1.5 mm.

Outline Dimension Drawing

●Axial Foot Type (LB)





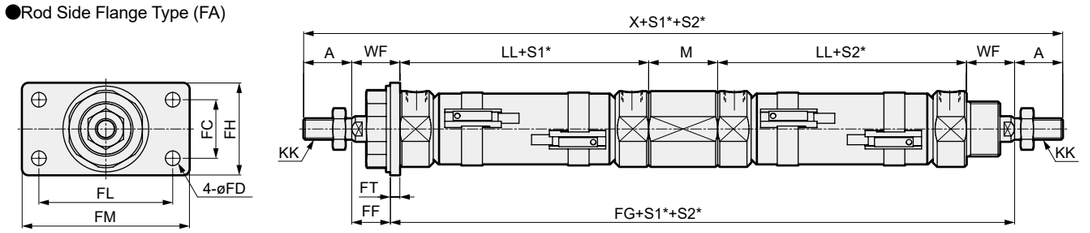
[With Bellows]

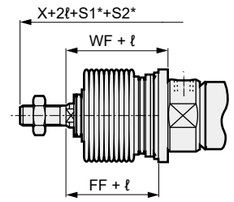
* S1 = Stroke of Cylinder 1,
S2 = Stroke of Cylinder 2

Code	Axial Foot Type (LB) Mounting Dimensions																With Bellows
Bore Size (mm)	A	KK	LB	LC	LD	LF	LG	LH	LI	LL	LR	LS	LT	M	WF	X	ℓ
ø20	20	M8 × 1.0	10	18	6	6	197 to 198.5	25	15	66	4	44	3.2	29 to 30.5	24	249 to 250.5	(Stroke / 3) + 6
ø25	23	M10 × 1.25	12	23	7	0	217 to 218.5	30	20.5	69	5.5	62	3.2	33 to 34.5	23	263 to 264.5	(Stroke / 3.25) + 7
ø32	23	M10 × 1.25	12	23	7	0	217 to 218.5	30	20.5	69	5.5	62	3.2	33 to 34.5	23	263 to 264.5	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	12	23	7	0	225 to 226.5	30	20.5	73	7.5	62	3.2	33 to 34.5	23	275 to 276.5	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**
*4: For back-to-back type, port alignment is adjusted with spacers, so X and M dimensions have a tolerance of 0 to 1.5 mm.

●Rod Side Flange Type (FA)





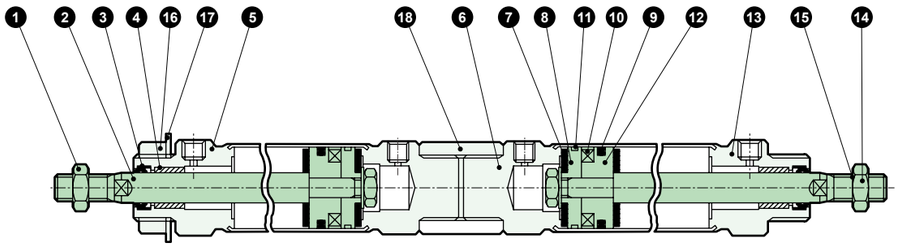
[With Bellows]

* S1 = Stroke of Cylinder 1,
S2 = Stroke of Cylinder 2

Code	Rod Side Flange Type (FA) Mounting Dimensions													With Bellows
Bore Size (mm)	A	FC	FD	FF	FG	FH	FL	FM	FT	KK	LL	M	WF	X	ℓ
ø20	20	20	6	20.8	188.2 to 189.7	34	40	54	3.2	M8 × 1.0	66	29 to 30.5	24	249 to 250.5	(Stroke / 3) + 6
ø25	23	28	7	18.5	198.5 to 200	44	64	80	4.5	M10 × 1.25	69	33 to 34.5	23	263 to 264.5	(Stroke / 3.25) + 7
ø32	23	28	7	18.5	198.5 to 200	44	64	80	4.5	M10 × 1.25	69	33 to 34.5	23	263 to 264.5	(Stroke / 3.25) + 7
ø40	25	28	7	18.5	206.5 to 208	44	64	80	4.5	M12 × 1.5	73	33 to 34.5	23	275 to 276.5	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**
*4: For back-to-back type, port alignment is adjusted with spacers, so X and M dimensions have a tolerance of 0 to 1.5 mm.

Internal Structure Diagram / Material



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	9	Piston Packing	Nitrile Rubber	
2	Piston Rod	ø20, ø25: Stainless Steel ø32, ø40: Carbon Steel	Industrial Hard Chrome Plating	10	Magnet	Plastic	
				11	Wear Ring	Polyacetal	
3	Rod Packing	Nitrile Rubber		12	Piston B	Aluminum Alloy	
4	Bushing	ø20: Bearing Alloy ø25, ø32, ø40: Oil Impregnated Bearing Alloy		13	Head Cover	Aluminum Alloy	
				14	Hexagon Nut	Steel	Zinc Chromate
5	Rod Cover	Aluminum Alloy		15	Spacer	Steel	Zinc Chromate (ø20 to ø32 only)
6	Cylinder Tube	Stainless Steel		16	Nut	Steel	Zinc Chromate
7	Cushion Rubber	Urethane Rubber		17	Toothed Lock Washer	Steel	Zinc Chromate
8	Piston A	Aluminum Alloy		18	Adapter	Aluminum Alloy	

MEMO

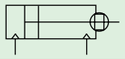
General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending



Small bore size cylinder
Double Acting, Non-Rotating Type

CMK2-M Series

●Bore Size: ø20, ø25, ø32, ø40

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

CMK2-M	00	20		100			V	I
Model No.	❶	❷	❸	❹			❼	❽

With Switch
(Built-in magnet for switch)

CMK2-M	00	20		100	T0H	R	V	I
Model No.	❶	❷	❸	❹	❺	❻	❼	❽
	Mounting type	Bore size	Piping thread type	Stroke	Switch Model No.	Number of Switches	Option	Accessories

Mounting brackets are included to the product and shipped. However, if bellows are included and the mounting brackets are LB, LS, FA, or TA, they will be shipped assembled.

❶Mounting type

Code	Content	
00	Basic type	
LB	Axial Foot Type (Double Side)	
*1 LS	Axial Foot Type (Single Side)	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type	
CC	Single Clevis Integrated Type	
CC1	Single Clevis, Bushing Press-fit Type	
CB	Double Clevis Type (Pin and Washer Split Pin Attached)	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

*1: Single side foot type (LS type) has a max. stroke of 50 mm.

❷Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

❸Piping thread type

Code	Content
Blank	Rc Thread
NN	NPT Thread (Custom Order Product)
GN	G Thread (Custom Order Product)

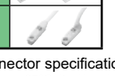
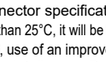
❹Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20	5 to 750	Every 1 mm
ø25	5 to 750	
ø32	5 to 750	
ø40	5 to 750	

*1: For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to P. 230.

❺Switch Model No.

For switch details, please refer to P. 971. Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

**Lead wire length, connector specification*

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
*5 W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

Note: The maximum number of switches that can be installed is 3. If 4 or more are required, please order the insufficient switch mounting brackets separately by individual model number.

❽Accessories

Code	Content	
*1 I	Single Knuckle	
*1 Y	Double Knuckle (Pin and Washer Split Pin Attached)	
B2	Double Yoke Bracket (Pin and retaining ring included)	

*1: "I" and "Y" cannot be selected at the same time.

❼Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
J	Bellows	100°C	200°C	
L		250°C	400°C	
*1 F	With One-touch Fitting (Straight)			
*1 FE	With One-touch Fitting (Elbow)			
V	Boss Cut			
*3 M	Piston Rod Material (Stainless Steel)			

*1:F: With Push-in fitting (Straight) and FE: Applicable tube diameter for push-in fitting (elbow) is ø6.
*2: Instantaneous maximum temperature is the temperature when fire, chips, etc. momentarily contact the bellows.
*3: When Bore size ø20 or 25 is selected, the piston rod material is already stainless steel. (If M is selected, the rod nut material will also be stainless steel.)

About Custom Product Specifications

For details, see P. 287.

Code	Content
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
-O	Low Speed Type
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
CMK2-M−..... −XJ9

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

CMK2-M−..... −FP1

*For combinations of variations and options, see P. 109.

Switch Single Unit Model No. Display Method

●Switch body + Mounting bracket set

CMK2 − T0H − 20
- T0H: ❺ Switch Model No.
- 20: ❷ Bore size

●Switch body only

SW − T0H
- T0H: ❺ Switch Model No.

●Mounting bracket set

CMK2 − T − 20
- T: Mounting bracket
- 20: ❷ Bore size

Specifications

Item		CMK2-M			
Bore Size	mm	ø20	ø25	ø32	ø40
Actuation method		Double Acting, Non-Rotating Type			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.1			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	-10 to 60 (No freezing)			
Port Size		Rc 1/8			
Stroke tolerance		$^{+2.0}_{0}$ (Up to 200), $^{+2.4}_{0}$ (Over 200)			
Operating Piston Speed	mm/s	50 to 500			
Cushion		Rubber Cushion			
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)			
Non-rotating accuracy(Note)	Degrees	±1.5			±1.0
Allowable Absorbed Energy	J	0.166	0.308	0.424	0.639

Note: Value when stroke is 0 mm (except for piston rod deflection)

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke		Min. Stroke	
		Without Bellows	With Bellows	Without Bellows Bellows "L"	Bellows "J"
ø20	25, 50, 75, 100, 150, 200, 250, 300	750	650	5	25
ø25					
ø32					
ø40					

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: Single side foot type (LS type) has a maximum stroke of 50 mm.
*3: For bellows "J" with a stroke of less than 25 mm, please inquire each time.

Min. Stroke with Switch

(Unit: mm)

Number of Switches	1					2				
	Solid State			Reed		Solid State			Reed	
Bore Size (mm)	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8
ø20	10					25	30	35	25	35
ø25	10					25	30	35	25	35
ø32	10					25	30	35	25	35
ø40	10					25	30	35	25	35

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at stroke (S) = 00 mm								Switch Weight (Per Piece)	Switch Rail + Band Weight	Added Weight per S = 10 mm
	Basic type 00	Axial Foot Type (LB)	Axial Foot Type (LS)	Flange Type (FA/FB)	Single Clevis Type (CA)	Clevis Type (CCAA)	Double clevis type (CB)	Trunnion Type (TA/TB)			
ø20	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	Refer to the mass described in the switch specifications on P. 971	0.005	0.01
ø25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
ø32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
ø40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

(Example) Product Weight of CMK2-M-FA-32-50-T0H-D

Product weight when S = 00 mm ...0.45 kg
Added weight at S=50 mm..... Added weight at S=10 mm 0.02 × $\frac{\text{Product Stroke (50)}}{10}$ = 0.10 kg
Weight of 2 switches: .....0.036 kg
Weight of switch rail + 2 bands: .....0.018 kg
Product Weight .....0.45 kg+0.1 kg+0.036 kg+0.018 kg=0.604 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	23.6	35.3	47.1	70.7	94.2	1.18×10^2	1.41×10^2	1.65×10^2	1.88×10^2	2.12×10^2	2.36×10^2
ø25	Push	49.1k	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	37.8	56.7	75.6	1.13×10^2	1.51×10^2	1.89×10^2	2.27×10^2	2.64×10^2	3.02×10^2	3.40×10^2	3.78×10^2
ø32	Push	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.10×10^2	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

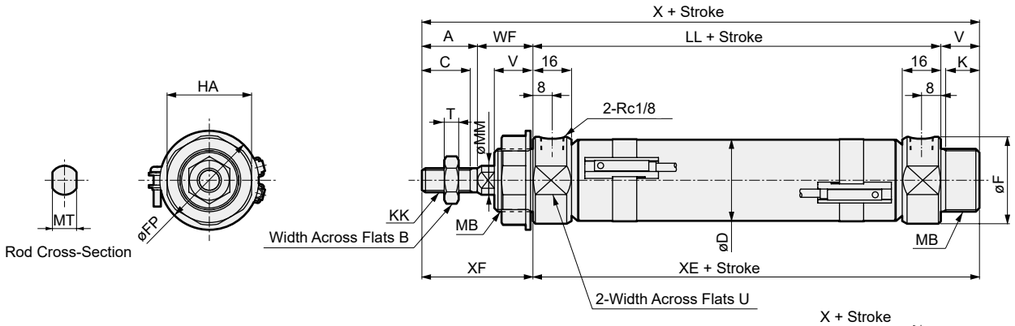
Mounting Bracket Model No. Display Method

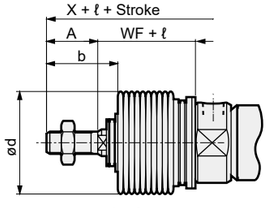
Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Basic Type (00) *3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial Foot Type (LB/LS)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40
Single Clevis Type (CA)	M1-CA-20	M1-CA-30	M1-CA-30	M1-CA-30
Double clevis type (CB)	M1-CB-20	M1-CB-30	M1-CB-30	M1-CB-30

*1: For axial foot type and flange type mounting brackets, mounting nuts and toothed washers are included. Also, for trunnion type, mounting nuts are included.
*2: For axial foot type (both sides), 2 sets of "M1-LB-□" from the table above are required.
*3: Only mounting nuts and toothed lock washers are included. One set is included to the basic type (00) of the product, but use this if additional sets are required.

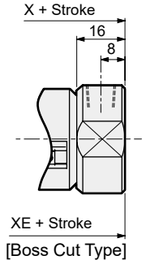
Outline Dimension Drawing

●Basic Type (OO)





[With Bellows]



[Boss Cut Type]

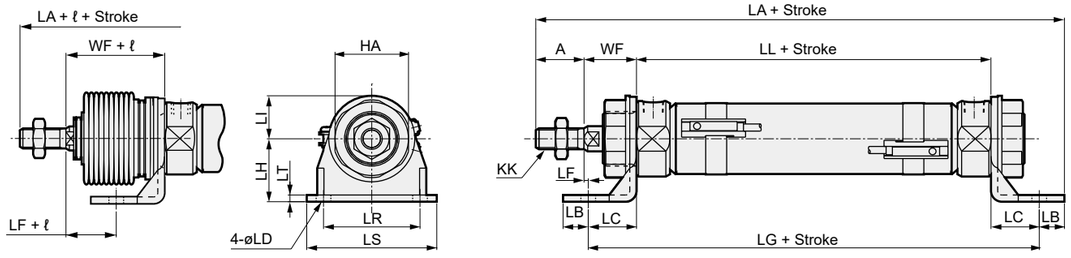
Code	Basic Dimensions of Basic Type (OO)													
Bore Size (mm)	A	B	C	D	F	FP	HA	K	KK	LL	MB	MM	MT	T
ø20	20	13	18	21.4	28	29	26	12	M8 × 1.0	66	M18 × 1.5	10	8	5
ø25	23	17	20	26.4	32	41	35	14	M10 × 1.25	69	M26 × 1.5	12	10	6
ø32	23	17	20	33.6	36	41	35	14	M10 × 1.25	69	M26 × 1.5	12	10	6
ø40	25	19	22	41.6	45	41	35	14	M12 × 1.5	73	M26 × 1.5	14	12	7

Code	With Bellows						Boss Cut Type	
Bore Size (mm)	U	V	WF	X	XE	XF	b	d	ℓ	X	XE
ø20	24	14	24	124	80	44	30	30	(Stroke / 3) + 6	110	66
ø25	30	16	23	131	85	46	32	46	(Stroke / 3.25) + 7	115	69
ø32	34	16	23	131	85	46	32	46	(Stroke / 3.25) + 7	115	69
ø40	43	16	23	137	89	48	34	46	(Stroke / 3.25) + 7	121	73

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Axial Foot Type (LB)

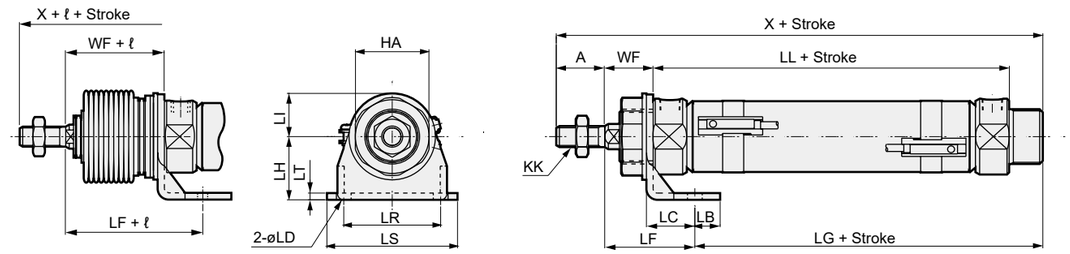


[With Bellows]

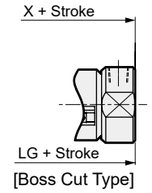
Code	Axial Foot Type (LB) Mounting Dimensions																With Bellows
Bore Size (mm)	A	HA	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LI	LR	LS	LT	ℓ
ø20	20	26	M8 × 1.0	66	24	138	10	18	6	6	102	25	15	30	44	3.2	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	69	23	150	12	23	7	0	115	30	20.5	46	62	3.2	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	69	23	150	12	23	7	0	115	30	20.5	46	62	3.2	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	73	23	156	12	23	7	0	119	30	22.5	46	62	3.2	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Single Side Axial Foot Type (LS)



[With Bellows]



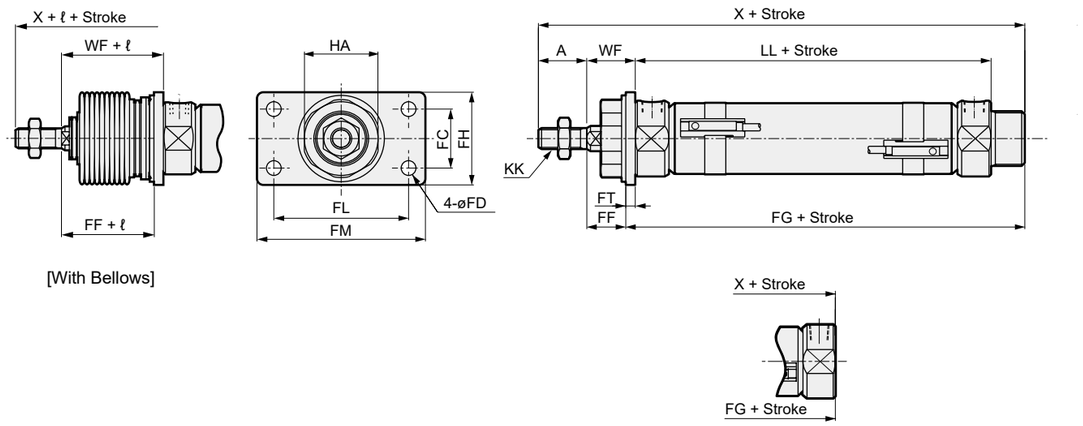
[Boss Cut Type]

Code	Single Side Axial Foot Type (LS) Mounting Dimensions																With Bellows	Boss Cut Type	
Bore Size (mm)	A	HA	KK	LL	WF	X	LB	LC	LD	LF	LG	LH	LI	LR	LS	LT	ℓ	X	LG
ø20	20	26	M8 × 1.0	66	24	124	10	18	6	38.8	65.2	25	15	30	44	3.2	(Stroke / 3) + 6	110	51.2
ø25	23	35	M10 × 1.25	69	23	131	12	23	7	42.8	65.2	30	20.5	46	62	3.2	(Stroke / 3.25) + 7	115	49.2
ø32	23	35	M10 × 1.25	69	23	131	12	23	7	42.8	65.2	30	20.5	46	62	3.2	(Stroke / 3.25) + 7	115	49.2
ø40	25	35	M12 × 1.5	73	23	137	12	23	7	42.8	69.2	30	22.5	46	62	3.2	(Stroke / 3.25) + 7	121	53.2

*1: Max. stroke is 50 mm.
*2: Round up the ℓ dimension to the nearest whole number.
***3: For dimensions with each switch, see P. 284 to P. 286.**
***4: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)



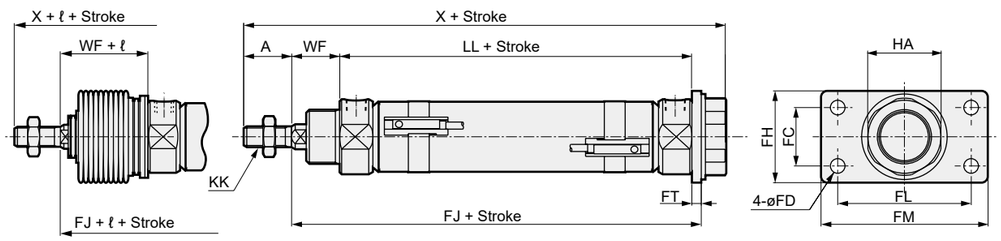
[With Bellows]

[Boss Cut Type]

Code	Rod Side Flange Type (FA) Mounting Dimensions														With Bellows	Boss Cut Type	
Bore Size (mm)	A	KK	LL	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	HA	ℓ	X	FG
ø20	20	M8 × 1.0	66	24	124	20	6	20.8	83.2	34	40	54	3.2	26	(Stroke / 3) + 6	110	69.2
ø25	23	M10 × 1.25	69	23	131	28	7	18.5	89.5	44	64	80	4.5	35	(Stroke / 3.25) + 7	115	73.5
ø32	23	M10 × 1.25	69	23	131	28	7	18.5	89.5	44	64	80	4.5	35	(Stroke / 3.25) + 7	115	73.5
ø40	25	M12 × 1.5	73	23	137	28	7	18.5	93.5	44	64	80	4.5	35	(Stroke / 3.25) + 7	121	77.5

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Head Side Flange Type (FB)



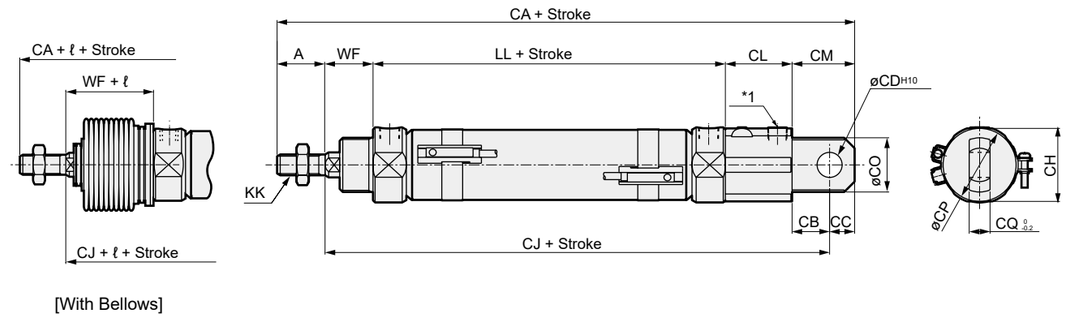
[With Bellows]

Code	Head Side Flange Type (FB) Mounting Dimensions													With Bellows
Bore Size (mm)	A	KK	LL	WF	X	FC	FD	FH	FJ	FL	FM	FT	HA	ℓ
ø20	20	M8 × 1.0	66	24	124	20	6	34	93.2	40	54	3.2	26	(Stroke / 3) + 6
ø25	23	M10 × 1.25	69	23	131	28	7	44	96.5	64	80	4.5	35	(Stroke / 3.25) + 7
ø32	23	M10 × 1.25	69	23	131	28	7	44	96.5	64	80	4.5	35	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	73	23	137	28	7	44	100.5	64	80	4.5	35	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Single Clevis Type (CA)

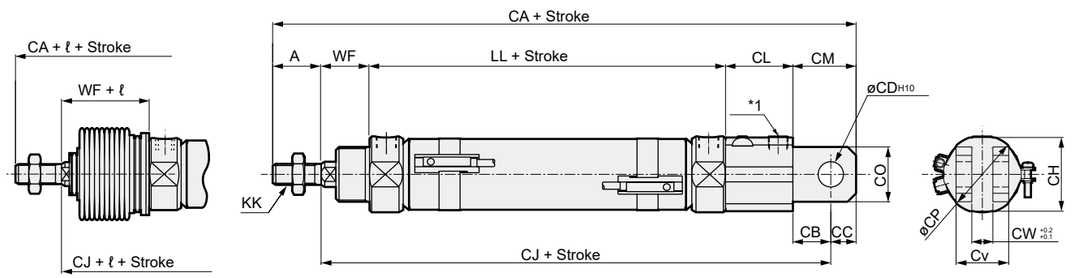


[With Bellows]

Code	Single Clevis Type (CA) Mounting Dimensions															With Bellows
Bore Size (mm)	A	KK	LL	WF	CA	CB	CC	CD	CH	CJ	CL	CM	CO	CP	CQ	ℓ
ø20	20	M8 × 1.0	66	24	165	14	10	10	26	135	31	24	22	28	8	(Stroke / 3) + 6
ø25	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	10	(Stroke / 3.25) + 7
ø32	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	10	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	73	23	183	18	12	12	35	146	32	30	26	37	10	(Stroke / 3.25) + 7

*1: Not a piping port.
*2: Round up the ℓ dimension to the nearest whole number.
***3: For dimensions with each switch, see P. 284 to P. 286.**
***4: For outer dimensions diagram of accessories, refer to P. 123.**

●Double clevis type (CB)



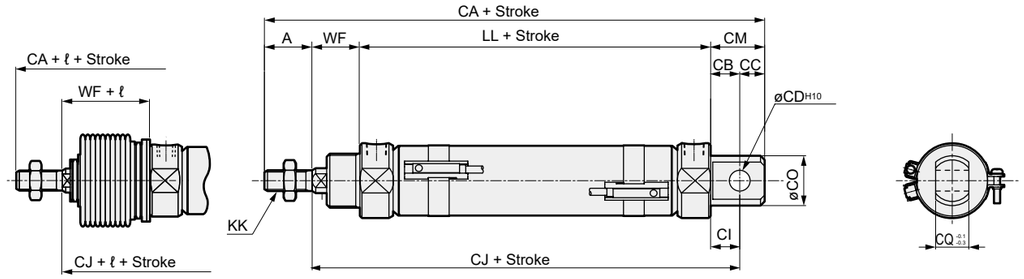
[With Bellows]

Code	Double Clevis Type (CB) Mounting Dimensions																With Bellows
Bore Size (mm)	A	KK	LL	WF	CA	CB	CC	CD	CH	CJ	CL	CM	CO	CP	Cv	CW	ℓ
ø20	20	M8 × 1.0	66	24	165	14	10	10	26	135	31	24	22	28	19	8	(Stroke / 3) + 6
ø25	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	25	10	(Stroke / 3.25) + 7
ø32	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	25	10	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	73	23	183	18	12	12	35	146	32	30	26	37	25	10	(Stroke / 3.25) + 7

*1: Not a piping port.
*2: Round up the ℓ dimension to the nearest whole number.
***3: For dimensions with each switch, see P. 284 to P. 286.**
***4: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

● Single Yoke Clevis Integrated Type (CC)
● Single Clevis Bushing Press-fit Type (CC1)



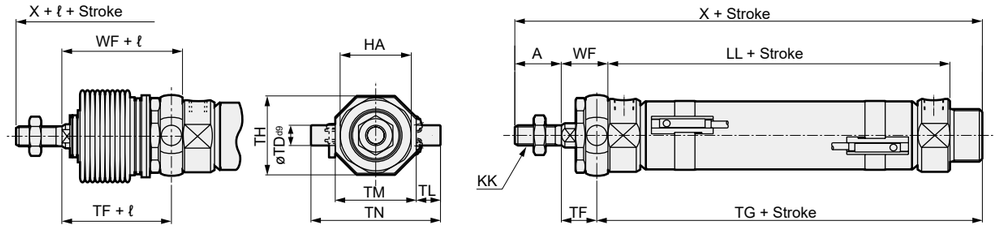
[With Bellows]

Code	Single Clevis Integrated Type (CC), Bushing Press-fit Type (CC1) Mounting Dimensions													With Bellows
Bore Size (mm)	A	KK	LL	WF	CA	CB	CC	CD	CJ	CI	CM	CO	CQ	ℓ
ø20	20	M8 × 1.0	66	24	131	12	9	8	102	11	21	22	16	(Stroke / 3) + 6
ø25	23	M10 × 1.25	69	23	136	12	9	8	104	11	21	24	16	(Stroke / 3.25) + 7
ø32	23	M10 × 1.25	69	23	141	14	12	10	106	13	26	24	16	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	73	23	151	16	14	12	112	15	30	30	20	(Stroke / 3.25) + 7

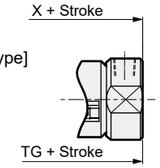
*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Rod side trunnion type (TA)



[With Bellows]

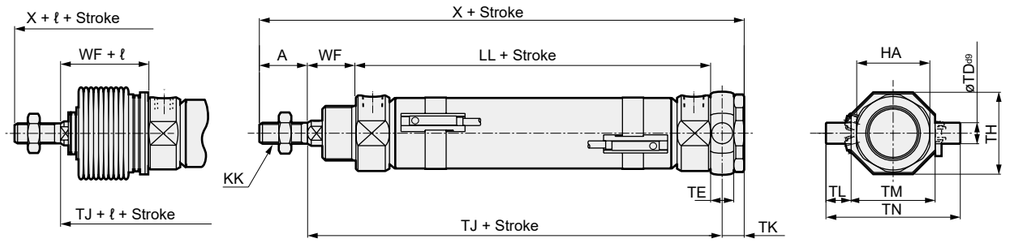


[Boss Cut Type]

Code	Rod Side Trunnion Type (TA) Mounting Dimensions												With Bellows	Boss Cut Type	
Bore Size (mm)	A	HA	KK	LL	WF	X	TD	TF	TG	TH	TL	TM	TN	ℓ	X	TG
ø20	20	26	M8 × 1.0	66	24	124	8	19.5	84.5	29.5	8	30	46	(Stroke / 3) + 6	110	70.5
ø25	23	35	M10 × 1.25	69	23	131	10	17.5	90.5	39	12	40	64	(Stroke / 3.25) + 7	115	74.5
ø32	23	35	M10 × 1.25	69	23	131	10	17.5	90.5	39	12	40	64	(Stroke / 3.25) + 7	115	74.5
ø40	25	35	M12 × 1.5	73	23	137	10	17.5	94.5	44	9.5	53	72	(Stroke / 3.25) + 7	121	78.5

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Head Side Trunnion Type (TB)



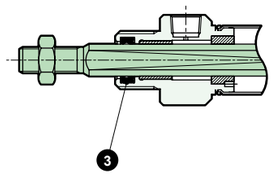
[With Bellows]

Code	Head Side Trunnion Type (TB) Mounting Dimensions													With Bellows
Bore Size (mm)	A	HA	KK	LL	WF	X	TD	TH	TJ	TK	TL	TM	TN	ℓ
ø20	20	26	M8 × 1.0	66	24	124	8	29.5	94.5	9.5	8	30	46	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	69	23	131	10	39	97.5	10.5	12	40	64	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	69	23	131	10	39	97.5	10.5	12	40	64	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	73	23	137	10	44	101.5	10.5	9.5	53	72	(Stroke / 3.25) + 7

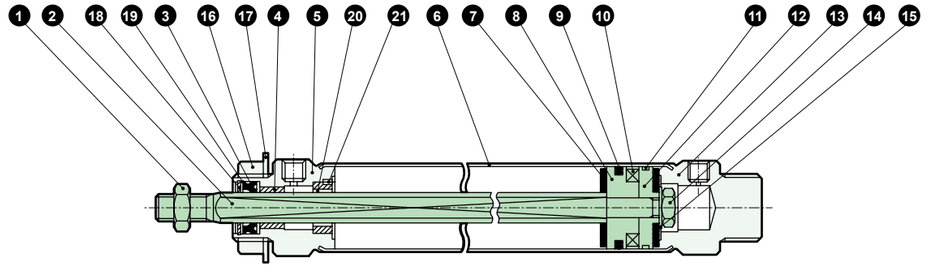
*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Internal Structure Diagram / Material

●ø20



●ø25, ø32, ø40



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	11	Wear Ring	Polyacetal	
2	Piston Rod	Stainless Steel		12	Piston B	Aluminum Alloy	
3	Rod Packing	Nitrile Rubber		13	Head Cover	Aluminum Alloy	
4	Bushing	ø20: Bearing Alloy ø25, ø32, ø40: Oil Impregnated Bearing Alloy		14	Hexagon Nut	Steel	Zinc Chromate
				15	Spacer	Steel	Zinc Chromate (ø20 to ø32 only)
5	Rod Cover	Aluminum Alloy		16	Nut	Steel	Zinc Chromate
6	Cylinder Tube	Stainless Steel		17	Toothed Lock Washer	Steel	Zinc Chromate
7	Cushion Rubber	Urethane Rubber		18	Round R Type Retaining Ring	Steel	Zinc Phosphate (ø25 to ø40 only)
8	Piston A	Aluminum Alloy		19	Packing Retainer	Steel	Zinc Chromate (ø25 to ø40 only)
9	Piston Packing	Nitrile Rubber		20	Non-Rotating Bushing	Oil-Impregnated Bearing Alloy	
10	Magnet	Plastic		21	Taper Pin	Stainless Steel	

Mounting Bracket Material

Mounting type	Material
Foot (LB/LS)	Steel
Flange (FA/FB)	Steel
Trunnion (TA/TB)	Steel
Single Clevis (CA)	Steel
Double Clevis (CB)	Steel

Note: Mounting brackets are included to the product upon shipment. However, when bellows are included and the mounting brackets are LB, LS, FA, or TA, they will be shipped assembled.

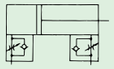
MEMO



Small Bore Size Cylinder Double Acting/Built-in Speed Controller Type

CMK2-Z Series

● Bore size: ø20, ø25, ø32, ø40

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

CMK2-Z	00	20		100			V	Y
Model No.	❶	❷	❸	❹			❼	❽

With Switch (Built-in magnet for switch)

CMK2-Z	00	20		100	T0H	R	V	Y
Model No.	❶ Mounting type	❷ Bore size	❸ Piping thread type	❹ Stroke	❺ Switch Model No.	❻ Number of Switches	❼ Option	❽ Accessories

Mounting brackets are included with the product and shipped. However, if bellows are included and the mounting brackets are LB, LS, FA, or TA, they will be shipped assembled.

❶ Mounting type

	Code	Content	
	00	Basic type	
	LB	Axial Foot Type (Both Sides)	
*1	LS	Axial Foot Type (Single Side)	
	FA	Rod Side Flange Type	
	FB	Head Side Flange Type	
	CA	Single Clevis Type	
	CC	Single Clevis Integrated Type	
	CC1	Single Clevis, Bushing Press-fit Type	
	CB	Double Clevis Type (Pin and Washer Split Pin Attached)	
	TA	Rod Side Trunnion Type	
	TB	Head Side Trunnion Type	

*1: Single side foot type (LS type) has a max. stroke of 50 mm.

❷ Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

❸ Piping thread type

Code	Content
Blank	Rc Thread
NN	NPT Thread (Custom Order Product)
GN	G Thread (Custom Order Product)

❹ Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20	5 to 750	Every 1 mm
ø25	5 to 750	
ø32	5 to 750	
ø40	5 to 750	

Note: For minimum stroke with switch and maximum/minimum stroke with bellows, refer to P. 242.

❺ Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp / Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻ Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

Note: The maximum number of switches that can be installed is 3. If 4 or more are required, please order the insufficient switch mounting brackets separately by individual model number.

❽ Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Washer Split Pin Attached)	
	B2	Double Yoke Bracket (Pin and Retaining Ring Attached)	

*1: "I" and "Y" cannot be selected at the same time.

❼ Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
	J	Bellows	100°C	200°C	
	L		250°C	400°C	
*1	F	With Push-in Fitting (Straight)			
*1	FE	With Push-in Fitting (Elbow)			
*3	M	Piston Rod Material (Stainless Steel)			
	V	Boss Cut			

*1: For F: With Push-in fitting (Straight) and FE: With Push-in fitting (Elbow), the applicable tube O.D. is ø6.
*2: Instantaneous maximum temperature is the temperature when fire, chips, etc. momentarily contact the bellows.
*3: When Bore size ø20 or 25 is selected, the piston rod material is already stainless steel. (If M is selected, the rod nut material will also be stainless steel.)

About Custom Product Specifications

For details, see P. 287.

Code	Content
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
-O	Low Speed Type
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
CMK2-Z-..... -XJ9

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

● Uses food-grade lubricant usable in food manufacturing processes

CMK2-Z-..... -FP1

*For combinations of variations and options, see P. 109.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

CMK2	T0H	20
	❺ Switch Model No.	❷ Bore size

●Switch body only

SW	T0H
	❺ Switch Model No.

●Mounting bracket set

CMK2	T	20
	Mounting bracket	❷ Tube Bore

Specifications

Item		CMK2-Z			
Bore Size	mm	ø20	ø25	ø32	ø40
Actuation method		Double Acting/Built-in Speed Controller Type			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.1			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	-10 to 60 (No freezing)			
Port Size		Rc 1/8			
Stroke tolerance	mm	$^{+2.0}_{0}$ (Up to 200), $^{+2.4}_{0}$ (Over 200,)			
Operating Piston Speed	mm/s	50 to 300			
Cushion		Rubber Cushion			
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)			
Allowable Absorbed Energy	J	0.166	0.308	0.424	0.639

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke		Min. Stroke	
		Without Bellows	With Bellows	Without Bellows Bellows "L"	Bellows "J"
ø20	25, 50, 75, 100, 150, 200, 250 300	750	650	5	25
ø25					
ø32					
ø40					

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: Single side foot type (LS type) has a maximum stroke of 50 mm.
*3: For bellows "J" with a stroke of less than 25 mm, please inquire each time.

Min. Stroke with Switch

(Unit: mm)

Number of Switches	1					2				
	Solid State			Reed		Solid State			Reed	
Bore Size (mm)	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8
ø20	10					25	30	35	25	35
ø25	10					25	30	35	25	35
ø32	10					25	30	35	25	35
ø40	10					25	30	35	25	35

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm								Switch Weight (Per Piece)	Switch Rail + Band Weight	Added Weight per S = 10 mm
	Basic Type (00)	Axial Foot Type (LB)	Axial Foot Type (LS)	Flange Type (FA/FB)	Single Clevis Type (CA)	Clevis Type (CC)	Double clevis type (CB)	Trunnion Type (TA/TB)			
ø20	0.18	0.33	0.26	0.24	0.33	0.19	0.33	0.23	Refer to the mass described in the switch specifications on P. 971	0.005	0.01
ø25	0.28	0.54	0.41	0.43	0.52	0.28	0.52	0.38		0.005	0.01
ø32	0.32	0.58	0.45	0.47	0.56	0.32	0.56	0.42		0.009	0.02
ø40	0.51	0.77	0.64	0.66	0.75	0.53	0.75	0.67		0.009	0.02

(Example) Product Weight of CMK2-Z-FA-32-50-T0H-D

Product mass at S = 0 mm: 0.47 kg
Added weight at S=50 mm.... Added weight at S=10 mm $0.02 \times \frac{\text{Product Stroke (50)}}{10} = 0.10$ kg
Weight of 2 switches: .... 0.036 kg
Weight of switch rail + 2 bands: .... 0.018 kg
Product weight.....0.47 kg + 0.1 kg + 0.036 kg + 0.018 kg = 0.624 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	23.6	35.3	47.1	70.7	94.2	1.18×10^2	1.41×10^2	1.65×10^2	1.88×10^2	2.12×10^2	2.36×10^2
ø25	Push	49.1k	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	37.8	56.7	75.6	1.13×10^2	1.51×10^2	1.89×10^2	2.27×10^2	2.64×10^2	3.02×10^2	3.40×10^2	3.78×10^2
ø32	Push	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.10×10^2	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

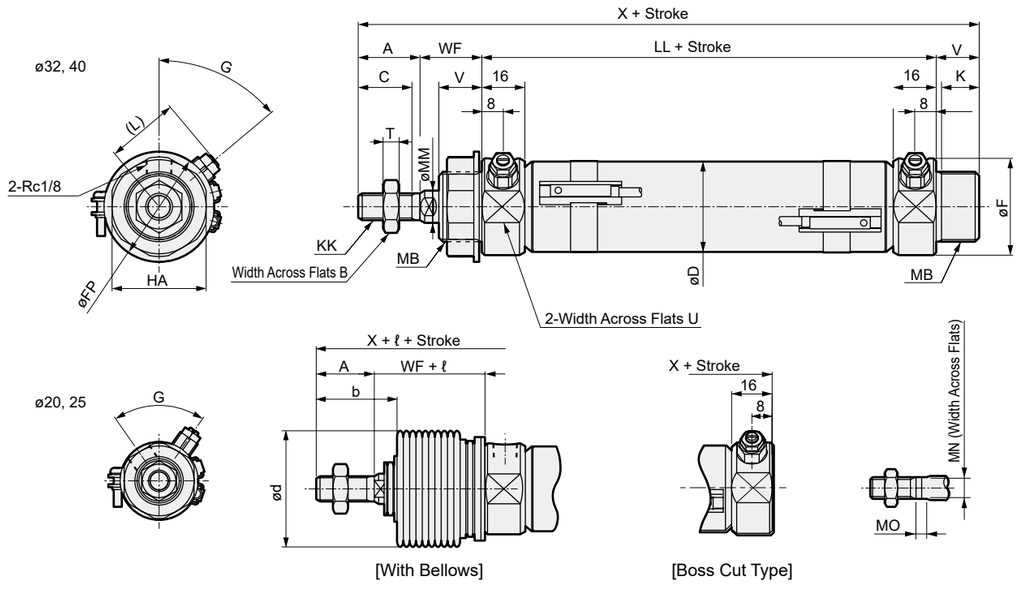
Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Basic Type (00) *3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial Foot Type (LB/LS)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40
Single Clevis Type (CA)	M1-CA-20	M1-CA-30	M1-CA-30	M1-CA-30
Double clevis type (CB)	M1-CB-20	M1-CB-30	M1-CB-30	M1-CB-30

*1: For axial foot type and flange type mounting brackets, mounting nuts and toothed washers are included. Also, for trunnion type, mounting nuts are included.
*2: For axial foot type (both sides), 2 sets of "M1-LB-□" from the table above are required.
*3: Only mounting nuts and toothed lock washers are included. One set is included with the basic type (00) of the product, but use this if additional sets are required.

Outline Dimension Drawing

●Basic Type (OO)



[With Bellows] [Boss Cut Type]

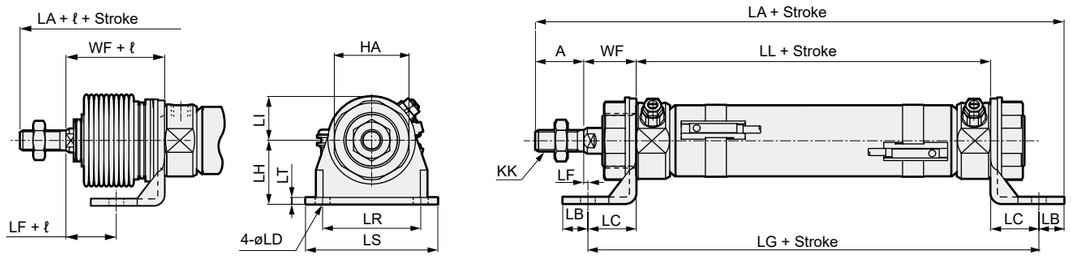
Code	Basic Type (00) Basic Dimensions															
Bore Size (mm)	A	B	C	D	F	FP	G	HA	K	KK	L	LL	MB	MM	MN	MO
ø20	20	13	18	21.4	28	29	70°	26	12	M8 × 1.0	23	66	M18 × 1.5	10	8	5
ø25	23	17	20	26.4	32	41	60°	35	14	M10 × 1.25	26	69	M26 × 1.5	12	10	5
ø32	23	17	20	33.6	36	41	50°	35	14	M10 × 1.25	27	69	M26 × 1.5	12	10	5
ø40	25	19	22	41.6	45	41	50°	35	14	M12 × 1.5	31	73	M26 × 1.5	14	12	6

Code	With Bellows								Boss Cut Type
Bore Size (mm)	T	U	V	WF	X	b	d	ℓ	X
ø20	5	24	14	24	124	30	30	(Stroke / 3) + 6	110
ø25	6	30	16	23	131	32	46	(Stroke / 3.25) + 7	115
ø32	6	34	16	23	131	32	46	(Stroke / 3.25) + 7	115
ø40	7	43	16	23	137	34	46	(Stroke / 3.25) + 7	121

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Axial Foot Type (LB)

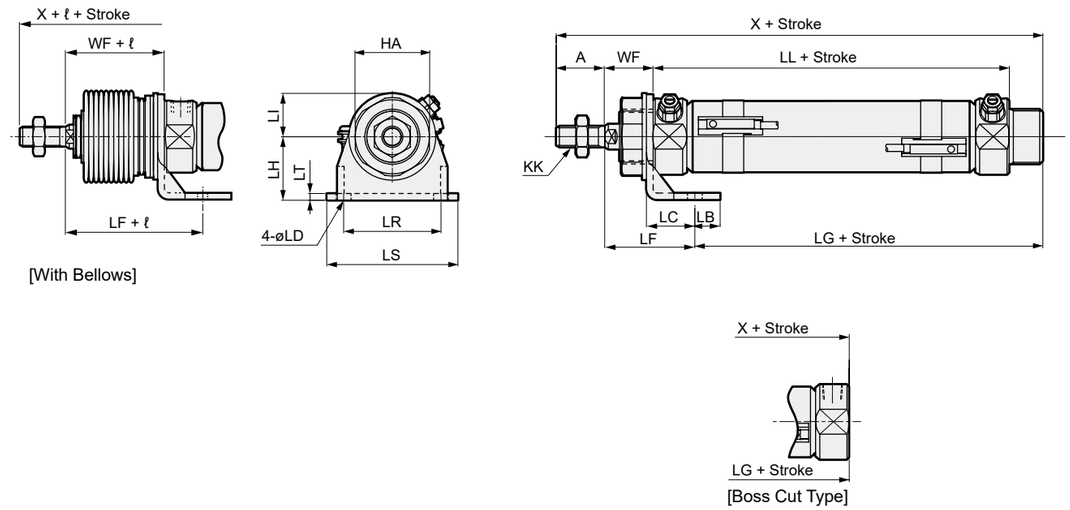


[With Bellows]

Code	Axial Foot Type (LB) Mounting Dimensions																With Bellows
Bore Size (mm)	A	HA	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LI	LR	LS	LT	ℓ
ø20	20	26	M8 × 1.0	66	24	138	10	18	6	6	102	25	15	30	44	3.2	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	69	23	150	12	23	7	0	115	30	20.5	46	62	3.2	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	69	23	150	12	23	7	0	115	30	20.5	46	62	3.2	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	73	23	156	12	23	7	0	119	30	22.5	46	62	3.2	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Single Side Axial Foot Type (LS)



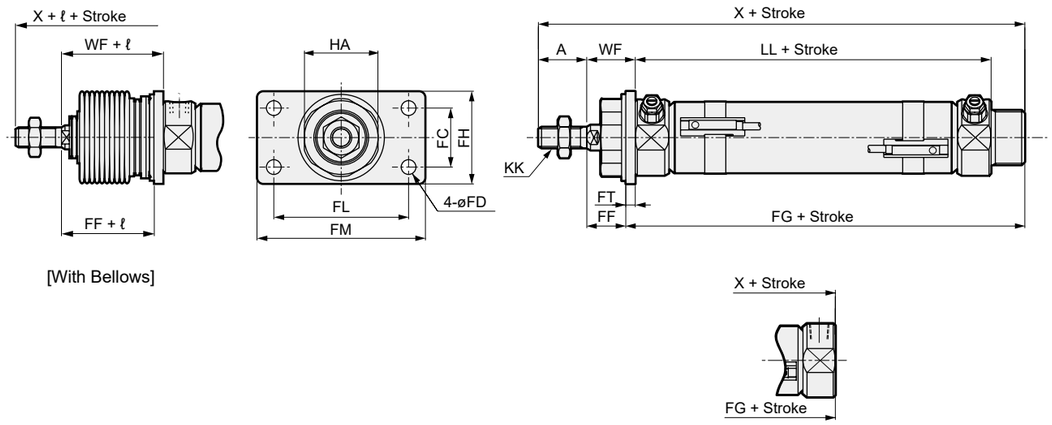
[With Bellows] [Boss Cut Type]

Code	Single Side Axial Foot Type (LS) Mounting Dimensions																With Bellows	Boss Cut Type	
Bore Size (mm)	A	HA	KK	LL	WF	X	LB	LC	LD	LF	LG	LH	LI	LR	LS	LT	ℓ	X	LG
ø20	20	26	M8 × 1.0	66	24	124	10	18	6	38.8	65.2	25	15	30	44	3.2	(Stroke / 3) + 6	110	51.2
ø25	23	35	M10 × 1.25	69	23	131	12	23	7	42.8	65.2	30	20.5	46	62	3.2	(Stroke / 3.25) + 7	115	49.2
ø32	23	35	M10 × 1.25	69	23	131	12	23	7	42.8	65.2	30	20.5	46	62	3.2	(Stroke / 3.25) + 7	115	49.2
ø40	25	35	M12 × 1.5	73	23	137	12	23	7	42.8	69.2	30	22.5	46	62	3.2	(Stroke / 3.25) + 7	121	53.2

*1: Max. stroke is 50 mm.
*2: Round up the ℓ dimension to the nearest whole number.
***3: For dimensions with each switch, see P. 284 to P. 286.**
***4: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)



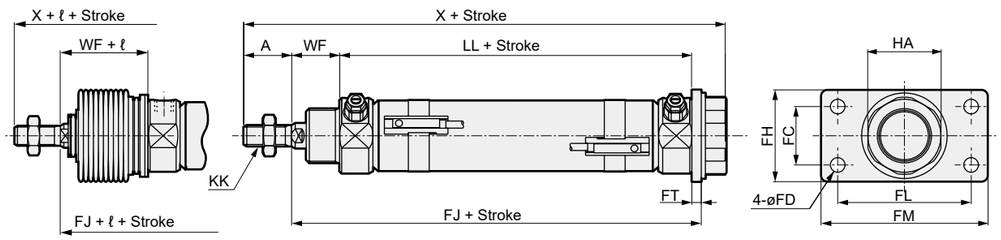
[With Bellows]

[Boss Cut Type]

Code	Rod Side Flange Type (FA) Mounting Dimensions														With Bellows	Boss Cut Type	
Bore Size (mm)	A	HA	KK	LL	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	ℓ	X	FG
ø20	20	26	M8 × 1.0	66	24	124	20	6	20.8	83.2	34	40	54	3.2	(Stroke / 3) + 6	110	69.2
ø25	23	35	M10 × 1.25	69	23	131	28	7	18.5	89.5	44	64	80	4.5	(Stroke / 3.25) + 7	115	73.5
ø32	23	35	M10 × 1.25	69	23	131	28	7	18.5	89.5	44	64	80	4.5	(Stroke / 3.25) + 7	115	73.5
ø40	25	35	M12 × 1.5	73	23	137	28	7	18.5	93.5	44	64	80	4.5	(Stroke / 3.25) + 7	121	77.5

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Head Side Flange Type (FB)



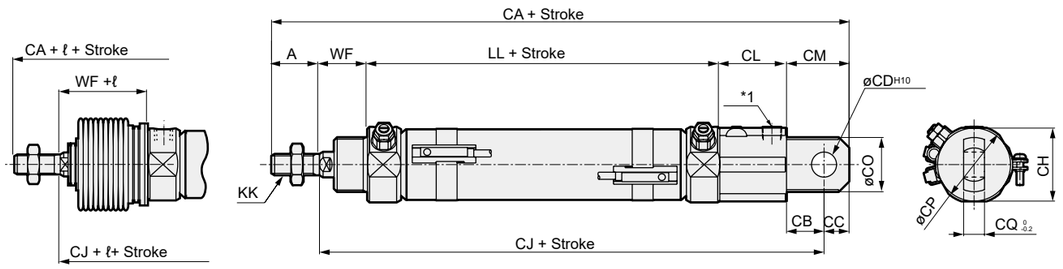
[With Bellows]

Code	Head Side Flange Type (FB) Mounting Dimensions													With Bellows
Bore Size (mm)	A	HA	KK	LL	WF	X	FC	FD	FH	FJ	FL	FM	FT	ℓ
ø20	20	26	M8 × 1.0	66	24	124	20	6	34	93.2	40	54	3.2	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	69	23	131	28	7	44	96.5	64	80	4.5	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	69	23	131	28	7	44	96.5	64	80	4.5	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	73	23	137	28	7	44	100.5	64	80	4.5	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Single Clevis Type (CA)

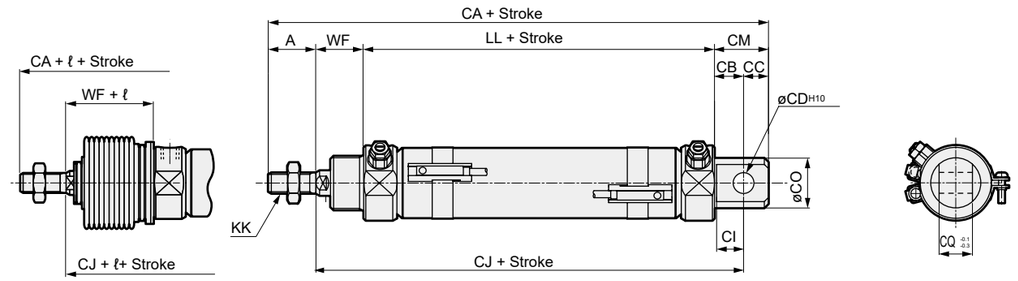


[With Bellows]

Code	Single Clevis Type (CA) Mounting Dimensions															With Bellows
Bore Size (mm)	A	KK	LL	WF	CA	CB	CC	CD	CH	CJ	CL	CM	CO	CP	CQ	ℓ
ø20	20	M8 × 1.0	66	24	165	14	10	10	26	135	31	24	22	28	8	(Stroke / 3) + 6
ø25	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	10	(Stroke / 3.25) + 7
ø32	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	10	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	73	23	183	18	12	12	35	146	32	30	26	37	10	(Stroke / 3.25) + 7

*1: Not a piping port.
*2: Round up the ℓ dimension to the nearest whole number.
***3: For dimensions with each switch, see P. 284 to P. 286.**
***4: For outer dimensions diagram of accessories, refer to P. 123.**

● Single Yoke Clevis Integrated Type (CC)
● Single Clevis Bushing Press-fit Type (CC1)



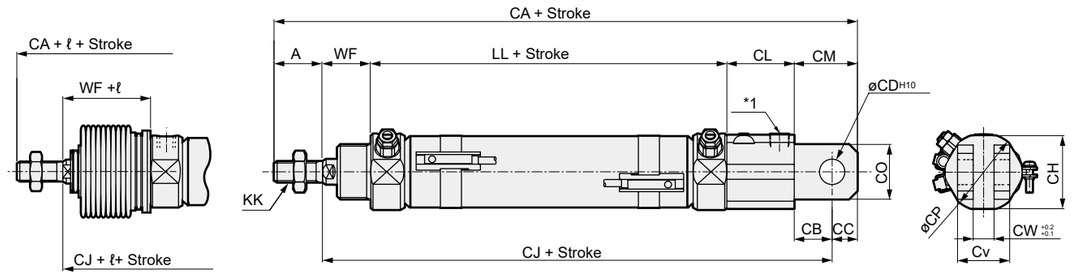
[With Bellows]

Code	Single Clevis Integrated Type (CC), Bushing Press-fit Type (CC1) Mounting Dimensions													With Bellows
Bore Size (mm)	A	KK	LL	WF	CA	CB	CC	CD	CJ	CI	CM	CO	CQ	ℓ
ø20	20	M8 × 1.0	66	24	131	12	9	8	102	11	21	22	16	(Stroke / 3) + 6
ø25	23	M10 × 1.25	69	23	136	12	9	8	104	11	21	24	16	(Stroke / 3.25) + 7
ø32	23	M10 × 1.25	69	23	141	14	12	10	106	13	26	24	16	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	73	23	151	16	14	12	112	15	30	30	20	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Double clevis type (CB)



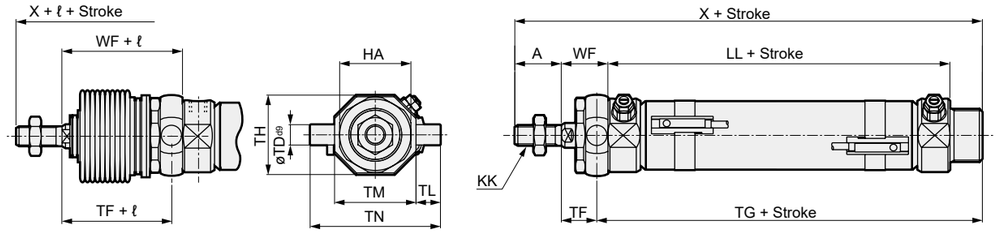
[With Bellows]

Code	Double Clevis Type (CB) Mounting Dimensions																With Bellows
Bore Size (mm)	A	KK	LL	WF	CA	CB	CC	CD	CH	CJ	CL	CM	CO	CP	Cv	CW	ℓ
ø20	20	M8 × 1.0	66	24	165	14	10	10	26	135	31	24	22	28	19	8	(Stroke / 3) + 6
ø25	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	25	10	(Stroke / 3.25) + 7
ø32	23	M10 × 1.25	69	23	177	18	12	12	35	142	32	30	26	37	25	10	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	73	23	183	18	12	12	35	146	32	30	26	37	25	10	(Stroke / 3.25) + 7

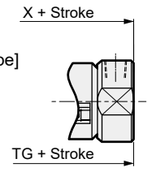
*1: Not a piping port.
*2: Round up the ℓ dimension to the nearest whole number.
***3: For dimensions with each switch, see P. 284 to P. 286.**
***4: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Rod side trunnion type (TA)



[With Bellows]

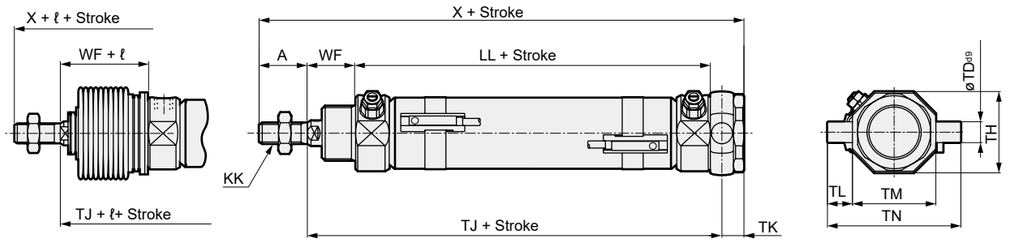


[Boss Cut Type]

Code	Rod Side Trunnion Type (TA) Mounting Dimensions													With Bellows	Boss Cut Type	
Bore Size (mm)	A	HA	KK	LL	WF	X	TD	TF	TG	TH	TL	TM	TN	ℓ	X	TG
ø20	20	26	M8 × 1.0	66	24	124	8	19.5	84.5	29.5	8	30	46	(Stroke / 3) + 6	110	70.5
ø25	23	35	M10 × 1.25	69	23	131	10	17.5	90.5	39	12	40	64	(Stroke / 3.25) + 7	115	74.5
ø32	23	35	M10 × 1.25	69	23	131	10	17.5	90.5	39	12	40	64	(Stroke / 3.25) + 7	115	74.5
ø40	25	35	M12 × 1.5	73	23	137	10	17.5	94.5	44	9.5	53	72	(Stroke / 3.25) + 7	121	78.5

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

●Head Side Trunnion Type (TB)

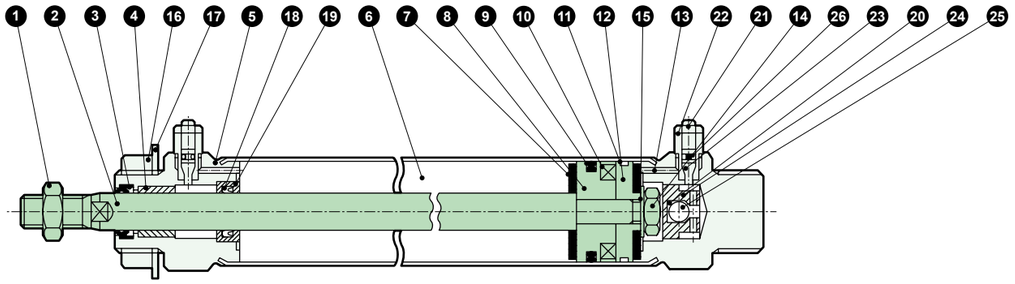


[With Bellows]

Code	Head Side Trunnion Type (TB) Mounting Dimensions													With Bellows
Bore Size (mm)	A	HA	KK	LL	WF	X	TD	TH	TJ	TK	TL	TM	TN	ℓ
ø20	20	26	M8 × 1.0	66	24	124	8	29.5	94.5	9.5	8	30	46	(Stroke / 3) + 6
ø25	23	35	M10 × 1.25	69	23	131	10	39	97.5	10.5	12	40	64	(Stroke / 3.25) + 7
ø32	23	35	M10 × 1.25	69	23	131	10	39	97.5	10.5	12	40	64	(Stroke / 3.25) + 7
ø40	25	35	M12 × 1.5	73	23	137	10	44	101.5	10.5	9.5	53	72	(Stroke / 3.25) + 7

*1: Round up the ℓ dimension to the nearest whole number.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Internal Structure Diagram / Material



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	13	Head Cover	Aluminum Alloy	
2	Piston Rod	ø20, ø25: Stainless Steel ø32, ø40: Carbon Steel	Industrial Hard Chrome Plating	14	Hexagon Nut	Steel	Zinc Chromate
				15	Spacer	Steel	Zinc Chromate (ø20 to ø32 only)
3	Rod Packing	Nitrile Rubber		16	Nut	Steel	Zinc Chromate
4	Bushing	ø20: Bearing Alloy ø25, ø32, ø40: Oil Impregnated Bearing Alloy		17	Toothed Lock Washer	Steel	Zinc Chromate
				18	Check Packing	Nitrile Rubber	
5	Rod Cover	Aluminum Alloy		19	Packing Adapter	Steel	Chromate
6	Cylinder Tube	Stainless Steel		20	Check Ball Retainer	Steel	Zinc Chromate
7	Cushion Rubber	Urethane Rubber		21	Hexagon Nut	Steel	Zinc Chromate
8	Piston A	Aluminum Alloy		22	Needle Holder	Steel	Zinc Chromate
9	Piston Packing	Nitrile Rubber		23	Needle	Steel	Zinc Chromate
10	Magnet	Plastic		24	Check Ball Receiver	Steel	Black Oxide
11	Wear Ring	Polyacetal		25	Urethane Ball	Urethane Rubber	
12	Piston B	Aluminum Alloy		26	Needle Gasket	Nitrile Rubber	

MEMO

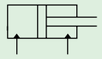
General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending



Small bore cylinder
Double Acting, Low Hydraulic Pressure Type

CMK2-H Series

●Bore Size: ø20, ø25, ø32, ø40

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

With Switch
(Built-in magnet for switch)

	CMK2-H	00	20		100	T0H	R	V	I
	Model No.	❶ Mounting type	❷ Bore size	❸ Piping thread type	❹ Stroke	❺ Switch Model No.	❻ Number of Switches	❼ Option	❽ Accessories

Mounting brackets are included with the product and shipped. However, if bellows are included and the mounting brackets are LB, LS, FA, or TA, they will be shipped assembled.

❶Mounting type

	Code	Content	
	00	Basic type	
	LB	Axial Foot Type (Both Sides)	
*1	LS	Axial Foot Type (Single Side)	
	FA	Rod Side Flange Type	
	FB	Head Side Flange Type	
	CA	Single Clevis Type	
	CC	Single Clevis Integrated Type	
	CC1	Single Clevis, Bushing Press-fit Type	
	CB	Double Clevis Type (Pin and Washer Split Pin Attached)	
	TA	Rod Side Trunnion Type	
	TB	Head Side Trunnion Type	

*1: Single side foot type (LS type) has a max. stroke of 50 mm.

❷Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

❸Piping thread type

Code	Content
Blank	Rc Thread
NN	NPT Thread (Custom Order Product)
GN	G Thread (Custom Order Product)

❹Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20	5 to 750	Every 1 mm
ø25	5 to 750	
ø32	5 to 750	
ø40	5 to 750	

Note: For minimum stroke with switch and maximum/minimum stroke with bellows, refer to P. 254.

❺Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp / Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

	Code	Content
*5	Blank	1 m (Standard)
	3	3 m (Option)
	5	5 m (Option)
	W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

Note: The maximum number of switches that can be installed is 3. If 4 or more are required, please order the insufficient switch mounting brackets separately by individual model number.

❽Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Washer Split Pin Attached)	
	B2	Double Yoke Bracket (Pin and Retaining Ring Attached)	

*1: "I" and "Y" cannot be selected at the same time.

❼Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
	J	Bellows	100°C	200°C	
	L		250°C	400°C	
*2	M	Piston Rod Material (Stainless Steel)			
	V	Boss Cut			

*1: Instantaneous maximum temperature is the temperature when sparks, chips, etc. instantaneously hit the bellows.
*2: When Bore size ø20, 25 is selected, the piston rod material is already stainless steel. (If M is selected, the rod nut material will also be stainless steel.)

About Custom Product Specifications

For details, see P. 287.

Code	Content
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)

CMK2-H-.....-XJ9

*For combinations of variations and options, see P. 109.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

CMK2 - T0H - 20
- T0H: ❺ Switch Model No.
- 20: ❷ Bore size

●Switch body only

SW - T0H
- T0H: ❺ Switch Model No.

●Mounting bracket set

CMK2 - T - 20
- T: Mounting bracket
- 20: ❷ Bore size

Specifications

Item		CMK2-H			
Bore Size	mm	ø20	ø25	ø32	ø40
Actuation method		Double Acting, Low Hydraulic Pressure Type			
Operating Fluid		Hydraulic Operating Fluid			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.15			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	5 to 50			
Port Size		Rc 1/8			
Stroke tolerance	mm	$^{+2.0}_{0}$ (Up to 200), $^{+2.4}_{0}$ (Over 200,)			
Operating Piston Speed	mm/s	5 to 300			
Cushion		Rubber Cushion			
Lubrication		Not Required			
Allowable Absorbed Energy	J	0.166	0.308	0.424	0.639

Note: The product weight, thrust and Dimensions are the same as those of CMK2 (double acting/single rod).

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke		Min. Stroke	
		Without Bellows	With Bellows	Without Bellows Bellows "L"	Bellows "J"
ø20	25, 50, 75, 100, 150, 200, 250, 300	750	650	5	25
ø25					
ø32					
ø40					

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: Single side foot type (LS type) has a maximum stroke of 50 mm.
*3: For bellows "J" with a stroke of less than 25 mm, please inquire each time.

Min. Stroke with Switch

(Unit: mm)

Number of Switches	1					2				
	Solid State			Reed		Solid State			Reed	
Bore Size (mm)	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8	T2, T3	T2W, T3W, T2WL	T1	T0, T5	T8
ø20	10					25	30	35	25	35
ø25	10					25	30	35	25	35
ø32	10					25	30	35	25	35
ø40	10					25	30	35	25	35

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm								Switch Weight (Per Piece)	Switch Rail + Band Weight	Added Weight per S = 10 mm
	Basic Type (00)	Axial Foot Type (LB)	Axial Foot Type (LS)	Flange Type (FA/FB)	Single Clevis Type (CA)	Clevis Type (CCAA)	Double clevis type (CB)	Trunnion Type (TA/TB)			
ø20	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	Refer to the mass described in the switch specifications on P. 971	0.005	0.01
ø25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
ø32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
ø40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

(Example) Product Weight of CMK2-H-FA-32-50-T0H-D

Product Weight at S = 0 mm: .....0.45 kg
Added weight at S=50 mm..... Added weight at S=10 mm 0.02 × $\frac{\text{Product Stroke (50)}}{10}$ = 0.10 kg
Weight of 2 switches: .....0.036 kg
Weight of switch rail + 2 bands: ..0.018 kg
Product Weight .....0.45 kg+0.1 kg+0.036 kg+0.018 kg=0.604 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	47.1	62.8	94.2	1.26 × 10²	1.57 × 10²	1.88 × 10²	2.20 × 10²	2.51 × 10²	2.83 × 10²	3.14 × 10²
	Pull	35.3	47.1	70.7	94.2	1.18 × 10²	1.41 × 10²	1.65 × 10²	1.88 × 10²	2.12 × 10²	2.36 × 10²
ø25	Push	73.6	98.2	1.47 × 10²	1.96 × 10²	2.45 × 10²	2.95 × 10²	3.44 × 10²	3.93 × 10²	4.42 × 10²	4.91 × 10²
	Pull	56.7	75.6	1.13 × 10²	1.51 × 10²	1.89 × 10²	2.27 × 10²	2.64 × 10²	3.02 × 10²	3.40 × 10²	3.78 × 10²
ø32	Push	1.21 × 10²	1.61 × 10²	2.41 × 10²	3.22 × 10²	4.02 × 10²	4.83 × 10²	5.63 × 10²	6.43 × 10²	7.24 × 10²	8.04 × 10²
	Pull	1.04 × 10²	1.38 × 10²	2.07 × 10²	2.76 × 10²	3.46 × 10²	4.15 × 10²	4.84 × 10²	5.53 × 10²	6.22 × 10²	6.91 × 10²
ø40	Push	1.88 × 10²	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²	1.01 × 10³	1.13 × 10³	1.26 × 10³
	Pull	1.65 × 10²	2.21 × 10²	3.31 × 10²	4.41 × 10²	5.51 × 10²	6.62 × 10²	7.72 × 10²	8.82 × 10²	9.92 × 10²	1.10 × 10³

Mounting Bracket Model No. Notation Method

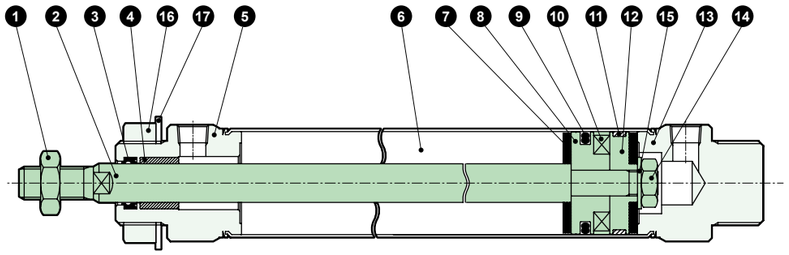
Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Basic Type (00) *3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial Foot Type (LB/LS)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40
Single Clevis Type (CA)	M1-CA-20	M1-CA-30	M1-CA-30	M1-CA-30
Double clevis type (CB)	M1-CB-20	M1-CB-30	M1-CB-30	M1-CB-30

*1: For axial foot type and flange type mounting brackets, mounting nuts and toothed washers are included. Also, for trunnion type, mounting nuts are included.
*2: For axial foot type (both sides), 2 sets of "M1-LB-□" from the table above are required.
*3: Only mounting nuts and toothed lock washers are included. One set is included with the basic type (00) of the product, but use this if additional sets are required.

Outline Dimension Drawing

Same as double acting/single rod type. See P. 114 to P. 121.

Internal Structure Diagram / Material



Do not disassemble

Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate
2	Piston Rod	ø20, ø25: Stainless Steel ø32, ø40: Carbon Steel	Industrial Hard Chrome Plating
3	Rod Packing	Nitrile Rubber	
4	Bushing	ø20: Bearing Alloy ø25, ø32, ø40: Oil Impregnated Bearing Alloy	
5	Rod Cover	Aluminum Alloy	
6	Cylinder Tube	Stainless Steel	
7	Cushion Rubber	Urethane Rubber	
8	Piston A	Aluminum Alloy	

Part No.	Part Name	Material	Remarks
9	Piston Packing	Nitrile Rubber	
10	Magnet	Plastic	
11	Wear Ring	Polyacetal	
12	Piston B	Aluminum Alloy	
13	Head Cover	Aluminum Alloy	
14	Hexagon Nut	Steel	Zinc Chromate
15	Spacer	Steel	Zinc Chromate (ø20 to ø32 only)
16	Nut	Steel	Zinc Chromate
17	Toothed Lock Washer	Steel	Zinc Chromate

Mounting Bracket Material

Mounting type	Material
Foot (LB / LS)	Steel
Flange (FA / FB)	Steel
Trunnion (TA / TB)	Steel
Single Clevis (CA)	Steel
Double Clevis (CB)	Steel

Note: Mounting brackets are included with the product upon shipment. However, when bellows are included and the mounting brackets are LB, LS, FA, or TA, they will be shipped assembled.

MEMO

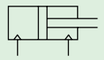


Small Bore Size Cylinder Double Acting/Cutting Oil Resistant Type

CMK2-G2/G3 Series

●Bore Size: ø20, ø25, ø32, ø40

Circuit Diagram Symbol



RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

With Switch
(Built-in magnet for switch)

	❶	❷	❸	❹	❺	❻	❼	❽
Model No.	Protection structure level	Mounting type	Bore size	Piping thread type	Stroke	Switch Model No.	Number of Switches	Accessories
CMK2	G2	00	20		100			Y
CMK2	G2	00	20		100	T2YLH	R	Y

❶Protection structure level

Code	Content
G2	Cutting Oil Resistant Scraper + NBR Packing
G3	Cutting Oil Resistant Scraper + FKM Packing

❷Mounting type

Mounting brackets are included with the product and shipped. However, if bellows are included and the mounting brackets are LB, LS, FA, or TA, they will be shipped assembled.

	Code	Content	
	00	Basic type	
	LB	Axial Foot Type (Both Sides)	
*1	LS	Axial Foot Type (Single Side)	
	FA	Rod Side Flange Type	
	FB	Head Side Flange Type	
	CA	Single Clevis Type	
	CC	Single Clevis Integrated Type	
	CC1	Single Clevis, Bushing Press-fit Type	
	CB	Double Clevis Type (Pin and Washer Split Pin Attached)	
	TA	Rod Side Trunnion Type	
	TB	Head Side Trunnion Type	

*1: Single side foot type (LS type) has a max. stroke of 50 mm.

❸Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

❹Piping thread type

Code	Content
Blank	Rc Thread
NN	NPT Thread (Custom Order Product)
GN	G Thread (Custom Order Product)

❺Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20	5 to 750	Every 1 mm
ø25	5 to 750	
ø32	5 to 750	
ø40	5 to 750	

Note: For minimum stroke with switch, refer to P. 260.

❻Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Contact	2-Color Water Resistance Improved	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	
Solid State	2-Color For Cutting Oil	2-wire	—	10 to 30	—	5 to 20 *2	T2YLH□	T2YLV□	
Solid State	2-Color For Cutting Oil	3-wire (NPN)	—	30 or less	—	50 or less	T3YLH□	T3YLV□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

	Code	Content
	Blank	1 m (Standard)
	3	3 m (Option)
	5	5 m (Option)
*4	W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*4: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m T2WLH
3 m T2WLH3
5 m T2WLH5

❼Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

Note: The maximum number of switches that can be installed is 3. If 4 or more are required, please order the insufficient switch mounting brackets separately by individual model number.

❽Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Washer Split Pin Attached)	
	B2	Double Yoke Bracket (Pin and retaining ring included)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, see P. 287.

Code	Content
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
CMK2-G2/G3 -..... -XJ9

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

CMK2-G2/G3 -..... -FP1

*For combinations of variations and options, see P. 109.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set
CMK2 - T2YLH - 20
(6 Switch Model No., 3 Bore size)

●Switch body only
SW - T2YLH
(6 Switch Model No.)

●Mounting bracket set
CMK2 - T - 20
(Mounting bracket, 3 Bore size)

Specifications

Item		CMK2-G2/G3			
Bore Size	mm	ø20	ø25	ø32	ø40
Actuation method		Double Acting, Coolant Proof Type			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.15			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	-10 to 60 (Provided that freezing does not occur)			
Port Size		Rc 1/8			
Stroke tolerance	mm	$^{+2.0}_{0}$ (0 to 200) $^{+2.4}_{0}$ (Over 200,)			
Operating piston speed	mm/s	50 to 500			
Cushion		Rubber Cushion			
Lubrication		Not Required (When lubricating, use turbine oil Class 1 ISO VG32)			
Allowable Absorbed Energy	J	0.166	0.308	0.424	0.639

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke	With Switch Min. Stroke
ø20, ø25, ø32, ø40	25, 50, 75, 100, 150, 200, 250, 300	750	5	25

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: Single side foot type (LS type) has a maximum stroke of 50 mm.

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm: Basic type 00	Axial Foot Type (LB)	Axial Foot Type (LS)	Flange Type (FA/FB)	Single Clevis Type (CA)	Clevis Type (CC)	Double Clevis Type (CB)	Trunnion Type (TA/TB)	Switch Weight (Per Piece)	Switch Rail + Band Weight	Added Weight per S = 10 mm
ø20	0.21	0.36	0.29	0.27	0.36	0.22	0.36	0.26	P. 971 Refer to the weight described in the switch specifications.	0.005	0.01
ø25	0.27	0.53	0.40	0.42	0.51	0.27	0.51	0.37		0.005	0.01
ø32	0.31	0.57	0.44	0.46	0.55	0.31	0.55	0.41		0.009	0.02
ø40	0.49	0.75	0.62	0.64	0.73	0.51	0.73	0.65		0.009	0.02

(Example) Product mass of CMK2-G2-FA-32-50-T2WL

Product Weight at S = 0 mm: ....0.45 kg
Added weight at S=50 mm.... Added weight at S=10 mm $0.02 \times \frac{\text{Product Stroke (50)}}{10} = 0.10$ kg
Mass of 2 switches: 0.062 kg
Weight of switch rail + 2 bands: ....0.018 kg
Product Weight .....0.45 kg+0.1 kg+0.062 kg+0.018 kg=0.63 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa: 0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	47.1	62.8	94.2	1.26 × 10²	1.57 × 10²	1.88 × 10²	2.20 × 10²	2.51 × 10²	2.83 × 10²	3.14 × 10²
	Pull	35.3	47.1	70.7	94.2	1.18 × 10²	1.41 × 10²	1.65 × 10²	1.88 × 10²	2.12 × 10²	2.36 × 10²
ø25	Push	73.6	98.2	1.47 × 10²	1.96 × 10²	2.45 × 10²	2.95 × 10²	3.44 × 10²	3.93 × 10²	4.42 × 10²	4.91 × 10²
	Pull	56.7	75.6	1.13 × 10²	1.51 × 10²	1.89 × 10²	2.27 × 10²	2.64 × 10²	3.02 × 10²	3.40 × 10²	3.78 × 10²
ø32	Push	1.21 × 10²	1.61 × 10²	2.41 × 10²	3.22 × 10²	4.02 × 10²	4.83 × 10²	5.63 × 10²	6.43 × 10²	7.24 × 10²	8.04 × 10²
	Pull	1.04 × 10²	1.38 × 10²	2.07 × 10²	2.76 × 10²	3.46 × 10²	4.15 × 10²	4.84 × 10²	5.53 × 10²	6.22 × 10²	6.91 × 10²
ø40	Push	1.88 × 10²	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²	1.01 × 10²	1.13 × 10³	1.26 × 10³
	Pull	1.65 × 10²	2.21 × 10²	3.31 × 10²	4.41 × 10²	5.51 × 10²	6.62 × 10²	7.72 × 10²	8.82 × 10²	9.92 × 10²	1.10 × 10³

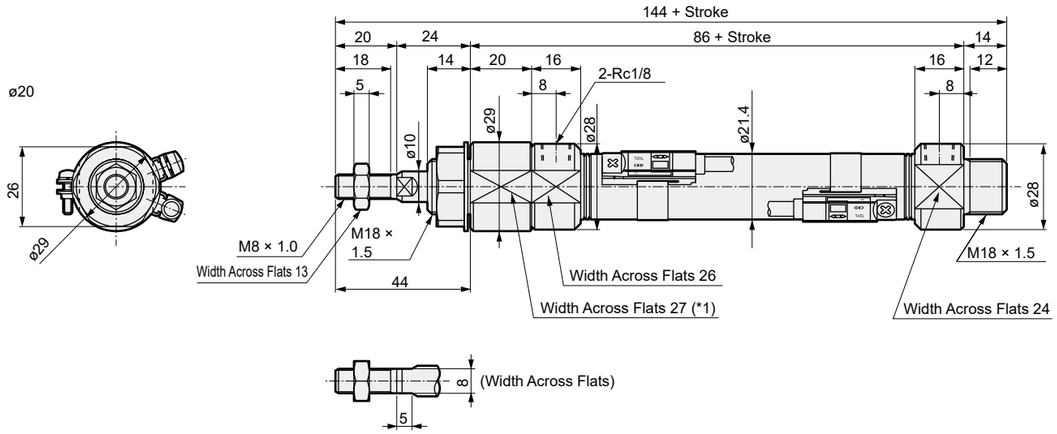
Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Basic Type (0) *4	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial Foot Type (LB/LS)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30 CMK2-G2-40-LS (Rod side of LB)
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	CMK2-G2-40-FA (FA) M1-FA-30 (FB)
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	CMK2-G2-40-TA (TA) M1-TA-40 (TB)
Single Clevis Type (CA)	M1-CA-20	M1-CA-30	M1-CA-30	M1-CA-30
Double clevis type (CB)	M1-CB-20	M1-CB-30	M1-CB-30	M1-CB-30

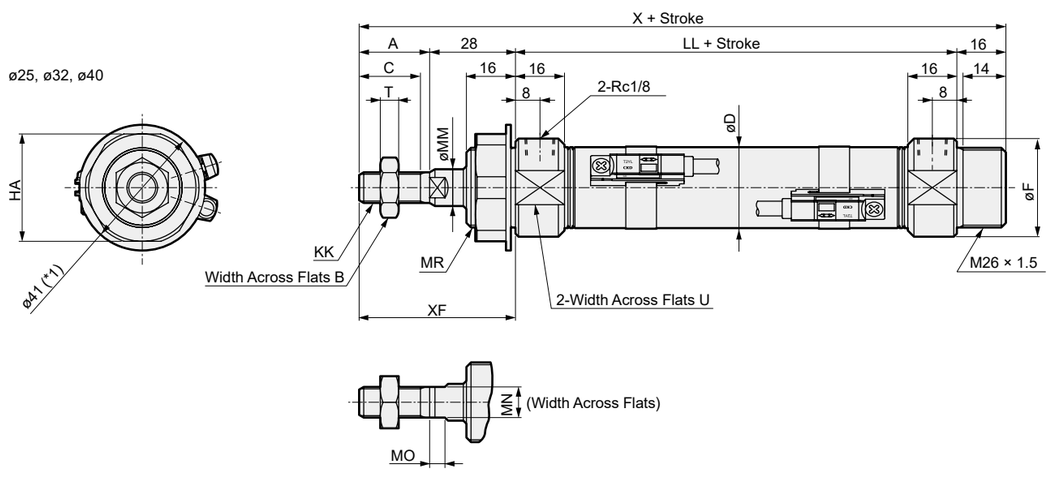
*1: For Bore size ø40, the nut attached to the rod cover, LS bracket (rod side of LB), FA bracket, and TA bracket are different from the standard type.
*2: For axial foot type and flange type mounting brackets, mounting nuts and toothed washers are included. Also, for trunnion type, mounting nuts are included.
*3: For axial foot type (double side), 2 sets of "M1-LB-□" in the table above are required.
*4: Only mounting nuts and toothed lock washers are included. One set is included with the basic type (00) of the product, but use this if additional sets are required.

Outline Dimension Drawing

● Basic type (00)



*1: The position of the width across flats of the adapter is not fixed.



Code	Basic Type (00) Basic Dimensions															
Bore Size (mm)	A	B	C	D	F	HA	KK	LL	MM	MN	MO	MR	T	U	X	XF
ø25	23	17	20	26.4	32	35	M10 × 1.25	69	12	10	5	M26 × 1.5	6	30	136	51
ø32	23	17	20	33.6	36	35	M10 × 1.25	69	12	10	5	M26 × 1.5	6	34	136	51
ø40	25	19	22	41.6	45	38	M12 × 1.5	73	14	12	6	M30 × 1.5	7	43	142	53

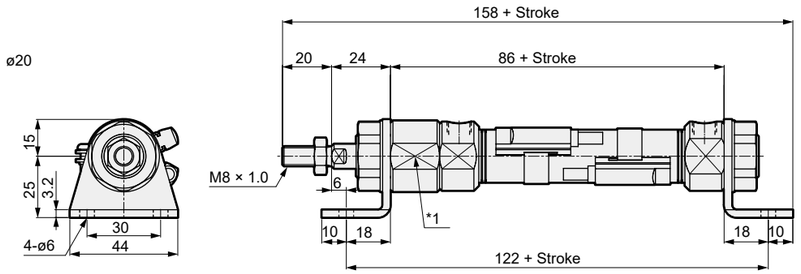
*1: For ø40, toothed lock washer is not included.

***2: For dimensions with each switch, see P. 284 to P. 286.**

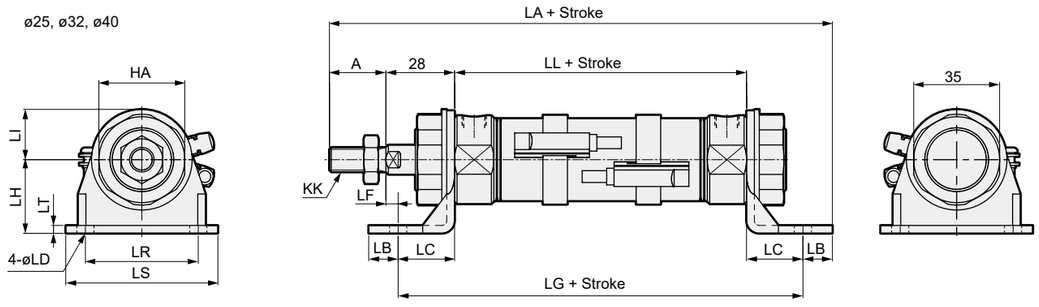
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Axial Foot Type (LB)



*1: The position of the width across flats of the adapter is not fixed.



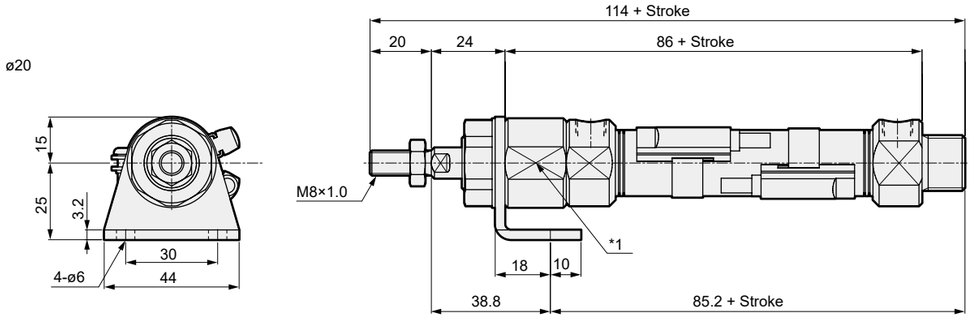
Code	Axial Foot Type (LB) Mounting Dimensions													
Bore Size (mm)	A	HA	KK	LA	LB	LC	LD	LF	LG	LH	LI	LL	LR	LS	LT
ø25	23	35	M10 × 1.25	155	12	23	7	5	120	30	20.5	69	5.5	62	3.2
ø32	23	35	M10 × 1.25	155	12	23	7	5	120	30	20.5	69	5.5	62	3.2
ø40	25	38	M12 × 1.5	161	12	23	7	5	124	30	20.5	73	7.5	62	3.2

***1: For dimensions with each switch, see P. 284 to P. 286.**

***2: For outer dimensions diagram of accessories, refer to P. 123.**

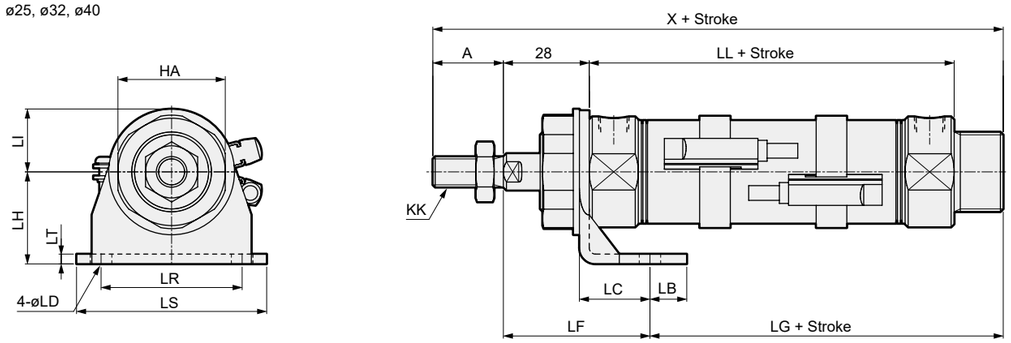
Outline Dimension Drawing

● Single Side Axial Foot Type (LS)



*1: The position of the width across flats of the adapter is not fixed.

ø25, ø32, ø40

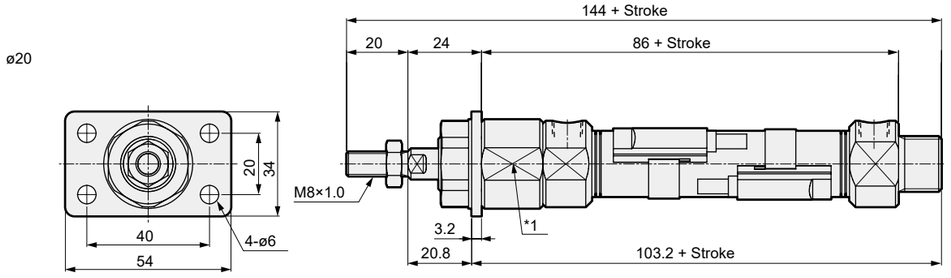


Code	Single Side Axial Foot Type (LS) Mounting Dimensions														
Bore Size (mm)	A	HA	KK	LB	LC	LD	LF	LG	LH	LI	LL	LR	LS	LT	X
ø25	23	35	M10 × 1.25	12	23	7	47.8	70.2	30	20.5	69	46	62	3.2	136
ø32	23	35	M10 × 1.25	12	23	7	47.8	70.2	30	20.5	69	46	62	3.2	136
ø40	25	38	M12 × 1.5	12	23	7	47.8	74.2	30	20.5	73	46	62	3.2	142

***1: For dimensions with each switch, see P. 284 to P. 286.**
***2: For outer dimensions diagram of accessories, refer to P. 123.**

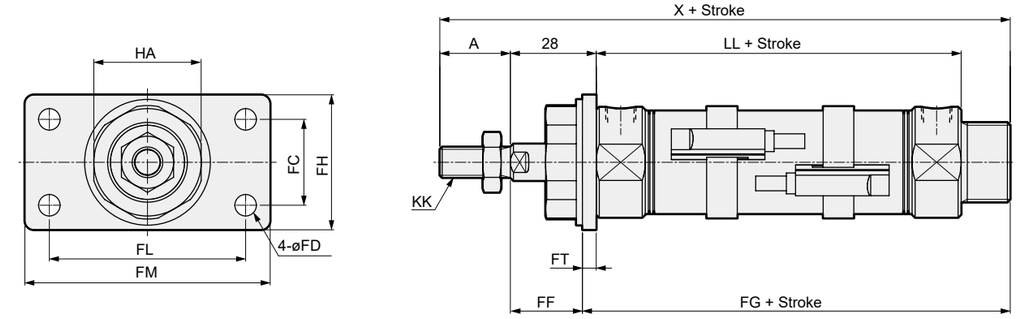
Outline Dimension Drawing

● Rod Side Flange Type (FA)



*1: The position of the width across flats of the adapter is not fixed.

ø25, ø32, ø40



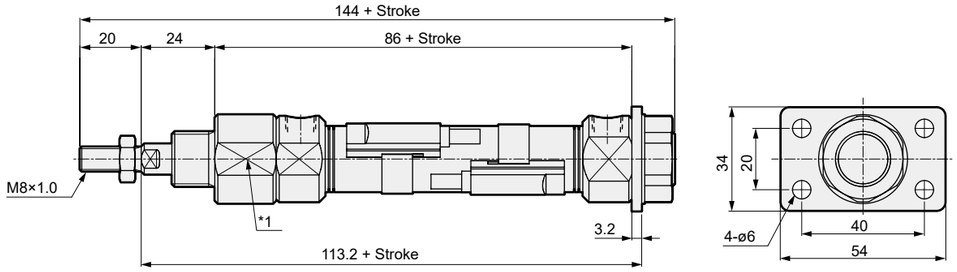
Code	Rod Side Flange Type (FA) Mounting Dimensions												
Bore Size (mm)	A	FC	FD	FF	FG	FH	FL	FM	FT	HA	KK	LL	X
ø25	23	28	7	23.5	94.5	44	64	80	4.5	35	M10 × 1.25	69	136
ø32	23	28	7	23.5	94.5	44	64	80	4.5	35	M10 × 1.25	69	136
ø40	25	28	7	23.5	98.5	44	64	80	4.5	38	M12 × 1.5	73	142

***1: For dimensions with each switch, see P. 284 to P. 286.**
***2: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

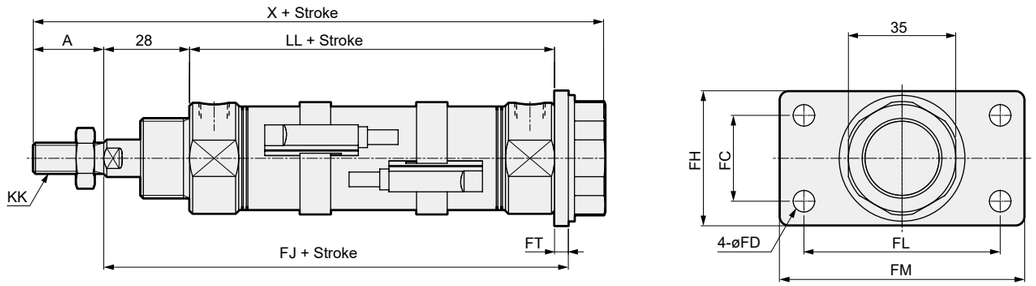
● Head Side Flange Type (FB)

ø20



*1: The position of the width across flats of the adapter is not fixed.

ø25, ø32, ø40



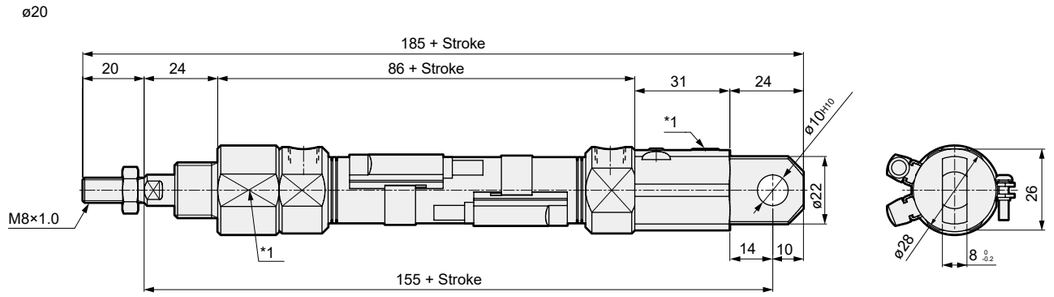
Code	Head Side Flange Type (FB) Mounting Dimensions										
Bore Size (mm)	A	FC	FD	FH	FJ	FL	FM	FT	KK	LL	X
ø25	23	28	7	44	101.5	64	80	4.5	M10 × 1.25	69	136
ø32	23	28	7	44	101.5	64	80	4.5	M10 × 1.25	69	136
ø40	25	28	7	44	105.5	64	80	4.5	M12 × 1.5	73	142

***1: For dimensions with each switch, see P. 284 to P. 286.**
***2: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

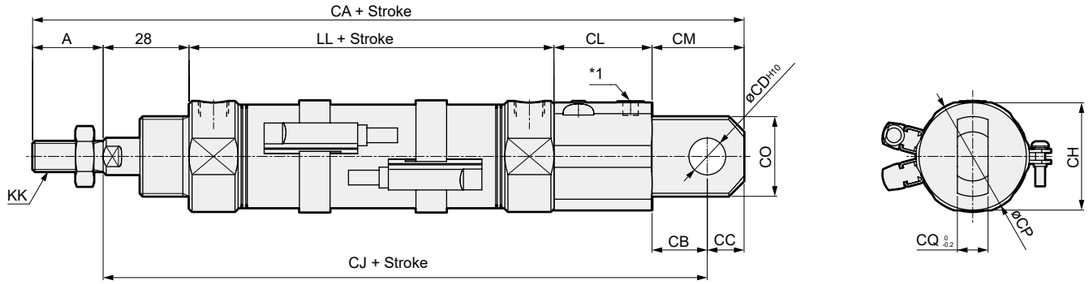
● Single Yoke Clevis Type (CA)

ø20



*1: The position of the width across flats of the adapter is not fixed.

ø25, ø32, ø40



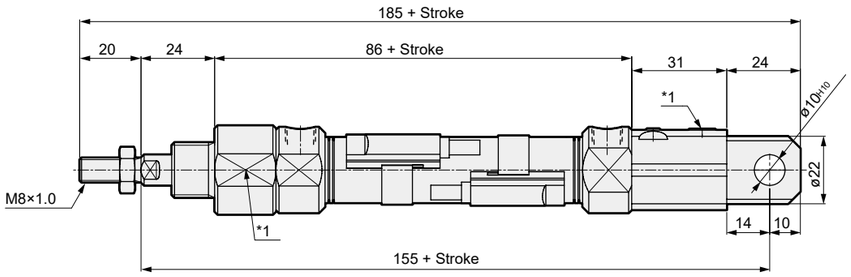
Code	Single Clevis Type (CA) Mounting Dimensions													
Bore Size (mm)	A	CA	CB	CC	CD	CH	CJ	CL	CM	CO	CP	CQ	KK	LL
ø25	23	182	18	12	12	35	147	32	30	26	37	10	M10 × 1.25	69
ø32	23	182	18	12	12	35	147	32	30	26	37	10	M10 × 1.25	69
ø40	25	188	18	12	12	35	151	32	30	26	37	10	M12 × 1.5	73

*1: Not a piping port.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

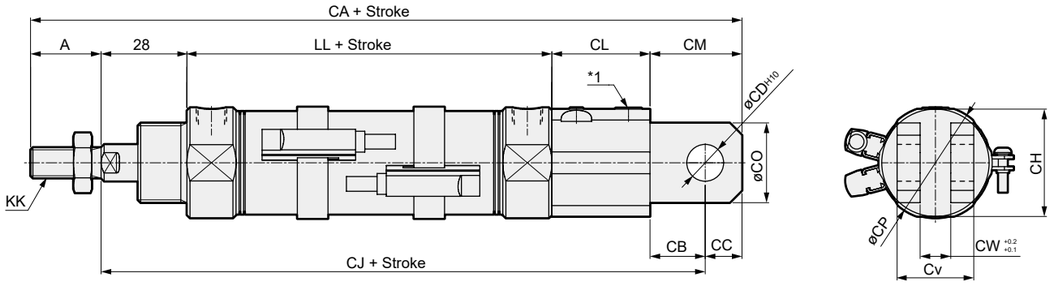
● Double Clevis Type (CB) ø20

ø20



*1: The position of the width across flats of the adapter is not fixed.

ø25, ø32, ø40



Code	Double Clevis Type (CB) Mounting Dimensions														
Bore Size (mm)	A	CA	CB	CC	CD	CH	CJ	CL	CM	CO	CP	Cv	CW	KK	LL
ø25	23	182	18	12	12	35	147	32	30	26	37	25	10	M10 × 1.25	69
ø32	23	182	18	12	12	35	147	32	30	26	37	25	10	M10 × 1.25	69
ø40	25	188	18	12	12	35	151	32	30	26	37	25	10	M12 × 1.5	73

*1: Not a piping port.

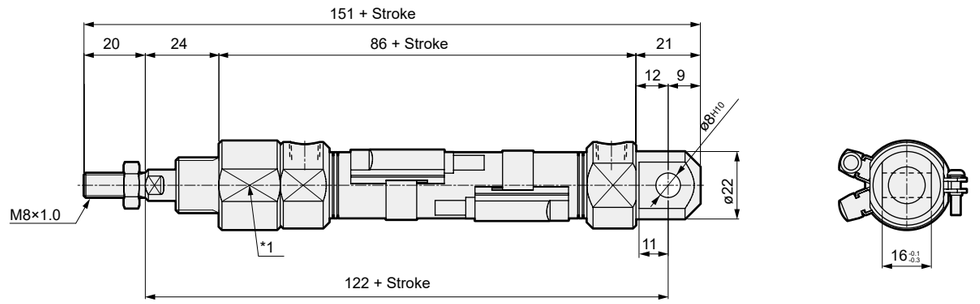
***2: For dimensions with each switch, see P. 284 to P. 286.**

***3: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

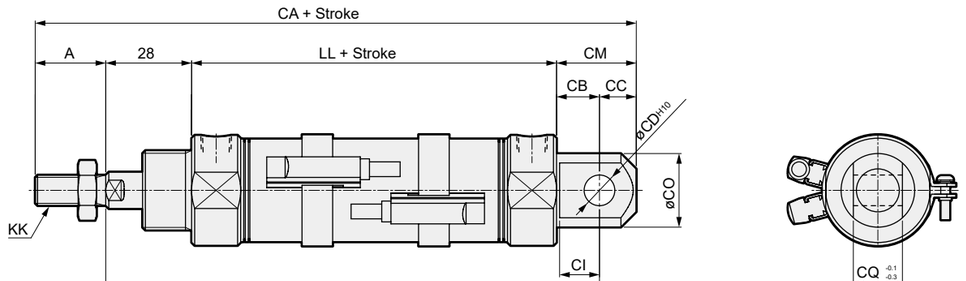
● Single Yoke Clevis Integrated Type (CC)
Single Clevis Bushing Press-fit Type (CC1)

ø20



*1: The position of the width across flats of the adapter is not fixed.

ø25, ø32, ø40



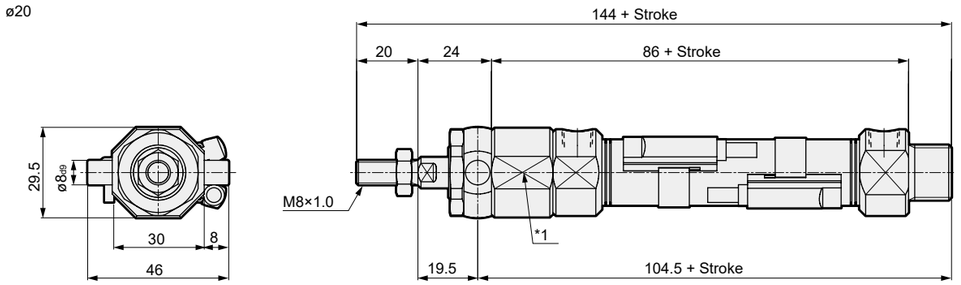
Code	Single Clevis Integrated Type (CC), Bushing Press-fit Type (CC1) Mounting Dimensions											
Bore Size (mm)	A	CA	CB	CC	CD	CI	CJ	CM	CO	CQ	KK	LL
ø25	23	141	12	9	8	11	109	21	24	16	M10 × 1.25	69
ø32	23	146	14	12	10	13	111	26	24	16	M10 × 1.25	69
ø40	25	156	16	14	12	15	117	30	30	20	M12 × 1.5	73

***1: For dimensions with each switch, see P. 284 to P. 286.**

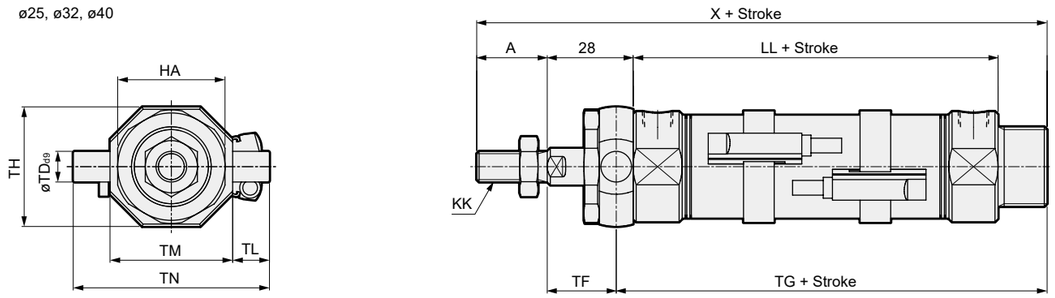
***2: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Rod side trunnion type (TA)



*1: The position of the width across flats of the adapter is not fixed.

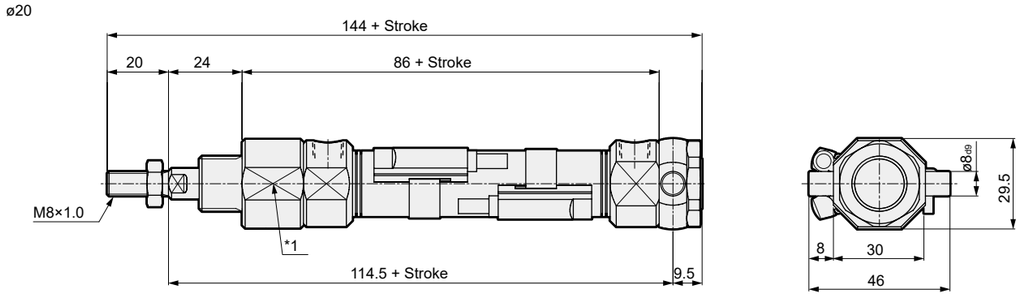


Code	Rod Side Trunnion Type (TA) Mounting Dimensions											
Bore Size (mm)	A	HA	KK	LL	TD	TF	TG	TH	TL	TM	TN	X
ø25	23	35	M10 × 1.25	69	10	22.5	95.5	39	12	40	64	136
ø32	23	35	M10 × 1.25	69	10	22.5	95.5	39	12	40	64	136
ø40	25	38	M12 × 1.5	73	10	22.5	99.5	44	9.5	53	72	142

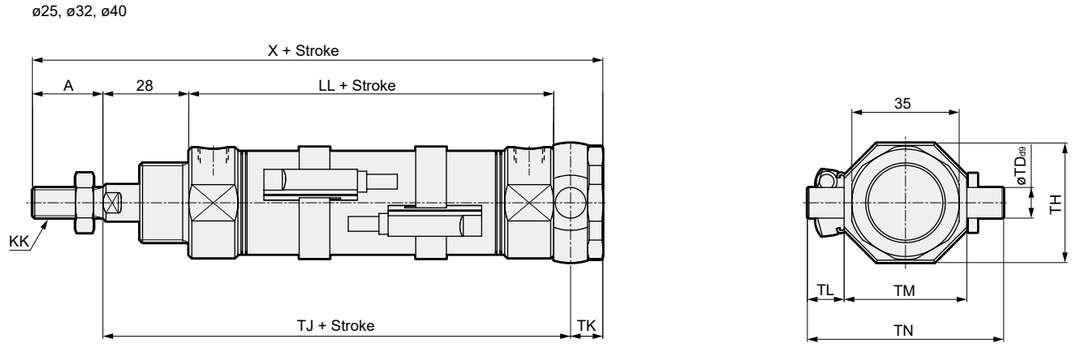
***1: For dimensions with each switch, see P. 284 to P. 286.**
***2: For outer dimensions diagram of accessories, refer to P. 123.**

Outline Dimension Drawing

●Head Side Trunnion Type (TB)



*1: The position of the width across flats of the adapter is not fixed.



Code	Head Side Trunnion Type (TB) Mounting Dimensions										
Bore Size (mm)	A	KK	LL	TD	TH	TJ	TK	TL	TM	TN	X
ø25	23	M10 × 1.25	69	10	39	102.5	10.5	12	40	64	136
ø32	23	M10 × 1.25	69	10	39	102.5	10.5	12	40	64	136
ø40	25	M12 × 1.5	73	10	44	106.5	10.5	9.5	53	72	142

***1: For dimensions with each switch, see P. 284 to P. 286.**
***2: For outer dimensions diagram of accessories, refer to P. 123.**

Internal Structure Diagram / Material

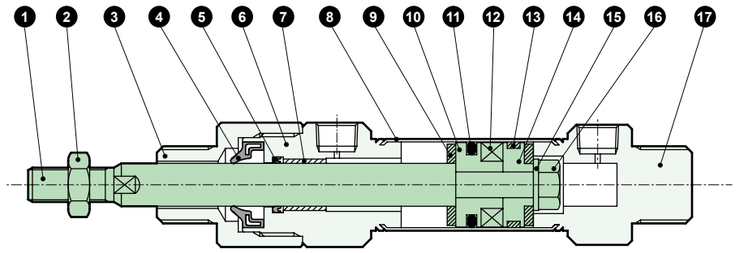
● Protection structure level NBR Packing

CMK2-G2

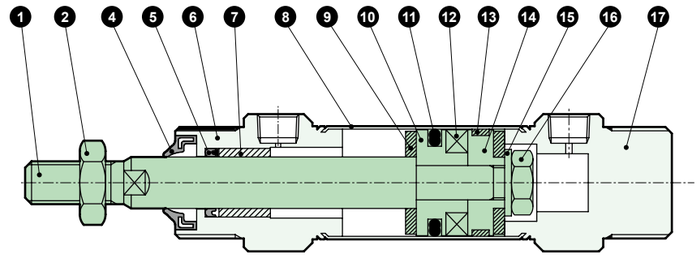
● Protection structure level: FKM Packing

CMK2-G3

ø20



ø25, ø32, ø40



Do not disassemble

Part No.	Part Name		Material	Remarks
1	Piston Rod		Stainless Steel	Industrial Hard Chrome Plating
2	Hexagon Nut		Stainless Steel	
3	Adapter		Aluminum Alloy	Chromate
4	Scraper	G2	Nitrile Rubber	
		G3	Fluoro Rubber	
5	Rod Packing	G2	Nitrile Rubber	
		G3	Fluoro Rubber	
6	Rod Cover		Aluminum Alloy	Chromate
7	Bushing		ø20: Bearing Alloy ø25, ø32, ø40: Oil Impregnated Bearing Alloy	
8	Cylinder Tube		Stainless Steel	
9	Cushion Rubber		Urethane Rubber	
10	Piston A		Aluminum Alloy	Chromate
11	Piston Packing	G2	Nitrile Rubber	
		G3	Fluoro Rubber	
12	Magnet		Plastic	
13	Wear Ring		Polyacetal	
14	Piston B		Aluminum Alloy	Chromate
15	Spacer		Steel	Zinc Chromate (ø20 to ø32 only)
16	Hexagon Nut		Steel	Zinc Chromate
17	Bed Cover		Aluminum Alloy	Chromate

MEMO

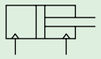


Small Bore Size Cylinder Double Acting/All Stainless Steel Exterior/ Water Resistant Type

CMK2-JG2/JG3 Series

●Bore Size: ø20, ø25, ø32, ø40

Custom Products

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch

CMK2 - JG2 - 00 - 20 - 50 ——— ❼

Model No. ❶ ❷ ❸ ❹

With Switch

CMK2 - JG2 - 00 - 20 - 50 - T2YL - R - FP1 - Y

Model No. ❶ Variation ❷ Mounting type ❸ Bore size ❹ Stroke ❺ Switch Model No. ❻ Number of Switches ❼ Option ❽ Accessories

❶ Variation

Code	Content
JG2	All Stainless Steel Exterior + Water Resistant Scraper + NBR Packing
JG3	All Stainless Steel Exterior + Water Resistant Scraper + FKM Packing

❷ Mounting type

Mounting brackets are included with the product and shipped. However, if bellows are included and mounting brackets are LB, LS, or FA, they will be shipped assembled.

Code	Content	
00	Basic type	
LB	Axial Foot Type (Both Sides)	
LS	Axial Foot Type (Single Side)	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CC	Single Clevis Integrated Type	

*1: Single side foot type (LS type) has a max. stroke of 50 mm.

❸ Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

❹ Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20	5 to 750	Every 1 mm
ø25	5 to 750	
ø32	5 to 750	
ø40	5 to 750	

*1: For minimum stroke with switch, refer to P. 276.

❺ Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	
	2-Color For Cutting Oil		—	10 to 30	—	5 to 20 *2	T2YLH□	T2YLV□	
	2-Color For Cutting Oil	3-wire (NPN)	—	30 or less	—	50 or less	T3YLH□	T3YLV□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*4

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*4: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻ Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

Note: The maximum number of switches that can be installed is 3. If 4 or more are required, please order the insufficient switch mounting brackets separately by individual model number.

❼ Option

Code	Content	
Blank	Standard	
V	Boss Cut	

❽ Accessories

Code	Content	
I	Single Knuckle	
Y	Double Knuckle (Pin and retaining ring included)	

Note: I and "Y" cannot be selected simultaneously.

About Custom Product Specifications

For details, see P. 287.

Code	Content
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)

CMK2-JG2/JG3 - ..... - XJ9

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

CMK2-JG2/JG3 - ..... - FP1

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

CMK2 - T2YLH - 20

Switch Model No. ❺ ❸ Bore size

●Switch body only

SW - T2YLH

Switch Model No. ❺

●Mounting bracket set

CMK2 - T - 20

Mounting bracket T ❸ Bore size

Specifications

Item		CMK2-JG2/JG3			
Bore Size	mm	ø20	ø25	ø32	ø40
Actuation method		Double Acting/Water Resistant Type			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.15			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	-10 to 60 (Provided that freezing does not occur)			
Port Size		Rc 1/8			
Stroke tolerance	mm	$^{+2.0}_{0}$ (0 to 200), $^{+2.4}_{0}$ (Over 200,)			
Operating piston speed	mm/s	50 to 500			
Cushion		Rubber Cushion			
Lubrication		Not Required (When lubricating, use turbine oil Class 1 ISO VG32)			
Allowable Absorbed Energy	J	0.166	0.308	0.424	0.639

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke	With Switch Min. Stroke
ø20, ø25, ø32, ø40	25, 50, 75, 100, 150, 200, 250, 300	750	5	25

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: Single side foot type (LS type) has a maximum stroke of 50 mm.

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	Switch Rail + Band Weight	Added Weight per S = 10 mm
	Basic type 00	Axial Foot Type (LB)	Axial Foot Type (LS)	Flange Type (FA, FB)	Single Clevis Type (CC)			
ø20	0.31	0.57	0.44	0.46	0.37	Please refer to the weight listed in the switch specifications on P. 971.	0.005	0.01
ø25	0.32	0.58	0.45	0.47	0.39		0.005	0.01
ø32	0.43	0.69	0.56	0.58	0.55		0.009	0.02
ø40	0.65	0.91	0.78	0.80	0.90		0.009	0.02

(Example) Product Weight of CMK2-JG2-FA-32-50-T2WL

Product Weight at S = 0 mm: ....0.56 kg
Added weight at S=50 mm.... Added weight at S=10 mm $0.02 \times \frac{\text{Product Stroke (50)}}{10} = 0.10$ kg
Mass of 2 switches: ....0.062 kg
Weight of switch rail + 2 bands: ....0.018 kg
Product weight .....0.56 kg+0.1 kg+0.062 kg+0.018 kg=0.74 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	35.3	47.1	70.7	94.2	1.18×10^2	1.41×10^2	1.65×10^2	1.88×10^2	2.12×10^2	2.36×10^2
ø25	Push	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	56.7	75.6	1.13×10^2	1.51×10^2	1.89×10^2	2.27×10^2	2.64×10^2	3.02×10^2	3.40×10^2	3.78×10^2
ø32	Push	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

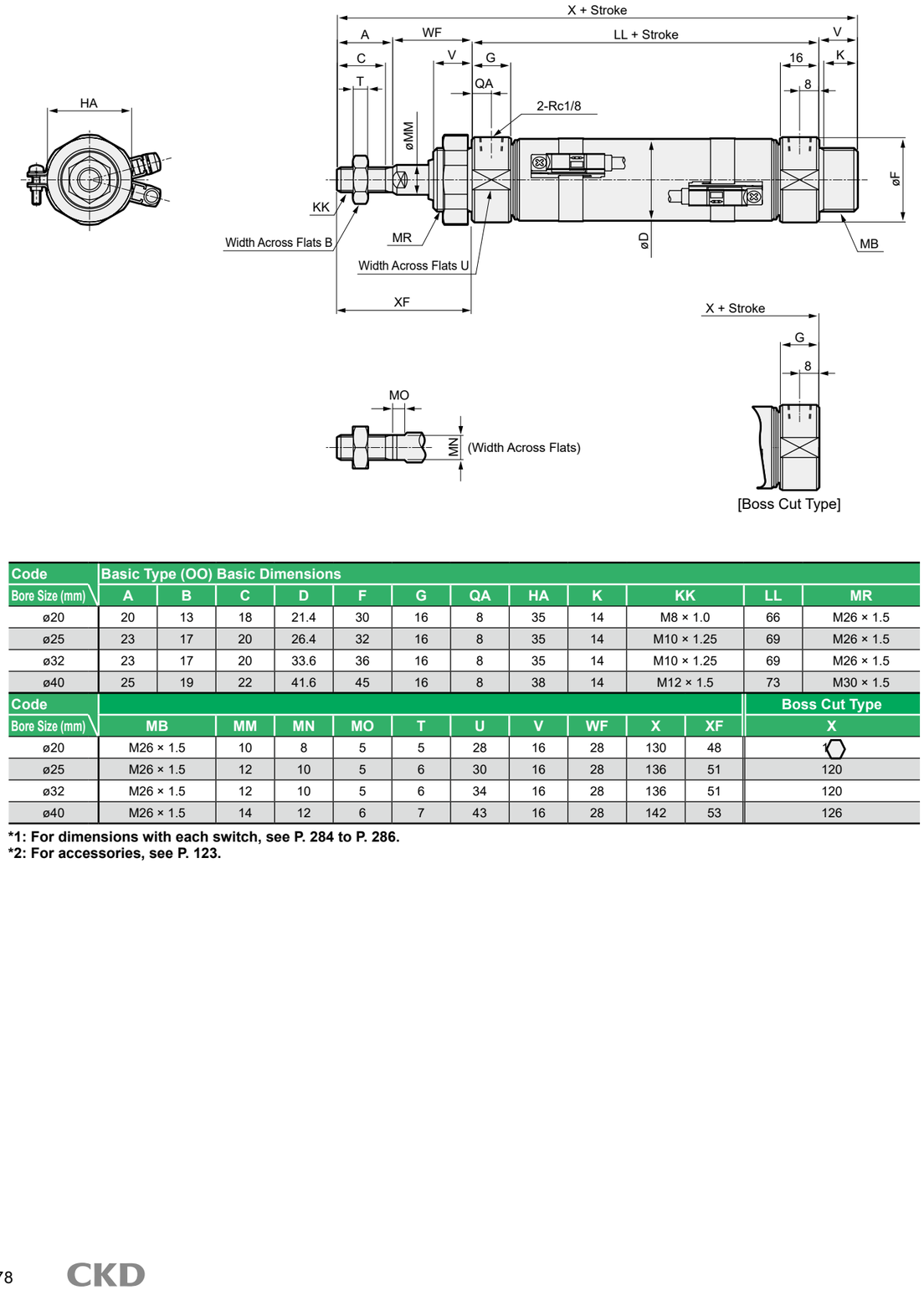
Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Axial Foot Type (LB, LS)	CMK2-JG2-20-LS	CMK2-JG2-20-LS	CMK2-JG2-20-LS	CMK2-JG2-40-LS CMK2-JG2-20-LS (Head side of LB)
Flange (FA, FB)	CMK2-JG2-20-FA	CMK2-JG2-20-FA	CMK2-JG2-20-FA	CMK2-JG2-20-FA (For FB) CMK2-JG2-40-FA (For FA)

*1: For mounting brackets, mounting nuts are included for axial foot type and flange type.
*2: For axial foot type (LB), 2 sets of "CMK2-JG2-□-LS" in the table above are required.

Outline Dimension Drawing

●Basic Type (OO)



[Boss Cut Type]

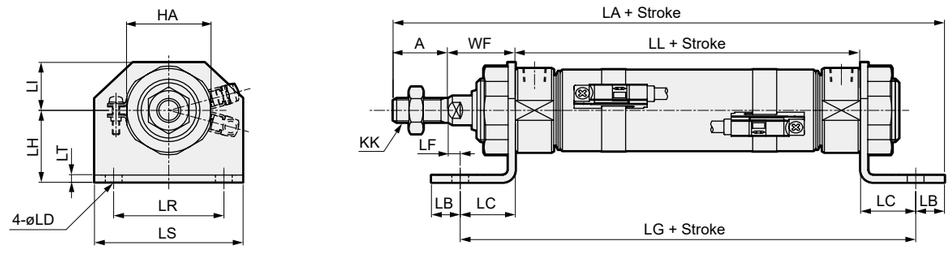
Code	Basic Type (OO) Basic Dimensions											
Bore Size (mm)	A	B	C	D	F	G	QA	HA	K	KK	LL	MR
ø20	20	13	18	21.4	30	16	8	35	14	M8 × 1.0	66	M26 × 1.5
ø25	23	17	20	26.4	32	16	8	35	14	M10 × 1.25	69	M26 × 1.5
ø32	23	17	20	33.6	36	16	8	35	14	M10 × 1.25	69	M26 × 1.5
ø40	25	19	22	41.6	45	16	8	38	14	M12 × 1.5	73	M30 × 1.5

Code											Boss Cut Type
Bore Size (mm)	MB	MM	MN	MO	T	U	V	WF	X	XF	X
ø20	M26 × 1.5	10	8	5	5	28	16	28	130	48	17
ø25	M26 × 1.5	12	10	5	6	30	16	28	136	51	120
ø32	M26 × 1.5	12	10	5	6	34	16	28	136	51	120
ø40	M26 × 1.5	14	12	6	7	43	16	28	142	53	126

***1: For dimensions with each switch, see P. 284 to P. 286.**
***2: For accessories, see P. 123.**

Outline Dimension Drawing

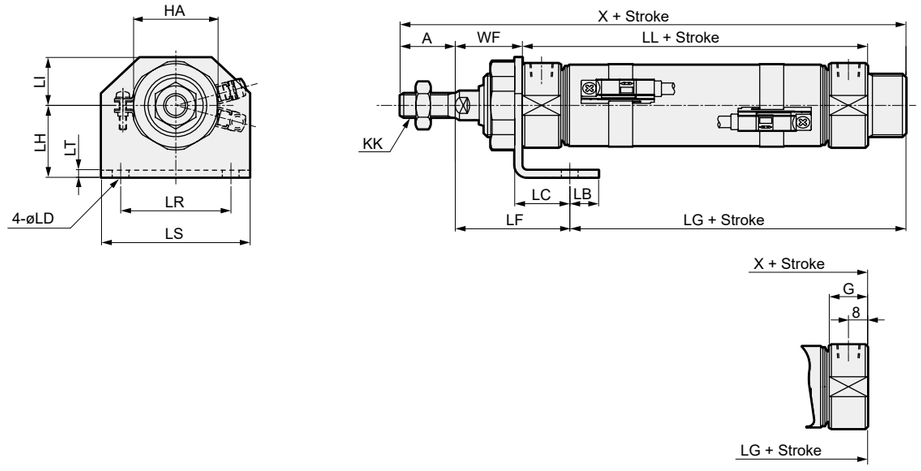
●Axial Foot Type (LB)



Code	Axial Foot Type (LB) Mounting Dimensions														
Bore Size (mm)	A	HA	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LI	LR	LS	LT
ø20	20	35	M8 × 1.0	66	28	149	12	23	7	5	112	30	20	46	62	3
ø25	23	35	M10 × 1.25	69	28	155	12	23	7	5	115	30	20	46	62	3
ø32	23	35	M10 × 1.25	69	28	155	12	23	7	5	115	30	20	46	62	3
ø40	25	38	M12 × 1.5	73	28	161	12	23	7	5	119	30	20	46	62	3

***1: For dimensions with each switch, see P. 284 to P. 286.**
***2: For accessories, see P. 123.**

●Single Side Axial Foot Type (LS)



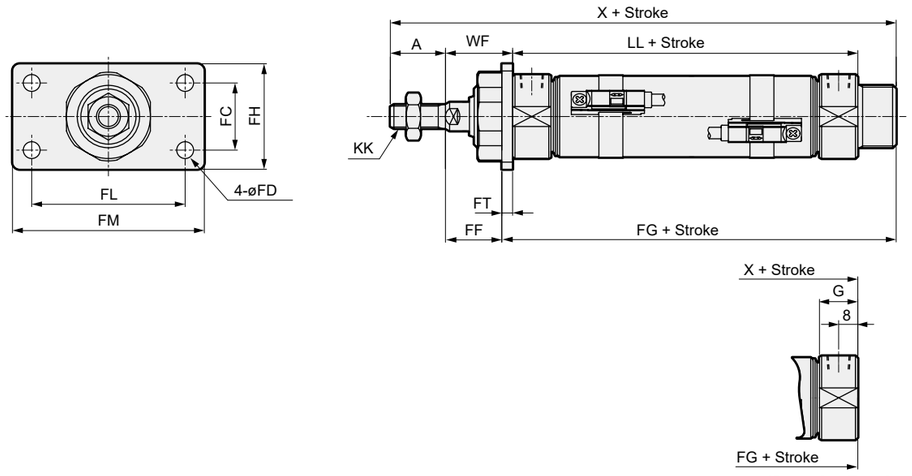
[Boss Cut Type]

Code	Axial Foot Type (LS) Mounting Dimensions																Boss Cut Type	
Bore Size (mm)	A	HA	G	KK	LL	WF	X	LB	LC	LD	LF	LG	LH	LI	LR	LS	LT	X	LG
ø20	20	35	16	M8 × 1.0	66	28	130	12	23	7	48	62	30	20	46	62	3	114	46
ø25	23	35	16	M10 × 1.25	69	28	136	12	23	7	48	65	30	20	46	62	3	120	49
ø32	23	35	16	M10 × 1.25	69	28	136	12	23	7	48	65	30	20	46	62	3	120	49
ø40	25	38	16	M12 × 1.5	73	28	142	12	23	7	48	69	30	20	46	62	3	126	53

*1: Stroke up to 50.
***2: For dimensions with each switch, see P. 284 to P. 286.**
***3: For accessories, see P. 123.**

Outline Dimension Drawing

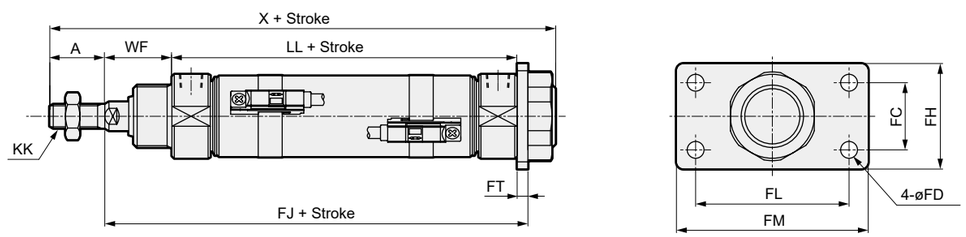
●Rod Side Flange Type (FA)



Code	Rod Side Flange Type (FA) Mounting Dimensions														Boss Cut Type	
Bore Size (mm)	A	G	KK	LL	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	X	FG
ø20	20	16	M8 × 1.0	66	28	130	28	7	23	87	44	64	80	5	114	71
ø25	23	16	M10 × 1.25	69	28	136	28	7	23	90	44	64	80	5	120	74
ø32	23	16	M10 × 1.25	69	28	136	28	7	23	90	44	64	80	5	120	74
ø40	25	16	M12 × 1.5	73	28	142	28	7	23	94	44	64	80	5	126	78

***1: For dimensions with each switch, see P. 284 to P. 286.**
***2: For accessories, see P. 123.**

●Head Side Flange Type (FB)

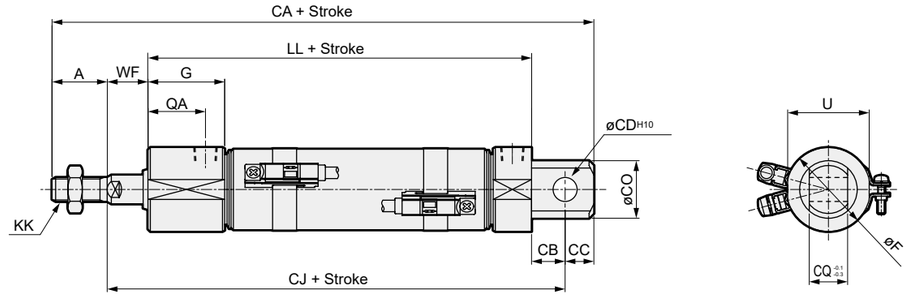


Code	Head Side Flange Type (FB) Mounting Dimensions											
Bore Size (mm)	A	KK	LL	WF	X	FC	FD	FH	FJ	FL	FM	FT
ø20	20	M8 × 1.0	66	28	130	28	7	44	99	64	80	5
ø25	23	M10 × 1.25	69	28	136	28	7	44	102	64	80	5
ø32	23	M10 × 1.25	69	28	136	28	7	44	102	64	80	5
ø40	25	M12 × 1.5	73	28	142	28	7	44	106	64	80	5

***1: For dimensions with each switch, see P. 284 to P. 286.**
***2: For accessories, see P. 123.**

Outline Dimension Drawing

● Single Yoke Clevis Integrated Type (CC)



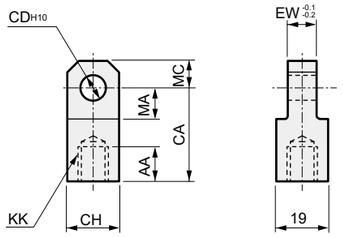
Code	Single Clevis Integrated Type (CC) Mounting Dimensions														
Bore Size (mm)	A	F	G	QA	KK	LL	U	WF	CA	CB	CC	CD	CJ	CO	CQ
ø20	20	30	32	24	M8 × 1.0	82	28	12	135	12	9	8	106	22	16
ø25	23	32	32	24	M10 × 1.25	85	30	12	141	12	9	8	109	24	16
ø32	23	36	32	24	M10 × 1.25	85	34	12	146	14	12	10	111	24	16
ø40	25	45	32	24	M12 × 1.5	89	43	12	156	16	14	12	117	30	20

***1: For dimensions with each switch, see P. 284 to P. 286.**
***2: For accessories, see P. 123.**

Accessories Outline Dimension Drawing

●Single Yoke Knuckle (I)

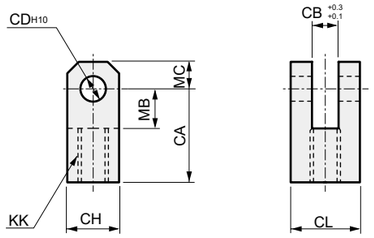
Material: Stainless Steel



Model No.	Applicable Bore size (mm)	AA	CA	CD	CH	EW	KK	MA	MC	Weight (g)
M1-I-20S	20	14	30	10	19	8	M8 × 1.0	13	10	60
M1-I-30S	25, 32	14	36	12	25	10	M10 × 1.25	16	12	106
M1-I-40S	40	14	36	12	25	10	M12 × 1.5	16	12	100

●Double Knuckle (Y)

Material: Stainless Steel

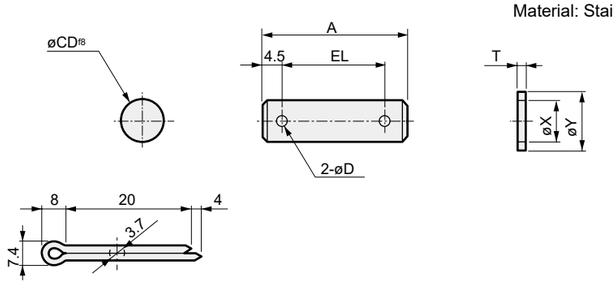


Model No.	Applicable Bore size (mm)	CA	CB	CD	CH	CL	KK	MB	MC	Weight (g)
M1-Y-20S	20	30	8	10	19	19	M8 × 1.0	13	10	99
M1-Y-30S	25, 32	36	10	12	25	25	M10 × 1.25	16	12	197
M1-Y-40S	40	36	10	12	25	25	M12 × 1.5	16	12	193

Note: A pin, a washer and a split pin are included.

●Pin for Double Knuckle (P)

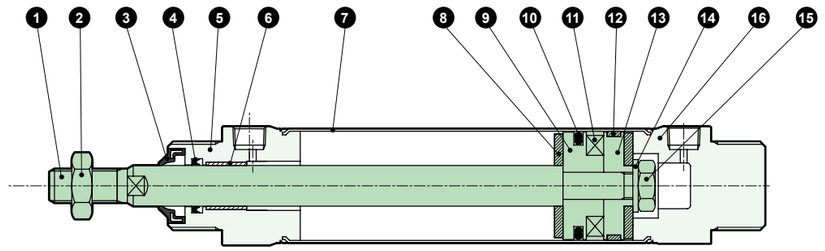
Material: Stainless Steel



Model No.	Applicable Bore size (mm)	A	D	CD	EL	T	X	Y	Weight (g)
M1-P-20S	20	37	4	10	28	1.6	10.5	18	29
M1-P-30S	25, 32, 40	46	4	12	37	2.3	12.5	22	50

Note: A pin and split washer pin for rod clevis use are included with the product.

Internal Structure Diagram / Material



Do not disassemble

Part No.	Part Name		Material	Remarks
1	Piston Rod		Stainless Steel	
2	Rod Nut		Stainless Steel	
3	Scraper	JG2	Nitrile Rubber	
		JG3	Fluoro Rubber	
4	Rod Packing	JG2	Nitrile Rubber	
		JG3	Fluoro Rubber	
5	Rod Cover		Stainless Steel	
6	Bushing		Bearing Alloy	
7	Cylinder Tube		Stainless Steel	
8	Cushion Rubber		Urethane Rubber	

Part No.	Part Name		Material	Remarks
9	Piston A		Aluminum Alloy	
10	Piston Packing	JG2	Nitrile Rubber	
		JG3	Fluoro Rubber	
11	Magnet		Plastic	
12	Wear Ring		Polyacetal	
13	Piston B		Aluminum Alloy	
14	Spacer		Steel	Zinc Chromate (ø20 to ø32 only)
15	Hexagon Nut		Steel	Zinc Chromate
16	Head Cover		Stainless Steel	

Mounting Bracket Material

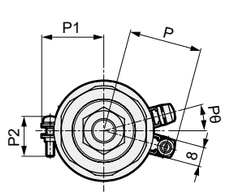
Mounting type	Material
Foot (LB / LS)	Stainless Steel
Flange (FA / FB)	Stainless Steel

Note: Mounting bracket is included with the product.

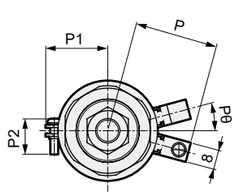
CMK2 Series Switch Outline Dimension Drawing

●T1H/V, T8H/V, T2JH/V, T2YLH/V, T3YLH/V

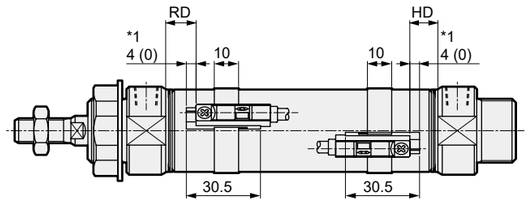
·CMK2,-S,SR,P,R,□C,C,Q,F,M,Z,H,G2/G3/JG2/JG3



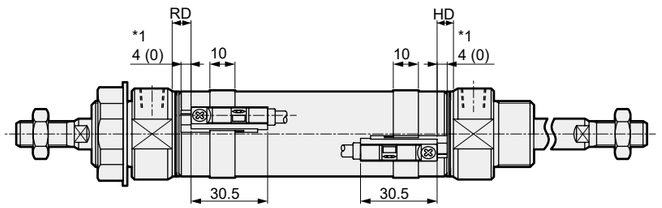
[In case of T8H/V, T2JH/V, T2YLH/V, T3YLH/V]



[For T1H/V]



·CMK2-D



·CMK2-B

Code / Bore Size (mm)	CMK2-Standard ,SR,P,R,□C,C,Q,F,M,Z,H,G2/G3,JG2/JG3,D,B											
	P1	P2	Pθ	T1			T2J,T2YL,T3YL			T8		
				P	RD	HD	P	RD	HD	P	RD	HD
ø20	19.5	12	(22°)	28.5	7	6	23.1	7	6	23.1	2	1
ø25	22	12	(18°)	31	8.5	7.5	25.6	8.5	7.5	25.6	3.5	2.5
ø32	25.5	14	(15°)	35.5	8.5	7.5	30.1	8.5	7.5	30.1	3.5	2.5
ø40	29.5	14	(12°)	39.5	10.5	9.5	34.1	10.5	9.5	34.1	5.5	4.5

Code / Bore Size (mm)	CMK2-S										
	P1	P2	Pθ	T1							
				P	RD						HD
					25 or Less	Over 25, to 50 or Less	Over 50, to 100 or Less	Over 100, to 150 or Less	Over 150, to 200 or Less	Over 200, to 250 or Less	Over 250, to 300 or Less	
ø20	19.5	12	(22°)	28.5	32	34	61	88	115	142	169	6
ø25	22	12	(18°)	31	33.5	38.5	68.5	98.5	128.5	158.5	188.5	7.5
ø32	25.5	14	(15°)	35.5	33.5	38.5	68.5	98.5	128.5	158.5	188.5	7.5
ø40	29.5	14	(12°)	39.5	35.5	40.5	70.5	100.5	130.5	160.5	190.5	9.5

Code / Bore Size (mm)	CMK2-S																	
	T2J									T8								
	P	RD							HD	P	RD							HD
		25 or Less	Over 25, to 50 or Less	Over 50, to 100 or Less	Over 100, to 150 or Less	Over 150, to 200 or Less	Over 200, to 250 or Less	Over 250, to 300 or Less			25 or Less	Over 25, to 50 or Less	Over 50, to 100 or Less	Over 100, to 150 or Less	Over 150, to 200 or Less	Over 200, to 250 or Less	Over 250, to 300 or Less	
ø20	23.1	32	34	61	88	115	142	169	6	23.1	27	29	56	83	110	137	164	1
ø25	25.6	33.5	38.5	68.5	98.5	128.5	158.5	188.5	7.5	25.6	28.5	33.5	63.5	93.5	123.5	153.5	183.5	2.5
ø32	30.1	33.5	38.5	68.5	98.5	128.5	158.5	188.5	7.5	30.1	28.5	33.5	63.5	93.5	123.5	153.5	183.5	2.5
ø40	34.1	35.5	40.5	70.5	100.5	130.5	160.5	190.5	9.5	34.1	30.5	35.5	65.5	95.5	125.5	155.5	185.5	4.5

*1: Dimensions are in ( ) when stroke is 35mm and over from T2YL, T3YL, T2J and T1 switches and T8 switches.
*2: For switch mountability, refer to the model number display method for each variation.

External Dimensions Diagram with Switch

Code / Bore Size (mm)	CMK2-SR													
	P1	P2	Pθ	T1									T2J	
				P	RD	HD							P	RD
						25 or Less	Over 25, to 50 or Less	Over 50, to 100 or Less	Over 100, to 150 or Less	Over 150, to 200 or Less	Over 200, to 250 or Less	Over 250, to 300 or Less		
ø20	19.5	12	(22°)	28.5	7	31	33	60	87	114	141	168	23.1	7
ø25	22	12	(18°)	31	8.5	32.5	37.5	67.5	97.5	127.5	157.5	187.5	25.6	8.5
ø32	25.5	14	(15°)	35.5	8.5	32.5	37.5	67.5	97.5	127.5	157.5	187.5	30.1	8.5
ø40	29.5	14	(12°)	39.5	10.5	34.5	39.5	69.5	99.5	129.5	159.5	189.5	34.1	10.5

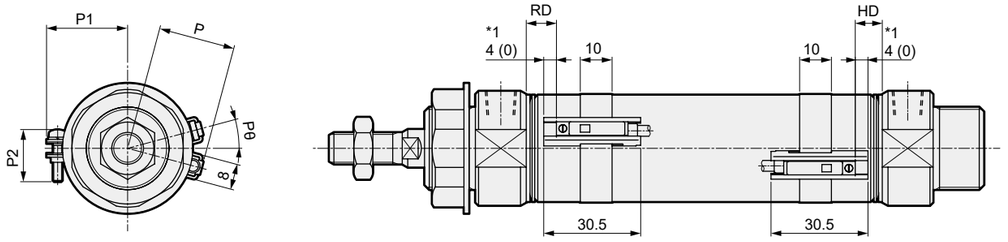
Code / Bore Size (mm)	CMK2-SR																	
	T2J									T8								
	HD								P	RD	HD							
	25 or Less	Over 25, to 50 or Less	Over 50, to 100 or Less	Over 100, to 150 or Less	Over 150, to 200 or Less	Over 200, to 250 or Less	Over 250, to 300 or Less				25 or Less	Over 25, to 50 or Less	Over 50, to 100 or Less	Over 100, to 150 or Less	Over 150, to 200 or Less	Over 200, to 250 or Less	Over 250, to 300 or Less	
ø20	31	33	60	87	114	141	168	23.1	2	26	28	55	82	109	136	163		
ø25	32.5	37.5	67.5	97.5	127.5	157.5	187.5	25.6	3.5	27.5	32.5	62.5	92.5	122.5	152.5	182.5		
ø32	32.5	37.5	67.5	97.5	127.5	157.5	187.5	30.1	3.5	27.5	32.5	62.5	92.5	122.5	152.5	182.5		
ø40	34.5	39.5	69.5	99.5	129.5	159.5	189.5	34.1	5.5	29.5	34.5	64.5	94.5	124.5	154.5	184.5		

*1: Dimensions are in ( ) when stroke is 35mm and over from T2YL, T3YL, T2J and T1 switches and T8 switches.
*2: For switch mountability, refer to the model number display method for each variation.

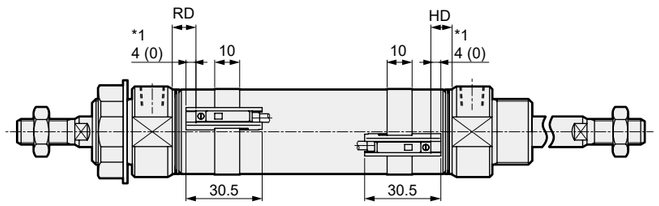
CMK2 Series Switch Outline Dimension Drawing

●T0H/V, T5H/V, T2H/V, T3H/V, T3PH/V, T2WH/V, T3WH/V, T2WLH/V, T2H/VR 3

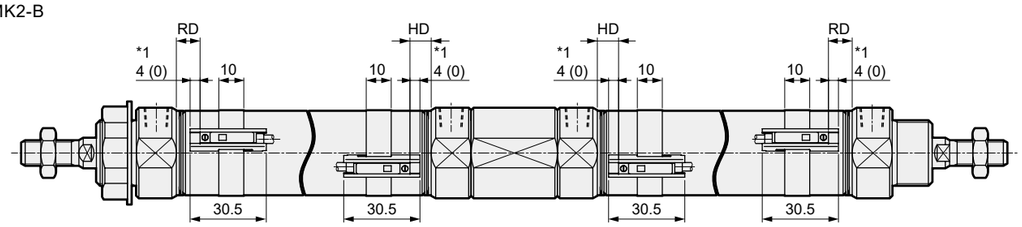
·CMK2,-S,SR,P,R,□C,C,Q,F,M,Z,H,G2/G3,JG2/JG3



·CMK2-D



·CMK2-B



Code / Bore Size (mm)	CMK2-Standard,P,R,□C,C,Q,F,M,Z,H,G2/G3,JG2/JG3,D,B							
	P	P1	P2	Pθ	T0, T5, T2, T3, T3P, T2□R3		T2W, T3W, T2WL	
					RD	HD	RD	HD
ø20	17.3	19.5	12	(22°)	8	7	10	9
ø25	19.8	22	12	(18°)	9.5	8.5	11.5	10.5
ø32	24.3	25.5	14	(15°)	9.5	8.5	11.5	10.5
ø40	28.3	29.5	14	(12°)	11.5	10.5	13.5	12.5

Code / Bore Size (mm)	CMK2-S																	
	P	P1	P2	Pθ	T0, T5, T2, T3, T3P, T2□R3								T2W, T3W, T2WL							
					RD							HD	RD							HD
					25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less		25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less	
ø20	17.3	19.5	12	(22°)	33	35	62	89	116	143	170	7	35	37	64	91	118	145	172	9
ø25	19.8	22	12	(18°)	34.5	39.5	69.5	99.5	129.5	159.5	189.5	8.5	36.5	41.5	71.5	101.5	131.5	161.5	191.5	10.5
ø32	24.3	25.5	14	(15°)	34.5	39.5	69.5	99.5	129.5	159.5	189.5	8.5	36.5	41.5	71.5	101.5	131.5	161.5	191.5	10.5
ø40	28.3	29.5	14	(12°)	36.5	41.5	71.5	101.5	131.5	161.5	191.5	10.5	38.5	43.5	73.5	103.5	133.5	163.5	193.5	12.5

Code / Bore Size (mm)	CMK2-SR																			
	P	P1	P2	Pθ	T0, T5, T2, T3, T3P, T2□R3								T2W, T3W, T2WL							
					RD	HD							RD	HD						
						25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less		25 or Less	Over 25, 50 or less	Over 50, 100 or less	Over 100, 150 or Less	Over 150, 200 or Less	Over 200, 250 or Less	Over 250, 300 or Less
ø20	17.3	19.5	12	(22°)	8	32	34	61	88	115	142	169	10	34	36	63	90	117	144	171
ø25	19.8	22	12	(18°)	9.5	33.5	38.5	68.5	98.5	128.5	158.5	188.5	11.5	35.5	40.5	70.5	100.5	130.5	160.5	190.5
ø32	24.3	25.5	14	(15°)	9.5	33.5	38.5	68.5	98.5	128.5	158.5	188.5	11.5	35.5	40.5	70.5	100.5	130.5	160.5	190.5
ø40	28.3	29.5	14	(12°)	11.5	35.5	40.5	70.5	100.5	130.5	160.5	190.5	13.5	37.5	42.5	72.5	102.5	132.5	162.5	192.5

*1: Dimensions of T2W, T3W switches are shown in ( ).
*2: For switch mountability, refer to the model number display method for each variation.

Without Bellows (-XJ9)

Content: Piston rod with dimensions for bellows, but bellows not assembled

Model No. Notation Method

CMK2 - 00 - 20 [ ] - 100 - XJ9

Model No.
See CMK2 model number display method.

Outline Dimension Drawing

Same dimensions as with bellows, but bellows are not included.

Fluorine Packing Type (-T2)

Content: Change the rod packing, piston packing and O-rings to FKM. (Cushion packing is not changed)

Model No. Notation Method

CMK2 - T2 - 00 - 20 - [ ] - 100

Model No.
See CMK2 model number display method.

Outline Dimension Drawing

Same as standard type.

With 2 Rod Nuts (-A2)

Content: Shipped with 2 rod nuts, same as standard.

Model No. Notation Method

CMK2 - 00 - 20 [ ] - 100 - A2

Model No.
See CMK2 model number display method.

Outline Dimension Drawing

Same as standard type except that 2 rod nuts are included.

Low Speed Type (-O)

Content: Low speed specifications (working speed range 10 to 200 mm/S)

Model No. Notation Method

CMK2 - O - 00 - 25 - 50

Small bore size cylinder

Model No.
See CMK2 model number display method.

Outline Dimension Drawing

Same as standard type.

To Use This Product Safely

Be sure to read this before use.

For general cylinder information, see Intro P. 41, and for cylinder switches, see P. 1026.

Individual Precautions: Small bore size cylinder CMK2 Series

During Design / Selection

1. Ultra Low Speed Type CMK2-F

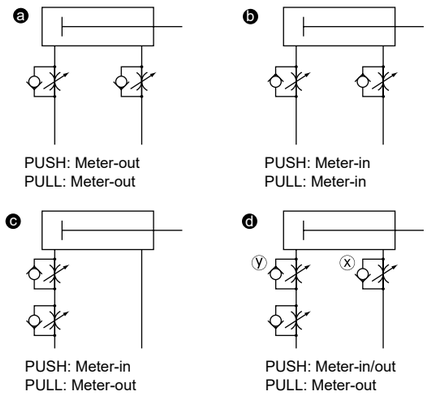
Caution

■Use without lubrication.
- Lubrication may change characteristics.

■Install the speed controller near the cylinder.
- If installed far from the cylinder, adjustment will be unstable.
- Use SC-M3/M5, SC3W, SCD-M3/M5, SC3U series speed controllers.

■Generally, the higher the air pressure and the lower the load factor, the more stable the speed.
- Use with a load factor of 50% or less.

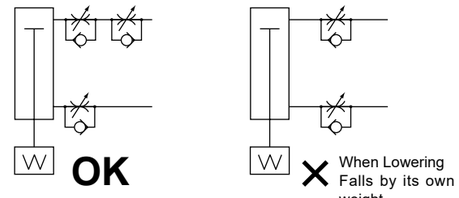
■Speed control with a meter-out circuit provides stability.
- When driving a single-rod cylinder at creep speed in the PUSH direction, if the load resistance is small, a flying-out phenomenon may occur at the start of operation. As countermeasures, use circuits ⓑ, ⓒ or ⓓ. In addition, the ⓓ circuit is the most stable.



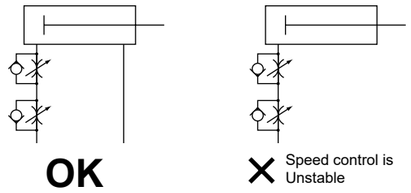
ⓓ Speed adjustment method for PUSH operation of the circuit:
1. Speed setting with x speed controller
2. Throttle with y speed controller until projection stops.
3. Reconfirmation of speed

(*1) Comparing ⓑⓒⓓ, the ⓓ circuit offers the most stable operation.

(*2) For vertical mounting, it will fall by its own weight in a meter-in circuit, so combine it with a meter-out circuit.



(*3) For series connection of speed controllers, use the circuit shown in the figure below.



(Guideline for lurching occurrence)

Lurching occurs in the following cases:

• Thrust > Resistance

*Resistance: *Resistance: Thrust due to residual pressure on exhaust side (For creep speed type, intake pressure = residual pressure) + [For horizontal use: Frictional force due to load / For vertical use: Dead weight of the load

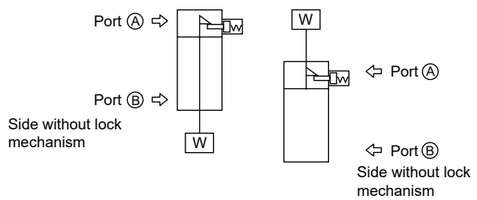
■Do not apply lateral load to the cylinder. Also, install the sliding guide without twisting.
- Operation becomes unstable when lateral load is applied.

■Avoid use in places with vibration.
- Operation becomes unstable due to the influence of vibration.

2. Fall Prevention Type CMK2-Q

Warning

■In the locked state, if pressure is supplied to port Ⓐ from a state where both side ports are not pressurized, the lock may not be released, or the lock may suddenly be released and the piston rod may fly out, which is very dangerous. When releasing the lock mechanism, be sure to supply pressure to port Ⓑ and release it after ensuring that no load is applied to the lock mechanism.



■When using a quick exhaust valve to increase the lowering speed, the cylinder body may start moving before the lock pin operates, and normal release may not be possible. Do not use a quick exhaust valve with a drop prevention type cylinder.

■Do not use 3-position solenoid valves.
Do not use in combination with 3-position solenoid valves (especially closed center metal seal type). If pressure is sealed in the port on the side with the lock mechanism, the lock will not engage. Also, even if locked, air leaked from the solenoid valve may enter the cylinder, and the lock may be released over time.

Caution

■Keep the cylinder load factor at 50% or less.
- If the load factor is high, the lock may not be released, or it may lead to damage to the lock part.

■Do not use multiple cylinders synchronized.
Do not use a method where two or more fall prevention type cylinders are synchronized to move one workpiece. The lock of one of the cylinders may become unremovable.

3. Low Hydraulic Pressure Type CMK2-H

Caution

■This product is a pneumatic cylinder that can use hydraulic operating fluid as the operating fluid. It does not comply with JIS standards for hydraulic cylinders regarding operation and leakage tests.

4. Cutting Oil Resistant Type CMK2-G2/G3

Caution

■Do not apply an eccentric load to the piston rod. This may reduce the life of scrapers and bearings.

■If there is no splashing of cutting oil or water on the piston rod, use the G or G1 series. Please note that if there is no scattering of cutting oil or water with G2 and G3 series, the lubrication of the piston rod will be cut off and the service life will be reduced.

■Install a speed controller on the cylinder.
- Install a speed controller on the cylinder.
  Use within the operating piston speed range of each cylinder.

5. All Stainless Steel Exterior/Water Resistant CMK2-JG2/JG3

Caution

■After sufficiently confirming the compatibility of the constituent materials of each component (only exterior parts are stainless steel) with the valve structure, operating fluid, and operating atmosphere, use at your own discretion.

■Bearings used in cylinders contain a small amount of mineral oil. Within the product specification range, it is processed to prevent discharge, but please consider the installation location.

■Do not apply an eccentric load to the piston rod. This may reduce the life of scrapers and bearings.

■Install a speed controller on the cylinder.
- Install a speed controller on the cylinder. Use within the operating piston speed range of each cylinder.

■If there is no scattering of water, piston rod lubrication will be lost, reducing life. Please be careful.

During Use

1. Common

Caution

■Do not turn the cover.
- When mounting the cylinder and screwing pipe fittings into the ports, if the cover rotates, there is a risk of damage from the cover joint.

■When moving the switch position in the stroke direction.
- Loosen the switch mounting screw, move the switch along the rail, and tighten at the specified position. For T2, T3, T0, T5, use a flat-head screwdriver (watchmaker's screwdriver, precision screwdriver, etc.) with a grip diameter of 5 to 6 mm, tip shape width of 2.4 mm or less, and thickness of 0.3 mm or less to tighten the switch fixing screw with a tightening torque of 0.1 to 0.2 N·m. For T1, T□C, T2J, T2Y, T3Y, T8, tighten with a tightening torque of 0.5 to 0.7 N·m.

2. Single Acting Type CMK2-S/SR

Caution

■Do not leave pressurized.
If left pressurized, the piston rod may not return due to spring load when pressure is released.

3. Heat Resistant Type CMK2-T

Caution

■Magnet is not built-in.

4. With Rubber Air Cushion CMK2-□C

⚠Caution

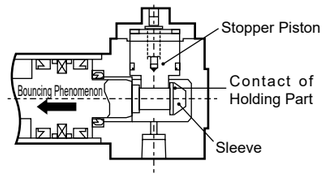
■Due to the structure, if the air supply is cut off, the stroke end position cannot be maintained. Please be careful. When detecting the stroke end with a switch, it may be outside the detection range, so set the switch position in an air-pressurized state.

■Do not rapidly exhaust the air in the cylinder after operating at low speed outside the catalog specification range. Example Removing piping or coupler, etc.) The rubber-air cushion may become detached. Please be especially careful as this is more likely to occur when the air pressure is high.

5. Fall Prevention Type CMK2-Q

⚠Warning

■When stopping with external shock absorbing equipment (shock absorber, etc.), adjust so that there is no bouncing. If the piston bounces at the stroke end, the sleeve and stopper piston will impact, leading to damage of the lock mechanism. Also, please perform periodic inspections once or twice a year to check for damage to the holding part due to this phenomenon.



⚠Caution

■Since the lock mechanism works at the stroke end, if an external stopper is applied mid-stroke, the lock mechanism will not work, and there is a risk of falling. When setting the load, be sure to confirm that the lock mechanism is working before installing.

■Supply pressure equal to or higher than the minimum operating pressure for each model to the port on the side with the lock mechanism.

■If the piping on the side with the lock mechanism is thin and long, or if the speed controller is far from the cylinder port, the exhaust speed may be slow and it may take time for the lock to engage, so please be careful. Also, clogging of the silencer included with the EXH. port of the solenoid valve will lead to similar results.

■Release the lock when installing or adjusting the cylinder.
If installation work, etc. is performed while the lock is engaged, the lock part may be damaged.

■Use the speed controller with meter-out control.
Lock may not be released with meter-in control.

■On the side with the lock, be sure to use the cylinder to the stroke end.
If the cylinder piston has not reached the stroke end, the lock may not engage, or it may not be possible to release the lock.

6. Non-Rotating Type CMK2-M

⚠Caution

■When fixing a workpiece to the end of the piston rod, retract the piston rod to the stroke end, put a wrench on the part of the rod parallel section that is outside, and tighten carefully so that the tightening torque is not applied to the cylinder body.

7. All Stainless Steel Exterior/Water Resistant Type CMK2-JG2/JG3

⚠Caution

■To prevent seizure, apply grease when using pins.

■Minimize cleaning of sliding parts, and grease up after cleaning is recommended. If water scattering is temporary, please perform regular greasing. For maintenance grease, please contact our sales department.

■After installation, check for piping leaks and electrical connections to ensure correct installation.

■Do not use the product as a scaffold or place heavy objects on it.

■If unused for 1 month or more, perform a trial run before starting operation.

For precautions regarding mounting, installation, adjustment, use, and maintenance, please see "Precautions for Use" in this catalog and the CKD Components Product website (https://www.ckd.co.jp/kiki/en/) -> "Model No." -> Instruction Manual

MEMO

General Type

CMA2

Small Bore Cylinder

ø20, ø30, ø40



Overview

This is a medium bore (ø20 to ø40) series among general type cylinders, and it is a dismountable cylinder.

CONTENTS

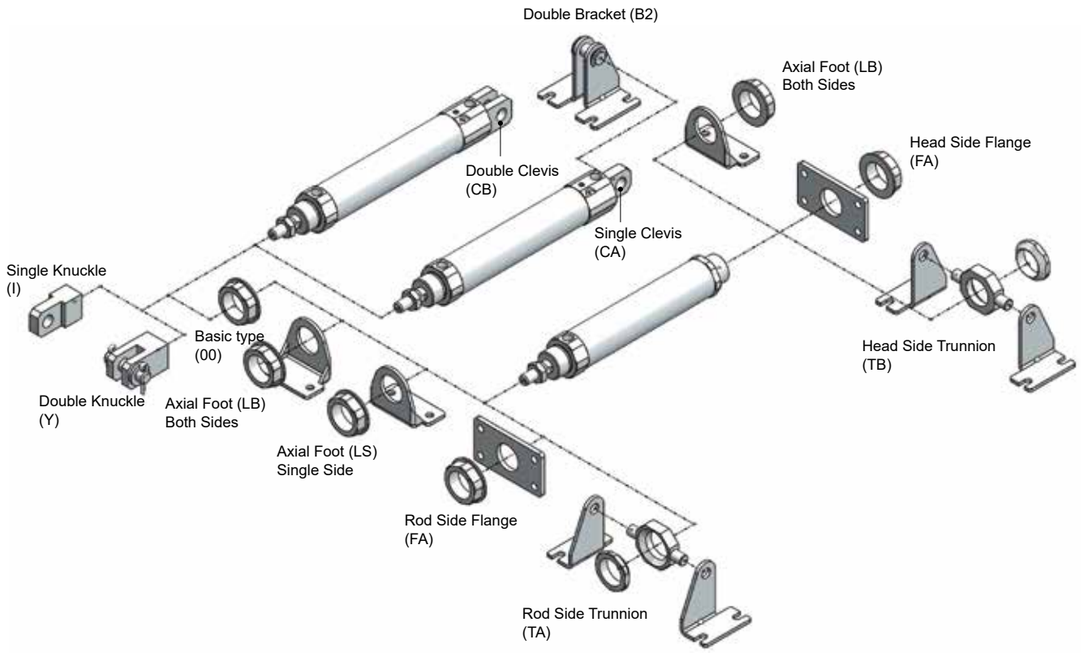
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⚠ To use this product safely, be sure to check Intro 41 for general cylinder information and P. 1026 for cylinder switches before use.

●: Standard, ◎: Option, ○: Custom Products, : Not manufacturable

Variation	Model No. Circuit Diagram Symbol	Bore Size (mm)	Standard Stroke (mm) 25	50	75	100	150	200	250	300	Min. Stroke (mm)	Max. Stroke (mm)	Producible Stroke (mm)		Intermediate stroke (mm) increments	Mounting type: Basic type 00	Axial Foot Type, Both Sides LB	Axial Foot Type, Single Side LS	Rod Side Flange Type FA	Head Side Flange Type FB	Single Clevis Type CA	Double Clevis Type CB	Rod Side Trunnion Type TA	Head Side Trunnion Type TB	Option: Bellows (100 °C) J	Bellows (250 °C) L	Piston Rod Material (Stainless Steel) M	Same Port Position P	Accessories: Single Knuckle I	Double Knuckle Y	Double Yoke Bracket B2	Switch	Page
Double Acting/ Single Rod Type	CMA2	ø20 ø30 ø40	●	●	●	●	●	●	●	●	1	700	1,000 1200 1500		1	●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	296
Double Acting/ Direct Type	CMA2-E	ø20, ø30, ø40	●	●	●	●	●	●	●	●	1	700	700		1			●	●							◎			◎	◎	◎	◎	◎	310

Combination of Mounting Brackets and Accessories

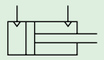




Small Bore Cylinder
Standard/Single Rod Type

CMA2 Series

●Bore size: ø20, ø30, ø40

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

CMA2 – FA – 20 – 50 ——— P Y

Model No. ❶ ❷ ❸ ❻ ❼

With Switch
(Built-in magnet for switch)

CMA2 – FA – 20 – 50 – T0H – R – P Y

Model No. ❶ Mounting type ❷ Bore Size ❸ Stroke ❹ Switch Model No. ❺ Number of Switches ❻ Option ❼ Accessories

❶Mounting type

Mounting brackets are included to the product and shipped. Shipped assembled with bellows for LB, LS, FA, TA.

	Code	Content	
	00	Basic type	
	LB	Axial Foot Type (Double Side)	
*1	LS	Axial Foot Type (Single Side)	
	FA	Rod Side Flange Type	
	FB	Head Side Flange Type	
	CA	Single Clevis Type	
	CB	Double Clevis Type (Pin and Washer Split Pin Attached)	
	TA	Rod Side Trunnion Type	
	TB	Head Side Trunnion Type	

*1: Single side foot type (LS type) has a max. stroke of 50 mm.

❷Bore size (mm)

Code	Content
20	ø20
30	ø30
40	ø40

❸Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø20	1 to 700	Every 1 mm
ø30	1 to 700	
ø40	1 to 700	

*1: For minimum stroke with switch, refer to P. 298.

❹Switch Model No.

For switch details, please refer to P. 971. Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T5V□	T5V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*1: For "□" in the switch model number, enter the symbol selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❺Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❻Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
*1	J	Bellows	100°C	200°C	
*1	L		250°C	400°C	
	M	Piston Rod Material (Stainless Steel)			
	P	Same Port Position			

*1: For bellows "J" with a stroke of less than 25 mm, please inquire each time.
*2: Instantaneous maximum temperature is the temperature when fire, chips, etc. momentarily contact the bellows.

❼Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Washer Split Pin Attached)	
	B2	Double Yoke Bracket (Pin and retaining ring included)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, see P. 316.

Code	Content
-XJ9	Without Bellows
-T2	Fluorine Packing Type
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
CMA2 –..... – XJ9

Switch Single Unit Model No. Notation Method
[T-type Switch]

●Switch body + Mounting bracket set
CMA2 – T0H – 40
❹ Switch Model No. ❷ Bore Size

●Switch body only
SW – T0H
❹ Switch Model No.

●Mounting bracket set
CMA2 – T – 40
Mounting bracket ❷ Bore Size

Specifications

Item		CMA2		
Bore Size	mm	ø20	ø30	ø40
Actuation method		Double Acting Type		
Operating Fluid		Compressed Air		
Max. Working Pressure	MPa	0.7		
Min. Operating Pressure	MPa	0.1		
Proof Pressure	MPa	1.05		
Ambient Temperature	°C	-10 to 60 (Provided that freezing does not occur)		
Port Size		Rc1/8		
Stroke tolerance	mm	$^{+1.0}_{0}$ (Up to 200), $^{+1.2}_{0}$ (Up to 1000)		
Operating Piston Speed	mm/s	50 to 500		
Cushion		None Note 1		
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)		
Allowable Absorbed Energy	J	0.024	0.05	0.093

Note 1:This product cannot absorb high energy generated by an external load. It is recommended to use an external shock absorber together.

Stroke

(Unit: mm)

Bore Size	Standard Stroke	Max. Stroke	Producible Stroke	Min. Stroke
ø20	25, 50, 75, 100, 150, 200, 250, 300	700 Note 2	1,000	1 Note 3
ø30			1200	
ø40			1500	

Note 1: Intermediate strokes can be produced in 1 mm increments.
Note 2: Single side foot type (LS type) has a maximum stroke of 50 mm.
Note 3: For bellows "J", production is for strokes of 25 mm or more. For strokes less than 25 mm, please inquire each time.
Note 4: If exceeding the max. stroke, product specifications may not be met depending on conditions, so see Intro 29.

Min. Stroke with Switch

(Unit: mm)

Switch Model No.	With 1 pc	With 2 pcs
T0, T5, T2, T3	10	25
T2W, T3W, T2WL	10	30
T1, T8	10	25

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm					Weight per Switch		Added Weight per S = 10 mm
	Basic type (00)	Axial Foot Type (LB)	Flange Type (FA)	Clevis Type (CA)	Trunnion Type (TA/TB)	T type		
						Please refer to the weight listed in the switch specifications on P. 971	Switch Rail + Band Weight	
ø20	0.14	0.29	0.20	0.27	0.19		0.005	0.01
ø30	0.29	0.55	0.44	0.50	0.39		0.005	0.014
ø40	0.47	0.73	0.62	0.69	0.67		0.009	0.02

(Example) Product Weight of CMA2-FA-30-50-TOH-D
- Product weight when S = 0 mm.....0.44 kg
- Added weight at S = 50 mm.....Added weight at S = 10 mm 0.014 × $\frac{\text{Product Stroke (50)}}{10}$ = 0.07 kg
- Weight of 2 switches.....0.036 kg
- Product Weight.....0.44 kg+0.07 kg+0.036 kg=0.546 kg

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa							
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø20	Push	31.4	47.1	62.8	94.2	1.26 × 10²	1.57 × 10²	1.88 × 10²	2.20 × 10²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18 × 10²	1.41 × 10²	1.65 × 10²
ø30	Push	70.7	1.06 × 10²	1.41 × 10²	2.12 × 10²	2.83 × 10²	3.53 × 10²	4.24 × 10²	4.95 × 10²
	Pull	59.4	89.1	1.19 × 10²	1.78 × 10²	2.38 × 10²	2.97 × 10²	3.56 × 10²	4.16 × 10²
ø40	Push	1.26 × 10²	1.88 × 10²	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²
	Pull	1.10 × 10²	1.65 × 10²	2.21 × 10²	3.31 × 10²	4.41 × 10²	5.51 × 10²	6.62 × 10²	7.72 × 10²

Mounting Bracket Model No. Notation Method

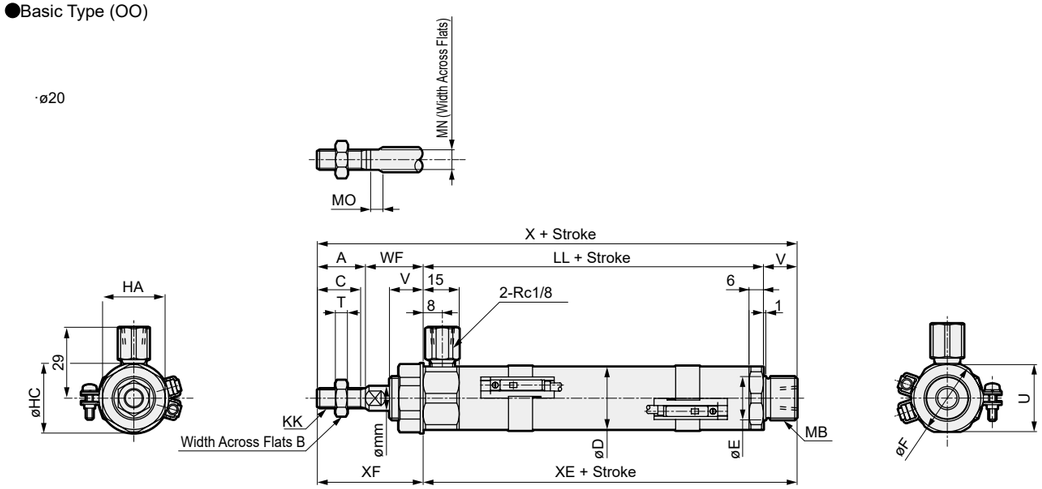
Bore Size (mm) / Mounting bracket		ø20	ø30	ø40
Basic Type (00)	Note 3	M1-00-20	M1-00-30	M1-00-30
Axial Foot Type (LB/LS)		M1-LB-20	M1-LB-30	M1-LB-30
Flange Type (FA/FB)		M1-FA-20	M1-FA-30	M1-FA-30
Single Clevis Type (CA)		M1-CA-20	M1-CA-30	M1-CA-30
Double clevis type (CB)		M1-CB-20	M1-CB-30	M1-CB-30
Trunnion Type (TA/TB)		M1-TA-20	M1-TA-30	M1-TA-40

Note 1: The above mounting bracket model numbers are for a set including tightening nuts, toothed lock washers, parallel pins, etc.
Note 2: For axial foot type (double side), 2 sets of "MI-LB-□" are required.
Note 3: Only mounting nuts and toothed lock washers are included. One set is included to the basic type (00) of the product, but use it if additional sets are required.

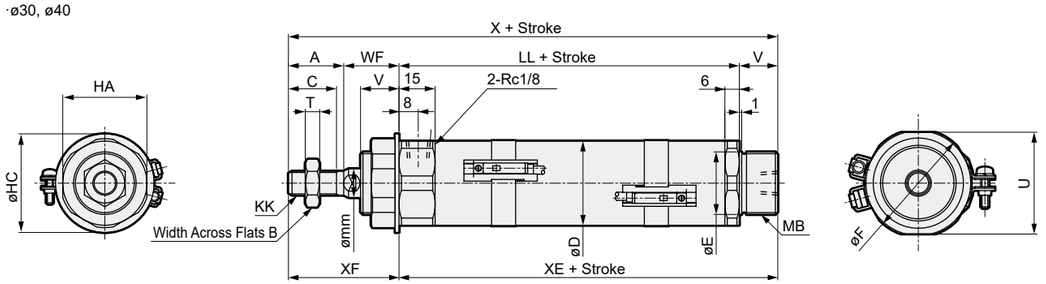
Outline Dimension Drawing

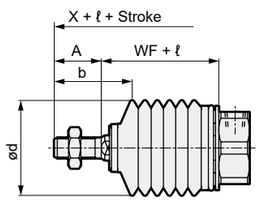
●Basic Type (OO)

·ø20



·ø30, ø40





[With Bellows]

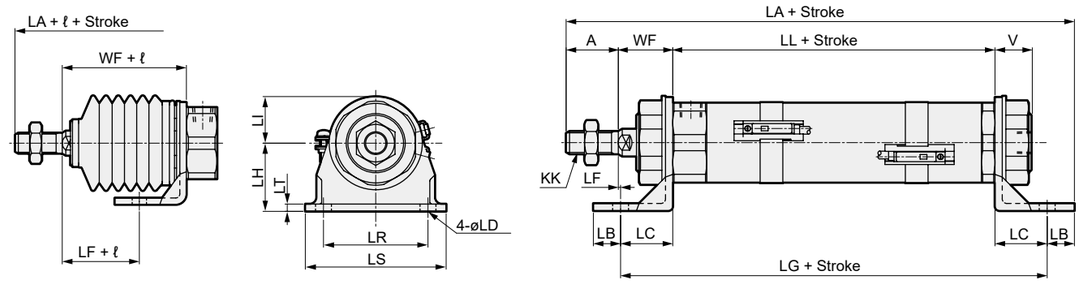
Code	Basic Type (OO) Basic Dimensions												
Bore Size (mm)	A	B	C	D	E	F	HA	HC	KK	LL	MB	MN	MO
ø20	20	13	18	25	18	28	26	29	M8 × 1	66	M18 × 1.5	8	5
ø30	23	17	20	35	26	37	35	41	M10 × 1.25	72	M26 × 1.5	10	5
ø40	25	19	22	45	26	48	35	46	M12 × 1.5	74	M26 × 1.5	12	6

Code									With Bellows		
Bore Size (mm)	MM	T	U	V	WF	X	XE	XF	b	d	ℓ
ø20	10	5	26	14	24	124	80	44	32	30	(Stroke / 3) + 6
ø30	12	6	35	16	23	134	88	46	38	46	(Stroke / 3.25) + 7
ø40	14	7	46	16	23	138	90	48	40	46	(Stroke / 3.25) + 7

Note 1: For ø20, a port nipple is included to the rod cover.
Note 2: Round up ℓ dimension to the nearest whole number.
Note 3: For dimensions with each switch, see P. 315.
Note 4: For outer dimensions diagram of accessories, refer to P. 308.

Outline Dimension Drawing

●Axial Foot Type (LB)

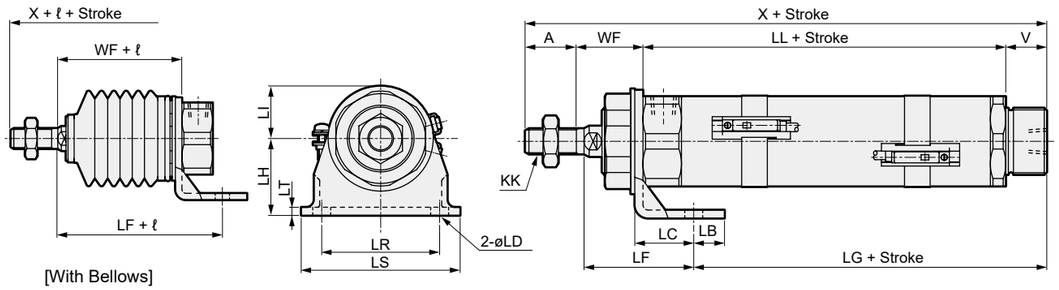


[With Bellows]

Code	Axial Foot Type (LB) Mounting Dimensions																With Bellows
Bore Size (mm)	A	KK	LL	V	WF	LA	LB	LC	LD	LF	LG	LH	LI	LR	LS	LT	ℓ
ø20	20	M8 × 1	66	14	24	138	10	18	6	6	102	25	15	30	44	3.2	(Stroke / 3) + 6
ø30	23	M10 × 1.25	72	16	23	153	12	23	7	0	118	30	20.5	46	62	3.2	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	74	16	23	157	12	23	7	0	120	30	23	46	62	3.2	(Stroke / 3.25) + 7

Note 1: For ø20, a port nipple is included to the rod cover.
Note 2: Round up ℓ dimension to the nearest whole number.
Note 3: For dimensions with each switch, see P. 315.
Note 4: For outer dimensions diagram of accessories, refer to P. 308.

●Single Side Axial Foot Type (LS)



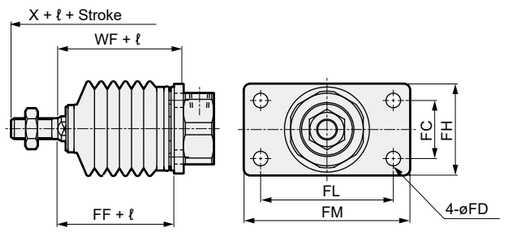
[With Bellows]

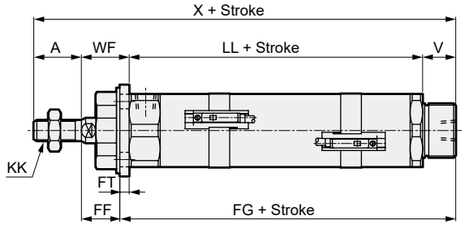
Code	Single Side Axial Foot Type (LS) Mounting Dimensions															With Bellows
Bore Size (mm)	A	KK	LL	V	WF	X	LB	LC	LD	LF	LG	LH	LI	LR	LS	LT	ℓ
ø20	20	M8 × 1	66	14	24	124	10	18	6	38.8	65.2	25	15	30	44	3.2	(Stroke / 3) + 6
ø30	23	M10 × 1.25	72	16	23	134	12	23	7	42.8	68.2	30	20.5	46	62	3.2	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	74	16	23	138	12	23	7	42.8	70.2	30	23	46	62	3.2	(Stroke / 3.25) + 7

Note 1: Max. stroke is 50 mm.
Note 2: For ø20, a port nipple is included to the rod cover.
Note 3: Round up ℓ dimension to the nearest whole number.
Note 4: For dimensions with each switch, see P. 315.
Note 5: For outer dimensions diagram of accessories, refer to P. 308.

Outline Dimension Drawing

●Rod Side Flange Type (FA)



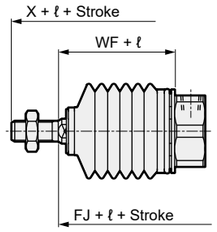


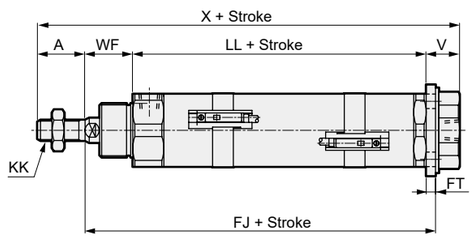
[With Bellows]

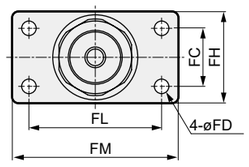
Code	Rod Side Flange Type (FA) Mounting Dimensions														With Bellows
Bore Size (mm)	A	KK	LL	V	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	ℓ
ø20	20	M8 × 1	66	14	24	124	20	6	20.8	83.2	34	40	54	3.2	(Stroke / 3) + 6
ø30	23	M10 × 1.25	72	16	23	134	28	7	18.5	92.5	44	64	80	4.5	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	74	16	23	138	28	7	18.5	94.5	44	64	80	4.5	(Stroke / 3.25) + 7

Note 1: For ø20, a port nipple is included to the rod cover.
Note 2: Round up ℓ dimension to the nearest whole number.
Note 3: For dimensions with each switch, see P. 315.
Note 4: For outer dimensions diagram of accessories, refer to P. 308.

●Head Side Flange Type (FB)







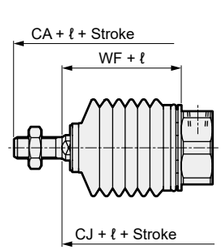
[With Bellows]

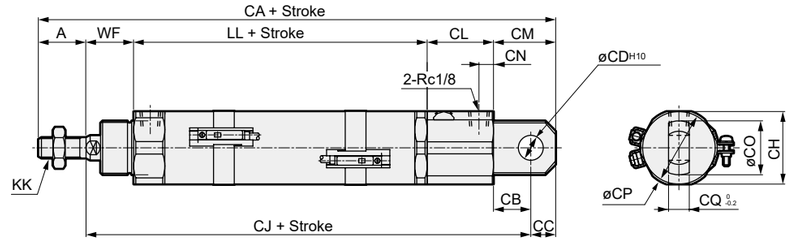
Code	Head Side Flange Type (FB) Mounting Dimensions													With Bellows
Bore Size (mm)	A	KK	LL	V	WF	X	FC	FD	FH	FJ	FL	FM	FT	ℓ
ø20	20	M8 × 1	66	14	24	124	20	6	34	93.2	40	54	3.2	(Stroke / 3) + 6
ø30	23	M10 × 1.25	72	16	23	134	28	7	44	99.5	64	80	4.5	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	74	16	23	138	28	7	44	101.5	64	80	4.5	(Stroke / 3.25) + 7

Note 1: For ø20, a port nipple is included to the rod cover.
Note 2: Round up ℓ dimension to the nearest whole number.
Note 3: For dimensions with each switch, see P. 315.
Note 4: For outer dimensions diagram of accessories, refer to P. 308.

Outline Dimension Drawing

●Single Clevis Type (CA)



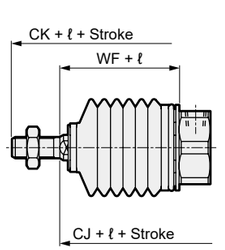


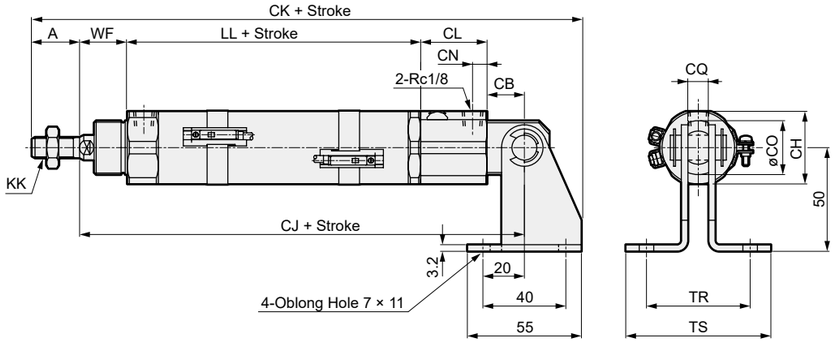
[With Bellows]

Code	Single Clevis Type (CA) Mounting Dimensions															With Bellows
Bore Size (mm)	A	KK	LL	WF	CA	CB	CC	CD	CH	CJ	CL	CM	CN	CO	CP	CQ	ℓ
ø20	20	M8 × 1.0	66	24	165	14	10	10	26	135	31	24	8	22	28	8	(Stroke / 3) + 6
ø30	23	M10 × 1.25	72	23	180	18	12	12	35	145	32	30	7	26	37	10	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	74	23	184	18	12	12	35	147	32	30	7	26	37	10	(Stroke / 3.25) + 7

Note 1: For ø20, a port nipple is included to the rod cover.
Note 2: Round up ℓ dimension to the nearest whole number.
Note 3: For dimensions with each switch, see P. 315.
Note 4: For outer dimensions diagram of accessories, refer to P. 308.

●Single Clevis Type (CA) with Bracket (Option Code B2)





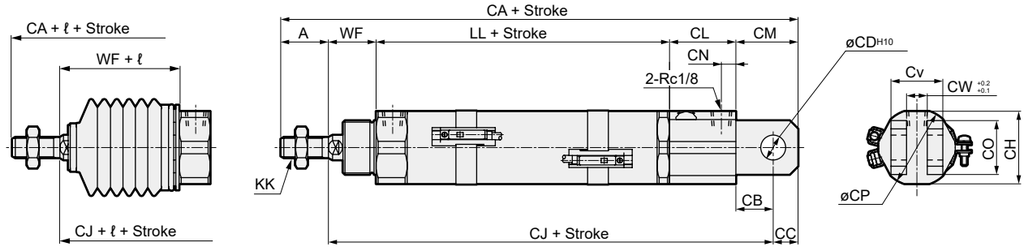
[With Bellows]

Code	Single Clevis Type (CA) With Bracket (Option Code B2) Mounting Dimensions														With Bellows
Bore Size (mm)	A	KK	LL	WF	CB	CH	CJ	CK	CL	CN	CO	CQ	TR	TS	ℓ
ø20	20	M8 × 1.0	66	24	14	26	135	182.5	31	8	22	8	48	68	(Stroke / 3) + 6
ø30	23	M10 × 1.25	72	23	18	35	145	195.5	32	7	26	10	50	70	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	74	23	18	35	147	199.5	32	7	26	10	50	70	(Stroke / 3.25) + 7

Note 1: For ø20, a port nipple is included to the rod cover.
Note 2: Round up ℓ dimension to the nearest whole number.
Note 3: For dimensions with each switch, see P. 315.
Note 4: For outer dimensions diagram of accessories, refer to P. 308.

Outline Dimension Drawing

●Double clevis type (CB)



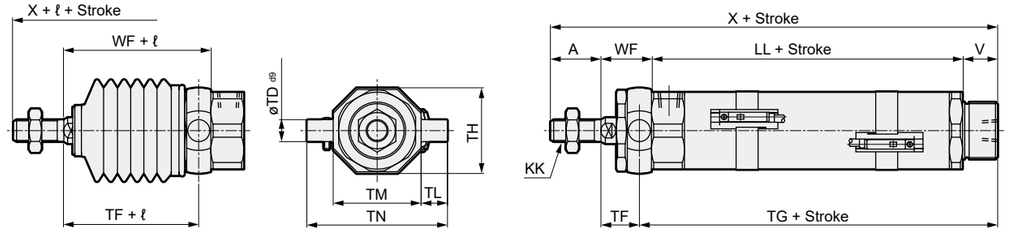
[With Bellows]

Code	Double Clevis Type (CB) Mounting Dimensions																	With Bellows
Bore Size (mm)	A	KK	LL	WF	CA	CB	CC	CD	CH	CJ	CL	CM	CN	CO	CP	Cv	CW	ℓ
ø20	20	M8 × 1.0	66	24	165	14	10	10	26	135	31	24	8	22	28	19	8	(Stroke / 3) + 6
ø30	23	M10 × 1.25	72	23	180	18	12	12	35	145	32	30	7	26	37	25	10	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	74	23	184	18	12	12	35	147	32	30	7	26	37	25	10	(Stroke / 3.25) + 7

Note 1: For ø20, a port nipple is included to the rod cover.
Note 2: Round up ℓ dimension to the nearest whole number.
Note 3: For dimensions with each switch, see P. 315.
Note 4: For outer dimensions diagram of accessories, refer to P. 308.

Outline Dimension Drawing

●Rod side trunnion type (TA)

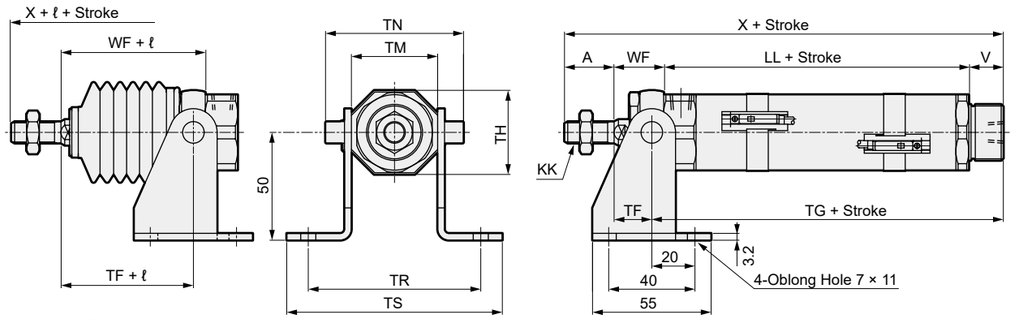


[With Bellows]

Code	Rod Side Trunnion Type (TA) Mounting Dimensions													With Bellows
Bore Size (mm)	A	KK	LL	V	WF	X	TD	TF	TG	TH	TL	TM	TN	ℓ
ø20	20	M8 × 1.0	66	14	24	124	8	19.5	84.5	29.5	8	30	46	(Stroke / 3) + 6
ø30	23	M10 × 1.25	72	16	23	134	10	17.5	93.5	39	12	40	64	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	74	16	23	138	10	17.5	95.5	44	9.5	53	72	(Stroke / 3.25) + 7

Note 1: For ø20, a port nipple is included to the rod cover.
Note 2: Round up ℓ dimension to the nearest whole number.
Note 3: For dimensions with each switch, see P. 315.
Note 4: For outer dimensions diagram of accessories, refer to P. 308.

●Rod side trunnion type (TA) with bracket (Option code B2)



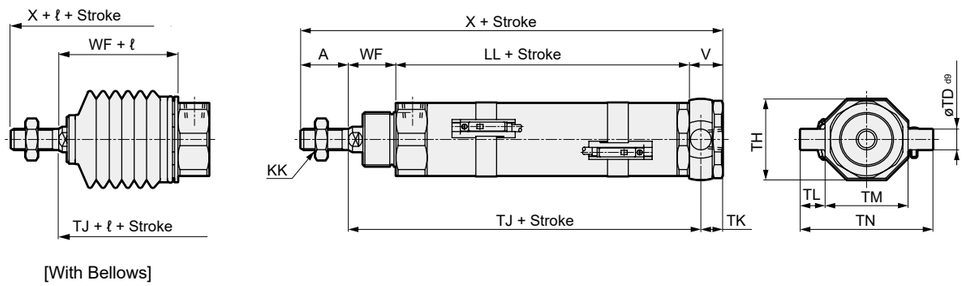
[With Bellows]

Code	Rod Side Trunnion Type (TA) with Bracket (Option Code B2) Mounting Dimensions													With Bellows
Bore Size (mm)	A	KK	LL	V	WF	X	TF	TG	TH	TM	TN	TR	TS	ℓ
ø20	20	M8 × 1.0	66	14	24	124	19.5	84.5	29.5	30	46	70	90	(Stroke / 3) + 6
ø30	23	M10 × 1.25	72	16	23	134	17.5	93.5	39	40	64	80	100	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	74	16	23	138	17.5	95.5	44	53	72	93	113	(Stroke / 3.25) + 7

Note 1: For ø20, a port nipple is included to the rod cover.
Note 2: Round up ℓ dimension to the nearest whole number.
Note 3: For dimensions with each switch, see P. 315.
Note 4: For outer dimensions diagram of accessories, refer to P. 308.

Outline Dimension Drawing

●Head Side Trunnion Type (TB)

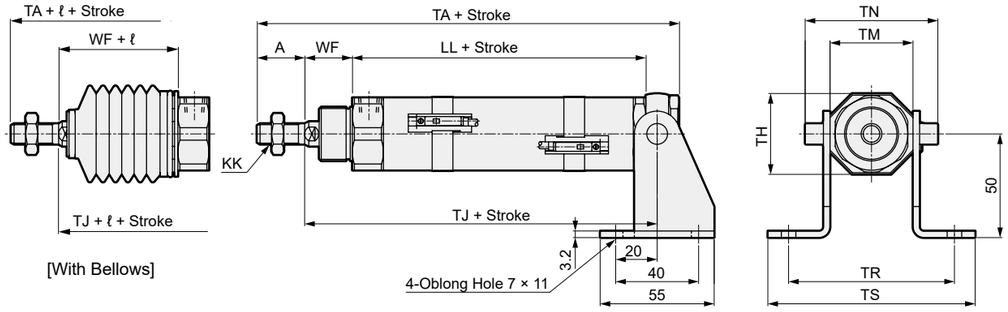


[With Bellows]

Code	Head Side Trunnion Type (TB) Mounting Dimensions													With Bellows
Bore Size (mm)	A	KK	LL	V	WF	X	TD	TH	TJ	TK	TL	TM	TN	ℓ
ø20	20	M8 × 1.0	66	14	24	124	8	29.5	94.5	9.5	8	30	46	(Stroke / 3) + 6
ø30	23	M10 × 1.25	72	16	23	134	10	39	100.5	10.5	12	40	64	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	74	16	23	138	10	44	102.5	10.5	9.5	53	72	(Stroke / 3.25) + 7

*1: For ø20, a port nipple is included to the rod cover.
*2: Round up ℓ dimension to the nearest whole number.
***3: For dimensions with each switch, see P. 315.**
***4: For outer dimensions diagram of accessories, refer to P. 308.**

●Head side trunnion type (TB) with bracket (Option code B2)



[With Bellows]

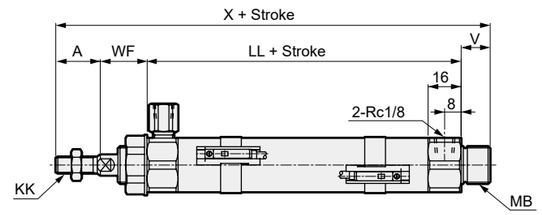
Code	Head Side Trunnion Type (TB) With Bracket (Option Code B2) Mounting Dimensions											With Bellows
Bore Size (mm)	A	KK	LL	WF	TA	TH	TJ	TM	TN	TR	TS	ℓ
ø20	20	M8 × 1.0	66	24	142	29.5	94.5	30	46	70	90	(Stroke / 3) + 6
ø30	23	M10 × 1.25	72	23	151	39	100.5	40	64	80	100	(Stroke / 3.25) + 7
ø40	25	M12 × 1.5	74	23	155	44	102.5	53	72	93	113	(Stroke / 3.25) + 7

*1: For ø20, a port nipple is included to the rod cover.
*2: Round up ℓ dimension to the nearest whole number.
***3: For dimensions with each switch, see P. 315.**
***4: For outer dimensions diagram of accessories, refer to P. 308.**

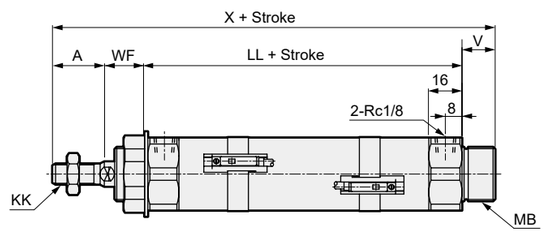
Option Outline Dimension Drawing

●Same Port Position (P)

·ø20



·ø30, ø40



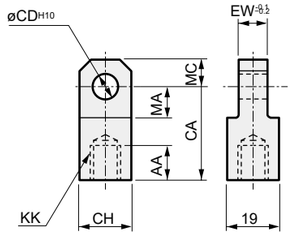
Code	Same Port Position (P) Mounting Dimensions						
Bore Size (mm)	A	KK	LL	MB	V	WF	X
ø20	20	M8 × 1.0	76	M18 × 1.5	14	24	134
ø30	23	M10 × 1.25	82	M26 × 1.5	16	23	144
ø40	25	M12 × 1.5	84	M26 × 1.5	16	23	148

*1: For ø20, a port nipple is included to the rod cover.
***2: For dimensions with each switch, see P. 315.**
***3: For outer dimensions diagram of accessories, refer to P. 308.**

Accessories Outline Dimension Drawing

●Single Knuckle (I)

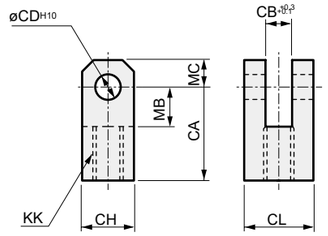
Material: Steel
Zinc Chromate



Model No.	Applicable Bore Size (mm)	AA	CA	CD	CH	EW	KK	MA	MC	Weight (g)
M1-I-20	20	14	30	10	19	8	M8 × 1.0	13	10	60
M1-I-30	30	14	36	12	25	10	M10 × 1.25	16	12	106
M1-I-40	40	14	36	12	25	10	M12 × 1.5	16	12	100

●Double Knuckle (Y)

Material: Steel
Zinc Chromate



Model No.	Applicable Bore Size (mm)	CA	CB	CD	CH	CL	KK	MB	MC	Weight (g)
M1-Y-20	20	30	8	10	19	19	M8 × 1.0	13	10	99
M1-Y-30	30	36	10	12	25	25	M10 × 1.25	16	12	197
M1-Y-40	40	36	10	12	25	25	M12 × 1.5	16	12	193

Note: A pin, a washer and a split pin are attached.

●Double Bracket (B2)

Material: Steel
Zinc Chromate

	Model No.	Applicable Model	Applicable Bore size (mm)	CD	MR	Weight (g)
*2	M1-B2-30-CA	CMA2-CA Clevis Type	20	10	11	158
*2	M1-B2-40-CA		30, 40	12	11	162
	M1-B2-20-TA	CMA2-TA/TB Trunnion Type	20	8	8	132
	M1-B2-30-TA		30, 40	10	11	142

*1: A pair consists of two, symmetrical with respect to the XY line.
*2: Retaining ring and pin are included.

●Pin for Double Knuckle (P)

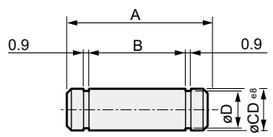
Material: Steel
Zinc Chromate

Model No.	Applicable Bore size (mm)	A	D	CD	EL	T	X	Y	Weight (g)
M1-P-20	20	37	4	10	28	1.6	10.5	18	29
M1-P-30	30, 40	46	4	12	37	2.3	12.5	22	50

Note: A pin, a washer and a split pin are included with the rod clevis.

●Pin for Double Bracket (P2)

Material: Steel
Zinc Chromate

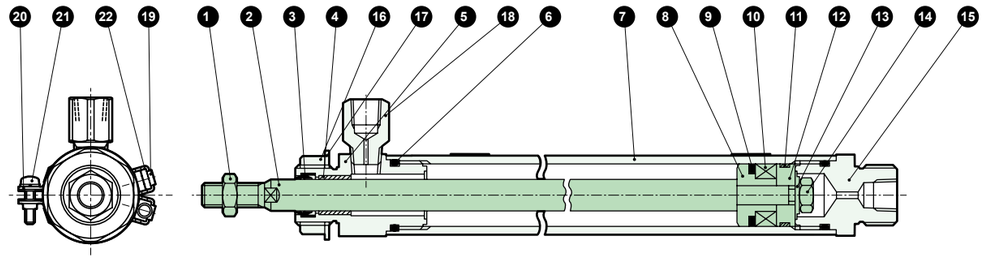


Model No.	Applicable Bore size (mm)	A	B	CD	D	Retaining Ring to Use	Weight (g)
M1-P2-20	20	25	20	10	9	E-type 9	16
M1-P2-30	30, 40	27	22	12	9	E-type 9	24

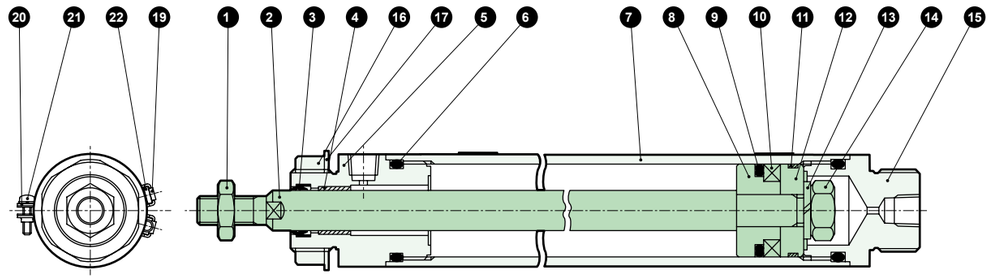
*1: Retaining ring is included.
*2: Pin and retaining ring are included to the double bracket.
(However, not included for trunnion type)

Internal Structure Diagram / Material

●ø20



●ø30, ø40



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	12	Piston B	Aluminum Alloy	
2	Piston Rod	ø20, ø30: Stainless Steel ø40: Carbon steel	Industrial Hard Chrome Plating	13	Spring Washer	Steel	Zinc Chromate
				14	Hexagon Nut	Steel	Zinc Chromate
3	Rod Packing	Nitrile Rubber		15	Head Cover	Aluminum Alloy	Chromate
4	Bushing	Bearing Alloy		16	Nut	Steel	Zinc Chromate
5	Rod Cover	Aluminum Alloy	Chromate	17	Toothed Lock Washer	Steel	Zinc Chromate
6	Cylinder Gasket	Nitrile Rubber		18	Port Nipple	Copper Alloy	
7	Cylinder Tube	Aluminum Alloy	Hard Anodized	With Switch			
8	Piston A	Aluminum Alloy		19	Switch		
9	Piston Packing	Nitrile Rubber		20	Band	Stainless Steel	
10	Magnet	Plastic		21	Pan Head Screw	Stainless Steel	
11	Wear Ring	Polyacetal		22	Switch Rail	Stainless Steel	

Consumable Parts List

Bore Size (mm)	Kit Number	Consumable Part Number
ø20	**CMA2-20K**	③ ⑥ ⑨ ⑪
ø30	**CMA2-30K**	
ø40	**CMA2-40K**	

Mounting Bracket Material

Mounting type	Material
Foot (LB / LS)	Steel
Flange (FA / FB)	Steel
Trunnion (TA / TB)	Steel
Single Clevis (CA) Double Clevis (CB)	Steel

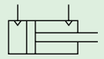
Note: Mounting brackets are attached to the product and shipped. However, if bellows are included and mounting brackets are LB, LS, FA, or TA, they will be shipped assembled.



Small Bore Cylinder
Double Acting/Direct Type

CMA2-E Series

● Bore Size: ø20, ø30, ø40

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

CMA2-E – FA – 20 – 25 ——— M I

Model No. ❶ ❷ ❸ ❻

With Switch
(Built-in magnet for switch)

CMA2-E – FA – 20 – 25 – T0H – R – M I

Model No. ❶ Mounting type ❷ Bore Size ❸ Stroke ❹ Switch Model No. ❺ Number of Switches ❻ Option Accessories ❼

❶Mounting type

Mounting brackets are included to the product and shipped.

Code	Content	
LS	Side Foot Mounting	
FA	Flange Mounting	

❷Bore Size (mm)

Code	Content
20	ø20
30	ø30
40	ø40

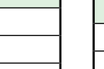
❸Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø20	1 to 700	Every 1 mm
ø30	1 to 700	
ø40	1 to 700	

Note: For minimum stroke with switch, refer to P. 312.

❹Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Water Resistance Improved	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*1: For "□" in the switch model number, enter the symbol selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
*5 W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❺Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❻ Option

Code	Content
M	Piston Rod Material (Stainless Steel)

❼Accessories

Code	Content	
I	Single Knuckle	
Y	Double Knuckle (Pin and washer included)	

Note: I and "Y" cannot be selected simultaneously.

About Custom Product Specifications

For details, see P. 316.

Code	Content
-XJ9	Without Bellows
-T2	Fluorine Packing Type
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)

CMA2-E – ..... – XJ9

Switch Single Unit Model No. Notation Method

[T-type Switch]

● Switch body + Mounting bracket set

CMA2 – T0H – 40

❹ Switch Model No. ❷ Bore Size

● Switch body only

SW – T0H

❹ Switch Model No.

● Mounting bracket set

CMA2 – T – 40

Mounting bracket ❷ Bore Size

Specifications

Item		CMA2-E		
Bore Size	mm	ø20	ø30	ø40
Actuation method		Double Acting Type		
Operating Fluid		Compressed Air		
Max. Working Pressure	MPa	0.7		
Min. Operating Pressure	MPa	0.1		
Proof Pressure	MPa	1.0		
Ambient Temperature	°C	-10 to 60 (Provided that freezing does not occur)		
Port Size		Rc1/8		
Stroke tolerance	mm	$^{+1.0}_{0}$ (Up to 200), $^{+1.2}_{0}$ (Up to 700)		
Operating Piston Speed	mm/s	50 to 500		
Cushion		None		
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)		
Allowable Absorbed Energy	J	0.024	0.05	0.093

*1:This product cannot absorb high energy generated by an external load. It is recommended to use an external shock absorber together.

Stroke

(Unit: mm)

Bore Size	Standard Stroke	Max. Stroke	Min. Stroke
ø20	25, 50, 75, 100, 150, 200, 250, 300	700	1
ø30			
ø40			

Note: About Intermediate Stroke: Manufacturable every 1 mm.

Min. Stroke with Switch (T-type Switch)

(Unit: mm)

Switch Model No.	With 1 pc	With 2 pcs
T0, T5, T2, T3	10	25
T2W, T3W, T2WL	10	30
T1, T8	10	25

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm		Weight per Switch		Added Weight per S = 10 mm
	Side Foot Type (LS)	Flange Type (FA)	T type	Switch Rail + Band Weight	
ø20	0.18	0.16	Please refer to the weight listed in the switch specifications on P. 971	0.005	0.01
ø30	0.36	0.31		0.005	0.014
ø40	0.61	0.51		0.009	0.02

(Example) Product Weight of CMA2-E-FA-30-50-TOH-D
- Product Weight at S = 0 mm: 0.31 kg
- Added weight at S = 50 mm……Added weight at S = 10 mm 0.014 × $\frac{\text{Product Stroke (50)}}{10}$ = 0.07 kg
- Weight of 2 switches……0.036 kg
- Product Weight……0.31 kg+0.07 kg+0.036 kg=0.416 kg

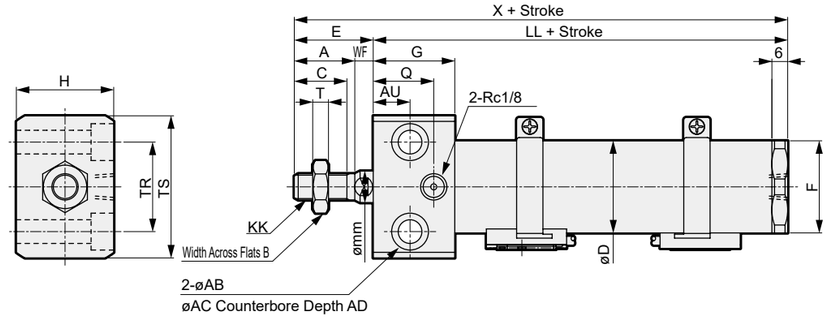
Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa							
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø20	Push	31.4	47.1	62.8	94.2	1.26 × 10²	1.57 × 10²	1.88 × 10²	2.20 × 10²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18 × 10²	1.41 × 10²	1.65 × 10²
ø30	Push	70.7	1.06 × 10²	1.41 × 10²	2.12 × 10²	2.83 × 10²	3.53 × 10²	4.24 × 10²	4.95 × 10²
	Pull	59.4	89.1	1.19 × 10²	1.78 × 10²	2.38 × 10²	2.97 × 10²	3.56 × 10²	4.16 × 10²
ø40	Push	1.26 × 10²	1.88 × 10²	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²
	Pull	1.10 × 10²	1.65 × 10²	2.21 × 10²	3.31 × 10²	4.41 × 10²	5.51 × 10²	6.62 × 10²	7.72 × 10²

Outline Dimension Drawing

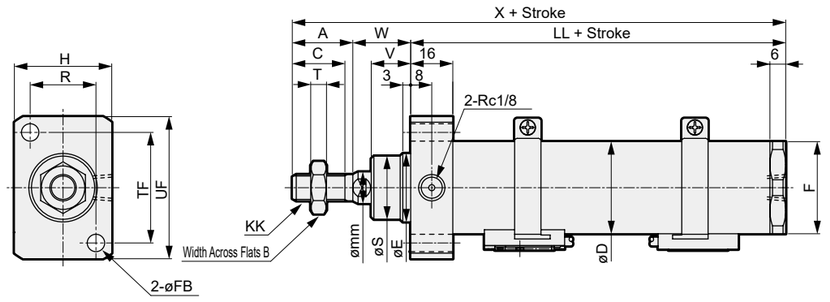
●Side Foot Mounting Type (LS)



Code / Bore Size (mm)	Side Foot Mounting Type (LS) Mounting Dimensions																			
	A	AB	AC	AD	AU	B	C	D	E	F	G	H	KK	LL	MM	Q	T	TR	TS	WF	X
ø20	20	6.6	11	6.5	9.5	13	18	25	31	26	28	28	M8 × 1.0	79	10	20	5	22	38	11	110
ø30	23	9	14	8.6	14	17	20	35	30	35	31	37	M10 × 1.25	88	12	23	6	34	54	7	118
ø40	25	11	17.5	10.8	15	19	22	45	31	46	32	48	M12 × 1.5	91	14	24	7	46	68	6	122

***1: For dimensions with each switch, see P. 315.**
***2: For outer dimensions diagram of accessories, refer to P. 308.**

●Flange Mounting Type (FA)

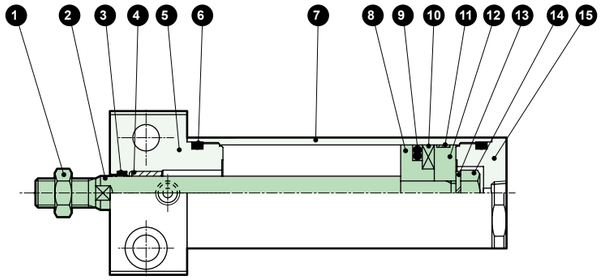


Code / Bore Size (mm)	Flange Mounting Type (FA) Mounting Dimensions																		
	A	B	C	D	E	F	FB	H	KK	LL	MM	R	S	T	TF	UF	V	W	X
ø20	20	13	18	25	18	26	5.5	28	M8 × 1.0	67	10	19	17	5	29	38	12	23	110
ø30	23	17	20	35	26	35	6.6	37	M10 × 1.25	73	12	25	24	6	42	54	15	22	118
ø40	25	19	22	45	26	46	9	48	M12 × 1.5	75	14	32	24	7	52	68	16	22	122

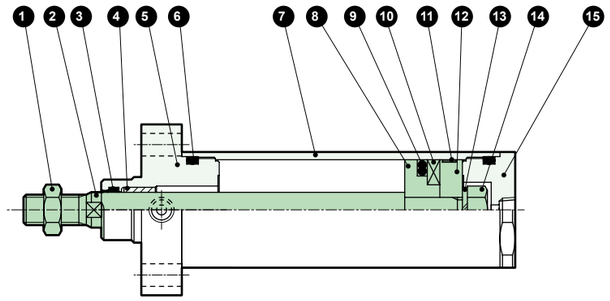
***1: For dimensions with each switch, see P. 315.**
***2: For outer dimensions diagram of accessories, refer to P. 308.**

Internal Structure Diagram / Material

●Side Foot Mounting Type (LS)



●Flange Mounting Type (FA)



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	8	Piston A	Aluminum Alloy	
2	Piston Rod	ø20, ø30: Stainless Steel ø40: Carbon steel	Industrial Hard Chrome Plating	9	Piston Packing	Nitrile Rubber	
				10	Magnet	Plastic	
3	Rod Packing	Nitrile Rubber		11	Wear Ring	Polyacetal	
4	Bushing	Bearing Alloy		12	Piston B	Aluminum Alloy	
5	Rod Cover	Aluminum Alloy	Chromate	13	Spring Washer	Steel	Zinc Chromate
6	Cylinder Gasket	Nitrile Rubber		14	Hexagon Nut	Steel	Zinc Chromate
7	Cylinder Tube	Aluminum Alloy	Hard Anodized	15	Head Cover	Aluminum Alloy	Chromate

Consumable Parts List

Bore Size (mm)	Kit Number	Consumable Part Number
ø20	**CMA2-20K**	❸ ❻ ❾ ⓫
ø30	**CMA2-30K**	
ø40	**CMA2-40K**	

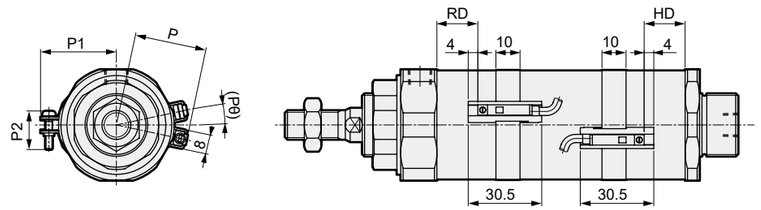
Mounting Bracket Material

Mounting type	Material
Foot (LS)	Steel
Flange (FA)	Steel

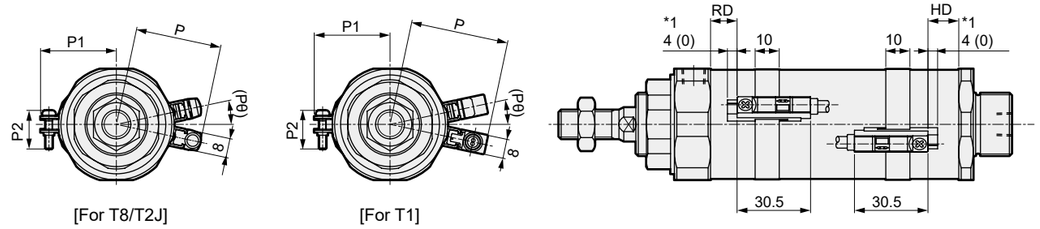
Note: Mounting brackets are included to the product upon shipment.

CMA2 Series Switch Outline Dimension Drawing

●T0H/V, T5H/V, T2H/V, T3H/V, T3PH/V, T2WH/V, T3WH/V, T2WLH/V



●T1H/V, T8H/V, T2JH/V



Code / Bore Size (mm)	P1	P2	Pθ	CMA2,CMA2-E											
				T0,T5,T2,T3,T3P			T2W, T3W, T2WL			T1,T2J			T8		
				RD	HD	P	RD	HD	P	RD	HD	P	RD	HD	P
ø20	21	14	19	13	13	19.5	15	15	19.5	12	12	30.3	7	7	25.3
ø30	26	16	15	16	16	24.5	18	18	24.5	15	15	35.3	10	10	30.3
ø40	31	14	12	17	17	29.5	19	19	29.5	16	16	40.3	11	11	35.3

*1: For T1□, T2J□ switch and stroke 33 mm or more, or for T8□ switch, dimensions in ( ) apply.
*2: For switch mountability, refer to the model No. notation method for each variation.

Custom Products

■ Without Bellows (-XJ9)

Content: Piston rod with dimensions for bellows, but bellows not assembled

Model No. Notation Method

CMA2 - 00 - 40 - 100 - XJ9

Model No.

See CMA2 model No. notation method.

Outline Dimension Drawing

Same dimensions as with bellows, but bellows are not included.

■ Fluorine Packing Type (-T2)

Content: Change the rod packing, piston packing and O-rings to FKM. (Cushion packing is not changed)

Model No. Notation Method

CMA2 - T2 - 00 - 40 - 100

Model No.

See CMA2 model No. notation method.

Outline Dimension Drawing

Same as double acting/single rod type.

■ With 2 Rod Nuts (-A2)

Content: Shipped with 2 rod nuts, same as standard.

Model No. Notation Method

CMA2 - 00 - 40 - 100 - A2

Model No.

See CMA2 model No. notation method.

Outline Dimension Drawing

Same as double acting/single rod type except that 2 rod nuts are included.

MEMO

General Type

SCM

Round shaped cylinder

ø20, ø25, ø32, ø40
ø50, ø63, ø80, ø100



Overview

A medium bore (ø20 to ø100) series among general cylinders, with abundant bore sizes and variations, and a very smart appearance. This is the most compact cylinder among general type cylinders.

Features

Smart Appearance
Simple design that is also functionally excellent

Excellent Cushion Needle Adjustment
A knob is included with the cushion needle part, significantly improving adjustment work.

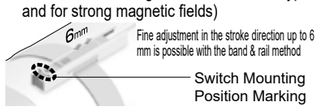
Easy Mounting Work
Good workability due to 4-bolt mounting. Furthermore, mounting with general tools is possible.

Selectable Switch Mounting Method

Band Type

- Switch mounting position is visible at a glance

  The switch rail has markings for mounting at the highest sensitivity position, significantly reducing switch position setting time during maintenance. (Limited to stroke end detection. Excluding two-color indicator type and for strong magnetic fields)



- Switch can be rotated and moved freely

  By simply loosening the fixing screw, the switch rail can be freely rotated and moved in the circumferential direction without changing the position of the band fixing part. Switch mounting and position adjustment on-site become easy.

- Prevention of fixing screw coming off

  Anti-slip rubber is included with the inside of the band. It will not fall off even if the screw is loosened.

Fixed Rail Method

- Switch integrated into the rail

  Ultra-compact switch neatly integrated into the switch rail. Lead wires can also be stored in the same rail. Cylinder switch movement and installation are easily possible with just screw adjustment.

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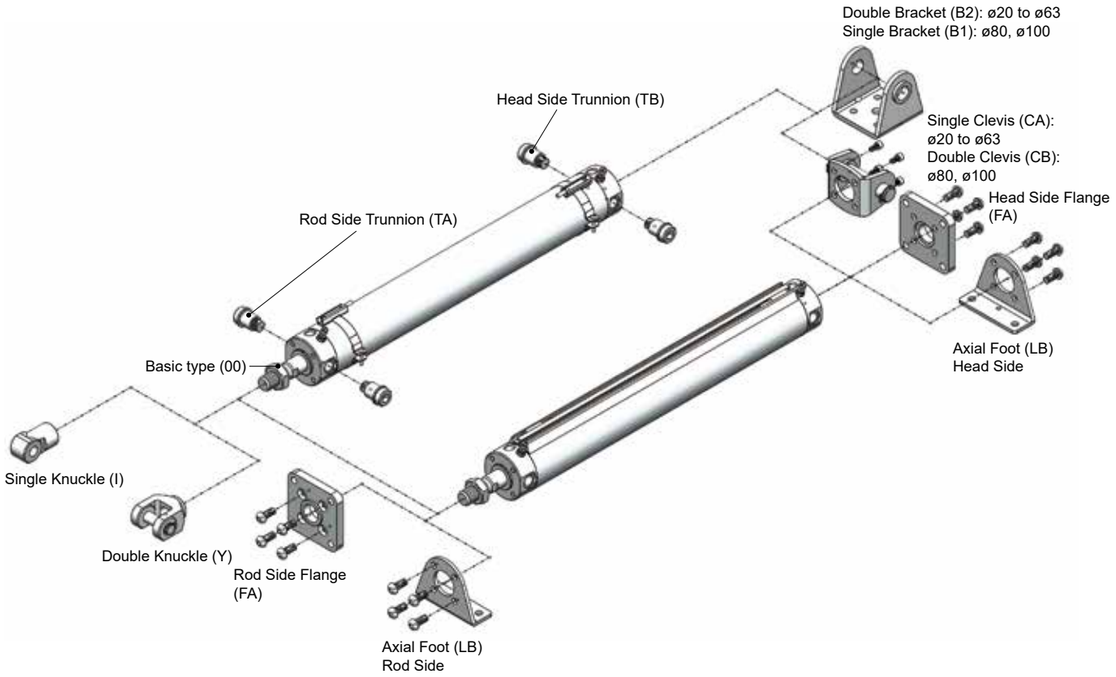
Round shaped cylinder SCM Series

●: Standard, ◎: Option, ○: Custom Products, ▩: Not manufacturable

Variation	Model No. / Circuit Diagram Symbol	Bore size (mm)	Standard Stroke (mm)									Min. Stroke (mm)	Max. Stroke (mm)	Intermediate Stroke Every (mm)	Mounting type									Cushion				Option				Accessories				Switch	Page
			25	50	75	100	125	150	200	250	300				Basic type		Axial Foot Type	Rod Side Flange Type	Head Side Flange Type	Single Clevis Type	Double Clevis Type	Rod Side Trunnion Type	Head Side Trunnion Type	With Air Cushion on Both Sides	Rod Side Air Cushion	Head Side Air Cushion	With Rubber Cushion on Both Sides	Bellows (100 °C)	Bellows (250 °C)	Shipped with Switch Rail Attached	Piston Rod Material (Stainless Steel)	Single Knuckle	Double Knuckle	Single Bracket	Double Yoke Bracket		
															00		LB	FA	FB	CA	CB	TA	TB	B	R	H	D	J	L	Q	M	I	Y	B1	B2		
Double Acting/ Single Rod Type	SCM	ø20, ø25, ø32	●	●	●	●	●	●	●	●	●	10	1,000	1	●		●	●	●	●		●	●	●	●	●	●	◎	◎	◎	◎	◎	◎		◎	◎	324
		ø40, ø50, ø63	●	●	●	●	●	●	●	●	●		1500		●		●	●	●	●		●	●	●	●	●	●	◎	◎	◎	◎	◎	◎		◎		
		ø80, ø100	●	●	●	●	●	●	●	●	●		1500		●		●	●	●		●			●	●	●	●	◎	◎	◎	◎	◎	◎	◎			
Single Acting, Push Type	SCM-X	ø20, ø25, ø32, ø40	●	●	●	●	●	●	●			5	200	1	●		●	●	●	●		●	●				●	◎	◎	◎	◎	◎	◎		◎	◎	340
Single Acting, Pull Type	SCM-Y	ø20, ø25, ø32, ø40	●	●	●	●	●	●	●			5	200	1	●		●	●	●	●		●	●				●	◎	◎	◎	◎	◎	◎		◎	◎	350
Double Acting, Stroke Adjustment (Push)	SCM-P	ø20, ø25, ø32	●	●	●	●	●	●	●	●	●	10	600	1	●		●	●				●	●				●	◎	◎	◎	◎	◎	◎		◎	◎	360
		ø40, ø50, ø63	●	●	●	●	●	●	●	●	●		600		●		●	●				●	●				●	◎	◎	◎	◎	◎	◎		◎		
Double Acting, Stroke Adjustment (Pull)	SCM-R	ø20, ø25, ø32	●	●	●	●	●	●	●	●	●	10	1,000	1	●		●	●				●	●				●	◎	◎	◎	◎	◎	◎		◎	◎	368
		ø40, ø50, ø63	●	●	●	●	●	●	●	●	●		1500		●		●	●				●	●				●	◎	◎	◎	◎	◎	◎		◎		
Double Acting/ Heat Resistant Type	SCM-T	ø20, ø25, ø32, ø40	●	●	●	●	●	●	●	●	●	10	1,000	1	●		●	●	●	●		●	●				●			◎		◎	◎	◎		◎		376
		ø50, ø63	●	●	●	●	●	●	●	●	●		1500		●		●	●	●	●		●	●	●	●	●				◎		◎	◎	◎		◎		
		ø80, ø100	●	●	●	●	●	●	●	●	●		1500		●		●	●	●		●			●	●	●				◎		◎	◎	◎	○			
Double Acting, Drop Prevention Type	SCM-Q	ø20, ø25, ø32	●	●	●	●	●	●	●	●	●	10	1,000	1	●		●	●	●	●		●*1	●*2	●	●	●				◎	○	◎	◎		◎		380
		ø40, ø50, ø63	●	●	●	●	●	●	●	●	●		1500		●		●	●	●	●		●*1	●*2	●	●	●				◎	○	◎	◎		◎	◎		
		ø80, ø100	●	●	●	●	●	●	●	●	●		1500		●		●	●	●		●			●	●	●				◎	○	◎	◎	○				
Double Acting/Low Speed	SCM-F	ø20, ø25, ø32, ø40	●	●	●	●	●	●	●	●	●	5	500	1	●		●	●	●	●		●	●				●			◎	◎	◎	◎		◎	◎	396
Double Acting/ Low Speed Type	SCM-O	ø20, ø25, ø32	●	●	●	●	●	●	●	●	●	10	1,000	1	●		●	●	●	●		●	●				●	◎	◎	◎	◎	◎	◎		◎		
		ø40, ø50, ø63	●	●	●	●	●	●	●	●	●		1500		●		●	●	●	●		●	●				●	◎	◎	◎	◎	◎	◎		◎	◎	402
		ø80, ø100	●	●	●	●	●	●	●	●	●		1500		●		●	●	●		●						●	◎	◎	◎	◎	◎	◎	○			
Double Acting, Low Friction Type	SCM-U	ø20, ø25, ø32	●	●	●	●	●	●	●	●	●	10	1,000	1	●		●	●	●	●		●	●				●			◎	◎	◎	◎				
		ø40, ø50, ø63											1500		●		●	●	●	●		●	●				●			◎	◎	◎	◎		◎	◎	408
		ø80, ø100											1500		●		●	●	●		●						●			◎	◎	◎	◎	○			
Double Acting/ Double Rod Type	SCM-D	ø20, ø25, ø32	●	●	●	●	●	●	●	●	●	10	600	1	●		●	●				●		●	●	●	●	◎	◎	◎	◎	◎	◎		◎		
		ø40, ø50, ø63	●	●	●	●	●	●	●	●	●		600		●		●	●				●		●	●	●	●	◎	◎	◎	◎	◎	◎		◎	◎	414
		ø80, ø100	●	●	●	●	●	●	●	●	●		600		●		●	●						●	●	●	●	◎	◎	◎	◎	◎	◎				
Double Acting, Back-to-Back Type	SCM-B	ø20, ø25, ø32	●	●	●	●	●	●	●	●	●	10	500	1	●		●	●	●			●	●				●	◎	◎	◎	◎	◎	◎		◎	◎	424
		ø40, ø50, ø63	●	●	●	●	●	●	●	●	●		750		●		●	●	●			●	●				●	◎	◎	◎	◎	◎	◎		◎		
Double Acting, Two-Stage Type	SCM-W (Indication Symbol)	ø20, ø25, ø32	●	●	●	●	●	●	●	●	●	10	600	1	●		●	●	●	●		●	●				●	◎	◎	◎	◎	◎	◎		◎	◎	432
		ø40, ø50, ø63	●	●	●	●	●	●	●	●	●		600		●		●	●	●	●		●	●				●	◎	◎	◎	◎	◎	◎		◎		
Double Acting, Tandem Type	SCM-W4 (Indication Symbol)	ø20, ø25, ø32	●	●	●	●	●	●	●	●	●	10	600	1	●		●	●	●	●		●	●				●	◎	◎	◎	◎	◎	◎		◎	◎	442
		ø40, ø50, ø63	●	●	●	●	●	●	●	●	●		600		●		●	●	●	●		●	●				●	◎	◎	◎	◎	◎	◎		◎		
Double Acting, Non-Rotating Type	SCM-M	ø20, ø25, ø32	●	●	●	●	●	●	●	●	●	10	600	1	●		●	●	●	●		●	●				●	◎	◎	◎		◎	◎		◎	◎	452
		ø40, ø50, ø63	●	●	●	●	●	●	●	●	●		600		●		●	●	●	●		●	●				●	◎	◎	◎		◎	◎		◎		
Double Acting, Direct Foot Type	SCM-LD	ø20, ø25, ø32, ø40, ø50, ø63	●	●	●	●	●	●	●	●	●	10	300	1													●	◎	◎	◎	◎	◎	◎	◎			◎	462

*1: If head side drop prevention is included, head side trunnion type "TA" cannot be selected.
*2: If rod side drop prevention is included, rod side trunnion type "TB" cannot be selected.

Combination of Mounting Brackets and Accessories



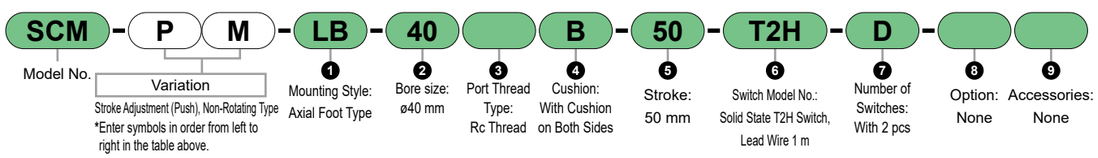
Combination Availability Table for Variations and Option Items

◎Mark: Option
○Mark: Custom Products
△Mark: Manufacturable depending on conditions (Please consult)
× Mark: Not manufacturable

*1: Air cushion for ø20, ø25 is not manufacturable
*2: Non-rotation is on one side only
*3: ø20, ø25 are not manufacturable
*4: ø20 to ø32 are not manufacturable
*5: ø80, ø100 only
*6: ø20 to ø63 only

Category		Category	Variation																Piping thread			Option			
			Double Acting Basic Type	Single Acting, Push Type	Single Acting, Pull Type	Double Acting Double Rod Type	Back-to-Back Type	Two-Stage Type	Tandem Type	Stroke Adjustment Type, Push	Stroke Adjustment Type, Pull	Non-Rotating Type	With Air Cushion	Heat resistant type (120°C)	Low Speed Type	Drop prevention type	Low Friction Type		NPT	G		With Bellows, Nylon Tarpaulin	With Bellows, Silicone Rubber	Piston Rod Material (Stainless Steel)	Shipped with Switch Rail Attached
			None	X	Y	D	B	W	W4	P	R	M	B,R,H	T	O	Q	U		N	G		J	L	M	Q
Variation	Double Acting Basic Type	Blank											◎						○	○		◎	◎	◎	◎
	Single Acting, Push Type	X			×	×	○	×	×	×	○	△	×	△	×	×	×		○	○		◎	◎	◎	◎
	Single Acting, Pull Type	Y				×	○	×	×	×	×	△	×	△	×	×	×		○	○		◎	◎	◎	◎
	Double Acting Double Rod Type	D					×	×	×	×	×	*2	○	○	×	○	×		○	○		◎	◎	◎	◎
	Back-to-Back Type	B						×	×	×	×	△	△	○	○	×	×		○	○		◎	◎	◎	◎
	Two-Stage Type	W							×	×	×	○	×	○	×	×	×		○	○		◎	◎	◎	◎
	Tandem Type	W4								×	×	○	×	×	×	×	×		○	○		◎	◎	◎	◎
	Stroke Adjustment Type, Push	P									×	○	×	△	×	×	×		○	○		◎	◎	◎	◎
	Stroke Adjustment Type, Pull	R										○	×	△	○	△	×		○	○		◎	◎	◎	◎
	Non-Rotating Type	M											△	×	×	△	×		○	○		◎	◎	△	◎
	With Air Cushion	B, R, H												*4	×	◎	×		*1	*1		◎	◎	◎	◎
	Heat Resistant Type (120°C)	T													×	×	×		○	○		×	◎	◎	
	Low Speed Type	O														△	×		○	○		◎	◎	◎	◎
	Drop prevention type	Q															×		*3	*3		△	△	◎	◎
	Low Friction Type	U																	○	○		×	×	◎	◎
Piping thread	NPT	N																				○	○	○	○
	G	G																				○	○	○	○
Option	With Bellows, Nylon Tarpaulin	J																				×	○	○	
	With Bellows, Silicone Rubber	L																					○	○	
	Piston Rod Material (Stainless Steel)	M																						○	
	Shipped with Switch Rail Attached	Q																							
Accessories	Cylinder Switch	Shown Separately	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	×	◎	◎	◎		○	○		◎	◎	◎	◎
	Single Knuckle	I	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○		◎	◎	◎	◎
	Double Knuckle	Y	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○		◎	◎	◎	◎
	Single Bracket *5	B1	◎	×	×	×	×	×	×	×	×	×	◎	◎	◎	◎		○	○		◎	◎	◎	◎	
	Double Bracket *6	B2	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○		◎	◎	◎	◎

[Model No. Notation Method]



*1: Back-to-back type has two cylinders. When indicating each variation, use the following method.
- If only S1 has a variation, enter the variation code before the S1 stroke. (Example) SCM-B-32-**O2**5-50: Only S1 is low speed type.
- If only S2 has a variation, enter the variation code before the S2 stroke. (Example) SCM-B-32-25-O50: Only S2 is low speed type.
- If S1 and S2 have the same variation, enter the variation code before the bore size (Example) SCM-BO-32-25-50: Both S1 and S2 are low speed type.



Round shaped cylinder Double Acting/Single Rod Type

SCM Series

●Bore Size: ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch (For switch Built-in magnet)

With Switch (For switch Built-in magnet)

	Model No.	❶ Mounting type	❷ Bore size	❸ Piping thread type	❹ Cushion	❺ Stroke	❻ Switch Model No.	❼ Number of Switches	❽ Switch Mounting Method	❾ Option	❿ Accessories
Without Switch	SCM	LB	40		B	100				J	I
With Switch	SCM	LB	40		B	100	T2H	D		J	I

❶Mounting Type

Mounting brackets are included with the product for shipment.

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type (pin and retaining ring included) (ø20 to ø63)	
CB	Double Clevis Type (Pin and Retaining Ring Included) (ø80, ø100)	
TA	Rod Side Trunnion Type (ø20 to ø63)	
TB	Head Side Trunnion Type (ø20 to ø63)	

❷Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	M5 (With air cushion, ø20, ø25 only)
	Rc Thread
*1 N	NPT Thread (Custom Order Product)
*1 G	G Thread (Custom Order Product)

*1: ø20, ø25 with air cushion cannot be selected.

❹Cushion

Code	Content
B	With Air Cushion on Both Sides
R	With Air Cushion on Rod Side
H	With Air Cushion on Head Side
D	With Rubber Cushion on Both Sides

❺Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20 to ø32	10 to 1000	Every 1 mm
ø40 to ø100	10 to 1500	

Note: For number of switches mounted and min. stroke, see P. 326.

❻Switch Model No.

For switch details, please refer to 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color For AC Magnetic Field		—	24 ± 10%	—		T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—		T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	*4

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: Max. load current as shown on the left: 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: T8H/V switches cannot be mounted when the bore size is ø20 to ø40 and switch mounting is the rail type.
*5: Switches other than those listed on the left are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
*6 W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*6: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❼Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❽Switch Mounting Method

Code	Content	
Blank	Rail Type	
Z	Band Type	

❾ Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
*1 *2 J	Bellows	100°C	200°C	
*1 *2 L		250°C	400°C	
*3 Q	Shipped with Switch Rail Attached			
M	Piston Rod Material (Stainless Steel)			

*1: For models with bellows, if the ❶ mounting style is "LB" or "FA," the mounting brackets are shipped pre-assembled.
*2: The instantaneous max. temperature is that at which sparks, cutting chips, etc., instantaneously contact bellows.
*3: ❽ If switch mounting style "Z" is selected, the "Switch rail shipped attached" option ("Q") cannot be selected.

❿Accessories

Code	Content	
*1 I	Single Knuckle	
*1 Y	Double Knuckle (Pin and retaining ring included)	
B1	Single Bracket (ø80, ø100)	
B2	Double Yoke Bracket (ø20 to ø63)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, see P. 474 to 477.

Code	Content
-XP5	Knuckle Pin/Clevis Pin Split Pin
-XP7	Knuckle fixed by pin driving
-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
SCM -..... -XP5

Clean Specification (Catalog No. CB-033SAA)
●Dust prevention structure usable in cleanrooms
SCM -..... -P7□
SCM -..... -P5□

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)
●Uses food grade grease that can be used in food manufacturing processes
SCM -..... -FP1

Rechargeable Battery Compatible Specification (Catalog No. CC-1226AA)
●Design compatible with rechargeable battery manufacturing process
SCM -..... -P4□
*Please contact us for details.

High Durability Components HP Series (Catalog No. CC-1421AA)
●Long-life actuator that contributes to productivity improvement with stable operation
SCM -..... -HP□

Switch Single Unit Model No. Notation Method

[Switch mounting: Rail Type]
●Switch Body + Mounting Rail Set
SCM - T0H□ - D - 40 - 100
❻ Switch Model No. ❼ Number of Switches ❷ Bore size ❺ Stroke (*1)

[Switch mounting: Band Type
●Switch Body + Mounting Bracket Set + Band
SCM - T2H□ - 40 - Z
❻ Switch Model No. ❷ Bore size

[Switch Body Only]
SW - T0H□
❻ Switch Model No.

●Mounting Rail Only
SCM - T - 40 - 100
Mounting Rail ❷ Bore size ❺ Stroke (*1) (*2)

●Mounting Bracket Set + Band
SCM - Z - 40
❷ Bore size

*1: Indicate items with a stroke exceeding 300 mm as X. If exceeding 300 mm, one short rail (switch adjustment travel distance 100 mm) is included per switch.
*2: When indicating X for mounting rail only, order the same number of rails as the number of switches used.

Specifications

Item		SCM							
Bore Size	mm	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type							
Operating Fluid		Compressed Air							
Max. Working Pressure	MPa	1.0							
Min. Operating Pressure	MPa	0.1				0.05			
Proof Pressure	MPa	1.6							
Ambient Temperature	°C	-10 to 60 (No freezing)							
Port Size	With Rubber Cushion	Rc1/8				Rc1/4		Rc3/8	Rc1/2
	With Air Cushion	M5		Rc1/8		Rc1/4		Rc3/8	Rc1/2
Stroke tolerance mm	With Rubber Cushion	$^{+1.4}_{0}$ (Up to 1000)			$^{+1.4}_{0}$ (Up to 1500)	$^{+2.3}_{0}$ (to 1000), $^{+2.7}_{0}$ (to 1500)			
	With Air Cushion	$^{+1.4}_{0}$ (Up to 1000)			$^{+1.4}_{0}$ (Up to 1500)	$^{+1.4}_{0}$ (to 1000), $^{+1.8}_{0}$ (to 1500)			
Operating Piston Speed	mm/s	30 to 1000 (Use within allowable absorption energy.)							
Cushion		Rubber cushion/air cushion can be selected							
Effective air cushion length	mm	8.1	8.1	8.6	8.6	13.4	13.4	15.4	15.4
Lubrication		Not Required (When lubricating, use Turbine Oil ISO VG32)							
Allowable absorbed energy J	With Rubber Cushion	0.1	0.2	0.5	0.9	1.6	1.6	3.3	5.8
	With Air Cushion	0.8	1.2	2.5	3.7	8.0	14.4	25.4	45.6
	Without Cushion	–	–	–	–	0.057	0.057	0.112	0.153

Note 1: The values of allowable absorbed energy for "No cushion" are the non-specified side when an air cushion is selected for the other side ("R"→ Head side, "H"→ Rod side) represents the allowable absorbed energy.

Note 2: Without a cushion, large energy generated by external load cannot be absorbed. Provide an external shock absorber.

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke
ø20	25, 50, 75, 100, 125, 150, 200, 250, 300	1,000	10
ø25			
ø32			
ø40		1500	
ø50			
ø63			
ø80			
ø100			

Note: Intermediate strokes can be produced in 1 mm increments.

Number of Switches Mounted and Min. Stroke (mm)

●Switch Mounting Method Rail Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore Size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	25	10	25	10	25	10	25
ø25	10	25	10	25	10	25	10	25	10	25
ø32	10	25	10	25	10	25	10	25	10	25
ø40	10	25	10	25	10	25	10	25	10	25
ø50	10	25	10	25	10	25	10	25	10	25
ø63	10	25	10	25	10	25	10	25	10	25
ø80	10	25	10	25	10	25	10	25	10	25
ø100	10	25	10	25	10	25	10	25	10	25

Note: For products with 1 switch and stroke of 10 mm or more but less than 25 mm, the switch rail mounting position changes, and trunnion type mounting cannot be produced. For mounting position, see P. 468 to 473.

●Switch Mounting Method Band Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore Size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	30	10	35	15	45	10	25
ø25	10	25	10	30	10	35	15	45	10	25
ø32	10	25	10	30	10	35	15	45	10	25
ø40	10	25	10	30	10	35	10	45	10	25
ø50	10	25	10	30	10	35	10	45	10	25
ø63	10	25	10	30	10	35	10	45	10	25
ø80	10	25	10	30	10	35	10	45	10	25
ø100	10	25	10	30	10	35	10	45	10	25

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S = 10 mm With Switch Rail	Weight of Band per Switch
	Basic Type (OO)	Axial Foot Type (LB)	Flange Type (FA/FB)	Clevis Type	Trunnion Type (TA/TB)				
ø20	0.10	0.21	0.13	0.15	0.11	Refer to the weight listed in the switch specifications on P. 971.	0.01	0.012	0.007
ø25	0.17	0.30	0.21	0.25	0.19		0.014	0.016	0.007
ø32	0.26	0.42	0.32	0.41	0.29		0.018	0.02	0.007
ø40	0.41	0.63	0.49	0.64	0.46		0.03	0.032	0.007
ø50	0.77	1.25	1.11	1.17	0.91		0.044	0.046	0.008
ø63	1.07	1.79	1.57	1.75	1.21		0.052	0.054	0.009
ø80	2.04	3.00	2.75	2.75	–		0.07	0.072	0.010
ø100	3.17	4.92	4.52	4.45	–		0.098	0.10	0.010

(Example) Product Weight of SCM-LB-40B-100-T2H-D

- Product Weight at S = 0 mm ····· 0.63 kg
- Added weight at S = 100 mm ····· $0.032 \times \frac{100}{10} = 0.32$ kg
- Weight of 2 switches ····· $0.018 \times 2 = 0.036$ kg
- Product weight ····· 0.63+0.32+0.036=0.986 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	–	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	–	26.4	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push	–	49.1k	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	–	41.2	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push	–	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	–	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	–	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	–	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.0	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	2.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push	2.51×10^2	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	2.27×10^2	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push	3.92×10^2	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3	6.28×10^3	7.07×10^3	7.85×10^3
	Pull	3.57×10^2	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

Mounting Bracket Model No. Notation Method

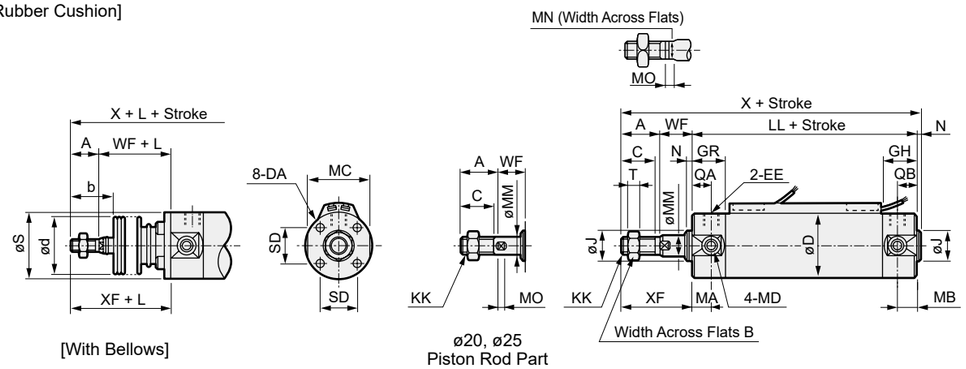
Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63	SCM-LB-80	SCM-LB-100
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63	SCM-FA-80	SCM-FA-100
Single Clevis (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63	–	–
Double Clevis (CB)	–	–	–	–	–	–	SCM-CB-80	SCM-CB-100
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63	–	–

Note 1: Mounting bolts are included to each mounting bracket.
Note 2: Foot type mounting brackets (LB) and trunnion mounting brackets (TA/TB) are 2 pcs/set.

Outline Dimension Drawing

● Basic type (OO)
[With Rubber Cushion]

• Switch Mounting Method: Rail Type

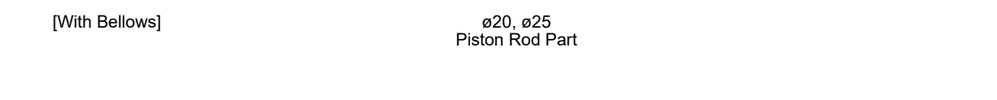


[With Bellows]

ø20, ø25
Piston Rod Part

[With Air Cushion]

• Switch Mounting Method: Rail Type



[With Bellows]

ø20, ø25
Piston Rod Part

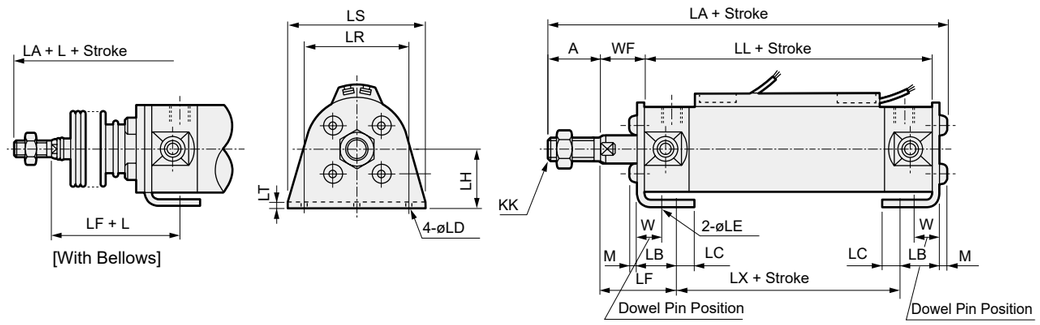
Code	Basic Type (OO) Basic Dimensions																	
Bore Size (mm)	A	B	C	D	DA	EE (Note 1)	GH	GR	J	KK	LL	MA	MB	MC	MD	MM	MN	MO
ø20	18	13	16	26	M4 Depth 6.5	Rc1/8	17	19	12	M8	69	11	11	24	M5	8	6	4
ø25	22	17	20	31	M5 Depth 6.5	Rc1/8	17	19	14	M10 × 1.25	69	11	11	29	M6	10	8	5
ø32	22	17	20	38	M5 Depth 7.5	Rc1/8	17	19	18	M10 × 1.25	71	11	10	36	M8	12	10	5.5
ø40	30	22	27	47	M6 Depth 12	Rc1/8	19	20	25	M14 × 1.5	78	12	10	44	M10	16	14	6
ø50	35	27	32	58	M8 Depth 16	Rc1/4	22	25	30	M18 × 1.5	90	13	12	55	M12	20	17	8
ø63	35	27	32	72	M10 Depth 16	Rc1/4	22	25	32	M18 × 1.5	90	13	12	69	M14	20	17	8
ø80	40	32	37	89	M10 Depth 22	Rc3/8	28	28	40	M22 × 1.5	108	–	–	80	–	25	22	11
ø100	40	41	37	110	M12 Depth 22	Rc1/2	28	28	50	M26 × 1.5	108	–	–	100	–	30	27	13

Code									With Bellows				With Air Cushion				
Bore Size (mm)	N	QA	QB	SD	T	WF	X	XF	b	d	s	L	EA	EB	EC	EE* (Note 1)	Eθ
ø20	2	12	10	14	5	17	106	35	30	30	25.7	(Stroke / 3) + 18.5	14	12	27	M5	30°
ø25	2	12	10	16.5	6	18	111	40	35	30	30.7	(Stroke / 3) + 20.5	14	12	29.5	M5	30°
ø32	2	12	10	20	6	18	113	40	31.5	35	37.7	(Stroke / 3) + 19	14	12	32.8	Rc1/8	25°
ø40	2	13	12	26	8	20	130	50	40	35	46.7	(Stroke / 3) + 18.5	15	14	36.6	Rc1/8	20°
ø50	2	15	12	32	11	23	150	58	46	40	57.7	(Stroke / 3.6) + 18.5	18.5	15.5	43	Rc1/4	20°
ø63	2	15	12	38	11	23	150	58	46	40	71.7	(Stroke / 3.6) + 18.5	18.5	15.5	50	Rc1/4	20°
ø80	3	15	15	50	13	31	182	71	55	50	88.7	(Stroke / 4.3) + 14.5	20	20	58.5	Rc3/8	20°
ø100	3	15	15	60	16	31	182	71	56	60	109.7	(Stroke / 4.5) + 21	20	20	69	Rc1/2	20°

Note 1: For ø20, ø25 with air cushion, the piping port (EE) is different. Refer to the dimension table for with air cushion (EE*).
Note 2: For dimensions with each switch, see P. 468 to 473.
Note 3: For outer dimensions diagram of accessories, refer to P. 336.

Outline Dimension Drawing (Bore Size: ø20 to ø100)

● Axial foot type (LB)

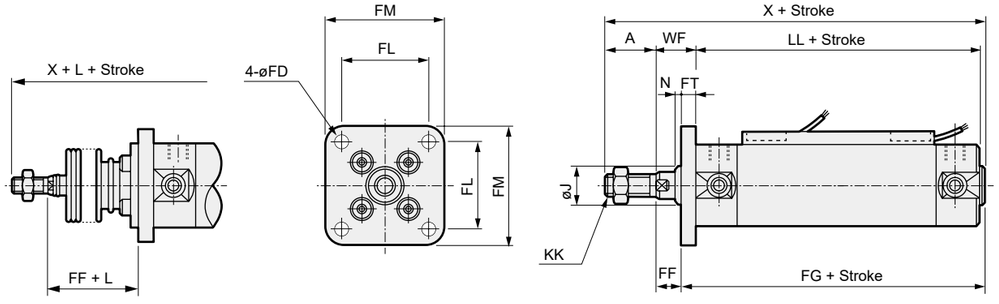


[With Bellows]

Code	Axial Foot Type (LB) Mounting Dimensions																With Bellows
Bore Size (mm)	A	KK	LA	LB	LC	LD	LE	LF	LH	LL	LR	LS	LT	LX	M	W	WF	L
ø20	18	M8	109.8	15.1	7.1	5.7	4	28.9	20	69	32	44	3.2	45.2	2.6	10	17	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	115.6	15.1	7.1	5.7	4	29.9	22	69	36	49	3.2	45.2	3.4	10	18	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	117.6	16.1	8.1	6.8	4	30.9	25	71	44	58	3.2	45.2	3.4	10	18	(Stroke / 3) + 19
ø40	30	M14 × 1.5	135.2	16.6	9.1	6.8	4	33.4	30	78	54	71	3.2	51.2	4	10	20	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	157.5	22	11	9	5	40.5	40	90	66	86	4.5	55	5	17.5	23	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	157.5	22	13	11	5	40.5	45	90	82	106	4.5	55	5	17.5	23	(Stroke / 3.6) + 18.5
ø80	40	M22 × 1.5	189.5	28.5	14	11	6	55	55	108	100	125	4.5	60	6	20	31	(Stroke / 4.3) + 14.5
ø100	40	M26 × 1.5	192	30	16	14	6	55	65	108	120	150	6	60	7	20	31	(Stroke / 4.5) + 21

Note 1: For dimensions with each switch, see P. 468 to 473.
Note 2: For outer dimensions diagram of accessories, refer to P. 336.

● Rod Side Flange Type (FA)



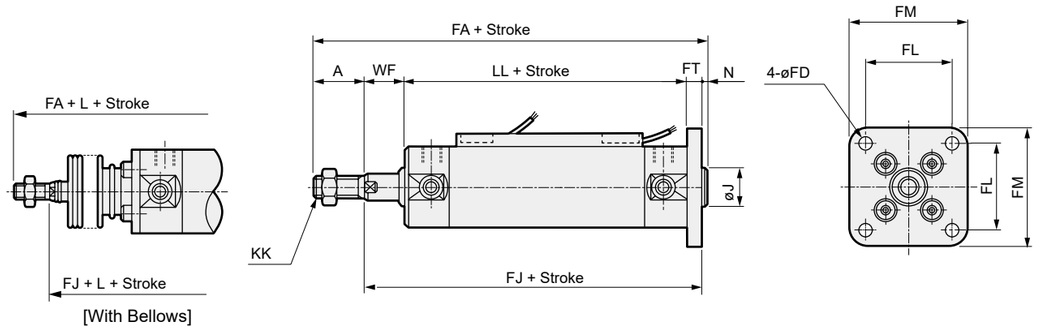
[With Bellows]

Code	Rod Side Flange Type (FA) Mounting Dimensions												With Bellows
Bore Size (mm)	A	FD	FF	FG	FL	FM	J	KK	LL	FT	N	WF	X	L
ø20	18	5.5	11	77	28	40	12	M8	69	6	2	17	106	(Stroke / 3) + 18.5
ø25	22	5.5	11	78	32	44	14	M10 × 1.25	69	7	2	18	111	(Stroke / 3) + 20.5
ø32	22	6.6	11	80	38	53	18	M10 × 1.25	71	7	2	18	113	(Stroke / 3) + 19
ø40	30	6.6	12	88	46	61	25	M14 × 1.5	78	8	2	20	130	(Stroke / 3) + 18.5
ø50	35	9	14	101	58	76	30	M18 × 1.5	90	9	2	23	150	(Stroke / 3.6) + 18.5
ø63	35	11	14	101	70	92	32	M18 × 1.5	90	9	2	23	150	(Stroke / 3.6) + 18.5
ø80	40	11	20	122	82	104	40	M22 × 1.5	108	11	3	31	182	(Stroke / 4.3) + 14.5
ø100	40	13	17	125	100	128	50	M26 × 1.5	108	14	3	31	182	(Stroke / 4.5) + 21

Note 1: For dimensions with each switch, see P. 468 to 473.
Note 2: For outer dimensions diagram of accessories, refer to P. 336.

Outline Dimension Drawing (Bore Size: ø20 to ø100)

● Head Side Flange Type (FB)

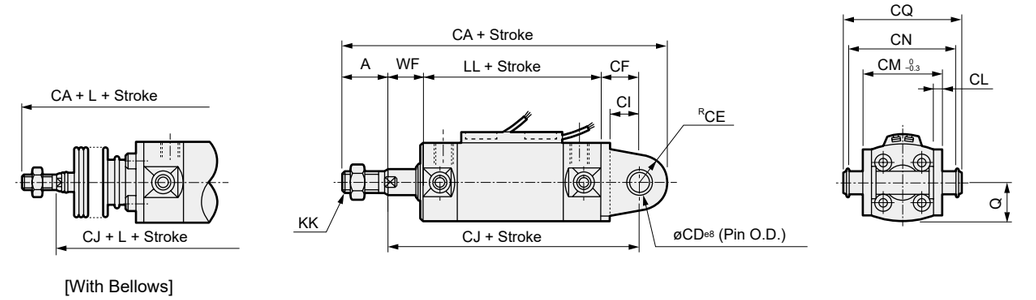


Code	Rod Side Flange Type (FB) Mounting Dimensions												With Bellows
Bore Size (mm)	A	FA	FD	FJ	FL	FM	FT	J	KK	LL	N	WF	L
ø20	18	112	5.5	92	28	40	6	12	M8	69	2	17	(Stroke / 3) + 18.5
ø25	22	118	5.5	94	32	44	7	14	M10 × 1.25	69	2	18	(Stroke / 3) + 20.5
ø32	22	120	6.6	96	38	53	7	18	M10 × 1.25	71	2	18	(Stroke / 3) + 19
ø40	30	138	6.6	106	46	61	8	25	M14 × 1.5	78	2	20	(Stroke / 3) + 18.5
ø50	35	159	9	122	58	76	9	30	M18 × 1.5	90	2	23	(Stroke / 3.6) + 18.5
ø63	35	159	11	122	70	92	9	32	M18 × 1.5	90	2	23	(Stroke / 3.6) + 18.5
ø80	40	193	11	150	82	104	11	40	M22 × 1.5	108	3	31	(Stroke / 4.3) + 14.5
ø100	40	196	13	153	100	128	14	50	M26 × 1.5	108	3	31	(Stroke / 4.5) + 21

Note 1: For dimensions with each switch, see P. 468 to 473.
Note 2: For outer dimensions diagram of accessories, refer to P. 336.

Outline Dimension Drawing (Bore Size: ø20 to ø63)

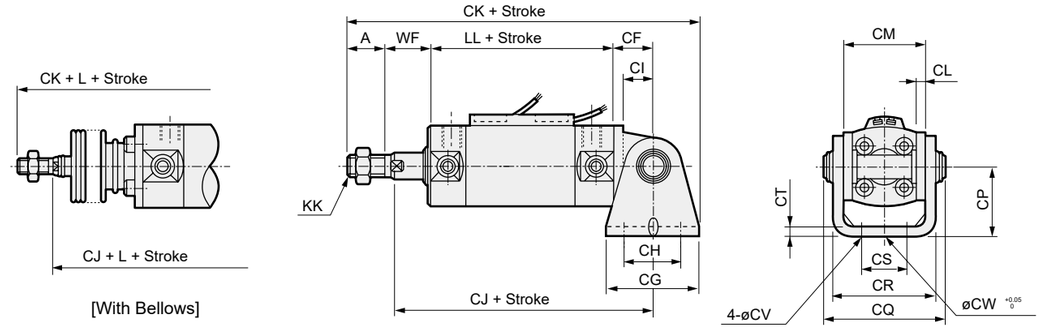
● Single Yoke Clevis Type (CA)



Code	Single Clevis Type (CA) Mounting Dimensions															With Bellows
Bore Size (mm)	A	CA	CD	CE	CF	CI	CJ	CL	CM	CN	CQ	KK	LL	Q	WF	L
ø20	18	129	8	11	14	10.8	100	3.2	29	38.6	43.4	M8	69	13	17	(Stroke / 3) + 18.5
ø25	22	138	10	13	16	12.8	103	3.2	33	42.6	48	M10 × 1.25	69	15.5	18	(Stroke / 3) + 20.5
ø32	22	145.5	12	15	19.5	15.5	108.5	4.5	40	54	59.4	M10 × 1.25	71	19	18	(Stroke / 3) + 19
ø40	30	167.5	14	18	21.5	17.5	119.5	4.5	49	65	71.4	M14 × 1.5	78	23.5	20	(Stroke / 3) + 18.5
ø50	35	192.5	16	20	24.5	19	137.5	6	60	79.6	86	M18 × 1.5	90	29	23	(Stroke / 3.6) + 18.5
ø63	35	199.5	18	22	29.5	22	142.5	8	74	97.8	105.4	M18 × 1.5	90	36	23	(Stroke / 3.6) + 18.5

Note 1: For dimensions with each switch, see P. 468 to 473.
Note 2: For outer dimensions diagram of accessories, refer to P. 336.

● Single Yoke Clevis Type (CA) with Bracket (Option code B2)

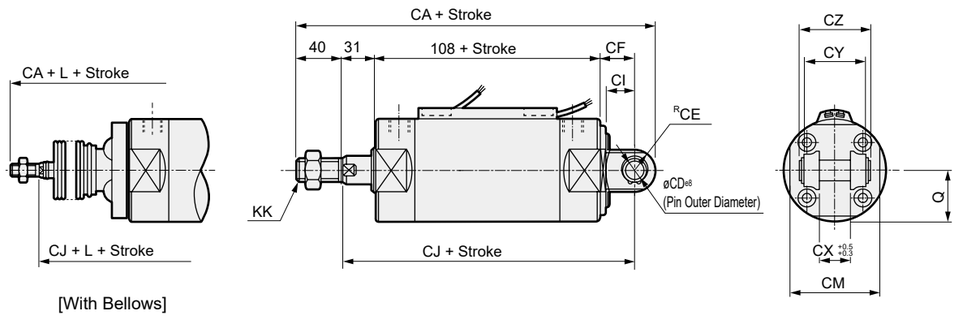


Code	Single Clevis Type (CA) With Bracket (Option code B2) Mounting Dimensions																		With Bellows
Bore Size (mm)	A	CF	CG	CH	CI	CJ	CK	CL	CM	CP	CQ	CR	CS	CT	Cv	CW	KK	LL	WF	L
ø20	18	14	42	28	10.8	100	139	3.2	29	25	43.4	35.8	16	3.2	5.5	10	M8	69	17	(Stroke / 3) + 18.5
ø25	22	16	42	28	12.8	103	146	3.2	33	30	48	39.8	20	3.2	5.5	10	M10 × 1.25	69	18	(Stroke / 3) + 20.5
ø32	22	19.5	48	28	15.5	108.5	154.5	4.5	40	35	59.4	49.4	22	4.5	6.6	10	M10 × 1.25	71	18	(Stroke / 3) + 19
ø40	30	21.5	56	30	17.5	119.5	177.5	4.5	49	40	71.4	58.4	30	4.5	6.6	10	M14 × 1.5	78	20	(Stroke / 3) + 18.5
ø50	35	24.5	64	36	19	137.5	204.5	6	60	50	86	72.4	36	6	9	20	M18 × 1.5	90	23	(Stroke / 3.6) + 18.5
ø63	35	29.5	74	46	22	142.5	214.5	8	74	60	105.4	90.4	46	7.5	11	20	M18 × 1.5	90	23	(Stroke / 3.6) + 18.5

Note 1: For dimensions with each switch, see P. 468 to 473.
Note 2: For outer dimensions diagram of accessories, refer to P. 336.

Outline Dimension Drawing (Bore Size: ø80 to ø100)

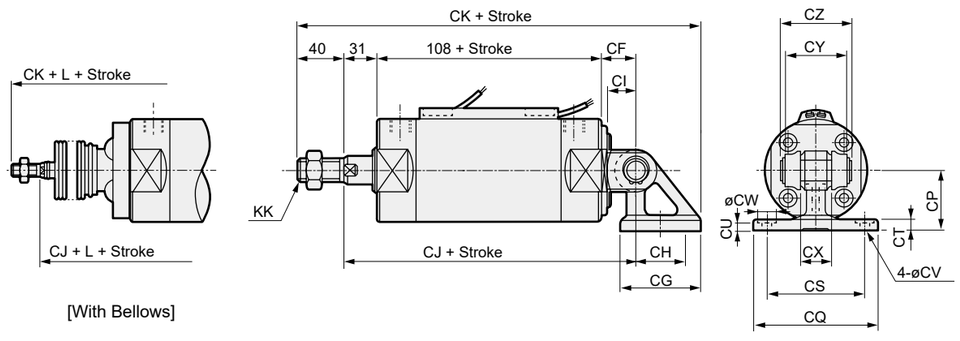
●Double clevis type (CB)



Code	Double Clevis Type (CB) Mounting Dimensions												With Bellows
Bore Size (mm)	CA	CD	CE	CF	CI	CJ	CM	CX	CY	CZ	KK	Q	L
ø80	232	18	18	35	25	174	80	28	56	64	M22 × 1.5	44.5	(Stroke / 4.3) + 14.5
ø100	244	22	22	43	31	182	100	32	64	72	M26 × 1.5	55	(Stroke / 4.5) + 21

Note 1: For dimensions with each switch, see P. 468 to 473.
Note 2: For outer dimensions diagram of accessories, refer to P. 336.

●Double clevis type (CB) with bracket (Option code B1)

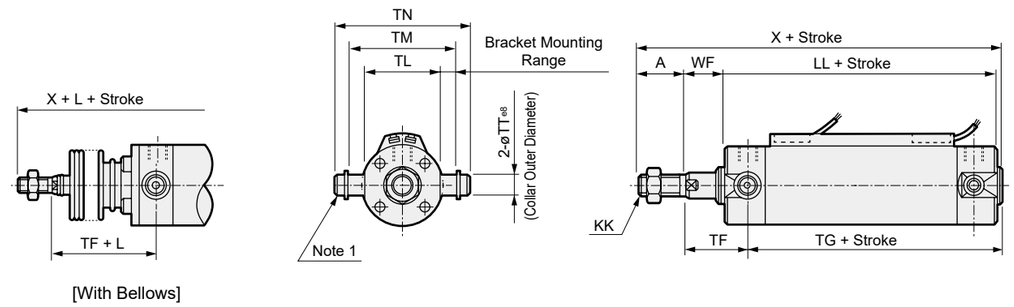


Code	Double Clevis Type (CB) With Bracket (Option code B1) Mounting Dimensions																With Bellows
Bore Size (mm)	CF	CG	CH	CI	CJ	CK	CP	CQ	CS	CT	CU	CW	Cv	CX	CY	CZ	KK	L
ø80	35	72	45	25	174	272.5	55	110	85	11	8	21	11	28	56	64	M22 × 1.5	(Stroke / 4.3) + 14.5
ø100	43	93	60	31	182	298.5	65	130	100	12	9	24	13.5	32	64	72	M26 × 1.5	(Stroke / 4.5) + 21

Note 1: For dimensions with each switch, see P. 468 to 473.
Note 2: For outer dimensions diagram of accessories, refer to P. 336.

Outline Dimension Drawing (Bore Size: ø20 to ø63)

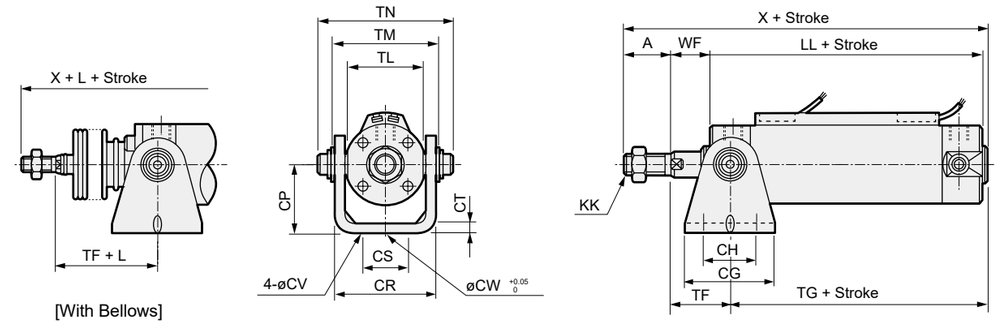
●Rod side trunnion type (TA)



Code	Rod Side Trunnion Type (TA) Mounting Dimensions										With Bellows
Bore Size (mm)	A	KK	LL	TF	TG	TL	TM	TN	TT	WF	X	L
ø20	18	M8	69	28	60	28	39	47.6	8	17	106	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	69	29	60	33	43	53	10	18	111	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	71	29	62	40	54.5	67.7	12	18	113	(Stroke / 3) + 19
ø40	30	M14 × 1.5	78	32	68	49	65.9	81.1	14	20	130	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	90	36	79	60	80	98.6	16	23	150	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	90	36	79	74	98	119.2	18	23	150	(Stroke / 3.6) + 18.5

Note 1: Consists of collar, flat washer, and hexagon socket head cap screw.
Note 2: For dimensions with each switch, see P. 468 to 473.
Note 3: For outer dimensions diagram of accessories, refer to P. 336.

●Rod Side Trunnion (TA) With Bracket (Option code: B2)

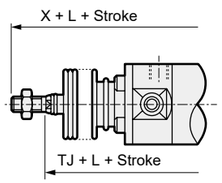


Code	Rod Side Trunnion Type (TA) with Bracket (Option code B2) Mounting Dimensions																	With Bellows
Bore Size (mm)	A	CG	CH	CP	CR	CS	CT	Cv	CW	KK	LL	TF	TG	TL	TM	TN	WF	X	L
ø20	18	42	28	25	35.8	16	3.2	5.5	10	M8	69	28	60	28	39	47.6	17	106	(Stroke / 3) + 18.5
ø25	22	42	28	30	39.8	20	3.2	5.5	10	M10 × 1.25	69	29	60	33	43	53	18	111	(Stroke / 3) + 20.5
ø32	22	48	28	35	49.4	22	4.5	6.6	10	M10 × 1.25	71	29	62	40	54.5	67.7	18	113	(Stroke / 3) + 19
ø40	30	56	30	40	58.4	30	4.5	6.6	10	M14 × 1.5	78	32	68	49	65.9	81.1	20	130	(Stroke / 3) + 18.5
ø50	35	64	36	50	72.4	36	6	9	20	M18 × 1.5	90	36	79	60	80	98.6	23	150	(Stroke / 3.6) + 18.5
ø63	35	74	46	60	90.4	46	7.5	11	20	M18 × 1.5	90	36	79	74	98	119.2	23	150	(Stroke / 3.6) + 18.5

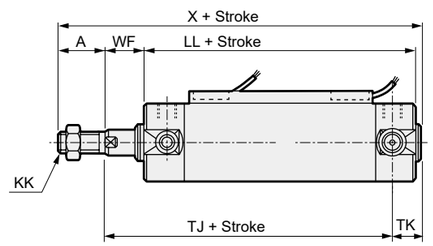
Note 1: Consists of collar, flat washer, and hexagon socket head cap screw.
Note 2: For dimensions with each switch, see P. 468 to 473.
Note 3: For outer dimensions diagram of accessories, refer to P. 336.

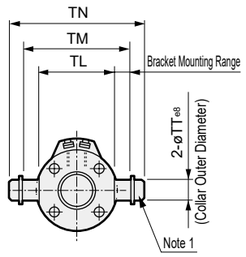
Outline Dimension Drawing (Bore Size: ø20 to ø63)

● Head Side Trunnion Type (TB)



[With Bellows]





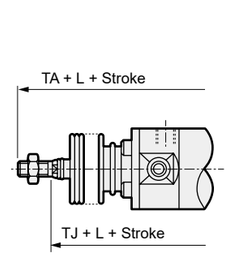
Code	Head Side Trunnion Type (TB) Mounting Dimensions											With Bellows
Bore Size (mm)	A	KK	LL	TJ	TK	TL	TM	TN	TT	WF	X	L
ø20	18	M8	69	75	13	28	39	47.6	8	17	106	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	69	76	13	33	43	53	10	18	111	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	71	79	12	40	54.5	67.7	12	18	113	(Stroke / 3) + 19
ø40	30	M14 × 1.5	78	88	12	49	65.9	81.1	14	20	130	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	90	101	14	60	80	98.6	16	23	150	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	90	101	14	74	98	119.2	18	23	150	(Stroke / 3.6) + 18.5

Note 1: Consists of collar, flat washer, and hexagon socket head cap screw.

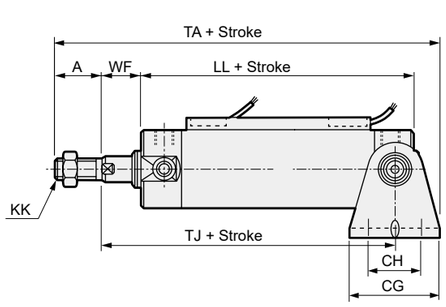
Note 2: For dimensions with each switch, see P. 468 to 473.

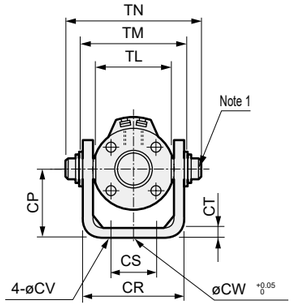
Note 3: For outer dimensions diagram of accessories, refer to P. 336.

●Head Side Trunnion (TB) With Bracket (Option code: B2)



[With Bellows]





Code	Head Side Trunnion Type (TB) With Bracket (Option code B2) Mounting Dimensions																	With Bellows
Bore Size (mm)	A	CG	CH	CP	CR	CS	CT	Cv	CW	KK	LL	TA	TJ	TL	TM	TN	WF	L
ø20	18	42	28	25	35.8	16	3.2	5.5	10	M8	69	114	75	28	39	47.6	17	(Stroke / 3) + 18.5
ø25	22	42	28	30	39.8	20	3.2	5.5	10	M10 × 1.25	69	119	76	33	43	53	18	(Stroke / 3) + 20.5
ø32	22	48	28	35	49.4	22	4.5	6.6	10	M10 × 1.25	71	125	79	40	54.5	67.7	18	(Stroke / 3) + 19
ø40	30	56	30	40	58.4	30	4.5	6.6	10	M14 × 1.5	78	146	88	49	65.9	81.1	20	(Stroke / 3) + 18.5
ø50	35	64	36	50	72.4	36	6	9	20	M18 × 1.5	90	168	101	60	80	98.6	23	(Stroke / 3.6) + 18.5
ø63	35	74	46	60	90.4	46	7.5	11	20	M18 × 1.5	90	173	101	74	98	119.2	23	(Stroke / 3.6) + 18.5

Note 1: Consists of collar, flat washer, and hexagon socket head cap screw.

Note 2: For dimensions with each switch, see P. 468 to 473.

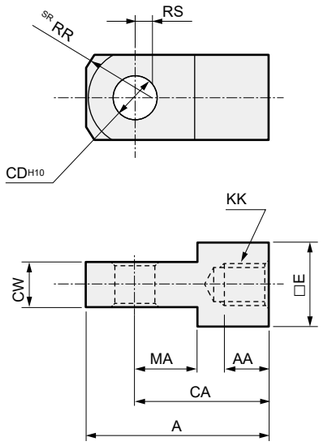
Note 3: For outer dimensions diagram of accessories, refer to P. 336.

MEMO

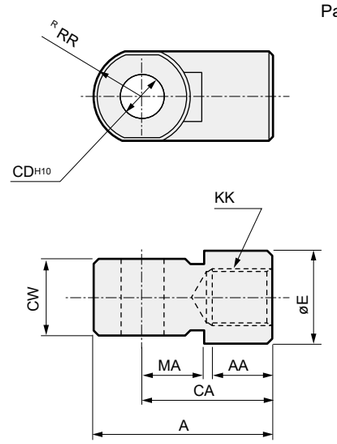
Accessories Outline Dimension Drawing

● Single Yoke Knuckle

●SCM-I-ø20 to ø32 Material: Steel Chromate



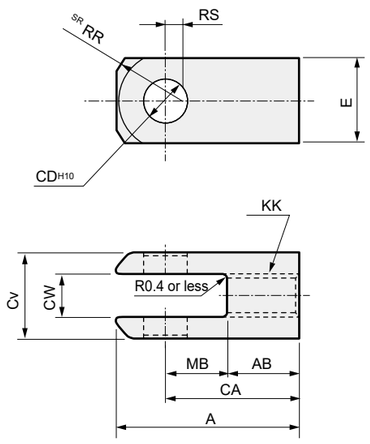
●SCM-I-ø40 to ø100 Material: Cast Iron Painting



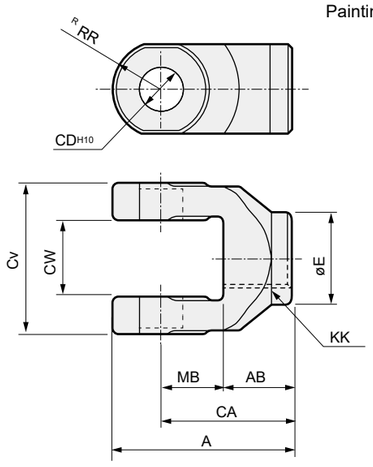
Model No.	Applicable Bore Size (mm)	A	AA	CA	CD	CW	E	KK	MA	RR	RS	Weight (g)
SCM-I-20	20	34	8.5	25	8	8 $^{-0.2}_{-0.4}$	16	M8	11.5	13.4	3.1	39
SCM-I-25	25, 32	41	10.5	30	10	10 $^{-0.2}_{-0.4}$	20	M10 × 1.25	14	17.1	4.5	72
SCM-I-40	40	42	14	30	10	18 $^{-0.3}_{-0.5}$	22	M14 × 1.5	14	12	–	152
SCM-I-50	50, 63	56	18	40	14	22 $^{-0.3}_{-0.5}$	28	M18 × 1.5	20	16	–	158
SCM-I-80	80	71	21	50	18	28 $^{-0.3}_{-0.5}$	38	M22 × 1.5	27	21	–	395
SCM-I-100	100	79	21	55	22	32 $^{-0.3}_{-0.5}$	44	M26 × 1.5	31	24	–	564

●Double Knuckle

●SCM-Y-ø20 to ø32 Material: Steel Chromate



●SCM-Y-ø40 to ø100 Material: Cast Iron Painting

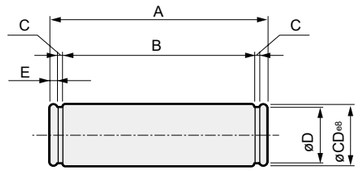


Model No.	Applicable Bore Size (mm)	A	AB	CA	CD	Cv	CW	E	KK	MB	RR	RS	Applicable Pin Part Number	Weight (g)
SCM-Y-20	20	34	13.5	25	8	16	8 $^{+0.4}_{+0.2}$	16	M8	11.5	13.4	3.1	SCM-P-20	46
SCM-Y-25	25, 32	41	16	30	10	20	10 $^{+0.4}_{+0.2}$	20	M10 × 1.25	14	17.1	4.5	SCM-P-25	85
SCM-Y-40	40	42	16	30	10	36	18 $^{+0.5}_{+0.3}$	22	M14 × 1.5	14	12	–	SCM-P-40	122
SCM-Y-50	50, 63	56	20	40	14	44	22 $^{+0.5}_{+0.3}$	28	M18 × 1.5	20	16	–	SCM-P-50	258
SCM-Y-80	80	71	23	50	18	56	28 $^{+0.5}_{+0.3}$	38	M22 × 1.5	27	21	–	SCM-P-80	590
SCM-Y-100	100	79	24	55	22	64	32 $^{+0.5}_{+0.3}$	44	M26 × 1.5	31	24	–	SCM-P-100	909

Note: Note: Pin and retaining ring are included.

Accessories Outline Dimension Drawing

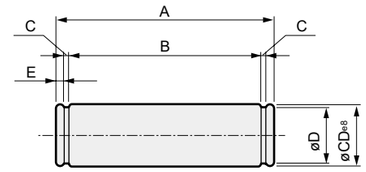
●Pin for Clevis Material: Steel Chromate



Model No.	Applicable Bore size (mm)	A	B	C	CD	D	E	To Be Used Retaining ring	Weight (g)
SCM-P1-20	20	43.4	38.6	0.9	8	7.6	1.5	Shaft C-type 8	17
SCM-P1-25	25	48	42.6	1.15	10	9.6	1.6	C-type for Shaft 10	30
SCM-P1-32	32	59.4	54	1.15	12	11.5	1.6	C-type for Shaft 12	52
SCM-P1-40	40	71.4	65	1.15	14	13.4	2.1	C-type 14 for Shaft	85
SCM-P1-50	50	86	79.6	1.15	16	15.2	2.1	C-type for Shaft 16	133
SCM-P1-63	63	105.4	97.8	1.35	18	17	2.5	C-type for Shaft 18	207

Note 1: Pin and retaining ring are included to single clevis type and double clevis type.
Note 2: ø80, ø100 are common with knuckle pins.

●Pin for Knuckle Material: Steel Chromate



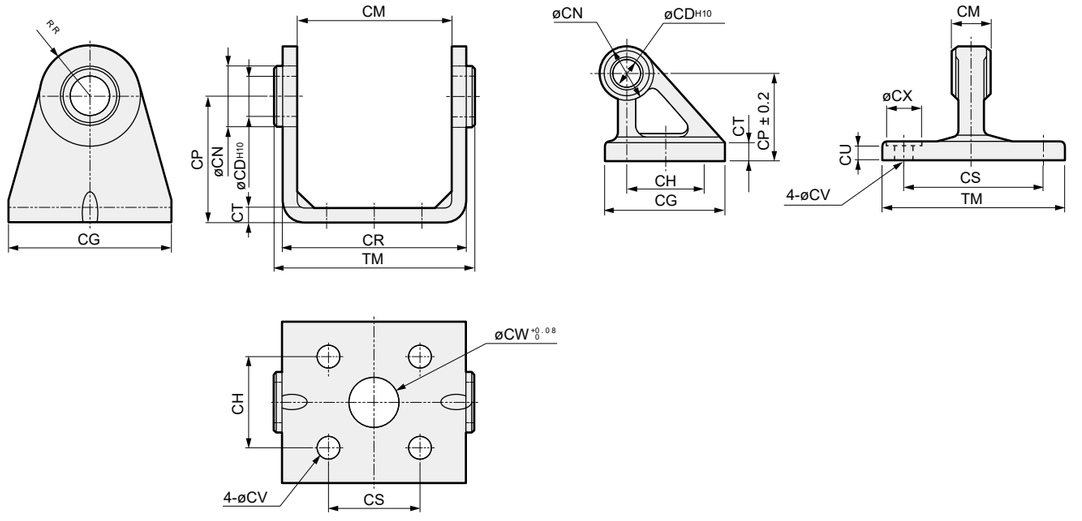
Model No.	Applicable Bore size (mm)	A	B	C	CD	D	E	To Be Used Retaining ring	Weight (g)
SCM-P-20	20	21	16.2	0.9	8	7.6	1.5	Shaft C-type 8	9
SCM-P-25	25, 32	25.6	20.2	1.15	10	9.6	1.6	C-type for Shaft 10	16
SCM-P-40	40	41.6	36.2	1.15	10	9.6	1.6	C-type for Shaft 10	26
SCM-P-50	50, 63	50.6	44.2	1.15	14	13.4	2.1	C-type 14 for Shaft	60
SCM-P-80	80	64	56.2	1.35	18	17	2.6	C-type for Shaft 18	126
SCM-P-100	100	72	64.2	1.35	22	21	2.6	C-type for Shaft 22	213

Note 1: Pin and retaining ring are included to double knuckle.

●2nd bracket

●Double Bracket (B2) SCM-B2-ø20 to ø63 Material: Steel Chromate

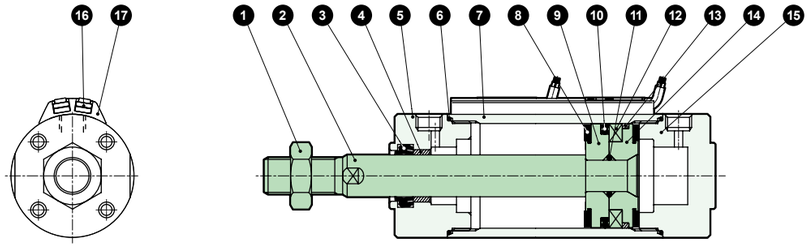
●Single Bracket (B1) SCM-B1-ø80 to ø100 Material: Cast Iron Painting



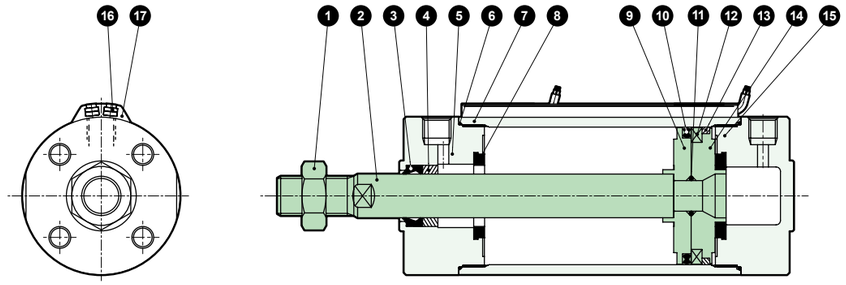
Model No.	Applicable Bore size (mm)	CD	CG	CH	CM	CN	CP	CR	CS	CT	CU	Cv	CW	CX	R	TM	Weight (g)
SCM-B2-20	20	8	42	28	29 $^{+0.4}_{+0.1}$	13	25	35.8	16	3.2	–	5.5	10	–	11	38	72
SCM-B2-25	25	10	42	28	33 $^{+0.4}_{+0.1}$	15	30	39.8	20	3.2	–	5.5	10	–	13	42	90
SCM-B2-32	32	12	48	28	40 $^{+0.5}_{+0.1}$	17	35	49.4	22	4.5	–	6.6	10	–	15	53.4	166
SCM-B2-40	40	14	56	30	49 $^{+0.5}_{+0.1}$	21	40	58.4	30	4.5	–	6.6	10	–	18	64.4	239
SCM-B2-50	50	16	64	36	60 $^{+0.5}_{+0.1}$	24	50	72.4	36	6	–	9	20	–	20	78.8	417
SCM-B2-63	63	18	74	46	74 $^{+0.7}_{+0.1}$	26	60	90.4	46	7.5	–	11	20	–	22	96.6	754
SCM-B1-80	80	18	72	45	28 $^{-0.1}_{-0.3}$	36	55	–	85	11	8	11	–	21	–	110	1,000
SCM-B1-100	100	22	93	60	32 $^{-0.1}_{-0.3}$	50	65	–	100	12	9	13.5	–	24	–	130	1735

Internal Structure Diagram / Material (With Rubber Cushion)

●ø20 to ø40



●ø50 to ø100



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating	10	Piston Packing	Nitrile Rubber	
2	Piston Rod	ø20, ø25: Stainless Steel ø32 to ø100: Steel	Industrial Hard Chrome Plating	11	Piston Gasket	Nitrile Rubber	
				12	Magnet	Plastic	
3	Rod Packing	Nitrile Rubber		13	Wear Ring	Polyacetal	
4	Bushing	Oil-Impregnated Bearing Alloy		14	Piston H	Aluminum Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized	15	Head Cover	Aluminum Alloy	Hard Anodized
6	Cylinder Gasket	Nitrile Rubber		With Switch			
7	Cylinder Tube	Aluminum Alloy	Hard Anodized	16	Switch		
8	Cushion Rubber	Urethane Rubber		17	Mounting Rail	Aluminum Alloy, Double-Sided Tape	
9	Piston R	Aluminum Alloy					

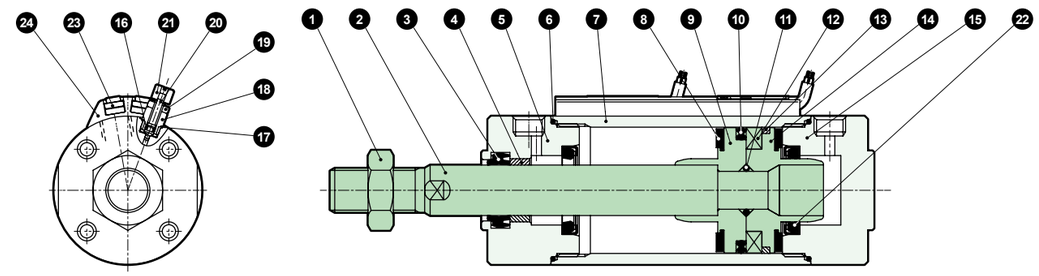
Mounting Bracket Material

Mounting type	Material
Foot (LB)	Steel
Flange (FA / FB)	ø20 to ø40: Aluminum Alloy ø50 to ø100: Steel
Trunnion (TA / TB)	Steel
Single Clevis (CA)	Steel
Double Clevis (CB)	Cast Iron

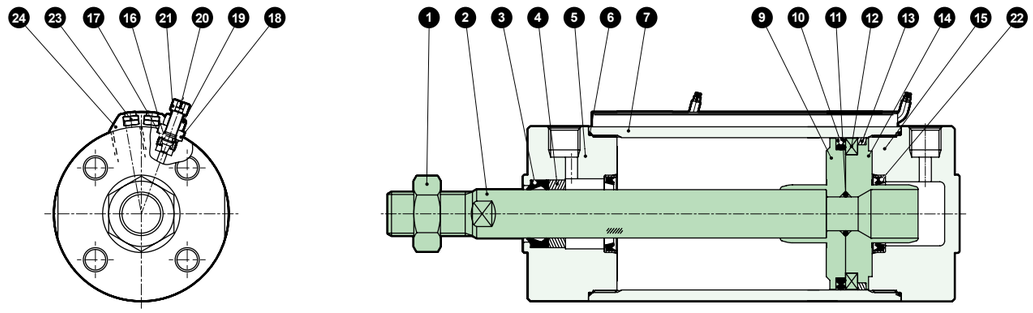
For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

Internal Structure Diagram / Material (With Air Cushion)

●ø20 to ø40



●ø50 to ø100



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating	14	Piston H	Aluminum Alloy	
2	Piston Rod	ø20, ø25: Stainless Steel ø32 to ø100: Steel	Industrial Hard Chrome Plating	15	Head Cover	Aluminum Alloy	Hard Anodized
				16	Needle Gasket	Nitrile Rubber	
3	Rod Packing	Nitrile Rubber		17	Holder Gasket	Nitrile Rubber	
4	Bushing	Oil-Impregnated Bearing Alloy		18	Needle Holder	Aluminum Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized	19	Lock Nut	Steel	Nickel Plating
6	Cylinder Gasket	Nitrile Rubber		20	Needle	Stainless Steel	
7	Cylinder Tube	Aluminum Alloy	Hard Anodized	21	Knob	Aluminum Alloy	Chromate
8	Cushion Rubber	Urethane Rubber		22	Cushion Packing	Nitrile Rubber, Steel	
9	Piston R	Aluminum Alloy		With Switch			
10	Piston Packing	Nitrile Rubber		23	Switch		
11	Piston Gasket	Nitrile Rubber		24	Mounting Rail	Aluminum Alloy, Double-Sided Tape	
12	Magnet	Plastic					
13	Wear Ring	Polyacetal					

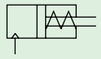
For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts



Round shaped cylinder
Single Acting, Push Type

SCM-X Series

●Bore Size: ø20, ø25, ø32, ø40

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

SCM-X – LB – 40 [ ] D – 100 ——— J I

Model No. ❶ ❷ ❸ ❹ ❽ ❾

With Switch (Built-in magnet for switch)

SCM-X – LB – 40 [ ] D – 100 – T0H – D – [ ] – J I

Model No. ❶ Mounting type ❷ Bore size ❸ Piping thread type | D: With Rubber Cushion on Both Sides | ❹ Stroke | ❺ Switch Model No. | ❻ Number of Switches | ❼ Switch Mounting Method | ❽ Option | ❾ Accessories

❶Mounting Type

Mounting brackets are included with the product for shipment.

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type (pin and retaining ring included)	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

❷Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

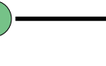
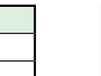
❹Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20 to ø40	5 to 200	Every 1 mm

Note: For number of switches mounted and min. stroke, see P. 342.

❺Switch Model No.

For switch details, please refer to 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color For AC Magnetic Field		—	24 ± 10%	—		T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—		T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	*4

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: Max. load current as shown on the left: 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: T8H/V switches cannot be mounted when the switch mounting type is the rail type.
*5: Switches other than those listed on the left are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*6

*6: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❼Switch Mounting Method

Code	Content	
Blank	Rail Type	
Z	Band Type	

❽Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
*1 *2 J	Bellows	100°C	200°C	
*1 *2 L		250°C	400°C	
*3 Q	Shipped with Switch Rail Attached			
M	Piston Rod Material (Stainless Steel)			

*1: For models with bellows, if the mounting style is "LB" or "FA," the mounting brackets are shipped pre-assembled ❶.
*2: The instantaneous max. temperature is that at which sparks, cutting chips, etc., instantaneously contact bellows.
*3: ❼"Q" (switch rail attached at shipment) is not available for "Z" switch mounting.

❾Accessories

Code	Content	
*1 I	Single Knuckle	
*1 Y	Double Knuckle (Pin and retaining ring included)	
B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, see P. 474 to 477.

Code	Content
-XP5	Knuckle Pin/Clevis Pin Split Pin
-XP7	Knuckle fixed by pin driving
-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
SCM – X – ..... – XP5

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCM – X – ..... – FP1

Switch Single Unit Model No. Notation Method

[Switch mounting: Rail Type]
●Switch Body + Mounting Rail Set

SCM – T0H□ – D – 40 – 100
❺ Switch Model No. | ❻ Number of Switches | ❷ Bore size | ❹ Stroke (*1)

[Switch mounting: Band Type
●Switch Body + Mounting Bracket Set + Band

SCM – T2H□ – 40 – Z
❺ Switch Model No. | ❷ Bore size

[Switch Body Only]

SW – T0H□
❺ Switch Model No.

●Mounting Rail Only

SCM – T – 40 – 100
Mounting Rail | ❷ Bore size | ❹ Stroke (*1) (*2)

●Mounting Bracket Set + Band

SCM – Z – 40
❷ Bore size

*1: Indicate items with a stroke exceeding 300 mm as X. If exceeding 300 mm, one short rail (switch adjustment travel distance 100 mm) is included per switch.
*2: When indicating X for mounting rail only, order the same number of rails as the number of switches used.

Specifications

Item		SCM-X			
Bore Size	mm	ø20	ø25	ø32	ø40
Actuation method		Single Acting, Push Type			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.2			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	–10 to 60 (Provided that freezing does not occur)			
Port Size		Rc1/8			
Stroke tolerance	mm	+2.0 0			
Operating Piston Speed	mm/s	50 to 1000 (Use within allowable absorption energy.)			
Cushion		Rubber Cushion			
Lubrication		Not Required (When lubricating, use Turbine Oil ISO VG32)			
Allowable Absorbed Energy	J	0.1	0.2	0.5	0.9

Note: Do not leave single acting cylinders pressurized. If left pressurized, the piston rod may not return by spring load when the pressure is released.

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke
ø20	25, 50, 75, 100, 125, 150, 200	200	5
ø25			
ø32			
ø40			

Note: Intermediate strokes can be produced in 1 mm increments.

Spring Load

(Unit: N)

Bore Size (mm)	At Stroke 0 mm	At Full Stroke Operation
ø20	11.8	38
ø25	12.5	40.2
ø32	24.3	54.9
ø40	28.4	100

Number of Switches Mounted and Min. Stroke (mm)

●Switch Mounting Method Rail Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore Size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	25	10	25	10	25	10	25
ø25	10	25	10	25	10	25	10	25	10	25
ø32	10	25	10	25	10	25	10	25	10	25
ø40	10	25	10	25	10	25	10	25	10	25

●Switch Mounting Method Band Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore Size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	30	10	35	15	45	10	25
ø25	10	25	10	30	10	35	15	45	10	25
ø32	10	25	10	30	10	35	15	45	10	25
ø40	10	25	10	30	10	35	10	45	10	25

Note: For products with 1 switch and stroke of 10 mm or more but less than 25 mm, the switch rail mounting position changes, and trunnion type mounting cannot be produced. For mounting position, see P. 468 to 473.

Cylinder Weight

●Stroke: 5 to 50 (Unit: kg)

Item/Mounting Style / Bore	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S = 10 mm (With Rail)	Weight of Band per Switch
	Basic type	Axial Foot Type	Flange Type	Clevis Type	Trunnion Type				
ø20	0.15	0.26	0.18	0.20	0.16	Please refer to the weight listed in the switch specifications of P. 971	0.010	0.012	0.007
ø25	0.24	0.37	0.28	0.32	0.26		0.014	0.016	0.007
ø32	0.36	0.52	0.42	0.51	0.39		0.018	0.020	0.007
ø40	0.59	0.81	0.67	0.82	0.64		0.030	0.032	0.007

●Stroke: 51 to 100 (Unit: kg)

Item/Mounting Style / Bore	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S = 10 mm (With Rail)	Weight of Band per Switch
	Basic type	Axial Foot Type	Flange Type	Clevis Type	Trunnion Type				
ø20	0.19	0.30	0.22	0.24	0.20	Please refer to the weight listed in the switch specifications of P. 971	0.010	0.012	0.007
ø25	0.32	0.45	0.36	0.40	0.34		0.014	0.016	0.007
ø32	0.46	0.62	0.52	0.61	0.49		0.018	0.020	0.007
ø40	0.76	0.98	0.84	0.99	0.81		0.030	0.032	0.007

●Stroke: 101 to 150 (Unit: kg)

Item/Mounting Style / Bore	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S = 10 mm (With Rail)	Weight of Band per Switch
	Basic type	Axial Foot Type	Flange Type	Clevis Type	Trunnion Type				
ø20	0.24	0.35	0.27	0.29	0.25	Please refer to the weight listed in the switch specifications of P. 971	0.010	0.012	0.007
ø25	0.39	0.52	0.43	0.47	0.41		0.014	0.016	0.007
ø32	0.55	0.71	0.61	0.70	0.58		0.018	0.020	0.007
ø40	0.94	1.16	1.02	1.17	0.99		0.030	0.032	0.007

●Stroke: 151 to 200 (Unit: kg)

Item/Mounting Style / Bore	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S = 10 mm (With Rail)	Weight of Band per Switch
	Basic type	Axial Foot Type	Flange Type	Clevis Type	Trunnion Type				
ø20	0.29	0.40	0.32	0.34	0.30	Please refer to the weight listed in the switch specifications of P. 971	0.010	0.012	0.007
ø25	0.46	0.59	0.50	0.54	0.48		0.014	0.016	0.007
ø32	0.65	0.81	0.71	0.80	0.68		0.018	0.020	0.007
ø40	1.11	1.33	1.19	1.34	1.16		0.030	0.032	0.007

(Example) Product Weight of SCM-X-LB-40D-100-T2H-D
- Product Weight at S=0 mm ·····0.98 kg
- Added Weight at S=100 mm ·····$0.032 \times \frac{100}{10} = 0.32$ kg
- Weight of 2 switches ·····0.036 kg
- Product Weight ·····0.98 kg + 0.32 kg + 0.036 kg = 1.336 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Pressure MPa								
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	25	56	88	1.19 × 10²	1.50 × 10²	1.82 × 10²	2.13 × 10²	2.45 × 10²	2.76 × 10²
ø25	58	1.07 × 10²	1.56 × 10²	2.05 × 10²	2.54 × 10²	3.03 × 10²	3.52 × 10²	4.02 × 10²	4.51 × 10²
ø32	1.06 × 10²	1.86 × 10²	2.67 × 10²	3.47 × 10²	4.28 × 10²	5.08 × 10²	5.88 × 10²	6.69 × 10²	7.49 × 10²
ø40	1.51 × 10²	2.77 × 10²	4.03 × 10²	5.28 × 10²	6.54 × 10²	7.80 × 10²	9.05 × 10²	1.03 × 10³	1.16 × 10³

Note: The load above indicates thrust excluding the spring force at the push end.

Mounting Bracket Model No. Notation Method

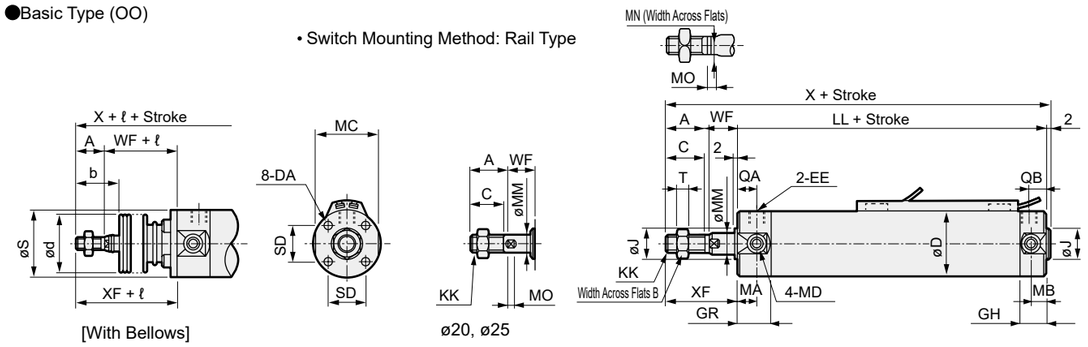
Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40
Single Clevis (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40

*1: Mounting bolts are included to each mounting bracket.
*2: Foot type mounting brackets (LB) and trunnion mounting brackets (TA/TB) are 2 pcs/set.

Outline Dimension Drawing

●Basic Type (OO)

• Switch Mounting Method: Rail Type



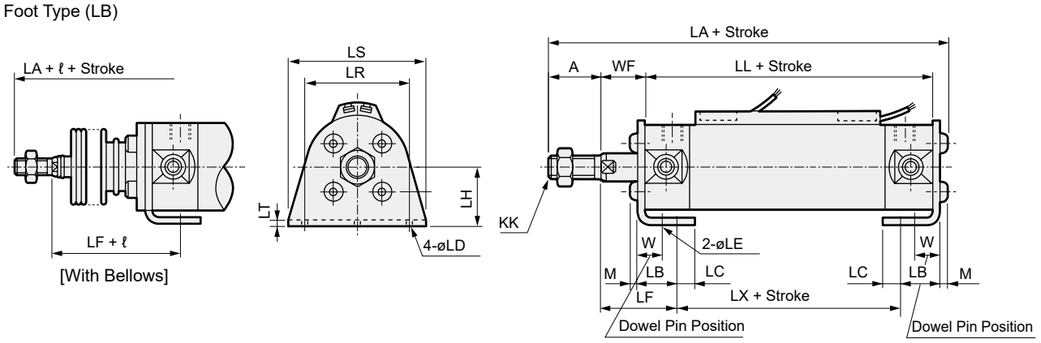
Code / Bore Size (mm)	Basic Type (OO) Basic Dimensions A	B	C	D	DA	EE	GR	GH	J	KK	LL 5 to 50	LL Over 50 to 100	LL Over 100 to 150	LL Over 150 to 200	MA	MB	MC	MD
ø20	18	13	16	26	M4 Depth 6.5	Rc1/8	19	17	12	M8	96	123	150	177	11	11	24	M5
ø25	22	17	20	31	M5 Depth 6.5	Rc1/8	19	17	14	M10 × 1.25	99	129	159	189	11	11	29	M6
ø32	22	17	20	38	M5 Depth 7.5	Rc1/8	19	17	18	M10 × 1.25	101	131	161	191	11	10	36	M8
ø40	30	22	27	47	M6 Depth 12	Rc1/8	20	19	25	M14 × 1.5	108	138	168	198	12	10	44	M10

Code / Bore Size (mm)	MM	MN	MO	QA	QB	SD	T	WF	X 5 to 50	X Over 50 to 100	X Over 100 to 150	X Over 150 to 200	XF	With Bellows b	d	s	ℓ
ø20	8	6	4	12	10	14	5	17	133	160	187	214	35	30	30	25.7	(Stroke / 3) + 18.5
ø25	10	8	5	12	10	16.5	6	18	141	171	201	231	40	35	30	30.7	(Stroke / 3) + 20.5
ø32	12	10	5.5	12	10	20	6	18	143	173	203	233	40	31.5	35	37.7	(Stroke / 3) + 19
ø40	16	14	6	13	12	26	8	20	160	190	220	250	50	40	35	46.7	(Stroke / 3) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**

***2: For outer dimensions diagram of accessories, refer to P. 336.**

●Axial Foot Type (LB)



Code / Bore Size (mm)	Axial Foot Type (LB) Mounting Dimensions A	KK	LA 5 to 50	LA Over 50 to 100	LA Over 100 to 150	LA Over 150 to 200	LB	LC	LD	LE	LF	LH	LL 5 to 50	LL Over 50 to 100	LL Over 100 to 150	LL Over 150 to 200
ø20	18	M8	136.8	163.8	190.8	217.8	15.1	7.1	5.7	4	28.9	20	96	123	150	177
ø25	22	M10 × 1.25	145.6	175.6	205.6	235.6	15.1	7.1	5.7	4	29.9	22	99	129	159	189
ø32	22	M10 × 1.25	147.6	177.6	207.6	237.6	16.1	8.1	6.8	4	30.9	25	101	131	161	191
ø40	30	M14 × 1.5	165.2	195.2	225.2	255.2	16.6	9.1	6.8	4	33.4	30	108	138	168	198

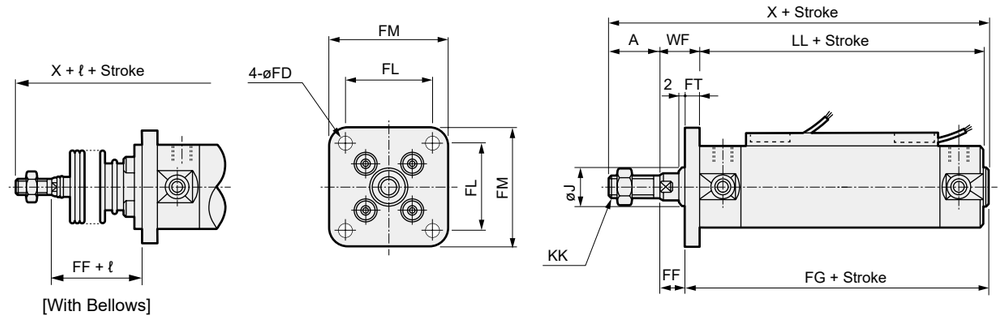
Code / Bore Size (mm)	LR	LS	LT	LX 5 to 50	LX Over 50 to 100	LX Over 100 to 150	LX Over 150 to 200	M	W	WF	With Bellows ℓ
ø20	32	44	3.2	72.2	99.2	126.2	153.2	2.6	10	17	(Stroke / 3) + 18.5
ø25	36	49	3.2	75.2	105.2	135.2	165.2	3.4	10	18	(Stroke / 3) + 20.5
ø32	44	58	3.2	75.2	105.2	135.2	165.2	3.4	10	18	(Stroke / 3) + 19
ø40	54	71	3.2	81.2	111.2	141.2	171.2	4	10	20	(Stroke / 3) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**

***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)



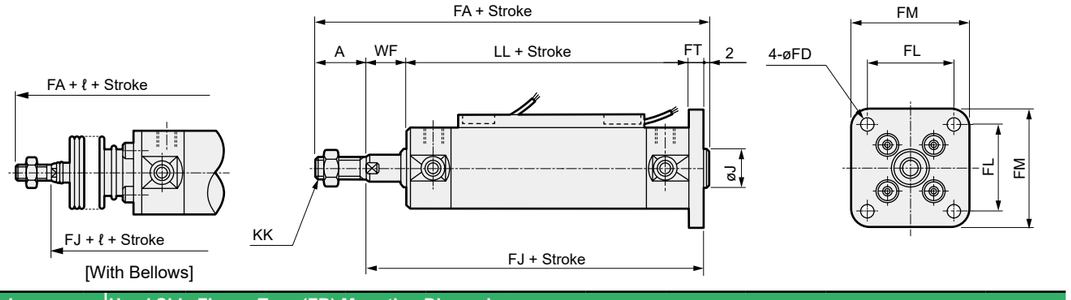
Code / Bore Size (mm)	Rod Side Flange Type (FA) Mounting Dimensions A	FD	FF	FG 5 to 50	FG Over 50 to 100	FG Over 100 to 150	FG Over 150 to 200	FL	FM	FT	J	KK
ø20	18	5.5	11	104	131	158	185	28	40	6	12	M8
ø25	22	5.5	11	108	138	168	198	32	44	7	14	M10 × 1.25
ø32	22	6.6	11	110	140	170	200	38	53	7	18	M10 × 1.25
ø40	30	6.6	12	118	148	178	208	46	61	8	25	M14 × 1.5

Code / Bore Size (mm)	LL 5 to 50	LL Over 50 to 100	LL Over 100 to 150	LL Over 150 to 200	WF	X 5 to 50	X Over 50 to 100	X Over 100 to 150	X Over 150 to 200	With Bellows ℓ
ø20	96	123	150	177	17	133	160	187	214	(Stroke / 3) + 18.5
ø25	99	129	159	189	18	141	171	201	231	(Stroke / 3) + 20.5
ø32	101	131	161	191	18	143	173	203	233	(Stroke / 3) + 19
ø40	108	138	168	198	20	160	190	220	250	(Stroke / 3) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**

***2: For outer dimensions diagram of accessories, refer to P. 336.**

●Head Side Flange Type (FB)



Code / Bore Size (mm)	Head Side Flange Type (FB) Mounting Dimensions A	FA 5 to 50	FA Over 50 to 100	FA Over 100 to 150	FA Over 150 to 200	FD	FJ 5 to 50	FJ Over 50 to 100	FJ Over 100 to 150	FJ Over 150 to 200	FL	FM
ø20	18	139	166	193	220	5.5	119	146	173	200	28	40
ø25	22	148	178	208	238	5.5	124	154	184	214	32	44
ø32	22	150	180	210	240	6.6	126	156	186	216	38	53
ø40	30	168	198	228	258	6.6	136	166	196	226	46	61

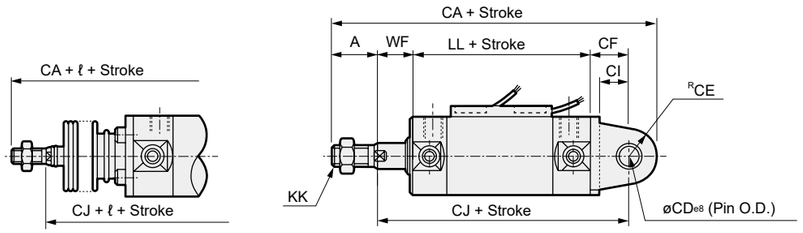
Code / Bore Size (mm)	FT	J	KK	LL 5 to 50	LL Over 50 to 100	LL Over 100 to 150	LL Over 150 to 200	WF	With Bellows ℓ
ø20	6	12	M8	96	123	150	177	17	(Stroke / 3) + 18.5
ø25	7	14	M10 × 1.25	99	129	159	189	18	(Stroke / 3) + 20.5
ø32	7	18	M10 × 1.25	101	131	161	191	18	(Stroke / 3) + 19
ø40	8	25	M14 × 1.5	108	138	168	198	20	(Stroke / 3) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**

***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

●Single Clevis Type (CA)

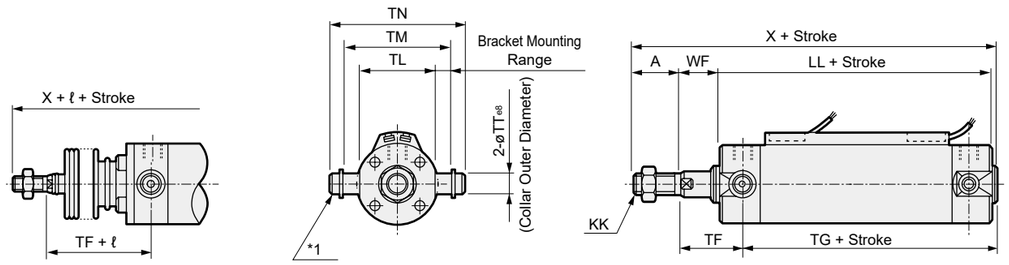


Code	Single Clevis Type (CA) Mounting Dimensions													
Bore Size (mm)	A	CA				CD	CF	CE	CI	CJ				CL
		5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200					5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	
ø20	18	156	183	210	237	8	14	11	10.8	127	154	181	208	3.2
ø25	22	168	198	228	258	10	16	13	12.8	133	163	193	223	3.2
ø32	22	175.5	205.5	235.5	265.5	12	19.5	15	15.5	138.5	168.5	198.5	228.5	4.5
ø40	30	197.5	227.5	257.5	287.5	14	21.5	18	17.5	149.5	179.5	209.5	239.5	4.5

Code											With Bellows
Bore Size (mm)	CM	CN	CQ	KK	LL				Q	WF	ℓ
					5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200			
ø20	29	38.6	43.4	M8	96	123	150	177	13	17	(Stroke / 3) + 18.5
ø25	33	42.6	48	M10 × 1.25	99	129	159	189	15.5	18	(Stroke / 3) + 20.5
ø32	40	54	59.4	M10 × 1.25	101	131	161	191	19	18	(Stroke / 3) + 19
ø40	49	65	71.4	M14 × 1.5	108	138	168	198	23.5	20	(Stroke / 3) + 18.5

*1: Consists of collar, flat washer, and hexagon socket head cap screw.
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

●Rod side trunnion type (TA)



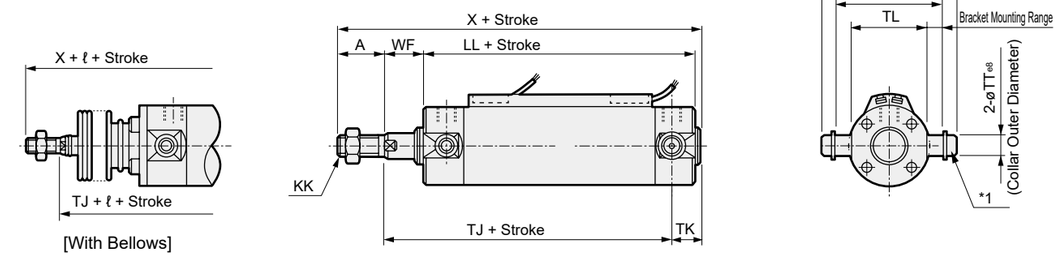
Code	Rod Side Trunnion Type (TA) Mounting Dimensions										
Bore Size (mm)	A	KK	LL				TF	TG			
			5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200		5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200
ø20	18	M8	96	123	150	177	28	87	114	141	168
ø25	22	M10 × 1.25	99	129	159	189	29	90	120	150	180
ø32	22	M10 × 1.25	101	131	161	191	29	92	122	152	182
ø40	30	M14 × 1.5	108	138	168	198	32	98	128	158	188

Code										With Bellows
Bore Size (mm)	TL	TM	TN	TT	WF	X				ℓ
						5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	
ø20	28	39	47.6	8	17	133	160	187	214	(Stroke / 3) + 18.5
ø25	33	43	53	10	18	141	171	201	231	(Stroke / 3) + 20.5
ø32	40	54.5	67.7	12	18	143	173	203	233	(Stroke / 3) + 19
ø40	49	65.9	81.1	14	20	160	190	220	250	(Stroke / 3) + 18.5

*1: Consists of collar, flat washer, and hexagon socket head cap screw.
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

● Head Side Trunnion Type (TB)

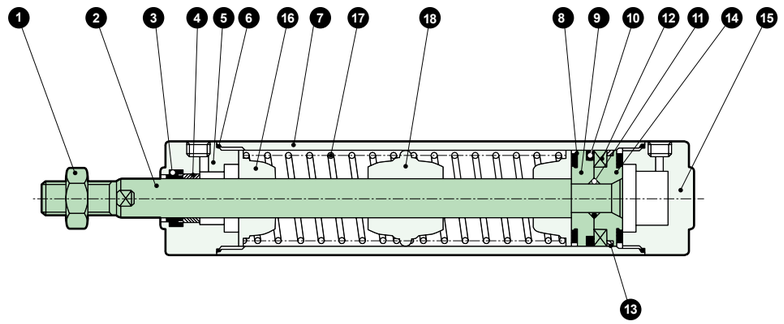


Code	Head Side Trunnion Type (TB) Mounting Dimensions										
Bore Size (mm)	A	KK	LL				TJ				TK
			5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	
ø20	18	M8	96	123	150	177	102	129	156	183	13
ø25	22	M10 × 1.25	99	129	159	189	106	136	166	196	13
ø32	22	M10 × 1.25	101	131	161	191	109	139	169	199	12
ø40	30	M14 × 1.5	108	138	168	198	118	148	178	208	12

Code										With Bellows
Bore Size (mm)	TL	TM	TN	TT	WF	X				ℓ
						5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	
ø20	28	39	47.6	8	17	133	160	187	214	(Stroke / 3) + 18.5
ø25	33	43	53	10	18	141	171	201	231	(Stroke / 3) + 20.5
ø32	40	54.5	67.7	12	18	143	173	203	233	(Stroke / 3) + 19
ø40	49	65.9	81.1	14	20	160	190	220	250	(Stroke / 3) + 18.5

*1: Consists of collar, flat washer, and hexagon socket head cap screw.
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

Internal Structure Diagram / Material



Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating
2	Piston Rod	ø20, ø25: Stainless Steel ø32 to ø40: Steel	Industrial Hard Chrome Plating
3	Rod Packing	Nitrile Rubber	
4	Bushing	Oil-Impregnated Bearing Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized
6	Cylinder Gasket	Nitrile Rubber	
7	Cylinder Tube	Aluminum Alloy	Hard Anodized
8	Cushion Rubber	Urethane Rubber	
9	Piston R	Aluminum Alloy	
10	Piston Packing	Nitrile Rubber	
11	Piston Gasket	Nitrile Rubber	
12	Magnet	Plastic	
13	Wear Ring	Polyacetal	
14	Piston H	Aluminum Alloy	
15	Head Cover	Aluminum Alloy	Hard Anodized
16	Spring Retainer A	Aluminum Alloy	
17	Coil Spring	Piano Wire	Electrodeposition Coating
18	Spring Retainer B	Aluminum Alloy	

For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

MEMO



Round shaped cylinder
Single Acting, Pull Type

SCM-Y Series

●Bore Size: ø20, ø25, ø32, ø40

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

SCM-Y – LB – 40 – [ ] – D – 100 – [ ] – J – I

Model No. ❶ ❷ ❸ ❹ ❽ ❾

With Switch (Built-in magnet for switch)

SCM-Y – LB – 40 – [ ] – D – 100 – T0H – D – [ ] – J – I

Model No. ❶ Mounting type ❷ Bore size ❸ Piping thread type | D: With Rubber Cushion on Both Sides | ❹ Stroke ❺ Switch Model No. ❻ Number of Switches ❼ Switch Mounting Method ❽ Option ❾ Accessories

❶Mounting Type

Mounting brackets are included with the product for shipment.

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type (pin and retaining ring included)	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

❷Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

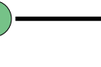
❹Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20 to ø40	5 to 200	Every 1 mm

Note: For the number of switches to be mounted and minimum stroke, refer to P. 352.

❺Switch Model No.

For switch details, please refer to 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color For AC Magnetic Field		—	24 ± 10%	—		T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—		T2HR3	T2VR3	 *6
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	 *4

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: Max. load current as shown on the left: 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: T8H/V switches cannot be mounted when the switch mounting type is the rail type.
*5: Switches other than those listed on the left are also available. (Custom Product) For details, see P. 971.

***Lead wire length, connector specification**

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*6: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❼Switch Mounting Method

Code	Content	
Blank	Rail Type	
Z	Band Type	

❽Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
*1 *2 J	Bellows	100°C	200°C	
*1 *2 L		250°C	400°C	
*3 Q	Shipped with Switch Rail Attached			
M	Piston Rod Material (Stainless Steel)			

*1: For models with bellows, if the ❶ mounting style is "LB" or "FA," the mounting brackets are shipped pre-assembled.
*2: The instantaneous max. temperature is that at which sparks, cutting chips, etc., instantaneously contact bellows.
*3: ❼ If switch mounting style "Z" is selected, the "Switch rail shipped attached" option ("Q") cannot be selected.

❾Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and retaining ring included)	
	B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, see P. 474 to 477.

Code	Content
-XP5	Knuckle Pin/Clevis Pin Split Pin
-XP7	Knuckle fixed by pin driving
-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
SCM – Y – ..... – XP5

Food Manufacturing Process Compatible Specification

(Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCM – Y – ..... – FP1

Switch Single Unit Model No. Notation Method

[Switch mounting: Rail Type]
●Switch Body + Mounting Rail Set

SCM – T0H□ – D – 40 – 100
❺ Switch Model No. | ❻ Number of Switches | ❷ Bore size | ❹ Stroke (*1)

[Switch mounting: Band Type
●Switch Body + Mounting Bracket Set + Band

SCM – T2H□ – 40 – Z
❺ Switch Model No. | ❷ Bore size

[Switch Body Only]

SW – T0H□
❺ Switch Model No.

●Mounting Rail Only

SCM – T – 40 – 100
Mounting Rail | ❷ Bore size | ❹ Stroke (*1) (*2)

●Mounting Bracket Set + Band

SCM – Z – 40
❷ Bore size

*1: Indicate items with a stroke exceeding 300 mm as X. If exceeding 300 mm, one short rail (switch adjustment travel distance 100 mm) is included per switch.
*2: When indicating X for mounting rail only, order the same number of rails as the number of switches used.

Specifications

Item		SCM-Y			
Bore Size	mm	ø20	ø25	ø32	ø40
Actuation method		Single Acting, Pull Type			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.2			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	–10 to 60 (Provided that freezing does not occur)			
Port Size		Rc1/8			
Stroke tolerance	mm	+2.0 0			
Operating Piston Speed mm/s		50 to 1000 (Use within allowable absorption energy.)			
Cushion		Rubber Cushion			
Lubrication		Not Required (When lubricating, use Turbine Oil ISO VG32)			
Allowable Absorbed Energy	J	0.1	0.2	0.5	0.9

Note: Do not leave single acting cylinders pressurized. If left pressurized, the piston rod may not return by spring load when the pressure is released.

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke
ø20	25, 50, 75 100, 125 150, 200	200	5
ø25			
ø32			
ø40			

Note: Intermediate strokes can be produced in 1 mm increments.

Spring Load

(Unit: N)

Bore Size (mm)	At 0 Stroke	At Full Stroke Operation
ø20	11.8	38
ø25	12.5	40.2
ø32	24.3	54.9
ø40	28.4	100

Number of Switches Mounted and Min. Stroke (mm)

●Switch Mounting Method Rail Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore Size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	25	10	25	10	25	10	25
ø25	10	25	10	25	10	25	10	25	10	25
ø32	10	25	10	25	10	25	10	25	10	25
ø40	10	25	10	25	10	25	10	25	10	25

●Switch Mounting Method: Band Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore Size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	30	10	35	15	45	10	25
ø25	10	25	10	30	10	35	15	45	10	25
ø32	10	25	10	30	10	35	15	45	10	25
ø40	10	25	10	30	10	35	10	45	10	25

Note: For products with 1 switch and stroke of 10 mm or more but less than 25 mm, the switch rail mounting position changes, and trunnion type mounting cannot be produced. For mounting position, see P. 468 to 473.

Cylinder Weight

● Stroke 5 to 50

(Unit: kg)

Item/Mounting Style / Bore	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S=10 mm (with Rail)	Weight of Band per Switch
	Basic type	Axial Foot Type	Flange Type	Clevis Type	Trunnion Type				
ø20	0.14	0.25	0.17	0.19	0.15	Please refer to the weight listed in the switch specifications of P. 971	0.010	0.012	0.007
ø25	0.22	0.35	0.26	0.30	0.24		0.014	0.016	0.007
ø32	0.33	0.49	0.39	0.48	0.36		0.018	0.020	0.007
ø40	0.54	0.76	0.62	0.77	0.59		0.030	0.032	0.007

● Stroke 51 to 100

(Unit: kg)

Item/Mounting Style / Bore	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S=10 mm (with Rail)	Weight of Band per Switch
	Basic type	Axial Foot Type	Flange Type	Clevis Type	Trunnion Type				
ø20	0.17	0.28	0.20	0.22	0.18	Please refer to the weight listed in the switch specifications of P. 971	0.010	0.012	0.007
ø25	0.28	0.41	0.32	0.36	0.30		0.014	0.016	0.007
ø32	0.40	0.56	0.46	0.55	0.43		0.018	0.020	0.007
ø40	0.67	0.89	0.75	0.90	0.72		0.030	0.032	0.007

● Stroke 101 to 150

(Unit: kg)

Item/Mounting Style / Bore	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S=10 mm (with Rail)	Weight of Band per Switch
	Basic type	Axial Foot Type	Flange Type	Clevis Type	Trunnion Type				
ø20	0.21	0.32	0.24	0.26	0.22	Please refer to the weight listed in the switch specifications of P. 971	0.010	0.012	0.007
ø25	0.33	0.46	0.37	0.41	0.35		0.014	0.016	0.007
ø32	0.47	0.63	0.53	0.62	0.50		0.018	0.020	0.007
ø40	0.80	1.02	0.88	1.03	0.85		0.030	0.032	0.007

● Stroke 151 to 200

(Unit: kg)

Item/Mounting Style / Bore	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S=10 mm (with Rail)	Weight of Band per Switch
	Basic type	Axial Foot Type	Flange Type	Clevis Type	Trunnion Type				
ø20	0.24	0.35	0.27	0.29	0.25	Please refer to the weight listed in the switch specifications of P. 971	0.010	0.012	0.007
ø25	0.39	0.52	0.43	0.47	0.41		0.014	0.016	0.007
ø32	0.54	0.70	0.60	0.69	0.57		0.018	0.020	0.007
ø40	0.92	1.14	1.00	1.15	0.97		0.030	0.032	0.007

(Example) Product Weight of SCM-Y-LB-40D-100-T2H-D

- Product Weight at S=0 mm ·····0.89 kg
- Added Weight at S=100 mm ·····$0.032 \times \frac{100}{10} = 0.32$ kg
- Weight of 2 switches ·····0.036 kg
- Product Weight ·····0.89 kg+0.32 kg+0.036 kg=1.246 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Pressure MPa								
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	15	41	68	94	1.20×10^2	1.47×10^2	1.73×10^2	2.00×10^2	2.26×10^2
ø25	42	84	1.25×10^2	1.66×10^2	2.07×10^2	2.48×10^2	2.90×10^2	3.31×10^2	3.72×10^2
ø32	83	1.52×10^2	2.22×10^2	2.91×10^2	3.60×10^2	4.29×10^2	4.98×10^2	5.67×10^2	6.36×10^2
ø40	1.11×10^2	2.17×10^2	3.22×10^2	4.28×10^2	5.33×10^2	6.39×10^2	7.44×10^2	8.50×10^2	9.56×10^2

Note: The load above is the pulling thrust after subtracting the spring force at the retracted end.

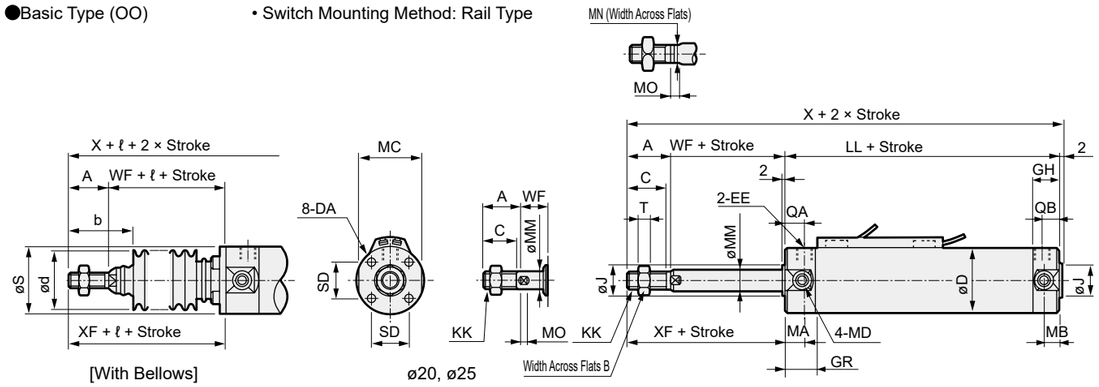
Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40
Single Clevis (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40

*1: Mounting bolts are included to each mounting bracket.
*2: Foot type mounting brackets (LB) and trunnion mounting brackets (TA/TB) are 2 pcs/set.

Outline Dimension Drawing

●Basic Type (OO)　　• Switch Mounting Method: Rail Type



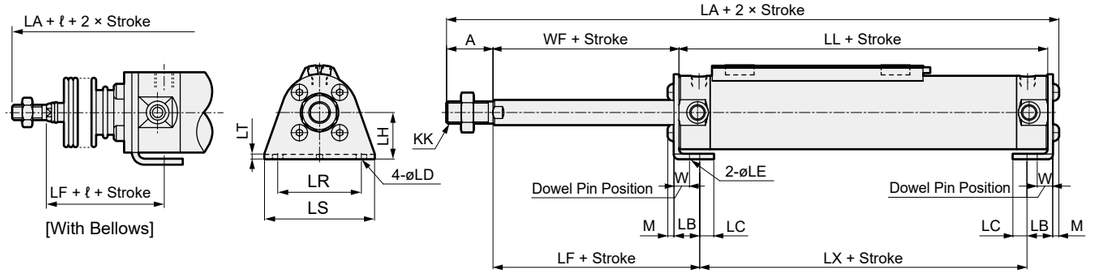
[With Bellows]　　ø20, ø25

Code / Bore Size (mm)	Basic Type (OO) Basic Dimensions A	B	C	D	DA	EE	GR	GH	J	KK	LL 5 or more 50 or less	LL Over 50 to 100	LL Over 100 to 150	LL Over 150 to 200	MA	MB	MC	MD
ø20	18	13	16	26	M4 Depth 6.5	Rc1/8	19	17	12	M8	96	123	150	177	11	11	24	M5
ø25	22	17	20	31	M5 Depth 6.5	Rc1/8	19	17	14	M10 × 1.25	99	129	159	189	11	11	29	M6
ø32	22	17	20	38	M5 Depth 7.5	Rc1/8	19	17	18	M10 × 1.25	101	131	161	191	11	10	36	M8
ø40	30	22	27	47	M6 Depth 12	Rc1/8	20	19	25	M14 × 1.5	108	138	168	198	12	10	44	M10

Code / Bore Size (mm)	MM	MN	MO	QA	QB	SD	T	WF	X 5 to 50	X Over 50 to 100	X Over 100 to 150	X Over 150 to 200	XF	With Bellows b	d	s	ℓ
ø20	8	6	4	12	10	14	5	17	133	160	187	214	35	30	30	25.7	(Stroke / 3) + 18.5
ø25	10	8	5	12	10	16.5	6	18	141	171	201	231	40	35	30	30.7	(Stroke / 3) + 20.5
ø32	12	10	5.5	12	10	20	6	18	143	173	203	233	40	31.5	35	37.7	(Stroke / 3) + 19
ø40	16	14	6	13	12	26	8	20	160	190	220	250	50	40	35	46.7	(Stroke / 3) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

●Axial Foot Type (LB)



[With Bellows]

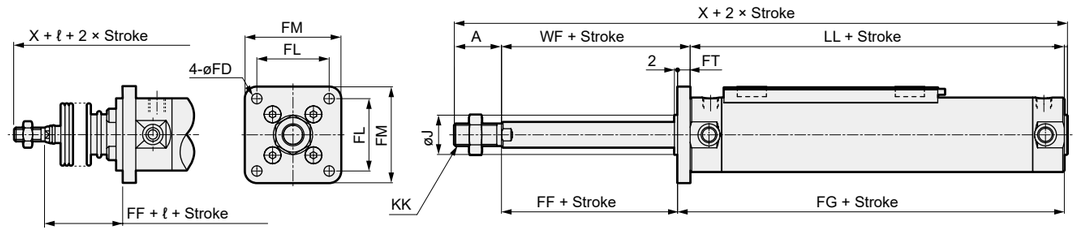
Code / Bore Size (mm)	Axial Foot Type (LB) Mounting Dimensions A	KK	LA 5 to 50	LA Over 50 to 100	LA Over 100 to 150	LA Over 150 to 200	LB	LC	LD	LE	LF	LH	LL 5 to 50	LL Over 50 to 100	LL Over 100 to 150	LL Over 150 to 200
ø20	18	M8	136.8	163.8	190.8	217.8	15.1	7.1	5.7	4	28.9	20	96	123	150	177
ø25	22	M10 × 1.25	145.6	175.6	205.6	235.6	15.1	7.1	5.7	4	29.9	22	99	129	159	189
ø32	22	M10 × 1.25	147.6	177.6	207.6	237.6	16.1	8.1	6.8	4	30.9	25	101	131	161	191
ø40	30	M14 × 1.5	165.2	195.2	225.2	255.2	16.6	9.1	6.8	4	33.4	30	108	138	168	198

Code / Bore Size (mm)	LR	LS	LT	LX 5 to 50	LX Over 50 to 100	LX Over 100 to 150	LX Over 150 to 200	M	W	WF	With Bellows ℓ
ø20	32	44	3.2	72.2	99.2	126.2	153.2	2.6	10	17	(Stroke / 3) + 18.5
ø25	36	49	3.2	75.2	105.2	135.2	165.2	3.4	10	18	(Stroke / 3) + 20.5
ø32	44	58	3.2	75.2	105.2	135.2	165.2	3.4	10	18	(Stroke / 3) + 19
ø40	54	71	3.2	81.2	111.2	141.2	171.2	4	10	20	(Stroke / 3) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)



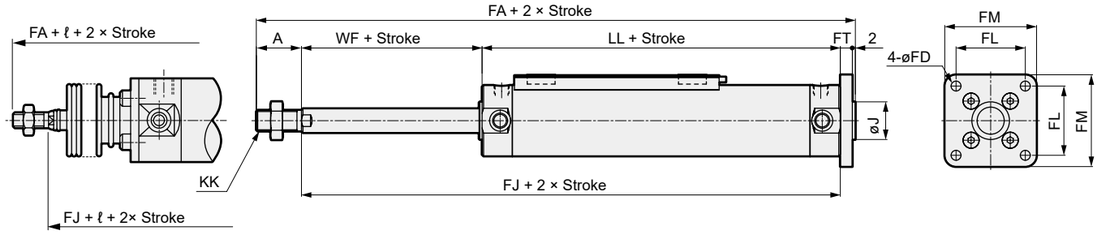
[With Bellows]

Code / Bore Size (mm)	Rod Side Flange Type (FA) Mounting Dimensions A	FD	FF	FG 5 to 50	FG Over 50 to 100	FG Over 100 to 150	FG Over 150 to 200	FL	FM	FT	J	KK
ø20	18	5.5	11	104	131	158	185	28	40	6	12	M8
ø25	22	5.5	11	108	138	168	198	32	44	7	14	M10 × 1.25
ø32	22	6.6	11	110	140	170	200	38	53	7	18	M10 × 1.25
ø40	30	6.6	12	118	148	178	208	46	61	8	25	M14 × 1.5

Code / Bore Size (mm)	LL 5 to 50	LL Over 50 to 100	LL Over 100 to 150	LL Over 150 to 200	WF	X 5 to 50	X Over 50 to 100	X Over 100 to 150	X Over 150 to 200	With Bellows ℓ
ø20	96	123	150	177	17	133	160	187	214	(Stroke / 3) + 18.5
ø25	99	129	159	189	18	141	171	201	231	(Stroke / 3) + 20.5
ø32	101	131	161	191	18	143	173	203	233	(Stroke / 3) + 19
ø40	108	138	168	198	20	160	190	220	250	(Stroke / 3) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

●Head Side Flange Type (FB)



[With Bellows]

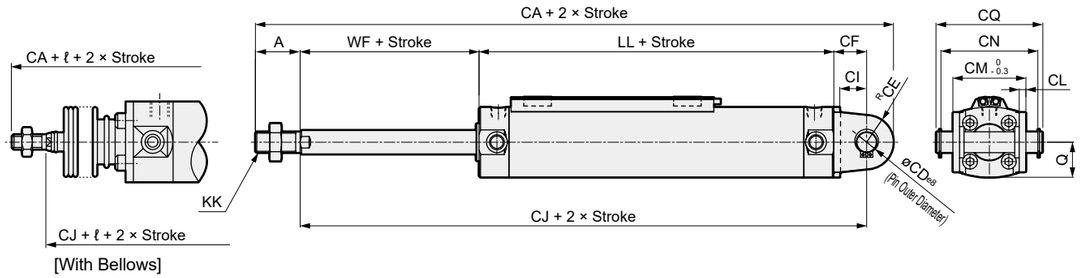
Code / Bore Size (mm)	Head Side Flange Type (FB) Mounting Dimensions A	FA 5 to 50	FA Over 50 to 100	FA Over 100 to 150	FA Over 150 to 200	FD	FJ 5 to 50	FJ Over 50 to 100	FJ Over 100 to 150	FJ Over 150 to 200	FL	FM
ø20	18	139	166	193	220	5.5	119	146	173	200	28	40
ø25	22	148	178	208	238	5.5	124	154	184	214	32	44
ø32	22	150	180	210	240	6.6	126	156	186	216	38	53
ø40	30	168	198	228	258	6.6	136	166	196	226	46	61

Code / Bore Size (mm)	FT	J	KK	LL 5 to 50	LL Over 50 to 100	LL Over 100 to 150	LL Over 150 to 200	WF	With Bellows ℓ
ø20	6	12	M8	96	123	150	177	17	(Stroke / 3) + 18.5
ø25	7	14	M10 × 1.25	99	129	159	189	18	(Stroke / 3) + 20.5
ø32	7	18	M10 × 1.25	101	131	161	191	18	(Stroke / 3) + 19
ø40	8	25	M14 × 1.5	108	138	168	198	20	(Stroke / 3) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

●Single Clevis Type (CA)



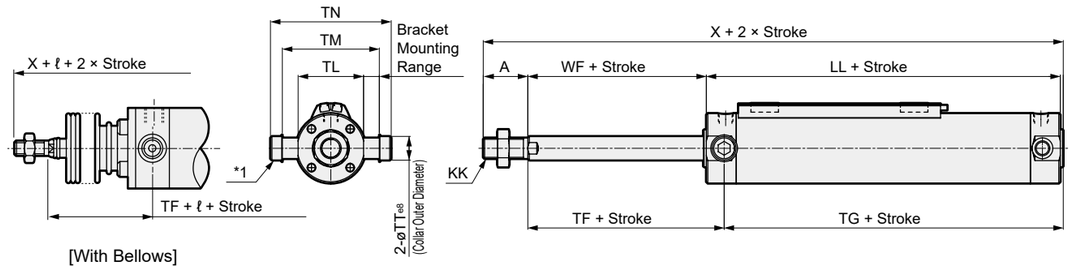
[With Bellows]

Code / Bore Size (mm)	Single Clevis Type (CA) Mounting Dimensions													
	A	CF	CA				CD	CE	CI	CJ				CL
			5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200				5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	
ø20	18	14	156	183	210	237	8	11	10.8	127	154	181	208	3.2
ø25	22	16	168	198	228	258	10	13	12.8	133	163	193	223	3.2
ø32	22	19.5	175.5	205.5	235.5	265.5	12	15	15.5	138.5	168.5	198.5	228.5	4.5
ø40	30	21.5	197.5	227.5	257.5	287.5	14	18	17.5	149.5	179.5	209.5	239.5	4.5

Code / Bore Size (mm)	With Bellows									
	CM	CN	CQ	KK	LL				Q	WF	ℓ
					5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200			
ø20	29	38.6	43.4	M8	96	123	150	177	13	17	(Stroke / 3) + 18.5
ø25	33	42.6	48	M10 × 1.25	99	129	159	189	15.5	18	(Stroke / 3) + 20.5
ø32	40	54	59.4	M10 × 1.25	101	131	161	191	19	18	(Stroke / 3) + 19
ø40	49	65	71.4	M14 × 1.5	108	138	168	198	23.5	20	(Stroke / 3) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

●Rod side trunnion type (TA)



[With Bellows]

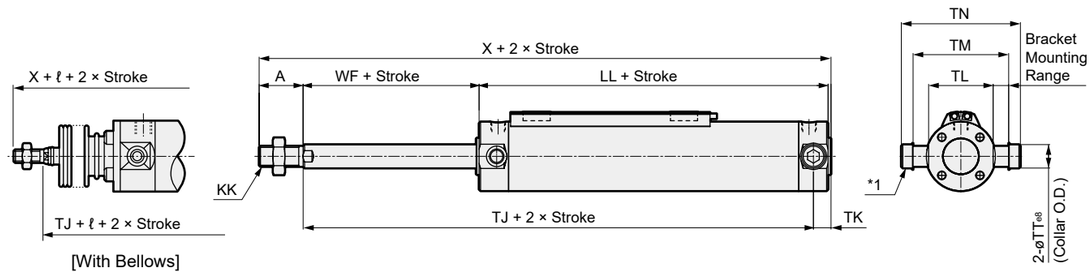
Code / Bore Size (mm)	Rod Side Trunnion Type (TA) Mounting Dimensions											
	A	KK	LL				TF	TG				TL
			5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200		5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	
ø20	18	M8	96	123	150	177	28	87	114	141	168	28
ø25	22	M10 × 1.25	99	129	159	189	29	90	120	150	180	33
ø32	22	M10 × 1.25	101	131	161	191	29	92	122	152	182	40
ø40	30	M14 × 1.5	108	138	168	198	32	98	128	158	188	49

Code / Bore Size (mm)	With Bellows								
	TM	TN	TT	WF	X				ℓ
					5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	
ø20	39	47.6	8	17	133	160	187	214	(Stroke / 3) + 18.5
ø25	43	53	10	18	141	171	201	231	(Stroke / 3) + 20.5
ø32	54.5	67.7	12	18	143	173	203	233	(Stroke / 3) + 19
ø40	65.9	81.1	14	20	160	190	220	250	(Stroke / 3) + 18.5

*1: Consists of collar, flat washer, and hexagon socket head cap screw.
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

●Head Side Trunnion Type (TB)



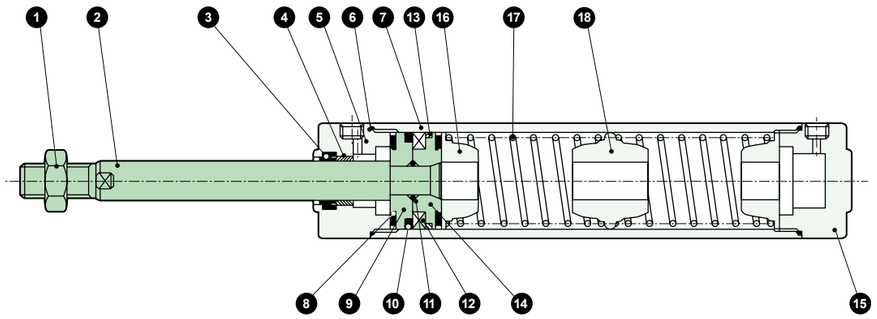
[With Bellows]

Code / Bore Size (mm)	Head Side Trunnion Type (TB) Mounting Dimensions											
	A	KK	LL				TJ				TK	TL
			5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200		
ø20	18	M8	96	123	150	177	102	129	156	183	13	28
ø25	22	M10 × 1.25	99	129	159	189	106	136	166	196	13	33
ø32	22	M10 × 1.25	101	131	161	191	109	139	169	199	12	40
ø40	30	M14 × 1.5	108	138	168	198	118	148	178	208	12	49

Code / Bore Size (mm)	With Bellows								
	TM	TN	TT	WF	X				ℓ
					5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	
ø20	39	47.6	8	17	133	160	187	214	(Stroke / 3) + 18.5
ø25	43	53	10	18	141	171	201	231	(Stroke / 3) + 20.5
ø32	54.5	67.7	12	18	143	173	203	233	(Stroke / 3) + 19
ø40	65.9	81.1	14	20	160	190	220	250	(Stroke / 3) + 18.5

*1: Consists of collar, flat washer, and hexagon socket head cap screw.
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

Internal Structure Diagram / Material



Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating
2	Piston Rod	ø20, ø25: Stainless Steel ø32 to ø40: Steel	Industrial Hard Chrome Plating
3	Rod Packing	Nitrile Rubber	
4	Bushing	Oil-Impregnated Bearing Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized
6	Cylinder Gasket	Nitrile Rubber	
7	Cylinder Tube	Aluminum Alloy	Hard Anodized
8	Cushion Rubber	Urethane Rubber	
9	Piston R	Aluminum Alloy	
10	Piston Packing	Nitrile Rubber	
11	Piston Gasket	Nitrile Rubber	
12	Magnet	Plastic	
13	Wear Ring	Polyacetal	
14	Piston H	Aluminum Alloy	
15	Head Cover	Aluminum Alloy	Hard Anodized
16	Spring Retainer A	Aluminum Alloy	
17	Coil Spring	Piano Wire	Electrodeposition Coating
18	Spring Retainer B	Aluminum Alloy	

For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

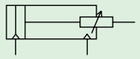
MEMO



Round shaped cylinder
Double Acting, Stroke Adjustment Type (Push)

SCM-P Series

●Bore Size: ø20, ø25, ø32, ø40, ø50, ø63

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

SCM-P - LB - 40 [ ] D - 100 - 25 ——— J I

Model No. ❶ ❷ ❸ ❹ ❺ ❾ ❿

With Switch (Built-in magnet for switch)

SCM-P - LB - 40 [ ] D - 100 - 25 - T0H - D - [ ] - J I

Model No. ❶ Mounting type ❷ Bore size ❸ Piping thread type — D: With Rubber Cushion on Both Sides — ❹ Stroke ❺ Stroke adjustment range ❻ Switch Model No. ❼ Number of Switches ❽ Switch Mounting Method ❾ Option ❿ Accessories

❶ Mounting type

LB mounting brackets are assembled to the product for shipment. FA / TA / TB are included with the product at shipment.

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

❷ Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63

❸ Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

❹ Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20 to ø63	10 to 600	Every 1 mm

Note: For the number of switches to be mounted and minimum stroke, refer to P. 362.

❺ Stroke adjustment range (mm)

Code	Content
25	25
50	50

❻ Switch Model No.

For switch details, please refer to 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color For AC Magnetic Field		—	24 ± 10%	—		T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—		T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	 *4

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: Max. load current as shown on the left: 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: T8H/V switches cannot be mounted when the bore size is ø20 to ø40 and switch mounting is the rail type.
*5: Switches other than those listed on the left are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*6

*6: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❼ Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❽ Switch Mounting Method

Code	Content	
Blank	Rail Type	
Z	Band Type	

❾ Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
J	Bellows	100°C	200°C	
L	Bellows	250°C	400°C	
Q	Shipped with Switch Rail Attached			
M	Piston Rod Material (Stainless Steel)			

*1 *2 *1 *2 *3

*1: For models with bellows, if the ❶ mounting style is "LB" or "FA," the mounting brackets are shipped pre-assembled.
*2: The instantaneous max. temperature is that at which sparks, cutting chips, etc., instantaneously contact bellows.
*3: ❽ If switch mounting style "Z" is selected, the "Switch rail shipped attached" option ("Q") cannot be selected.

❿ Accessories

Code	Content	
I	Single Knuckle	
Y	Double Knuckle (Pin and retaining ring included)	
B2	Double Yoke Bracket	

*1 *1

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, see P. 474 to 477.

Code	Content
-XP5	Knuckle Pin/Clevis Pin Split Pin
-XP7	Knuckle fixed by pin driving
-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
SCM - P - ..... - XP5

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCM - P - ..... - FP1

Switch Single Unit Model No. Notation Method

[Switch mounting: Rail Type]
●Switch Body + Mounting Rail Set

SCM - T0H□ - D - 40 - 100

❻ Switch Model No. ❼ Switch Number ❷ Bore size ❹ Stroke (*1)

[Switch mounting: Band Type
●Switch Body + Mounting Bracket Set + Band

SCM - T2H□ - 40 - Z

❻ Switch Model No. ❷ Bore size

[Switch Body Only]

SW - T0H□

❻ Switch Model No.

●Mounting Rail Only

SCM - T - 40 - 100

Mounting Rail — ❷ Bore size — ❹ Stroke (*1) (*2)

●Mounting Bracket Set + Band

SCM - Z - 40

❷ Bore size

*1: Indicate items with a stroke exceeding 300 mm as X. If exceeding 300 mm, one short rail (switch adjustment travel distance 100 mm) is included per switch.
*2: When indicating X for mounting rail only, order the same number of rails as the number of switches used.

Specifications

Item		SCM-P					
Bore Size	mm	ø20	ø25	ø32	ø40	ø50	ø63
Actuation method		Double Acting, Stroke Adjustment Type (Push)					
Operating Fluid		Compressed Air					
Max. Working Pressure	MPa	1.0					
Min. Operating Pressure	MPa	0.15				0.1	
Proof Pressure	MPa	1.6					
Ambient Temperature	°C	–10 to 60 (Provided that freezing does not occur)					
Port Size		Rc1/8				Rc1/4	
Stroke tolerance	mm	+1.4 0				+2.3 0	
Operating Piston Speed	mm/s	30 to 1000 (Use within allowable absorption energy.)					
Cushion		Rubber Cushion					
Lubrication		Not Required (When lubricating, use Turbine Oil ISO VG32)					
Stroke adjustment range	mm	25, 50					
Allowable Absorbed Energy	J	0.1	0.2	0.5	0.9	1.6	1.6

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke
ø20	25, 50, 75, 50, 75, 100, 50, 75, 100	600	10
ø25			
ø32			
ø40			
ø50			
ø63			

Note: Intermediate strokes can be produced in 1 mm increments.

Number of Switches Mounted and Min. Stroke (mm)

●Switch Mounting Method Rail Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore Size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	25	10	25	10	25	10	25
ø25	10	25	10	25	10	25	10	25	10	25
ø32	10	25	10	25	10	25	10	25	10	25
ø40	10	25	10	25	10	25	10	25	10	25
ø50	10	25	10	25	10	25	10	25	10	25
ø63	10	25	10	25	10	25	10	25	10	25

●Switch Mounting Method Band Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore Size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	30	10	35	15	45	10	25
ø25	10	25	10	30	10	35	15	45	10	25
ø32	10	25	10	30	10	35	15	45	10	25
ø40	10	25	10	30	10	35	10	45	10	25
ø50	10	25	10	30	10	35	10	45	10	25
ø63	10	25	10	30	10	35	10	45	10	25

Note: For products with 1 switch and stroke of 10 mm or more but less than 25 mm, the switch rail mounting position changes, and trunnion type mounting cannot be produced. For mounting position, see P. 468 to 473.

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Stroke adjustment range	Product Weight at Stroke (S) = 0 mm				Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S=10 mm (with Rail)	Weight of Band per Switch
		Basic type	Axial Foot Type	Flange Type	Trunnion Type				
ø20	25	0.18	0.29	0.26	0.19	Please refer to the weight listed in the switch specifications of P. 971	0.010	0.012	0.007
	50	0.21	0.31	0.29	0.22				
ø25	25	0.33	0.44	0.43	0.35		0.014	0.016	0.007
	50	0.37	0.48	0.47	0.39				
ø32	25	0.50	0.64	0.64	0.53		0.018	0.020	0.007
	50	0.56	0.71	0.70	0.59				
ø40	25	0.93	1.12	1.13	0.98		0.030	0.032	0.007
	50	1.03	1.22	1.23	1.08				
ø50	25	1.71	2.12	2.05	1.85		0.044	0.046	0.008
	50	1.90	2.31	2.24	2.04				
ø63	25	2.25	2.87	2.75	2.39		0.052	0.054	0.009
	50	2.44	3.06	2.94	2.58				

(Example) Product Weight of SCM-P-LB-40D-100-50-T2H-D
- Product Weight at S=0 mm ·····1.22 kg
- Added Weight at S=100 mm ·····$0.032 \times \frac{100}{10} = 0.32$ kg
- Weight of 2 switches ·····0.036 kg
- Product Weight·····1.22 kg+0.32kg+0.036kg=1.576kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push/Pull	-	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push/Pull	-	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push/Pull	-	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push/Pull	-	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push/Pull	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push/Pull	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3

Mounting Bracket Model No. Notation Method

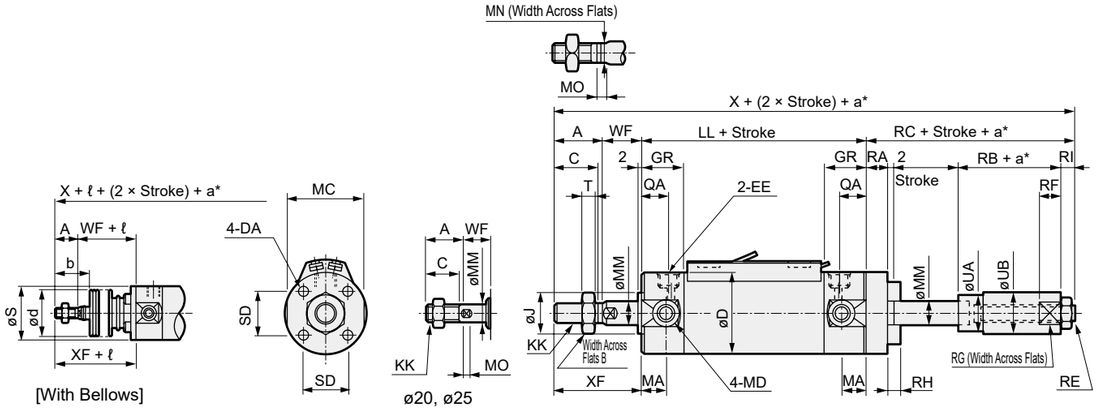
Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40	ø50	ø63
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63

*1: Mounting bolts are included to each mounting bracket.
*2: Foot type mounting brackets (LB) and trunnion mounting brackets (TA/TB) are 2 pcs/set.

Outline Dimension Drawing

●Basic Type (OO)

• Switch Mounting Method: Rail Type



*a: Stroke adjustment range

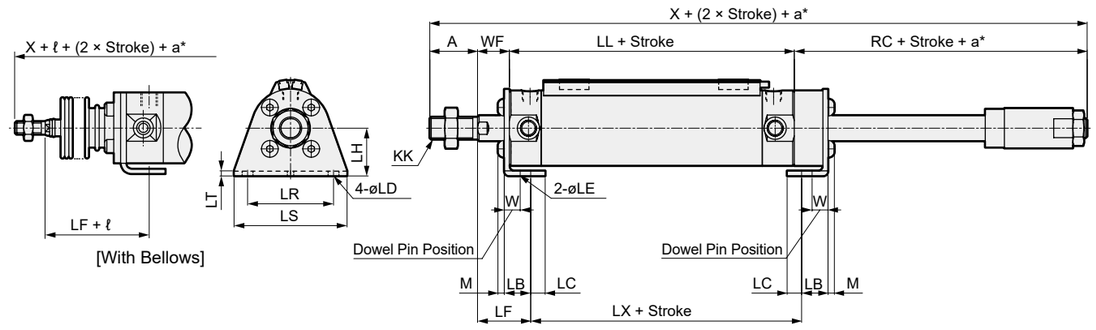
Code	Basic Type (OO) Basic Dimensions																	
Bore Size (mm)	A	B	C	D	DA	EE	GR	J	KK	LL	MA	MC	MD	MM	MN	MO	QA	SD
ø20	18	13	16	26	M4 Depth 6.5	Rc1/8	19	12	M8	71	11	24	M5	8	6	4	12	14
ø25	22	17	20	31	M5 Depth 6.5	Rc1/8	19	14	M10 × 1.25	71	11	29	M6	10	8	5	12	16.5
ø32	22	17	20	38	M5 Depth 7.5	Rc1/8	19	18	M10 × 1.25	73	11	36	M8	12	10	5.5	12	20
ø40	30	22	27	47	M6 Depth 12	Rc1/8	20	25	M14 × 1.5	79	12	44	M10	16	14	6	13	26
ø50	35	27	32	58	M8 Depth 16	Rc1/4	25	30	M18 × 1.5	93	13	55	M12	20	17	8	15	32
ø63	35	27	32	72	M10 Depth 16	Rc1/4	25	32	M18 × 1.5	93	13	69	M14	20	17	8	15	38

Code														With Bellows			
Bore Size (mm)	T	WF	X	XF	RA	RB	RC	RE	RI	RF	RG	RH	UA	UB	b	d	s	ℓ
ø20	5	17	141	35	8	19	35	M6	6	7	10	4	11.5	12	30	30	25.7	(Stroke / 3) + 18.5
ø25	6	18	152	40	10	22	41	M8	7	9	14	5	13.5	16	35	30	30.7	(Stroke / 3) + 20.5
ø32	6	18	154	40	10	22	41	M8	7	10	17	5	17.5	20	31.5	35	37.7	(Stroke / 3) + 19
ø40	8	20	188	50	18	30	59	M12 × 1.5	9	12	22	6	24	25	40	35	46.7	(Stroke / 3) + 18.5
ø50	11	23	217	58	20	32	66	M16 × 1.5	12	15	30	8	29	35	46	40	57.7	(Stroke / 3.6) + 18.5
ø63	11	23	217	58	20	32	66	M16 × 1.5	12	15	30	10	29	35	46	40	71.7	(Stroke / 3.6) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

●Axial Foot Type (LB)

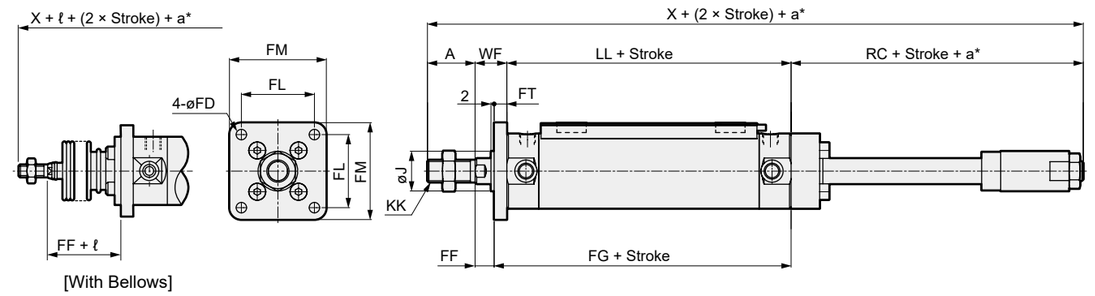


*a: Stroke adjustment range

Code	Axial Foot Type (LB) Mounting Dimensions																With Bellows
Bore Size (mm)	A	KK	X	LB	LC	LD	LE	LF	LH	LL	LR	LS	LT	LX	M	W	WF	RC	ℓ
ø20	18	M8	141	15.1	7.1	5.7	4	28.9	20	71	32	44	3.2	47.2	2.6	10	17	35	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	152	15.1	7.1	5.7	4	29.9	22	71	36	49	3.2	47.2	3.4	10	18	41	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	154	16.1	8.1	6.8	4	30.9	25	73	44	58	3.2	47.2	3.4	10	18	41	(Stroke / 3) + 19
ø40	30	M14 × 1.5	188	16.6	9.1	6.8	4	33.4	30	79	54	71	3.2	52.2	4	10	20	59	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	217	22	11	9	5	40.5	40	93	66	86	4.5	58	5	17.5	23	66	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	217	22	13	11	5	40.5	45	93	82	106	4.5	58	5	17.5	23	66	(Stroke / 3.6) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

●Rod Side Flange Type (FA)



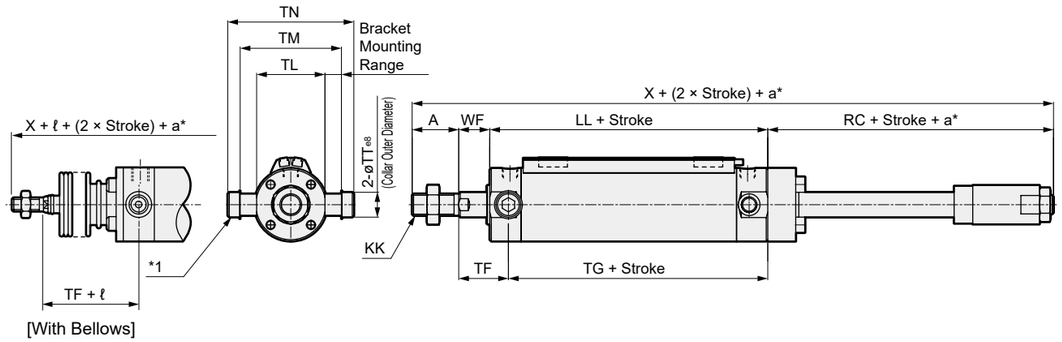
*a: Stroke adjustment range

Code	Rod Side Flange Type (FA) Mounting Dimensions													With Bellows
Bore Size (mm)	A	FD	FF	FG	FL	FM	FT	J	KK	LL	WF	X	RC	ℓ
ø20	18	5.5	11	79	28	40	6	12	M8	71	17	141	35	(Stroke / 3) + 18.5
ø25	22	5.5	11	80	32	44	7	14	M10 × 1.25	71	18	152	41	(Stroke / 3) + 20.5
ø32	22	6.6	11	82	38	53	7	18	M10 × 1.25	73	18	154	41	(Stroke / 3) + 19
ø40	30	6.6	12	89	46	61	8	25	M14 × 1.5	79	20	188	59	(Stroke / 3) + 18.5
ø50	35	9	14	104	58	76	9	30	M18 × 1.5	93	23	217	66	(Stroke / 3.6) + 18.5
ø63	35	11	14	104	70	92	9	32	M18 × 1.5	93	23	217	66	(Stroke / 3.6) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

●Rod side trunnion type (TA)



[With Bellows]

*a: Stroke adjustment range

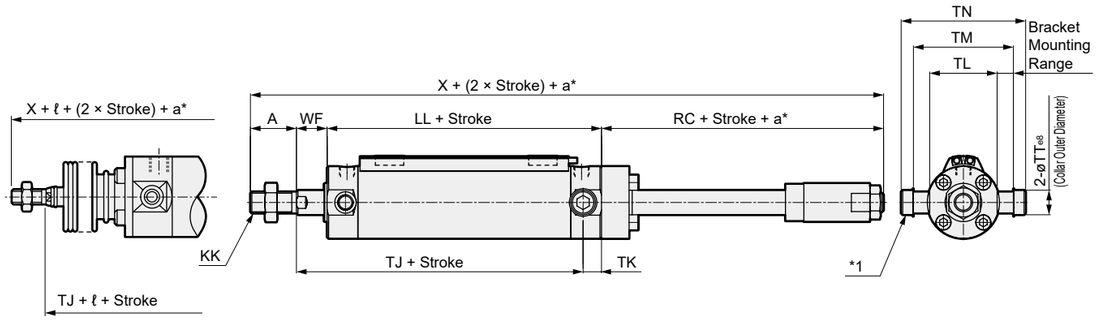
Code	Rod Side Trunnion Type (TA) Mounting Dimensions												With Bellows
Bore Size (mm)	A	KK	LL	TF	TG	TL	TM	TN	TT	WF	X	RC	ℓ
ø20	18	M8	71	28	62	28	39	47.6	8	17	141	35	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	71	29	62	33	43	53	10	18	152	41	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	73	29	64	40	54.5	67.7	12	18	154	41	(Stroke / 3) + 19
ø40	30	M14 × 1.5	79	32	69	49	65.9	81.1	14	20	188	59	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	93	36	82	60	80	98.6	16	23	217	66	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	93	36	82	74	98	119.2	18	23	217	66	(Stroke / 3.6) + 18.5

*1: Consists of collar, flat washer, and hexagon socket head cap screw.

***2: For dimensions with each switch, see P. 468 to 473.**

***3: For outer dimensions diagram of accessories, refer to P. 336.**

●Head Side Trunnion Type (TB)



[With Bellows]

*a: Stroke adjustment range

Code	Head Side Trunnion Type (TB) Mounting Dimensions												With Bellows
Bore Size (mm)	A	KK	LL	TJ	TK	TL	TM	TN	TT	WF	X	RC	ℓ
ø20	18	M8	71	77	11	28	39	47.6	8	17	141	35	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	71	78	11	33	43	53	10	18	152	41	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	73	80	11	40	54.5	67.7	12	18	154	41	(Stroke / 3) + 19
ø40	30	M14 × 1.5	79	87	12	49	65.9	81.1	14	20	188	59	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	93	103	13	60	80	98.6	16	23	217	66	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	93	103	13	74	98	119.2	18	23	217	66	(Stroke / 3.6) + 18.5

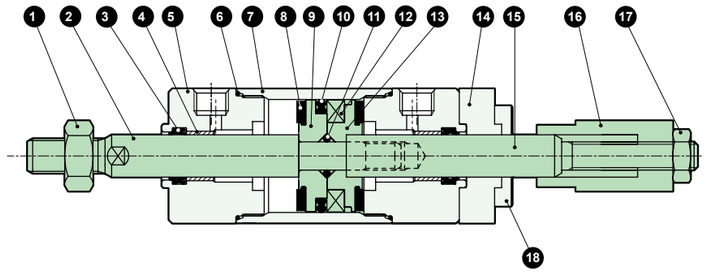
*1: Consists of collar, flat washer, and hexagon socket head cap screw.

***2: For dimensions with each switch, see P. 468 to 473.**

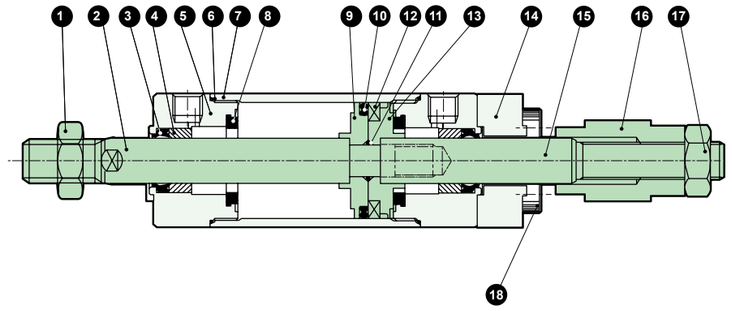
***3: For outer dimensions diagram of accessories, refer to P. 336.**

Internal Structure Diagram / Material

●ø20 to ø40



●ø50 to ø100



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating	10	Piston Packing	Nitrile Rubber	
2	Piston Rod R	ø20, ø25: Stainless Steel ø32 to ø63: Steel	Industrial Hard Chrome Plating	11	Piston Gasket	Nitrile Rubber	
				12	Magnet	Plastic	
3	Rod Packing	Nitrile Rubber		13	Piston H	Aluminum Alloy	
4	Bushing	Oil-Impregnated Bearing Alloy		14	Cover	Steel	Zinc Chromate
5	Rod Cover	Aluminum Alloy	Hard Anodized	15	Piston Rod H	Steel	Industrial Hard Chrome Plating
6	Cylinder Gasket	Nitrile Rubber		16	Stopper	Steel	Zinc Chromate
7	Cylinder Tube	Aluminum Alloy	Hard Anodized	17	Hexagon Nut	Steel	Nickel Plating
8	Cushion Rubber	Urethane Rubber		18	Hexagon Socket Head Cap Screw	Alloy Steel	Black Oxide
9	Piston R	Aluminum Alloy					

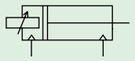
For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts



Round shaped cylinder
Double Acting, Stroke Adjustment Type (Pull)

SCM-R Series

●Bore Size: ø20, ø25, ø32, ø40, ø50, ø63

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

SCM-R - LB - 40 [ ] D - 100 - 25 ——— J I

Model No. ❶ ❷ ❸ ❹ ❺ ❾ ❿

With Switch (Built-in magnet for switch)

SCM-R - LB - 40 [ ] D - 100 - 25 - T0H - D - [ ] - J I

Model No.	❶ Mounting type	❷ Bore size	❸ Piping thread type	With Rubber Cushion on Both Sides	❹ Stroke	❺ Stroke adjustment range	❻ Switch Model No.	❼ Number of Switches	❽ Switch Mounting Method	❾ Option	❿ Accessories

❶ Mounting type

LB mounting brackets are assembled to the product for shipment. FA / TA / TB are included with the product at shipment.

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

❷ Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63

❸ Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

❹ Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20 to ø32	10 to 1000	Every 1 mm
ø40 to ø63	10 to 1500	

*1: For the number of switches to be mounted and minimum stroke, refer to P. 370.
*2: If the stroke exceeds 600 mm, it will be a custom order product.

❺ Stroke adjustment range (mm)

Code	Content
25	25
50	50

❻ Switch Model No.

For switch details, please refer to 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—		T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—		T2HR3	T2VR3	*6
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	 *4

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: Max. load current as shown on the left: 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: T8H/V switches cannot be mounted when the bore size is ø20 to ø40 and switch mounting is the rail type.
*5: Switches other than those listed on the left are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*6: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❼ Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❽ Switch Mounting Method

Code	Content	
Blank	Rail Type	
Z	Band Type	

❾ Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
*1 *2 J	Bellows	100°C	200°C	
*1 *2 L		250°C	400°C	
*3 Q	Shipped with Switch Rail Attached			
M	Piston Rod Material (Stainless Steel)			

*1: For models with bellows, if the ❶ mounting style is "LB" or "FA," the mounting brackets are shipped pre-assembled.
*2: The instantaneous max. temperature is that at which sparks, cutting chips, etc., instantaneously contact bellows.
*3: ❽ If switch mounting style "Z" is selected, the "Switch rail shipped attached" option ("Q") cannot be selected.

❿ Accessories

Code	Content	
*1 I	Single Knuckle	
*1 Y	Double Knuckle (Pin and retaining ring included)	
B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, see P. 474 to 477.

Code	Content
-XP5	Knuckle Pin/Clevis Pin Split Pin
-XP7	Knuckle fixed by pin driving
-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
SCM - R - ..... - XP5

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCM - R - ..... - FP1

Switch Single Unit Model No. Notation Method

[Switch mounting: Rail Type]
●Switch Body + Mounting Rail Set

SCM - T0H□ - D - 40 - 100

❻ Switch Model No. ❼ Number of Switches ❷ Bore size ❹ Stroke (*1)

[Switch mounting: Band Type
●Switch Body + Mounting Bracket Set + Band

SCM - T2H□ - 40 - Z

❻ Switch Model No. ❷ Bore size

[Switch Body Only]

SW - T0H□

❻ Switch Model No.

●Mounting Rail Only

SCM - T - 40 - 100

Mounting Rail ❷ Bore size ❹ Stroke (*1) (*2)

●Mounting Bracket Set + Band

SCM - Z - 40

❷ Bore size

*1: Indicate items with a stroke exceeding 300 mm as X. If exceeding 300 mm, one short rail (switch adjustment travel distance 100 mm) is included per switch.
*2: When indicating X for mounting rail only, order the same number of rails as the number of switches used.

Specifications

Item		SCM-R					
Bore Size	mm	ø20	ø25	ø32	ø40	ø50	ø63
Actuation method		Double Acting, Stroke Adjustment Type (Pull)					
Operating Fluid		Compressed Air					
Max. Working Pressure	MPa	1.0					
Min. Operating Pressure	MPa	0.1				0.05	
Proof Pressure	MPa	1.6					
Ambient Temperature	°C	–10 to 60 (Provided that freezing does not occur)					
Port Size		Rc1/8				Rc1/4	
Stroke tolerance	mm	+1.4 (to 1000) 0			+1.4 (to 1500) 0	+2.3 (to 1000), +2.7 (to 1500) 0	0
Operating Piston Speed	mm/s	30 to 1000 (Use within allowable absorption energy.)					
Cushion		Rubber Cushion					
Lubrication		Not Required (When lubricating, use Turbine Oil ISO VG32)					
Stroke adjustment range	mm	25, 50					
Allowable Absorbed Energy	J	0.1	0.2	0.5	0.9	1.6	1.6

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke
ø20	25, 50, 75	1,000	10
ø25	25, 50, 75	1,000	10
ø32	50, 75, 100	1,000	10
ø40	50, 75, 100	1500	10
ø50	50, 75, 100	1500	10
ø63	50, 75, 100	1500	10

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: If the stroke exceeds 600 mm, it will be made to order, so please consult with us.

Number of Switches Mounted and Min. Stroke (mm)

● Switch mounting: Rail Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore Size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	25	10	25	10	25	10	25
ø25	10	25	10	25	10	25	10	25	10	25
ø32	10	25	10	25	10	25	10	25	10	25
ø40	10	25	10	25	10	25	10	25	10	25
ø50	10	25	10	25	10	25	10	25	10	25
ø63	10	25	10	25	10	25	10	25	10	25

● Switch mounting: Band Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore Size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	30	10	35	15	45	10	25
ø25	10	25	10	30	10	35	15	45	10	25
ø32	10	25	10	30	10	35	15	45	10	25
ø40	10	25	10	30	10	35	10	45	10	25
ø50	10	25	10	30	10	35	10	45	10	25
ø63	10	25	10	30	10	35	10	45	10	25

Note: For products with 1 switch and stroke of 10 mm or more but less than 25 mm, the switch rail mounting position changes, and trunnion type mounting cannot be produced. For mounting position, see P. 468 to 473.

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Stroke adjustment range	Product Weight at Stroke (S) = 0 mm				Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S=10 mm (with Rail)	Weight of Band per Switch
		Basic type	Axial Foot Type	Flange Type	Trunnion Type				
ø20	25	0.14	0.25	0.17	0.15	Please refer to the weight listed in the switch specifications of P. 971	0.010	0.012	0.007
	50	0.15	0.25	0.18	0.16				
ø25	25	0.25	0.36	0.29	0.27		0.014	0.016	0.007
	50	0.26	0.37	0.30	0.28				
ø32	25	0.37	0.52	0.43	0.40		0.018	0.020	0.007
	50	0.38	0.52	0.44	0.41				
ø40	25	0.70	0.89	0.78	0.75		0.030	0.032	0.007
	50	0.72	0.91	0.80	0.77				
ø50	25	1.30	1.71	1.64	1.44		0.044	0.046	0.008
	50	1.33	1.75	1.67	1.47				
ø63	25	1.83	2.45	2.33	1.97		0.052	0.054	0.009
	50	1.86	2.48	2.36	2.00				

(Example) Product Weight of SCM-R-LB-40D-100-25-T2H-D
- Product Weight at S=0 mm ····0.89 kg
- Added Weight at S=100 mm ···0.032 × $\frac{100}{10}$ = 0.32 kg
- Weight of 2 switches·····0.036 kg
- Product Weight ····· ·0.89 kg+0.32 kg+0.036 kg=1.246 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	-	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	-	26.4	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push	-	49.1k	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	-	41.2	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push	-	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	-	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	-	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	-	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.0	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	2.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3

Mounting Bracket Model No. Notation Method

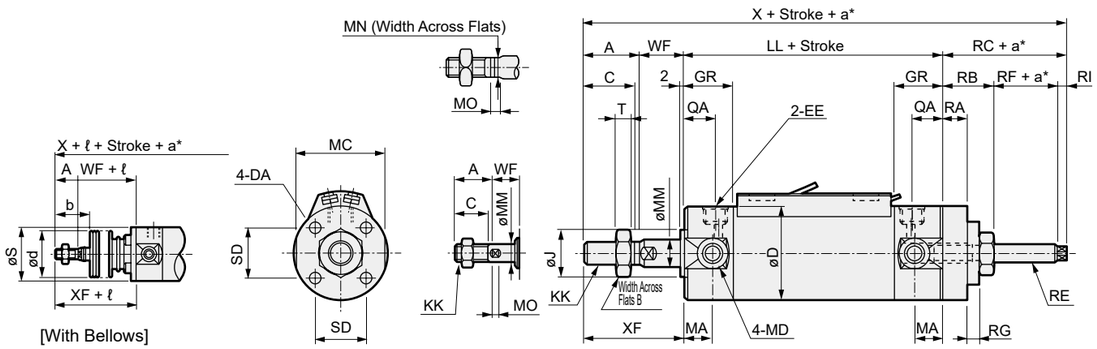
Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40	ø50	ø63
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63

*1: Mounting bolts are included to each mounting bracket.
*2: Foot type mounting brackets (LB) and trunnion mounting brackets (TA/TB) are 2 pcs/set.

Outline Dimension Drawing

●Basic Type (OO)

• Switch Mounting Method: Rail Type



*a: Stroke adjustment range

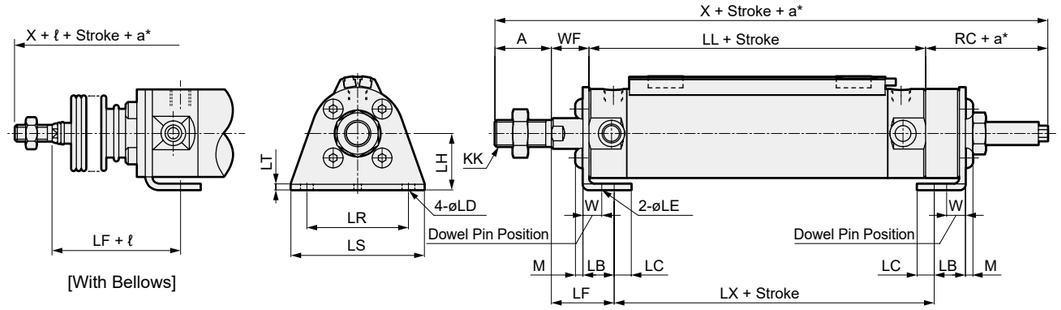
Code	Basic Type (OO) Basic Dimensions																
Bore Size (mm)	A	B	C	D	DA	EE	GR	J	KK	LL	MA	MC	MD	MM	MN	MO	QA
ø20	18	13	16	26	M4 Depth 6.5	Rc1/8	19	12	M8	71	11	24	M5	8	6	4	12
ø25	22	17	20	31	M5 Depth 6.5	Rc1/8	19	14	M10 × 1.25	71	11	29	M6	10	8	5	12
ø32	22	17	20	38	M5 Depth 7.5	Rc1/8	19	18	M10 × 1.25	73	11	36	M8	12	10	5.5	12
ø40	30	22	27	47	M6 Depth 12	Rc1/8	20	25	M14 × 1.5	79	12	44	M10	16	14	6	13
ø50	35	27	32	58	M8 Depth 16	Rc1/4	25	30	M18 × 1.5	93	13	55	M12	20	17	8	15
ø63	35	27	32	72	M10 Depth 16	Rc1/4	25	32	M18 × 1.5	93	13	69	M14	20	17	8	15

Code												With Bellows			
Bore Size (mm)	SD	T	WF	X	XF	RA	RB	RC	RE	RI	RF	RG	b	d	s	ℓ
ø20	14	5	17	128.5	35	8	16	22.5	M6	4	2.5	4	30	30	25.7	(Stroke / 3) + 18.5
ø25	16.5	6	18	141	40	10	20	30	M8	4	6	5	35	30	30.7	(Stroke / 3) + 20.5
ø32	20	6	18	140	40	10	20	27	M8	4	3	5	31.5	35	37.7	(Stroke / 3) + 19
ø40	26	8	20	169	50	18	32	40	M12 × 1.5	5	3	6	40	35	46.7	(Stroke / 3) + 18.5
ø50	32	11	23	198	58	20	37	47	M16 × 1.5	7	3	8	46	40	57.7	(Stroke / 3.6) + 18.5
ø63	38	11	23	198	58	20	37	47	M16 × 1.5	7	3	10	46	40	71.7	(Stroke / 3.6) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

●Axial Foot Type (LB)

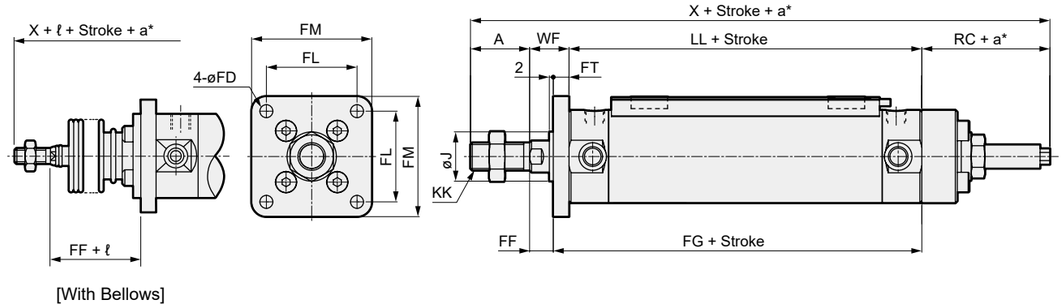


*a: Stroke adjustment range

Code	Axial Foot Type (LB) Mounting Dimensions																With Bellows
Bore Size (mm)	A	KK	X	LB	LC	LD	LE	LF	LH	LL	LR	LS	LT	LX	M	W	WF	RC	ℓ
ø20	18	M8	128.5	15.1	7.1	5.7	4	28.9	20	71	32	44	3.2	47.2	2.6	10	17	22.5	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	141	15.1	7.1	5.7	4	29.9	22	71	36	49	3.2	47.2	3.4	10	18	30	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	140	16.1	8.1	6.8	4	30.9	25	73	44	58	3.2	47.2	3.4	10	18	27	(Stroke / 3) + 19
ø40	30	M14 × 1.5	169	16.6	9.1	6.8	4	33.4	30	79	54	71	3.2	52.2	4	10	20	40	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	198	22	11	9	5	40.5	40	93	66	86	4.5	58	5	17.5	23	47	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	198	22	13	11	5	40.5	45	93	82	106	4.5	58	5	17.5	23	47	(Stroke / 3.6) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

●Rod Side Flange Type (FA)



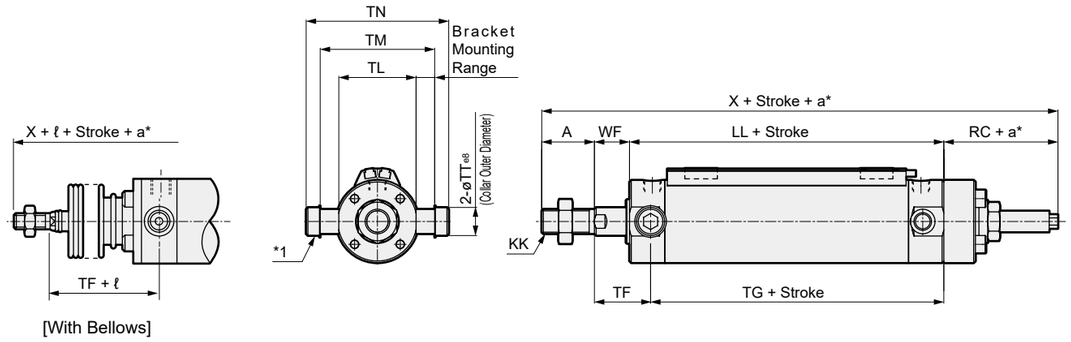
*a: Stroke adjustment range

Code	Rod Side Flange Type (FA) Mounting Dimensions												With Bellows
Bore Size (mm)	A	FD	FF	FG	FL	FM	FT	J	KK	LL	WF	X	RC	ℓ
ø20	18	5.5	11	79	28	40	6	12	M8	71	17	128.5	22.5	(Stroke / 3) + 18.5
ø25	22	5.5	11	80	32	44	7	14	M10 × 1.25	71	18	141	30	(Stroke / 3) + 20.5
ø32	22	6.6	11	82	38	53	7	18	M10 × 1.25	73	18	140	27	(Stroke / 3) + 19
ø40	30	6.6	12	89	46	61	8	25	M14 × 1.5	79	20	169	40	(Stroke / 3) + 18.5
ø50	35	9	14	104	58	76	9	30	M18 × 1.5	93	23	198	47	(Stroke / 3.6) + 18.5
ø63	35	11	14	104	70	92	9	32	M18 × 1.5	93	23	198	47	(Stroke / 3.6) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

●Rod side trunnion type (TA)



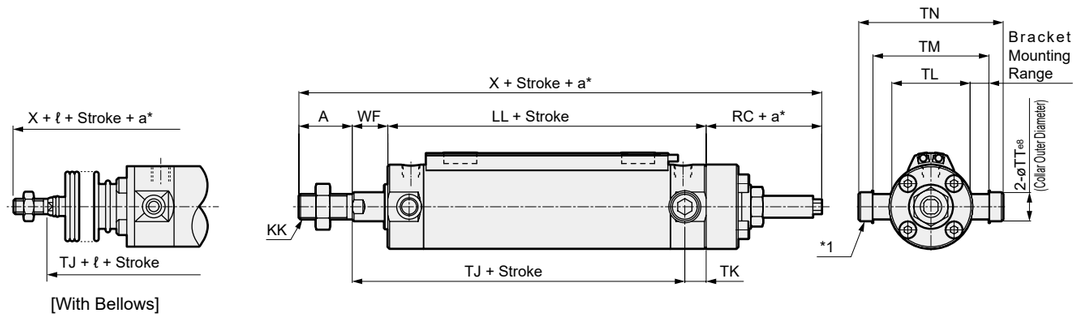
[With Bellows]

*a: Stroke adjustment range

Code	Rod Side Trunnion Type (TA) Mounting Dimensions												With Bellows
Bore Size (mm)	A	KK	LL	TF	TG	TL	TM	TN	TT	WF	X	RC	ℓ
ø20	18	M8	71	28	62	28	39	47.6	8	17	128.5	22.5	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	71	29	62	33	43	53	10	18	141	30	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	73	29	64	40	54.5	67.7	12	18	140	27	(Stroke / 3) + 19
ø40	30	M14 × 1.5	79	32	69	49	65.9	81.1	14	20	169	40	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	93	36	82	60	80	98.6	16	23	198	47	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	93	36	82	74	98	119.2	18	23	198	47	(Stroke / 3.6) + 18.5

*1: Consists of collar, flat washer, and hexagon socket head cap screw.
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

●Head Side Trunnion Type (TB)



[With Bellows]

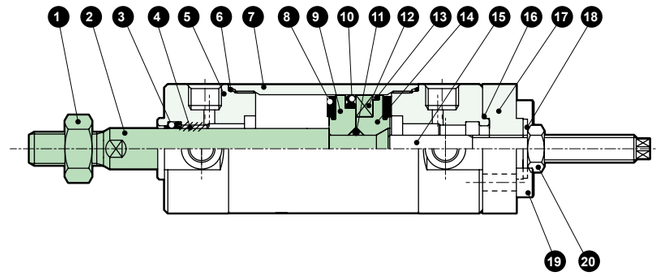
*a: Stroke adjustment range

Code	Head Side Trunnion Type (TB) Mounting Dimensions												With Bellows
Bore Size (mm)	A	KK	LL	TJ	TK	TL	TM	TN	TT	WF	X	RC	ℓ
ø20	18	M8	71	77	11	28	39	47.6	8	17	128.5	22.5	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	71	78	11	33	43	53	10	18	141	30	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	73	80	11	40	54.5	67.7	12	18	140	27	(Stroke / 3) + 19
ø40	30	M14 × 1.5	79	87	12	49	65.9	81.1	14	20	169	40	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	93	103	13	60	80	98.6	16	23	198	47	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	93	103	13	74	98	119.2	18	23	198	47	(Stroke / 3.6) + 18.5

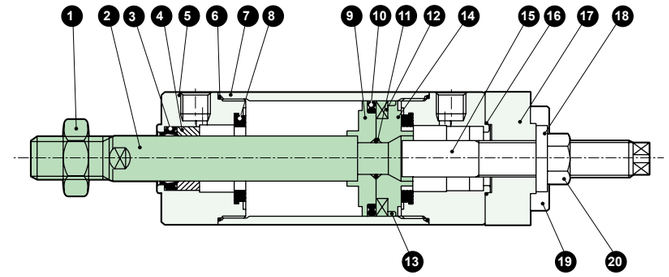
*1: Consists of collar, flat washer, and hexagon socket head cap screw.
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

Internal Structure Diagram / Material

●ø20 to ø40



●ø50 to ø100



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating	11	Piston Gasket	Nitrile Rubber	
2	Piston Rod	Steel	Industrial Hard Chrome Plating	12	Magnet	Plastic	
3	Rod Packing	Nitrile Rubber		13	Wear Ring	Polyacetal	
4	Bushing	Oil-Impregnated Bearing Alloy		14	Piston H	Aluminum Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized	15	Bolt	Steel	Zinc Chromate
6	Cylinder Gasket	Nitrile Rubber		16	Gasket	Nitrile Rubber	
7	Cylinder Tube	Aluminum Alloy	Hard Anodized	17	Cover	Steel	Zinc Chromate
8	Cushion Rubber	Urethane Rubber		18	Die Thread	Steel + Nitrile Rubber	
9	Piston R	Aluminum Alloy		19	Hexagon Socket Head Cap Screw	Alloy Steel	Black Oxide
10	Piston Packing	Nitrile Rubber		20	Hexagon Nut	Steel	Nickel Plating

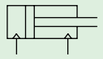
For maintenance parts, please visit the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts



Round shaped cylinder　Double Acting, Heat Resistant Type

SCM-T Series

●Bore Size: ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch　**SCM-T – LB – 40 – D – 100 – L – I**

Model No. / ❶ Mounting type / ❷ Bore size / ❸ Piping thread type / ❹ Cushion / ❺ Stroke / ❻ Option / ❼ Accessories

❶Mounting Type
Mounting brackets are included with the product for shipment.

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type (pin and retaining ring included) (ø20 to ø63)	
CB	Double Clevis Type (Pin and Retaining Ring Included) (ø80, ø100)	
TA	Rod Side Trunnion Type (ø20 to ø63)	
TB	Head Side Trunnion Type (ø20 to ø63)	

❷Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

❹Cushion

Code	Content
B	With Air Cushion on Both Sides (ø50 to ø100)
R	With Rod Side Air Cushion (ø50 to ø100)
H	With Head Side Air Cushion (ø50 to ø100)
D	With Rubber Cushion on Both Sides (ø20 to ø40)

❺Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20 to ø32	10 to 1000	Every 1 mm
ø40 to ø100	10 to 1500	

❻Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
L	Bellows	250°C	400°C	
M	Piston Rod Material (Stainless Steel)			

❼Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and retaining ring included)	
	B1	Single Bracket (ø80, ø100)	
	B2	Double Yoke Bracket (ø20 to ø63)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, see P. 474 to 477.

Code	Content
-XP5	Knuckle Pin/Clevis Pin Split Pin
-XP7	Knuckle fixed by pin driving
-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)

SCM – T –..... – XP5

Specifications

Item		SCM-T							
Bore size	mm	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting/Heat Resistant Type							
Operating Fluid		Compressed Air							
Max. Working Pressure	MPa	1.0							
Min. Operating Pressure	MPa	0.1				0.05			
Proof Pressure	MPa	1.6							
Ambient Temperature	°C	5 to 120							
Port Size		Rc1/8				Rc1/4		Rc3/8	Rc1/2
Stroke tolerance	mm	+1.8 (to 1000) 0			+1.8 (to 1500) 0	+1.4 (to 1000), +1.8 (to 1500) 0			
Operating Piston Speed	mm/s	30 to 1000 (Use within allowable absorption energy.)							
Cushion		Rubber Cushion				Air Cushion			
Lubrication	(*1)	Not Available							
Allowable absorbed energy J	With Rubber Cushion	0.1	0.2	0.5	0.9	-	-	-	-
	With Air Cushion	-	-	-	-	8.0	14.4	25.4	45.6
	Without Cushion (*2)	-	-	-	-	0.057	0.057	0.112	0.153

*1: Grease up regularly with heat-resistant grease.
*2: Without cushion for allowable absorbed energy indicates the allowable absorbed energy on the unindicated side when single side air cushion is selected ("R" -> head side, "H" -> rod side).
*3: Without a cushion, large energy generated by external load cannot be absorbed. Provide an external shock absorber.

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ø20	25, 50, 75, 50, 75, 100, 50, 75, 100	1,000	10
ø25			
ø32			
ø40		1500	
ø50			
ø63			
ø80			
ø100			

Note: Intermediate strokes can be produced in 1 mm increments.

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore	Product Weight at Stroke (S) = 0 mm					Added Weight
	Basic type	Axial Foot Type	Flange Type	Clevis Type	Trunnion Type	per S = 10 mm
ø20	0.10	0.21	0.13	0.15	0.11	0.010
ø25	0.17	0.30	0.21	0.25	0.19	0.014
ø32	0.25	0.41	0.31	0.40	0.28	0.018
ø40	0.40	0.62	0.48	0.63	0.45	0.030
ø50	0.75	1.23	1.09	1.15	0.89	0.044
ø63	1.05	1.77	1.55	1.73	1.19	0.052
ø80	2.02	2.98	2.73	2.73	–	0.070
ø100	3.14	4.89	4.49	4.42	–	0.098

(Example) Product Weight of SCM-T-LB-40-100

- Product Weight at S=0 mm ·····0.62 kg
- Added Weight at S=100 mm ····0.030 × $\frac{100}{10}$ = 0.30 kg
- Product Weight ·····0.62 kg+0.30 kg
- 0.92 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	–	31.4	47.1	62.8	94.2	1.26 × 10²	1.57 × 10²	1.88 × 10²	2.20 × 10²	2.51 × 10²	2.83 × 10²	3.14 × 10²
	Pull	–	26.4	39.6	52.8	79.2	1.06 × 10²	1.32 × 10²	1.58 × 10²	1.85 × 10²	2.11 × 10²	2.38 × 10²	2.64 × 10²
ø25	Push	–	49.1	73.6	98.2	1.47 × 10²	1.96 × 10²	2.45 × 10²	2.95 × 10²	3.44 × 10²	3.93 × 10²	4.42 × 10²	4.91 × 10²
	Pull	–	41.2	61.9	82.5	1.24 × 10²	1.65 × 10²	2.06 × 10²	2.47 × 10²	2.89 × 10²	3.30 × 10²	3.71 × 10²	4.12 × 10²
ø32	Push	–	80.4	1.21 × 10²	1.61 × 10²	2.41 × 10²	3.22 × 10²	4.02 × 10²	4.83 × 10²	5.63 × 10²	6.43 × 10²	7.24 × 10²	8.04 × 10²
	Pull	–	69.1	1.04 × 10²	1.38 × 10²	2.07 × 10²	2.76 × 10²	3.46 × 10²	4.15 × 10²	4.84 × 10²	5.53 × 10²	6.22 × 10²	6.91 × 10²
ø40	Push	–	1.26 × 10²	1.88 × 10²	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²	1.01 × 10³	1.13 × 10³	1.26 × 10³
	Pull	–	1.06 × 10²	1.58 × 10²	2.11 × 10²	3.17 × 10²	4.22 × 10²	5.28 × 10²	6.33 × 10²	7.39 × 10²	8.44 × 10²	9.50 × 10²	1.06 × 10³
ø50	Push	98.0	1.96 × 10²	2.95 × 10²	3.93 × 10²	5.89 × 10²	7.85 × 10²	9.82 × 10²	1.18 × 10³	1.37 × 10³	1.57 × 10³	1.77 × 10³	1.96 × 10³
	Pull	82.5	1.65 × 10²	2.47 × 10²	3.30 × 10²	4.95 × 10²	6.60 × 10²	8.25 × 10²	9.90 × 10²	1.15 × 10³	1.32 × 10³	1.48 × 10³	1.65 × 10³
ø63	Push	1.56 × 10²	3.12 × 10²	4.68 × 10²	6.23 × 10²	9.35 × 10²	1.25 × 10³	1.56 × 10³	1.87 × 10³	2.18 × 10³	2.49 × 10³	2.81 × 10³	3.12 × 10³
	Pull	2.40 × 10²	2.80 × 10²	4.20 × 10²	5.61 × 10²	8.41 × 10²	1.12 × 10³	1.40 × 10³	1.68 × 10³	1.96 × 10³	2.24 × 10³	2.52 × 10³	2.80 × 10³
ø80	Push	2.51 × 10²	5.03 × 10²	7.54 × 10²	1.01 × 10³	1.51 × 10³	2.01 × 10³	2.51 × 10³	3.02 × 10³	3.52 × 10³	4.02 × 10³	4.52 × 10³	5.03 × 10³
	Pull	2.27 × 10³	4.54 × 10²	6.80 × 10²	9.07 × 10²	1.36 × 10³	1.81 × 10³	2.27 × 10³	2.72 × 10³	3.17 × 10³	3.63 × 10³	4.08 × 10³	4.54 × 10³
ø100	Push	3.92 × 10³	7.85 × 10²	1.18 × 10³	1.57 × 10³	2.36 × 10³	3.14 × 10³	3.93 × 10³	4.71 × 10³	5.50 × 10³	6.28 × 10³	7.07 × 10³	7.85 × 10³
	Pull	3.57 × 10³	7.15 × 10²	1.07 × 10³	1.43 × 10³	2.14 × 10³	2.86 × 10³	3.57 × 10³	4.29 × 10³	5.00 × 10³	5.72 × 10³	6.43 × 10³	7.15 × 10³

Mounting Bracket Model No. Notation Method

Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63	SCM-LB-80	SCM-LB-100
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63	SCM-FA-80	SCM-FA-100
Single Clevis (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63	–	–
Double Clevis (CB)	–	–	–	–	–	–	SCM-CB-80	SCM-CB-100
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63	–	–

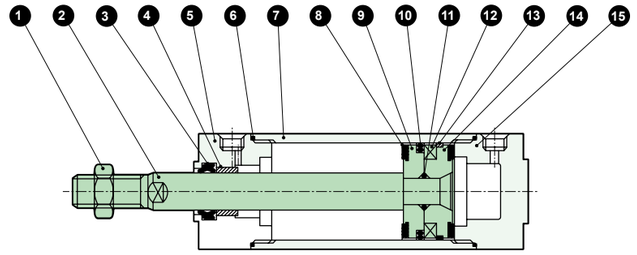
*1: Mounting bolts are included to each mounting bracket.
*2: Foot type mounting brackets (LB) and trunnion mounting brackets (TA/TB) are 2 pcs/set.

Outline Dimension Drawing

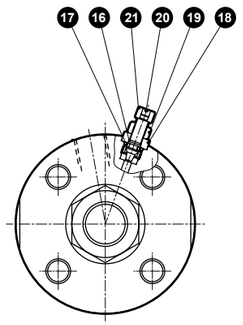
Same dimensions as standard single rod type. Refer to P. 328 to 334. However, please note that cylinder switch is not included.

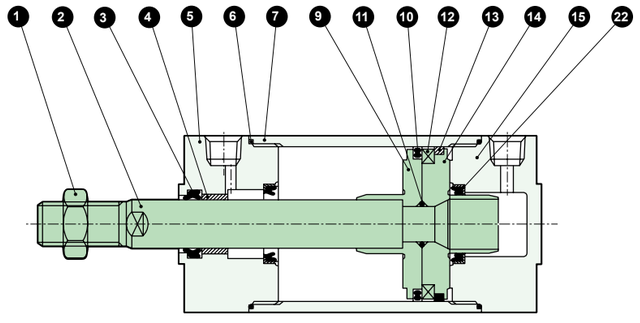
Internal Structure Diagram / Material

●ø20 to ø40 (with Rubber Cushion)



●ø50 to ø100 (with Air Cushion)





Part No.	Part Name	Material	Remarks	Part Number	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating	13	Wear Ring	Special Resin	
2	Piston Rod	ø20, ø25: Stainless Steel ø32 to ø100: Steel	Industrial Hard Chrome Plating	14	Piston H	Aluminum Alloy	
				15	Head Cover	Aluminum Alloy	Hard Anodized
3	Rod Packing	Fluoro Rubber		With Air Cushion			
4	Bushing	Oil-Impregnated Bearing Alloy		16	Needle Gasket	Fluoro Rubber	
5	Rod Cover	Aluminum Alloy	Hard Anodized	17	Holder Gasket	Fluoro Rubber	
6	Cylinder Gasket	Fluoro Rubber		18	Needle Holder	Aluminum Alloy	
7	Cylinder Tube	Aluminum Alloy	Hard Anodized	19	Lock Nut	Steel	Nickel Plating
8	Cushion Rubber	Fluoro Rubber		20	Needle	Stainless Steel	
9	Piston R	Aluminum Alloy		21	Knob	Aluminum Alloy	Chromate
10	Piston Packing	Fluoro Rubber		22	Cushion Packing	Fluororubber, Steel	
11	Piston Gasket	Fluoro Rubber					
12	Piston Ring	ø20 to ø32: Aluminum Alloy ø40 to ø100: Steel	ø40 to ø100: Zinc Chromate				

For maintenance parts, please visit the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts



Round shaped cylinder Double Acting, Drop Prevention Type

SCM-Q Series

●Bore size: ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol



RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

With Switch (Built-in magnet for switch)

	Model No.	❶ Mounting type	❷ Bore size	❸ Piping thread type	❹ Cushion	❺ Stroke	❻ Fall prevention mechanism	❼ Switch Model No.	❽ Number of Switches	❾ Switch Mounting Method	❿ Option	⓫ Accessories
Without Switch	SCM-Q	LB	40		B	100	R				Q	I
With Switch	SCM-Q	LB	40		B	100	R	T2H	D		Q	I

❶Mounting Type

Mounting brackets are included with the product for shipment.

	Code	Contents	
	00	Basic type	
*1	LB	Axial Foot Type	
	FA	Rod Side Flange Type	
	FB	Head Side Flange Type	
	CA	Single Clevis Type (pin and retaining ring included) (ø20 to ø63)	
	CB	Double Clevis Type (Pin and Retaining Ring Included) (ø80, ø100)	
*2	TA	Rod Side Trunnion Type (ø20 to ø63)	
*3	TB	Head Side Trunnion Type (ø20 to ø63)	

*1: For mounting style LB, mounting to a frame, etc. with the bracket included with the cylinder is not possible. For details, see Precautions for Use.
*2: Cannot be selected if rod side drop prevention is included.
*3: Cannot be selected if head side drop prevention is included.

❷Bore size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❹Cushion

Code	Content
B	With Air Cushion on Both Sides
R	With Air Cushion on Rod Side
H	With Air Cushion on Head Side

❸Piping thread type

Code	Content	
Blank	M5 (With Air Cushion ø20, ø25 only)	
	Rc Thread	
N	NPT Thread (Custom Order Product)	*1
G	G Thread (Custom Order Product)	*1

*1: ø20, ø25 cannot be selected.

❺Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20 to ø32	10 to 1000	Every 1 mm
ø40 to ø100	10 to 1500	

Note: For the number of switches to be mounted and minimum stroke, refer to P. 382.

❻Drop prevention mechanism

Code	Content	
R	With rod side fall prevention	
H	With head side fall prevention	

❼Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp / Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T5V□	T5V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color AC For Magnetic Field	2-wire	—	24 ± 10%	—	5 to 20	T5V□	–	
			—		—		T5V□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T5V□	T5V□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—		T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T5V□	T5V□	*3

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length" table.
*2: Max. load current as shown on the left: 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: T8H/V switches cannot be mounted when the bore size is ø20 to ø40 and switch mounting is the rail type.
*4: Switches other than those listed on the left are also available. (Custom order) For details, refer to 971.

***Lead wire length**

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❽Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❾Switch Mounting Method

Code	Content	
Blank	Rail Type	
Z	Band Type	

❿Option

Code	Content
Q	Shipped with Switch Rail Attached

Note: If switch mounting method "Z" is selected, "Q" (shipped with switch rail included) cannot be selected.

⓫Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and retaining ring included)	
	B1	Single Bracket (ø80, ø100)	
	B2	Double Yoke Bracket (ø20 to ø63)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, see P. 474 to 477.

Code	Contents
-XP5	Knuckle Pin/Clevis Pin Split Pin
-XP7	Knuckle fixed by pin driving
-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to End of Volume P. 11.

Model No. Example)
SCM – Q – ..... – XP5

Clean Specification

(Catalog No. CB-033SAA)

Dust prevention structure usable in cleanrooms

SCM – Q – ..... – P7*
SCM – Q – ..... – P5*

Rechargeable Battery Compatible Specification

(Catalog No. CC-1226AA)

●Structure usable in rechargeable battery manufacturing processes

SCM – Q – ..... – P4*

*Please contact us for details.

Switch Single Unit Model No. Notation Method

[Switch mounting: Rail Type]
Switch Body + Mounting Rail Set

SCM – T0H□ – D – 40 – 100
❼ Switch Model No. ❽ Number of Switches ❷ Bore size ❺ Stroke (*1)

[Switch mounting: Band Type
●Switch Body + Mounting Bracket Set + Band

SCM – T2H□ – 40 – Z
❼ Switch Model No. ❷ Bore size

[Switch Body Only]

SW – T0H□
❼ Switch Model No.

●Mounting Rail Only

SCM – T – 40 – 100
Mounting Rail ❷ Bore size ❺ Stroke (*1) (*2)

●Mounting Bracket Set + Band

SCM – Z – 40
❷ Bore size

*1: Indicate items with a stroke exceeding 300 mm as X. If exceeding 300 mm, one short rail (switch adjustment travel distance 100 mm) is included per switch.
*2: When indicating X for mounting rail only, order the same number of rails as the number of switches used.

Specifications

Item		SCM-Q							
Bore size	mm	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting, Drop Prevention Type							
Operating Fluid		Compressed Air							
Max. Working Pressure	MPa	1.0							
Min. Operating Pressure	MPa	0.15				0.1			
Proof Pressure	MPa	1.6							
Ambient Temperature	°C	–10 to 60 (Provided that freezing does not occur)							
Port Size		M5		Rc1/8		Rc1/4		Rc3/8	Rc1/2
Stroke tolerance	mm	+1.4 (to 1000) 0			+1.4 (to 1500) 0	+1.4 (to 1000), +1.8 (to 1500) 0			
Operating Piston Speed	mm/s	30 to 500 (Use within allowable absorbed energy.)							
Cushion		Air Cushion							
Effective air cushion length	mm	8.1	8.1	8.6	8.6	13.4	13.4	15.4	15.4
Lubrication		Not Required (When lubricating, use Turbine Oil ISO VG32)							
Fall prevention mechanism		Head Side or Rod Side							
Holding Force	N	Max. Thrust × 0.7							
Allowable absorbed energy	With Cushion	0.8	1.2	2.5	3.7	8.0	14.4	25.4	45.6
	Without Cushion	–	–	–	–	0.057	0.057	0.112	0.153

*1: Without cushion for allowable absorbed energy indicates the allowable absorbed energy on the unindicated side when single side air cushion is selected ("R" => head side, "H" => rod side).

*2: Without a cushion, large energy generated by external load cannot be absorbed. Provide an external shock absorber.

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke
ø20	25, 50, 75, 100, 125, 150, 200, 250, 300	1,000	10
ø25			
ø32			
ø40		1500	
ø50			
ø63			
ø80			
ø100			

Note: Intermediate strokes can be produced in 1 mm increments.

Number of Switches Mounted and Min. Stroke (mm)

●Switch Mounting Method Rail Type

Switch Model No.	Solid State						Reed	
	T2, T3		T2W, T3W		T□Y□			
Number of Switches / Bore size (mm)	1	2	1	2	1	2	1	2
ø20	10	25	10	25	10	25	10	25
ø25	10	25	10	25	10	25	10	25
ø32	10	25	10	25	10	25	10	25
ø40	10	25	10	25	10	25	10	25
ø50	10	25	10	25	10	25	10	25
ø63	10	25	10	25	10	25	10	25
ø80	10	25	10	25	10	25	10	25
ø100	10	25	10	25	10	25	10	25

●Switch Mounting Method Band Type

Switch Model No.	Solid State						Reed	
	T2, T3		T2W, T3W		T□Y□			
Number of Switches / Bore size (mm)	1	2	1	2	1	2	1	2
ø20	10	25	10	30	10	35	10	25
ø25	10	25	10	30	10	35	10	25
ø32	10	25	10	30	10	35	10	25
ø40	10	25	10	30	10	35	10	25
ø50	10	25	10	30	10	35	10	25
ø63	10	25	10	30	10	35	10	25
ø80	10	25	10	30	10	35	10	25
ø100	10	25	10	30	10	35	10	25

Note: For products with 1 switch and stroke of 10 mm or more but less than 25 mm, the switch rail mounting position changes, and trunnion type mounting cannot be produced. For mounting position, see P. 468 to 473.

Cylinder Weight

With Rod Side Drop Prevention (R)

(Unit: kg)

Item/Mounting Style / Bore size (mm)	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S=10 mm (with Rail)	Weight of Band per Switch
	Basic type	Axial Foot Type	Flange Type	Clevis Type	Trunnion Type				
ø20	0.15	0.26	0.18	0.20	0.16	Refer to the weight listed in the switch specifications on P. 971.	0.010	0.012	0.007
ø25	0.24	0.37	0.28	0.32	0.26		0.014	0.016	0.007
ø32	0.32	0.48	0.38	0.47	0.35		0.018	0.020	0.007
ø40	0.64	0.86	0.72	0.87	0.69		0.030	0.032	0.007
ø50	1.09	1.57	1.43	1.49	1.23		0.044	0.046	0.008
ø63	1.49	2.21	1.99	2.17	1.63		0.052	0.054	0.009
ø80	2.67	3.63	3.38	3.38	–		0.070	0.072	0.010
ø100	4.15	5.90	5.50	5.43	–		0.098	0.100	0.010

With Head Side Drop Prevention (H)

(Unit: kg)

Item/Mounting Style / Bore size (mm)	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S=10 mm (with Rail)	Weight of Band per Switch
	Basic type	Axial Foot Type	Flange Type	Clevis Type	Trunnion Type				
ø20	0.15	0.26	0.18	0.20	0.16	Refer to the weight listed in the switch specifications on P. 971.	0.010	0.012	0.007
ø25	0.24	0.37	0.28	0.32	0.26		0.014	0.016	0.007
ø32	0.35	0.51	0.41	0.50	0.38		0.018	0.020	0.007
ø40	0.69	0.91	0.77	0.92	0.74		0.030	0.032	0.007
ø50	1.19	1.67	1.53	1.59	1.33		0.044	0.046	0.008
ø63	1.60	2.32	2.10	2.28	1.74		0.052	0.054	0.009
ø80	2.86	3.82	3.57	3.57	–		0.070	0.072	0.010
ø100	4.30	6.05	5.65	5.58	–		0.098	0.100	0.010

(Example) Product Weight of SCM-Q-LB-40B-100-R-T2H-D
- Product Weight at S=0 mm ····· 0.86 kg
- Added Weight at S=100 mm ····· $0.032 \times \frac{100}{10} = 0.32$ kg
- Weight of 2 switches ····· 0.036 kg
- Product Weight ····· 0.86 kg+0.32 kg+0.036 kg=1.216 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	-	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	-	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push	-	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	-	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push	-	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	-	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	-	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	-	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3	6.28×10^3	7.07×10^3	7.85×10^3
	Pull	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

⚠ Before use, be sure to read "Precautions for Use" 3. Drop Prevention Type SCM-Q section (P. 478, 481).

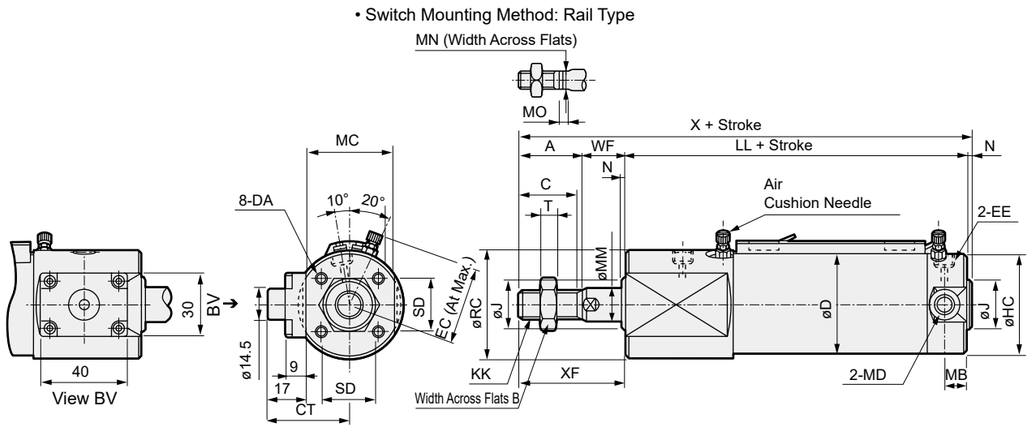
Mounting Bracket Model No. Notation Method

Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63	SCM-LB-80	SCM-LB-100
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63	SCM-FA-80	SCM-FA-100
Single Clevis (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63	———	———
Double Clevis (CB)	———	———	———	———	———	———	SCM-CB-80	SCM-CB-100
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63	———	———

*1: Mounting bolts are included to each mounting bracket.
*2: Foot type mounting brackets (LB) and trunnion mounting brackets (TA/TB) are 2 pcs/set.

Outer Dimensions Diagram (ø20 to ø32)

●Basic Type (OO)
(With rod side fall prevention)



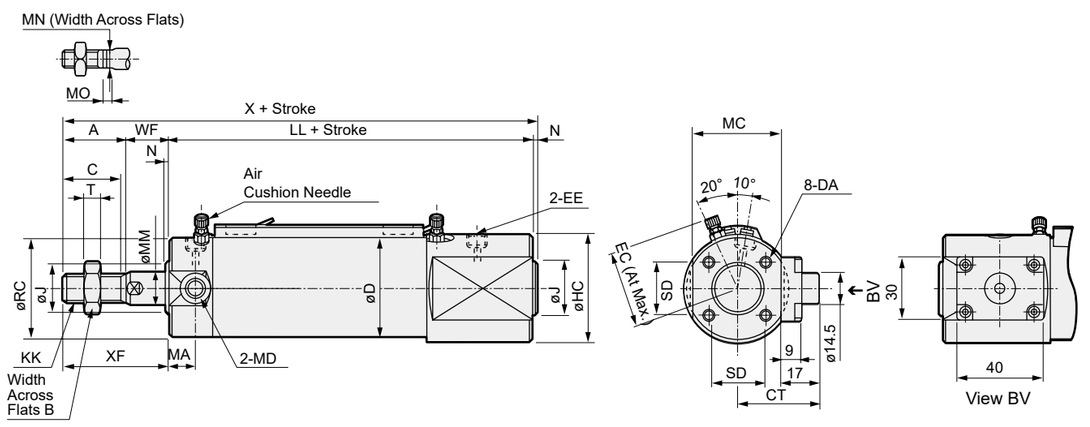
Code	Basic Type (OO) (With Rod Side Drop Prevention) Basic Dimensions														
Bore size (mm)	A	B	C	CD	CH	CL	CS	CT	D	DA	EC	EE	Eθ	HC	J
ø20	18	13	16	16	15.5	22	9.5	28	26	M4 Depth 6.5	27	M5	30°	26	12
ø25	22	17	20	16	15.5	22	9.5	31	31	M5 Depth 6.5	29.5	M5	30°	31	14
ø32	22	17	20	16	15.5	22	9.5	31.5	38	M5 Depth 7.5	32.8	Rc1/8	25°	38	18

Code														
Bore size (mm)	KK	LL	MB	MC	MD	MM	MO	MN	N	RC	SD	T	WF	X	XF
ø20	M8	84	11	25	M5	8	4	6	2	30	14	5	17	121	35
ø25	M10 × 1.25	84	11	31	M6	10	5	8	2	35	16.5	6	18	126	40
ø32	M10 × 1.25	86	10	32	M8	12	5.5	10	2	38	20	6	18	128	40

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outer Dimensions Diagram (ø20 to ø32)

●Basic Type (OO)
(With head side fall prevention)



Code	Basic Type (OO) (With Head Side Drop Prevention) Basic Dimensions													
Bore size (mm)	A	B	C	CD	CH	CL	CS	CT	D	DA	EC	EE	Eθ	HC
ø20	18	13	16	16	15.5	22	9.5	28	26	M4 Depth 6.5	27	M5	30°	30
ø25	22	17	20	16	15.5	22	9.5	31	31	M5 Depth 6.5	29.5	M5	30°	35
ø32	22	17	20	16	15.5	22	9.5	31.5	38	M5 Depth 7.5	32.8	Rc1/8	25°	38

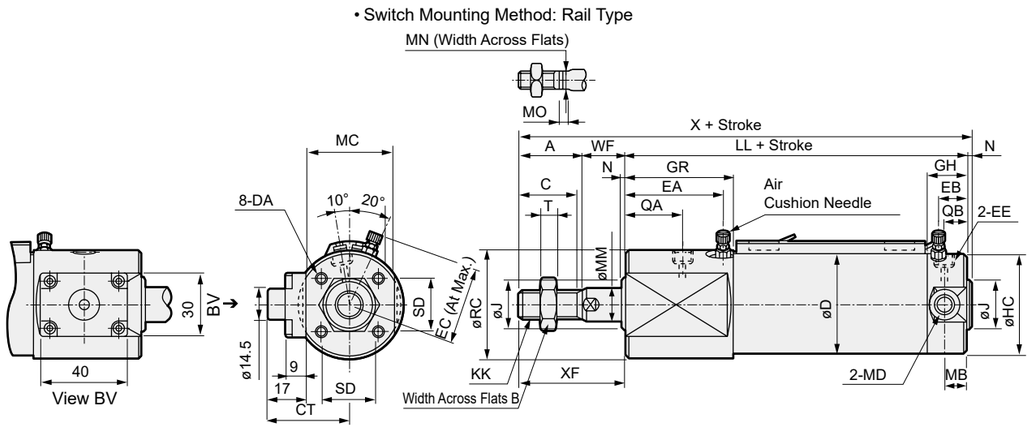
Code															
Bore size (mm)	J	KK	LL	MC	MD	MM	MO	MN	N	RC	SD	T	WF	X	XF
ø20	12	M8	84	25	M5	8	4	6	2	26	14	5	17	121	35
ø25	14	M10 × 1.25	84	31	M6	10	5	8	2	31	16.5	6	18	126	40
ø32	18	M10 × 1.25	86	32	M8	12	5.5	10	2	38	20	6	18	128	40

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outer Dimensions Diagram (ø40 to ø100)

●Basic Type (OO)
(With rod side fall prevention)

• Switch Mounting Method: Rail Type



Code	Basic Type (OO) (With Rod Side Drop Prevention) Basic Dimensions														
Bore size (mm)	A	B	C	CT	D	DA	EA	EB	EC	EE	GH	GR	HC	J	KK
ø40	30	22	27	37.5	47	M6 Depth 12	45	14	36.6	Rc1/8	19	50	47	25	M14 × 1.5
ø50	35	27	32	43.5	58	M8 Depth 16	48.5	15.5	43	Rc1/4	22	55	58	30	M18 × 1.5
ø63	35	27	32	49.5	72	M10 Depth 16	48.5	15.5	50	Rc1/4	22	55	72	32	M18 × 1.5
ø80	40	32	37	57.5	89	M10 Depth 22	50	20	58.5	Rc3/8	28	58	89	40	M22 × 1.5
ø100	40	41	37	68.5	110	M12 Depth 22	50	20	69	Rc1/2	28	58	110	50	M26 × 1.5

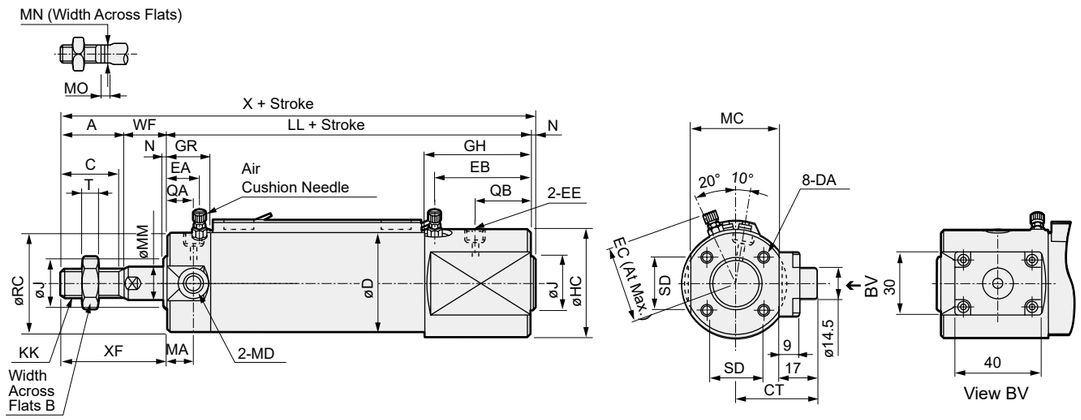
Code																
Bore size (mm)	LL	MB	MC	MD	MM	MO	MN	N	QA	QB	RC	SD	T	WF	X	XF
ø40	108	10	41	M10	16	6	14	2	26.5	12	51	26	8	20	160	50
ø50	120	12	53	M12	20	8	17	2	30	12	61	32	11	23	180	58
ø63	120	12	65	M14	20	8	17	2	30	12	72	38	11	23	180	58
ø80	138	–	81	–	25	11	22	3	31.5	15	89	50	13	31	212	71
ø100	138	–	103	–	30	13	27	3	31.5	15	110	60	16	31	212	71

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outer Dimensions Diagram (ø40 to ø100)

●Basic Type (OO)
(With head side fall prevention)

• Switch Mounting Method: Rail Type



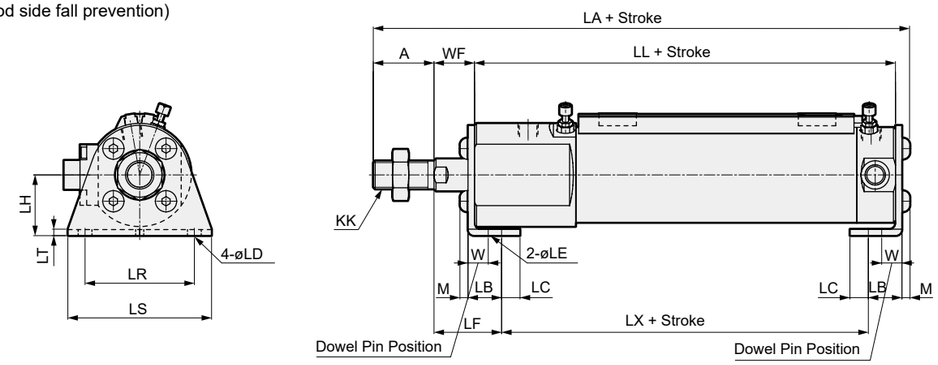
Code	Basic Type (OO) (With Head Side Drop Prevention) Basic Dimensions														
Bore size (mm)	A	B	C	CT	D	DA	EA	EB	EC	EE	GH	GR	HC	J	KK
ø40	30	22	27	37.5	47	M6 Depth 12	15	44	36.6	Rc1/8	49	20	51	25	M14 × 1.5
ø50	35	27	32	43.5	58	M8 Depth 16	18.5	45.5	43	Rc1/4	52	25	61	30	M18 × 1.5
ø63	35	27	32	49.5	72	M10 Depth 16	18.5	45.5	50	Rc1/4	52	25	72	32	M18 × 1.5
ø80	40	32	37	57.5	89	M10 Depth 22	20	50	58.5	Rc3/8	58	28	89	40	M22 × 1.5
ø100	40	41	37	68.5	110	M12 Depth 22	20	50	69	Rc1/2	58	28	110	50	M26 × 1.5

Code																
Bore size (mm)	LL	MA	MC	MD	MM	MO	MN	N	QA	QB	RC	SD	T	WF	X	XF
ø40	108	12	41	M10	16	6	14	2	13	25.5	47	26	8	20	160	50
ø50	120	13	53	M12	20	8	17	2	15	27	58	32	11	23	180	58
ø63	120	13	65	M14	20	8	17	2	15	27	72	38	11	23	180	58
ø80	138	–	81	–	25	11	22	3	15	31.5	89	50	13	31	212	71
ø100	138	–	103	–	30	13	27	3	15	31.5	110	60	16	31	212	71

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outer Dimensions Diagram (Bore size: ø20 to ø100)

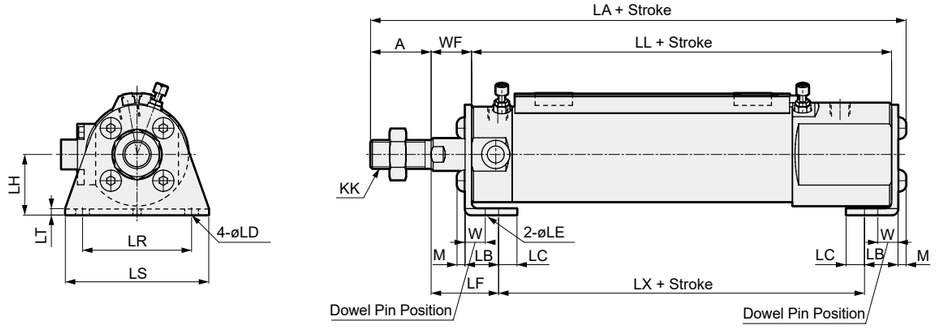
●Axial Foot Type (LB)
(With rod side fall prevention)



Code	Axial Foot Type (LB) Mounting Dimensions																
Bore size (mm)	A	KK	LA	LB	LC	LD	LE	LF	LH	LL	LR	LS	LT	LX	M	W	WF
20	18	M8	124.8	15.1	7.1	5.7	4	28.9	20	84	32	44	3.2	60.2	2.6	10	17
25	22	M10 × 1.25	130.6	15.1	7.1	5.7	4	29.9	22	84	36	49	3.2	60.2	3.4	10	18
32	22	M10 × 1.25	132.6	16.1	8.1	6.8	4	30.9	25	86	44	58	3.2	60.2	3.4	10	18
40	30	M14 × 1.5	165.2	16.6	9.1	6.8	4	33.4	30	108	54	71	3.2	81.2	4	10	20
50	35	M18 × 1.5	187.5	22	11	9	5	40.5	40	120	66	86	4.5	85	5	17.5	23
63	35	M18 × 1.5	187.5	22	13	11	5	40.5	45	120	82	106	4.5	85	5	17.5	23
80	40	M22 × 1.5	219.5	28.5	14	11	6	55	55	138	100	125	4.5	90	6	20	31
100	40	M26 × 1.5	222	30	16	14	6	55	65	138	120	150	6	90	7	20	31

*1: Mounting style: For LB, the cylinder cannot be mounted on the frame if a bracket is already attached to the cylinder. For details, see Precautions for Use.
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

●Axial Foot Type (LB)
(With head side fall prevention)

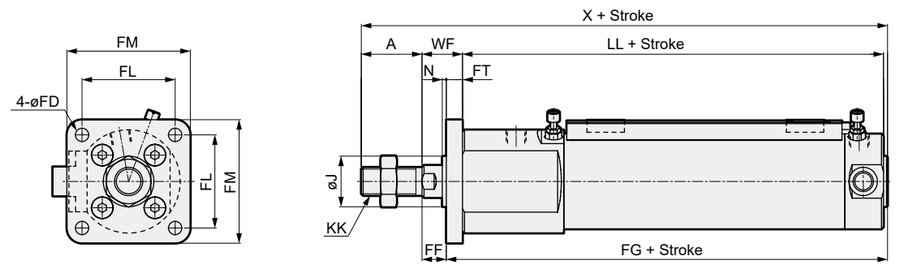


Code	Axial Foot Type (LB) Mounting Dimensions																
Bore size (mm)	A	KK	LA	LB	LC	LD	LE	LF	LH	LL	LR	LS	LT	LX	M	W	WF
20	18	M8	124.8	15.1	7.1	5.7	4	28.9	20	84	32	44	3.2	60.2	2.6	10	17
25	22	M10 × 1.25	130.6	15.1	7.1	5.7	4	29.9	22	84	36	49	3.2	60.2	3.4	10	18
32	22	M10 × 1.25	132.6	16.1	8.1	6.8	4	30.9	25	86	44	58	3.2	60.2	3.4	10	18
40	30	M14 × 1.5	165.2	16.6	9.1	6.8	4	33.4	30	108	54	71	3.2	81.2	4	10	20
50	35	M18 × 1.5	187.5	22	11	9	5	40.5	40	120	66	86	4.5	85	5	17.5	23
63	35	M18 × 1.5	187.5	22	13	11	5	40.5	45	120	82	106	4.5	85	5	17.5	23
80	40	M22 × 1.5	219.5	28.5	14	11	6	55	55	138	100	125	4.5	90	6	20	31
100	40	M26 × 1.5	222	30	16	14	6	55	65	138	120	150	6	90	7	20	31

*1: Mounting style: For LB, the cylinder cannot be mounted on the frame if a bracket is already attached to the cylinder. For details, see Precautions for Use.
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

Outer Dimensions Diagram (Bore size: ø20 to ø100)

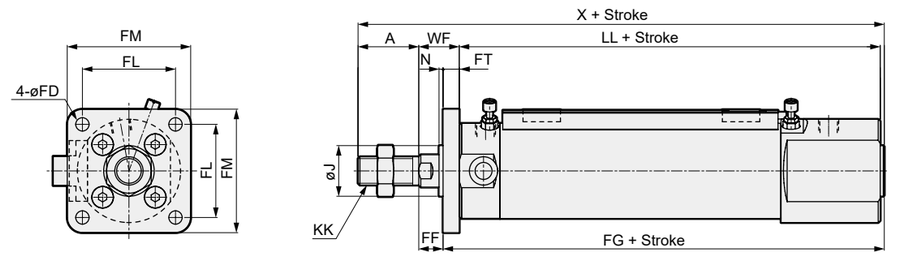
●Rod Side Flange Type (FA)
(With rod side fall prevention)



Code	Rod Side Flange Type (FA) Mounting Dimensions												
Bore size (mm)	A	FD	FF	FG	FL	FM	FT	J	KK	LL	N	WF	X
20	18	5.5	11	92	28	40	6	12	M8	84	2	17	121
25	22	5.5	11	93	32	44	7	14	M10 × 1.25	84	2	18	126
32	22	6.6	11	95	38	53	7	18	M10 × 1.25	86	2	18	128
40	30	6.6	12	118	46	61	8	25	M14 × 1.5	108	2	20	160
50	35	9	14	131	58	76	9	30	M18 × 1.5	120	2	23	180
63	35	11	14	131	70	92	9	32	M18 × 1.5	120	2	23	180
80	40	11	20	152	82	104	11	40	M22 × 1.5	138	3	31	212
100	40	13	17	155	100	128	14	50	M26 × 1.5	138	3	31	212

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

●Rod Side Flange Type (FA)
(With head side fall prevention)

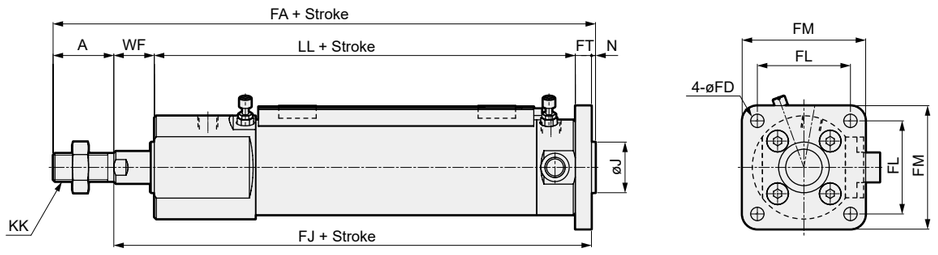


Code	Rod Side Flange Type (FA) Mounting Dimensions												
Bore size (mm)	A	FD	FF	FG	FL	FM	FT	J	KK	LL	N	WF	X
20	18	5.5	11	92	28	40	6	12	M8	84	2	17	121
25	22	5.5	11	93	32	44	7	14	M10 × 1.25	84	2	18	126
32	22	6.6	11	95	38	53	7	18	M10 × 1.25	86	2	18	128
40	30	6.6	12	118	46	61	8	25	M14 × 1.5	108	2	20	160
50	35	9	14	131	58	76	9	30	M18 × 1.5	120	2	23	180
63	35	11	14	131	70	92	9	32	M18 × 1.5	120	2	23	180
80	40	11	20	152	82	104	11	40	M22 × 1.5	138	3	31	212
100	40	13	17	155	100	128	14	50	M26 × 1.5	138	3	31	212

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outer Dimensions Diagram (Bore size: ø20 to ø100)

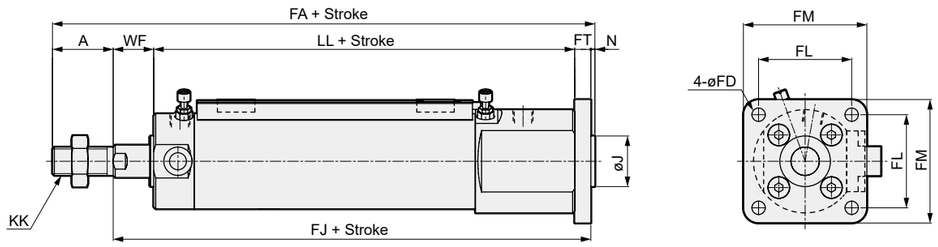
●Head Side Flange Type (FB)
(With rod side fall prevention)



Code	Head Side Flange Type (FB) Mounting Dimensions											
Bore size (mm)	A	FA	FD	FJ	FL	FM	FT	J	KK	LL	N	WF
20	18	127	5.5	107	28	40	6	12	M8	84	2	17
25	22	133	5.5	109	32	44	7	14	M10 × 1.25	84	2	18
32	22	135	6.6	111	38	53	7	18	M10 × 1.25	86	2	18
40	30	168	6.6	136	46	61	8	25	M14 × 1.5	108	2	20
50	35	189	9	152	58	76	9	30	M18 × 1.5	120	2	23
63	35	189	11	152	70	92	9	32	M18 × 1.5	120	2	23
80	40	223	11	180	82	104	11	40	M22 × 1.5	138	3	31
100	40	226	13	183	100	128	14	50	M26 × 1.5	138	3	31

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

●Head Side Flange Type (FB)
(With head side fall prevention)

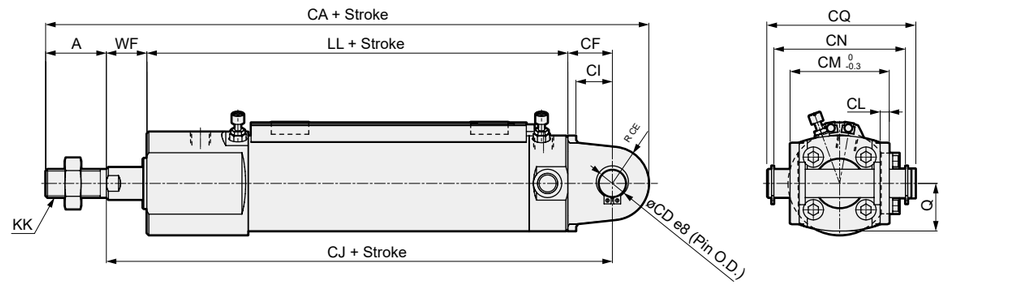


Code	Head Side Flange Type (FB) Mounting Dimensions											
Bore size (mm)	A	FA	FD	FJ	FL	FM	FT	J	KK	LL	N	WF
20	18	127	5.5	107	28	40	6	12	M8	84	2	17
25	22	133	5.5	109	32	44	7	14	M10 × 1.25	84	2	18
32	22	135	6.6	111	38	53	7	18	M10 × 1.25	86	2	18
40	30	168	6.6	136	46	61	8	25	M14 × 1.5	108	2	20
50	35	189	9	152	58	76	9	30	M18 × 1.5	120	2	23
63	35	189	11	152	70	92	9	32	M18 × 1.5	120	2	23
80	40	223	11	180	82	104	11	40	M22 × 1.5	138	3	31
100	40	226	13	183	100	128	14	50	M26 × 1.5	138	3	31

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outer Dimensions Diagram (Bore size: ø20 to ø63)

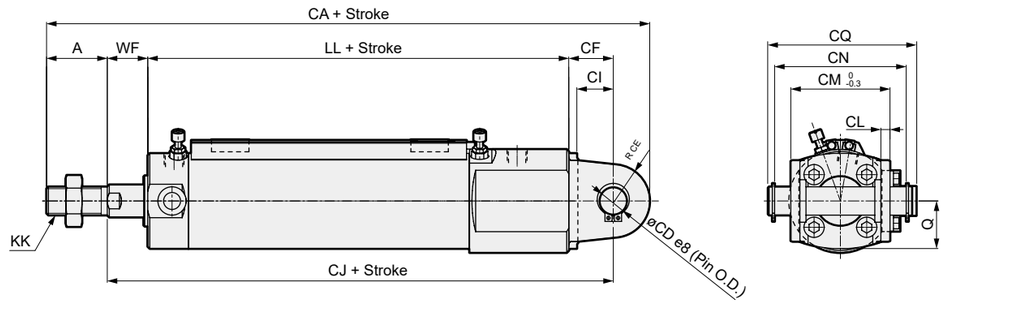
●Single Clevis Type (CA)
(With rod side fall prevention)



Code	Single Clevis Type (CA) Mounting Dimensions														
Bore size (mm)	A	CA	CD	CE	CF	CI	CJ	CL	CM	CN	CQ	KK	LL	Q	WF
ø20	18	144	8	11	14	10.8	115	3.2	29	38.6	43.4	M8	84	13	17
ø25	22	153	10	13	16	12.8	118	3.2	33	42.6	48	M10 × 1.25	84	15.5	18
ø32	22	160.5	12	15	19.5	15.5	123.5	4.5	40	54	59.4	M10 × 1.25	86	19	18
ø40	30	197.5	14	18	21.5	17.5	149.5	4.5	49	65	71.4	M14 × 1.5	108	23.5	20
ø50	35	222.5	16	20	24.5	19	167.5	6	60	79.6	86	M18 × 1.5	120	29	23
ø63	35	229.5	18	22	29.5	22	172.5	8	74	97.8	105.4	M18 × 1.5	120	36	23

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

●Single Clevis Type (CA)
(With head side fall prevention)

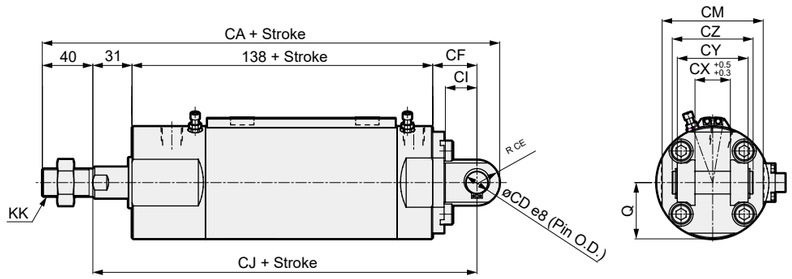


Code	Single Clevis Type (CA) Mounting Dimensions														
Bore size (mm)	A	CA	CD	CE	CF	CI	CJ	CL	CM	CN	CQ	KK	LL	Q	WF
ø20	18	144	8	11	14	10.8	115	3.2	29	38.6	43.4	M8	84	13	17
ø25	22	153	10	13	16	12.8	118	3.2	33	42.6	48	M10 × 1.25	84	15.5	18
ø32	22	160.5	12	15	19.5	15.5	123.5	4.5	40	54	59.4	M10 × 1.25	86	19	18
ø40	30	197.5	14	18	21.5	17.5	149.5	4.5	49	65	71.4	M14 × 1.5	108	23.5	20
ø50	35	222.5	16	20	24.5	19	167.5	6	60	79.6	86	M18 × 1.5	120	29	23
ø63	35	229.5	18	22	29.5	22	172.5	8	74	97.8	105.4	M18 × 1.5	120	36	23

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outer Dimensions Diagram (Bore size: ø80 to ø100)

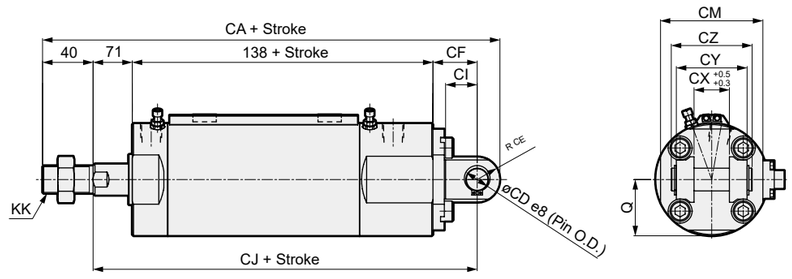
●Double clevis type (CB)
(With rod side fall prevention)



Code	Double Clevis Type (CB) Mounting Dimensions											
Bore size (mm)	CA	CD	CE	CF	CI	CJ	CM	CX	CY	CZ	KK	Q
ø80	262	18	18	35	25	204	80	28	56	64	M22 × 1.5	44.5
ø100	274	22	22	43	31	212	100	32	64	72	M26 × 1.5	55

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

●Double clevis type (CB)
(With head side fall prevention)

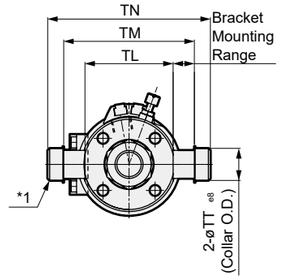


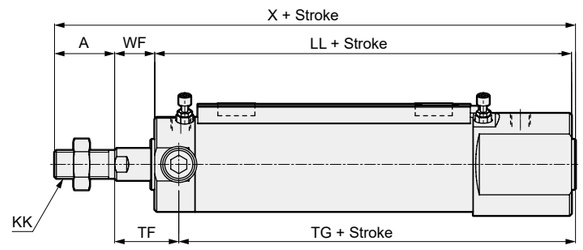
Code	Double Clevis Type (CB) Mounting Dimensions											
Bore size (mm)	CA	CD	CE	CF	CI	CJ	CM	CX	CY	CZ	KK	Q
ø80	262	18	18	35	25	204	80	28	56	64	M22 × 1.5	44.5
ø100	274	22	22	43	31	212	100	32	64	72	M26 × 1.5	55

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outer Dimensions Diagram (Bore size: ø20 to ø63)

●Rod side trunnion type (TA)
(With head side fall prevention)

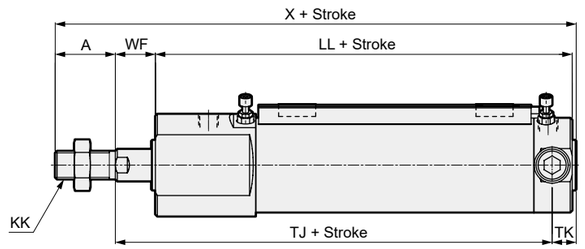


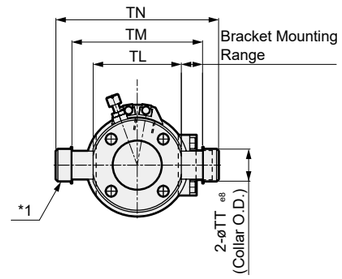


Code	Rod Side Trunnion Type (TA) Mounting Dimensions										
Bore size (mm)	A	KK	LL	TF	TG	TL	TM	TN	TT	WF	X
ø20	18	M8	84	28	75	28	39	47.6	8	17	121
ø25	22	M10 × 1.25	84	29	75	33	43	53	10	18	126
ø32	22	M10 × 1.25	86	29	77	40	54.5	67.7	12	18	128
ø40	30	M14 × 1.5	108	32	98	49	65.9	81.1	14	20	160
ø50	35	M18 × 1.5	120	36	109	60	80	98.6	16	23	180
ø63	35	M18 × 1.5	120	36	109	74	98	119.2	18	23	180

***1: Consists of collar, flat washer, and hexagon socket head cap screw.**
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

●Head Side Trunnion Type (TB)
(With rod side fall prevention)



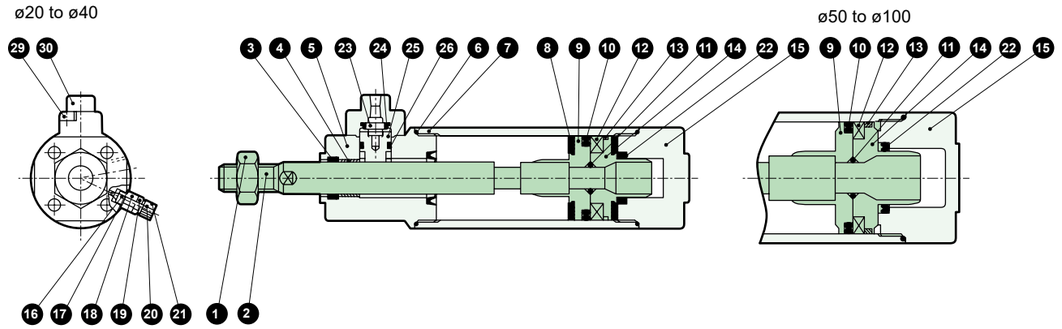


Code	Head Side Trunnion Type (TB) Mounting Dimensions										
Bore size (mm)	A	KK	LL	TJ	TK	TL	TM	TN	TT	WF	X
ø20	18	M8	84	90	13	28	39	47.6	8	17	121
ø25	22	M10 × 1.25	84	91	13	33	43	53	10	18	126
ø32	22	M10 × 1.25	86	94	12	40	54.5	67.7	12	18	128
ø40	30	M14 × 1.5	108	118	12	49	65.9	81.1	14	20	160
ø50	35	M18 × 1.5	120	131	14	60	80	98.6	16	23	180
ø63	35	M18 × 1.5	120	131	14	74	98	119.2	18	23	180

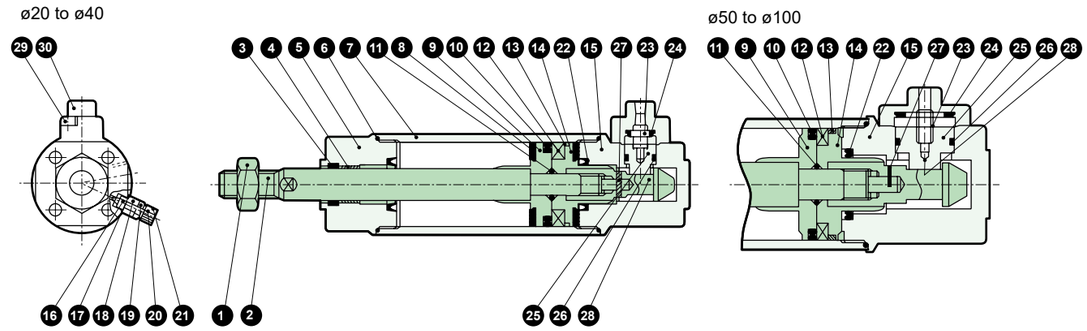
***1: Consists of collar, flat washer, and hexagon socket head cap screw.**
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

Internal Structure Diagram / Material

SCM-Q (Rod Side Drop Prevention)



SCM-Q (Head Side Drop Prevention)



Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating
2	Piston Rod	ø20, ø25: Stainless Steel ø32 to ø100: Steel	Industrial Hard Chrome Plating
3	Rod Packing	Nitrile Rubber	
4	Bushing	Oil-Impregnated Bearing Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized
6	Cylinder Gasket	Nitrile Rubber	
7	Cylinder Tube	Aluminum Alloy	Hard Anodized
8	Cushion Rubber	Urethane Rubber	
9	Piston R	Aluminum Alloy	
10	Piston Packing	Nitrile Rubber	
11	Piston Gasket	Nitrile Rubber	
12	Magnet	Plastic	
13	Wear Ring	Polyacetal	
14	Piston H	Aluminum Alloy	
15	Head Cover	Aluminum Alloy	Hard Anodized

Part No.	Part Name	Material	Remarks
16	Needle Gasket	Nitrile Rubber	
17	Holder Gasket	Nitrile Rubber	
18	Needle Holder	Aluminum Alloy	
19	Lock Nut	Steel	Nickel Plating
20	Needle	Stainless Steel	
21	Knob	Aluminum Alloy	Chromate
22	Cushion Packing	Nitrile Rubber, Steel	
23	Coil Spring	Piano Wire	Electrodeposition Coating
24	Cushion Rubber (R)	Urethane Rubber	
25	Stopper Piston	Steel	Nitriding Treatment
26	Piston Packing (B)	Nitrile Rubber	
27	Spring Pin	Steel	
28	Sleeve	Steel	Nitriding Treatment
29	Hexagon Socket Head Cap Screw	Alloy Steel	Black Oxide
30	Stopper Cover	Aluminum Alloy	Chromate

For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

MEMO



Round shaped cylinder Double Acting, Ultra Low Speed Type

SCM-F Series

●Bore size: ø20, ø25, ø32, ø40

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

SCM-F – LB – 40 – [3] D – 100 – [4] – M [8] I [9]

Model No.

With Switch (Built-in magnet for switch)

SCM-F – LB – 40 – [3] D – 100 – T2H – D – Z – M – I

Model No.

1	2	3	D	4	5	6	7	8	9
Mounting type	Bore size	Piping thread type	With Rubber Cushion on Both Sides	Stroke	Switch Model No.	Number of Switches	Switch Mounting Method	Option	Accessories

1 Mounting Type

Mounting brackets are included with the product for shipment.

Code	Contents	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type (pin and retaining ring included)	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

2 Bore size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40

3 Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

4 Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20 to ø40	10 to 500	Every 1 mm

Note: For the number of switches to be mounted and minimum stroke, refer to P. 398.

5 Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp / Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T5V□	T5V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Water Resistance Improved	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	*3
	2-Color AC For Magnetic Field		—	24 ± 10%	—		T5V□	–	
			—		—		T5V□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T5V□	T5V□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—		T2HR3	T2VR3	 *6
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T5V□	T5V□	 *4

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: Max. load current as shown on the left: 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: T8H/V switches cannot be mounted when the switch mounting type is the rail type.
*5: Switches other than those listed on the left are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*6: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

6 Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

7 Switch Mounting Method

Code	Content	
Blank	Rail Type	
Z	Band Type	

8 Option

Code	Content
Q	Shipped with Switch Rail Attached
M	Piston Rod Material (Stainless Steel)

*1: 7 If switch mounting style "Z" is selected, the "Switch rail shipped attached" option ("Q") cannot be selected.

9 Accessories

Code	Content	
*1 I	Single Knuckle	
*1 Y	Double Knuckle	
B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, see P. 474 to 477.

Code	Contents
-XP5	Knuckle Pin/Clevis Pin Split Pin
-XP7	Knuckle fixed by pin driving
-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to End of Volume P. 11.

Model No. Example)

SCM – F – ..... – XP5

Switch Single Unit Model No. Notation Method

[Switch mounting: Rail Type]
Switch Body + Mounting Rail Set

SCM – T0H□ – D – 40 – 100

5	6	2	4
Switch Model No.	Switch Number	Bore size	Stroke (*1)

[Switch mounting: Band Type
●Switch Body + Mounting Bracket Set + Band

SCM – T2H□ – 40 – Z

5	2
Switch Model No.	Bore size

[Switch Body Only]

SW – T0H□

5 Switch Model No.

●Mounting Rail Only

SCM – T – 40 – 100

Mounting Rail	2	4
	Bore size	Stroke (*1) (*2)

●Mounting Bracket Set + Band

SCM – Z – 40

2 Bore size

*1: Indicate items with a stroke exceeding 300 mm as X. If exceeding 300 mm, one short rail (switch adjustment travel distance 100 mm) is included per switch.
*2: When indicating X for mounting rail only, order the same number of rails as the number of switches used.

Specifications

Item		SCM			
Bore size	mm	ø20	ø25	ø32	ø40
Actuation method		Double Acting/Fine Speed Type			
Operating Fluid		Compressed Air			
Max. Working Pressure	MPa	1.0			
Min. Operating Pressure	MPa	0.1			
Proof Pressure	MPa	1.6			
Ambient Temperature	°C	-10 to 60 (No freezing)			
Port Size		Rc1/8			
Stroke tolerance	mm	+1.4 0			
Operating Piston Speed	mm/s	1 to 200 (Use within allowable absorbed energy.)			
Cushion		Rubber Cushion			
Lubrication		Not Available			
Allowable Absorbed Energy	J	0.1	0.2	0.5	0.9

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke
ø20	25, 50, 75, 100, 125, 150, 200, 250, 300	500	10
ø25			
ø32			
ø40			

Note: Intermediate strokes can be produced in 1 mm increments.

Number of Switches Mounted and Min. Stroke (mm)

●Switch Mounting Method Rail Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	25	10	25	10	25	10	25
ø25	10	25	10	25	10	25	10	25	10	25
ø32	10	25	10	25	10	25	10	25	10	25
ø40	10	25	10	25	10	25	10	25	10	25

***1: For products with 1 switch and stroke of 10 mm or more but less than 25 mm, the switch rail mounting position changes, and trunnion type mounting cannot be produced. For mounting position, see P. 468 to 473.**

●Switch Mounting Method Band Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	30	10	35	15	45	10	25
ø25	10	25	10	30	10	35	15	45	10	25
ø32	10	25	10	30	10	35	15	45	10	25
ø40	10	25	10	30	10	35	10	45	10	25

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore size (mm)	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S = 10 mm (With Switch Rail)	Weight of Band per Switch
	Basic Type (OO)	Axial Foot Type (LB)	Flange Type (FA/FB)	Clevis Type	Trunnion Type (TA/TB)				
ø20	0.10	0.21	0.13	0.15	0.11	Refer to the weight listed in the switch specifications on P. 971.	0.01	0.012	0.007
ø25	0.17	0.30	0.21	0.25	0.19		0.014	0.016	0.007
ø32	0.26	0.42	0.32	0.41	0.29		0.018	0.02	0.007
ø40	0.41	0.63	0.49	0.64	0.46		0.03	0.032	0.007

(Example) Product Weight of SCM-F-LB-40B-100-T2H-D

- Product mass at S = 0 mm: ····· 0.63 kg
- Added mass at S = 100 mm: ···· $0.032 \times \frac{100}{10} = 0.32$ kg
- Weight of 2 switches ····· $0.018 \times 2 = 0.036$ kg
- Product weight ····· 0.63 kg+0.32 kg+0.036=0.986 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa									
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	26.4	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push	49.1k	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	41.2	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3

Mounting Bracket Model No. Notation Method

Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40
Single Clevis (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40
Double Clevis (CB)	–	–	–	–
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40

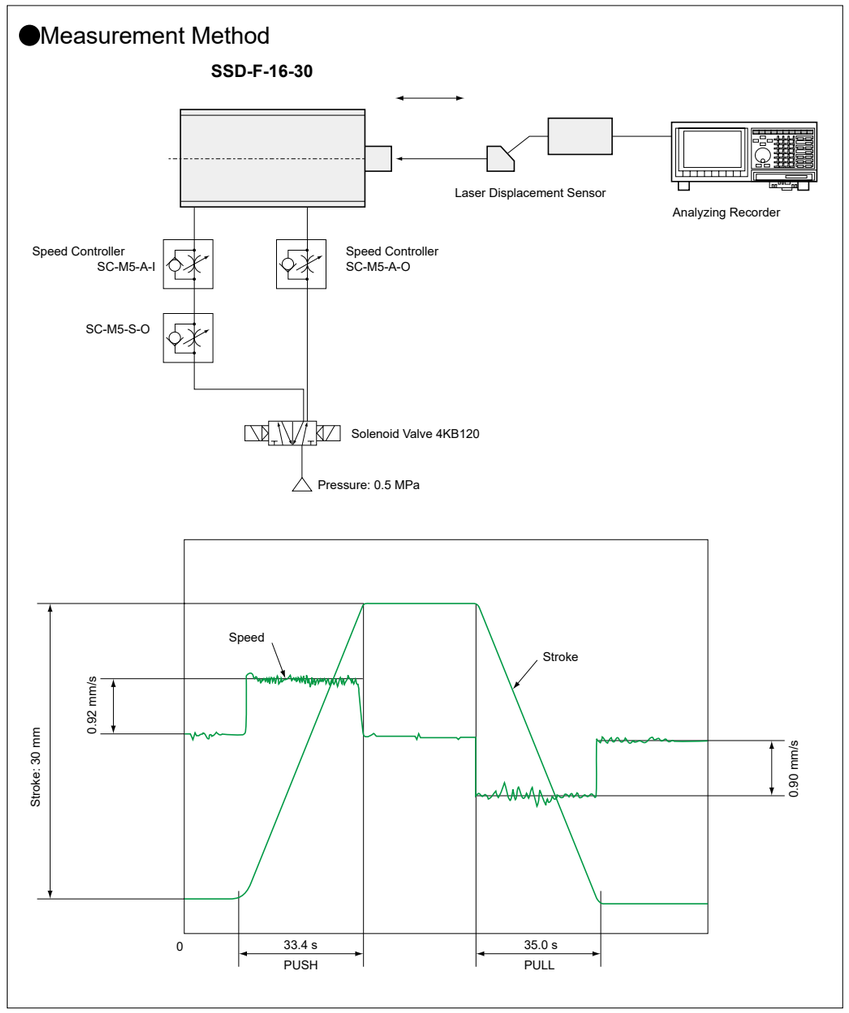
Note: Mounting bolts are included to each mounting bracket.

Outline Dimension Drawing

Same as Double Acting, Single Rod Type SCM Series. Refer to P. 328 to 334.

Measurement Data

●Measurement Method



MEMO

General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending



Round shaped cylinder　Double Acting, Low Speed Type

SCM-O Series

●Bore size: ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

SCM-O – LB – 40 – D – 100 – J – I

Model No. ❶ ❷ ❸ ❹ ❽ ❾

With Switch (Built-in magnet for switch)

SCM-O – LB – 40 – D – 100 – T2H – D – J – I

Model No. ❶ Mounting type ❷ Bore size ❸ Piping thread type / D: With Rubber Cushion on Both Sides ❹ Stroke ❺ Switch Model No. ❻ Number of Switches ❼ Switch Mounting Method ❽ Option ❾ Accessories

❶Mounting Type

Mounting brackets are included with the product for shipment.

Code	Contents	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type (pin and retaining ring included) (ø20 to ø63)	
CB	Double Clevis Type (Pin and Retaining Ring Included) (ø80, ø100)	
TA	Rod Side Trunnion Type (ø20 to ø63)	
TB	Head Side Trunnion Type (ø20 to ø63)	

❷Bore size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

❹Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20 to ø32	10 to 1000	Every 1 mm
ø40 to ø100	10 to 1500	

Note: For the number of switches to be mounted and minimum stroke, refer to P. 404.

❺Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T5V□	T5V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—		T5V□	–	
			—		—		T5V□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T5V□	T5V□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—		T2HR3	T2VR3	 *6
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T5V□	T5V□	 *4

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: Max. load current as shown on the left: 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: T8H/V switches cannot be mounted when the bore size is ø20 to ø40 and switch mounting is the rail type.
*5: Switches other than those listed on the left are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*6: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❼Switch Mounting Method

Code	Content	
Blank	Rail Type	
Z	Band Type	

❽Option

Code	Contents	Max. Ambient Temperature	Instantaneous Max. Temperature	
*1 *2 J	Bellows	100°C	200°C	
*1 *2 L		250°C	400°C	
*3 Q	Shipped with Switch Rail Attached			
M	Piston Rod Material (Stainless Steel)			

*1: For models with bellows, if the ❶ mounting style is "LB" or "FA," the mounting brackets are shipped pre-assembled.
*2: The instantaneous max. temperature is that at which sparks, cutting chips, etc., instantaneously contact bellows.
*3: ❼ If switch mounting style "Z" is selected, the "Switch rail shipped attached" option ("Q") cannot be selected.

❾Accessories

Code	Content	
*1 I	Single Knuckle	
*1 Y	Double Knuckle (Pin and retaining ring included)	
B1	Single Bracket (ø80, ø100)	
B2	Double Yoke Bracket (ø20 to ø63)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, see P. 474 to 477.

Code	Contents
-XP5	Knuckle Pin/Clevis Pin Split Pin
-XP7	Knuckle fixed by pin driving
-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving
-XJ9	Without Bellows
[[A2]	With 2 Rod Nuts
Rod End Shape Modification	Refer to End of Volume P. 11.

Model No. Example)

SCM – O – ..... – XP5

Switch Single Unit Model No. Notation Method

[Switch mounting: Rail Type]
●Switch Body + Mounting Rail Set

SCM – T0H□ – D – 40 – 100

❺ Switch Model No. / ❻ Number of Switches / ❷ Bore size / ❹ Stroke (*1)

[Switch mounting: Band Type
●Switch Body + Mounting Bracket Set + Band

SCM – T2H□ – 40 – Z

❺ Switch Model No. / ❷ Bore size

[Switch Body Only]

SW – T0H□

❺ Switch Model No.

●Mounting Rail Only

SCM – T – 40 – 100

Mounting Rail / ❷ Bore size / ❹ Stroke (*1) (*2)

●Mounting Bracket Set + Band

SCM – Z – 40

❷ Bore size

*1: Indicate items with a stroke exceeding 300 mm as X. If exceeding 300 mm, one short rail (switch adjustment travel distance 100 mm) is included per switch.
*2: When indicating X for mounting rail only, order the same number of rails as the number of switches used.

Specifications

Item		SCM-O							
Bore size	mm	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting/Low Speed Type							
Operating Fluid		Compressed Air							
Max. Working Pressure	MPa	1.0							
Min. Operating Pressure	MPa	0.1				0.05			
Proof Pressure	MPa	1.6							
Ambient Temperature	°C	–10 to 60 (Provided that freezing does not occur)							
Port Size		Rc1/8				Rc1/4		Rc3/8	Rc1/2
Stroke tolerance	mm	$^{+1.4}_{0}$ (Up to 1000)			$^{+1.4}_{0}$ (Up to 1500)	$^{+2.3}_{0}$ (Up to 1000),		$^{+2.7}_{0}$ (Up to 1500)	
Operating Piston Speed	mm/s	10 to 200 (Use within allowable absorbed energy.)							
Cushion		Rubber Cushion							
Lubrication		Not Available							
Allowable Absorbed Energy	J	0.11	0.2	0.53	0.91	1.6	1.6	3.3	5.8

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke
ø20	25, 50, 75, 50, 75, 100, 50, 75, 100	1,000	10
ø25			
ø32			
ø40		1500	
ø50			
ø63			
ø80			
ø100			

Note: Intermediate strokes can be produced in 1 mm increments.

Number of Switches Mounted and Min. Stroke (mm)

●Switch Mounting Method Rail Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	25	10	25	10	25	10	25
ø25	10	25	10	25	10	25	10	25	10	25
ø32	10	25	10	25	10	25	10	25	10	25
ø40	10	25	10	25	10	25	10	25	10	25
ø50	10	25	10	25	10	25	10	25	10	25
ø63	10	25	10	25	10	25	10	25	10	25
ø80	10	25	10	25	10	25	10	25	10	25
ø100	10	25	10	25	10	25	10	25	10	25

●Switch Mounting Method Band Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	30	10	35	15	45	10	25
ø25	10	25	10	30	10	35	15	45	10	25
ø32	10	25	10	30	10	35	15	45	10	25
ø40	10	25	10	30	10	35	10	45	10	25
ø50	10	25	10	30	10	35	10	45	10	25
ø63	10	25	10	30	10	35	10	45	10	25
ø80	10	25	10	30	10	35	10	45	10	25
ø100	10	25	10	30	10	35	10	45	10	25

Note: For products with 1 switch and stroke of 10 mm or more but less than 25 mm, the switch rail mounting position changes, and trunnion type mounting cannot be produced. For mounting position, see P. 468 to 473.

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore size (mm)	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	S= Per 10 mm Added Weight	Added Weight per S = 10 mm (Switch With Rail)	Weight of Band per Switch
	Basic Type (OO)	Axial Foot Type (LB)	Flange Type (FA/FB)	Clevis Type	Trunnion Type (TA/TB)				
ø20	0.10	0.21	0.13	0.15	0.11	Refer to the weight listed in the switch specifications on P. 971.	0.01	0.012	0.007
ø25	0.17	0.30	0.21	0.25	0.19		0.014	0.016	0.007
ø32	0.26	0.42	0.32	0.41	0.29		0.018	0.02	0.007
ø40	0.41	0.63	0.49	0.64	0.46		0.03	0.032	0.007
ø50	0.77	1.25	1.11	1.17	0.91		0.044	0.046	0.008
ø63	1.07	1.79	1.57	1.75	1.21		0.052	0.054	0.009
ø80	2.04	3.00	2.75	2.75	–		0.07	0.072	0.010
ø100	3.17	4.92	4.52	4.45	–		0.098	0.10	0.010

(Example) Product Weight of SCM-O-LB-40D-100-T2H-D
- Product mass at S = 0 mm: ·····0.63 kg
- Added mass at S = 100 mm: ····$0.032 \times \frac{100}{10} = 0.32$ kg
- Weight of 2 switches ·····0.036 kg
- Product weight ·····0.63 kg+0.32 kg+0.036=0.986 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	–	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	–	26.4	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push	–	49.1	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	–	41.2	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push	–	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	–	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	–	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	–	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.0	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	2.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push	2.51×10^2	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	2.27×10^3	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push	3.92×10^3	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3	6.28×10^3	7.07×10^3	7.85×10^3
	Pull	3.57×10^3	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

Mounting Bracket Model No. Notation Method

Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63	SCM-LB-80	SCM-LB-100
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63	SCM-FA-80	SCM-FA-100
Single Clevis (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63	–	–
Double Clevis (CB)	–	–	–	–	–	–	SCM-CB-80	SCM-CB-100
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63	–	–

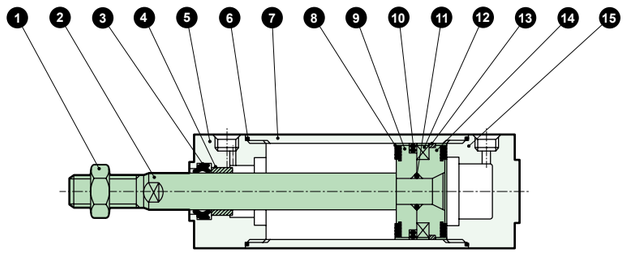
Note 1: Mounting bolts are included to each mounting bracket.
Note 2: Foot type mounting brackets (LB) and trunnion mounting brackets (TA/TB) are 2 pcs/set.

Outline Dimension Drawing

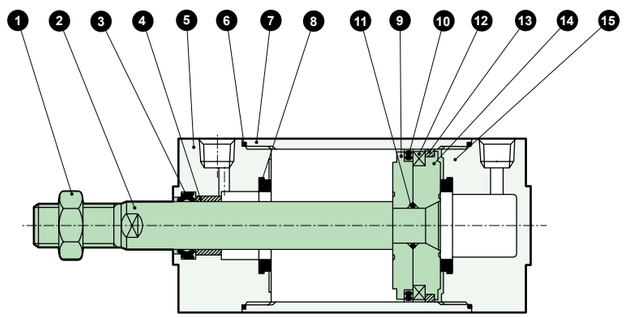
Same as Double Acting, Single Rod Type SCM Series. Refer to P. 328 to 334.

Internal Structure Diagram / Material (With Rubber Cushion)

●ø20 to ø40



●ø50 to ø100



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating	8	Cushion Rubber	Urethane Rubber	
2	Piston Rod	ø20, ø25: Stainless Steel ø32 to ø100: Steel	Industrial Hard Chrome Plating	9	Piston R	Aluminum Alloy	
				10	Piston Packing	Nitrile Rubber	
3	Rod Packing	Nitrile Rubber		11	Piston Gasket	Nitrile Rubber	
4	Bushing	Oil-Impregnated Bearing Alloy		12	Magnet	Plastic	
5	Rod Cover	Aluminum Alloy	Hard Anodized	13	Wear Ring	Polyacetal	
6	Cylinder Gasket	Nitrile Rubber		14	Piston H	Aluminum Alloy	
7	Cylinder Tube	Aluminum Alloy	Hard Anodized	15	Head Cover	Aluminum Alloy	Hard Anodized

For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

MEMO

General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending



Round shaped cylinder　Double Acting, Low Friction Type

SCM-U Series

●Bore size: ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

SCM-U – LB – 40 [ ] D – 100 ——— M I

Model No. ❶ ❷ ❸ ❹ ❽ ❾

With Switch (Built-in magnet for switch)

SCM-U – LB – 40 [ ] D – 100 – T2H – D – [ ] – M I

Model No. ❶ Mounting type ❷ Bore size ❸ Piping thread type | With Rubber Cushion on Both Sides | ❹ Stroke ❺ Switch Model No. ❻ Number of Switches ❼ Switch Mounting Method ❽ Option ❾ Accessories

❶Mounting Type
Mounting brackets are included with the product for shipment.

Code	Contents	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type (pin and retaining ring included) (ø20 to ø63)	
CB	Double Clevis Type (Pin and Retaining Ring Included) (ø80, ø100)	
TA	Rod Side Trunnion Type (ø20 to ø63)	
TB	Head Side Trunnion Type (ø20 to ø63)	

❷Bore size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

❹Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20 to ø32	10 to 1000	Every 1 mm
ø40 to ø100	10 to 1500	

Note: For the number of switches to be mounted and minimum stroke, refer to P. 410.

❺Switch Model No.
For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T5V□	T5V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Water Resistance Improved	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color AC For Magnetic Field		—	24 ± 10%	—		T5V□	–	
			—		—		T5V□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T5V□	T5V□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—		T2HR3	T2VR3	 *6
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T5V□	T5V□	 *4

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: Max. load current as shown on the left: 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: T8H/V switches cannot be mounted when the bore size is ø20 to ø40 and switch mounting is the rail type.
*5: Switches other than those listed on the left are also available. (Custom Product) For details, see P. 971.

***Lead wire length, connector specification**

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*6: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❼Switch Mounting Method

Code	Content	
Blank	Rail Type	
Z	Band Type	

❽Option

	Code	Content
*1	Q	Shipped with Switch Rail Attached
	M	Piston Rod Material (Stainless Steel)

*1: ❼ If switch mounting style "Z" is selected, the "Switch rail shipped attached" option ("Q") cannot be selected.

❾Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and retaining ring included)	
	B1	Single Bracket (ø80, ø100)	
	B2	Double Yoke Bracket (ø20 to ø63)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications
For details, see P. 474 to 477.

Code	Contents
-XP5	Knuckle Pin/Clevis Pin Split Pin
-XP7	Knuckle fixed by pin driving
-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to End of Volume P. 11.

Model No. Example)
SCM – U – ..... – XP5

Switch Single Unit Model No. Notation Method

[Switch mounting: Rail Type]
Switch Body + Mounting Rail Set

SCM – T0H□ – D – 40 – 100

❺ Switch Model No. | ❻ Number of Switches | ❷ Bore size | ❹ Stroke (*1)

[Switch mounting: Band Type
●Switch Body + Mounting Bracket Set + Band

SCM – T2H□ – 40 – Z

❺ Switch Model No. | ❷ Bore size

[Switch Body Only]

SW – T0H□

❺ Switch Model No.

●Mounting Rail Only

SCM – T – 40 – 100

Mounting Rail | ❷ Bore size | ❹ Stroke (*1) (*2)

●Mounting Bracket Set + Band

SCM – Z – 40

❷ Bore size

*1: Indicate items with a stroke exceeding 300 mm as X. If exceeding 300 mm, one short rail (switch adjustment travel distance 100 mm) is included per switch.
*2: When indicating X for mounting rail only, order the same number of rails as the number of switches used.

Specifications

Item		SCM-U							
Bore size	mm	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting, Low Friction Type							
Operating Fluid		Compressed Air							
Max. Working Pressure	MPa	0.7							
Min. Operating Pressure	MPa	0.03							
Proof Pressure	MPa	1.0							
Ambient Temperature	°C	5 to 60							
Port Size		Rc1/8				Rc1/4		Rc3/8	Rc1/2
Stroke tolerance	mm	$^{+1.4}_{0}$ (to 1000)			$^{+1.4}_{0}$ (to 1500)	$^{+2.3}_{0}$ (to 1000), $^{+2.7}_{0}$ (to 1500)			
Operating Piston Speed	mm/s	10 to 1000 (Use within allowable absorbed energy.)							
Cushion		Rubber Cushion							
Lubrication		Not Available							
Allowable Absorbed Energy	J	0.1	0.2	0.5	0.9	1.6	1.6	3.3	5.8
Internal Leakage Volume (L/min)		5						8	

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke
ø20	25, 50, 75, 100, 125, 150, 200, 250, 300	1,000	10
ø25			
ø32			
ø40		1500	
ø50			
ø63			
ø80			
ø100			

Note: Intermediate strokes can be produced in 1 mm increments.

Number of Switches Mounted and Min. Stroke (mm)

●Switch Mounting Method Rail Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	25	10	25	10	25	10	25
ø25	10	25	10	25	10	25	10	25	10	25
ø32	10	25	10	25	10	25	10	25	10	25
ø40	10	25	10	25	10	25	10	25	10	25
ø50	10	25	10	25	10	25	10	25	10	25
ø63	10	25	10	25	10	25	10	25	10	25
ø80	10	25	10	25	10	25	10	25	10	25
ø100	10	25	10	25	10	25	10	25	10	25

●Switch Mounting Method Band Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	30	10	35	15	45	10	25
ø25	10	25	10	30	10	35	15	45	10	25
ø32	10	25	10	30	10	35	15	45	10	25
ø40	10	25	10	30	10	35	10	45	10	25
ø50	10	25	10	30	10	35	10	45	10	25
ø63	10	25	10	30	10	35	10	45	10	25
ø80	10	25	10	30	10	35	10	45	10	25
ø100	10	25	10	30	10	35	10	45	10	25

Note: For products with 1 switch and stroke of 10 mm or more but less than 25 mm, the switch rail mounting position changes, and trunnion type mounting cannot be produced. For mounting position, see P. 468 to 473.

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore size (mm)	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S = 10 mm (Switch With Rail)	Weight of Band per Switch
	Basic Type (OO)	Axial Foot Type (LB)	Flange Type (FA/FB)	Clevis Type	Trunnion Type (TA/TB)				
ø20	0.10	0.21	0.13	0.15	0.11	Refer to the weight listed in the switch specifications on P. 971.	0.01	0.012	0.007
ø25	0.17	0.30	0.21	0.25	0.19		0.014	0.016	0.007
ø32	0.26	0.42	0.32	0.41	0.29		0.018	0.02	0.007
ø40	0.41	0.63	0.49	0.64	0.46		0.03	0.032	0.007
ø50	0.77	1.25	1.11	1.17	0.91		0.044	0.046	0.008
ø63	1.07	1.79	1.57	1.75	1.21		0.052	0.054	0.009
ø80	2.04	3.00	2.75	2.75	–		0.07	0.072	0.010
ø100	3.17	4.92	4.52	4.45	–		0.098	0.10	0.010

(Example) Product Weight of SCM-U-LB-40D-100-T2H-D

- Product mass at S = 0 mm: ·····0.63 kg
- Added mass at S = 100 mm:····0.032 × $\frac{100}{10}$ = 0.32 kg
- Weight of 2 switches ·····0.036 kg
- Product weight ·····0.63 kg+0.32 kg+0.036=0.986 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa								
		0.03	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø20	Push	9.4	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2
	Pull	7.9	26.4	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2
ø25	Push	14.7	49.1k	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2
	Pull	12.4	41.2	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2
ø32	Push	24.1	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2
	Pull	20.7	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2
ø40	Push	37.7	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2
	Pull	31.7	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2
ø50	Push	58.9	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3
	Pull	49.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3
ø63	Push	93.5	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3
	Pull	84.1	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3
ø80	Push	15.1×10^3	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3
	Pull	13.6×10^3	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3
ø100	Push	23.6×10^3	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3
	Pull	21.4×10^3	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3

Mounting Bracket Model No. Notation Method

Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63	SCM-LB-80	SCM-LB-100
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63	SCM-FA-80	SCM-FA-100
Single Clevis (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63	–	–
Double Clevis (CB)	–	–	–	–	–	–	SCM-CB-80	SCM-CB-100
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63	–	–

*1: Mounting bolts are included to each mounting bracket.
*2: Foot type mounting brackets (LB) and trunnion mounting brackets (TA/TB) are 2 pcs/set.

Outline Dimension Drawing

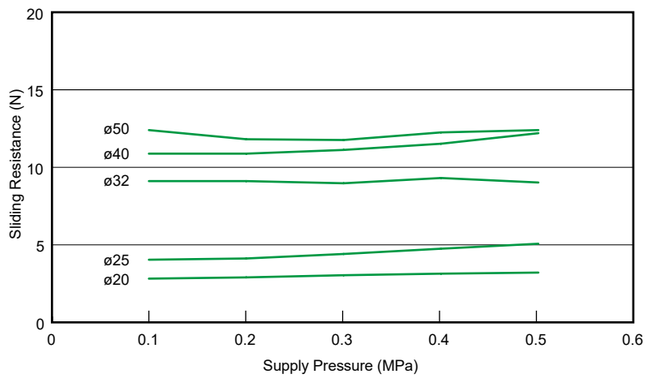
Same as Double Acting, Single Rod Type SCM Series. Refer to P. 328 to 334.

Sliding Resistance Value

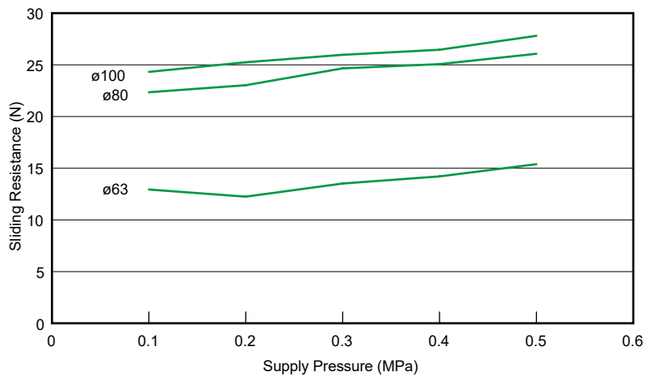
Data are measured values under the following conditions. Values vary depending on installation method, pressurization direction, etc., and are not guaranteed values.

(Test Conditions)
Cylinder Type: SCM-U
Cylinder Mounting Direction: Vertical
Cylinder Speed: 10 mm/min (Driven by external motor)
Cylinder Pressurization Direction: Head Side (Rod side is open to atmosphere)

Sliding Resistance (ø20 to ø50)



Sliding Resistance (ø63 to ø100)



MEMO

General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending

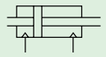


Round shaped cylinder Double Acting, Double Rod Type

SCM-D Series

●Bore size: ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol Double Acting Cylinder Double Rod Type



RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

SCM-D – LB – 40 – B – 100 – J – I

Model No. ❶ ❷ ❸ ❹ ❺ ❾ ❿

With Switch (Built-in magnet for switch)

SCM-D – LB – 40 – B – 100 – T2H – D – J – I

Model No. ❶ Mounting type ❷ Bore size ❸ Piping thread type ❹ Cushion ❺ Stroke ❻ Switch Model No. ❼ Number of Switches ❽ Switch Mounting Method ❾ Option ❿ Accessories

❶Mounting Type

Mounting brackets are included with the product for shipment.

Code	Contents	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
TA	Rod Side Trunnion Type (ø20 to ø63)	

❷Bore size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	M5 (With air cushion, ø20, ø25 only)
	Rc Thread
*1 N	NPT Thread (Custom Order Product)
*1 G	G Thread (Custom Order Product)

*1: ø20, ø25 with air cushion cannot be selected.

❹Cushion

Code	Content
B	With Air Cushion on Both Sides
R	With Air Cushion on Rod Side
H	With Air Cushion on Head Side
D	With Rubber Cushion on Both Sides

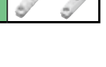
❺Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20 to ø100	10 to 600	Every 1 mm

Note: For the number of switches to be mounted and minimum stroke, refer to P. 416.

❻Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T5V□	T5V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Water Resistance Improved	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color AC For Magnetic Field		—	24 ± 10%	—		T5V□	–	
			—		—		T5V□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T5V□	T5V□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—		T2HR3	T2VR3	 *6
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T5V□	T5V□	 *4

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: Max. load current as shown on the left: 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: T8H/V switches cannot be mounted when the bore size is ø20 to ø40 and switch mounting is the rail type.
*5: Switches other than those listed on the left are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*6: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❼Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❽Switch Mounting Method

Code	Content	
Blank	Rail Type	
Z	Band Type	

❾Option

Code	Contents	Max. Ambient Temperature	Instantaneous Max. Temperature	
*1 *2 *3 J	Bellows	100°C	200°C	
*1 *2 *3 L		250°C	400°C	
*4 Q	Shipped with Switch Rail Attached			
M	Piston Rod Material (Stainless Steel)			

*1: For models with bellows, if the ❶ mounting style is "LB" or "FA," the mounting brackets are shipped pre-assembled.
*2: The instantaneous max. temperature is that at which sparks, cutting chips, etc., instantaneously contact bellows.
*3: When type with bellows is selected, the bellows will be attached to the rods on both sides.
*4: ❽ If switch mounting style "Z" is selected, the "Switch rail shipped attached" option ("Q") cannot be selected.

❿Accessories

Code	Contents	
I	Single Knuckle	
Y	Double Knuckle (Pin and retaining ring included)	
B2	Double Yoke Bracket (ø20 to ø63)	

About Custom Product Specifications

For details, see P. 474 to 477.

Code	Contents
-XP5	Knuckle Pin/Clevis Pin Split Pin
-XP7	Knuckle fixed by pin driving
-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving
-XJ9	Without Bellows
[[A2]	With 2 Rod Nuts
Rod End Shape Modification	Refer to End of Volume P. 11.

Model No. Example)

SCM – D – ..... – XP5

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

● Uses food-grade lubricant usable in food manufacturing processes

SCM – D – ..... – FP1

Switch Single Unit Model No. Notation Method

[Switch mounting: Rail Type]
●Switch Body + Mounting Rail Set

SCM – T0H□ – D – 40 – 100

Switch Model No. ❻ | Number of Switches ❼ | Bore size ❷ | Stroke (*1) ❺

[Switch mounting: Band Type
●Switch Body + Mounting Bracket Set + Band

SCM – T2H□ – 40 – Z

Switch Model No. ❻ | Bore size ❷

[Switch Body Only]

SW – T2H□

Switch Model No. ❻

●Mounting Rail Only

SCM – T – 40 – 100

Mounting Rail | Bore size ❷ | Stroke (*1) (*2) ❺

●Mounting Bracket Set + Band

SCM – Z – 40

Bore size ❷

*1: Indicate items with a stroke exceeding 300 mm as X. If exceeding 300 mm, one short rail (switch adjustment travel distance 100 mm) is included per switch.
*2: When indicating X for mounting rail only, order the same number of rails as the number of switches used.

Specifications

Item		SCM-D							
Bore size mm		ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting/Double Rod Type							
Operating Fluid		Compressed Air							
Max. Working Pressure MPa		1.0							
Min. Operating Pressure MPa		0.15				0.1			
Proof Pressure MPa		1.6							
Ambient Temperature °C		–10 to 60 (Provided that freezing does not occur)							
Port Size	With Rubber Cushion	Rc1/8				Rc1/4		Rc3/8	Rc1/2
	With Air Cushion	M5		Rc1/8		Rc1/4		Rc3/8	Rc1/2
Stroke tolerance mm	With Rubber Cushion	+1.4 0				+2.3 0 (to 600)			
	With Air Cushion	+1.4 0				+1.4 0 (to 600)			
Operating Piston Speed mm/s		30 to 1000 (Use within allowable absorption energy.)							
Cushion		Rubber cushion/air cushion can be selected							
Effective air cushion length mm		8.1	8.1	8.6	8.6	13.4	13.4	15.4	15.4
Lubrication		Not Required (When lubricating, use Turbine Oil ISO VG32)							
Allowable absorbed energy J	With Rubber Cushion	0.1	0.2	0.5	0.9	1.6	1.6	3.3	5.8
	With Air Cushion	0.8	1.2	2.5	3.7	8.0	14.4	25.4	45.6
	Without Cushion	–	–	–	–	0.057	0.057	0.112	0.153

*1: Without cushion for allowable absorbed energy indicates the allowable absorbed energy on the unindicated side when single side air cushion is selected ("R" => head side, "H" => rod side).
*2: Without a cushion, large energy generated by external load cannot be absorbed. Provide an external shock absorber.

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke
ø20	25, 50, 75, 100, 125, 150, 200, 250, 300	600	10
ø25			
ø32			
ø40			
ø50			
ø63			
ø80			
ø100			

Note: Intermediate strokes can be produced in 1 mm increments.

Number of Switches Mounted and Min. Stroke (mm)

●Switch Mounting Method Rail Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	25	10	25	10	25	10	25
ø25	10	25	10	25	10	25	10	25	10	25
ø32	10	25	10	25	10	25	10	25	10	25
ø40	10	25	10	25	10	25	10	25	10	25
ø50	10	25	10	25	10	25	10	25	10	25
ø63	10	25	10	25	10	25	10	25	10	25
ø80	10	25	10	25	10	25	10	25	10	25
ø100	10	25	10	25	10	25	10	25	10	25

●Switch Mounting Method Band Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	30	10	35	15	45	10	25
ø25	10	25	10	30	10	35	15	45	10	25
ø32	10	25	10	30	10	35	15	45	10	25
ø40	10	25	10	30	10	35	10	45	10	25
ø50	10	25	10	30	10	35	10	45	10	25
ø63	10	25	10	30	10	35	10	45	10	25
ø80	10	25	10	30	10	35	10	45	10	25
ø100	10	25	10	30	10	35	10	45	10	25

Note: For products with 1 switch and stroke of 10 mm or more but less than 25 mm, the switch rail mounting position changes, and trunnion type mounting cannot be produced. For mounting position, see P. 468 to 473.

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore size (mm)	Product Weight at Stroke (S) = 0 mm				Switch Weight (Per Piece)	S= Per 10 mm	S= Per 10 mm
	Basic Type (OO)	Axial Foot Type (LB)	Flange Type (FA)	Trunnion Type (TA)		Added Weight	Added Weight (Switch with Rail)
ø20	0.12	0.23	0.20	0.13	Refer to the weight listed in the switch specifications on P. 971.	0.014	0.016
ø25	0.21	0.34	0.31	0.23		0.020	0.22
ø32	0.32	0.48	0.46	0.35		0.026	0.028
ø40	0.52	0.74	0.72	0.57		0.046	0.048
ø50	0.96	1.44	1.30	1.10		0.068	0.070
ø63	1.27	1.99	1.77	1.41		0.076	0.078
ø80	2.41	3.37	3.12	–		0.108	0.110
ø100	3.73	5.48	5.08	–		0.154	0.156

(Example) Product Weight of SCM-D-LB-40B-100-T2H-D
- Product Weight at S=0 mm.....0.74 kg
- Added Weight at S=100 mm .....$0.048 \times \frac{100}{10} = 0.48$ kg
- Weight of 2 switches.....0.018 x 2 = 0.036 kg
- Product Weight.....0.74+0.48+0.036=1.256 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push/Pull	-	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push/Pull	-	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push/Pull	-	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push/Pull	-	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push/Pull	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push/Pull	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push/Pull	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push/Pull	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

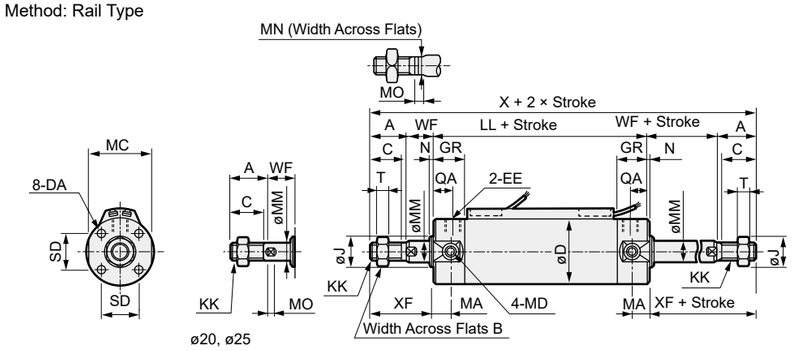
Mounting Bracket Model No. Notation Method

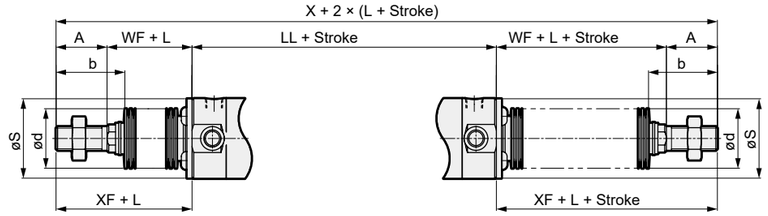
Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63	SCM-LB-80	SCM-LB-100
Flange (FA)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63	SCM-FA-80	SCM-FA-100
Trunnion (TA)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63	–	–

*1: Mounting bolts are included to each mounting bracket.
*2: Foot type mounting brackets (LB) and trunnion mounting brackets (TA/TB) are 2 pcs/set.

Outline Dimension Drawing

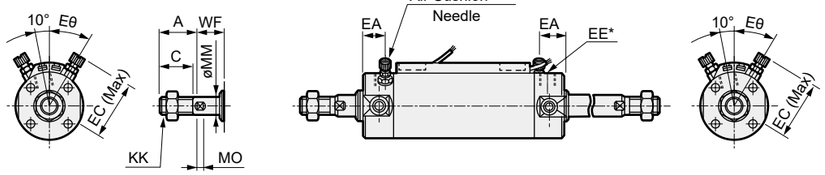
●Basic Type (OO)
[With Rubber Cushion]
• Switch Mounting Method: Rail Type





[With Bellows]

[With Air Cushion]
• Switch Mounting Method: Rail Type



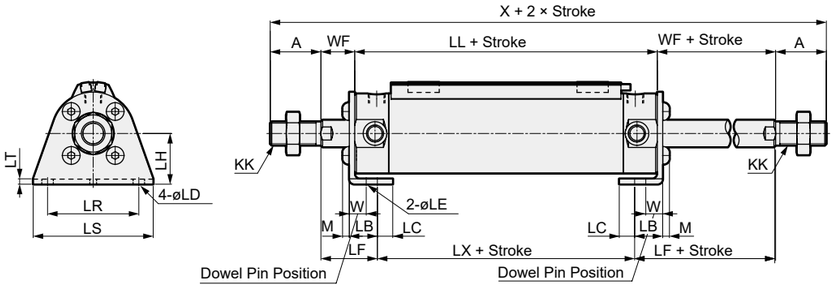
Code	Basic Type (OO) Basic Dimensions															
Bore size (mm)	A	B	C	D	DA	EE (*1)	GR	J	KK	LL	MA	MC	MD	MM	MN	MO
ø20	18	13	16	26	M4 Depth 6.5	Rc1/8	19	12	M8	71	11	24	M5	8	6	4
ø25	22	17	20	31	M5 Depth 6.5	Rc1/8	19	14	M10 × 1.25	71	11	29	M6	10	8	5
ø32	22	17	20	38	M5 Depth 7.5	Rc1/8	19	18	M10 × 1.25	73	11	36	M8	12	10	5.5
ø40	30	22	27	47	M6 Depth 12	Rc1/8	20	25	M14 × 1.5	79	12	44	M10	16	14	6
ø50	35	27	32	58	M8 Depth 16	Rc1/4	25	30	M18 × 1.5	93	13	55	M12	20	17	8
ø63	35	27	32	72	M10 Depth 16	Rc1/4	25	32	M18 × 1.5	93	13	69	M14	20	17	8
ø80	40	32	37	89	M10 Depth 22	Rc3/8	28	40	M22 × 1.5	108	–	80	–	25	22	11
ø100	40	41	37	110	M12 Depth 22	Rc1/2	28	50	M26 × 1.5	108	–	100	–	30	27	13

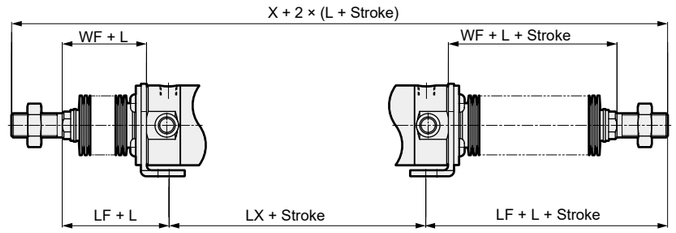
Code								With Bellows				With Air Cushion			
Bore size (mm)	N	QA	SD	T	WF	X	XF	b	d	s	L	EA	EC	EE* *1	Eθ
ø20	2	12	14	5	17	141	35	30	30	25.7	(Stroke / 3) + 18.5	14	27	M5	30°
ø25	2	12	16.5	6	18	151	40	35	30	30.7	(Stroke / 3) + 20.5	14	29.5	M5	30°
ø32	2	12	20	6	18	153	40	31.5	35	37.7	(Stroke / 3) + 19	14	32.8	Rc1/8	25°
ø40	2	13	26	8	20	179	50	40	35	46.7	(Stroke / 3) + 18.5	15	36.6	Rc1/8	20°
ø50	2	15	32	11	23	209	58	46	40	57.7	(Stroke / 3.6) + 18.5	18.5	43	Rc1/4	20°
ø63	2	15	38	11	23	209	58	46	40	71.7	(Stroke / 3.6) + 18.5	18.5	50	Rc1/4	20°
ø80	3	15	50	13	31	250	71	55	50	88.7	(Stroke / 4.3) + 14.5	20	58.5	Rc3/8	20°
ø100	3	15	60	16	31	250	71	56	60	109.7	(Stroke / 4.5) + 21	20	69	Rc1/2	20°

1: For ø20, ø25 with air cushion, the piping port (EE) is different. Refer to the dimension table for with air cushion (EE).
***2: Needle-related dimensions for air cushion type are the same as double acting type. Refer to P. 328 to 334.**
*3: The position of the width across flats for spanner engagement on the left and right is not fixed.
***4: For dimensions with each switch, see P. 468 to 473.**
***5: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

●Axial Foot Type (LB)





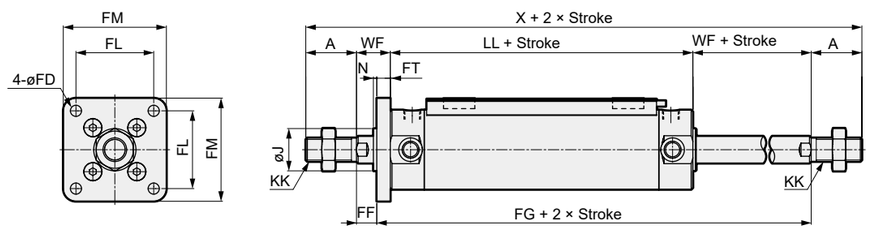
[With Bellows]

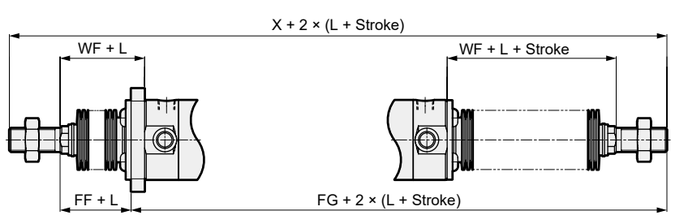
Code	Axial Foot Type (LB) Mounting Dimensions																With Bellows
Bore size (mm)	A	KK	X	LB	LC	LD	LE	LF	LH	LL	LR	LS	LT	LX	M	W	WF	L
20	18	M8	141	15.1	7.1	5.7	4	28.9	20	71	32	44	3.2	47.2	2.6	10	17	(Stroke / 3) + 18.5
25	22	M10 × 1.25	151	15.1	7.1	5.7	4	29.9	22	71	36	49	3.2	47.2	3.4	10	18	(Stroke / 3) + 20.5
32	22	M10 × 1.25	153	16.1	8.1	6.8	4	30.9	25	73	44	58	3.2	47.2	3.4	10	18	(Stroke / 3) + 19
40	30	M14 × 1.5	179	16.6	9.1	6.8	4	33.4	30	79	54	71	3.2	52.2	4	10	20	(Stroke / 3) + 18.5
50	35	M18 × 1.5	209	22	11	9	5	40.5	40	93	66	86	4.5	58	5	17.5	23	(Stroke / 3.6) + 18.5
63	35	M18 × 1.5	209	22	13	11	5	40.5	45	93	82	106	4.5	58	5	17.5	23	(Stroke / 3.6) + 18.5
80	40	M22 × 1.5	250	28.5	14	11	6	55	55	108	100	125	4.5	60	6	20	31	(Stroke / 4.3) + 14.5
100	40	M26 × 1.5	250	30	16	14	6	55	65	108	120	150	6	60	7	20	31	(Stroke / 4.5) + 21

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)





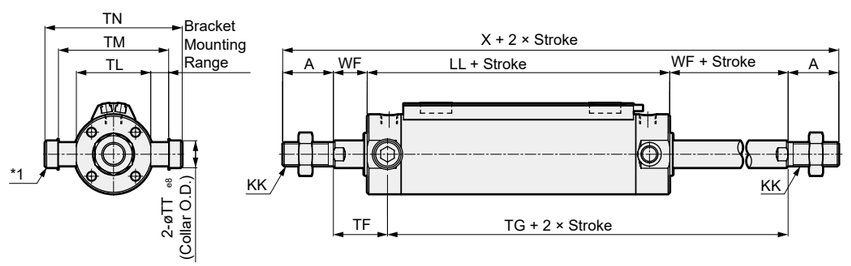
[With Bellows]

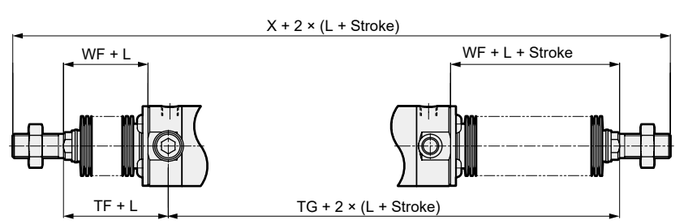
Code	Rod Side Flange Type (FA) Mounting Dimensions													With Bellows
Bore size (mm)	A	FD	FF	FG	FL	FM	FT	J	KK	LL	N	WF	X	L
20	18	5.5	11	94	28	40	6	12	M8	71	2	17	141	(Stroke / 3) + 18.5
25	22	5.5	11	96	32	44	7	14	M10 × 1.25	71	2	18	151	(Stroke / 3) + 20.5
32	22	6.6	11	98	38	53	7	18	M10 × 1.25	73	2	18	153	(Stroke / 3) + 19
40	30	6.6	12	107	46	61	8	25	M14 × 1.5	79	2	20	179	(Stroke / 3) + 18.5
50	35	9	14	125	58	76	9	30	M18 × 1.5	93	2	23	209	(Stroke / 3.6) + 18.5
63	35	11	14	125	70	92	9	32	M18 × 1.5	93	2	23	209	(Stroke / 3.6) + 18.5
80	40	11	20	150	82	104	11	40	M22 × 1.5	108	3	31	250	(Stroke / 4.3) + 14.5
100	40	13	17	153	100	128	14	50	M26 × 1.5	108	3	31	250	(Stroke / 4.5) + 21

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

●Rod side trunnion type (TA)





[With Bellows]

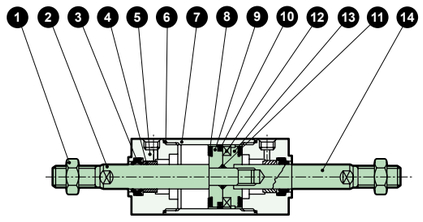
Code	Rod Side Trunnion Type (TA) Mounting Dimensions											With Bellows
Bore size (mm)	A	KK	LL	TF	TG	TL	TM	TN	TT	WF	X	L
ø20	18	M8	71	28	77	28	39	47.6	8	17	141	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	71	29	78	33	43	53	10	18	151	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	73	29	80	40	54.5	67.7	12	18	153	(Stroke / 3) + 19
ø40	30	M14 × 1.5	79	32	87	49	65.9	81.1	14	20	179	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	93	36	103	60	80	98.6	16	23	209	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	93	36	103	74	98	119.2	18	23	209	(Stroke / 3.6) + 18.5

*1: Consists of collar, flat washer, and hexagon socket head cap screw.
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

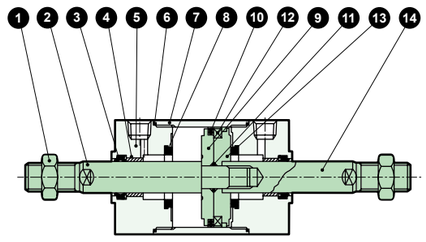
Internal Structure Diagram / Material

With Rubber Cushion

ø20 to ø40

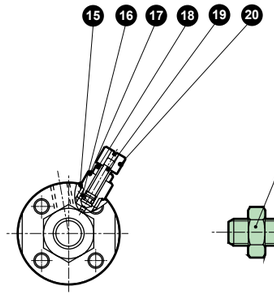


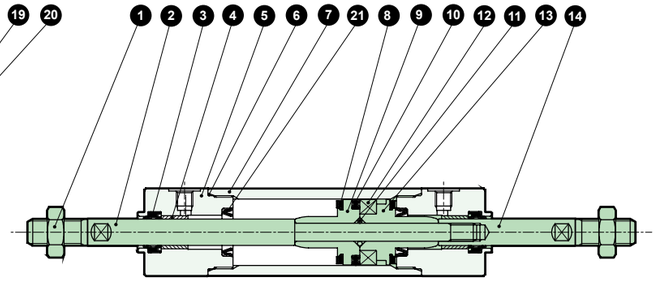
ø50 to ø100



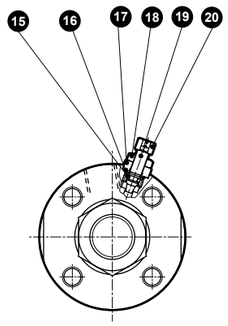
With Air Cushion

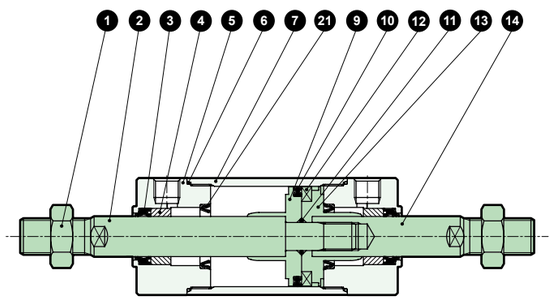
ø20 to ø40





ø50 to ø100



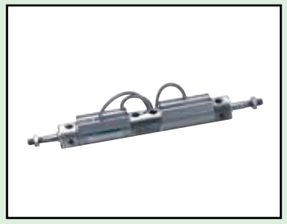


Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating	12	Magnet	Plastic	
2	Piston Rod A	ø20, ø25: Stainless Steel ø32 to ø100: Steel	Industrial Hard Chrome Plating	13	Piston H	Aluminum Alloy	
				14	Piston Rod B	ø20, ø25: Stainless Steel ø32 to ø100: Steel	Industrial Hard Chrome Plating
3	Rod Packing	Nitrile Rubber		With Air Cushion			
4	Bushing	Oil-Impregnated Bearing Alloy		15	Needle Gasket	Nitrile Rubber	
5	Rod Cover	Aluminum Alloy	Hard Anodized	16	Holder Gasket	Nitrile Rubber	
6	Cylinder Gasket	Nitrile Rubber		17	Needle Holder	Aluminum Alloy	
7	Cylinder Tube	Aluminum Alloy	Hard Anodized	18	Lock Nut	Steel	Nickel Plating
8	Cushion Rubber	Urethane Rubber		19	Needle	Stainless Steel	
9	Piston R	Aluminum Alloy		20	Knob	Aluminum Alloy	Chromate
10	Piston Packing	Nitrile Rubber		21	Cushion Packing	Nitrile Rubber, Steel	
11	Piston Gasket	Nitrile Rubber					

For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

MEMO

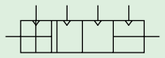
General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending



Round shaped cylinder
Double Acting, Back-to-Back Type

SCM-B Series

●Bore size: ø20, ø25, ø32, ø40, ø50, ø63

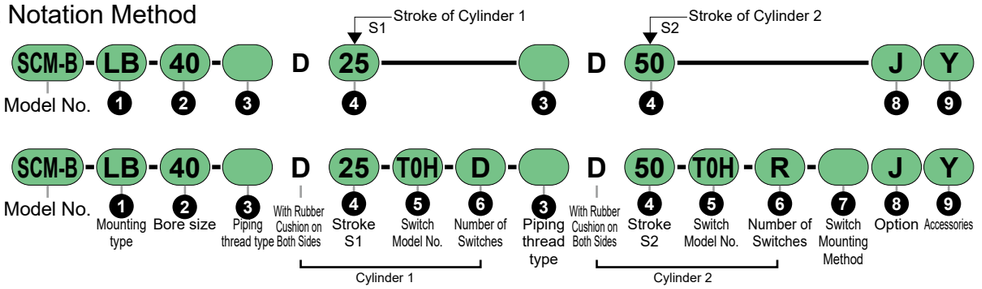
Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

With Switch (Built-in magnet for switch)



❶Mounting Type

Mounting brackets are included with the product for shipment.

Code	Contents	
00	Basic type	
LB	Axial Foot Type	
FA	Cylinder 1 Side Flange Type	
FB	Cylinder 2 Side Flange Type	
TA	Cylinder 1 Side Trunnion Type	
TB	Cylinder 2 Side Trunnion Type	

❷Bore size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63

❸Piping thread type

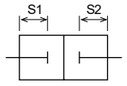
Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

❹Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20 to ø32	10 to 500	Every 1 mm
ø40 to ø63	10 to 750	

Note: For the number of switches to be mounted and minimum stroke, refer to P. 426.

Stroke of cylinder 1:	25 mm Indicated by S1
+ Cylinder 2 stroke	50 mm S2
Total stroke	75 mm S1 + S2



❺Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T5V□	T5V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—		T5V□	–	
			—		—		T5V□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T5V□	T5V□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—		T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T5V□	T5V□	 *4

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: Max. load current as shown on the left: 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: T8H/V switches cannot be mounted when the bore size is ø20 to ø40 and switch mounting is the rail type.
*5: Switches other than those listed on the left are also available. (Custom Product) For details, see P. 971.

***Lead wire length, connector specification**

	Code	Content
	Blank	1 m (Standard)
	3	3 m (Option)
	5	5 m (Option)
*6	W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*6: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❼Switch Mounting Method

Code	Content	
Blank	Rail Type	
Z	Band Type	

❽Option

	Code	Contents	Max. Ambient Temperature	Instantaneous Max. Temperature	
*1 *2 *3	J	Bellows	100°C	200°C	
*1 *2 *3	L		250°C	400°C	
*4	Q	Shipped with Switch Rail Attached			
	M	Piston Rod Material (Stainless Steel)			

*1: For models with bellows, if the ❶ mounting style is "LB" or "FA," the mounting brackets are shipped pre-assembled.
*2: The instantaneous max. temperature is that at which sparks, cutting chips, etc., instantaneously contact bellows.
*3: When type with bellows is selected, the bellows will be attached to the rods on both sides.
*4: ❼ If switch mounting style "Z" is selected, the "Switch rail shipped attached" option ("Q") cannot be selected.

❾Accessories

Code	Contents	
I	Single Knuckle	
Y	Double Knuckle (Pin and retaining ring included)	
B2	Double Yoke Bracket	

About Custom Product Specifications

For details, see P. 474 to 477.

Code	Contents
-XP5	Knuckle Pin/Clevis Pin Split Pin
-XP7	Knuckle fixed by pin driving
-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving
-XJ9	Without Bellows
[[A2]	With 2 Rod Nuts
Rod End Shape Modification	Refer to End of Volume P. 11.

Model No. Example)
SCM - B - ..... - XP5

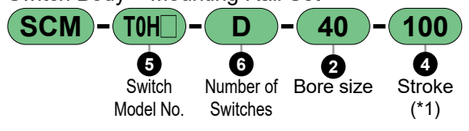
Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

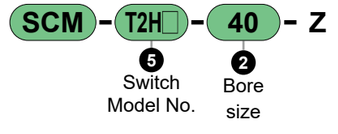
SCM - B - ..... - FP1

Switch Single Unit Model No. Notation Method

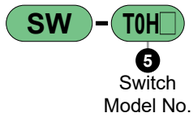
[Switch mounting: Rail Type]
Switch Body + Mounting Rail Set



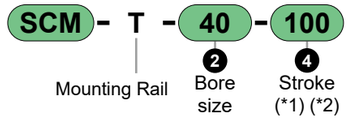
[Switch mounting: Band Type]
●Switch Body + Mounting Bracket Set + Band



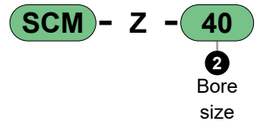
[Switch Body Only]



●Mounting Rail Only



●Mounting Bracket Set + Band



*1: Indicate items with a stroke exceeding 300 mm as X. If exceeding 300 mm, one short rail (switch adjustment travel distance 100 mm) is included per switch.
*2: When indicating X for mounting rail only, order the same number of rails as the number of switches used.

Specifications

Item		SCM-B					
Bore size	mm	ø20	ø25	ø32	ø40	ø50	ø63
Actuation method		Double Acting, Back-to-Back Type					
Operating Fluid		Compressed Air					
Max. Working Pressure	MPa	1.0					
Min. Operating Pressure	MPa	0.1				0.05	
Proof Pressure	MPa	1.6					
Ambient Temperature	°C	-10 to 60 (No freezing)					
Port Size		Rc1/8				Rc1/4	
Stroke tolerance	mm	$^{+1.4}_{0}$ (to 500)			$^{+1.4}_{0}$ (to 750)	$^{+2.3}_{0}$ (to 750)	
Operating Piston Speed	mm/s	30 to 1000 (Use within allowable absorption energy.)					
Cushion		Rubber Cushion					
Lubrication		Not Required (When lubricating, use Turbine Oil ISO VG32)					
Allowable Absorbed Energy	J	0.1	0.2	0.5	0.9	1.6	1.6

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke
ø20	25, 50, 75, 50, 75, 100, 50, 75, 100	500	10
ø25			
ø32			
ø40		750	
ø50			
ø63			

Note: Intermediate strokes can be produced in 1 mm increments.

Number of Switches Mounted and Min. Stroke (mm)

●Switch Mounting Method Rail Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	25	10	25	10	25	10	25
ø25	10	25	10	25	10	25	10	25	10	25
ø32	10	25	10	25	10	25	10	25	10	25
ø40	10	25	10	25	10	25	10	25	10	25
ø50	10	25	10	25	10	25	10	25	10	25
ø63	10	25	10	25	10	25	10	25	10	25

●Switch Mounting Method Band Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	30	10	35	15	45	10	25
ø25	10	25	10	30	10	35	15	45	10	25
ø32	10	25	10	30	10	35	15	45	10	25
ø40	10	25	10	30	10	35	10	45	10	25
ø50	10	25	10	30	10	35	10	45	10	25
ø63	10	25	10	30	10	35	10	45	10	25

Note: For products with 1 switch and stroke of 10 mm or more but less than 25 mm, the switch rail mounting position changes, and trunnion type mounting cannot be produced. For mounting position, see P. 468 to 473.

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore size (mm)	Product Weight at Stroke (S) = 0 mm	Added Weight				Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S = 10 mm	Weight of Band per Switch
	Basic Type (OO)	Basic type	Axial Foot Type	Flange Type	Trunnion Type				
ø20	0.10	0.00	0.11	0.03	0.01	Refer to the weight listed in the switch specifications on P. 971.	0.01	0.012	0.007
ø25	0.17	0.00	0.13	0.04	0.02		0.014	0.016	0.007
ø32	0.26	0.02	0.18	0.08	0.05		0.018	0.02	0.007
ø40	0.41	0.05	0.27	0.13	0.10		0.03	0.032	0.007
ø50	0.77	0.07	0.55	0.41	0.21		0.044	0.046	0.008
ø63	1.07	0.11	0.83	0.61	0.25		0.052	0.054	0.009

(Example)
Product Weight of SCM-B-LB-40D-25-T2H-D-D50-T2H-R

[S1 Weight]
Product Weight at S=0 mm ····· 0.41 kg
Added Weight at S=25 mm ····· 0.032 × $\frac{25}{10}$ = 0.08 kg
Weight of 2 switches ····· 0.036 kg
S1 Weight ····· 0.41 kg+0.08 kg+0.036 kg=0.526 kg

[S2 Weight]
Product Weight at S=0 mm ····· 0.41 kg
Added Weight at S=50 mm ····· 0.032 × $\frac{25}{10}$ = 0.16 kg
Weight of 1 Switch ····· 0.018 kg
S2 Weight ····· 0.63 kg+0.16 kg+0.018 kg=0.588 kg
Product Weight (S1 Weight + S2 Weight + Added Weight) ····· 0.526 kg+0.588 kg+0.27 kg=1.384 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	–	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	–	26.4	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push	–	49.1	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	–	41.2	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push	–	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	–	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	–	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	–	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.0	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	2.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3

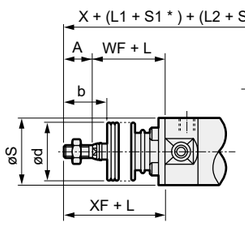
Mounting Bracket Model No. Notation Method

Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40	ø50	ø63
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63
Flange (FA)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63
Trunnion (TA)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63

*1: Mounting bolts are included to each mounting bracket.
*2: Foot type mounting brackets (LB) and trunnion mounting brackets (TA/TB) are 2 pcs/set.

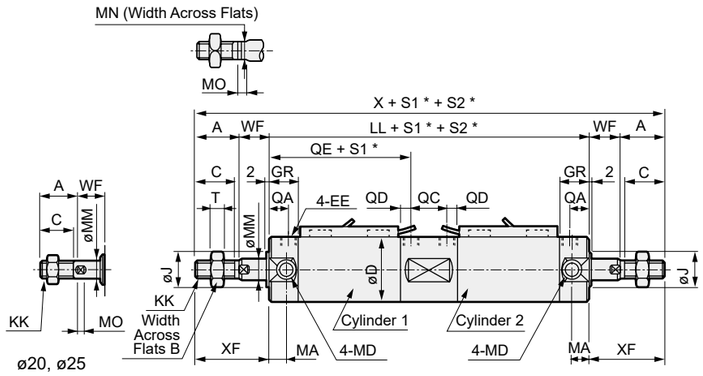
Outline Dimension Drawing

●Basic Type (OO)



[With Bellows]

• Switch Mounting Method: Rail Type



ø20, ø25

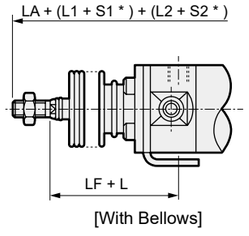
* S1: Cylinder 1 Stroke, S2: Cylinder 2 Stroke

Code	Basic Type (OO) Basic Dimensions													
Bore size (mm)	A	B	C	D	DA	EE	GR	J	KK	LL	MA	MC	MD	MM
ø20	18	13	16	26	M4 Depth 6.5	Rc1/8	19	12	M8	137	11	24	M5	8
ø25	22	17	20	31	M5 Depth 6.5	Rc1/8	19	14	M10 × 1.25	137	11	29	M6	10
ø32	22	17	20	38	M5 Depth 7.5	Rc1/8	19	18	M10 × 1.25	143	11	36	M8	12
ø40	30	22	27	47	M6 Depth 12	Rc1/8	20	25	M14 × 1.5	157	12	44	M10	16
ø50	35	27	32	58	M8 Depth 16	Rc1/4	25	30	M18 × 1.5	184	13	55	M12	20
ø63	35	27	32	72	M10 Depth 16	Rc1/4	25	32	M18 × 1.5	184	13	69	M14	20

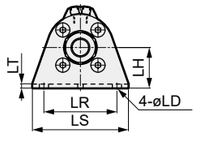
Code												With Bellows			
Bore size (mm)	MN	MO	QA	QC	QD	QE	SD	T	WF	X	XF	b	d	s	L1, L2
ø20	6	4	12	19	7	59	14	5	17	207	35	30	30	25.7	(Stroke / 3) + 18.5
ø25	8	5	12	19	7	59	16.5	6	18	217	40	35	30	30.7	(Stroke / 3) + 20.5
ø32	10	5.5	12	21	7	61	20	6	18	223	40	31.5	35	37.7	(Stroke / 3) + 19
ø40	14	6	13	25	7	66	26	8	20	257	50	40	35	46.7	(Stroke / 3) + 18.5
ø50	17	8	15	28	10	78	32	11	23	300	58	46	40	57.7	(Stroke / 3.6) + 18.5
ø63	17	8	15	28	10	78	38	11	23	300	58	46	40	71.7	(Stroke / 3.6) + 18.5

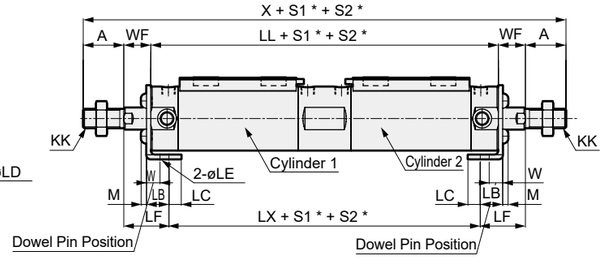
***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

●Axial Foot Type (LB)



[With Bellows]





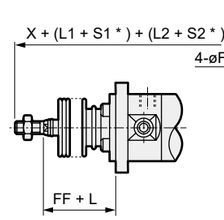
* S1: Cylinder 1 Stroke, S2: Cylinder 2 Stroke

Code	Axial Foot Type (LB) Mounting Dimensions																	With Bellows
Bore size (mm)	A	KK	LB	LC	LD	LE	LF	LH	LL	LR	LS	LT	LX	M	W	WF	X	L1, L2
ø20	18	M8	15.1	7.1	5.7	4	28.9	20	137	32	44	3.2	113.2	2.6	10	17	207	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	15.1	7.1	5.7	4	29.9	22	137	36	49	3.2	113.2	3.4	10	18	217	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	16.1	8.1	6.8	4	30.9	25	143	44	58	3.2	117.2	3.4	10	18	223	(Stroke / 3) + 19
ø40	30	M14 × 1.5	16.6	9.1	6.8	4	33.4	30	157	54	71	3.2	130.2	4	10	20	257	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	22	11	9	5	40.5	40	184	66	86	4.5	149	5	17.5	23	300	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	22	13	11	5	40.5	45	184	82	106	4.5	149	5	17.5	23	300	(Stroke / 3.6) + 18.5

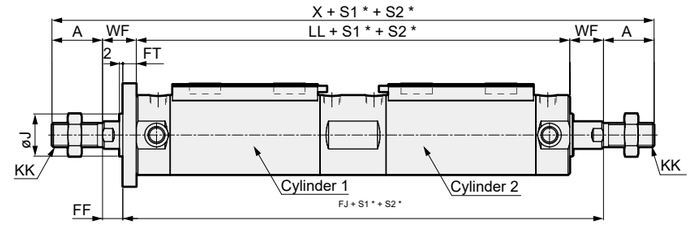
***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)



[With Bellows]

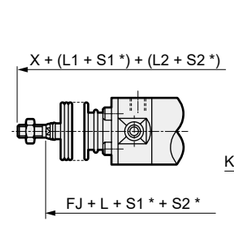


* S1: Cylinder 1 Stroke, S2: Cylinder 2 Stroke

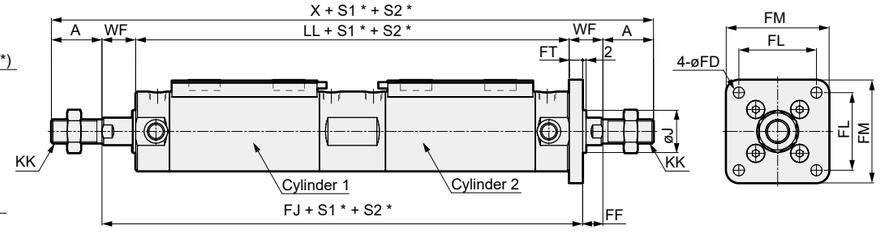
Code	Rod Side Flange Type (FA) Mounting Dimensions												With Bellows
Bore size (mm)	A	FD	FF	FJ	FL	FM	FT	J	KK	LL	WF	X	L1, L2
20	18	5.5	11	160	28	40	6	12	M8	137	17	207	(Stroke / 3) + 18.5
25	22	5.5	11	162	32	44	7	14	M10 × 1.25	137	18	217	(Stroke / 3) + 20.5
32	22	6.6	11	168	38	53	7	18	M10 × 1.25	143	18	223	(Stroke / 3) + 19
40	30	6.6	12	185	46	61	8	25	M14 × 1.5	157	20	257	(Stroke / 3) + 18.5
50	35	9	14	216	58	76	9	30	M18 × 1.5	184	23	300	(Stroke / 3.6) + 18.5
63	35	11	14	216	70	92	9	32	M18 × 1.5	184	23	300	(Stroke / 3.6) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

●Head Side Flange Type (FB)



[With Bellows]



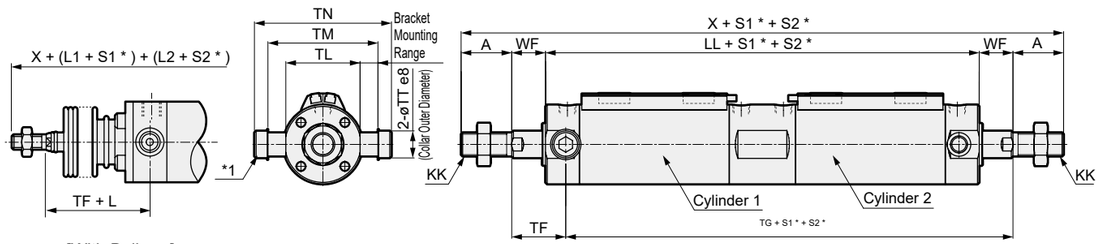
* S1: Cylinder 1 Stroke, S2: Cylinder 2 Stroke

Code	Head Side Flange Type (FB) Mounting Dimensions												With Bellows
Bore size (mm)	A	FD	FF	FJ	FL	FM	FT	J	KK	LL	WF	X	L1, L2
20	18	5.5	11	160	28	40	6	12	M8	137	17	207	(Stroke / 3) + 18.5
25	22	5.5	11	162	32	44	7	14	M10 × 1.25	137	18	217	(Stroke / 3) + 20.5
32	22	6.6	11	168	38	53	7	18	M10 × 1.25	143	18	223	(Stroke / 3) + 19
40	30	6.6	12	185	46	61	8	25	M14 × 1.5	157	20	257	(Stroke / 3) + 18.5
50	35	9	14	216	58	76	9	30	M18 × 1.5	184	23	300	(Stroke / 3.6) + 18.5
63	35	11	14	216	70	92	9	32	M18 × 1.5	184	23	300	(Stroke / 3.6) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

●Rod side trunnion type (TA)



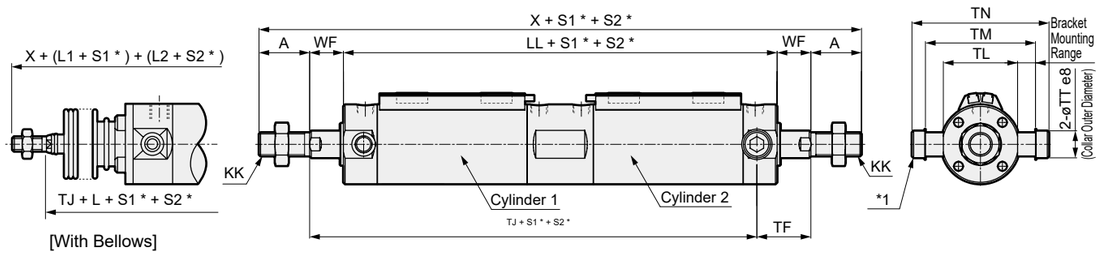
[With Bellows]

* S1: Cylinder 1 Stroke, S2: Cylinder 2 Stroke

Code	Rod Side Trunnion Type (TA) Mounting Dimensions											With Bellows
Bore size (mm)	A	KK	LL	TF	TG	TL	TM	TN	TT	WF	X	L1, L2
ø20	18	M8	137	28	143	28	39	47.6	8	17	207	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	137	29	144	33	43	53	10	18	217	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	143	29	150	40	54.5	67.7	12	18	223	(Stroke / 3) + 19
ø40	30	M14 × 1.5	157	32	165	49	65.9	81.1	14	20	257	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	184	36	194	60	80	98.6	16	23	300	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	184	36	194	74	98	119.2	18	23	300	(Stroke / 3.6) + 18.5

***1: Consists of collar, flat washer, and hexagon socket head cap screw.**
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

●Head Side Trunnion Type (TB)



[With Bellows]

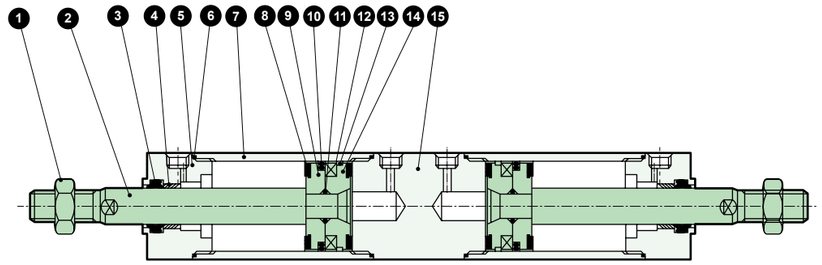
* S1: Cylinder 1 Stroke,
S2: Cylinder 2 Stroke

Code	Head Side Trunnion Type (TB) Mounting Dimensions											With Bellows
Bore size (mm)	A	KK	LL	TF	TJ	TL	TM	TN	TT	WF	X	L1, L2
ø20	18	M8	137	28	143	28	39	47.6	8	17	207	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	137	29	144	33	43	53	10	18	217	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	143	29	150	40	54.5	67.7	12	18	223	(Stroke / 3) + 19
ø40	30	M14 × 1.5	157	32	165	49	65.9	81.1	14	20	257	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	184	36	194	60	80	98.6	16	23	300	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	184	36	194	74	98	119.2	18	23	300	(Stroke / 3.6) + 18.5

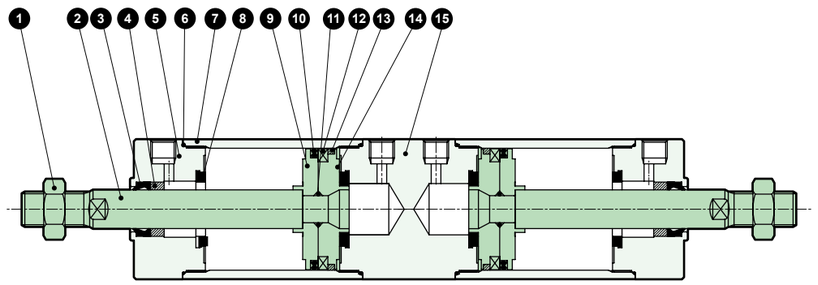
*1: Consists of collar, flat washer, and hexagon socket head cap screw.
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

Internal Structure Diagram / Material

• ø20 to ø40



• ø50 to ø63

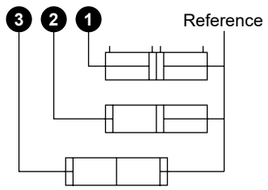


Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating	8	Cushion Rubber	Urethane Rubber	
2	Piston Rod	ø20, ø25: Stainless Steel ø32 to ø63: Steel	Industrial Hard Chrome Plating	9	Piston R	Aluminum Alloy	
				10	Piston Packing	Nitrile Rubber	
3	Rod Packing	Nitrile Rubber		11	Piston Gasket	Nitrile Rubber	
4	Bushing	Oil-Impregnated Bearing Alloy		12	Magnet	Plastic	
5	Rod Cover	Aluminum Alloy	Hard Anodized	13	Wear Ring	Polyacetal	
6	Cylinder Gasket	Nitrile Rubber		14	Piston H	Aluminum Alloy	
7	Cylinder Tube	Aluminum Alloy	Hard Anodized	15	Intermediate Cover	Aluminum Alloy	Hard Anodized

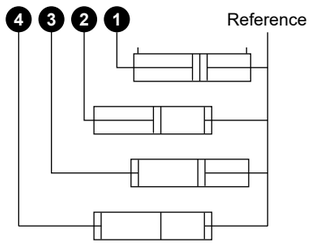
For maintenance parts, please visit the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

Usage Example

When combining the same stroke.
3 positions can be taken.



When combining different strokes.
4 positions can be taken.





Round shaped cylinder
Double Acting, Two-Stage Type

SCM-W Series

●Bore size: ø20, ø25, ø32, ø40, ø50, ø63

RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

Model No. SCM-W - LB - 40 - ( ) D 100 ( ) D 25 - J I

(S1 Total Stroke: 100 — 3 — S2 1st Stage Stroke: 25 — 4 — 8 — 9)

With Switch (Built-in magnet for switch)

Model No. SCM-W - LB - 40 - ( ) D 100 - T0H - D - ( ) D 25 - T0H - R - ( ) J I

1 Mounting type · 2 Bore size · 3 Piping thread type · With Rubber Cushion on Both Sides · 4 Stroke S1 · 5 Switch Model No. · 6 Number of Switches · 3 Piping thread type · With Rubber Cushion on Both Sides · 4 Stroke S2 · 5 Switch Model No. · 6 Switch Number · 7 Switch Mounting Style · 8 Option · 9 Accessories

Cylinder · Cylinder

1 Mounting Type

Mounting brackets are included with the product for shipment.

Code	Contents	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type (pin and retaining ring included)	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

2 Bore size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63

3 Piping thread type

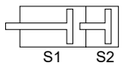
Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

4 Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20 to ø63	S1 (Total stroke): 10 to 600 S2 (1st Stage Stroke): 10 to 200	Every 1 mm

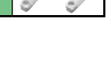
Note: For the number of switches to be mounted and minimum stroke, refer to P. 434.

1st Stage Stroke 25 mm Indicated by S2
+ 2nd Stage Stroke 75 mm
Total stroke 100 mm Indicated by S1



5 Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T5V□	T5V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—		T5V□	–	
			—		—		T5V□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T5V□	T5V□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—		T2HR3	T2VR3	 *6
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T5V□	T5V□	 *4

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: Max. load current as shown on the left: 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: T8H/V switches cannot be mounted when the bore size is ø20 to ø40 and switch mounting is the rail type.
*5: Switches other than those listed on the left are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*6: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

6 Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

7 Switch Mounting Method

Code	Content	
Blank	Rail Type	
Z	Band Type	

8 Option

Code	Contents	Max. Ambient Temperature	Instantaneous Max. Temperature	
*1 *2 J	Bellows	100°C	200°C	
*1 *2 L		250°C	400°C	
*3 Q	Shipped with Switch Rail Attached			
M	Piston Rod Material (Stainless Steel)			

*1: For models with bellows, if the ❶ mounting style is "LB" or "FA," the mounting brackets are shipped pre-assembled.
*2: The instantaneous max. temperature is that at which sparks, cutting chips, etc., instantaneously contact bellows.
*3: ❼ If switch mounting style "Z" is selected, the "Switch rail shipped attached" option ("Q") cannot be selected.

9 Accessories

Code	Content	
*1 I	Single Knuckle	
*1 Y	Double Knuckle (Pin and retaining ring included)	
B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, see P. 474 to 477.

Code	Contents
-XP5	Knuckle Pin/Clevis Pin Split Pin
-XP7	Knuckle fixed by pin driving
-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving
-XJ9	Without Bellows
[[A2]	With 2 Rod Nuts
Rod End Shape Modification	Refer to End of Volume P. 11.

Model No. Example)
SCM - W - ..... - XP5

Food Manufacturing Process Compatible Specification

(Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCM - W - ..... - FP1

Switch Single Unit Model No. Notation Method

[Switch mounting: Rail Type]
Switch Body + Mounting Rail Set

SCM - T0H□ - D - 40 - 100
5 Switch Model No. · 6 Number of Switches · 2 Bore size · 4 Stroke (*1)

[Switch mounting: Band Type]
●Switch Body + Mounting Bracket Set + Band

SCM - T2H□ - 40 - Z
5 Switch Model No. · 2 Bore size

[Switch Body Only]

SW - T0H□
5 Switch Model No.

●Mounting Rail Only

SCM - T - 40 - 100
Mounting Rail · 2 Bore size · 4 Stroke (*1) (*2)

●Mounting Bracket Set + Band

SCM - Z - 40
2 Bore size

*1: Indicate items with a stroke exceeding 300 mm as X. If exceeding 300 mm, one short rail (switch adjustment travel distance 100 mm) is included per switch.
*2: When indicating X for mounting rail only, order the same number of rails as the number of switches used.

Specifications

Item		SCM-W					
Bore size	mm	ø20	ø25	ø32	ø40	ø50	ø63
Actuation method		Double Acting, Two-Stage Type					
Operating Fluid		Compressed Air					
Max. Working Pressure	MPa	1.0 (*1)					
Min. Operating Pressure	MPa	0.2				0.1	
Proof Pressure	MPa	1.6					
Ambient Temperature	°C	–10 to 60 (Provided that freezing does not occur)					
Port Size		Rc1/8				Rc1/4	
Stroke tolerance mm	S1	±1.4				±2.3	
	S2	+1.4 0				+2.3 0	
Operating Piston Speed	mm/s	50 to 1000 (Use within allowable absorbed energy.)					
Cushion		Rubber Cushion					
Lubrication		Not Required (When lubricating, use Turbine Oil ISO VG32)					
Allowable Absorbed Energy	J	0.1	0.2	0.5	0.9	1.6	1.6

Note: If S1 and S2 are the same, use with a maximum operating pressure of 0.5 MPa.

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke
ø20	25, 50, 75, 50, 75, 100, 50, 75, 100	600	10
ø25			
ø32			
ø40			
ø50			
ø63			

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: The maximum stroke for S2 is 200 mm.

Number of Switches Mounted and Min. Stroke (mm)

● Switch mounting: Rail Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	25	10	25	10	25	10	25
ø25	10	25	10	25	10	25	10	25	10	25
ø32	10	25	10	25	10	25	10	25	10	25
ø40	10	25	10	25	10	25	10	25	10	25
ø50	10	25	10	25	10	25	10	25	10	25
ø63	10	25	10	25	10	25	10	25	10	25

● Switch mounting: Band Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	30	10	35	15	45	10	25
ø25	10	25	10	30	10	35	15	45	10	25
ø32	10	25	10	30	10	35	15	45	10	25
ø40	10	25	10	30	10	35	10	45	10	25
ø50	10	25	10	30	10	35	10	45	10	25
ø63	10	25	10	30	10	35	10	45	10	25

Note: For products with 1 switch and stroke of 10 mm or more but less than 25 mm, the switch rail mounting position changes, and trunnion type mounting cannot be produced. For mounting position, see P. 468 to 473.

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore size (mm)	Product Weight at Stroke (S) = 0 mm	Added Weight					Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S = 10 mm (Switch With Rail)	Weight of Band per Switch
	Basic Type (OO)	Basic type	Axial Foot Type	Flange Type	Clevis Type	Trunnion Type				
ø20	0.10	-0.01	0.10	0.02	0.04	0.00	Refer to the weight listed in the switch specifications on P. 971.	0.01	0.012	0.007
ø25	0.17	-0.02	0.11	0.02	0.06	0.00		0.014	0.016	0.007
ø32	0.26	-0.01	0.15	0.05	0.14	0.02		0.018	0.02	0.007
ø40	0.41	-0.03	0.19	0.05	0.20	0.02		0.03	0.032	0.007
ø50	0.77	-0.06	0.42	0.28	0.34	0.08		0.044	0.046	0.008
ø63	1.07	-0.02	0.70	0.48	0.66	0.12		0.052	0.054	0.009

(Example)
Product Weight of SCM-W-LB-40-D100-T2H-D-D25-T2H-R

[S1 Weight]
Product mass at S = 0 mm: .....0.41 kg
Added mass at S = 100 mm:.....$0.032 \times \frac{100}{10} = 0.32$ kg
Weight of 2 switches ..... 0.036 kg
S1 weight ..... 0.41 kg+0.32 kg+0.036 kg=0.766 kg

[S2 Weight]
Product mass at S = 0 mm: .....0.41 kg
Added weight at S = 100 mm ...$0.032 \times \frac{25}{10} = 0.08$ kg
Weight of 1 switches ..... 0.018 kg
S2 weight ..... 0.41 kg+0.08 kg+0.018 kg=0.508 kg
Product weight
(S1 weight + S2 weight + additional weight) ..... 0.766 kg+0.508 kg+0.19 kg=1.464 kg

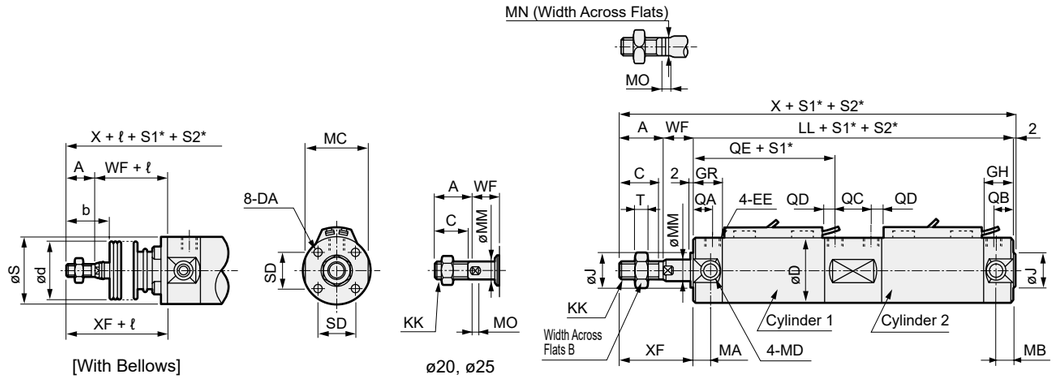
Mounting Bracket Model No. Notation Method

Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40	ø50	ø63
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63
Single Clevis (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63

*1: Mounting bolts are included to each mounting bracket.
*2: Foot type mounting brackets (LB) and trunnion mounting brackets (TA/TB) are 2 pcs/set.

Outline Dimension Drawing

● Basic type (OO)　　• Switch Mounting Method: Rail Type



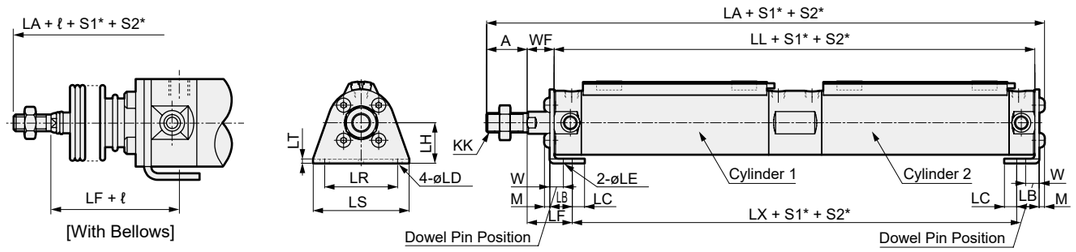
* S1: Total Stroke, S2: 1st Stage (Cylinder 2) Stroke

Code	Basic Type (OO) Basic Dimensions																			
Bore size (mm)	A	B	C	D	DA	EE	GH	GR	J	KK	LL	MA	MB	MC	MD	MM	MN	MO	QA	QB
ø20	18	13	16	26	M4 Depth 6.5	Rc1/8	17	19	12	M8	135	11	11	24	M5	8	6	4	12	10
ø25	22	17	20	31	M5 Depth 6.5	Rc1/8	17	19	14	M10 × 1.25	135	11	11	29	M6	10	8	5	12	10
ø32	22	17	20	38	M5 Depth 7.5	Rc1/8	17	19	18	M10 × 1.25	141	11	10	36	M8	12	10	5.5	12	10
ø40	30	22	27	47	M6 Depth 12	Rc1/8	19	20	25	M14 × 1.5	156	12	10	44	M10	16	14	6	13	12
ø50	35	27	32	58	M8 Depth 16	Rc1/4	22	25	30	M18 × 1.5	181	13	12	55	M12	20	17	8	15	12
ø63	35	27	32	72	M10 Depth 16	Rc1/4	22	25	32	M18 × 1.5	181	13	12	69	M14	20	17	8	15	12

Code									With Bellows			
Bore size (mm)	QC	QD	QE	SD	T	WF	X	XF	b	d	s	ℓ
ø20	19	7	59	14	5	17	172	35	30	30	25.7	(S1 / 3) + 18.5
ø25	19	7	59	16.5	6	18	177	40	35	30	30.7	(S1 / 3) + 20.5
ø32	21	7	61	20	6	18	183	40	31.5	35	37.7	(S1 / 3) + 19
ø40	25	7	66	26	8	20	208	50	40	35	46.7	(S1 / 3) + 18.5
ø50	28	10	78	32	11	23	241	58	46	40	57.7	(S1 / 3.6) + 18.5
ø63	28	10	78	38	11	23	241	58	46	40	71.7	(S1 / 3.6) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

● Axial foot type (LB)



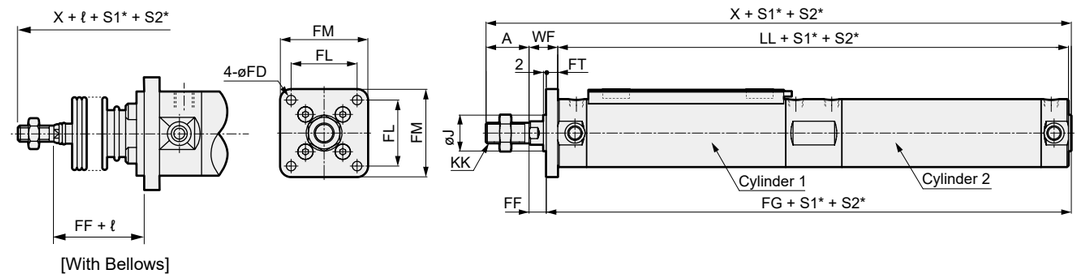
* S1: Total Stroke, S2: 1st Stage (Cylinder 2) Stroke

Code	Axial Foot Type (LB) Mounting Dimensions																With Bellows
Bore size (mm)	A	KK	LA	LB	LC	LD	LE	LF	LH	LL	LR	LS	LT	LX	M	W	WF	ℓ
ø20	18	M8	175.8	15.1	7.1	5.7	4	28.9	20	135	32	44	3.2	111.2	2.6	10	17	(S1 / 3) + 18.5
ø25	22	M10 × 1.25	181.6	15.1	7.1	5.7	4	29.9	22	135	36	49	3.2	111.2	3.4	10	18	(S1 / 3) + 20.5
ø32	22	M10 × 1.25	187.6	16.1	8.1	6.8	4	30.9	25	141	44	58	3.2	115.2	3.4	10	18	(S1 / 3) + 19
ø40	30	M14 × 1.5	213.2	16.6	9.1	6.8	4	33.4	30	156	54	71	3.2	129.2	4	10	20	(S1 / 3) + 18.5
ø50	35	M18 × 1.5	248.5	22	11	9	5	40.5	40	181	66	86	4.5	146	5	17.5	23	(S1 / 3.6) + 18.5
ø63	35	M18 × 1.5	248.5	22	13	11	5	40.5	45	181	82	106	4.5	146	5	17.5	23	(S1 / 3.6) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

● Rod Side Flange Type (FA)

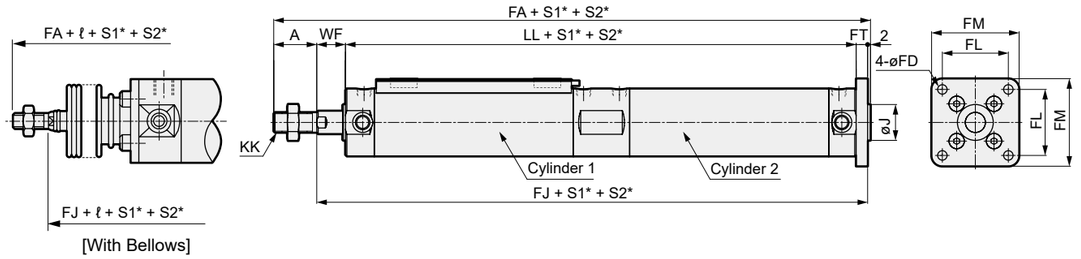


* S1: Total Stroke, S2: 1st Stage (Cylinder 2) Stroke

Code	Rod Side Flange Type (FA) Mounting Dimensions												With Bellows
Bore size (mm)	A	FD	FF	FG	FL	FM	FT	J	KK	LL	WF	X	ℓ
ø20	18	5.5	11	143	28	40	6	12	M8	135	17	172	(S1 / 3) + 18.5
ø25	22	5.5	11	144	32	44	7	14	M10 × 1.25	135	18	177	(S1 / 3) + 20.5
ø32	22	6.6	11	150	38	53	7	18	M10 × 1.25	141	18	183	(S1 / 3) + 19
ø40	30	6.6	12	166	46	61	8	25	M14 × 1.5	156	20	208	(S1 / 3) + 18.5
ø50	35	9	14	192	58	76	9	30	M18 × 1.5	181	23	241	(S1 / 3.6) + 18.5
ø63	35	11	14	192	70	92	9	32	M18 × 1.5	181	23	241	(S1 / 3.6) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

● Head Side Flange Type (FB)



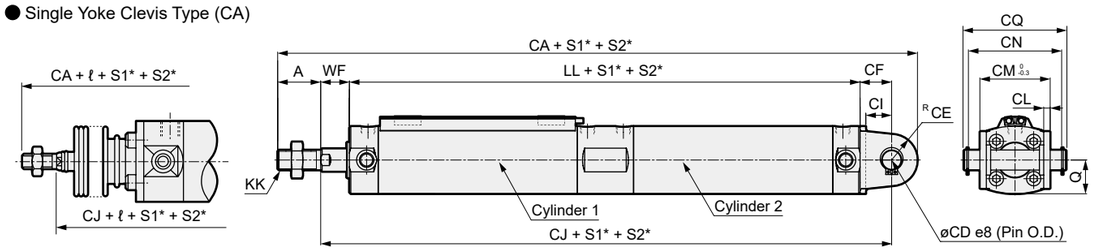
* S1: Total Stroke, S2: 1st Stage (Cylinder 2) Stroke

Code	Head Side Flange Type (FB) Mounting Dimensions											With Bellows
Bore size (mm)	A	FA	FD	FJ	FL	FM	FT	J	KK	LL	WF	ℓ
ø20	18	178	5.5	158	28	40	6	12	M8	135	17	(S1 / 3) + 18.5
ø25	22	184	5.5	160	32	44	7	14	M10 × 1.25	135	18	(S1 / 3) + 20.5
ø32	22	190	6.6	166	38	53	7	18	M10 × 1.25	141	18	(S1 / 3) + 19
ø40	30	216	6.6	184	46	61	8	25	M14 × 1.5	156	20	(S1 / 3) + 18.5
ø50	35	250	9	213	58	76	9	30	M18 × 1.5	181	23	(S1 / 3.6) + 18.5
ø63	35	250	11	213	70	92	9	32	M18 × 1.5	181	23	(S1 / 3.6) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

● Single Yoke Clevis Type (CA)

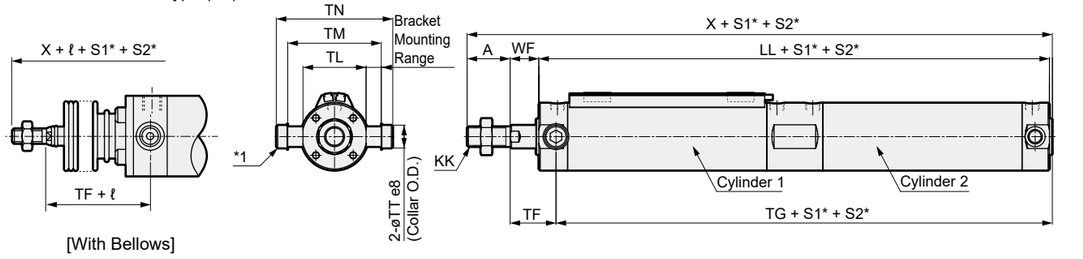


* S1: Total Stroke,
S2: 1st Stage (Cylinder 2) Stroke

Code	Single Clevis Type (CA) Mounting Dimensions															With Bellows
Bore size (mm)	A	CA	CD	CE	CF	CI	CJ	CL	CM	CN	CQ	KK	LL	Q	WF	ℓ
ø20	18	195	8	11	14	10.8	166	3.2	29	38.6	43.4	M8	135	13	17	(S1 / 3) + 18.5
ø25	22	204	10	13	16	12.8	169	3.2	33	42.6	48	M10 × 1.25	135	15.5	18	(S1 / 3) + 20.5
ø32	22	215.5	12	15	19.5	15.5	178.5	4.5	40	54	59.4	M10 × 1.25	141	19	18	(S1 / 3) + 19
ø40	30	245.5	14	18	21.5	17.5	197.5	4.5	49	65	71.4	M14 × 1.5	156	23.5	20	(S1 / 3) + 18.5
ø50	35	283.5	16	20	24.5	19	228.5	6	60	79.6	86	M18 × 1.5	181	29	23	(S1 / 3.6) + 18.5
ø63	35	290.5	18	22	29.5	22	233.5	8	74	97.8	105.4	M18 × 1.5	181	36	23	(S1 / 3.6) + 18.5

*1: Consists of collar, flat washer, and hexagon socket head cap screw.
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

● Rod Side Trunnion Type (TA)



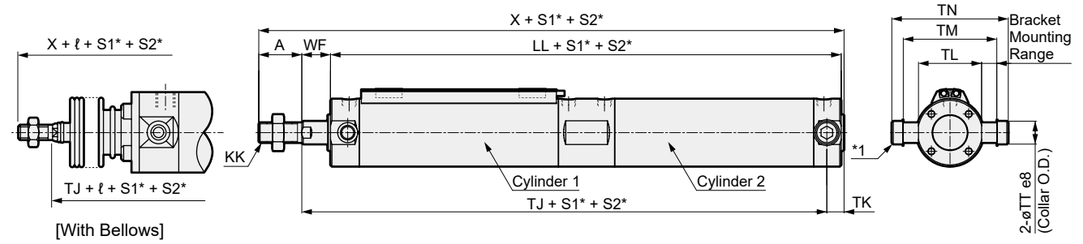
* S1: Total Stroke, S2: 1st Stage (Cylinder 2) Stroke

Code	Rod Side Trunnion Type (TA) Mounting Dimensions											With Bellows
Bore size (mm)	A	KK	LL	TF	TG	TL	TM	TN	TT	WF	X	ℓ
ø20	18	M8	135	28	126	28	39	47.6	8	17	172	(S1 / 3) + 18.5
ø25	22	M10 × 1.25	135	29	126	33	43	53	10	18	177	(S1 / 3) + 20.5
ø32	22	M10 × 1.25	141	29	132	40	54.5	67.7	12	18	183	(S1 / 3) + 19
ø40	30	M14 × 1.5	156	32	146	49	65.9	81.1	14	20	208	(S1 / 3) + 18.5
ø50	35	M18 × 1.5	181	36	170	60	80	98.6	16	23	241	(S1 / 3.6) + 18.5
ø63	35	M18 × 1.5	181	36	170	74	98	119.2	18	23	241	(S1 / 3.6) + 18.5

*1: Consists of collar, flat washer, and hexagon socket head cap screw.
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

● Head Side Trunnion Type (TB)



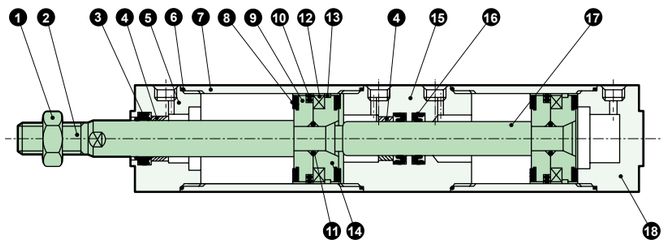
* S1: Total Stroke, S2: 1st Stage (Cylinder 2) Stroke

Code	Head Side Trunnion Type (TB) Mounting Dimensions											With Bellows
Bore size (mm)	A	KK	LL	TJ	TK	TL	TM	TN	TT	WF	X	ℓ
ø20	18	M8	135	141	13	28	39	47.6	8	17	172	(S1 / 3) + 18.5
ø25	22	M10 × 1.25	135	142	13	33	43	53	10	18	177	(S1 / 3) + 20.5
ø32	22	M10 × 1.25	141	149	12	40	54.5	67.7	12	18	183	(S1 / 3) + 19
ø40	30	M14 × 1.5	156	166	12	49	65.9	81.1	14	20	208	(S1 / 3) + 18.5
ø50	35	M18 × 1.5	181	192	14	60	80	98.6	16	23	241	(S1 / 3.6) + 18.5
ø63	35	M18 × 1.5	181	192	14	74	98	119.2	18	23	241	(S1 / 3.6) + 18.5

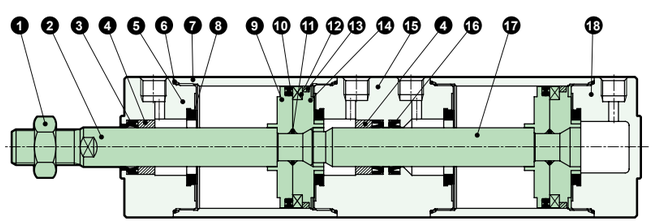
*1: Consists of collar, flat washer, and hexagon socket head cap screw.
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

Internal Structure Diagram / Material

• ø20 to ø40



• ø50 to ø63

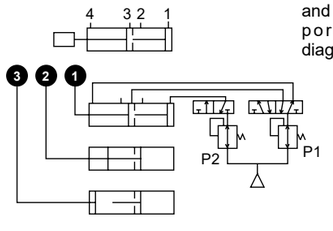


Part No.	Part Name	Material	Remarks	Part Number	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating	10	Piston Packing	Nitrile Rubber	
2	Piston Rod	ø20, ø25: Stainless Steel ø32 to ø63: Steel	Industrial Hard Chrome Plating	11	Piston Gasket	Nitrile Rubber	
				12	Magnet	Plastic	
3	Rod Packing	Nitrile Rubber		13	Wear Ring	Polyacetal	
4	Bushing	Oil-Impregnated Bearing Alloy		14	Piston H	Aluminum Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized	15	Intermediate Cover	Aluminum Alloy	Hard Anodized
6	Cylinder Gasket	Nitrile Rubber		16	Rod Packing	Nitrile Rubber	
7	Cylinder Tube	Aluminum Alloy	Hard Anodized	17	Piston Rod	ø20, ø25: Stainless Steel ø32 to ø100: Steel	Industrial Hard Chrome Plating
8	Cushion Rubber	Urethane Rubber					
9	Piston R	Aluminum Alloy		18	Head Cover	Aluminum Alloy	Hard Anodized

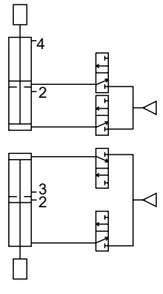
For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

Usage Example

Set pressure P2 > P1.
●First stage push
While keeping port 4 pressurized, pressurize port 1.
●Second stage push
While keeping port 1 pressurized, pressurize port 3.



Depending on the load direction, P2 = P1 may be acceptable.
In case of single acting use due to natural drop of load, ports 2 and 4 in the upper diagram, and ports 2 and 3 in the lower diagram become breather ports.



MEMO



Round shaped cylinder
Double Acting, Tandem Type

SCM-W4 Series

● Bore Size: ø20, ø25, ø32, ø40, ø50, ø63

RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

SCM-W4 – LB – 40 [ ] D – 100 ——— J I

Model No. ❶ ❷ ❸ ❹ ❽ ❾

With Switch (Built-in magnet for switch)

SCM-W4 – LB – 40 [ ] D – 100 – T0H – D – [ ] – J I

Model No. ❶ Mounting type ❷ Bore size ❸ Piping thread type | D: With Rubber Cushion on Both Sides | ❹ Stroke | ❺ Switch Model No. | ❻ Number of Switches | ❼ Switch Mounting Method | ❽ Option | ❾ Accessories

❶Mounting Type
Mounting brackets are included with the product for shipment.

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type (pin and retaining ring included)	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

❷Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63

❸Piping thread type

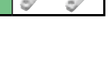
Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

❹Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20 to ø63	10 to 600	Every 1 mm

Note: For the number of switches to be mounted and minimum stroke, refer to P. 444.

❺Switch Model No.
For switch details, please refer to 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Water Resistance Improved	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color AC For Magnetic Field		—	24 ± 10%	—		T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—		T2HR3	T2VR3	 *6
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	 *4

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: Max. load current as shown on the left: 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: T8H/V switches cannot be mounted when the bore size is ø20 to ø40 and switch mounting is the rail type.
*5: Switches other than those listed on the left are also available. (Custom order) For details, refer to 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*6: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❼Switch Mounting Method

Code	Content	
Blank	Rail Type	
Z	Band Type	

❽Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
*1 *2 J	Bellows	100°C	200°C	
*1 *2 L		250°C	400°C	
*3 Q	Shipped with Switch Rail Attached			
M	Piston Rod Material (Stainless Steel)			

*1: For models with bellows, if the ❶ mounting style is "LB" or "FA," the mounting brackets are shipped pre-assembled.
*2: The instantaneous max. temperature is that at which sparks, cutting chips, etc., instantaneously contact bellows.
*3: ❼ If switch mounting style "Z" is selected, the "Switch rail shipped attached" option ("Q") cannot be selected.

❾Accessories

Code	Content	
*1 I	Single Knuckle	
*1 Y	Double Knuckle (Pin and retaining ring included)	
B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications
For details, see P. 474 to 477.

Code	Content
-XP5	Knuckle Pin/Clevis Pin Split Pin
-XP7	Knuckle fixed by pin driving
-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
SCM – W4 – ..... – XP5

Food Manufacturing Process Compatible Specification
(Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCM – W4 – ..... – FP1

Switch Single Unit Model No. Notation Method

[Switch mounting: Rail Type]
●Switch Body + Mounting Rail Set

SCM – T0H□ – D – 40 – 100
❺ Switch Model No. | ❻ Number of Switches | ❷ Bore size | ❹ Stroke (*1)

[Switch mounting: Band Type
●Switch Body + Mounting Bracket Set + Band

SCM – T2H□ – 40 – Z
❺ Switch Model No. | ❷ Bore size

[Switch Body Only]

SW – T0H□
❺ Switch Model No.

●Mounting Rail Only

SCM – T – 40 – 100
Mounting Rail | ❷ Bore size | ❹ Stroke (*1) (*2)

●Mounting Bracket Set + Band

SCM – Z – 40
❷ Bore size

*1: Indicate items with a stroke exceeding 300 mm as X. If exceeding 300 mm, one short rail (switch adjustment travel distance 100 mm) is included per switch.
*2: When indicating X for mounting rail only, order the same number of rails as the number of switches used.

Specifications

Item		SCM-W4					
Bore Size	mm	ø20	ø25	ø32	ø40	ø50	ø63
Actuation method		Double Acting, Tandem Type					
Operating Fluid		Compressed Air					
Max. Working Pressure	MPa	0.5					
Min. Operating Pressure	MPa	0.2				0.1	
Proof Pressure	MPa	1.6					
Ambient Temperature	°C	–10 to 60 (Provided that freezing does not occur)					
Port Size		Rc1/8				Rc1/4	
Stroke tolerance	mm	+1.4 -1				+2.3 -1	
Operating Piston Speed	mm/s	50 to 1000 (Use within allowable absorbed energy.)					
Cushion		Rubber Cushion					
Lubrication		Not Required (When lubricating, use Turbine Oil ISO VG32)					
Allowable Absorbed Energy	J	0.1	0.2	0.5	0.9	1.6	1.6

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke
ø20	25, 50, 75, 50, 75, 100, 50, 75, 100	600	10
ø25			
ø32			
ø40			
ø50			
ø63			

Note: Intermediate strokes can be produced in 1 mm increments.

Number of Switches Mounted and Min. Stroke (mm)

●Switch Mounting Method Rail Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore Size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	25	10	25	10	25	10	25
ø25	10	25	10	25	10	25	10	25	10	25
ø32	10	25	10	25	10	25	10	25	10	25
ø40	10	25	10	25	10	25	10	25	10	25
ø50	10	25	10	25	10	25	10	25	10	25
ø63	10	25	10	25	10	25	10	25	10	25

●Switch Mounting Method Band Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore Size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	30	10	35	15	45	10	25
ø25	10	25	10	30	10	35	15	45	10	25
ø32	10	25	10	30	10	35	15	45	10	25
ø40	10	25	10	30	10	35	10	45	10	25
ø50	10	25	10	30	10	35	10	45	10	25
ø63	10	25	10	30	10	35	10	45	10	25

Note: For products with 1 switch and stroke of 10 mm or more but less than 25 mm, the switch rail mounting position changes, and trunnion type mounting cannot be produced. For mounting position, see P. 468 to 473.

Cylinder Weight

(Unit: kg)

Item/Mounting Style	Product Weight at Stroke (S) = 0 mm	Added Weight					Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S = 10 mm (With Switch Rail)	Weight of Band per Switch
Bore Size (mm)	Basic Type (OO)	Basic type	Axial Foot Type	Flange Type	Clevis Type	Trunnion Type				
ø20	0.10	0.00	0.11	0.03	0.05	0.01	Refer to the weight listed in the switch specifications on P. 971.	0.01	0.012	0.007
ø25	0.17	-0.01	0.12	0.03	0.07	0.01		0.014	0.016	0.007
ø32	0.26	0.00	0.16	0.06	0.15	0.03		0.018	0.02	0.007
ø40	0.41	-0.01	0.21	0.07	0.22	0.04		0.03	0.032	0.007
ø50	0.77	-0.01	0.47	0.33	0.39	0.13		0.044	0.046	0.008
ø63	1.07	0.02	0.74	0.52	0.70	0.16		0.052	0.054	0.009

(Example)
Product Weight of SCM-W4-LB-40D-100-T2H-D

①Product mass at S = 0 mm: 0.41 kg
②Added mass at S = 100 mm: $0.032 \times \frac{100}{10} = 0.32$ kg
③Weight of 2 switches .....0.036 kg
④ Sum of ①+② and ③. .....0.41 kg+0.32 kg+0.036 kg=0.766 kg
Product Weight (Double ④ and add the added weight) 0.766 kg×2+0.21 kg=1.742 kg

Mounting Bracket Model No. Notation Method

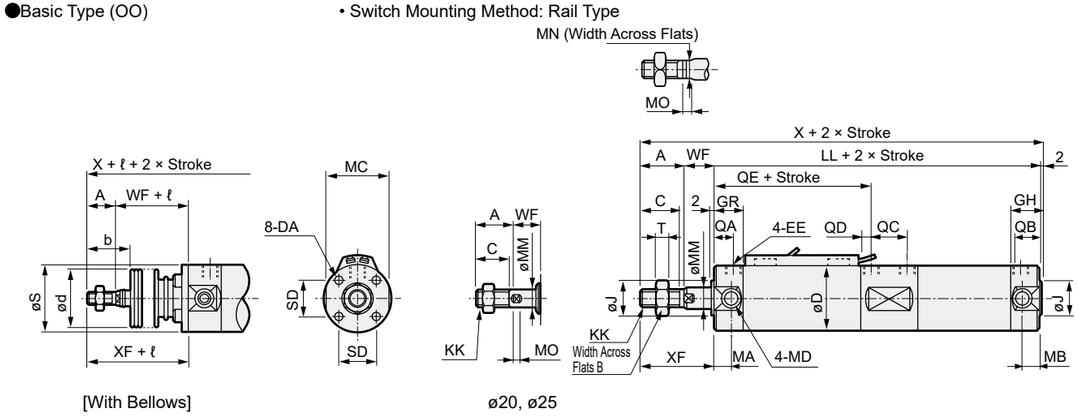
Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40	ø50	ø63
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63
Single Clevis (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63

*1: Mounting bolts are included to each mounting bracket.
*2: Foot type mounting brackets (LB) and trunnion mounting brackets (TA/TB) are 2 pcs/set.

Outline Dimension Drawing

●Basic Type (OO)

• Switch Mounting Method: Rail Type

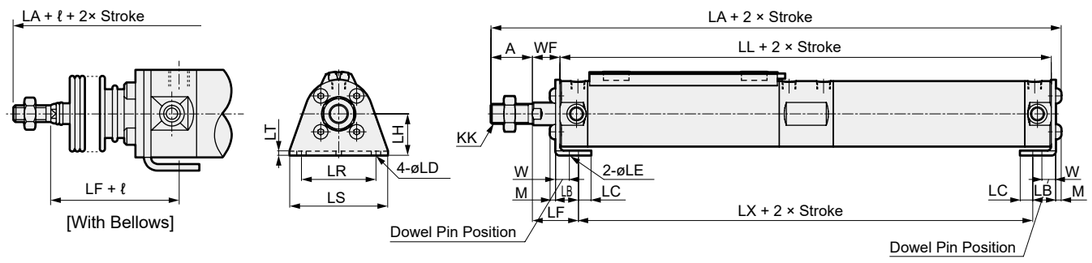


Code	Basic Type (OO) Basic Dimensions															
Bore Size (mm)	A	B	C	D	DA	EE	GH	GR	J	KK	LL	MA	MB	MC	MD	MM
ø20	18	13	16	26	M4 Depth 6.5	Rc1/8	17	19	12	M8	135	11	11	24	M5	8
ø25	22	17	20	31	M5 Depth 6.5	Rc1/8	17	19	14	M10 × 1.25	135	11	11	29	M6	10
ø32	22	17	20	38	M5 Depth 7.5	Rc1/8	17	19	18	M10 × 1.25	141	11	10	36	M8	12
ø40	30	22	27	47	M6 Depth 12	Rc1/8	19	20	25	M14 × 1.5	156	12	10	44	M10	16
ø50	35	27	32	58	M8 Depth 16	Rc1/4	22	25	30	M18 × 1.5	181	13	12	55	M12	20
ø63	35	27	32	72	M10 Depth 16	Rc1/4	22	25	32	M18 × 1.5	181	13	12	69	M14	20

Code													With Bellows			
Bore Size (mm)	MN	MO	QA	QB	QC	QD	QE	SD	T	WF	X	XF	b	d	s	ℓ
ø20	6	4	12	10	19	7	59	14	5	17	172	35	30	30	25.7	(Stroke / 3) + 18.5
ø25	8	5	12	10	19	7	59	16.5	6	18	177	40	35	30	30.7	(Stroke / 3) + 20.5
ø32	10	5.5	12	10	21	7	61	20	6	18	183	40	31.5	35	37.7	(Stroke / 3) + 19
ø40	14	6	13	12	25	7	66	26	8	20	208	50	40	35	46.7	(Stroke / 3) + 18.5
ø50	17	8	15	12	28	10	78	32	11	23	241	58	46	40	57.7	(Stroke / 3.6) + 18.5
ø63	17	8	15	12	28	10	78	38	11	23	241	58	46	40	71.7	(Stroke / 3.6) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

●Axial Foot Type (LB)

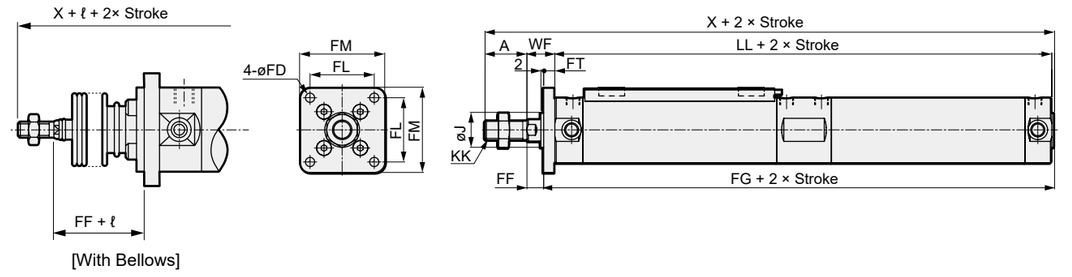


Code	Axial Foot Type (LB) Mounting Dimensions																With Bellows
Bore Size (mm)	A	KK	LA	LB	LC	LD	LE	LF	LH	LL	LR	LS	LT	LX	M	W	WF	ℓ
ø20	18	M8	175.8	15.1	7.1	5.7	4	28.9	20	135	32	44	3.2	111.2	2.6	10	17	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	181.6	15.1	7.1	5.7	4	29.9	22	135	36	49	3.2	111.2	3.4	10	18	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	187.6	16.1	8.1	6.8	4	30.9	25	141	44	58	3.2	115.2	3.4	10	18	(Stroke / 3) + 19
ø40	30	M14 × 1.5	213.2	16.6	9.1	6.8	4	33.4	30	156	54	71	3.2	129.2	4	10	20	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	248.5	22	11	9	5	40.5	40	181	66	86	4.5	146	5	17.5	23	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	248.5	22	13	11	5	40.5	45	181	82	106	4.5	146	5	17.5	23	(Stroke / 3.6) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

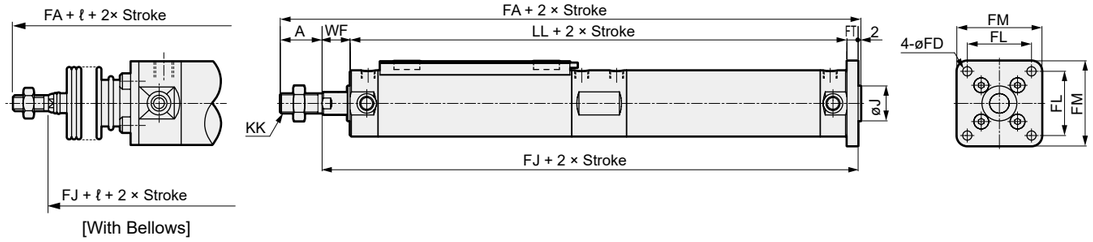
●Rod Side Flange Type (FA)



Code	Rod Side Flange Type (FA) Mounting Dimensions												With Bellows
Bore Size (mm)	A	FD	FF	FG	FL	FM	FT	J	KK	LL	WF	X	ℓ
ø20	18	5.5	11	143	28	40	6	12	M8	135	17	172	(Stroke / 3) + 18.5
ø25	22	5.5	11	144	32	44	7	14	M10 × 1.25	135	18	177	(Stroke / 3) + 20.5
ø32	22	6.6	11	150	38	53	7	18	M10 × 1.25	141	18	183	(Stroke / 3) + 19
ø40	30	6.6	12	166	46	61	8	25	M14 × 1.5	156	20	208	(Stroke / 3) + 18.5
ø50	35	9	14	192	58	76	9	30	M18 × 1.5	181	23	241	(Stroke / 3.6) + 18.5
ø63	35	11	14	192	70	92	9	32	M18 × 1.5	181	23	241	(Stroke / 3.6) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

●Head Side Flange Type (FB)

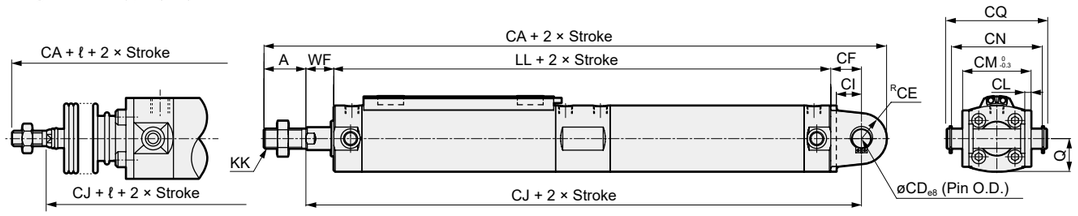


Code	Head Side Flange Type (FB) Mounting Dimensions											With Bellows
Bore Size (mm)	A	FA	FD	FJ	FL	FM	FT	J	KK	LL	WF	ℓ
ø20	18	178	5.5	158	28	40	6	12	M8	135	17	(Stroke / 3) + 18.5
ø25	22	184	5.5	160	32	44	7	14	M10 × 1.25	135	18	(Stroke / 3) + 20.5
ø32	22	190	6.6	166	38	53	7	18	M10 × 1.25	141	18	(Stroke / 3) + 19
ø40	30	216	6.6	184	46	61	8	25	M14 × 1.5	156	20	(Stroke / 3) + 18.5
ø50	35	250	9	213	58	76	9	30	M18 × 1.5	181	23	(Stroke / 3.6) + 18.5
ø63	35	250	11	213	70	92	9	32	M18 × 1.5	181	23	(Stroke / 3.6) + 18.5

***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

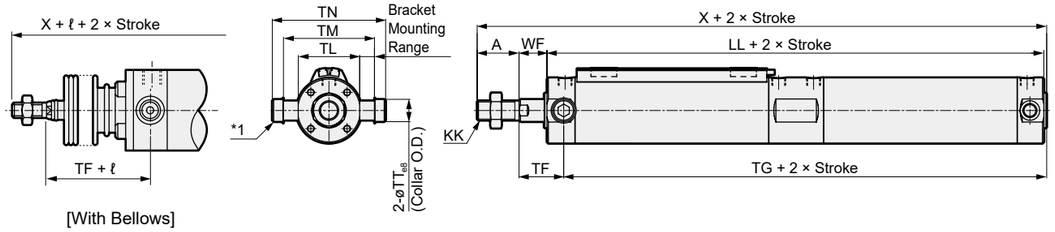
●Single Clevis Type (CA)



Code	Single Clevis Type (CA) Mounting Dimensions															With Bellows
Bore Size (mm)	A	CA	CD	CE	CF	CI	CJ	CL	CM	CN	CQ	KK	LL	Q	WF	ℓ
ø20	18	195	8	11	14	10.8	166	3.2	29	38.6	43.4	M8	135	13	17	(Stroke / 3) + 18.5
ø25	22	204	10	13	16	12.8	169	3.2	33	42.6	48	M10 × 1.25	135	15.5	18	(Stroke / 3) + 20.5
ø32	22	215.5	12	15	19.5	15.5	178.5	4.5	40	54	59.4	M10 × 1.25	141	19	18	(Stroke / 3) + 19
ø40	30	245.5	14	18	21.5	17.5	197.5	4.5	49	65	71.4	M14 × 1.5	156	23.5	20	(Stroke / 3) + 18.5
ø50	35	283.5	16	20	24.5	19	228.5	6	60	79.6	86	M18 × 1.5	181	29	23	(Stroke / 3.6) + 18.5
ø63	35	290.5	18	22	29.5	22	233.5	8	74	97.8	105.4	M18 × 1.5	181	36	23	(Stroke / 3.6) + 18.5

*1: Consists of collar, flat washer, and hexagon socket head cap screw.
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

●Rod side trunnion type (TA)

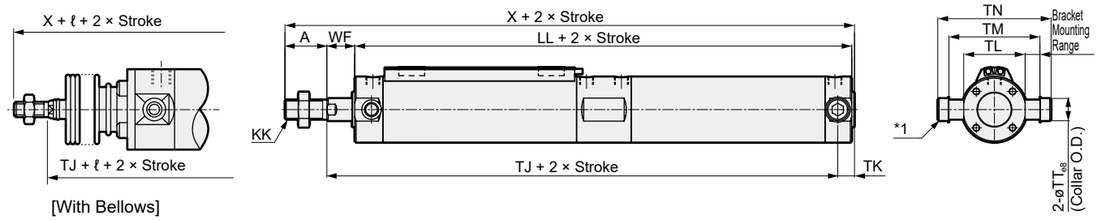


Code	Rod Side Trunnion Type (TA) Mounting Dimensions											With Bellows
Bore Size (mm)	A	KK	LL	TF	TG	TL	TM	TN	TT	WF	X	ℓ
ø20	18	M8	135	28	126	28	39	47.6	8	17	172	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	135	29	126	33	43	53	10	18	177	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	141	29	132	40	54.5	67.7	12	18	183	(Stroke / 3) + 19
ø40	30	M14 × 1.5	156	32	146	49	65.9	81.1	14	20	208	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	181	36	170	60	80	98.6	16	23	241	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	181	36	170	74	98	119.2	18	23	241	(Stroke / 3.6) + 18.5

*1: Consists of collar, flat washer, and hexagon socket head cap screw.
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

Outline Dimension Drawing

●Head Side Trunnion Type (TB)

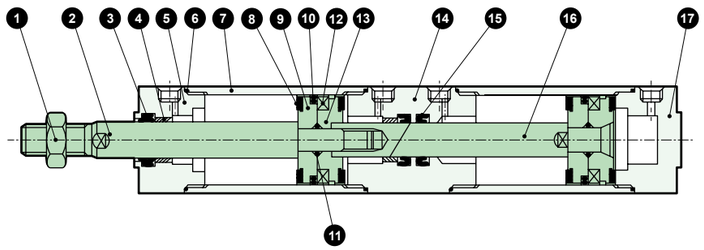


Code	Head Side Trunnion Type (TB) Mounting Dimensions											With Bellows
Bore Size (mm)	A	KK	LL	TJ	TK	TL	TM	TN	TT	WF	X	ℓ
ø20	18	M8	135	141	13	28	39	47.6	8	17	172	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	135	142	13	33	43	53	10	18	177	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	141	149	12	40	54.5	67.7	12	18	183	(Stroke / 3) + 19
ø40	30	M14 × 1.5	156	166	12	49	65.9	81.1	14	20	208	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	181	192	14	60	80	98.6	16	23	241	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	181	192	14	74	98	119.2	18	23	241	(Stroke / 3.6) + 18.5

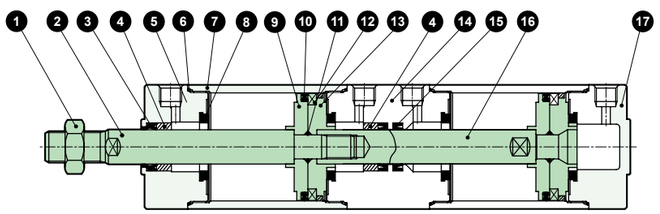
*1: Consists of collar, flat washer, and hexagon socket head cap screw.
***2: For dimensions with each switch, see P. 468 to 473.**
***3: For outer dimensions diagram of accessories, refer to P. 336.**

Internal Structure Diagram / Material

• ø20 to ø40



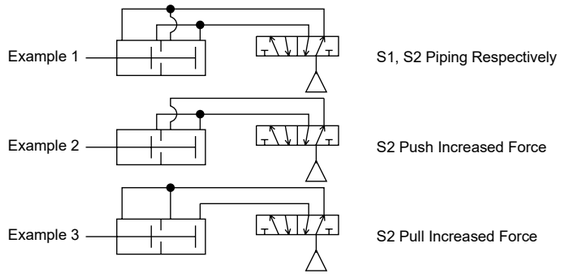
• ø50 to ø63



Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating
2	Piston Rod	ø20, ø25: Stainless Steel ø32 to ø63: Steel	Industrial Hard Chrome Plating
3	Rod Packing	Nitrile Rubber	
4	Bushing	Oil-Impregnated Bearing Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized
6	Cylinder Gasket	Nitrile Rubber	
7	Cylinder Tube	Aluminum Alloy	Hard Anodized
8	Cushion Rubber	Urethane Rubber	
9	Piston R	Aluminum Alloy	
10	Piston Packing	Nitrile Rubber	
11	Piston Gasket	Nitrile Rubber	
12	Magnet	Plastic	
13	Piston H	Aluminum Alloy	
14	Intermediate Cover	Aluminum Alloy	Hard Anodized
15	Rod Packing	Nitrile Rubber	
16	Piston Rod	ø20, ø25: Stainless Steel ø32 to ø100: Steel	Industrial Hard Chrome Plating
17	Head Cover	Aluminum Alloy	Hard Anodized

For maintenance parts, please visit the CKD Equipment Product Site
(https://www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

Usage Example



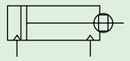
MEMO



Round shaped cylinder
Double Acting, Non-Rotating Type

SCM-M Series

●Bore Size: ø20, ø25, ø32, ø40, ø50, ø63

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

SCM-M – LB – 40 [ ] D – 100 ——— J I

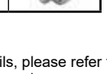
Model No. ❶ ❷ ❸ ❹ ❽ ❾

With Switch (Built-in magnet for switch)

SCM-M – LB – 40 [ ] D – 100 – T0H – D – [ ] – J I

Model No. ❶ Mounting type ❷ Bore size ❸ Piping thread type | With Rubber Cushion on Both Sides | ❹ Stroke ❺ Switch Model No. ❻ Number of Switches ❼ Switch Mounting Method ❽ Option ❾ Accessories

❶Mounting Type
Mounting brackets are included with the product for shipment.

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type (pin and retaining ring included)	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

❷Bore size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

❹Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20 to ø63	10 to 600	Every 1 mm

Note: For the number of switches to be mounted and minimum stroke, refer to P. 454.

❺Switch Model No.
For switch details, please refer to 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—		T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—		T2HR3	T2VR3	*6 
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	*4

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: Max. load current as shown on the left: 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: T8H/V switches cannot be mounted when the bore size is ø20 to ø40 and switch mounting is the rail type.
*5: Switches other than those listed on the left are also available. (Custom order) For details, refer to 971.

***Lead wire length, connector specification**

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+) 4PIN (-) Lead Wire 0.3 m

*6: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❻Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❼Switch Mounting Method

Code	Content	
Blank	Rail Type	
Z	Band Type	

❽Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
*1 *2	J	Bellows	100°C	200°C	
*1 *2	L		250°C	400°C	
*3	Q	Shipped with Switch Rail Attached			

*1: For models with bellows, if the ❶ mounting style is "LB" or "FA," the mounting brackets are shipped pre-assembled.
*2: The instantaneous max. temperature is that at which sparks, cutting chips, etc., instantaneously contact bellows.
*3: ❼ If switch mounting style "Z" is selected, the "Switch rail shipped attached" option ("Q") cannot be selected.

❾Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and retaining ring included)	
	B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications
For details, see P. 474 to 477.

Code	Content
-XP5	Knuckle Pin/Clevis Pin Split Pin
-XP7	Knuckle fixed by pin driving
-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
SCM – M – ..... – XP5

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCM – M – ..... – FP1

Switch Single Unit Model No. Notation Method

[Switch mounting: Rail Type]
●Switch Body + Mounting Rail Set

SCM – T0H□ – D – 40 – 100
❺ Switch Model No. | ❻ Number of Switches | ❷ Bore size | ❹ Stroke (*1)

[Switch mounting: Band Type
●Switch Body + Mounting Bracket Set + Band

SCM – T2H□ – 40 – Z
❺ Switch Model No. | ❷ Bore size

[Switch Body Only]

SW – T0H□
❺ Switch Model No.

●Mounting Rail Only

SCM – T – 40 – 100
Mounting Rail | ❷ Bore size | ❹ Stroke (*1) (*2)

●Mounting Bracket Set + Band

SCM – Z – 40
❷ Bore size

*1: Indicate items with a stroke exceeding 300 mm as X. If exceeding 300 mm, one short rail (switch adjustment travel distance 100 mm) is included per switch.
*2: When indicating X for mounting rail only, order the same number of rails as the number of switches used.

Specifications

Item		SCM-M					
Bore Size	mm	ø20	ø25	ø32	ø40	ø50	ø63
Actuation method		Double Acting, Non-Rotating Type					
Operating Fluid		Compressed Air					
Max. Working Pressure	MPa	1.0					
Min. Operating Pressure	MPa	0.1					0.05
Proof Pressure	MPa	1.6					
Ambient Temperature	°C	–10 to 60 (Provided that freezing does not occur)					
Port Size		Rc1/8				Rc1/4	
Stroke tolerance	mm	+1.4 0				+2.3 0	
Operating Piston Speed	mm/s	30 to 1000 (Use within allowable absorption energy.)					
Cushion		Rubber Cushion					
Lubrication		Not Required (When lubricating, use Turbine Oil ISO VG32)					
Non-rotating accuracy degrees		±1					
Allowable Absorbed Energy	J	0.1	0.2	0.5	0.9	1.6	1.6

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke
ø20	25, 50, 75, 50, 75, 100, 50, 75, 100	600	10
ø25			
ø32			
ø40			
ø50			
ø63			

Note: Intermediate strokes can be produced in 1 mm increments.

Number of Switches Mounted and Min. Stroke (mm)

●Switch Mounting Method Rail Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore Size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	25	10	25	10	25	10	25
ø25	10	25	10	25	10	25	10	25	10	25
ø32	10	25	10	25	10	25	10	25	10	25
ø40	10	25	10	25	10	25	10	25	10	25
ø50	10	25	10	25	10	25	10	25	10	25
ø63	10	25	10	25	10	25	10	25	10	25

●Switch Mounting Method Band Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore Size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	30	10	35	15	45	10	25
ø25	10	25	10	30	10	35	15	45	10	25
ø32	10	25	10	30	10	35	15	45	10	25
ø40	10	25	10	30	10	35	10	45	10	25
ø50	10	25	10	30	10	35	10	45	10	25
ø63	10	25	10	30	10	35	10	45	10	25

Note: For products with 1 switch and stroke of 10 mm or more but less than 25 mm, the switch rail mounting position changes, and trunnion type mounting cannot be produced. For mounting position, see P. 468 to 473.

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore	Product Weight at Stroke (S) = 0 mm					Switch Weight (Per Piece)	Added Weight per S = 10 mm	Added Weight per S=10 mm (with Rail)	Weight of Band per Switch
	Basic type	Axial Foot Type	Flange Type	Clevis Type	Trunnion Type				
ø20	0.10	0.21	0.13	0.15	0.11	Refer to the weight listed in the switch specifications on P. 971.	0.010	0.012	0.007
ø25	0.18	0.31	0.22	0.26	0.20		0.014	0.016	0.007
ø32	0.27	0.43	0.33	0.42	0.30		0.018	0.020	0.007
ø40	0.44	0.66	0.52	0.67	0.49		0.030	0.032	0.007
ø50	0.85	1.33	1.19	1.25	0.99		0.044	0.046	0.008
ø63	1.15	1.87	1.65	1.83	1.29		0.052	0.054	0.009

(Example)
Product Weight of SCM-M-LB-40D-100-T2H-D

- Product mass at S = 0 mm: … 0.66 kg
- Added mass at S = 100 mm: … $0.032 \times \frac{100}{10} = 0.32$ kg
- Weight of 2 switches ..... 0.036 kg
- Product Weight ..... 0.56 kg+0.32 kg+0.036 kg=0.916 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	–	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	–	26.4	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push	–	49.1k	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	–	41.2	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push	–	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	–	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	–	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	–	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	–	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	–	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	2.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3

Mounting Bracket Model No. Notation Method

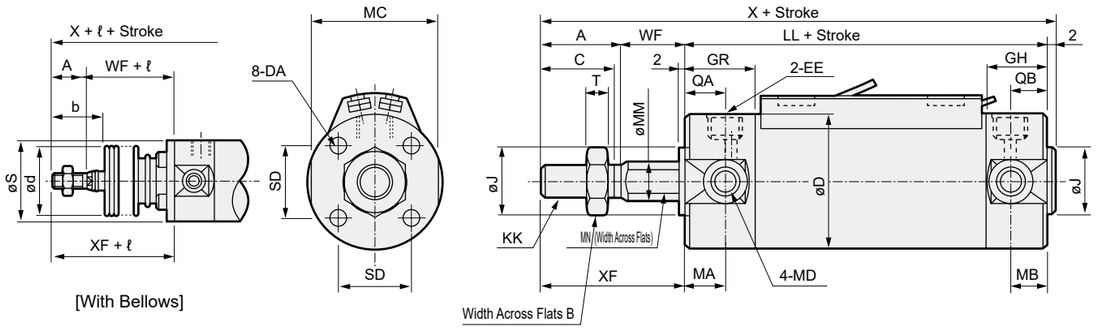
Bore Size (mm) / Mounting bracket	ø20	ø25	ø32	ø40	ø50	ø63
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63
Single Clevis (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63

Note 1: Mounting bolts are included to each mounting bracket.
Note 2: Foot type mounting brackets (LB) and trunnion mounting brackets (TA/TB) are 2 pcs/set.

Outline Dimension Drawing

●Basic Type (OO)

• Switch Mounting Method: Rail Type

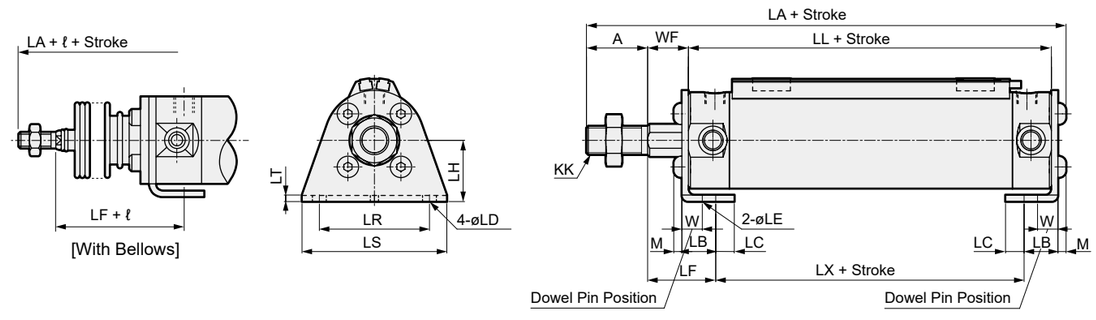


Code	Basic Type (OO) Basic Dimensions												
Bore Size (mm)	A	B	C	D	DA	EE	GH	GR	J	KK	LL	MA	MB
ø20	18	13	16	26	M4 Depth 6.5	Rc1/8	17	19	12	M8	69	11	11
ø25	22	17	20	31	M5 Depth 6.5	Rc1/8	17	19	14	M10 × 1.25	69	11	11
ø32	22	17	20	38	M5 Depth 7.5	Rc1/8	17	19	18	M10 × 1.25	71	11	10
ø40	30	22	27	47	M6 Depth 12	Rc1/8	19	20	25	M14 × 1.5	78	12	10
ø50	35	27	32	58	M8 Depth 16	Rc1/4	22	25	30	M18 × 1.5	90	13	12
ø63	35	27	32	72	M10 Depth 16	Rc1/4	22	25	32	M18 × 1.5	90	13	12

Code												With Bellows			
Bore Size (mm)	MC	MD	MM	MN	QA	QB	SD	T	WF	X	XF	b	d	s	ℓ
ø20	24	M5	10	8	12	10	14	5	17	106	35	30	30	25.7	(Stroke / 3) + 18.5
ø25	29	M6	12	10	12	10	16.5	6	18	111	40	35	30	30.7	(Stroke / 3) + 20.5
ø32	36	M8	12	10	12	10	20	6	18	113	40	31.5	35	37.7	(Stroke / 3) + 19
ø40	44	M10	16	14	13	12	26	8	20	130	50	40	35	46.7	(Stroke / 3) + 18.5
ø50	55	M12	20	18	15	12	32	11	23	150	58	46	40	57.7	(Stroke / 3.6) + 18.5
ø63	69	M14	20	18	15	12	38	11	23	150	58	46	40	71.7	(Stroke / 3.6) + 18.5

Note 1: For dimensions with each switch, see P. 468 to 473.
Note 2: For outer dimensions diagram of accessories, refer to P. 336.

●Axial Foot Type (LB)

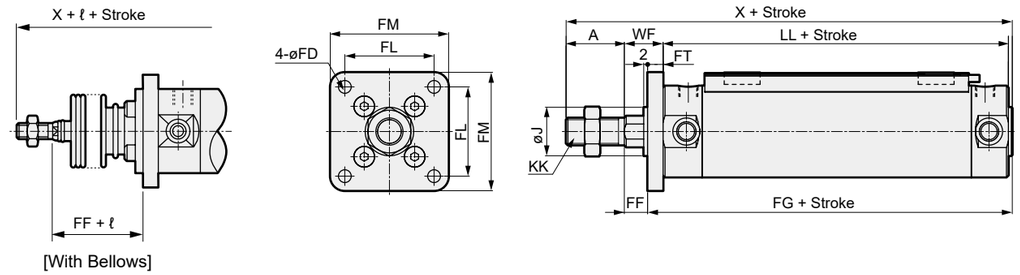


Code	Axial Foot Type (LB) Mounting Dimensions																With Bellows
Bore Size (mm)	A	KK	LA	LB	LC	LD	LE	LF	LH	LL	LR	LS	LT	LX	M	W	WF	ℓ
ø20	18	M8	109.8	15.1	7.1	5.7	4	28.9	20	69	32	44	3.2	45.2	2.6	10	17	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	115.6	15.1	7.1	5.7	4	29.9	22	69	36	49	3.2	45.2	3.4	10	18	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	117.6	16.1	8.1	6.8	4	30.9	25	71	44	58	3.2	45.2	3.4	10	18	(Stroke / 3) + 19
ø40	30	M14 × 1.5	135.2	16.6	9.1	6.8	4	33.4	30	78	54	71	3.2	51.2	4	10	20	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	157.5	22	11	9	5	40.5	40	90	66	86	4.5	55	5	17.5	23	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	157.5	22	13	11	5	40.5	45	90	82	106	4.5	55	5	17.5	23	(Stroke / 3.6) + 18.5

Note 1: For dimensions with each switch, see P. 468 to 473.
Note 2: For outer dimensions diagram of accessories, refer to P. 336.

Outline Dimension Drawing

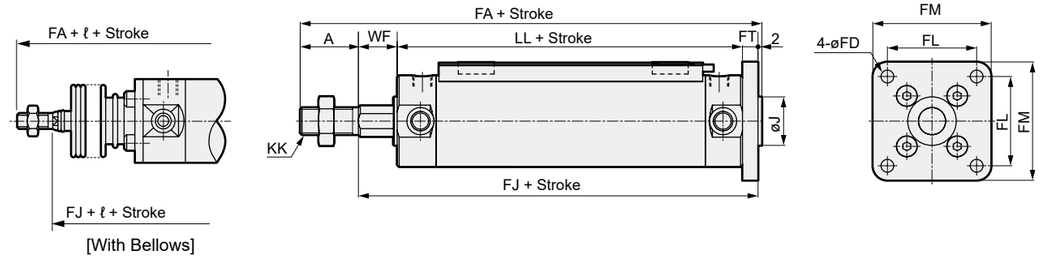
●Rod Side Flange Type (FA)



Code	Rod Side Flange Type (FA) Mounting Dimensions											With Bellows
Bore Size (mm)	A	FD	FF	FG	FL	FM	FT	J	KK	LL	WF	X	ℓ
ø20	18	5.5	11	77	28	40	6	12	M8	69	17	106	(Stroke / 3) + 18.5
ø25	22	5.5	11	78	32	44	7	14	M10 × 1.25	69	18	111	(Stroke / 3) + 20.5
ø32	22	6.6	11	80	38	53	7	18	M10 × 1.25	71	18	113	(Stroke / 3) + 19
ø40	30	6.6	12	88	46	61	8	25	M14 × 1.5	78	20	130	(Stroke / 3) + 18.5
ø50	35	9	14	101	58	76	9	30	M18 × 1.5	90	23	150	(Stroke / 3.6) + 18.5
ø63	35	11	14	101	70	92	9	32	M18 × 1.5	90	23	150	(Stroke / 3.6) + 18.5

Note 1: For dimensions with each switch, see P. 468 to 473.
Note 2: For outer dimensions diagram of accessories, refer to P. 336.

●Head Side Flange Type (FB)

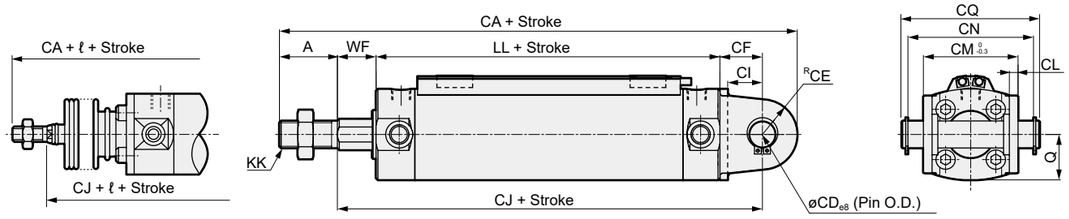


Code	Head Side Flange Type (FB) Mounting Dimensions											With Bellows
Bore Size (mm)	A	FA	FD	FJ	FL	FM	FT	J	KK	LL	WF	ℓ
ø20	18	112	5.5	92	28	40	6	12	M8	69	17	(Stroke / 3) + 18.5
ø25	22	118	5.5	94	32	44	7	14	M10 × 1.25	69	18	(Stroke / 3) + 20.5
ø32	22	120	6.6	96	38	53	7	18	M10 × 1.25	71	18	(Stroke / 3) + 19
ø40	30	138	6.6	106	46	61	8	25	M14 × 1.5	78	20	(Stroke / 3) + 18.5
ø50	35	159	9	122	58	76	9	30	M18 × 1.5	90	23	(Stroke / 3.6) + 18.5
ø63	35	159	11	122	70	92	9	32	M18 × 1.5	90	23	(Stroke / 3.6) + 18.5

Note 1: For dimensions with each switch, see P. 468 to 473.
Note 2: For outer dimensions diagram of accessories, refer to P. 336.

Outline Dimension Drawing

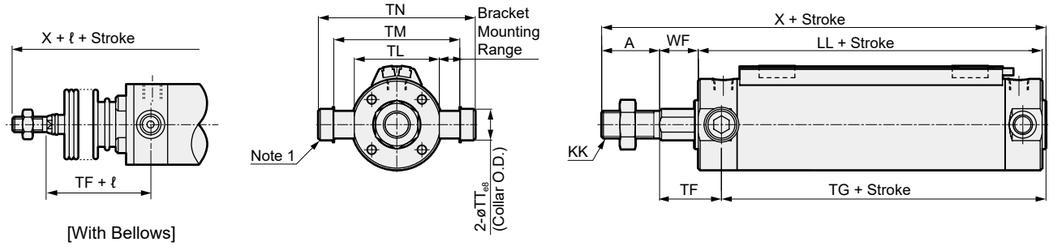
●Single Clevis Type (CA)



Code	Single Clevis Type (CA) Mounting Dimensions															With Bellows
Bore Size (mm)	A	CA	CD	CE	CF	CI	CJ	CL	CM	CN	CQ	KK	LL	Q	WF	ℓ
ø20	18	129	8	11	14	10.8	100	3.2	29	38.6	43.4	M8	69	13	17	(Stroke / 3) + 18.5
ø25	22	138	10	13	16	12.8	103	3.2	33	42.6	48	M10 × 1.25	69	15.5	18	(Stroke / 3) + 20.5
ø32	22	145.5	12	15	19.5	15.5	108.5	4.5	40	54	59.4	M10 × 1.25	71	19	18	(Stroke / 3) + 19
ø40	30	167.5	14	18	21.5	17.5	119.5	4.5	49	65	71.4	M14 × 1.5	78	23.5	20	(Stroke / 3) + 18.5
ø50	35	192.5	16	20	24.5	19	137.5	6	60	79.6	86	M18 × 1.5	90	29	23	(Stroke / 3.6) + 18.5
ø63	35	199.5	18	22	29.5	22	142.5	8	74	97.8	105.4	M18 × 1.5	90	36	23	(Stroke / 3.6) + 18.5

Note 1: Consists of collar, flat washer, and hexagon socket head cap screw.
Note 2: For dimensions with each switch, see P. 468 to 473.
Note 3: For outer dimensions diagram of accessories, refer to P. 336.

●Rod side trunnion type (TA)

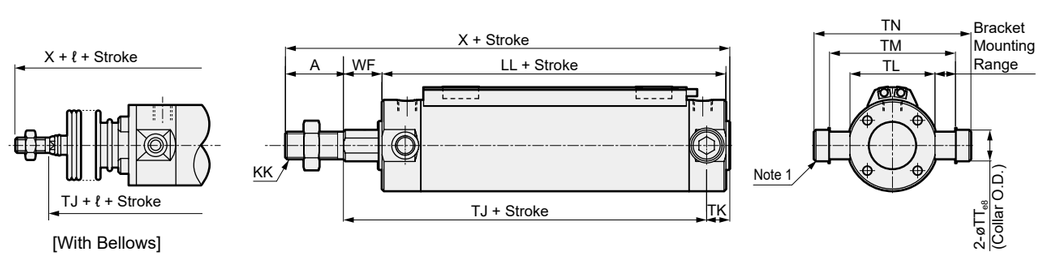


Code	Rod Side Trunnion Type (TA) Mounting Dimensions											With Bellows
Bore Size (mm)	A	KK	LL	TF	TG	TL	TM	TN	TT	WF	X	ℓ
ø20	18	M8	69	28	60	28	39	47.6	8	17	106	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	69	29	60	33	43	53	10	18	111	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	71	29	62	40	54.5	67.7	12	18	113	(Stroke / 3) + 19
ø40	30	M14 × 1.5	78	32	68	49	65.9	81.1	14	20	130	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	90	36	79	60	80	98.6	16	23	150	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	90	36	79	74	98	119.2	18	23	150	(Stroke / 3.6) + 18.5

Note 1: Consists of collar, flat washer, and hexagon socket head cap screw.
Note 2: For dimensions with each switch, see P. 468 to 473.
Note 3: For outer dimensions diagram of accessories, refer to P. 336.

Outline Dimension Drawing

●Head Side Trunnion Type (TB)

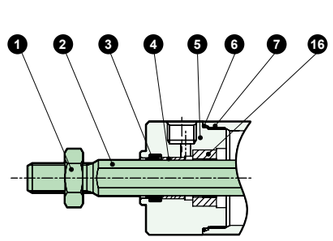


Code	Head Side Trunnion Type (TB) Mounting Dimensions											With Bellows
Bore Size (mm)	A	KK	LL	TJ	TK	TL	TM	TN	TT	WF	X	ℓ
ø20	18	M8	69	75	13	28	39	47.6	8	17	106	(Stroke / 3) + 18.5
ø25	22	M10 × 1.25	69	76	13	33	43	53	10	18	111	(Stroke / 3) + 20.5
ø32	22	M10 × 1.25	71	79	12	40	54.5	67.7	12	18	113	(Stroke / 3) + 19
ø40	30	M14 × 1.5	78	88	12	49	65.9	81.1	14	20	130	(Stroke / 3) + 18.5
ø50	35	M18 × 1.5	90	101	14	60	80	98.6	16	23	150	(Stroke / 3.6) + 18.5
ø63	35	M18 × 1.5	90	101	14	74	98	119.2	18	23	150	(Stroke / 3.6) + 18.5

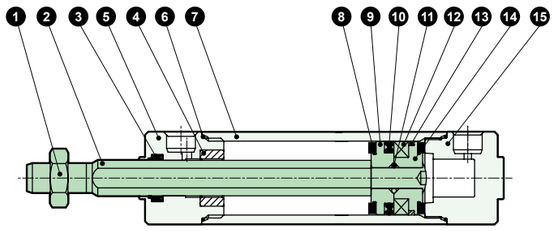
Note 1: Consists of collar, flat washer, and hexagon socket head cap screw.
Note 2: For dimensions with each switch, see P. 468 to 473.
Note 3: For outer dimensions diagram of accessories, refer to P. 336.

Internal Structure Diagram / Material (With Rubber Cushion)

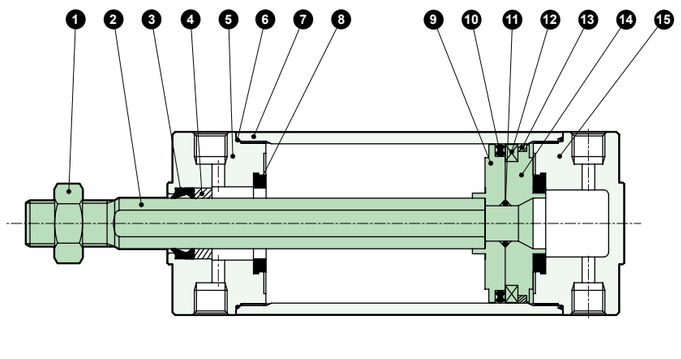
●ø20 to ø40



For ø32



●ø50 to ø63



Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating
2	Piston Rod	ø20, ø25: Stainless Steel ø32 to ø100: Steel	Industrial Hard Chrome Plating
3	Rod Packing	Nitrile Rubber	
4	Bushing	Oil-Impregnated Bearing Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized
6	Cylinder Gasket	Nitrile Rubber	
7	Cylinder Tube	Aluminum Alloy	Hard Anodized
8	Cushion Rubber	Urethane Rubber	

Part No.	Part Name	Material	Remarks
9	Piston R	Aluminum Alloy	
10	Piston Packing	Nitrile Rubber	
11	Piston Gasket	Nitrile Rubber	
12	Magnet	Plastic	
13	Wear Ring	Polyacetal	
14	Piston H	Aluminum Alloy	
15	Head Cover	Aluminum Alloy	Hard Anodized
16	Bushing	Oil-Impregnated Bearing Alloy	

For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

MEMO

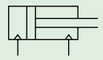
General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending



Round shaped cylinder
Double Acting, Direct Foot Type

SCM-LD Series

●Bore Size: ø20, ø25, ø32, ø40, ø50, ø63

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

SCM-LD – 40 ( ) D – 100 ——— M I
① ② ③ ④ ⑧ ⑨

With Switch (Built-in magnet for switch)

SCM-LD – 40 ( ) D – 100 – T0H – D – ( ) – M I
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Mounting type	② Bore size	③ Piping thread type	D: With Rubber Cushion on Both Sides	④ Stroke	⑤ Switch Model No.	⑥ Number of Switches	⑦ Switch Mounting Method	⑧ Option	⑨ Accessories

①Mounting type

Code	Content	
LD	Direct Foot Type	

②Bore Size (mm)

Code	Content
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63

③Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

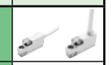
④Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø20 to ø63	10 to 300	Every 1 mm

Note: For the number of switches to be mounted and minimum stroke, refer to P. 464.

⑤Switch Model No.

For switch details, please refer to 971. Switches are included with the product and shipped.

Contact	Indicator Lamp / Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—		T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—		T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	 *4

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: Max. load current as shown on the left: 20 mA, is at 25 °C. If the switch operating ambient temperature is higher than 25 °C, it will be lower than 20 mA. (At 60 °C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: T8H/V switches cannot be mounted when the bore size is ø20 to ø40 and switch mounting is the rail type.
*5: Switches other than those listed on the left are also available. (Custom order) For details, refer to 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*6

*6: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

⑥Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

⑦Switch Mounting Method

Code	Content	
Blank	Rail Type	
Z	Band Type	

⑧Option

	Code	Content
*1	Q	Shipped with Switch Rail Attached
	M	Piston Rod Material (Stainless Steel)

*1: ❼ If switch mounting style "Z" is selected, the "Switch rail shipped attached" option ("Q") cannot be selected.

⑨Accessories

Code	Content	
I	Single Knuckle	
Y	Double Knuckle (Pin and retaining ring included)	

Note: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, see P. 474 to 477.

Code	Content
-XP5	Knuckle Pin/Clevis Pin Split Pin
-XP7	Knuckle fixed by pin driving
-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
SCM – LD – ..... – XP5

Switch Single Unit Model No. Notation Method

[Switch mounting: Rail Type]
●Switch Body + Mounting Rail Set

SCM – T0H□ – D – 40 – 100
⑤ Switch Model No. ⑥ Switch Number ② Bore Size ④ Stroke (*1)

[Switch mounting: Band Type
●Switch Body + Mounting Bracket Set + Band

SCM – T2H□ – 40 – Z
⑤ Switch Model No. ② Bore Size

[Switch Body Only]

SW – T0H□
⑤ Switch Model No.

●Mounting Rail Only

SCM – T – 40 – 100
Mounting Rail ② Bore Size ④ Stroke (*1) (*2)

●Mounting Bracket Set + Band

SCM – Z – 40
② Bore Size

*1: Indicate items with a stroke exceeding 300 mm as X. If exceeding 300 mm, one short rail (switch adjustment travel distance 100 mm) is included per switch.
*2: When indicating X for mounting rail only, order the same number of rails as the number of switches used.

Specifications

Item		SCM-LD					
Bore Size	mm	ø20	ø25	ø32	ø40	ø50	ø63
Actuation method		Double Acting, Direct Foot Type					
Operating Fluid		Compressed Air					
Max. Working Pressure	MPa	1.0					
Min. Operating Pressure	MPa	0.1				0.05	
Proof Pressure	MPa	1.6					
Ambient Temperature	°C	–10 to 60 (Provided that freezing does not occur)					
Port Size		Rc1/8				Rc1/4	
Stroke tolerance	mm	+1.4 0				+2.3 0	
Operating Piston Speed	mm/s	30 to 1000 (Use within allowable absorption energy.)					
Cushion		Rubber Cushion					
Lubrication		Not Required (When lubricating, use Turbine Oil ISO VG32)					
J Allowable Absorbed Energy	J	0.1	0.2	0.5	0.9	1.6	1.6

Stroke

(Unit: mm)

Bore size	Standard Stroke	Max. Stroke	Min. Stroke
ø20	25, 50, 75, 50, 75, 100, 50, 75, 100	300	10
ø25			
ø32			
ø40			
ø50			
ø63			

Note: Intermediate strokes can be produced in 1 mm increments.

Number of Switches Mounted and Min. Stroke (mm)

●Switch Mounting Method Rail Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore Size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	25	10	25	10	25	10	25
ø25	10	25	10	25	10	25	10	25	10	25
ø32	10	25	10	25	10	25	10	25	10	25
ø40	10	25	10	25	10	25	10	25	10	25
ø50	10	25	10	25	10	25	10	25	10	25
ø63	10	25	10	25	10	25	10	25	10	25

●Switch Mounting Method Band Type

Switch Model No.	Solid State								Reed	
	T2, T3		T2W, T3W		T□Y□		T2WL			
Number of Switches / Bore Size (mm)	1	2	1	2	1	2	1	2	1	2
ø20	10	25	10	30	10	35	15	45	10	25
ø25	10	25	10	30	10	35	15	45	10	25
ø32	10	25	10	30	10	35	15	45	10	25
ø40	10	25	10	30	10	35	10	45	10	25
ø50	10	25	10	30	10	35	10	45	10	25
ø63	10	25	10	30	10	35	10	45	10	25

Note: For products with 1 switch and stroke of 10 mm or more but less than 25 mm, the switch rail mounting position changes, and trunnion type mounting cannot be produced. For mounting position, see P. 468 to 473.

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm Basic type	Switch Weight (Per Piece)	Added Weight per S = 10 mm	S= Per 10 mm Added Weight (with Rail)	Per Switch Band Weight
ø20	0.14	Please refer to the weight listed in the switch specifications of P. 971	0.010	0.012	0.007
ø25	0.22		0.014	0.016	0.007
ø32	0.34		0.018	0.020	0.007
ø40	0.56		0.030	0.032	0.007
ø50	1.04		0.044	0.046	0.008
ø63	1.46		0.052	0.054	0.009

(Example)
Product Weight of SCM-LD-40D-100-T2H-D

- Product mass at S = 0 mm: ..... 0.56 kg
- Added mass at S = 100 mm: ... $0.032 \times \frac{100}{10} = 0.32$ kg
- Weight of 2 switches ..... 0.036 kg
- Product Weight ..... 0.56 kg+0.32 kg+0.036 kg=0.916 kg

Theoretical Thrust Table

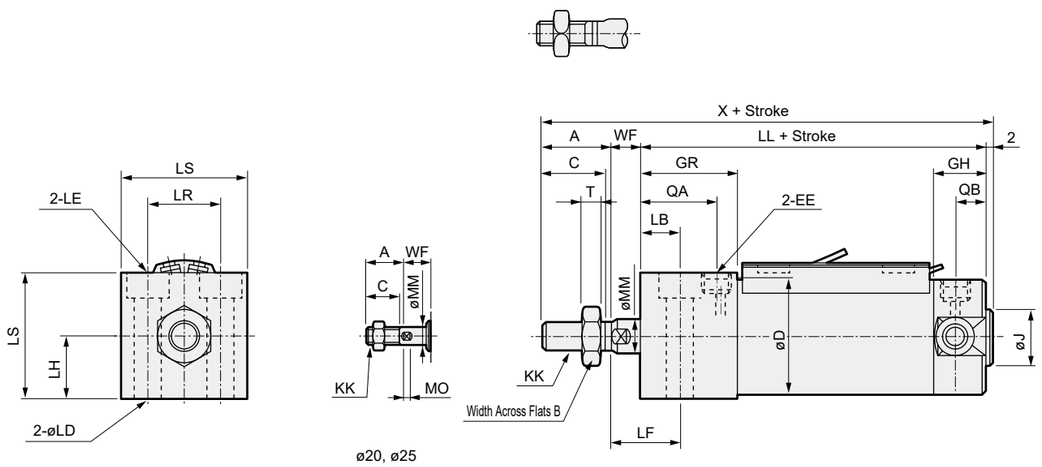
(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa 0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	–	31.4	47.1	62.8	94.2	1.26 × 10²	1.57 × 10²	1.88 × 10²	2.20 × 10²	2.51 × 10²	2.83 × 10²	3.14 × 10²
	Pull	–	26.4	39.6	52.8	79.2	1.06 × 10²	1.32 × 10²	1.58 × 10²	1.85 × 10²	2.11 × 10²	2.38 × 10²	2.64 × 10²
ø25	Push	–	49.1k	73.6	98.2	1.47 × 10²	1.96 × 10²	2.45 × 10²	2.95 × 10²	3.44 × 10²	3.93 × 10²	4.42 × 10²	4.91 × 10²
	Pull	–	41.2	61.9	82.5	1.24 × 10²	1.65 × 10²	2.06 × 10²	2.47 × 10²	2.89 × 10²	3.30 × 10²	3.71 × 10²	4.12 × 10²
ø32	Push	–	80.4	1.21 × 10²	1.61 × 10²	2.41 × 10²	3.22 × 10²	4.02 × 10²	4.83 × 10²	5.63 × 10²	6.43 × 10²	7.24 × 10²	8.04 × 10²
	Pull	–	69.1	1.04 × 10²	1.38 × 10²	2.07 × 10²	2.76 × 10²	3.46 × 10²	4.15 × 10²	4.84 × 10²	5.53 × 10²	6.22 × 10²	6.91 × 10²
ø40	Push	–	1.26 × 10²	1.88 × 10²	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²	1.01 × 10³	1.13 × 10³	1.26 × 10³
	Pull	–	1.06 × 10²	1.58 × 10²	2.11 × 10²	3.17 × 10²	4.22 × 10²	5.28 × 10²	6.33 × 10²	7.39 × 10²	8.44 × 10²	9.50 × 10²	1.06 × 10³
ø50	Push	98.0	1.96 × 10²	2.95 × 10²	3.93 × 10²	5.89 × 10²	7.85 × 10²	9.82 × 10²	1.18 × 10³	1.37 × 10³	1.57 × 10³	1.77 × 10³	1.96 × 10³
	Pull	82.5	1.65 × 10²	2.47 × 10²	3.30 × 10²	4.95 × 10²	6.60 × 10²	8.25 × 10²	9.90 × 10²	1.15 × 10³	1.32 × 10³	1.48 × 10³	1.65 × 10³
ø63	Push	1.56 × 10²	3.12 × 10²	4.68 × 10²	6.23 × 10²	9.35 × 10²	1.25 × 10³	1.56 × 10³	1.87 × 10³	2.18 × 10³	2.49 × 10³	2.81 × 10³	3.12 × 10³
	Pull	2.40 × 10²	2.80 × 10²	4.20 × 10²	5.61 × 10²	8.41 × 10²	1.12 × 10³	1.40 × 10³	1.68 × 10³	1.96 × 10³	2.24 × 10³	2.52 × 10³	2.80 × 10³

Outline Dimension Drawing

●Double Acting, Direct Foot Type

• Switch Mounting Method: Rail Type

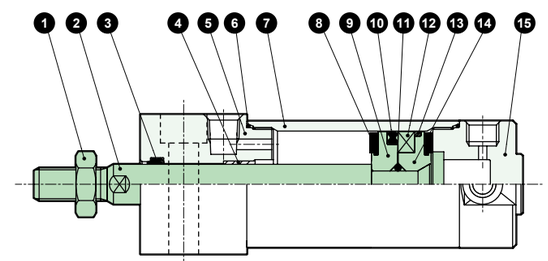


Code	Basic Type (OO) Basic Dimensions																						
Bore Size (mm)	A	B	C	D	EE	GH	GR	J	KK	LL	MM	MN	MO	QA	QB	T	WF	X	LB	LD	LE	LF	LH	LR	LS
ø20	18	13	16	26	Rc1/8	17	27	12	M8	77	8	6	4	20	10	5	9	106	11	5.5	9.5 Counterbore Depth 5.4	20	15	18	30
ø25	22	17	20	31	Rc1/8	17	27	14	M10 × 1.25	77	10	8	5	20	10	6	10	111	12	6.6	11 Counterbore Depth 6.5	22	18	22	36
ø32	22	17	20	38	Rc1/8	17	32	18	M10 × 1.25	84	12	10	5.5	25	10	6	10	118	13	9	14 Counterbore Depth 8.6	23	21	24	42
ø40	30	22	27	47	Rc1/8	19	36	25	M14 × 1.5	94	16	14	6	29	12	8	9	135	16	11	17.5 Counterbore Depth 10.8	25	26	32	52
ø50	35	27	32	58	Rc1/4	22	43	30	M18 × 1.5	108	20	17	8	33	12	11	10	155	17	14	20 Counterbore Depth 13	27	32	41	64
ø63	35	27	32	72	Rc1/4	22	48	32	M18 × 1.5	113	20	17	8	38	12	11	10	160	19	18	26 Counterbore Depth 17.5	29	38	46	76

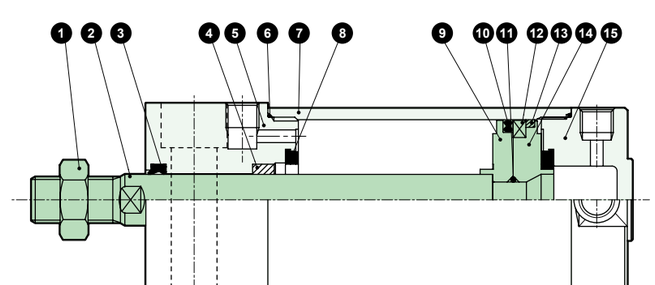
***1: For dimensions with each switch, see P. 468 to 473.**
***2: For outer dimensions diagram of accessories, refer to P. 336.**

Internal Structure Diagram / Material

●ø20 to ø40



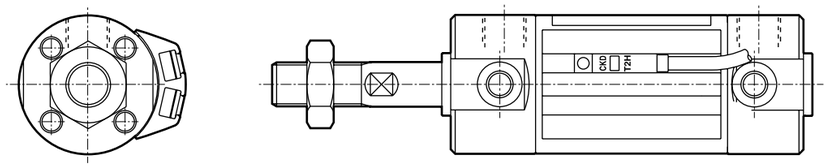
●ø50 to ø63



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating	8	Cushion Rubber	Urethane Rubber	
2	Piston Rod	ø20, ø25: Stainless Steel ø32 to ø63: Steel	Industrial Hard Chrome Plating	9	Piston R	Aluminum Alloy	
				10	Piston Packing	Nitrile Rubber	
3	Rod Packing	Nitrile Rubber		11	Piston Gasket	Nitrile Rubber	
4	Bushing	Oil-Impregnated Bearing Alloy		12	Magnet	Plastic	
5	Rod Cover	Aluminum Alloy	Hard Anodized	13	Wear Ring	Polyacetal	
6	Cylinder Gasket	Nitrile Rubber		14	Piston H	Aluminum Alloy	
7	Cylinder Tube	Aluminum Alloy	Hard Anodized	15	Head Cover	Aluminum Alloy	Hard Anodized

For maintenance parts, please visit the CKD Equipment Product Site (https://www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

Regarding Switch Rail Mounting Position (Rail mounting position when stroke is 10 or more and less than 25 and there is 1 switch)

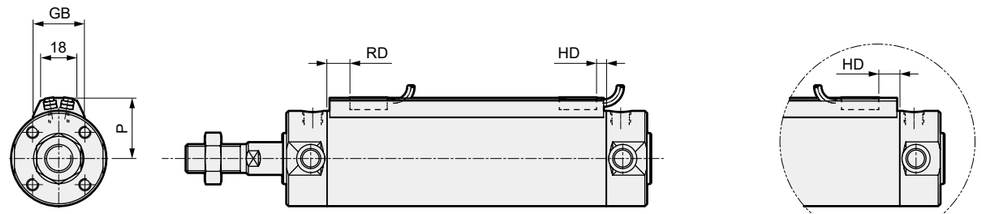


1. The switch rail is mounted at a position tilted 90° from the standard position.
2. Support style trunnion type cannot be manufactured because the switch rail and bracket interfere.
3. In variations B and W, when combining a one-sided stroke of 10 or more and less than 25 with another stroke of 25 or more, the mounting position of the switch rail will be the position in the diagram above, swung 90° for both cylinders 1 and 2.

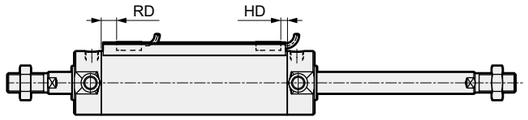
SCM Series Outer Dimensions Diagram with Switch

● T0H/V, T5H/V, T2H/V, T3H/V, T2HR3/VR3, T3PH/V, T2WH/V, T3WH/V, T2WLH/V
Switch Mounting Method: Rail Mounting

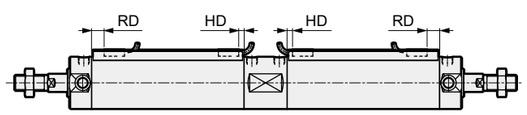
• SCM, SCM-P, SCM-R, SCM-Q, SCM-F, SCM-O, SCM-U, SCM-M, SCM-LD



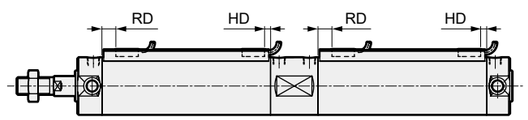
• SCM-D



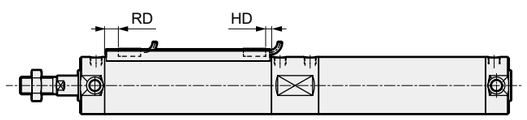
• SCM-B



• SCM-W



• SCM-W4

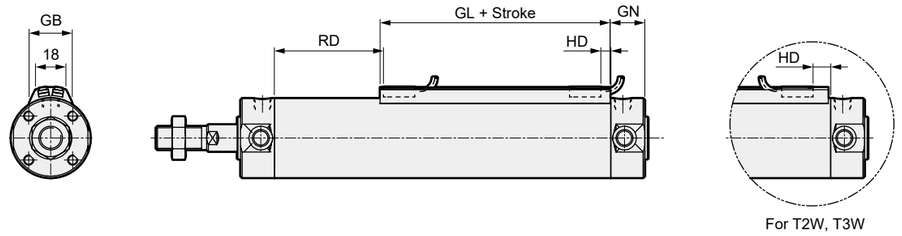


Code / Bore Size (mm)	SCM, SCM-P, SCM-R, SCM-Q, SCM-F, SCM-O, SCM-U, SCM-D, SCM-B, SCM-W, SCM-W4, SCM-M, SCM-LD							
	P	GB	T0, T5		T2, T2◇R3, T3, T3P		T2W, T3W, T2WL	
			RD	HD	RD	HD	RD	HD
ø20	19.5	23	7.5	3.0	7.5	6.5	9.5	8.5
ø25	22	24.4	8.5	2.0	8.5	5.5	10.5	7.5
ø32	25.5	25	9.5	3.0	9.5	6.5	11.5	8.5
ø40	30	25.7	11.5	5.0	11.5	8.5	13.5	10.5
ø50	35.5	26.2	13.0	7.5	13.0	11.0	15.0	13.0
ø63	42.5	26.5	13.0	7.5	13.0	11.0	15.0	13.0
ø80	51	26.7	20.0	9.5	20.0	13.0	22.0	15.0
ø100	61.5	26.7	19.5	10.0	19.5	13.5	21.5	15.5

SCM Series Outer Dimensions Diagram with Switch

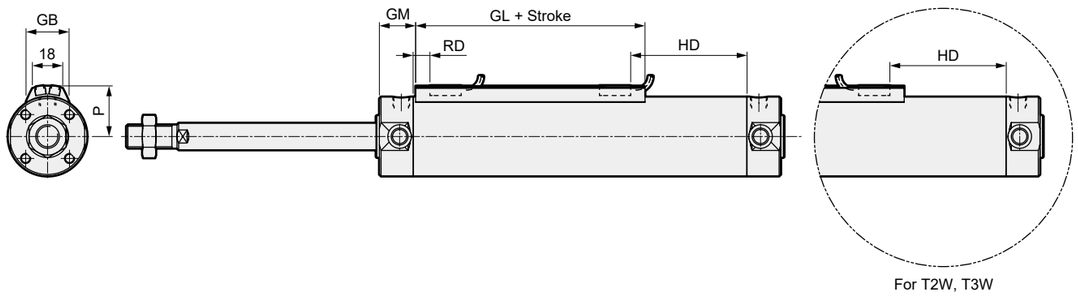
● T0H/V, T5H/V, T2H/V, T3H/V, T2HR3/VR3, T3PH/V, T2WH/V, T3WH/V, T2WLH/V
Switch Mounting Method: Rail Mounting

• SCM-X



Code / Bore Size (mm)	SCM-X																
	P	GB	GL	GN	T0, T5					T2, T2◇R3, T3, T3P					T2W, T3W, T2WL				
					RD				HD	RD				HD	RD				HD
					10 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200		10 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200		10 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	
ø20	19.5	23	30	18.5	33.5	60.5	87.5	114.5	4.0	34.5	61.5	88.5	115.5	7.0	35.5	62.5	89.5	116.5	9.5
ø25	22	24.4	30	18.5	37.5	67.5	97.5	127.5	3.0	38.5	68.5	98.5	128.5	6.0	39.5	69.5	99.5	129.5	8.5
ø32	25.5	25	32	18.5	38.5	68.5	98.5	128.5	4.0	39.5	69.5	99.5	129.5	7.0	40.5	70.5	100.5	130.5	9.5
ø40	30	25.7	36	20.5	40.5	70.5	100.5	130.5	6.0	41.5	71.5	101.5	131.5	9.0	42.5	72.5	102.5	132.5	11.5

• SCM-Y

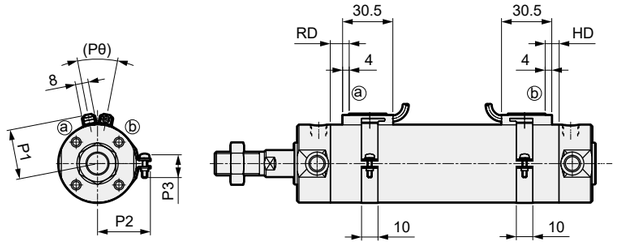


Code / Bore Size (mm)	SCM-Y																
	P	GB	GL	GM	T0, T5					T2, T2◇R3, T3, T3P					T2W, T3W, T2WL				
					RD	HD				RD	HD				RD	HD			
						10 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200		10 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200		10 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200
ø20	19.5	23	30	20.5	6.5	31.0	58.0	85.0	112.0	7.5	34.0	61.0	88.0	115.0	7.0	36.5	63.5	90.5	117.5
ø25	22	24.4	30	20.5	7.5	33.0	63.0	93.0	123.0	8.5	36.0	66.0	96.0	126.0	8.0	38.5	68.5	98.5	128.5
ø32	25.5	25	32	20.5	8.5	34.0	64.0	94.0	124.0	9.5	37.0	67.0	97.0	127.0	9.0	39.5	69.5	99.5	129.5
ø40	30	25.7	36	21.5	10.5	36.0	66.0	96.0	126.0	11.5	39.0	69.0	99.0	129.0	11.0	41.5	71.5	101.5	131.5

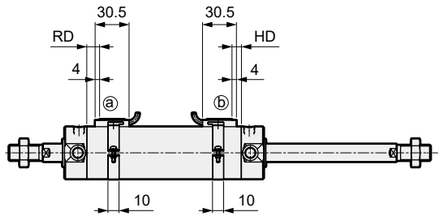
SCM Series Outer Dimensions Diagram with Switch

● T0H/V, T5H/V, T2H/V, T3H/V, T2HR3/VR3, T3PH/V, T2WH/V, T3WH/V, T2WLH/V
Switch Mounting Method: Band mounting

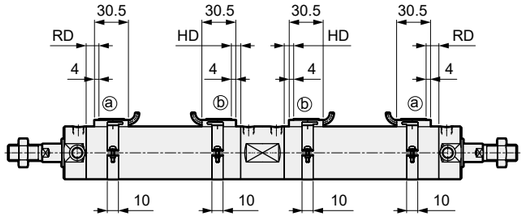
• SCM, SCM-X, SCM-Y, SCM-P, SCM-R, SCM-Q, SCM-F, SCM-O, SCM-U, SCM-M, SCM-LD



• SCM-D



• SCM-B



• SCM-W

• SCM-W4

Code	SCM, SCM-P, SCM-R, SCM-Q, SCM-F, SCM-O, SCM-U, SCM-D, SCM-B, SCM-W, SCM-W4, SCM-M, SCM-LD									
Bore Size (mm)	P1	P2	P3	Pθ	T0, T5		T2, T2□R3, T3, T3P		T2W, T3W, T2WL	
					RD	HD	RD	HD	RD	HD
ø20	19.6	21.5	14	(38°)	7.5	6.5	7.5	6.5	9.5	8.5
ø25	22.1	23.9	14	(34°)	8.5	5.5	8.5	5.5	10.5	7.5
ø32	25.6	27.6	16	(30°)	9.5	6.5	9.5	6.5	11.5	8.5
ø40	30.2	32.1	16	(26°)	11.5	8.5	11.5	8.5	13.5	10.5
ø50	35.7	37.4	16	(22°)	13.0	11.0	13.0	11.0	15.0	13.0
ø63	42.7	44.4	16	(20°)	13.0	11.0	13.0	11.0	15.0	13.0
ø80	51.2	53	16	(16°)	20.0	13.0	20.0	13.0	22.0	15.0
ø100	61.7	63.5	16	(16°)	19.5	13.5	19.5	13.5	21.5	15.5

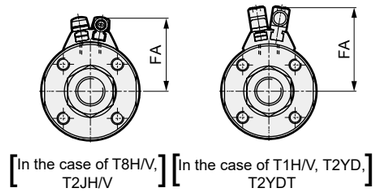
Code	SCM-X																			
Bore Size (mm)	P1	P2	P3	Pθ	T0, T5					T2, T2□R3, T3, T3P					T2W, T3W					
					RD				HD	RD				HD	RD				HD	
					10 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200		10 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200		10 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	
ø20	19.6	21.5	14	(38°)	33.5	60.5	87.5	114.5	5.5	34.5	61.5	88.5	115.5	6.5	35.5	62.5	89.5	116.5	9.5	
ø25	22.1	23.9	14	(34°)	37.5	67.5	97.5	127.5	4.5	38.5	68.5	98.5	128.5	5.5	39.5	69.5	99.5	129.5	8.5	
ø32	25.6	27.6	16	(30°)	38.5	68.5	98.5	128.5	5.5	39.5	69.5	99.5	129.5	6.5	40.5	70.5	100.5	130.5	9.5	
ø40	30.2	32.1	16	(26°)	40.5	70.5	100.5	130.5	7.5	41.5	71.5	101.5	131.5	8.5	42.5	72.5	102.5	132.5	11.5	

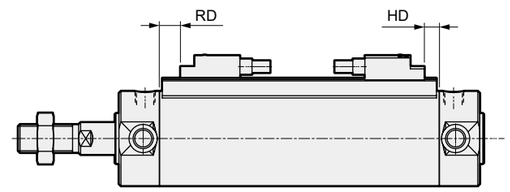
Code	SCM-Y																			
Bore Size (mm)	P1	P2	P3	Pθ	T0, T5					T2, T2□R3, T3, T3P					T2W, T3W, T2WL					
					RD	HD				RD	HD				RD	HD				
						10 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200		10 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200		10 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	
ø20	19.6	21.5	14	(38°)	6.5	32.5	59.5	86.5	113.5	7.5	33.5	60.5	87.5	114.5	7	36.5	63.5	90.5	117.5	
ø25	22.1	23.9	14	(34°)	7.5	34.5	64.5	94.5	124.5	8.5	35.5	65.5	95.5	125.5	8	38.5	68.5	98.5	128.5	
ø32	25.6	27.6	16	(30°)	8.5	35.5	65.5	95.5	125.5	9.5	36.5	66.5	96.5	126.5	9	39.5	69.5	99.5	129.5	
ø40	30.2	32.1	16	(26°)	10.5	37.5	67.5	97.5	127.5	11.5	38.5	68.5	98.5	128.5	11	41.5	71.5	101.5	131.5	

SCM Series Outer Dimensions Diagram with Switch

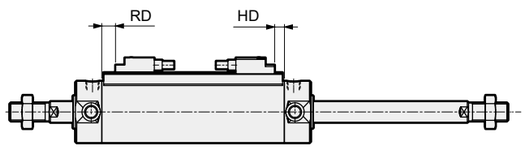
● T8H/V, T2JH/V, T1H/V, T2YD, T2YDT
Switch Mounting Method: Rail Mounting

• SCM, SCM-P, SCM-R, SCM-Q, SCM-F, SCM-O, SCM-U, SCM-M, SCM-LD

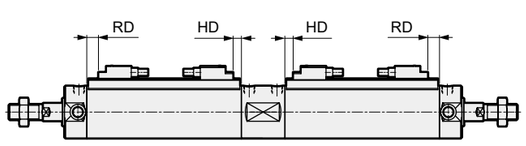




• SCM-D



• SCM-B



• SCM-W

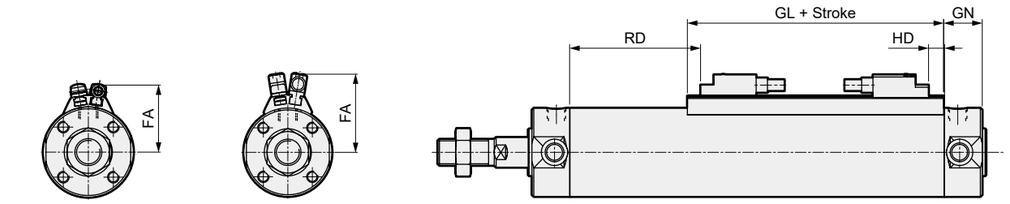
• SCM-W4

Code	SCM, SCM-P, SCM-R, SCM-Q, SCM-F, SCM-O, SCM-U, SCM-D, SCM-B, SCM-W, SCM-W4, SCM-M, SCM-LD								
Bore Size (mm)	T8			T2J			T1, T2YD, T2YDT		
	FA	RD	HD	FA	RD	HD	FA	RD	HD
ø20	24	1.5	0.5	24	6.5	5.5	29.5	6.5	5.5
ø25	26.5	2.5	0	26.5	7.5	4.5	32	7.5	4.5
ø32	30	3.5	0.5	30	8.5	5.5	35.5	8.5	5.5
ø40	34.5	5.5	2.5	34.5	10.5	7.5	40	10.5	7.5
ø50	40	7	5	40	12	10	45.5	12	10
ø63	47	7	5	47	12	10	52.5	12	10
ø80	55.5	14	7	55.5	19	12	61	19	12
ø100	66	1.5	7.5	66	18.5	12.5	71.5	18.5	12.5

SCM Series Outer Dimensions Diagram with Switch

● T8H/V, T2JH/V, T1H/V, T2YD, T2YDT
Switch Mounting Method: Rail Mounting

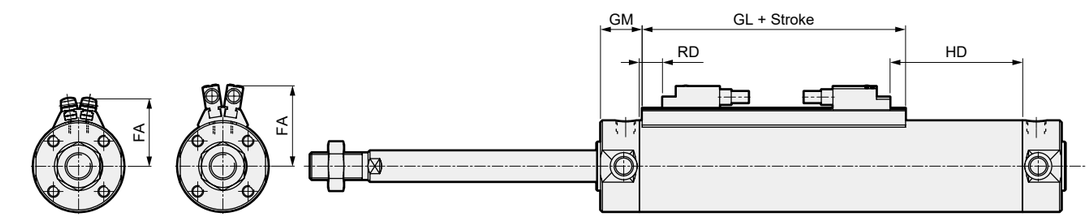
• SCM-X



[In the case of T8H/V, T2JH/V] [In the case of T1H/V, T2YD, T2YDT]

Code / Bore Size (mm)	GL	GN	T8 FA	T8 RD 10 to 50	T8 RD Over 50 to 100	T8 RD Over 100 to 150	T8 RD Over 150 to 200	T8 HD	T2J FA	T2J RD 10 to 50	T2J RD Over 50 to 100	T2J RD Over 100 to 150	T2J RD Over 150 to 200	T2J HD	T1, T2YD, T2YDT FA	T1, T2YD, T2YDT RD 10 to 50	T1, T2YD, T2YDT RD Over 50 to 100	T1, T2YD, T2YDT RD Over 100 to 150	T1, T2YD, T2YDT RD Over 150 to 200	T1, T2YD, T2YDT HD
ø20	30	18.5	24	27.5	54.5	81.5	108.5	1.5	24	32.5	59.5	86.5	113.5	6.5	29.5	32.5	59.5	86.5	113.5	6.5
ø25	30	18.5	26.5	31.5	61.5	91.5	121.5	0.5	26.5	36.5	66.5	96.5	126.5	5.5	32	36.5	66.5	96.5	126.5	5.5
ø32	32	18.5	30	32.5	62.5	92.5	122.5	1.5	30	37.5	67.5	97.5	127.5	6.5	35.5	37.5	67.5	97.5	127.5	6.5
ø40	36	20.5	34.5	34.5	64.5	94.5	124.5	3.5	34.5	39.5	69.5	99.5	129.5	8.5	40	39.5	69.5	99.5	129.5	8.5

• SCM-Y



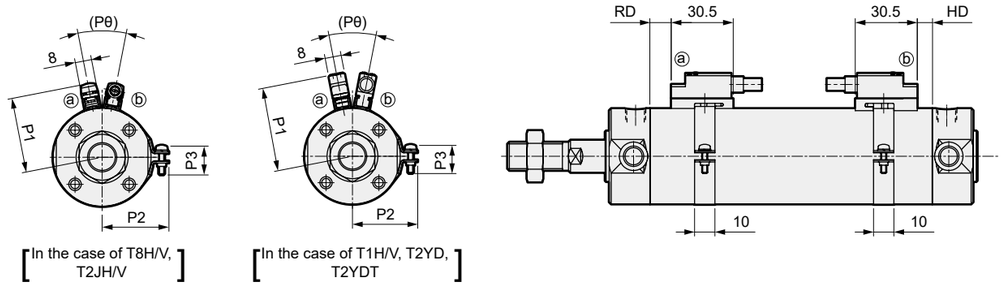
[In the case of T8H/V, T2JH/V] [In the case of T1H/V, T2YD, T2YDT]

Code / Bore Size (mm)	GL	GM	T8 FA	T8 RD	T8 HD 10 to 50	T8 HD Over 50 to 100	T8 HD Over 100 to 150	T8 HD Over 150 to 200	T2J FA	T2J RD	T2J HD 10 to 50	T2J HD Over 50 to 100	T2J HD Over 100 to 150	T2J HD Over 150 to 200	T1, T2YD, T2YDT FA	T1, T2YD, T2YDT RD	T1, T2YD, T2YDT HD 10 to 50	T1, T2YD, T2YDT HD Over 50 to 100	T1, T2YD, T2YDT HD Over 100 to 150	T1, T2YD, T2YDT HD Over 150 to 200
ø20	30	20.5	24	0.0	28.5	55.5	82.5	109.5	24	4.0	33.5	60.5	87.5	114.5	29.5	4.0	33.5	60.5	87.5	114.5
ø25	30	20.5	26.5	0.0	30.5	60.5	90.5	120.5	26.5	5.0	35.5	65.5	95.5	125.5	32	5.0	35.5	65.5	95.5	125.5
ø32	32	20.5	30	1.0	31.5	61.5	91.5	121.5	30	6.0	36.5	66.5	96.5	126.5	35.5	6.0	36.5	66.5	96.5	126.5
ø40	36	21.5	34.5	3.0	33.5	63.5	63.5	123.5	34.5	8.0	38.5	68.5	68.5	128.5	40	8.0	38.5	68.5	68.5	128.5

SCM Series Outer Dimensions Diagram with Switch

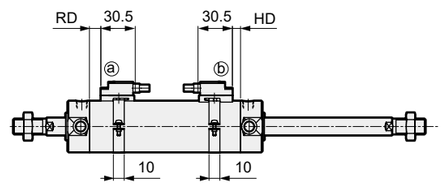
● T8H/V, T2JH/V, T1H/V, T2YD, T2YDT
Switch Mounting Method: Band mounting

• SCM, SCM-X, SCM-Y, SCM-P, SCM-R, SCM-Q, SCM-F, SCM-O, SCM-U, SCM-M, SCM-LD

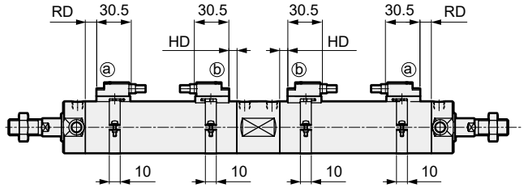


[In the case of T8H/V, T2JH/V] [In the case of T1H/V, T2YD, T2YDT]

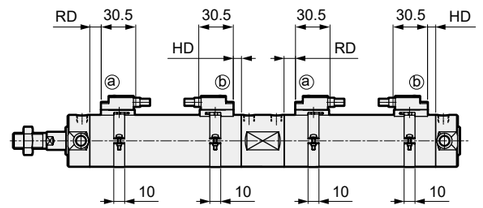
• SCM-D



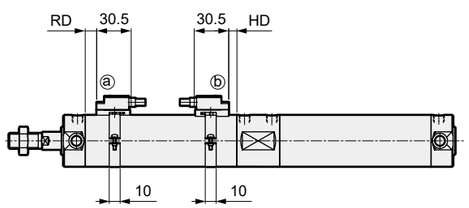
• SCM-B



• SCM-W



• SCM-W4



Code / Bore Size (mm)	SCM, SCM-P, SCM-R, SCM-Q, SCM-F, SCM-O, SCM-U, SCM-D, SCM-B, SCM-W, SCM-W4, SCM-M, SCM-LD P2	P3	Pθ	T8 P1	T8 RD	T8 HD	T2J P1	T2J RD	T2J HD	T1, T2YD, T2YDT P1	T1, T2YD, T2YDT RD	T1, T2YD, T2YDT HD
ø20	21.5	14	(38°)	25.4	1.5	0.5	25.4	6.5	5.5	30.4	6.5	5.5
ø25	23.9	14	(34°)	27.9	2.5	0	27.9	7.5	4.5	32.9	7.5	4.5
ø32	27.6	16	(30°)	31.4	3.5	0.5	31.4	8.5	5.5	36.4	8.5	5.5
ø40	32.1	16	(26°)	36	5.5	2.5	36	10.5	7.5	41	10.5	7.5
ø50	37.4	16	(22°)	41.5	7	5	41.5	12	10	46.5	12	10
ø63	44.4	16	(20°)	48.5	7	5	48.5	12	10	53.5	12	10
ø80	53	16	(16°)	57	14	7	57	19	12	62	19	12
ø100	63.5	16	(16°)	67.5	1.5	7.5	67.5	18.5	12.5	72.5	18.5	12.5

Code / Bore Size (mm)	SCM-X P2	P3	Pθ	T8 P1	T8 RD 10 to 50	T8 RD Over 50 to 100	T8 RD Over 100 to 150	T8 RD Over 150 to 200	T8 HD	T2J P1	T2J RD 10 to 50	T2J RD Over 50 to 100	T2J RD Over 100 to 150	T2J RD Over 150 to 200	T2J HD	T1, T2YD, T2YDT P1	T1, T2YD, T2YDT RD 10 to 50	T1, T2YD, T2YDT RD Over 50 to 100	T1, T2YD, T2YDT RD Over 100 to 150	T1, T2YD, T2YDT RD Over 150 to 200	T1, T2YD, T2YDT HD
ø20	21.5	14	(38°)	25.4	27.5	54.5	81.5	108.5	1.5	25.4	32.5	59.5	86.5	113.5	6.5	30.4	32.5	59.5	86.5	113.5	6.5
ø25	23.9	14	(34°)	27.9	31.5	61.5	91.5	121.5	0.5	27.9	36.5	66.5	96.5	126.5	5.5	32.9	36.5	66.5	96.5	126.5	5.5
ø32	27.6	16	(30°)	31.4	32.5	62.5	92.5	122.5	1.5	31.4	37.5	67.5	97.5	127.5	6.5	36.4	37.5	67.5	97.5	127.5	6.5
ø40	32.1	16	(26°)	36	34.5	64.5	94.5	124.5	3.5	36	39.5	69.5	99.5	129.5	8.5	41	39.5	69.5	99.5	129.5	8.5

Code / Bore Size (mm)	SCM-Y P2	P3	Pθ	T8 P1	T8 RD	T8 HD 10 to 50	T8 HD Over 50 to 100	T8 HD Over 100 to 150	T8 HD Over 150 to 200	T2J P1	T2J RD	T2J HD 10 to 50	T2J HD Over 50 to 100	T2J HD Over 100 to 150	T2J HD Over 150 to 200	T1, T2YD, T2YDT P1	T1, T2YD, T2YDT RD	T1, T2YD, T2YDT HD 10 to 50	T1, T2YD, T2YDT HD Over 50 to 100	T1, T2YD, T2YDT HD Over 100 to 150	T1, T2YD, T2YDT HD Over 150 to 200
ø20	21.5	14	(38°)	25.4	0	28.5	55.5	82.5	109.5	25.4	4	33.5	60.5	87.5	114.5	30.4	4	33.5	60.5	87.5	114.5
ø25	23.9	14	(34°)	27.9	0	30.5	60.5	90.5	120.5	27.9	5	35.5	65.5	95.5	125.5	32.9	5	35.5	65.5	95.5	125.5
ø32	27.6	16	(30°)	31.4	1	31.5	61.5	91.5	121.5	31.4	6	36.5	66.5	96.5	126.5	36.4	6	36.5	66.5	96.5	126.5
ø40	32.1	16	(26°)	36	3	33.5	63.5	63.5	123.5	36	8	38.5	68.5	68.5	128.5	41	8	38.5	68.5	68.5	128.5

Knuckle Pin/Clevis Pin Split Pin (-XP5)

Content: The retaining rings for knuckle pins and clevis pins will be split pins.

Model No. Notation Method

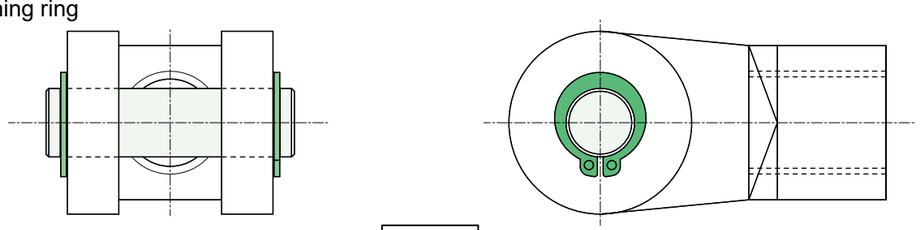
SCM-00-40B-100-Y-XP5

Model No.

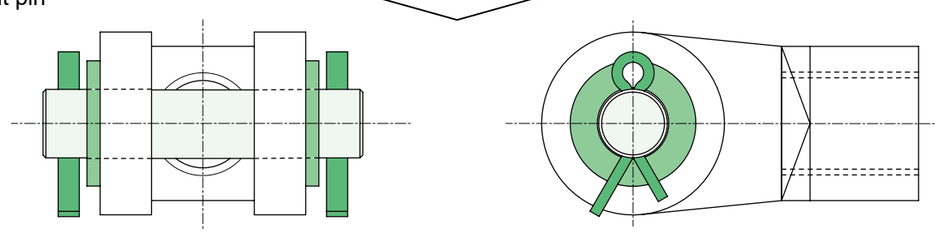
See the SCM Series Model No. Notation Method.

Outer Dimensions Diagram

●Retaining ring



●Split pin



Pin Diameter	Split Pin Size
12	ø4 × 20
14	ø4 × 20
20	ø4 × 25
25	ø4 × 30
28	ø5 × 35
32	ø5 × 40
40	ø5 × 50
50	ø5 × 60

Knuckle Fixed by Pinning (-XP7)

Content: Also, drive a spring pin into the knuckle to prevent loosening.

Model No. Notation Method

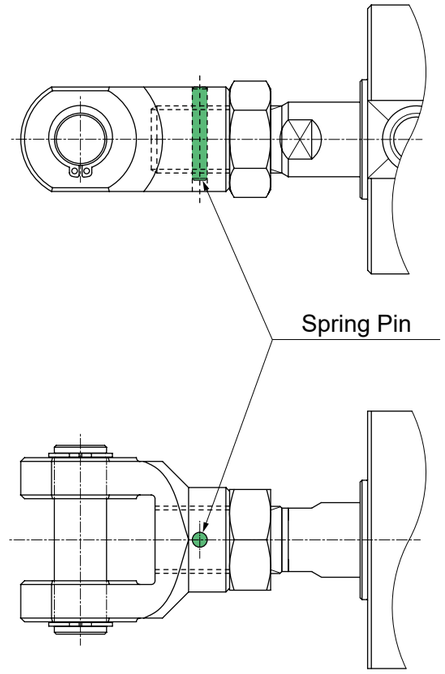
SCM-LB-40B-100-Y-XP7

Model No.

See the SCM Series Model No. Notation Method.

Outer Dimensions Diagram

Same as with Knuckle specification.
(Spring pin driving direction varies depending on the model.)



Knuckle Pin/Clevis Pin Split Pin Specification, Knuckle Fixed by Pinning (-XP8)

Content: The retaining rings for knuckle pins and clevis pins will be split pins. Also, drive a spring pin into the knuckle to prevent loosening. (XP5 + XP7)

Model No. Notation Method

SCM - 00 - 40 B - 100 - Y - XP8

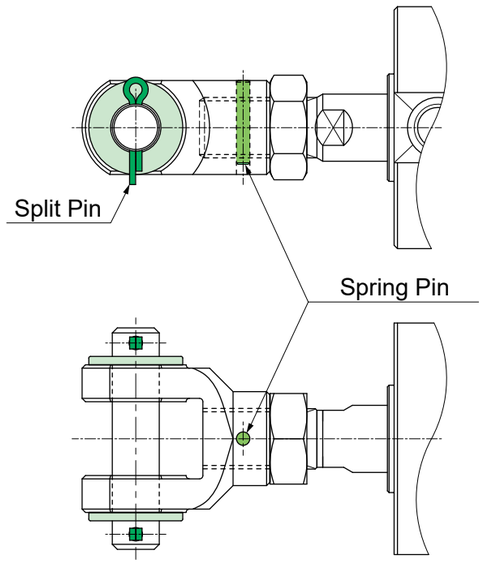
Model No.

See the SCM Series Model No. Notation Method.

Outer Dimensions Diagram

Mounting dimensions are the same as with Knuckle specification.

It is a combination of XP5 (P. 474) and XP7 (P. 475).



Without Bellows (-XJ9)

Content: Piston rod with dimensions for bellows, but bellows not assembled

Model No. Notation Method

SCM - 00 - 40 B - 100 - XJ9

Model No.

See the SCM Series Model No. Notation Method.

Outline Dimension Drawing

Same dimensions as with bellows, but bellows are not attached.

With 2 Rod Nuts (-A2)

Content: Shipped with 2 rod nuts, same as standard.

Model No. Notation Method

SCM - 00 - 40 B - 100 - A2

Model No.

See the SCM Series Model No. Notation Method.

Outer Dimensions Diagram

Same as standard type except that 2 rod nuts are included.

Pneumatic Equipment

To Use This Product Safely

Be sure to read this before use.

For general cylinder information, see Intro 41, and for cylinder switches, see P. 1026.

Individual Precautions: Round shaped cylinder SCM Series

During Design / Selection

1. Common

Caution

■ Rubber cushion type and air cushion type are available as cushion mechanisms built into the cylinder. The purpose of the air cushion is to absorb the kinetic energy held by the piston by utilizing the compressibility of air, and to prevent the piston and cover from hitting impulsively at the stroke end. Therefore, the cushion is not for low-speed operation (deceleration operation) of the piston speed from near the stroke end. The table below shows the kinetic energy that can be absorbed by the cushion. If the kinetic energy exceeds this value or if you want to avoid bouncing due to air compressibility, provide a separate shock absorber.

Bore Size (mm)	Rubber Cushion	Air Cushion	
	Allowable Absorbed Energy J	Effective Cushion Length (mm)	Allowable Absorbed Energy J
ø20	0.1	8.1	0.8
ø25	0.2	8.1	1.2
ø32	0.5	8.6	2.5
ø40	0.9	8.6	3.7
ø50	1.6	13.4	8.0
ø63	1.6	13.4	14.4
ø80	3.3	15.4	25.4
ø100	5.8	15.4	45.6

Kinetic Energy (J) =

$$\frac{1}{2} \times \text{Mass (kg)} \times \{\text{Speed (m/s)}\}^2$$

(Note) Regarding calculation of kinetic energy: The average speed of the cylinder is obtained by $Va = \frac{L}{T}$.

Va : Average speed (m/s)
L : Cylinder stroke (m)
T : Operating Time (s)

In contrast, the cylinder speed just before entering the cushion can be found with the following simple formula.

$Vm = \frac{L}{T} \times (1 + 1.5 \times \frac{\omega}{100})$

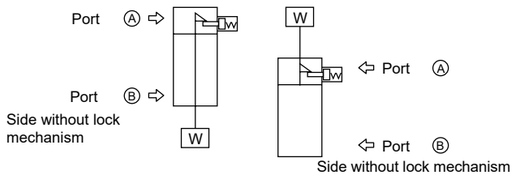
Vm: Stroke end speed (m/s)
ω : Cylinder load factor (%)

For calculating kinetic energy, use this Vm value as the speed.

2. Drop Prevention Type SCM-Q

Warning

■ In a locked state, if pressure is supplied to the Ⓐ port from a state where both ports are unpressurized, the lock may not release, or the lock may suddenly release and the piston rod may fly out, which is very dangerous. When releasing the lock mechanism, always supply pressure to the Ⓑ port and release it from a state where no load is applied to the lock mechanism.



■ When using a quick exhaust valve to increase the lowering speed, the cylinder body may start moving before the lock pin operates, and normal release may not be possible. Do not use a quick exhaust valve with a drop prevention type cylinder.

■ Do not use 3-position valves.
Do not use in combination with 3-position valves (especially closed center metal seal type). If pressure is sealed in the port on the side with the lock mechanism, the lock will not engage. Also, even if locked once, air leaking from the valve may enter the cylinder, and the lock may be released over time.

Caution

■ Keep the cylinder load factor at 50% or less.
If the load factor is high, the lock may not be released, or it may lead to damage to the lock part.

■ If back pressure is applied to the lock mechanism side, the lock may be released, so use a single valve or a manifold with individual exhaust.

■ Do not use multiple cylinders synchronized.
Do not use a method where two or more fall prevention type cylinders are synchronized to move one workpiece. The cylinder lock may become impossible to release.

3. Fine Speed Type SCM-F

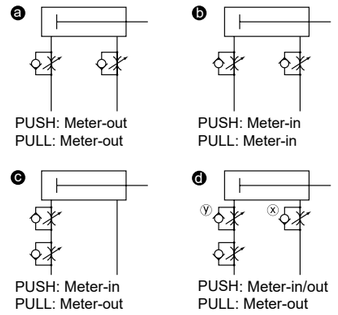
Caution

■ Do not lubricate. It will cause characteristics to fluctuate.

■ Install the speed controller near the cylinder.
If installed far from the cylinder, the speed will become unstable. Use SC-M3/M5, SC3W, SCD-M3/M5, SC3U series speed controllers.

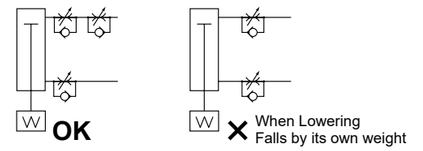
■ Generally, the higher the air pressure and the lower the load factor, the more stable the speed.
Use with a load factor of 50% or less.

■ Speed control with a meter-out circuit provides stability.
When driving a single-rod cylinder at creep speed in the PUSH direction, if the load resistance is small, a flying-out phenomenon may occur at the start of operation. As countermeasures, use circuits ⓑ, ⓒ or ⓓ. In addition, the ⓓ circuit is the most stable.

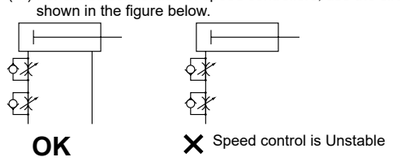


ⓓSpeed adjustment method for PUSH operation of the circuit:
1. Speed setting with x speed controller
2. Throttle with y speed controller until projection stops.
3. Reconfirmation of speed

(*1) Comparing ⓑ ⓒ ⓓ, the ⓓ circuit is the most stable in operation.
(*2) For vertical mounting, it will fall by its own weight in a meter-in circuit, so combine it with a meter-out circuit.



(*3) For series connection of speed controllers, use the circuit shown in the figure below.



(Guideline for lurching occurrence)
Lurching occurs in the following cases:

• Thrust > Resistance

*Resistance: *Resistance: Thrust due to residual pressure on exhaust side (For creep speed type, intake pressure = residual pressure) + [For horizontal use: Frictional force due to load / For vertical use: Dead weight of the load]

■ Do not apply lateral load to the cylinder.
Operation becomes unstable when lateral load is applied.

■ Avoid use in locations with vibration.
Operation becomes unstable due to the influence of vibration.

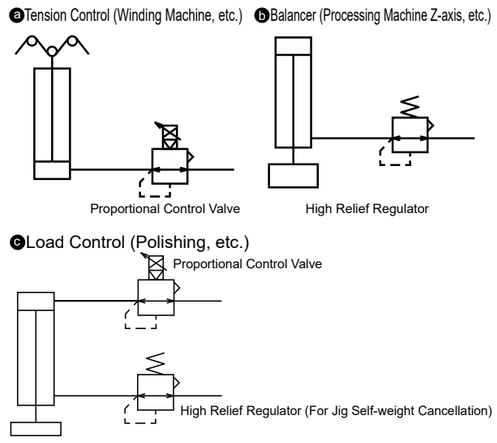
4. Low Friction Type SCM-U

Warning

■ Durability varies depending on usage conditions and model characteristics.
This cylinder is a cylinder with internal leakage.
For leakage volume, check the specifications (P. 410).

Caution

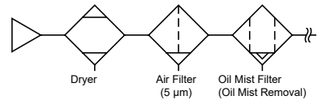
■ Install a speed controller on the cylinder.
Install a speed controller on the cylinder. Use within the operating piston speed range of each cylinder. However, when used with a balancer, etc., it may be better not to attach a speed controller to improve supply/exhaust efficiency. Depending on the application, circuits ⓐ to ⓒ below are recommended.



*To improve supply/exhaust characteristics, maximize piping volume as much as possible.

■ Do not lubricate. It will cause characteristics to fluctuate.

■ Poor quality air adversely affects characteristics and durability, so use clean air with the following piping.



■ Install the speed controller near the cylinder.
If installed far from the cylinder, adjustment will be unstable.

■ Generally, the higher the air pressure and the lower the load factor, the more stable the speed.
Use with a load factor of 50% or less.

During Use

1. Common

Caution

■ The switch rail is joined with industrial adhesive tape, so do not use it in an atmosphere of inorganic/organic solvents or water vapor, as this may cause the rail to peel off.
Main Inorganic/Organic Solvents
Inorganic/Organic Solvents: Sodium Hydroxide, Hydrochloric Acid, etc. Organic Solvents: Toluene, Ethanol, Hexane, Gasoline, Kerosene, etc.

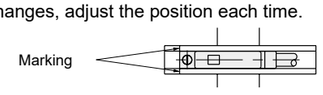
■ When adhering the switch rail, sufficiently remove oil, moisture, dust, etc. from the surface of the main body (tube).
(Adhere by referring to the instruction manual attached to the parts)

■ Precautions for Air Cushion Type
For ø20 and ø25, there are restrictions on usable pipe fittings, so refer to the following and use accordingly.

Item	Port Size	Usable Fittings	Unusable Fittings
ø20	M5	SC3W-M5-4/6 SC3R-M5 GWS4-M5 GWS4-M5-S	GWL6-M5
ø25		GWS6-M5 GWS6-M5-S GWL4-M5 GWL4-M5-45 GWL4-M5-T GWL6-M5-T	GWL6-M5-45

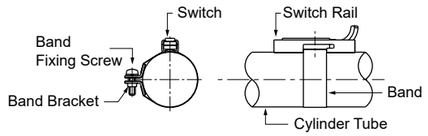
■ Switch Mounting Method: Switch Mounting Method: Precautions for Band Method

● When Moving the Switch Position in the Stroke Direction
The 1-color indicator switch can be finely adjusted by about ±3 mm from the mounting position at the time of shipment. Loosen the switch mounting screw, move the switch along the rail, and tighten at the specified position. If the adjustment range exceeds ±3 mm, or when finely adjusting the position of the 2-color indicator switch, move the band position. For T2, T3, T0, T5, use a flat-blade screwdriver with a grip diameter of 5 to 6 mm, tip shape width of 2.4 mm or less, and thickness of 0.3 mm or less (watchmaker's screwdriver, precision screwdriver, etc.) to tighten the switch fixing screw with a tightening torque of 0.1 to 0.2 N•m. For T2J, T2Y, T3Y, tighten with a tightening torque of 0.5 to 0.7 N•m. The switch rail has a marking 4 mm from the end face of the rail. Use this as a guide for the mounting position when replacing the switch. The marking on the switch rail is set to the switch's highest sensitivity position at the time of factory shipment. If the switch type is changed, the band is moved, or the highest sensitivity position changes, adjust the position each time.



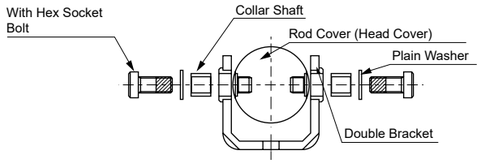
● When Moving the Switch Position in the Circumferential Direction
Loosen the band fixing screw, move the switch rail circumferentially, and tighten it at the specified position. Tightening torque is 0.6 to 0.8 N•m. When loosening or tightening the band fixing screw, hold the band bracket with a tool, etc., keeping the bracket parallel.

● When Moving the Band Position
Loosen the band fixing screw, move the switch rail and band along the cylinder tube, and tighten them at the specified position. Tightening torque is 0.6 to 0.8 N•m. When loosening or tightening the band fixing screw, hold the band bracket with a tool, etc., keeping the bracket parallel.



■ For trunnion mounting style, assemble as shown in the diagram below, and tighten with the tightening torque specified in the table below.

Bore size	Tightening Torque [N•m]
ø20	6
ø25	11
ø32	18
ø40	27
ø50	38
ø63	51



2. Single Acting Type SCM-X/Y

Caution

■ Do not leave single acting cylinders pressurized. If left pressurized, the piston rod may not return by spring load when the pressure is released.

3. Stroke Adjustment Type SCM-R

Caution

■ When adjusting the stroke, strictly follow steps (1) to (5) below. If adjustment is not performed using this method, the seal washer will be damaged after 1 or 2 adjustments.
[Stroke Adjustment Procedure]

(1) First, loosen the lock nut to the state shown in Figure 1.

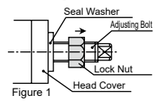
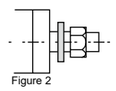
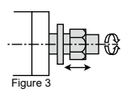


Figure 1

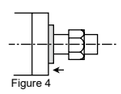
(2) Next, manually detach the seal washer from the adapter to the state shown in Figure 2.


Figure 2

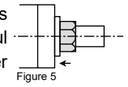
(3) In state (2), turn the adjustment bolt, lock nut, and seal washer together as shown in Figure 3 to adjust the stroke. At this time, be careful not to let the rubber part of the seal washer get caught in the threaded part.


Figure 3

(4) After stroke adjustment, first bring the seal washer close to the adapter by hand as shown in Figure 4.


Figure 4

(5) Then, securely tighten with the lock nut as shown in Figure 5. At this time, be careful not to let the rubber part of the seal washer get caught in the threaded part.


Figure 5

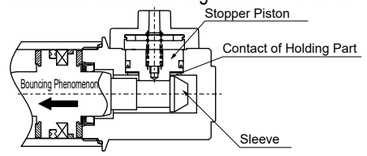
After stroke adjustment, securely tighten the lock nut. If used for a long time, the lock nut may loosen, causing external leakage.

4. Drop Prevention Type SCM-Q

Warning

■ During equipment maintenance, please take separate measures for safety so that the load does not fall due to its own weight.

■ For cylinders with air cushion, if the air cushion needle on the lock mechanism side is tightened too much, the piston will bounce at the stroke end, and the sleeve and stopper piston will make impact contact, leading to damage to the lock mechanism. Also, if the air cushion needle is opened too much, the piston will rebound at the stroke end, similarly leading to damage. Adjust the needle so that there is no bouncing of the air cushion.



When stopping with external shock absorbing equipment (shock absorber, etc.), adjust similarly to prevent bouncing. Also, please perform periodic inspections once or twice a year to check for damage to the holding part due to this phenomenon.

Caution

■ Axial Foot Type (Mounting type: LB), if you try to fix the support bracket to a frame etc. while it is attached to the cylinder, the bolt and stopper cover will interfere, preventing fixation. First, fix the mounting bracket on the drop prevention side to the frame etc., and then install the cylinder.

■ Since the lock mechanism works at the stroke end, if an external stopper is applied mid-stroke, the lock mechanism will not work, and there is a risk of falling. When setting the load, be sure to confirm that the lock mechanism is working before installing.

■ Supply pressure equal to or higher than the minimum operating pressure to the port on the side with the lock mechanism.

■ If the piping on the side with the lock mechanism is thin and long, or if the speed controller is far from the cylinder port, the exhaust speed may be slow and it may take time for the lock to engage, so please be careful. Also, clogging of the silencer attached to the valve's EXH. port will lead to similar results.

■ After manually operating the lock mechanism, return the lock mechanism to its original state before use. Also, do not perform manual operations other than during adjustment, as it is dangerous.

■ Release the lock when installing or adjusting the cylinder.
If installation work, etc. is performed while the lock is engaged, the lock part may be damaged.

■ Use the speed controller with meter-out control.
Lock may not be released with meter-in control.

■ Always use the side with the lock at the cylinder's stroke end.
If the cylinder piston has not reached the stroke end, the lock may not engage, or it may not be possible to release the lock.

5. Fine Speed Type SCM-F

Warning

■ Since fluorine grease is used, if you smoke with it adhered to your hands, toxic gas may be generated, potentially harming the human body, so please be careful.

6. Low Friction Type SCM-U

Caution

■ Avoid use in steam, humid environments, or alkaline atmospheres.

■ Do not disassemble this product. If disassembled, performance may no longer be maintained. Furthermore, only consumable parts are not provided for this product.

For precautions regarding mounting, installation, adjustment, use, and maintenance, please see "Precautions for Use" in this catalog and the CKD Components Product website (https://www.ckd.co.jp/kiki/en/) -> "Model No." -> Instruction Manual

General Type

SCG

Tie Rod Cylinder

ø32, ø40, ø50, ø63, ø80, ø100



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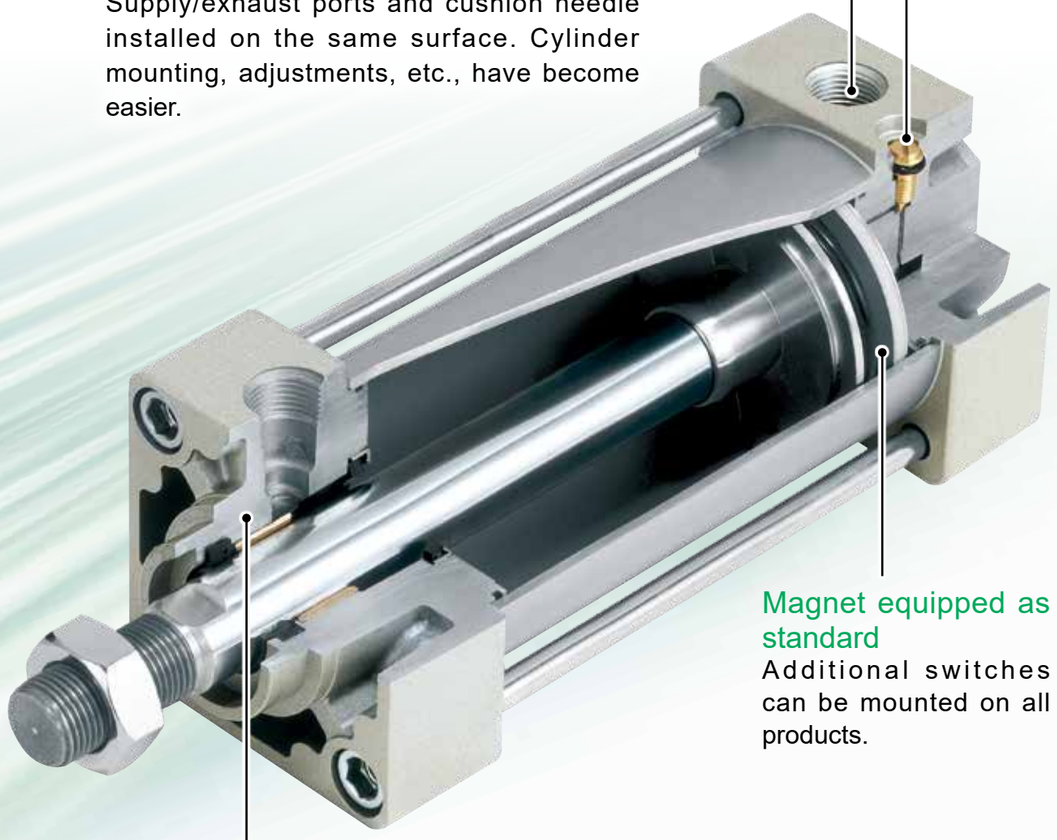
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●Double Acting, Heavy Duty Scraper Type (SCG-G)	576
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New type cylinder that is friendly to the global environment

Robust tie-rod type, yet lightweight and space-saving. SCG Series Air Cylinder: Easy to use and available in a wide range of variations. (ø32 to ø100)

Port and Needle on the Same Surface

Supply/exhaust ports and cushion needle installed on the same surface. Cylinder mounting, adjustments, etc., have become easier.



Magnet equipped as standard

Additional switches can be mounted on all products.



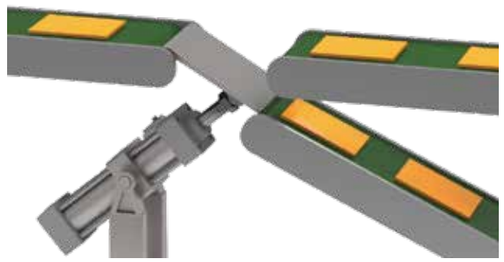
Photo shows G4.

Heavy Duty Scraper Type (G)
Coolant Proof Type (G2, G3)
Spatter Adhesion Prevention Type (G4) also has the same dimensions

The outer dimensions of the heavy duty scraper type, coolant proof type, and spatter adhesion prevention type have been made the same as the standard type, improving installability.

Application Example

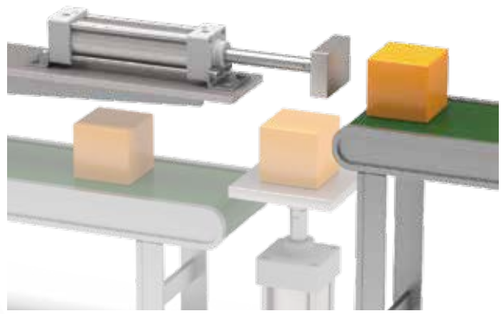
For Conveyor Line Switching



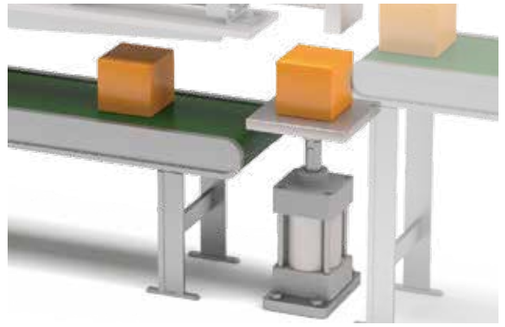
Stopper



Pusher



Lifter



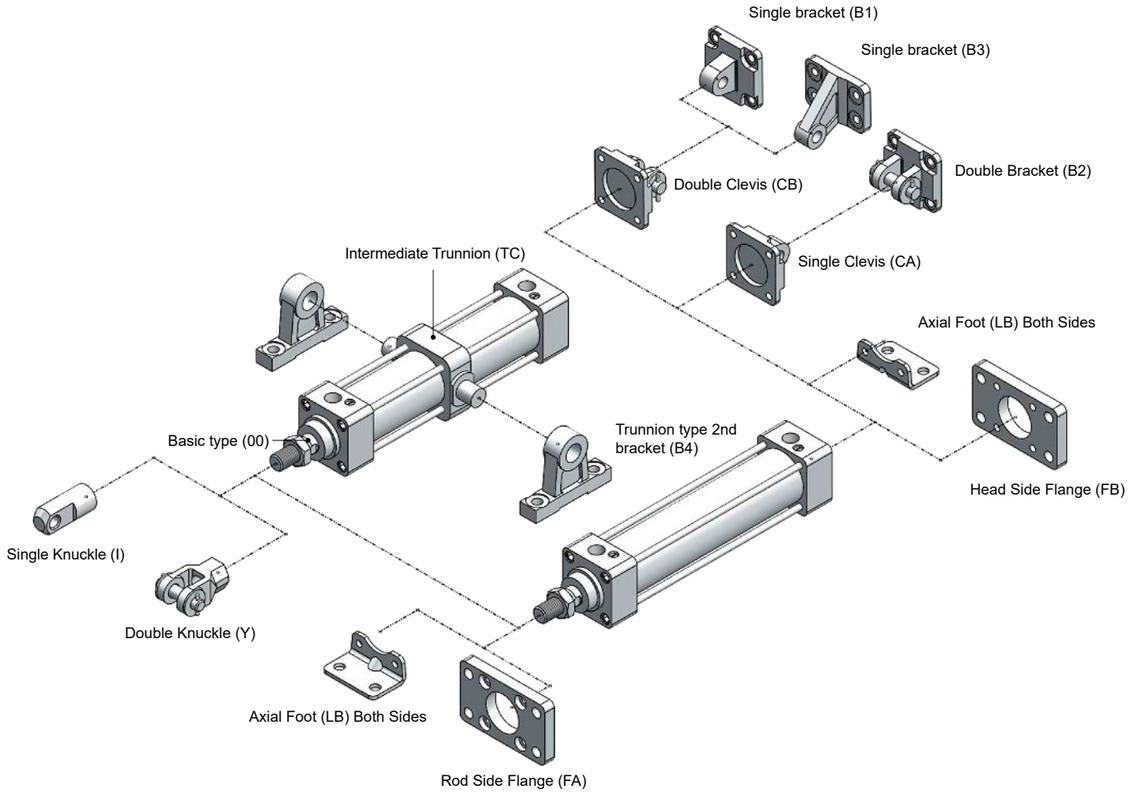
SCG Series Product System

Tie Rod Cylinder SCG Series

●: Standard, ◎: Option, ○: Custom Products, ▩: Not manufacturable

Variation	Model No. Circuit Diagram Symbol	Bore Size (mm)	Standard Stroke (mm)												Min. Stroke (mm)	Max. Stroke (mm)		Producible Stroke (mm)	Intermediate stroke (mm) increments	Mounting type									Cushion			Option		Accessories						Switch	Page
			25	50	75	100	150	200	250	300	350	400	450	500						Basic type	Axial Foot Type	Rod Side Flange Type	Head Side Flange Type	Single Clevis Type	Double Clevis Type	Rod Side Trunnion Type	Head Side Trunnion Type	Intermediate Trunnion Type	Without Cushion	Both Sides Air Cushion	Both Sides Rubber Cushion	Bellows (100°C)	Piston Rod Material Stainless Steel	Single Knuckle	Double Knuckle	Single Bracket	Double Yoke Bracket	Single Bracket	Trunnion Type 2nd Bracket		
			00	LB	FA	FB	CA	CB	TA	TB	TC	N	B	D	J	M	I	Y	B1	B2	B3	B4		
Double Acting/ Single Rod Type	SCG	ø32 ø40 ø50, ø63 ø80 ø100	●	●	●	●	●	●	●	●	●	●	●	●	1	600 700 800		700 800 1200 1400 1500	1	●	●	●	●	●	●	●	●	●	▩	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	490
Double Acting, Drop Prevention Type	SCG-Q	ø32 ø40 ø50, ø63 ø80 ø100	●	●	●	●	●	●	●	●	●	●	●	●	5	600 700 800		700 800 1200 1400 1500	1	●	●	●	●	●	●	●	●	●	▩	▩	▩	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	514
Double Acting/ Low Speed Type	SCG-O	ø32 to ø63 ø80 ø100	●	●	●	●	●	●	●	●	●	●	●	●	1	600 700 800		600 700 800	1	●	●	●	●	●	●	●	●	●	▩	Please consult us.	▩	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	538
Double Acting, Low Friction Type	SCG-U	ø32 to ø63 ø80 ø100	●	●	●	●	●	●	●	●	●	●	●	●	1	600 700 800		600 700 800	1	●	●	●	●	●	●	●	●	●	▩	Please consult us.	▩	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	544
Double Acting/ Double Rod Type	SCG-D	ø32 to ø63 ø80 ø100	●	●	●	●	●	●	●	●	●	●	●	●	1	600 700 800		600 700 800	1	●	●	●	●	▩	▩	●	●	●	▩	●	◎	◎	◎	◎	◎	▩	▩	▩	◎	◎	◎	550
Double Acting, Non-Rotating Type	SCG-M	ø32 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	1	600		600	1	●	●	●	●	●	●	●	●	●	▩	●	◎	◎	▩	◎	◎	◎	◎	◎	◎	◎	◎	564
Double Acting, Heavy Duty Scraper Type	SCG-G	ø32 ø40 ø50, ø63 ø80 ø100	●	●	●	●	●	●	●	●	●	●	●	●	1	600 700 800		700 800 1200 1400 1500	1	●	●	●	●	●	●	●	●	●	▩	●	◎	▩	◎	◎	◎	◎	◎	◎	◎	◎	◎	576
Double Acting, Coolant Proof Type	SCG-G2, G3	ø40 ø50, ø63 ø80 ø100	●	●	●	●	●	●	●	●	●	●	●	●	1	600 700 800		800 1200 1400 1500	1	●	●	●	●	●	●	●	●	●	▩	●	Please consult us.	▩	▩	◎	◎	◎	◎	◎	◎	◎	◎	588
Double Acting, Spatter Adhesion Prevention Type	SCG-G4	ø32 ø40 ø50, ø63 ø80 ø100	●	●	●	●	●	●	●	●	●	●	●	●	1	600 700 800		700 800 1200 1400 1500	1	●	●	●	●	●	●	●	●	●	▩	●	◎	▩	◎	◎	◎	◎	◎	◎	◎	◎	◎	598

Combination of Mounting Brackets and Accessories



Combination Availability Table for Variations and Option Items

● Mark: Standard
◎ Mark: Option
○ Mark: Custom Products
△ Mark: Manufacturable depending on conditions (Please consult)
× Mark: Not manufacturable

Precautions
*1: Minimum starting pressure increases due to resistance during bellows expansion/contraction.
*2: Depending on the environment, cutting oil may accumulate inside the bellows.
*3: The material for ø32 is neoprene.

		Category	Variation										Piping thread			Option	
			Double Acting Single Rod Type	Non-Rotating Type	Drop prevention type	Low Speed Type	Low Friction Type	Heavy-Duty Scraper Type	Coolant Proof Scraper (NBR)	Coolant Proof Scraper (FKM)	Sputter adhesion prevention type		NPT	G		With Bellows (Polyolefin) *3	Piston Rod Material (Stainless Steel)
			None	M	Q	O	U	G	G2	G3	G4		N	G		J	M
Variation	Double Acting Single Rod Type	Blank											○	○		◎	◎
	Non-Rotating Type	M			×	×	×	×	×	×	×		○	○		◎	×
	Drop prevention type	Q				△	×	△	△	△	△		○	○		△	◎
	Low Speed Type	O					×	×	×	×	×		○	○		*1	◎
	Low Friction Type	U						×	×	×	×		○	○		×	◎
	Heavy-Duty Scraper Type	G							×	×	×		○	○		○	○
	Coolant Proof Scraper (NBR)	G2								×	×		○	○		*2	●
	Coolant Proof Scraper (FKM)	G3									×		○	○		×	●
	Sputter adhesion prevention type	G4											○	○		○	○
Piping thread	NPT	N												×		○	○
	G	G														○	○
Option	With Bellows (Polyolefin Material) *3	J															○
	Piston Rod Material (Stainless Steel)	M															
Accessories	Cylinder Switch	Separately Shown	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎		◎	◎
	Single Knuckle	I	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎		◎	◎
	Double Knuckle	Y	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎		◎	◎
	Single Bracket	B1	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎		◎	◎
	Double Yoke Bracket	B2	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎		◎	◎
	Single Bracket	B3	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎		◎	◎
	Trunnion Type 2nd Bracket	B4	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎		◎	◎

[Model No. Notation Method]

SCG - Q G - LB - 50 - [ ] - B - 50 - T2YD3 - D - [ ]

- SCG: Model No.
- Q G: Variation — Drop Prevention/Heavy Duty Scraper Type (*1) *Enter symbols in order from left to right in the table above.
- ❶ LB: Mounting Style: Axial Foot Type
- ❷ 50: Bore size: ø50 mm
- ❸ [ ]: Port Thread Type: Rc Thread
- ❹ B: Cushion: With Cushion on Both Sides
- ❺ 50: Stroke: 50 mm
- ❻ T2YD3: Switch Model No.: 2-Color AC Magnetic Field Switch, Lead Wire 3 m
- ❼ D: Number of Switches: With 2 pcs
- ❽ [ ]: Option: None

*1: There are conditions for combining the drop prevention type with other variations, so please consult us.



Tie Rod Cylinder Double Acting, Single Rod Type

SCG Series

●Bore size: ø32, ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

SCG – LB – 40 – B – 100 ——— J I

With Switch
(Built-in magnet for switch)

SCG – LB – 40 – B – 100 – T2H – R – J I

	Model No.	❶ Mounting type	❷ Bore Size	❸ Piping thread type	❹ Cushion	❺ Stroke	Switch Model No.	Number of Switches	❽ Option	❾ Accessories
Without Switch	SCG	LB	40		B	100			J	I
With Switch	SCG	LB	40		B	100	T2H	R	J	I

Mounting brackets are included with the product and shipped. However, for trunnion type (TA, TB, TC) or when bellows are included and the mounting bracket is FA, they will be shipped assembled.

❶Mounting type

Code	Content	
00	Basic type	
LB	Axial Foot Type (Double Side)	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and Washer Split Pin Attached)	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TC	Intermediate Trunnion Type	

❷Bore Size (mm)

Code	Content
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

❹Cushion

Code	Content
B	Both Sides Air Cushion
D	Both Sides Rubber Cushion

Note: The rubber cushion type is longer overall than the air cushion type.

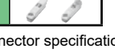
❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø32	1 to 600	Every 1 mm
ø40		
ø50		
ø63		
ø80	1 to 700	
ø100	1 to 800	

Note: For minimum stroke with switch, refer to P. 492, 493.

❻Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❼Number of Switches

	Code	Content
*1	R	With 1 on Rod Side
*1	H	With 1 on Head Side
	D	With 2 pcs
	T	With 3 pcs

*1: If mounting type TA or TB is selected, the number of switches is limited to "H" (1 on head side) for TA, and "R" (1 on rod side) for TB.

❽Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
J	Bellows	100°C	200°C	
M	Piston Rod Material (Stainless Steel)			

Note: Instantaneous maximum temperature is the temperature when sparks, chips, etc. momentarily contact the bellows.

❾Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Split Pin Attached)	
	B1	Single Bracket	
	B2	Double Yoke Bracket (Pin and Split Pin Attached)	
	B3	Single Bracket	
	B4	Trunnion Type 2nd Bracket (2 pcs/set)	

*1: "I" and "Y" cannot be selected at the same time.

* For combinations of variations and options, see P. 489.

About Custom Product Specifications

For details, refer to P. 610 to 613.

Code	Content
-XK◇	Mounting Bracket Rotational Assembly
-XAQ◇◇	Trunnion Position Specification
-XP7	Knuckle fixed by pin driving
-XJ9	Without Bellows
-T2	Fluorine Packing Type
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
SCG –..... – XP7

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCG –..... – FP1

Rechargeable Battery Compatible Specification (Catalog No. CC-1226AA)

●Design compatible with rechargeable battery manufacturing process

SCG –..... – P4*

*Please contact us for details.

High Durability Components HP Series (Catalog No. CC-1421AA)

●Long-life actuator that can contribute to productivity improvement with stable operation

SCG –..... – HP*

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

SCG – T0H – 40
(6 Switch Model No., 2 Bore Size)

●Switch body only

SW – T0H
(6 Switch Model No.)

●Switch mounting bracket set

SCG – T – 40
(Mounting bracket, 2 Bore Size)

Note: Please consult us separately if using environmentally compatible T-type switches.

Specifications

Item		SCG					
Bore Size mm		ø32	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type					
Operating Fluid		Compressed Air					
Max. Working Pressure MPa		1.0					
Min. Operating Pressure MPa		0.05					
Proof Pressure MPa		1.6					
Ambient Temperature °C		-10 to 60 (No freezing)					
Port Size		Rc1/8	Rc1/4		Rc3/8		Rc1/2
Stroke tolerance mm	With Rubber Cushion	$^{+1.4}_{0}$ (to 1000), $^{+1.8}_{0}$ (1001 to 1500)					
	With Air Cushion	$^{+1.0}_{0}$ (to 360), $^{+1.4}_{0}$ (361 to 1000), $^{+1.8}_{0}$ (1001 to 1500)					
Operating Piston Speed mm/s		30 to 1000 (Use within allowable absorbed energy.)					
Cushion		Air cushion/rubber cushion can be selected					
Effective air cushion length mm		8.6	8.6	13.4	13.4	15.4	15.4
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)					
Allowable Absorbed Energy J	With Rubber Cushion	0.5	0.9	1.6	1.6	3.3	5.8
	With Air Cushion	2.5	3.7	8.0	14.4	25.4	45.6

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Manufacturable Stroke (mm)	Min. Stroke (mm)
ø32	25, 50, 75, 100	600	700	1
ø40	150, 200, 250		800	
ø50	300, 350, 400		1200	
ø63	450, 500		1200	
ø80		700	1400	
ø100		800	1500	

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: If the maximum stroke is exceeded, product specifications may not be met depending on the conditions, so please consult us.
*3: When bellows are included, the manufacturable stroke for Bore Size ø32 to ø40 is 500 mm, for ø50 to ø63 is 600 mm, and for ø80 to ø100 is 800 mm.

Min. Stroke with Switch

●T0/T5 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	20 (18)	20 (10)	70 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø40	20 (19)	20 (10)	55 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø50	21 (19)	21 (10)	21 (19)	102 (72)	102 (72)	49 (34)	51 (36)
ø63	21 (20)	21 (11)	21 (20)	107 (77)	107 (77)	54 (39)	56 (41)
ø80	21 (21)	20 (11)	21 (21)	117 (87)	117 (87)	53 (38)	60 (45)
ø100	21 (21)	19 (11)	21 (21)	126 (96)	126 (96)	64 (49)	69 (54)

Note: Note: ( ) indicates T□V (lead wire L-type).

●T8 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	19 (18)	19 (10)	67 (31)	97 (61)	97 (61)	49 (31)	49 (31)
ø40	19 (19)	19 (10)	52 (31)	97 (61)	97 (61)	49 (31)	49 (31)
ø50	19 (19)	18 (10)	19 (19)	97 (61)	97 (61)	48 (30)	48 (30)
ø63	20 (20)	18 (11)	20 (20)	102 (66)	102 (66)	53 (35)	53 (35)
ø80	21 (21)	17 (11)	21 (21)	112 (76)	112 (76)	51 (33)	57 (39)
ø100	21 (21)	17 (11)	21 (21)	121 (85)	121 (85)	61 (43)	67 (49)

Note: Note: ( ) indicates T□V (lead wire L-type).

Min. Stroke with Switch

●T2/T3 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	20 (11)	20 (6)	70 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø40	20 (11)	20 (6)	55 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø50	21 (11)	21 (6)	21 (11)	102 (72)	102 (72)	49 (34)	51 (36)
ø63	21 (12)	21 (7)	21 (12)	107 (77)	107 (77)	54 (39)	56 (41)
ø80	20 (12)	20 (7)	20 (12)	117 (87)	117 (87)	53 (38)	60 (45)
ø100	19 (12)	19 (7)	19 (12)	126 (96)	126 (96)	64 (49)	69 (54)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T1 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	19 (11)	19 (6)	68 (38)	98 (68)	98 (68)	49 (34)	49 (34)
ø40	19 (11)	19 (6)	53 (38)	98 (68)	98 (68)	49 (34)	49 (34)
ø50	20 (11)	20 (6)	20 (11)	100 (70)	100 (70)	48 (33)	50 (35)
ø63	20 (12)	20 (7)	20 (12)	105 (75)	105 (75)	53 (38)	55 (40)
ø80	19 (12)	19 (7)	19 (12)	115 (85)	115 (85)	52 (37)	59 (44)
ø100	18 (12)	18 (7)	18 (12)	124 (94)	124 (94)	63 (48)	68 (53)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T2W/T3W type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	23 (12)	23 (8)	75 (45)	105 (75)	105 (75)	53 (38)	53 (38)
ø40	23 (12)	23 (8)	60 (45)	105 (75)	105 (75)	53 (38)	53 (38)
ø50	23 (13)	23 (8)	23 (13)	107 (77)	107 (77)	51 (36)	53 (38)
ø63	23 (13)	23 (8)	23 (13)	112 (82)	112 (82)	56 (41)	58 (43)
ø80	22 (14)	22 (8)	22 (14)	122 (92)	122 (92)	55 (40)	62 (47)
ø100	22 (14)	22 (8)	22 (14)	131 (101)	131 (101)	66 (51)	72 (57)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

● T2YD type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	23	23	75	105	105	53	53
ø40	23	23	60	105	105	53	53
ø50	23	23	23	107	107	51	53
ø63	23	23	23	112	112	56	58
ø80	22	22	22	122	122	55	62
ø100	22	22	22	131	131	66	72

*1: ( ) indicates T□V (L-shaped lead wire type).

●T2WL type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	24 (12)	24 (8)	77 (45)	107 (75)	107 (75)	54 (38)	54 (38)
ø40	24 (12)	24 (8)	62 (45)	107 (75)	107 (75)	54 (38)	54 (38)
ø50	24 (13)	24 (8)	24 (13)	109 (77)	109 (77)	52 (36)	54 (38)
ø63	24 (13)	24 (8)	24 (13)	114 (82)	114 (82)	57 (41)	59 (43)
ø80	23 (14)	23 (8)	23 (14)	124 (92)	124 (92)	56 (40)	63 (47)
ø100	23 (14)	23 (8)	23 (14)	133 (101)	133 (101)	67 (51)	73 (57)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Weight Table

(Unit: kg)

Bore size (mm)	Product Weight at Stroke = 0 mm						Stroke: Added weight per 50 mm	Switch Weight (Per Piece)	Switch Mounting Bracket Weight	Accessory Weight	
	Basic type (00)	Foot Type (LB)	Flange type (FA, FB)	Single Clevis Type (CA)	Double clevis type (CB)	Trunnion Type (TA, TB, TC)				I	Y
ø32	0.50	0.61	0.72	0.65	0.68	0.67	0.12	Refer to the weight listed in the switch specifications on P. 971.	0.024	0.07	0.10
ø40	0.66	0.80	0.94	0.85	0.85	1.00	0.17		0.024	0.07	0.13
ø50	1.13	1.29	1.61	1.54	1.54	1.61	0.23		0.022	0.20	0.30
ø63	1.39	1.73	2.15	1.95	1.96	2.27	0.25		0.022	0.20	0.30
ø80	2.66	3.09	4.23	3.93	3.94	4.15	0.40		0.026	0.52	0.94
ø100	3.77	4.63	6.09	5.49	5.52	6.34	0.51		0.024	0.48	0.92

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø32	Push	40.2	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	34.6	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	62.8	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	52.8	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.2	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	1.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push	2.51×10^2	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	2.27×10^2	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push	3.93×10^2	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3	6.28×10^3	7.07×10^3	7.85×10^3
	Pull	3.57×10^2	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

Mounting Bracket Model No. Notation Method

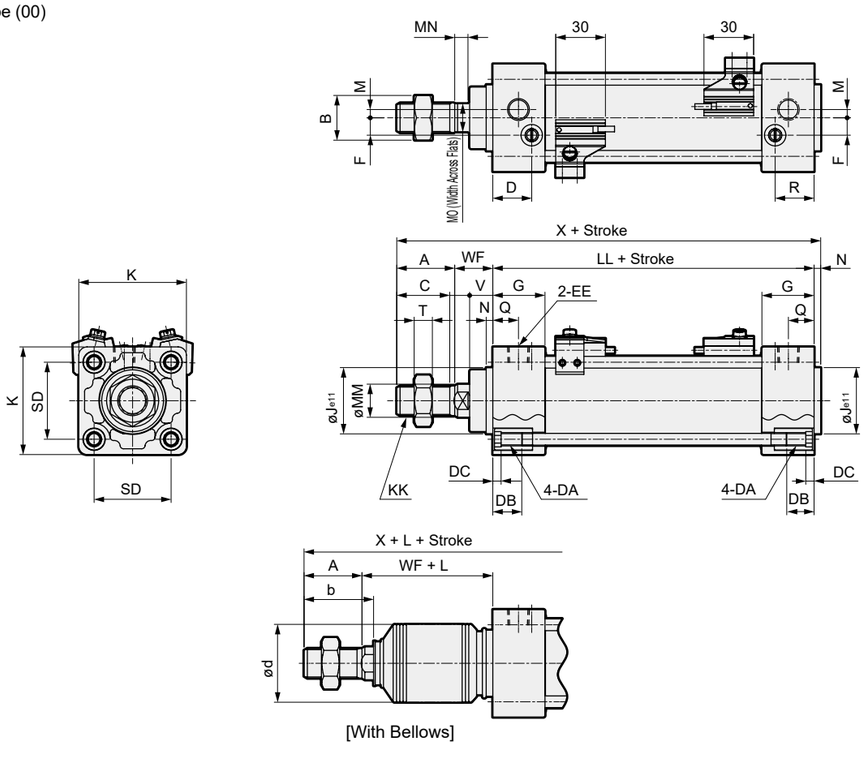
Bore Size (mm) / Mounting bracket	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCG-LB-32	SCG-LB-40	SCG-LB-50	SCG-LB-63	SCG-LB-80	SCG-LB-100
Flange (FA) (FB) *1	SCG-FA-32	SCG-FA-40	SCG-FA-50	SCG-FA-63	SCG-FA-80	SCG-FA-100
Single Clevis (CA)	SCG-CA-32	SCG-CA-40	SCG-CA-50	SCG-CA-63	SCG-CA-80	SCG-CA-100
Double Clevis (CB)	SCG-CB-32	SCG-CB-40	SCG-CB-50	SCG-CB-63	SCG-CB-80	SCG-CB-100

*1: For flange (FA) with bellows, specify "SCG-FA-(Bore Size)-J".
*2: Foot type mounting bracket (LB) is 2 pcs/set.
*3: Mounting bolts are included to each mounting bracket.

MEMO

Outline Dimension Drawing

● Basic type (00)



[With Bellows]

Code / Bore Size (mm)	Basic Type (00) Basic Dimensions												
	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK
ø32	22	17	20	19	M6	16	5	Rc1/8	6.5	27	30	46	M10 × 1.25
ø40	30	22	27	19	M6	16	5	Rc1/4	9	27	35	52	M14 × 1.5
ø50	35	27	32	23.5	M8	16	5	Rc1/4	10.5	31.5	40	65	M18 × 1.5
ø63	35	27	32	21.5	M8	16	5	Rc3/8	12	31.5	45	75	M18 × 1.5
ø80	40	32	37	28	M10	16	5	Rc3/8	14	38	45	95	M22 × 1.5
ø100	40	41	37	28	M10	16	5	Rc1/2	15	38	55	114	M26 × 1.5

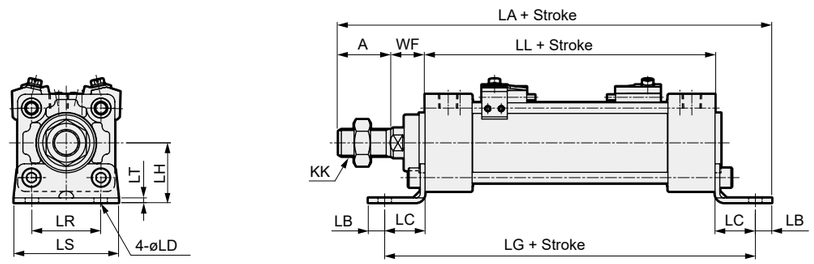
Code / Bore Size (mm)	LL *1	M	MM	MN	MO	N	Q	SD	T	V	WF	X *1
ø32	84 (90)	4	12	5.5	10	4	13	32.5	6	13	25	135 (141)
ø40	84 (90)	4	16	6	14	4	14	38	8	13	21	139 (145)
ø50	94 (102)	5	20	8	17	4	15.5	46.5	11	14	23	156 (164)
ø63	94 (102)	9	20	8	17	4	16.5	56.5	11	14	23	156 (164)
ø80	114 (124)	11.5	25	11	22	4	19	72	13	20	32	190 (200)
ø100	114 (124)	17	30	13	27	4	19	89	16	20	32	190 (200)

Code / Bore Size (mm)	With Bellows												
	b	d	L										
			50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	31.5	38	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	35	40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	42	47	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	42	47	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	50	53	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	52.5	61	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Axial Foot Type (LB)



[With Bellows]

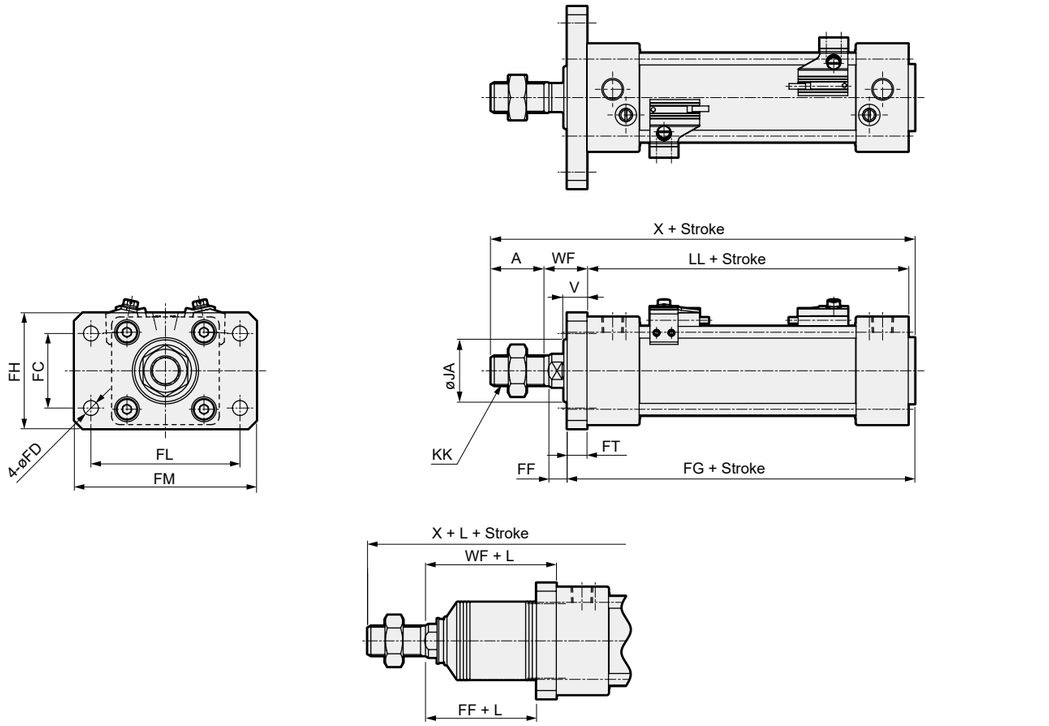
Code / Bore Size (mm)	Axial Foot Type (LB) Mounting Dimensions												
	A	KK	LL *1	WF	LA *1	LB	LC	LD	LG *1	LH	LR	LS	LT
ø32	22	M10 × 1.25	84 (90)	25	162 (168)	9	22	7	128 (134)	30	32	50	3.2
ø40	30	M14 × 1.5	84 (90)	21	170 (176)	11	24	9	132 (138)	33	38	55	3.2
ø50	35	M18 × 1.5	94 (102)	23	190 (198)	11	27	9	148 (156)	40	46	70	3.2
ø63	35	M18 × 1.5	94 (102)	23	193 (201)	14	27	12	148 (156)	45	56	80	4.5
ø80	40	M22 × 1.5	114 (124)	32	230 (240)	14	30	12	174 (184)	55	72	95	4.5
ø100	40	M26 × 1.5	114 (124)	32	234 (244)	16	32	14	178 (188)	65	89	114	6

Code / Bore Size (mm)	With Bellows										
	L										
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)



[With Bellows]

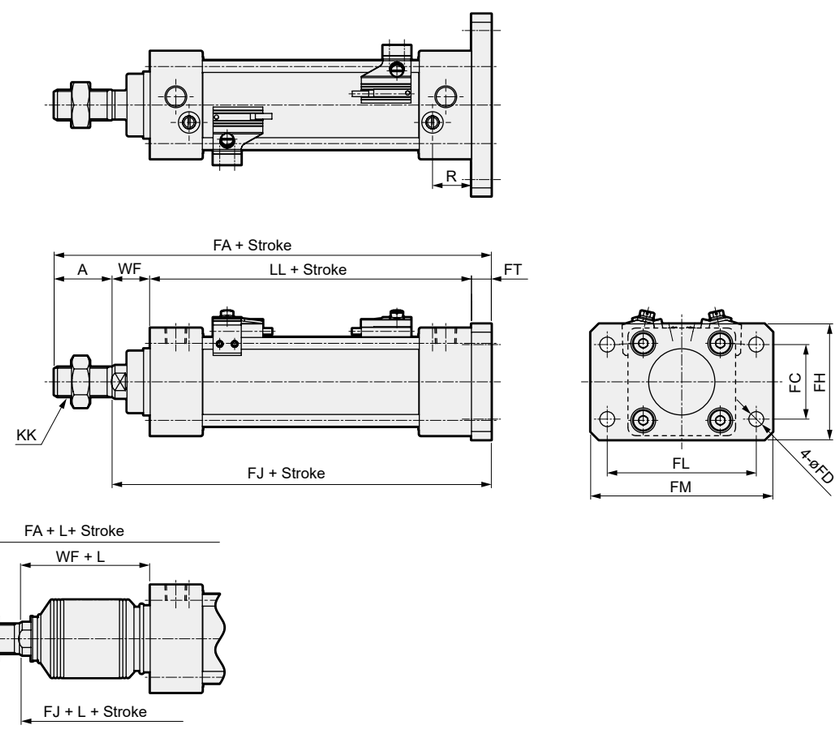
Code / Bore Size (mm)	A	KK	LL *1	V	WF	X *1	FC	FD	FF	FG *1	FH	JA	FL	FM	FT
ø32	22	M10 × 1.25	84 (90)	13	25	135 (141)	32	7	15	98 (104)	50	29	64	79	10
ø40	30	M14 × 1.5	84 (90)	13	21	139 (145)	36	9	11	98 (104)	55	30	72	90	10
ø50	35	M18 × 1.5	94 (102)	14	23	156 (164)	45	9	11	110 (118)	70	38	90	110	12
ø63	35	M18 × 1.5	94 (102)	14	23	156 (164)	50	9	11	110 (118)	80	38	100	120	12
ø80	40	M22 × 1.5	114 (124)	20	32	190 (200)	63	12	16	134 (144)	100	43	126	153	16
ø100	40	M26 × 1.5	114 (124)	20	32	190 (200)	75	14	16	134 (144)	120	51	150	178	16

Code / Bore Size (mm)	With Bellows L										
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Head Side Flange Type (FB)



[With Bellows]

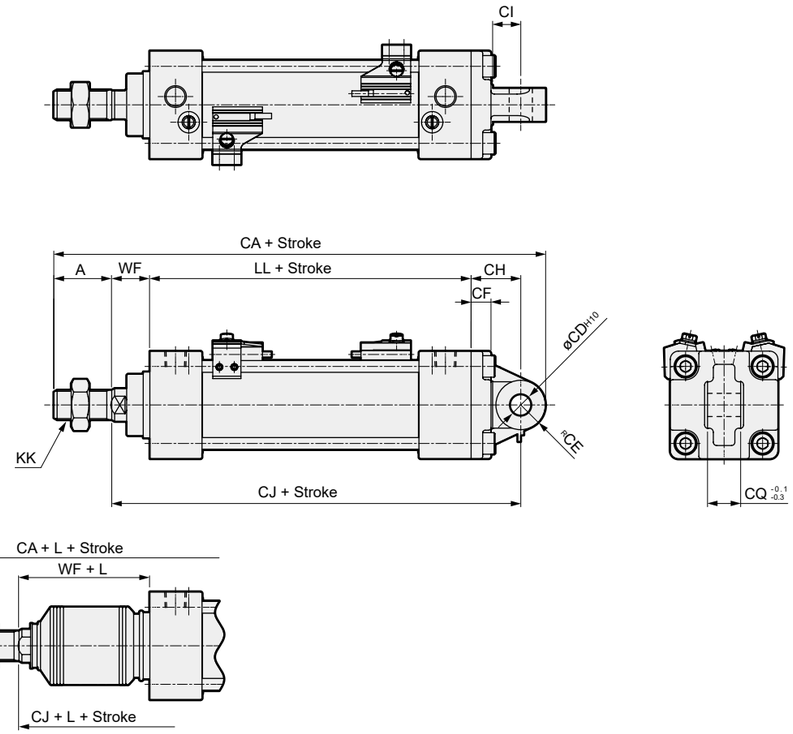
Code / Bore Size (mm)	A	KK	LL *1	WF	FA *1	FC	FD	FH	FJ *1	FL	FM	FT
ø32	22	M10 × 1.25	84 (90)	25	141 (147)	40	9	57	119 (125)	64	79	10
ø40	30	M14 × 1.5	84 (90)	21	145 (151)	40	9	57	115 (121)	72	90	10
ø50	35	M18 × 1.5	94 (102)	23	164 (172)	47	9	65	129 (137)	90	110	12
ø63	35	M18 × 1.5	94 (102)	23	164 (172)	60	11	80	129 (137)	100	120	12
ø80	40	M22 × 1.5	114 (124)	32	202 (212)	74	14	98	162 (172)	126	153	16
ø100	40	M26 × 1.5	114 (124)	32	202 (212)	88	14	118	162 (172)	150	178	16

Code / Bore Size (mm)	With Bellows L										
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Single Clevis Type (CA)



[With Bellows]

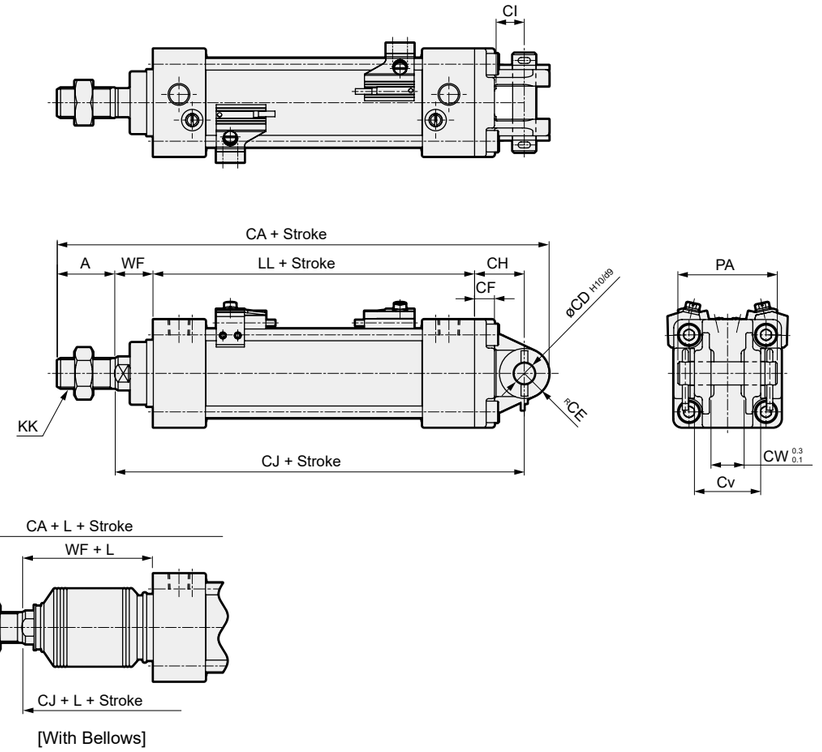
Code / Bore Size (mm)	Single Clevis Type (CA) Mounting Dimensions											
	A	KK	LL *1	WF	CA *1	CD	CE	CF	CH	CI	CJ *1	CQ
ø32	22	M10 × 1.25	84 (90)	25	164.5 (170.5)	10	10.5	9	23	13	132 (138)	14
ø40	30	M14 × 1.5	84 (90)	21	169 (175)	10	11	9	23	13	128 (134)	14
ø50	35	M18 × 1.5	94 (102)	23	197 (205)	14	15	12	30	17	147 (155)	20
ø63	35	M18 × 1.5	94 (102)	23	197 (205)	14	15	12	30	17	147 (155)	20
ø80	40	M22 × 1.5	114 (124)	32	251 (261)	22	23	15	42	26	188 (198)	30
ø100	40	M26 × 1.5	114 (124)	32	251 (261)	22	23	15	42	26	188 (198)	30

Code / Bore Size (mm)	With Bellows										
	L										
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Double clevis type (CB)



[With Bellows]

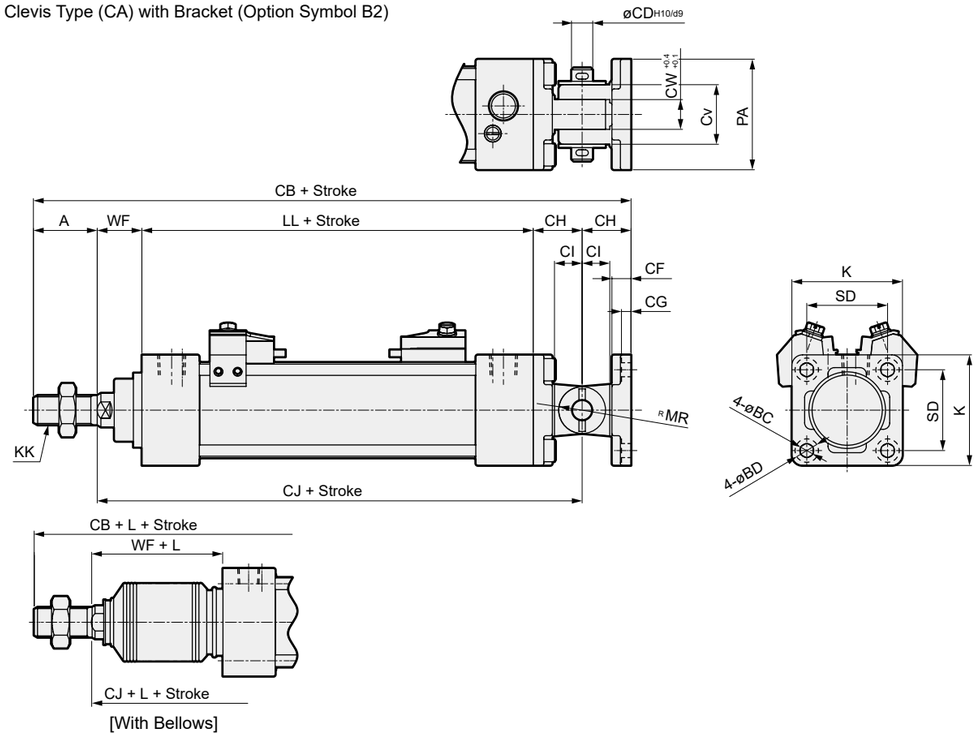
Code / Bore Size (mm)	Double Clevis Type (CB) Mounting Dimensions													
	A	KK	LL *1	WF	CA *1	CD	CE	CF	CH	CI	CJ *1	Cv	CW	PA
ø32	22	M10 × 1.25	84 (90)	25	164.5 (170.5)	10	10.5	9	23	13	132 (138)	28	14	44
ø40	30	M14 × 1.5	84 (90)	21	169 (175)	10	11	9	23	13	128 (134)	28	14	44
ø50	35	M18 × 1.5	94 (102)	23	197 (205)	14	15	12	30	17	147 (155)	40	20	60
ø63	35	M18 × 1.5	94 (102)	23	197 (205)	14	15	12	30	17	147 (155)	40	20	60
ø80	40	M22 × 1.5	114 (124)	32	251 (261)	22	23	15	42	26	188 (198)	60	30	82
ø100	40	M26 × 1.5	114 (124)	32	251 (261)	22	23	15	42	26	188 (198)	60	30	82

Code / Bore Size (mm)	With Bellows										
	L										
	50 or less	Over 50 to 100	Over 100 150 or Less	Over 150 200 or Less	Over 200 300 or Less	Over 300 400 or Less	Over 400 500 or Less	Over 500 600 or Less	Over 600 700 or Less	Over 700 800 or Less	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Single Clevis Type (CA) with Bracket (Option Symbol B2)



Code / Bore Size (mm)	A	K	KK	LL *1	WF	CB *1	CD	CF	CG
ø32	22	46	M10 × 1.25	84 (90)	25	177 (183)	10	9	4.5
ø40	30	52	M14 × 1.5	84 (90)	21	181 (187)	10	9	4.5
ø50	35	65	M18 × 1.5	94 (102)	23	212 (220)	14	12	6.5
ø63	35	75	M18 × 1.5	94 (102)	23	212 (220)	14	12	6.5
ø80	40	95	M22 × 1.5	114 (124)	32	270 (280)	22	15	8.5
ø100	40	114	M26 × 1.5	114 (124)	32	270 (280)	22	15	8.5

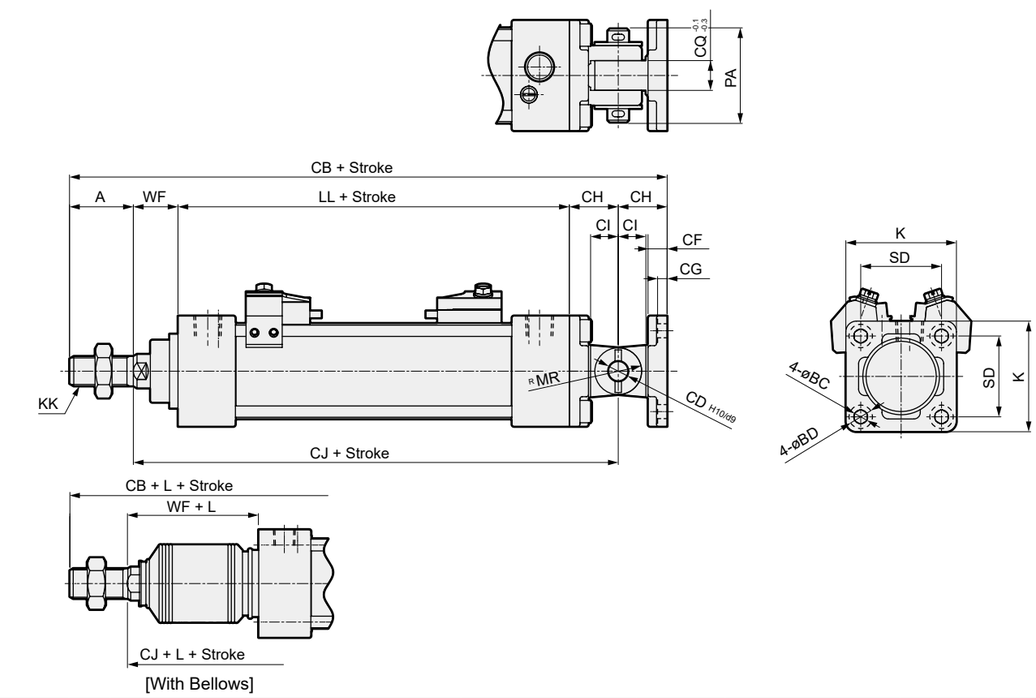
Code / Bore Size (mm)	CH	CI	CJ *1	Cv	CW	BC	BD	MR	PA	SD
ø32	23	13	132 (138)	28	14	6.6	11	10.5	44	32.5
ø40	23	13	128 (134)	28	14	6.6	11	11	44	38
ø50	30	17	147 (155)	40	20	9	14	15	60	46.5
ø63	30	17	147 (155)	40	20	9	14	15	60	56.5
ø80	42	26	188 (198)	60	30	11	17.5	23	82	72
ø100	42	26	188 (198)	60	30	11	17.5	23	82	89

Code / Bore Size (mm)	With Bellows L										
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Single Clevis Type (CB) with Bracket (Option Symbol B1)



Code / Bore Size (mm)	A	K	KK	LL *1	WF	CB *1	CD	C
ø32	22	46	M10 × 1.25	84 (90)	25	177 (183)	10	9
ø40	30	52	M14 × 1.5	84 (90)	21	181 (187)	10	9
ø50	35	65	M18 × 1.5	94 (102)	23	212 (220)	14	12
ø63	35	75	M18 × 1.5	94 (102)	23	212 (220)	14	12
ø80	40	95	M22 × 1.5	114 (124)	32	270 (280)	22	15
ø100	40	114	M26 × 1.5	114 (124)	32	270 (280)	22	15

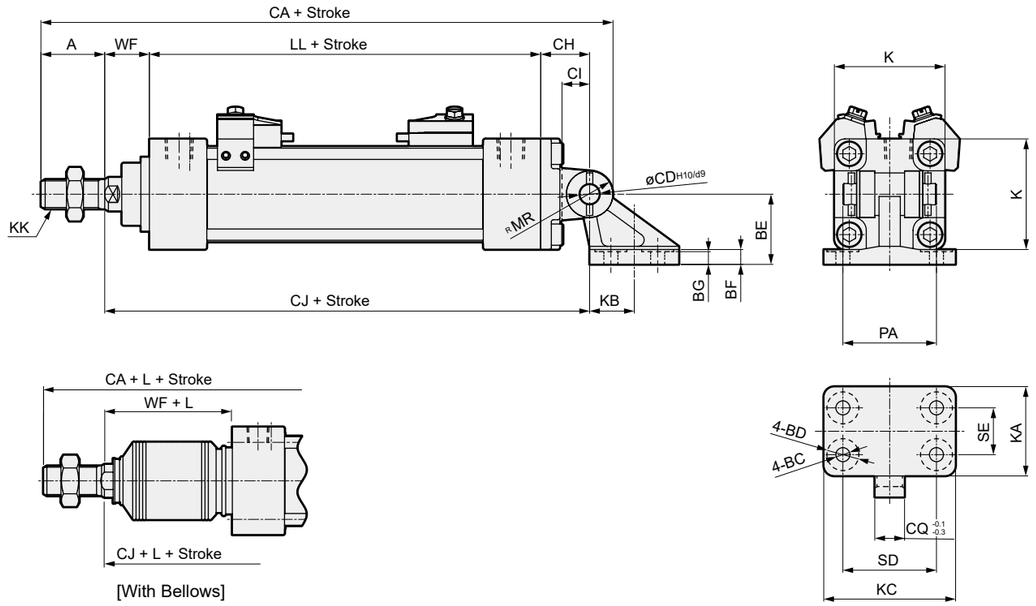
Code / Bore Size (mm)	CG	CH	CI	CJ *1	CQ	BC	BD	MR	PA	SD
ø32	4.5	23	13	132 (138)	14	6.6	11	10.5	44	32.5
ø40	4.5	23	13	128 (134)	14	6.6	11	11	44	38
ø50	6.5	30	17	147 (155)	20	9	14	15	60	46.5
ø63	6.5	30	17	147 (155)	20	9	14	15	60	56.5
ø80	8.5	42	26	188 (198)	30	11	17.5	23	82	72
ø100	8.5	42	26	188 (198)	30	11	17.5	23	82	89

Code / Bore Size (mm)	With Bellows L										
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Single Clevis Type (CB) with Bracket (Option Symbol B3)



Code / Bore Size (mm)	A	K	KK	LL *1	WF	CA *1	CD	CH	CI	CJ *1
ø32	22	46	M10 × 1.25	84 (90)	25	164.5 (170.5)	10	23	13	132 (138)
ø40	30	52	M14 × 1.5	84 (90)	21	169 (175)	10	23	13	128 (134)
ø50	35	65	M18 × 1.5	94 (102)	23	197 (205)	14	30	17	147 (155)
ø63	35	75	M18 × 1.5	94 (102)	23	197 (205)	14	30	17	147 (155)
ø80	40	95	M22 × 1.5	114 (124)	32	251 (261)	22	42	26	188 (198)
ø100	40	114	M26 × 1.5	114 (124)	32	251 (261)	22	42	26	188 (198)

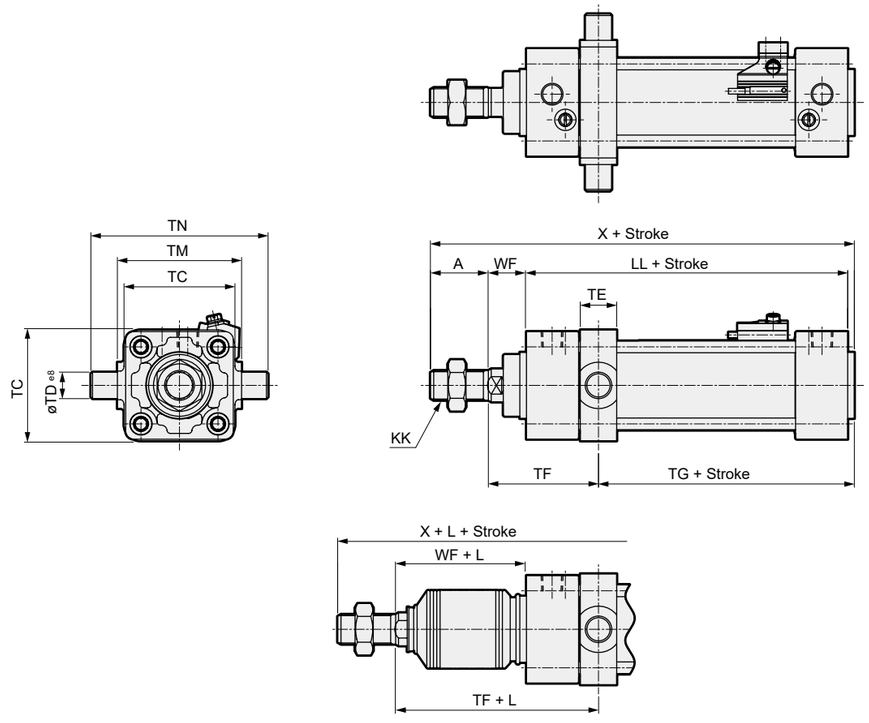
Code / Bore Size (mm)	CQ	BC	BD	BE	BF	BG	KA	KB	KC	MR	PA	SD	SE
ø32	14	6.6	15	33	7	6	42	21	62	10	44	44	22
ø40	14	6.6	15	33	7	6	42	21	62	10	44	44	22
ø50	20	9	18	45	8	7	53	28	81	14	60	60	30
ø63	20	9	18	45	8	7	53	28	81	14	60	60	30
ø80	30	11	22	65	10	9	73	41.5	111	22	82	86	45
ø100	30	11	22	65	10	9	73	41.5	111	22	82	86	45

Code / Bore Size (mm)	With Bellows L: 50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Rod side trunnion type (TA)



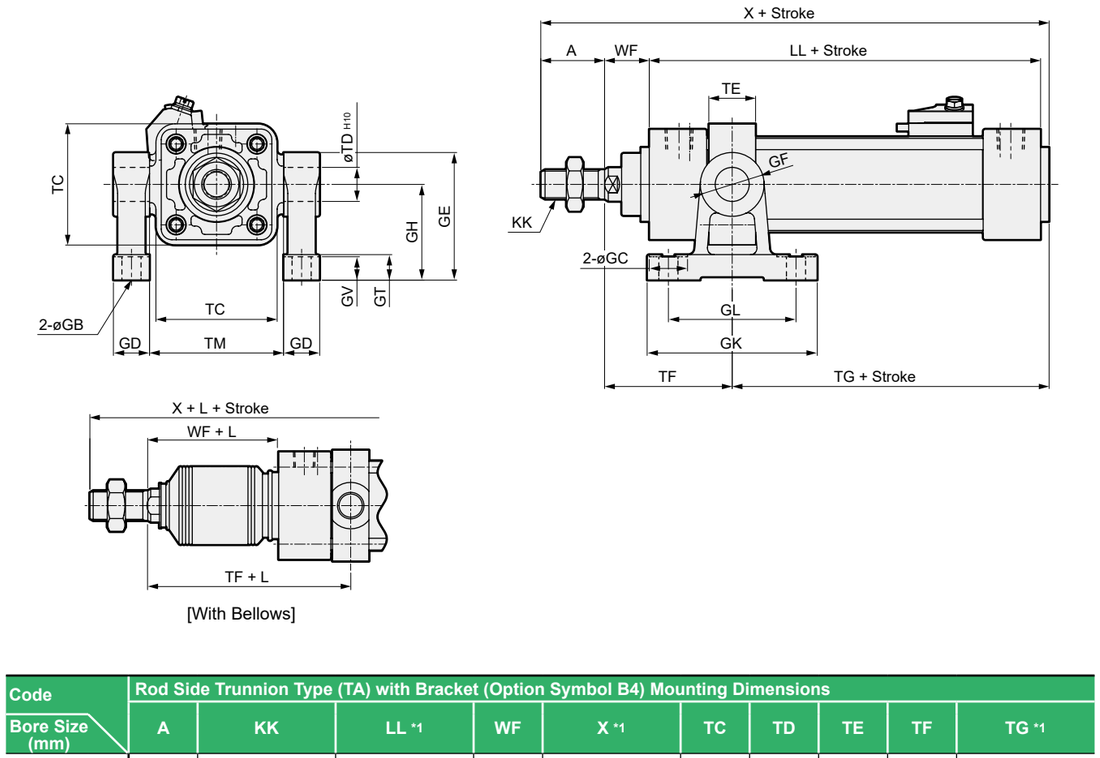
Code / Bore Size (mm)	A	KK	LL *1	WF	X *1	TC	TD	TE	TF	TG *1	TM	TN
ø32	22	M10 × 1.25	84 (90)	25	135 (141)	47	12	17	61.5	51.5 (57.5)	50	74
ø40	30	M14 × 1.5	84 (90)	21	139 (145)	57	16	22	60	49 (55)	63	95
ø50	35	M18 × 1.5	94 (102)	23	156 (164)	67	16	22	66.5	54.5 (62.5)	75	107
ø63	35	M18 × 1.5	94 (102)	23	156 (164)	82	20	28	69.5	51.5 (59.5)	90	130
ø80	40	M22 × 1.5	114 (124)	32	190 (200)	100	20	34	88	62 (72)	110	150
ø100	40	M26 × 1.5	114 (124)	32	190 (200)	121	25	40	91	59 (69)	132	182

Code / Bore Size (mm)	With Bellows L: 50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
Note: Switch cannot be mounted on the rod side.
***4: For dimensions with each switch, refer to P. 608, 609.**
***5: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Rod side trunnion type (TA) with bracket (Option code B4)



[With Bellows]

Code / Bore Size (mm)	Rod Side Trunnion Type (TA) with Bracket (Option Symbol B4) Mounting Dimensions									
	A	KK	LL *1	WF	X *1	TC	TD	TE	TF	TG *1
ø32	22	M10 × 1.25	84 (90)	25	135 (141)	47	12	17	61.5	51.5 (57.5)
ø40	30	M14 × 1.5	84 (90)	21	139 (145)	57	16	22	60	49 (55)
ø50	35	M18 × 1.5	94 (102)	23	156 (164)	67	16	22	66.5	54.5 (62.5)
ø63	35	M18 × 1.5	94 (102)	23	156 (164)	82	20	28	69.5	51.5 (59.5)
ø80	40	M22 × 1.5	114 (124)	32	190 (200)	100	20	34	88	62 (72)
ø100	40	M26 × 1.5	114 (124)	32	190 (200)	121	25	40	91	59 (69)

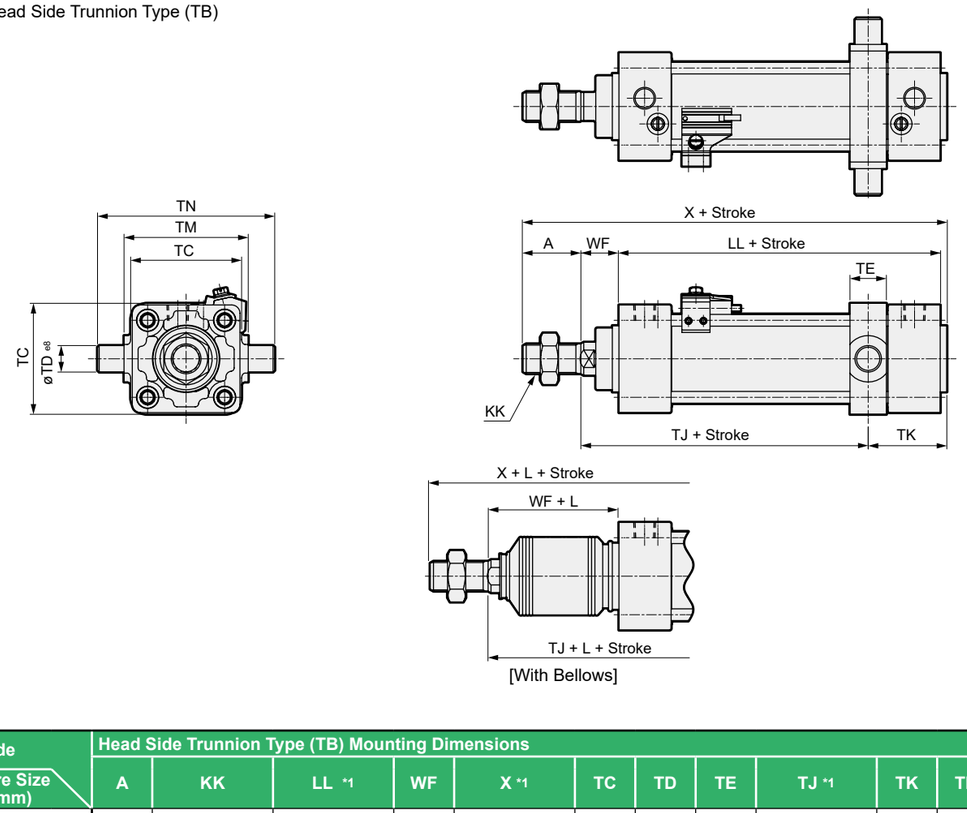
Code / Bore Size (mm)	TM	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV
ø32	50	7	13	12	47	24	35	62	45	10	9
ø40	63	9	18	17	60	30	45	80	60	12	11
ø50	75	9	18	17	60	30	45	80	60	12	11
ø63	90	11	22	20	80	40	60	100	70	14	13
ø80	110	11	22	20	80	40	60	100	70	14	13
ø100	132	13.5	24	26	100	50	75	120	90	17	16

Code / Bore Size (mm)	With Bellows L									
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
*3: Switch cannot be mounted on the rod side.
***4: For dimensions with each switch, refer to P. 608, 609.**
***5: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Head Side Trunnion Type (TB)



[With Bellows]

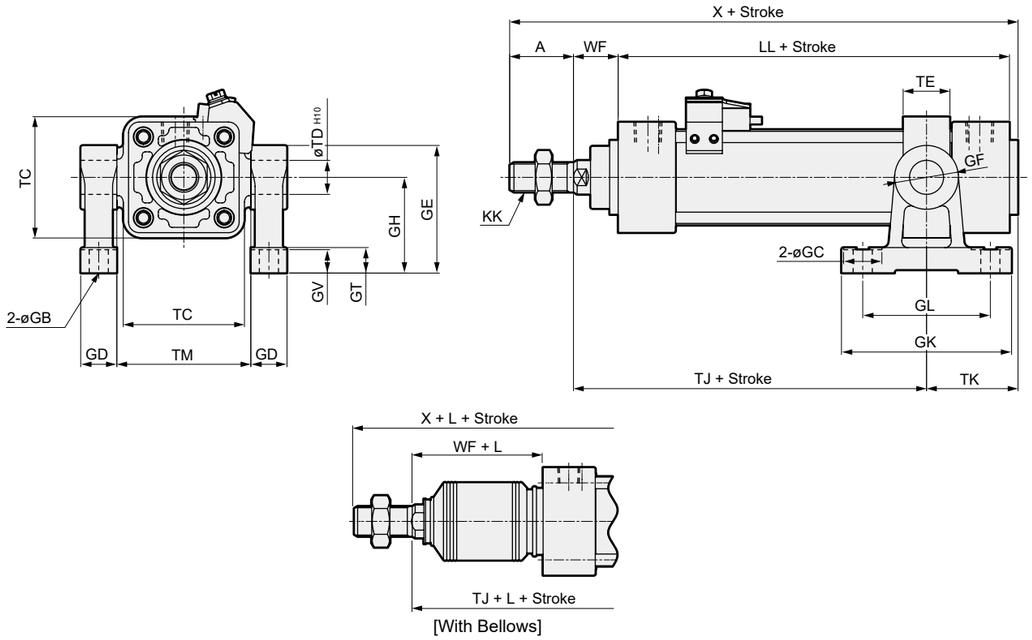
Code / Bore Size (mm)	Head Side Trunnion Type (TB) Mounting Dimensions											
	A	KK	LL *1	WF	X *1	TC	TD	TE	TJ *1	TK	TM	TN
ø32	22	M10 × 1.25	84 (90)	25	135 (141)	47	12	17	72.5 (78.5)	40.5	50	74
ø40	30	M14 × 1.5	84 (90)	21	139 (145)	57	16	22	66 (72)	43	63	95
ø50	35	M18 × 1.5	94 (102)	23	156 (164)	67	16	22	73.5 (81.5)	47.5	75	107
ø63	35	M18 × 1.5	94 (102)	23	156 (164)	82	20	28	70.5 (78.5)	50.5	90	130
ø80	40	M22 × 1.5	114 (124)	32	190 (200)	100	20	34	90 (100)	60	110	150
ø100	40	M26 × 1.5	114 (124)	32	190 (200)	121	25	40	87 (97)	63	132	182

Code / Bore Size (mm)	With Bellows L										
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
*3: Switch cannot be mounted on the head side.
***4: For dimensions with each switch, refer to P. 608, 609**.
*5: For outer dimensions diagram of accessories, refer to **P. 511**.

Outline Dimension Drawing

●Head side trunnion type (TB) with bracket (Option code B4)



[With Bellows]

Code / Bore Size (mm)	Head Side Trunnion Type (TB) with Bracket (Option Symbol B4) Mounting Dimensions								
	A	KK	LL *1	WF	X *1	TC	TD	TE	TJ *1
ø32	22	M10 × 1.25	84 (90)	25	135 (141)	47	12	17	72.5 (78.5)
ø40	30	M14 × 1.5	84 (90)	21	139 (145)	57	16	22	66 (72)
ø50	35	M18 × 1.5	94 (102)	23	156 (164)	67	16	22	73.5 (81.5)
ø63	35	M18 × 1.5	94 (102)	23	156 (164)	82	20	28	70.5 (78.5)
ø80	40	M22 × 1.5	114 (124)	32	190 (200)	100	20	34	90 (100)
ø100	40	M26 × 1.5	114 (124)	32	190 (200)	121	25	40	87 (97)

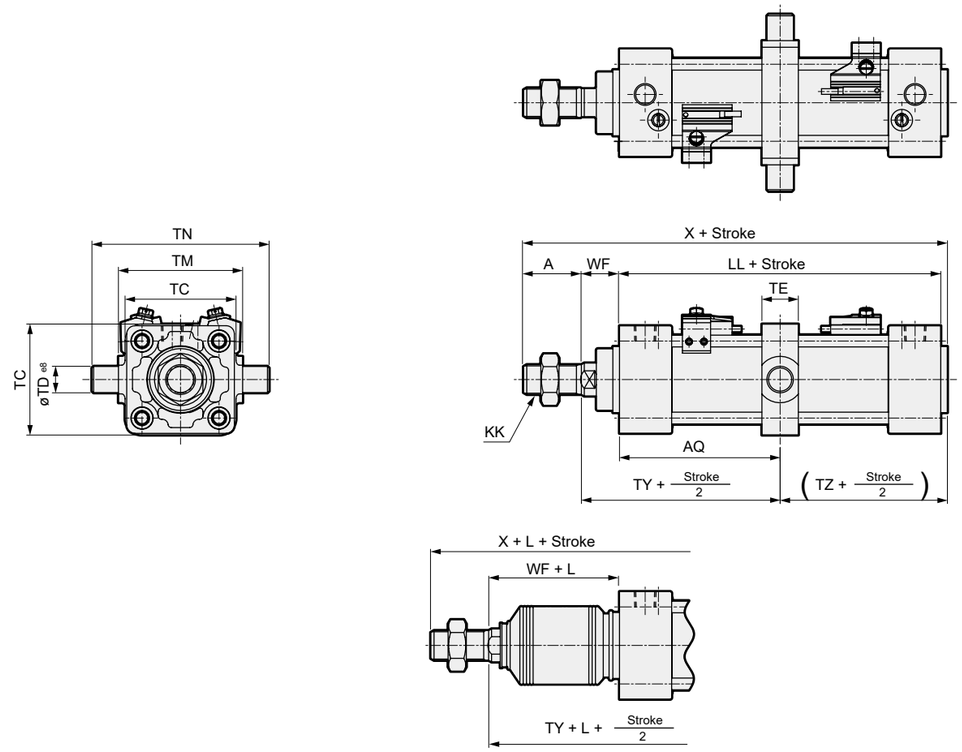
Code / Bore Size (mm)	TK	TM	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV
ø32	40.5	50	7	13	12	47	24	35	62	45	10	9
ø40	43	63	9	18	17	60	30	45	80	60	12	11
ø50	47.5	75	9	18	17	60	30	45	80	60	12	11
ø63	50.5	90	11	22	20	80	40	60	100	70	14	13
ø80	60	110	11	22	20	80	40	60	100	70	14	13
ø100	63	132	13.5	24	26	100	50	75	120	90	17	16

Code / Bore Size (mm)	With Bellows L										
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
*3: Switch cannot be mounted on the head side.
***4: For dimensions with each switch, refer to P. 608, 609.**
***5: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Intermediate trunnion type (TC)



[With Bellows]

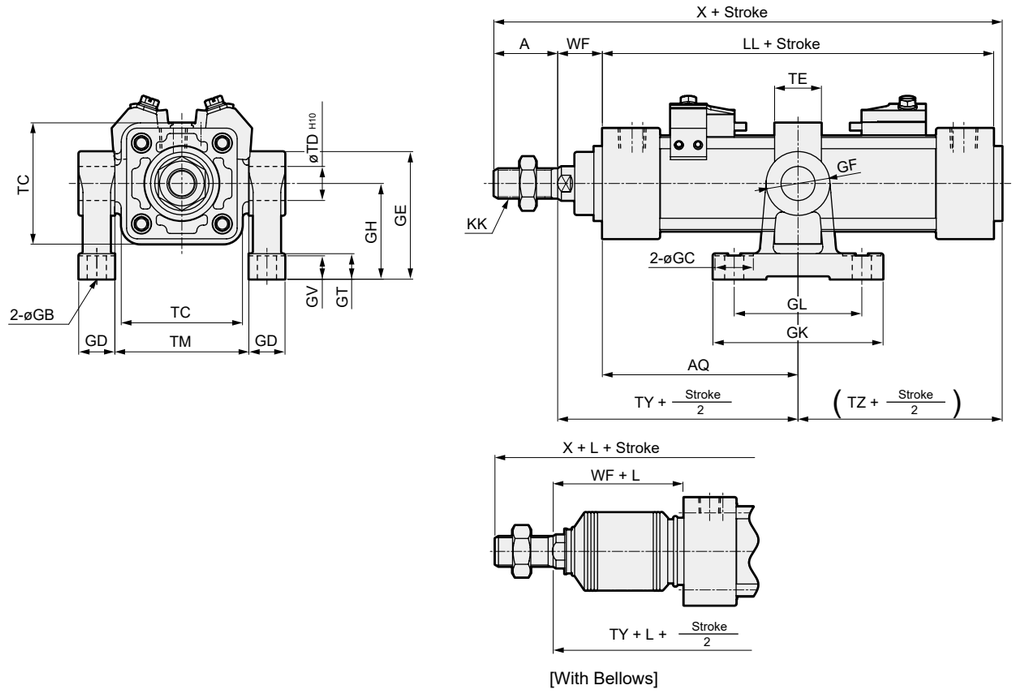
Code / Bore Size (mm)	Intermediate Trunnion Type (TC) Mounting Dimensions										
	A	KK	LL *1	WF	X *1	AQ *1	TC	TD	TE	TY *1	TZ *1
ø32	22	M10 × 1.25	84 (90)	25	135 (141)	42 (45) + Stroke/2	47	12	17	67 (70)	46 (49)
ø40	30	M14 × 1.5	84 (90)	21	139 (145)	42 (45) + Stroke/2	57	16	22	63 (66)	46 (49)
ø50	35	M18 × 1.5	94 (102)	23	156 (164)	47 (51) + Stroke/2	67	16	22	70 (74)	51 (55)
ø63	35	M18 × 1.5	94 (102)	23	156 (164)	47 (51) + Stroke/2	82	20	28	70 (74)	51 (55)
ø80	40	M22 × 1.5	114 (124)	32	190 (200)	57 (62) + Stroke/2	100	20	34	89 (94)	61 (66)
ø100	40	M26 × 1.5	114 (124)	32	190 (200)	57 (62) + Stroke/2	121	25	40	89 (94)	61 (66)

Code / Bore Size (mm)	TM	TN	With Bellows L									
			50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	50	74	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	63	95	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	75	107	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	90	130	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	110	150	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	132	182	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Intermediate trunnion type (TC) with bracket (Option code B4)



[With Bellows]

Code / Bore Size (mm)	Intermediate Trunnion Type (TC) with Bracket (Option Symbol B4) Mounting Dimensions								
	A	KK	LL *1	WF	X *1	AQ *1	TC	TD	TE
ø32	22	M10 × 1.25	84 (90)	25	135 (141)	42 (45) + Stroke/2	47	12	17
ø40	30	M14 × 1.5	84 (90)	21	139 (145)	42 (45) + Stroke/2	57	16	22
ø50	35	M18 × 1.5	94 (102)	23	156 (164)	47 (51) + Stroke/2	67	16	22
ø63	35	M18 × 1.5	94 (102)	23	156 (164)	47 (51) + Stroke/2	82	20	28
ø80	40	M22 × 1.5	114 (124)	32	190 (200)	57 (62) + Stroke/2	100	20	34
ø100	40	M26 × 1.5	114 (124)	32	190 (200)	57 (62) + Stroke/2	121	25	40

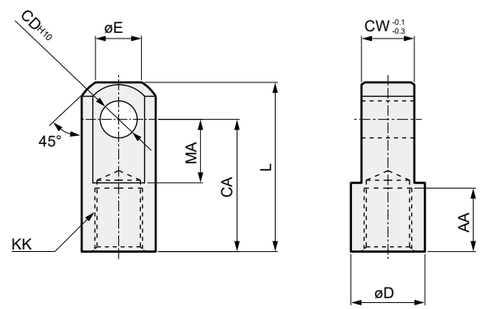
Code / Bore Size (mm)	TY *1	TZ *1	TM	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV
ø32	67 (70)	46 (49)	50	7	13	12	47	24	35	62	45	10	9
ø40	63 (66)	46 (49)	63	9	18	17	60	30	45	80	60	12	11
ø50	70 (74)	51 (55)	75	9	18	17	60	30	45	80	60	12	11
ø63	70 (74)	51 (55)	90	11	22	20	80	40	60	100	70	14	13
ø80	89 (94)	61 (66)	110	11	22	20	80	40	60	100	70	14	13
ø100	89 (94)	61 (66)	132	13.5	24	26	100	50	75	120	90	17	16

Code / Bore Size (mm)	With Bellows L									
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

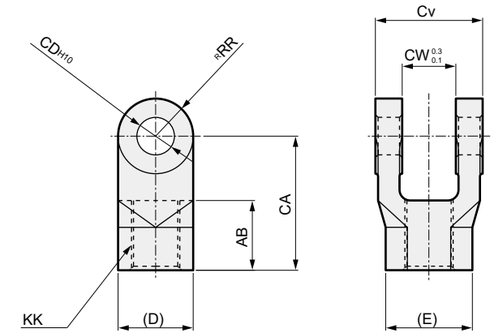
Accessories Outline Dimension Drawing

●Single Knuckle (I) Material: Steel Painting



Model No.	Applicable Bore size (mm)	AA	CA	CD	CW	D	E	KK	L	MA	RR	Weight (kg)
SCG-I-32	32	14	30	10	14	20	12	M10 × 1.25	40	16	12	0.07
SCG-I-40	40	19	40	10	14	22	12	M14 × 1.5	50	19	12.5	0.07
SCG-I-50	50, 63	24	50	14	20	28	16	M18 × 1.5	64	24	16.5	0.20
SCG-I-80	80	26	60	22	30	40	24	M22 × 1.5	80	34	23.5	0.52
SCG-I-100	100	26	60	22	30	40	24	M26 × 1.5	80	34	23.5	0.48

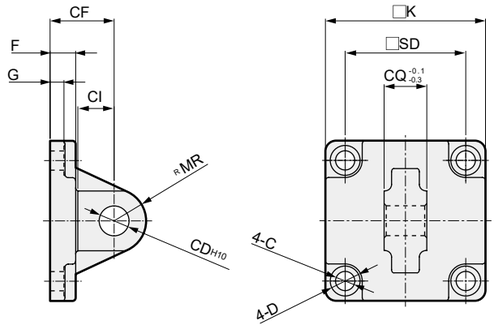
●Double Knuckle (Y) Material: Cast Iron Painting



Model No.	Applicable Bore size (mm)	AB	CA	CD	Cv	CW	D	E	KK	RR	Weight (kg)
SCG-Y-32	32	14	30	10	28	14	20	20.1	M10 × 1.25	10	0.10
SCG-Y-40	40	21	40	10	28	14	22	22.4	M14 × 1.5	11	0.13
SCG-Y-50	50, 63	26	50	14	40	20	28	29.3	M18 × 1.5	14	0.30
SCG-Y-80	80	31	65	22	60	30	40	43.2	M22 × 1.5	20	0.94
SCG-Y-100	100	31	65	22	60	30	40	43.2	M26 × 1.5	20	0.92

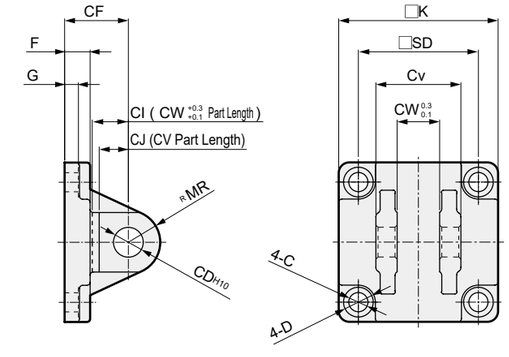
Note: Pin, split pin, and plain washer are Included.

●Single Bracket (B1) Material: Cast Iron Painting



Model No.	Applicable Bore size (mm)	C	CD	CF	CI	CQ	D	F	G	K	MR	SD	Weight (kg)
SCG-B1-32	32	6.6	10	23	13	14	11	9	4.5	46	10.5	32.5	0.13
SCG-B1-40	40	6.6	10	23	13	14	11	9	4.5	52	11	38	0.16
SCG-B1-50	50	9	14	30	17	20	14	12	6.5	65	15	46.5	0.38
SCG-B1-63	63	9	14	30	17	20	14	12	6.5	75	15	56.5	0.48
SCG-B1-80	80	11	22	42	26	30	17.5	15	8.5	95	23	72	1.19
SCG-B1-100	100	11	22	42	26	30	17.5	15	8.5	114	23	89	1.56

●Double Bracket (B2) Material: Cast Iron Painting

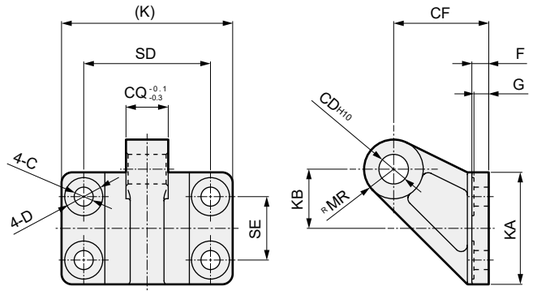


Model No.	Applicable Bore size (mm)	C	CD	CF	CI	CJ	Cv	CW	D	F	G	K	MR	SD	Weight (kg)
SCG-B2-32	32	6.6	10	23	13	13	28	14	11	9	4.5	46	10.5	32.5	0.16
SCG-B2-40	40	6.6	10	23	13	13	28	14	11	9	4.5	52	11	38	0.20
SCG-B2-50	50	9	14	30	17	17	40	20	14	12	6.5	65	15	46.5	0.46
SCG-B2-63	63	9	14	30	17	17	40	20	14	12	6.5	75	15	56.5	0.58
SCG-B2-80	80	11	22	42	26	24	60	30	17.5	15	8.5	95	23	72	1.52
SCG-B2-100	100	11	22	42	26	24	60	30	17.5	15	8.5	114	23	89	1.91

Note: Pin, split pin, and plain washer are Included.

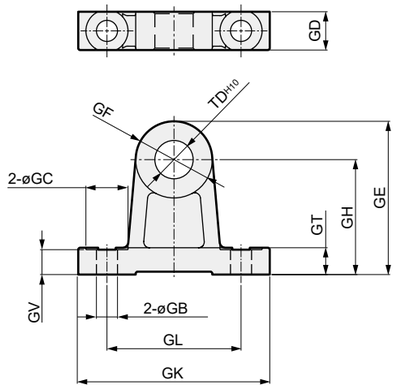
Accessories Outline Dimension Drawing

●Single Bracket (B1)　　Material: Cast Iron Painting



Model No.	Applicable Bore size (mm)	C	CD	CF	CQ	D	F	G	K	KA	KB	MR	SD	SE	Weight (kg)
SCG-B3-32	32, 40	6.6	10	33	14	15	7	6	62	42	21	10	44	22	0.21
SCG-B3-50	50, 63	9	14	45	20	18	8	7	81	53	28	14	60	30	0.45
SCG-B3-80	80.100	11	22	65	30	22	10	9	111	73	41.5	22	86	45	1.23

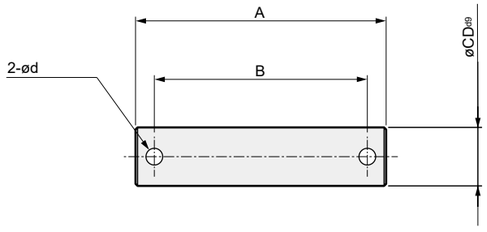
●Trunnion type 2nd bracket (B4)　　Material: Cast Iron Painting



Model No.	Applicable Bore size (mm)	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV	TD	Weight (kg)
SCG-B4-32	32	7	13	12	47	24	35	62	45	10	9	12	0.20
SCG-B4-40	40, 50	9	18	17	60	30	45	80	60	12	11	16	0.43
SCG-B4-63	63, 80	11	22	20	80	40	60	100	70	14	13	20	0.87
SCG-B4-100	100	13.5	24	26	100	50	75	120	90	17	16	25	1.75

Note: Brackets come in sets of 2.

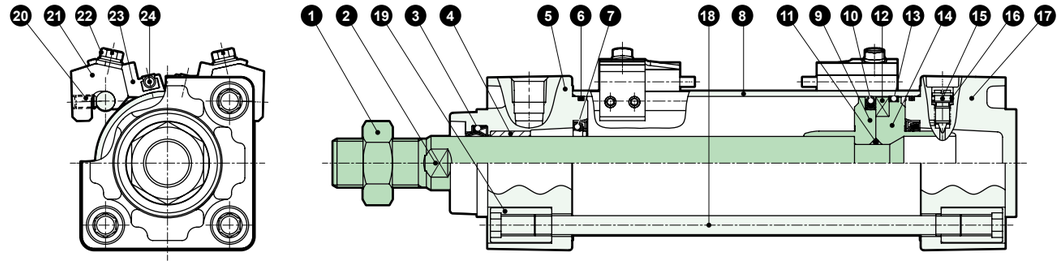
●Pin (P)　　Material: Steel Trivalent chromate

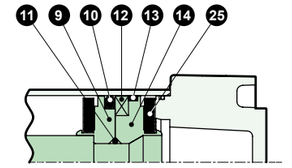


Model No.	Applicable Bore size (mm)	A	B	CD	d	Weight (kg)
SCG-P-32	32, 40	44	36	10	3	0.04
SCG-P-50	50, 63	60	51	14	4	0.10
SCG-P-80	80.100	82	72	22	4	0.34

Note: For double clevis type, double knuckle type, double bracket type.
Cotter pin and plain washer are attached.

Internal Structure Diagram/Material





With Rubber Cushion

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating	14	Piston H	Aluminum Alloy	
2	Piston Rod	Steel	Industrial Hard Chrome Plating	15	Cushion Needle	Copper Alloy	Nickel Plating
3	Rod Packing	Nitrile Rubber		16	Needle Gasket	Nitrile Rubber	
4	Bushing	Oil-Impregnated Bearing Alloy		17	Head Cover	Aluminum Alloy	Painting
5	Rod Cover	Aluminum Alloy	Painting	18	Tie Rod	Steel	Zinc Chromate
6	Cylinder Gasket	Nitrile Rubber		19	Round Nut	Steel	Zinc Chromate
7	Cushion Packing	Nitrile Rubber, Steel	Only with air cushion	20	Hexagon socket head set screw	Steel	Black Oxide
8	Cylinder Tube	Aluminum Alloy	Hard Anodized	21	Switch mounting base	Aluminum Alloy	
9	Piston R	Aluminum Alloy		22	Hexagon head bolt with captive washer and slotted head	Stainless Steel	
10	Piston Packing	Nitrile Rubber		23	Switch holder	Aluminum Alloy	
11	Piston Gasket	Nitrile Rubber		24	Cylinder Switch		
12	Magnet	Plastic		25	Cushion Rubber	Urethane Rubber	Only with rubber cushion
13	Wear Ring	Polyacetal Resin					

Mounting Bracket Material

Mounting type	Material	Remarks
Foot (LB)	Steel	Nickel Plating
Flange (FA / FB)	Steel	Painting
Single clevis (CA), Double clevis (CB)	Cast Iron	Painting
Trunnion (TA, TB, TC)	Cast Iron	Painting

Note: Mounting brackets are attached to the product and shipped.
However, for trunnion types (TA, TB, TC) and bellows-equipped models with LB or FA mounting type, they will be shipped assembled.

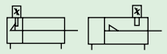
For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts



Tie-rod cylinder Double-acting, Drop prevention type

SCG-Q Series

●Bore size: ø32, ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

SCG-Q – LB – 40 – B – 100 – H ——— M1 I

Model No. ❶ ❷ ❸ ❹ ❺ ❽ ❾

With Switch
(Built-in magnet for switch)

SCG-Q – LB – 40 – B – 100 – H – T2H – R – M1 I

Model No. ❶ Mounting type ❷ Bore Size ❸ Piping thread type Cushion: Air cushion on both sides (basic type) ❹ Stroke ❺ Fall prevention mechanism ❻ Switch Model No. ❼ Number of Switches ❽ Option ❾ Accessories

❶Mounting type

Mounting brackets are included with the product and shipped. (However, trunnion types are shipped assembled.)

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and Split Pin Attached)	
*1 TA	Rod Side Trunnion Type	
*2 TB	Head Side Trunnion Type	
TC	Intermediate Trunnion Type	

*1: Mounting style TA with drop prevention mechanism R cannot be manufactured.
*2: Mounting style TB with drop prevention mechanism H cannot be manufactured.

❷Bore Size (mm)

Code	Content
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

❹Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø32	5 to 600	Every 1 mm
ø40		
ø50		
ø63		
ø80	5 to 700	
ø100	5 to 800	

Note: For minimum stroke with switch, Please refer to P. 516 and 517.

❺Drop prevention mechanism

Code	Content	
H	With head side fall prevention	
R	With rod side fall prevention	

❻Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color for AC Magnetic Field	2-wire	—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—		T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

***Lead wire length**

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❼Number of Switches

Code	Content
*1 R	With 1 on Rod Side
*1 H	With 1 on Head Side
D	With 2 pcs
T	With 3 pcs

*1: If mounting type TA or TB is selected, the number of switches is limited to "H" (1 on head side) for TA, and "R" (1 on rod side) for TB.

❽Option

Code	Content	
M	Piston Rod Material (Stainless Steel)	
*1 MO	Non-locking manual override (Release bolt included)	
*1 M1	Locking Manual Device	

*1: If options "M0" or "M1" are not selected, only the non-locking manual override is available. Release bolt is not included.

❾Accessories

Code	Content	
*1 I	Single Knuckle	
*1 Y	Double Knuckle (Pin and Split Pin Attached)	
B1	Single Bracket	
B2	Double Yoke Bracket (Pin and Split Pin Attached)	
B3	Single Bracket	
B4	Trunnion Type 2nd Bracket (2 pcs/set)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, refer to P. 610 to 613.

Code	Content
-XK◇	Mounting Bracket Rotational Assembly
-XAQ◇◇	Trunnion Position Specification
-XP7	Knuckle fixed by pin driving
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
SCG-Q – ..... – XP7

Rechargeable Battery Compatible Specification (Catalog No. CC-1226AA)

●Structure usable in rechargeable battery manufacturing processes

SCG-Q – ..... – P4*

*Please contact us for details.

*For combinations of variations and options, see P. 489.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

SCG – T0H – 40

❻ Switch Model No. ❷ Bore Size

●Switch body only

SW – T0H

❻ Switch Model No.

●Switch mounting bracket set

SCG – T – 40

Mounting bracket ❷ Bore Size

Note: Please consult us separately if using environmentally compatible T-type switches.

Specifications

Item		SCG-Q					
Bore Size	mm	ø32	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type					
Operating Fluid		Compressed Air					
Max. Working Pressure	MPa	1.0					
Min. Operating Pressure	MPa	0.15					
Proof Pressure	MPa	1.6					
Ambient Temperature	°C	-10 to 60 (However, no freezing)					
Port Size		Rc1/8	Rc1/4		Rc3/8		Rc1/2
Stroke tolerance	mm	$^{+1.0}_{0}$ (Up to 360), $^{+1.4}_{0}$ (361 to 1000), $^{+1.8}_{0}$(1001 to 1500)					
Operating Piston Speed	mm/s	30 to 1000 (Please use within the allowable absorbed energy.)					
Cushion		Air Cushion					
Effective air cushion length	mm	8.6	8.6	13.4	13.4	15.4	15.4
Fall prevention mechanism		Head side, Rod side					
Holding Force		Max. Thrust × 0.7					
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)					
Allowable Absorbed Energy J	With Air Cushion	2.5	3.7	8.0	14.4	25.4	45.6

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Manufacturable Stroke (mm)	Min. Stroke (mm)
ø32	25, 50, 75, 100 150, 200, 250 300, 350, 400 450, 500	600	700	5
ø40			800	
ø50			1200	
ø63			1200	
ø80		700	1400	
ø100		800	1500	

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: If the maximum stroke is exceeded, product specifications may not be met depending on the conditions, so please consult us.

Min. Stroke with Switch

●T0/T5 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	20 (18)	20 (10)	70 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø40	20 (19)	20 (10)	55 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø50	21 (19)	21 (10)	21 (19)	102 (72)	102 (72)	49 (34)	51 (36)
ø63	21 (20)	21 (11)	21 (20)	107 (77)	107 (77)	54 (39)	56 (41)
ø80	21 (21)	20 (11)	21 (21)	117 (87)	117 (87)	53 (38)	60 (45)
ø100	21 (21)	19 (11)	21 (21)	126 (96)	126 (96)	64 (49)	69 (54)

Note: ( ) indicates T□V (lead wire L-type).

●T8 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	19 (18)	19 (10)	67 (31)	97 (61)	97 (61)	49 (31)	49 (31)
ø40	19 (19)	19 (10)	52 (31)	97 (61)	97 (61)	49 (31)	49 (31)
ø50	19 (19)	18 (10)	19 (19)	97 (61)	97 (61)	48 (30)	48 (30)
ø63	20 (20)	18 (11)	20 (20)	102 (66)	102 (66)	53 (35)	53 (35)
ø80	21 (21)	17 (11)	21 (21)	112 (76)	112 (76)	51 (33)	57 (39)
ø100	21 (21)	17 (11)	21 (21)	121 (85)	121 (85)	61 (43)	67 (49)

Note: ( ) indicates T□V (lead wire L-type).

Min. Stroke with Switch

●T2/T3 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	20 (11)	20 (6)	70 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø40	20 (11)	20 (6)	55 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø50	21 (11)	21 (6)	21 (11)	102 (72)	102 (72)	49 (34)	51 (36)
ø63	21 (12)	21 (7)	21 (12)	107 (77)	107 (77)	54 (39)	56 (41)
ø80	20 (12)	20 (7)	20 (12)	117 (87)	117 (87)	53 (38)	60 (45)
ø100	19 (12)	19 (7)	19 (12)	126 (96)	126 (96)	64 (49)	69 (54)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T1 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	19 (11)	19 (6)	68 (38)	98 (68)	98 (68)	49 (34)	49 (34)
ø40	19 (11)	19 (6)	53 (38)	98 (68)	98 (68)	49 (34)	49 (34)
ø50	20 (11)	20 (6)	20 (11)	100 (70)	100 (70)	48 (33)	50 (35)
ø63	20 (12)	20 (7)	20 (12)	105 (75)	105 (75)	53 (38)	55 (40)
ø80	19 (12)	19 (7)	19 (12)	115 (85)	115 (85)	52 (37)	59 (44)
ø100	18 (12)	18 (7)	18 (12)	124 (94)	124 (94)	63 (48)	68 (53)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T2W/T3W type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	23 (12)	23 (8)	75 (45)	105 (75)	105 (75)	53 (38)	53 (38)
ø40	23 (12)	23 (8)	60 (45)	105 (75)	105 (75)	53 (38)	53 (38)
ø50	23 (13)	23 (8)	23 (13)	107 (77)	107 (77)	51 (36)	53 (38)
ø63	23 (13)	23 (8)	23 (13)	112 (82)	112 (82)	56 (41)	58 (43)
ø80	22 (14)	22 (8)	22 (14)	122 (92)	122 (92)	55 (40)	62 (47)
ø100	22 (14)	22 (8)	22 (14)	131 (101)	131 (101)	66 (51)	72 (57)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T2YD type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	23	23	75	105	105	53	53
ø40	23	23	60	105	105	53	53
ø50	23	23	23	107	107	51	53
ø63	23	23	23	112	112	56	58
ø80	22	22	22	122	122	55	62
ø100	22	22	22	131	131	66	72

Note: ( ) indicates T□V (lead wire L-type).

Weight Table

(Unit: kg)

Bore Size (mm)	Product Weight at Stroke = 0 mm						Stroke: 50 mm Added weight per	Switch Weight (Per Piece)	Switch Mounting bracket Weight	Accessory Weight	
	Basic type (00)	Foot Type (LB)	Flange Type (FA,FB)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion Type (TA, TB, TC)				I	Y
ø32	0.69	0.8	0.91	0.84	0.87	0.86	0.12	Refer to the weight listed in the switch specifications on P. 971.	0.024	0.07	0.10
ø40	1.03	1.17	1.31	1.21	0.85	1.37	0.17		0.024	0.07	0.13
ø50	1.69	1.85	2.17	2.10	2.10	2.17	0.23		0.022	0.20	0.30
ø63	2.03	2.37	2.79	2.59	2.60	2.91	0.25		0.022	0.20	0.30
ø80	3.96	4.39	5.53	5.23	5.24	5.45	0.40		0.026	0.52	0.94
ø100	5.74	6.6	8.06	7.46	7.49	8.31	0.51		0.024	0.48	0.92

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø32	Push	1.21 × 10²	1.61 × 10²	2.41 × 10²	3.22 × 10²	4.02 × 10²	4.83 × 10²	5.63 × 10²	6.43 × 10²	7.24 × 10²	8.04 × 10²
	Pull	1.04 × 10²	1.38 × 10²	2.07 × 10²	2.76 × 10²	3.46 × 10²	4.15 × 10²	4.84 × 10²	5.53 × 10²	6.22 × 10²	6.91 × 10²
ø40	Push	1.88 × 10²	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²	1.01 × 10³	1.13 × 10³	1.26 × 10³
	Pull	1.58 × 10²	2.11 × 10²	3.17 × 10²	4.22 × 10²	5.28 × 10²	6.33 × 10²	7.39 × 10²	8.44 × 10²	9.50 × 10²	1.06 × 10³
ø50	Push	2.95 × 10²	3.93 × 10²	5.89 × 10²	7.85 × 10²	9.82 × 10²	1.18 × 10³	1.37 × 10³	1.57 × 10³	1.77 × 10³	1.96 × 10³
	Pull	2.47 × 10²	3.30 × 10²	4.95 × 10²	6.60 × 10²	8.25 × 10²	9.90 × 10²	1.15 × 10³	1.32 × 10³	1.48 × 10³	1.65 × 10³
ø63	Push	4.68 × 10²	6.23 × 10²	9.35 × 10²	1.25 × 10³	1.56 × 10³	1.87 × 10³	2.18 × 10³	2.49 × 10³	2.81 × 10³	3.12 × 10³
	Pull	4.20 × 10²	5.61 × 10²	8.41 × 10²	1.12 × 10³	1.40 × 10³	1.68 × 10³	1.96 × 10³	2.24 × 10³	2.52 × 10³	2.80 × 10³
ø80	Push	7.54 × 10²	1.01 × 10³	1.51 × 10³	2.01 × 10³	2.51 × 10³	3.02 × 10³	3.52 × 10³	4.02 × 10³	4.52 × 10³	5.03 × 10³
	Pull	6.80 × 10²	9.07 × 10²	1.36 × 10³	1.81 × 10³	2.27 × 10³	2.72 × 10³	3.17 × 10³	3.63 × 10³	4.08 × 10³	4.54 × 10³
ø100	Push	1.18 × 10³	1.57 × 10³	2.36 × 10³	3.14 × 10³	3.93 × 10³	4.71 × 10³	5.50 × 10³	6.28 × 10³	7.07 × 10³	7.85 × 10³
	Pull	1.07 × 10³	1.43 × 10³	2.14 × 10³	2.86 × 10³	3.57 × 10³	4.29 × 10³	5.00 × 10³	5.72 × 10³	6.43 × 10³	7.15 × 10³

Mounting Bracket Model No. Notation Method

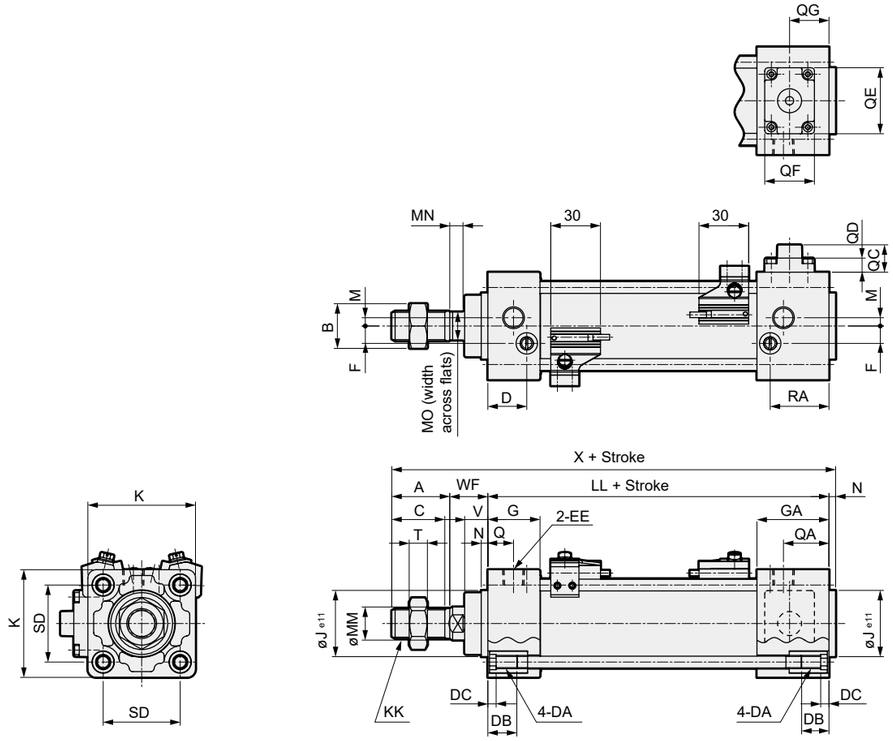
Bore Size (mm) / Mounting bracket	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCG-LB-32	SCG-LB-40	SCG-LB-50	SCG-LB-63	SCG-LB-80	SCG-LB-100
Flange (FA) (FB)	SCG-FA-32	SCG-FA-40	SCG-FA-50	SCG-FA-63	SCG-FA-80	SCG-FA-100
Single Clevis (CA)	SCG-CA-32	SCG-CA-40	SCG-CA-50	SCG-CA-63	SCG-CA-80	SCG-CA-100
Double Clevis (CB)	SCG-CB-32	SCG-CB-40	SCG-CB-50	SCG-CB-63	SCG-CB-80	SCG-CB-100

*1: Foot type mounting bracket (LB) comes in a set of 2.
*2: Mounting bolts are included to each mounting bracket.

MEMO

Outline Dimension Drawing

● Basic type (00) With head side fall prevention



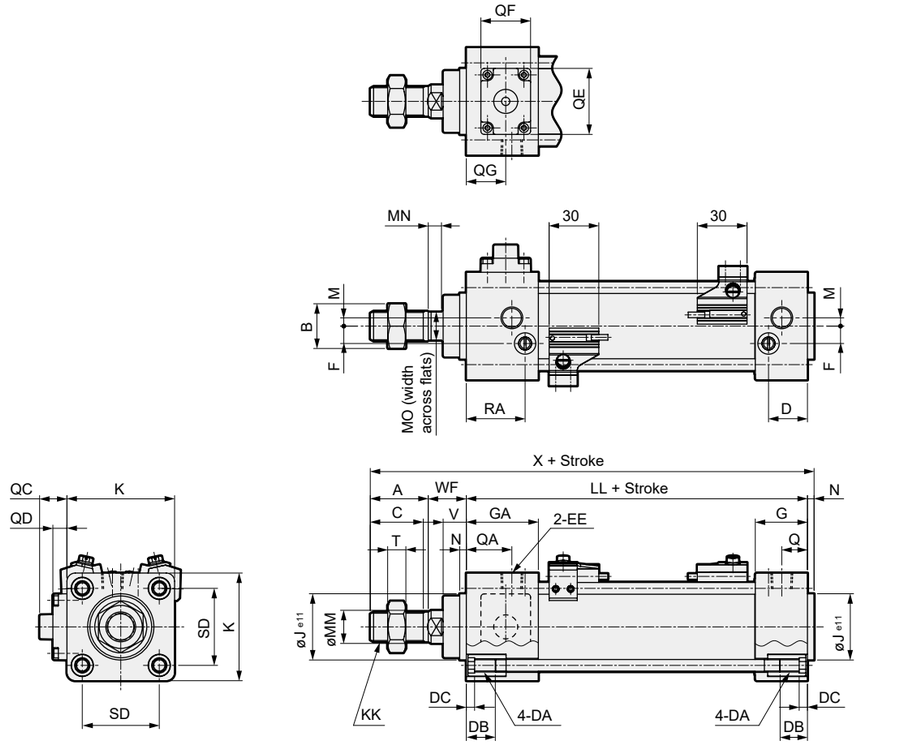
Code	Basic type (00) With head side fall prevention Basic dimensions															
Bore Size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	GA	J	K	KK	LL	M
ø32	22	17	19.5	19	M6	16	5	Rc1/8	6.5	27	35	30	46	M10 × 1.25	92	4
ø40	30	22	27	19	M6	16	5	Rc1/4	9	27	40	35	52	M14 × 1.5	97	4
ø50	35	27	32	23.5	M8	16	5	Rc1/4	10.5	31.5	43.5	40	65	M18 × 1.5	106	5
ø63	35	27	32	21.5	M8	16	5	Rc3/8	12	31.5	43.5	45	75	M18 × 1.5	106	9
ø80	40	32	37	28	M10	16	5	Rc3/8	14	38	56	45	95	M22 × 1.5	132	11.5
ø100	40	41	37	28	M10	16	5	Rc1/2	15	38	56	55	114	M26 × 1.5	132	17

Code																
Bore Size (mm)	MM	MN	MO	N	Q	QA	QC	QD	QE	QF	QG	RA	SD	T	V	WF	X
ø32	12	5.5	10	4	13	21	12.5	6.5	22	16	17.5	27	32.5	6	13	25	143
ø40	16	6	14	4	14	27	12	6	22	16	18.5	32	38	8	13	21	152
ø50	20	8	17	4	15.5	27.5	16.5	8.5	40	30	23.8	35.5	46.5	11	14	23	168
ø63	20	8	17	4	16.5	28.5	11.5	3.5	40	30	23.8	33.5	56.5	11	14	23	168
ø80	25	11	22	4	19	38	10	2	40	30	27.5	47	72	13	20	32	208
ø100	30	13	27	4	19	37	11	3	40	30	27.5	46	89	16	20	32	208

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Basic type (00) With rod side fall prevention



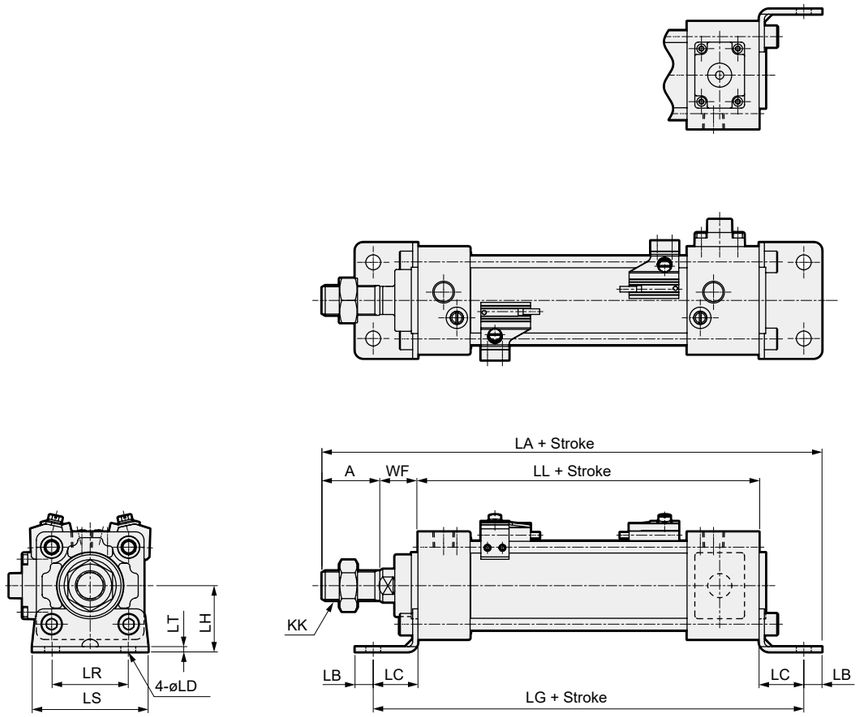
Code	Basic type (00) With rod side fall prevention Basic dimensions															
Bore Size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	GA	J	K	KK	LL	M
ø32	22	17	19.5	19	M6	16	5	Rc1/8	6.5	27	35	30	46	M10 × 1.25	92	4
ø40	30	22	27	19	M6	16	5	Rc1/4	9	27	40	35	52	M14 × 1.5	97	4
ø50	35	27	32	23.5	M8	16	5	Rc1/4	10.5	31.5	43.5	40	65	M18 × 1.5	106	5
ø63	35	27	32	21.5	M8	16	5	Rc3/8	12	31.5	43.5	45	75	M18 × 1.5	106	9
ø80	40	32	37	28	M10	16	5	Rc3/8	14	38	56	45	95	M22 × 1.5	132	11.5
ø100	40	41	37	28	M10	16	5	Rc1/2	15	38	56	55	114	M26 × 1.5	132	17

Code																
Bore Size (mm)	MM	MN	MO	N	Q	QA	QC	QD	QE	QF	QG	RA	SD	T	V	WF	X
ø32	12	5.5	10	4	13	21	12.5	6.5	22	16	17.5	27	32.5	6	13	25	143
ø40	16	6	14	4	14	27	12	6	22	16	18.5	32	38	8	13	21	152
ø50	20	8	17	4	15.5	27.5	16.5	8.5	40	30	23.8	35.5	46.5	11	14	23	168
ø63	20	8	17	4	16.5	28.5	11.5	3.5	40	30	23.8	33.5	56.5	11	14	23	168
ø80	25	11	22	4	19	37	10	2	40	30	27.5	46	72	13	20	32	208
ø100	30	13	27	4	19	37	11	3	40	30	31.5	46	89	16	20	32	208

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Axial foot type (LB) With head side fall prevention

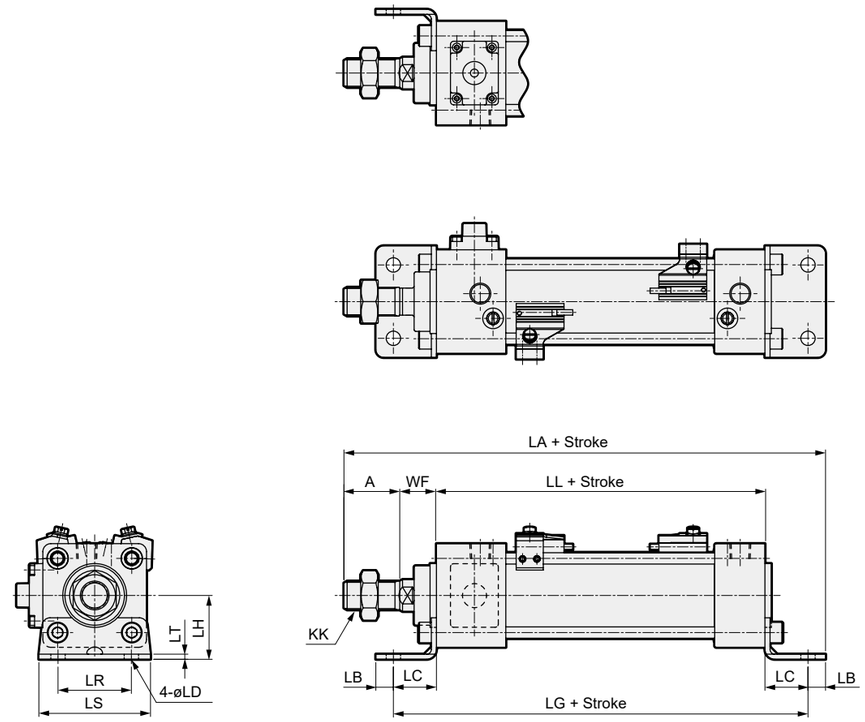


Code	Axial foot type (LB) With head side fall prevention Mounting dimensions												
Bore Size (mm)	A	KK	LL	WF	LA	LB	LC	LD	LG	LH	LR	LS	LT
ø32	22	M18××1.25	92	25	170	9	22	7	136	30	32	50	3.2
ø40	30	M18××1.5	97	21	183	11	24	9	145	33	38	55	3.2
ø50	35	M18××1.5	106	23	202	11	27	9	160	40	46	70	3.2
ø63	35	M18××1.5	106	23	205	14	27	12	160	45	56	80	4.5
ø80	40	M18××1.5	132	32	248	14	30	12	192	55	72	95	4.5
ø100	40	M18××1.5	132	32	252	16	32	14	196	65	89	114	6

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Axial foot type (LB) With rod side fall prevention

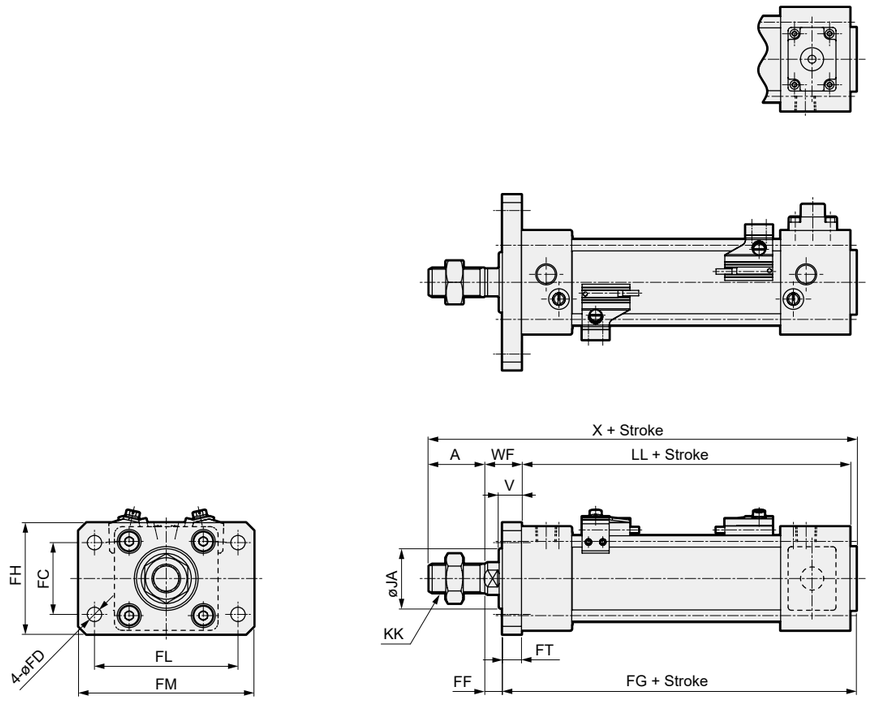


Code	Axial foot type (LB) With rod side fall prevention Mounting dimensions												
Bore Size (mm)	A	KK	LL	WF	LA	LB	LC	LD	LG	LH	LR	LS	LT
ø32	22	M10 × 1.25	92	25	170	9	22	7	136	30	32	50	3.2
ø40	30	M14 × 1.5	97	21	183	11	24	9	145	33	38	55	3.2
ø50	35	M18 × 1.5	106	23	202	11	27	9	160	40	46	70	3.2
ø63	35	M18 × 1.5	106	23	205	14	27	12	160	45	56	80	4.5
ø80	40	M22 × 1.5	132	32	248	14	30	12	192	55	72	95	4.5
ø100	40	M26 × 1.5	132	32	252	16	32	14	196	65	89	114	6

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Rod side flange type (FA) With head side fall prevention

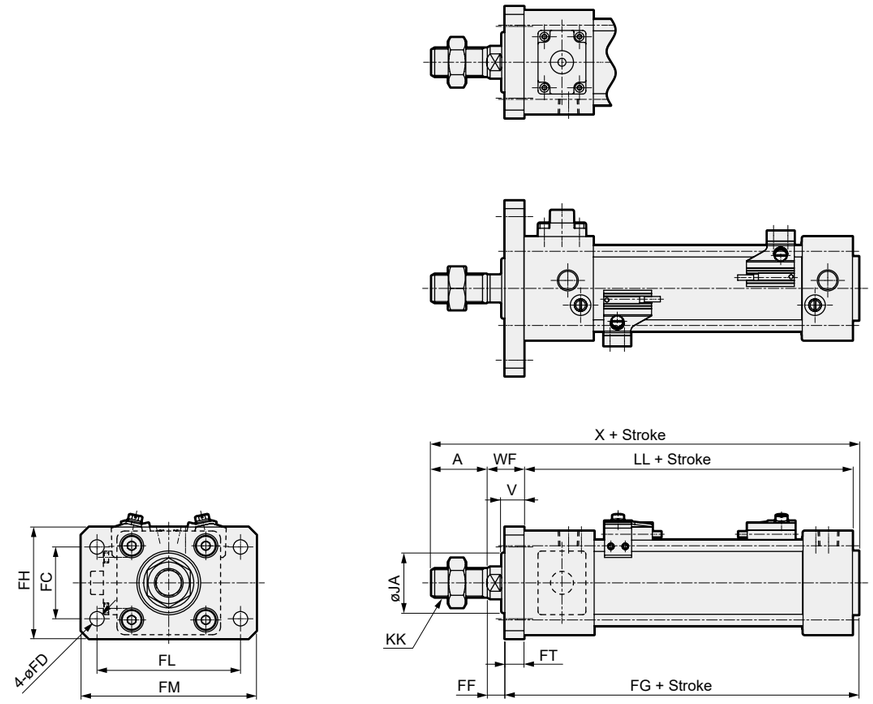


Code	Rod side flange type (FA) With head side fall prevention Mounting dimensions														
Bore Size (mm)	A	KK	LL	V	WF	X	FC	FD	FF	FG	JA	FT	FH	FL	FM
ø32	22	M10 × 1.25	92	13	25	143	32	7	15	106	29	10	50	64	79
ø40	30	M14 × 1.5	97	13	21	152	36	9	11	111	30	10	55	72	90
ø50	35	M18 × 1.5	106	14	23	168	45	9	11	122	38	12	70	90	110
ø63	35	M18 × 1.5	106	14	23	168	50	9	11	122	38	12	80	100	120
ø80	40	M22 × 1.5	132	20	32	208	63	12	16	152	43	16	100	126	153
ø100	40	M26 × 1.5	132	20	32	208	75	14	16	152	51	16	120	150	178

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Rod side flange type (FA) With rod side fall prevention

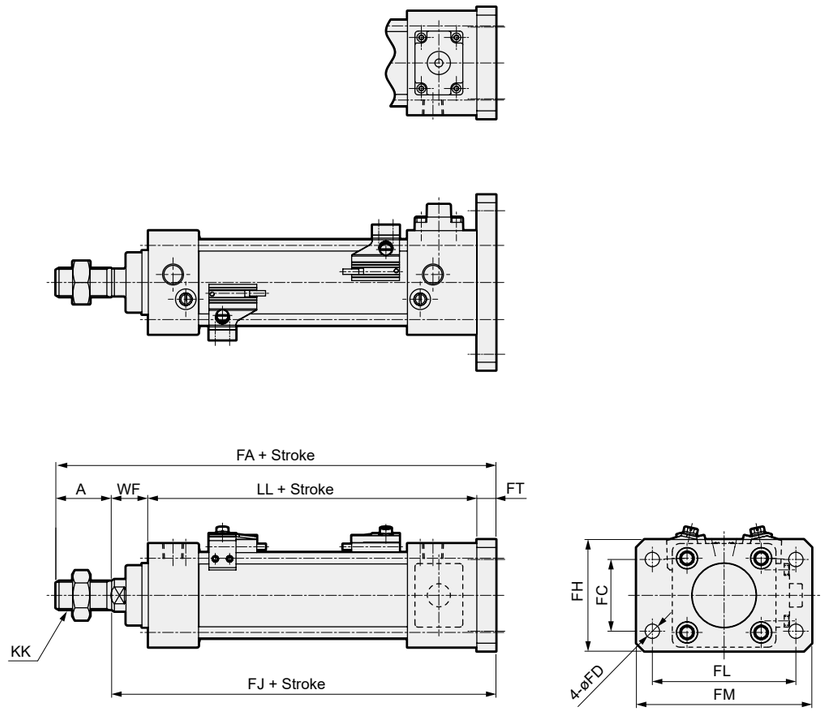


Code	Rod side flange type (FA) With rod side fall prevention Mounting dimensions														
Bore Size (mm)	A	KK	LL	V	WF	X	FC	FD	FF	FG	JA	FT	FH	FL	FM
ø32	22	M10 × 1.25	92	13	25	143	32	7	15	106	29	10	50	64	79
ø40	30	M14 × 1.5	97	13	21	152	36	9	11	111	30	10	55	72	90
ø50	35	M18 × 1.5	106	14	23	168	45	9	11	122	38	12	70	90	110
ø63	35	M18 × 1.5	106	14	23	168	50	9	11	122	38	12	80	100	120
ø80	40	M22 × 1.5	132	20	32	208	63	12	16	152	43	16	100	126	153
ø100	40	M26 × 1.5	132	20	32	208	75	14	16	152	51	16	120	150	178

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Head side flange type (FB) With head side fall prevention

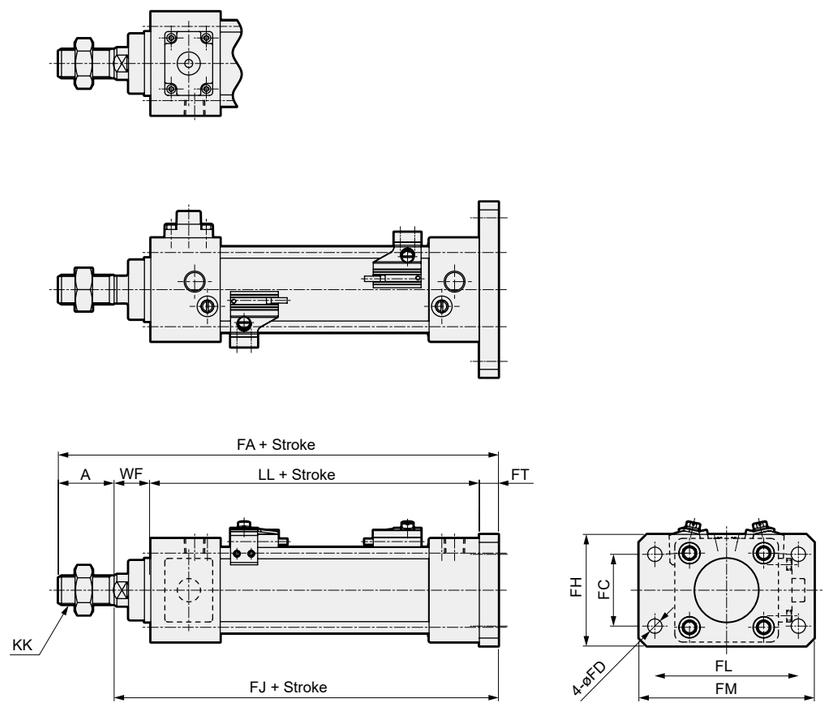


Code	Head side flange type (FB) With head side fall prevention Mounting dimensions											
Bore Size (mm)	A	KK	LL	WF	FA	FC	FD	FH	FJ	FL	FM	FT
ø32	22	M10 × 1.25	92	25	149	32	7	50	127	64	79	10
ø40	30	M14 × 1.5	97	21	158	36	9	55	128	72	90	10
ø50	35	M18 × 1.5	106	23	176	45	9	70	141	90	110	12
ø63	35	M18 × 1.5	106	23	176	50	9	80	141	100	120	12
ø80	40	M22 × 1.5	132	32	220	63	12	100	180	126	153	16
ø100	40	M26 × 1.5	132	32	220	75	14	120	180	150	178	16

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Head side flange type (FB) With rod side fall prevention

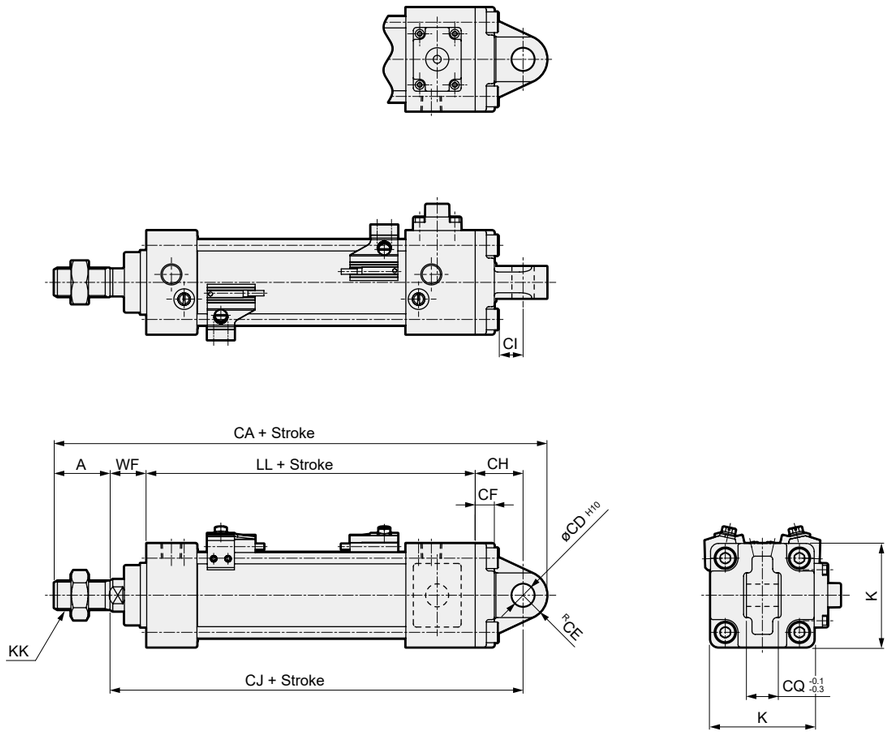


Code	Head side flange type (FB) With rod side fall prevention Mounting dimensions											
Bore Size (mm)	A	KK	LL	WF	FA	FC	FD	FH	FJ	FL	FM	FT
ø32	22	M10 × 1.25	92	25	149	32	7	50	127	64	79	10
ø40	30	M14 × 1.5	97	21	158	36	9	55	128	72	90	10
ø50	35	M18 × 1.5	106	23	176	45	9	70	141	90	110	12
ø63	35	M18 × 1.5	106	23	176	50	9	80	141	100	120	12
ø80	40	M22 × 1.5	132	32	220	63	12	100	180	126	153	16
ø100	40	M26 × 1.5	132	32	220	75	14	120	180	150	178	16

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

● Single clevis type (CA) With head side fall prevention

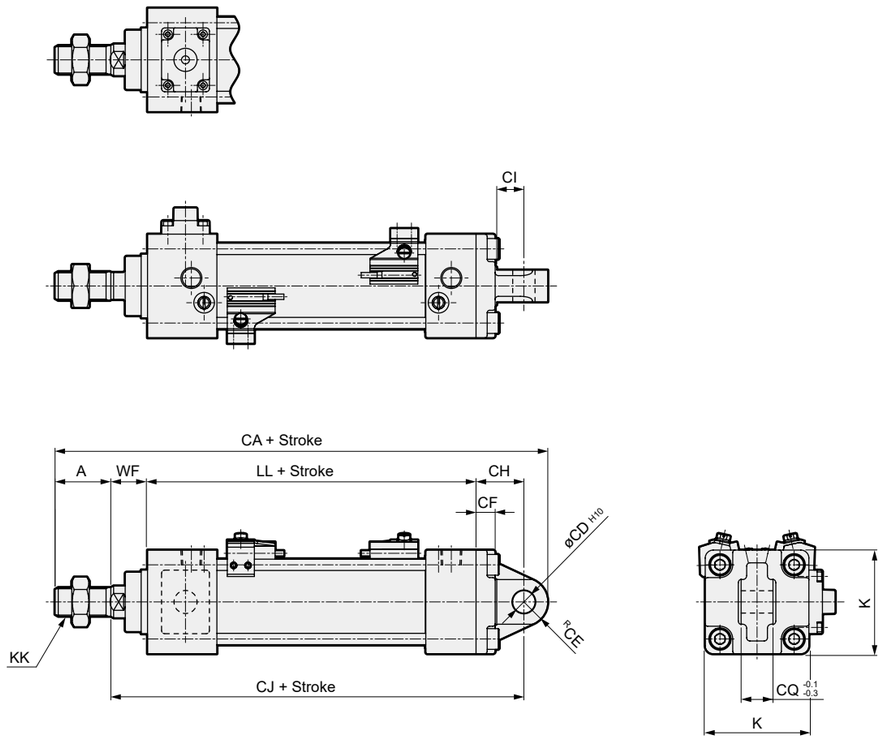


Code	Single clevis type (CA) With head side fall prevention Mounting dimensions												
Bore Size (mm)	A	K	KK	LL	WF	CA	CD	CE	CF	CI	CJ	CQ	CH
ø32	22	46	M10 × 1.25	92	25	172.5	10	10.5	9	13	140	14	23
ø40	30	52	M14 × 1.5	97	21	182	10	11	9	13	141	14	23
ø50	35	65	M18 × 1.5	106	23	209	14	15	12	17	159	20	30
ø63	35	75	M18 × 1.5	106	23	209	14	15	12	17	159	20	30
ø80	40	95	M22 × 1.5	132	32	269	22	23	15	26	206	30	42
ø100	40	114	M26 × 1.5	132	32	269	22	23	15	26	206	30	42

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Single clevis type (CA) With rod side fall prevention

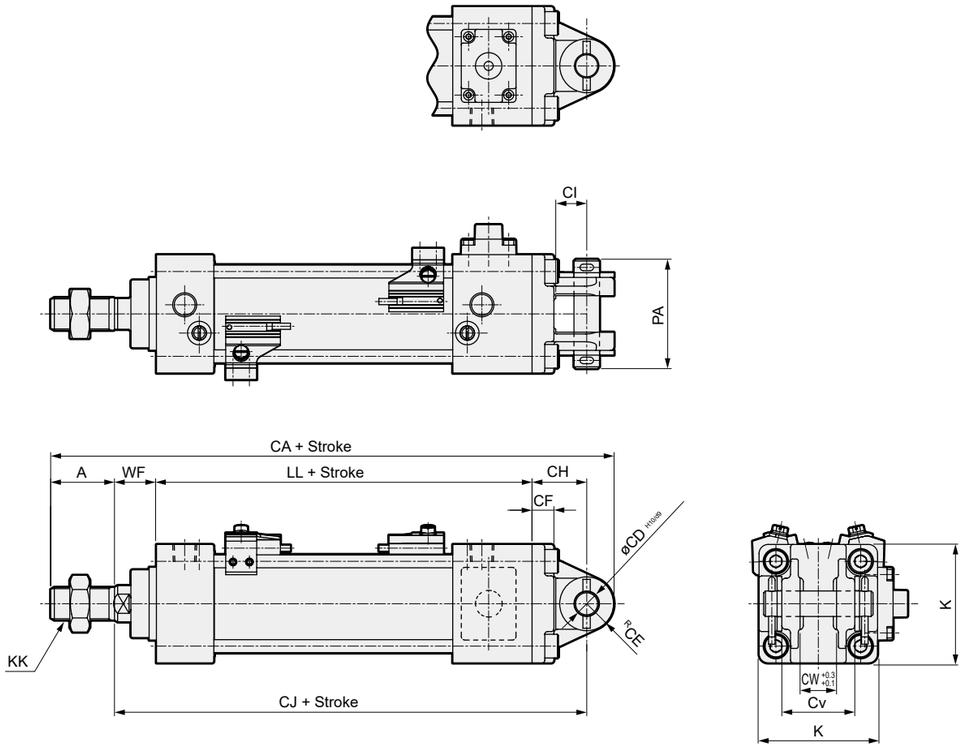


Code	Single clevis type (CA) With rod side fall prevention Mounting dimensions												
Bore Size (mm)	A	K	KK	LL	WF	CA	CD	CE	CF	CI	CJ	CQ	CH
ø32	22	46	M10 × 1.25	92	25	172.5	10	10.5	9	13	140	14	23
ø40	30	52	M14 × 1.5	97	21	182	10	11	9	13	141	14	23
ø50	35	65	M18 × 1.5	106	23	209	14	15	12	17	159	20	30
ø63	35	75	M18 × 1.5	106	23	209	14	15	12	17	159	20	30
ø80	40	95	M22 × 1.5	132	32	269	22	23	15	26	206	30	42
ø100	40	114	M26 × 1.5	132	32	269	22	23	15	26	206	30	42

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Double clevis type (CB) With head side fall prevention

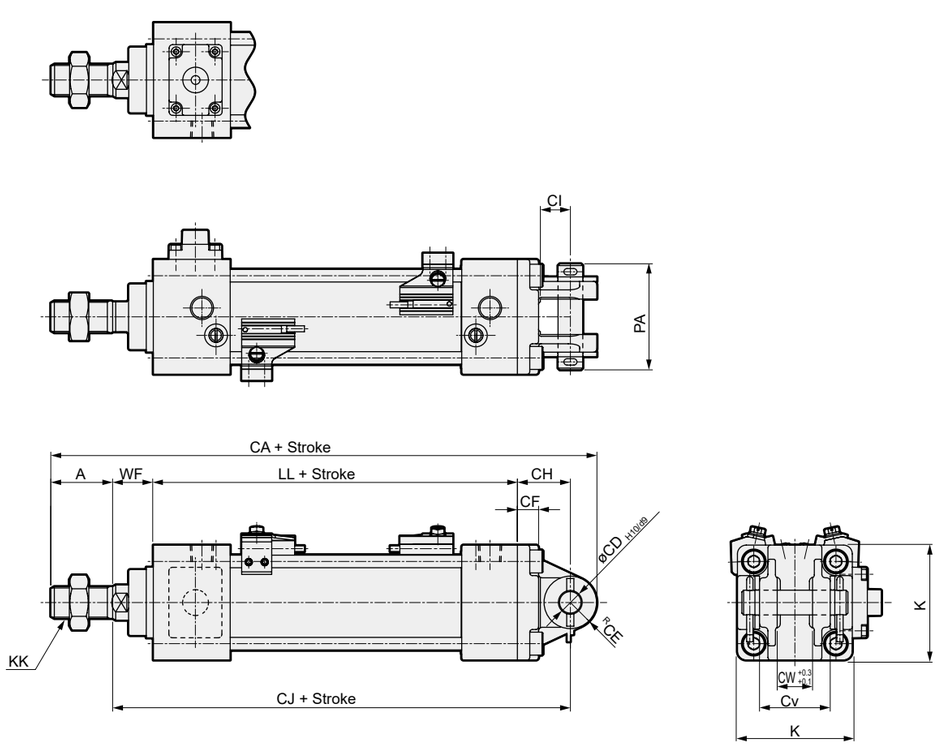


Code / Bore Size (mm)	A	K	KK	LL	WF	CA	CD	CE	CF	CI	CJ	Cv	CW	CH	PA
ø32	22	46	M10 × 1.25	92	25	172.5	10	10.5	9	13	140	28	14	23	44
ø40	30	52	M14 × 1.5	97	21	182	10	11	9	13	141	28	14	23	44
ø50	35	65	M18 × 1.5	106	23	209	14	15	12	17	159	40	20	30	60
ø63	35	75	M18 × 1.5	106	23	209	14	15	12	17	159	40	20	30	60
ø80	40	95	M22 × 1.5	132	32	269	22	23	15	26	206	60	30	42	82
ø100	40	114	M26 × 1.5	132	32	269	22	23	15	26	206	60	30	42	82

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Double clevis type (CB) With rod side fall prevention

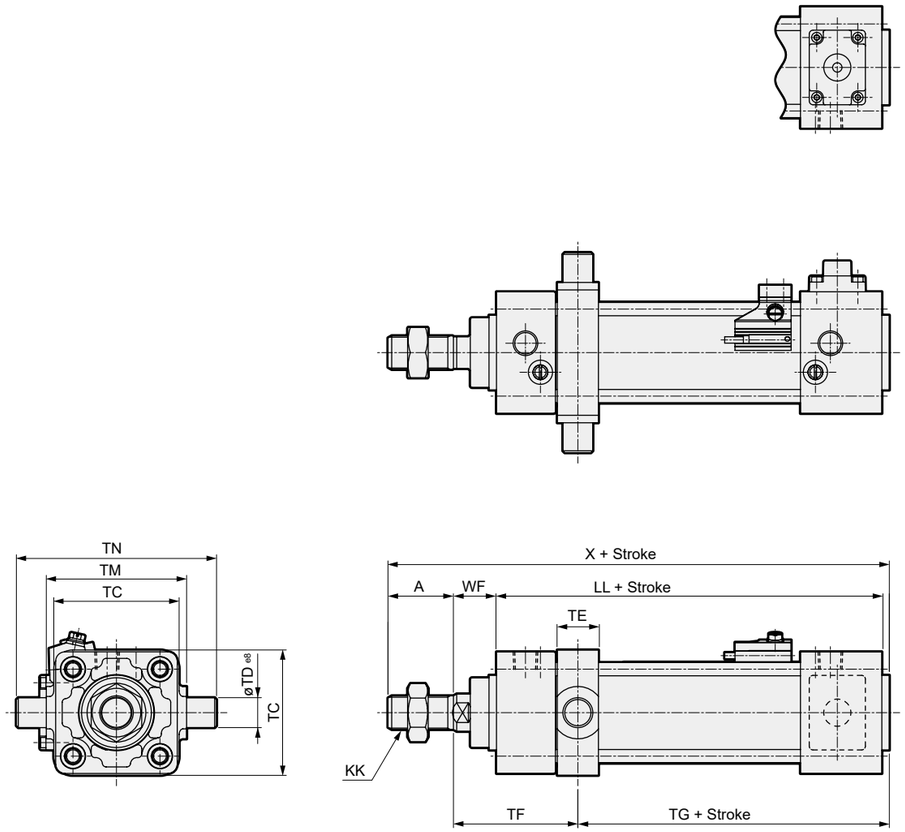


Code / Bore Size (mm)	A	K	KK	LL	WF	CA	CD	CE	CF	CI	CJ	Cv	CW	CH	PA
ø32	22	46	M10 × 1.25	92	25	172.5	10	10.5	9	13	140	28	14	23	44
ø40	30	52	M14 × 1.5	97	21	182	10	11	9	13	141	28	14	23	44
ø50	35	65	M18 × 1.5	106	23	209	14	15	12	17	159	40	20	30	60
ø63	35	75	M18 × 1.5	106	23	209	14	15	12	17	159	40	20	30	60
ø80	40	95	M22 × 1.5	132	32	269	22	23	15	26	206	60	30	42	82
ø100	40	114	M26 × 1.5	132	32	269	22	23	15	26	206	60	30	42	82

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Rod side trunnion type (TA) With head side fall prevention



Code	Rod side trunnion type (TA) With head side fall prevention Mounting dimensions											
Bore Size (mm)	A	KK	LL	WF	X	TC	TD	TE	TF	TG	TM	TN
ø32	22	M10 × 1.25	92	25	143	47	12	17	61.5	59.5	50	74
ø40	30	M14 × 1.5	97	21	152	57	16	22	60	62	63	95
ø50	35	M18 × 1.5	106	23	168	67	16	22	66.5	66.5	75	107
ø63	35	M18 × 1.5	106	23	168	82	20	28	69.5	63.5	90	130
ø80	40	M22 × 1.5	132	32	208	100	20	34	88	80	110	150
ø100	40	M26 × 1.5	132	32	208	121	25	40	91	77	132	182

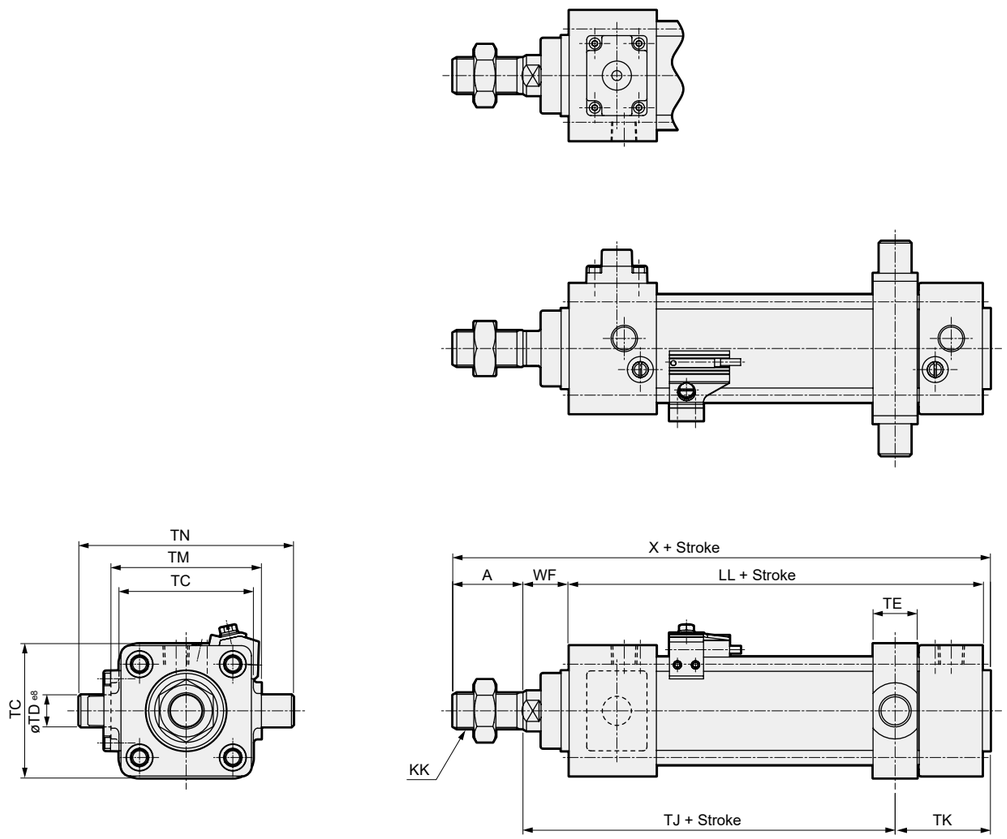
*1: Switch cannot be mounted on the rod side.

***2: For dimensions with each switch, refer to P. 608, 609.**

***3: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Head side trunnion type (TB) With rod side fall prevention



Code	Head side trunnion type (TB) With rod side fall prevention Mounting dimensions											
Bore Size (mm)	A	KK	LL	WF	X	TC	TD	TE	TJ	TK	TM	TN
ø32	22	M10 × 1.25	92	25	143	47	12	17	80.5	40.5	50	74
ø40	30	M14 × 1.5	97	21	152	57	16	22	79	43	63	95
ø50	35	M18 × 1.5	106	23	168	67	16	22	85.5	47.5	75	107
ø63	35	M18 × 1.5	106	23	168	82	20	28	82.5	50.5	90	130
ø80	40	M22 × 1.5	132	32	208	100	20	34	108	60	110	150
ø100	40	M26 × 1.5	132	32	208	121	25	40	105	63	132	182

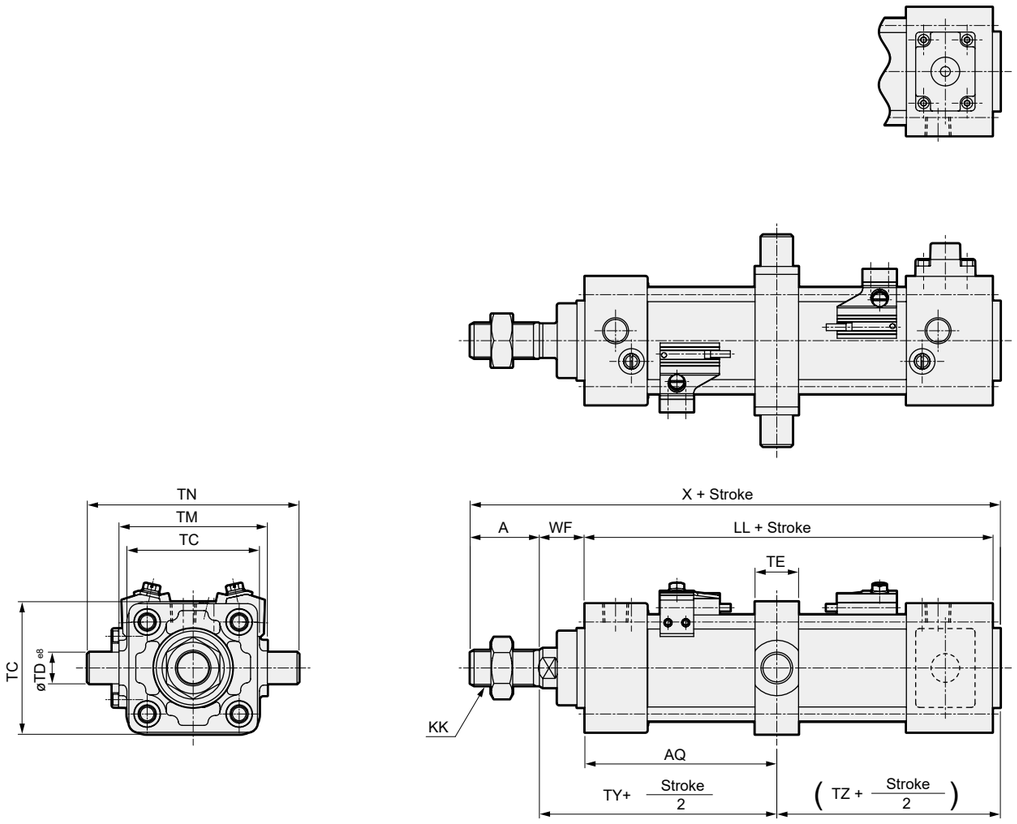
*1: Switch cannot be mounted on the head side.

***2: For dimensions with each switch, refer to P. 608, 609.**

***3: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Intermediate trunnion type (TC) With head side fall prevention

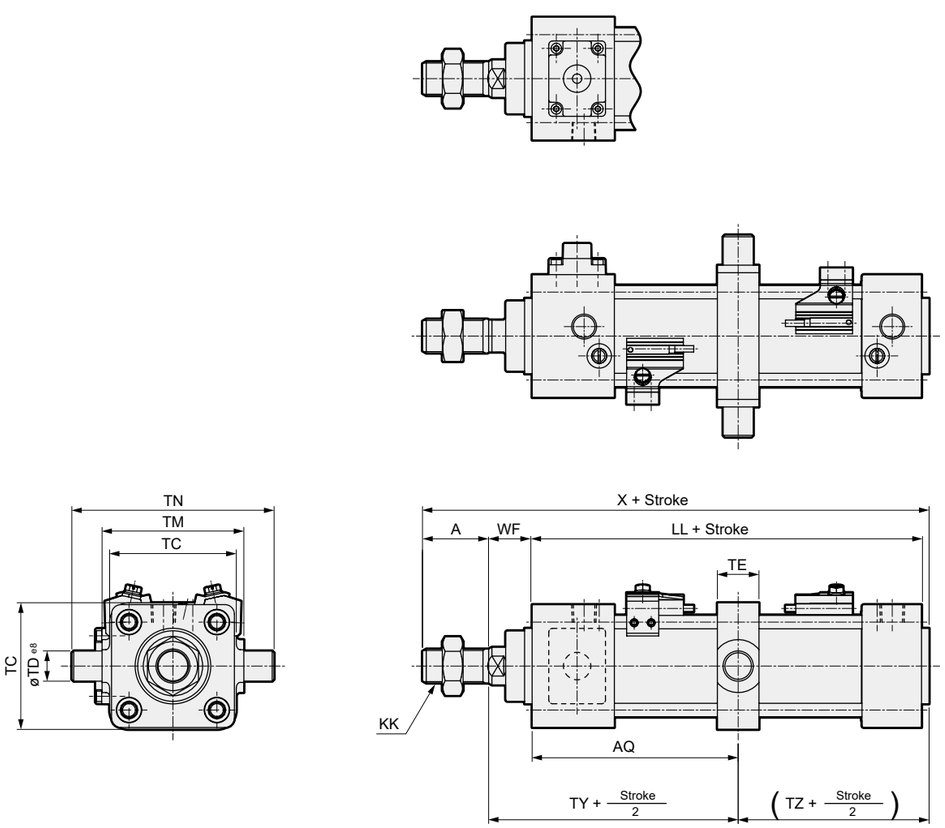


Code	Intermediate trunnion type (TC) With head side fall prevention Mounting dimensions												
Bore Size (mm)	A	KK	LL	WF	X	AQ	TC	TD	TE	TM	TN	TY	TZ
ø32	22	M10 × 1.25	92	25	143	42+Stroke/2	47	12	17	50	74	67	54
ø40	30	M14 × 1.5	97	21	152	42+Stroke/2	57	16	22	63	95	63	59
ø50	35	M18 × 1.5	106	23	168	47+Stroke/2	67	16	22	75	107	70	63
ø63	35	M18 × 1.5	106	23	168	47+Stroke/2	82	20	28	90	130	70	63
ø80	40	M22 × 1.5	132	32	208	57+Stroke/2	100	20	34	110	150	89	79
ø100	40	M26 × 1.5	132	32	208	57+Stroke/2	121	25	40	132	182	89	79

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Intermediate trunnion type (TC) With rod side fall prevention



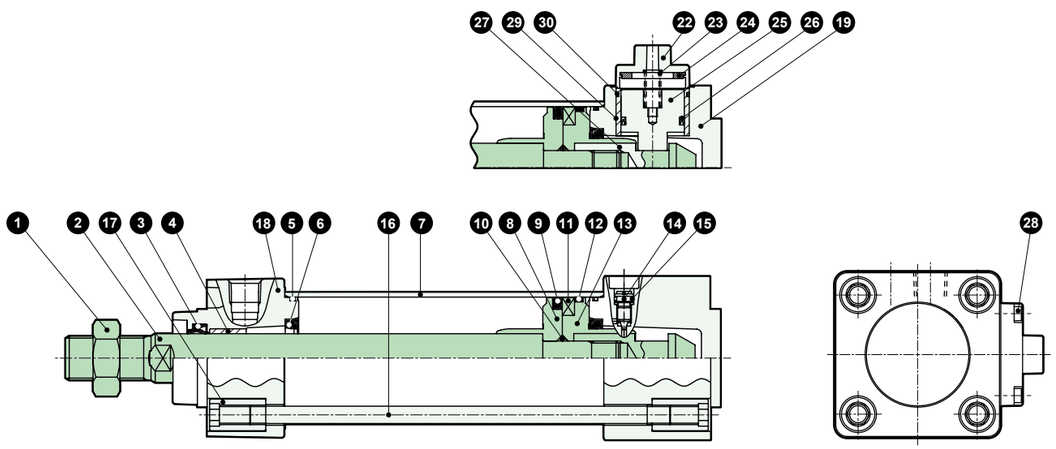
Code	Intermediate trunnion type (TC) With rod side fall prevention Mounting dimensions												
Bore Size (mm)	A	KK	LL	WF	X	AQ	TC	TD	TE	TM	TN	TY	TZ
ø32	22	M10 × 1.25	92	25	143	50+Stroke/2	47	12	17	50	74	75	46
ø40	30	M14 × 1.5	97	21	152	55+Stroke/2	57	16	22	63	95	76	46
ø50	35	M18 × 1.5	106	23	168	59+Stroke/2	67	16	22	75	107	82	51
ø63	35	M18 × 1.5	106	23	168	59+Stroke/2	82	20	28	90	130	82	51
ø80	40	M22 × 1.5	132	32	208	75+Stroke/2	100	20	34	110	150	107	61
ø100	40	M26 × 1.5	132	32	208	75+Stroke/2	121	25	40	132	182	107	61

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Internal Structure Diagram/Material

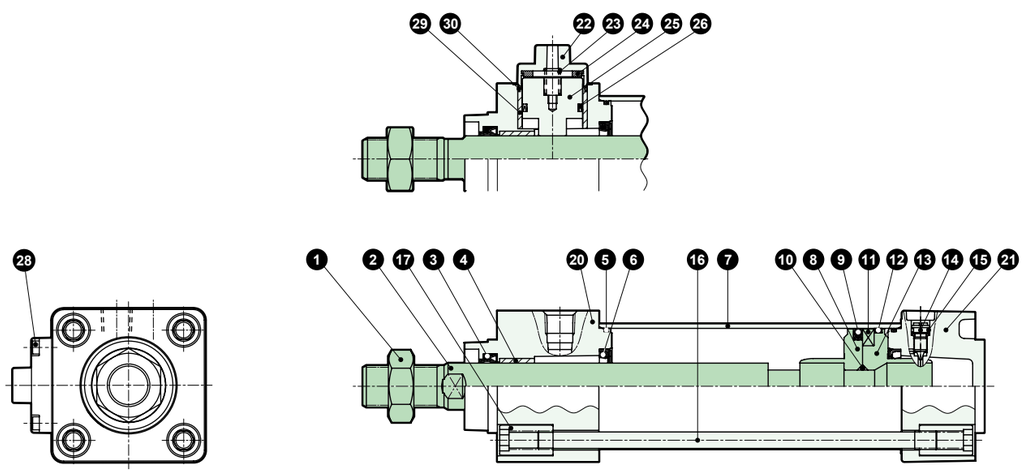
●With head side fall prevention

ø100



● With rod side fall prevention

ø100



Material

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating	16	Tie Rod	Steel	Zinc Chromate
2	Piston Rod	Steel	Industrial Hard Chrome Plating	17	Round Nut	Steel	Zinc Chromate
3	Rod Packing	Nitrile Rubber		18	Rod cover (1)	Aluminum alloy *1	Painting
4	Bushing	Oil-Impregnated Bearing Alloy		19	Head cover (1)	Aluminum alloy *2	Painting
5	Cylinder Gasket	Nitrile Rubber		20	Rod cover (2)	Aluminum alloy *2	Painting
6	Cushion Packing	Nitrile Rubber, Steel		21	Head cover (2)	Aluminum alloy *1	Painting
7	Cylinder Tube	Aluminum Alloy	Hard Anodized	22	Stopper Cover	Aluminum Alloy	Painting
8	Piston R	Aluminum Alloy		23	Spring	Steel	
9	Piston Packing	Nitrile Rubber		24	Cushion rubber B	Urethane Rubber	
10	Piston Gasket	Nitrile Rubber		25	Stopper Piston	Steel	Nitriding Treatment
11	Magnet	Plastic		26	Piston packing B	Nitrile Rubber	
12	Wear Ring	Polyacetal Resin		27	Sleeve	Steel	Nitriding Treatment
13	Piston H	Aluminum Alloy		28	Hexagon Socket Head Cap Screw	Stainless Steel	
14	Cushion Needle	Copper Alloy	Nickel Plating	29	Housing	Aluminum Alloy	For ø100 only
15	Needle Gasket	Nitrile Rubber		30	O-ring	Nitrile Rubber	For ø100 only

*1: ⑱㉓indicates aluminum alloy die-cast.
*2: ⑲⑳indicates aluminum alloy casting.

Mounting Bracket Material

Mounting type	Material	Remarks
Foot (LB)	Steel	Nickel Plating
Flange (FA / FB)	Steel	Painting
Single clevis (CA), Double clevis (CB)	Cast Iron	Painting
Trunnion (TA, TB, TC)	Cast Iron	Painting

Note: Mounting brackets are attached to the product and shipped.
However, for trunnion types (TA, TB, TC) and bellows-equipped models with LB or FA mounting type, they will be shipped assembled.

For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts



Tie-rod cylinder, Double-acting, Low-speed type

SCG-O Series

●Bore size: ø32, ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

SCG-O – LB – 32 [ ] N – 100 ——— M Y

Model No. ❶ ❷ ❸ ❹ ❼ ❽

With Switch
(Built-in magnet for switch)

SCG-O – LB – 32 [ ] N – 100 – T2H – R – M Y

Model No. ❶ Mounting type ❷ Bore Size ❸ Piping thread type ❹ Cushion: None *1 ❹ Stroke ❺ Switch Model No. ❻ Number of Switches ❼ Option ❽ Accessories

*1: Contact CKD for availability of the type with air cushion or rubber cushion.

❶Mounting type

Mounting brackets are included with the product and shipped. (However, trunnion types are shipped assembled.)

Code	Content	
00	Basic type	
LB	Axial Foot Type (Double Side)	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and Washer Split Pin Attached)	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TC	Intermediate Trunnion Type	

❷Bore Size (mm)

Code	Content
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

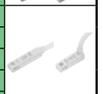
❹Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø32	1 to 600	Every 1 mm
ø40		
ø50		
ø63		
ø80	1 to 700	
ø100	1 to 800	

Note: For minimum stroke with switch, please refer to P. 540 and P. 541.

❺Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*5

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+) 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

❻Number of Switches

	Code	Content
*1	R	With 1 on Rod Side
*1	H	With 1 on Head Side
	D	With 2 pcs
	T	With 3 pcs

*1: If mounting type TA or TB is selected, the number of switches is limited to "H" (1 on head side) for TA, and "R" (1 on rod side) for TB.

❼Option

Code	Content
M	Piston Rod Material (Stainless Steel)

❽Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Split Pin Attached)	
	B1	Single Bracket	
	B2	Double Yoke Bracket (Pin and Split Pin Attached)	
	B3	Single Bracket	
	B4	Trunnion Type 2nd Bracket (2 pcs/set)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, refer to P. 610 to 613.

Code	Content
-XK◇	Mounting Bracket Rotational Assembly
-XAQ◇◇	Trunnion Position Specification
-XP7	Knuckle fixed by pin driving
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)

SCG-O-..... – XP7

*For combinations of variations and options, see P. 489.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

SCG – T0H – 40

❺ Switch Model No. ❷ Bore Size

●Switch body only

SW – T0H

❺ Switch Model No.

●Switch mounting bracket set

SCG – T – 40

Mounting bracket ❷ Bore Size

Note: Please consult us separately if using environmentally compatible T-type switches.

Specifications

Item		SCG-O					
Bore Size	mm	ø32	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type					
Operating Fluid		Compressed Air					
Max. Working Pressure	MPa	1.0					
Min. Operating Pressure	MPa	0.05					
Proof Pressure	MPa	1.6					
Ambient Temperature	°C	-10 to 60 (No freezing)					
Port Size		Rc1/8	Rc1/4		Rc3/8		Rc1/2
Stroke tolerance	mm	$^{+1.0}_{0}$ (Up to 360), $^{+1.4}_{0}$ (361 to 800)					
Operating Piston Speed	mm/s	10 to 200 (Please use within the allowable absorbed energy.)					
Cushion		None					
Lubrication		Not Available					
Allowable Absorbed Energy J	Without Cushion	0.018	0.032	0.057	0.057	0.112	0.153
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.					

Note: For ø32, if left for a long time, please use at a pressure of 0.1 MPa or more.

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ø32	25, 50, 75, 100, 150, 200, 250 300, 350, 400, 450, 500	600	1
ø40			
ø50			
ø63			
ø80		700	
ø100		800	

Note: Intermediate strokes can be manufactured in 1 mm increments.

Min. Stroke with Switch

●T0/T5 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	20 (18)	20 (10)	70 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø40	20 (19)	20 (10)	55 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø50	21 (19)	21 (10)	21 (19)	102 (72)	102 (72)	49 (34)	51 (36)
ø63	21 (20)	21 (11)	21 (20)	107 (77)	107 (77)	54 (39)	56 (41)
ø80	21 (21)	20 (11)	21 (21)	117 (87)	117 (87)	53 (38)	60 (45)
ø100	21 (21)	19 (11)	21 (21)	126 (96)	126 (96)	64 (49)	69 (54)

Note: ( ) indicates T□V (lead wire L-type).

●T8 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	19 (18)	19 (10)	67 (31)	97 (61)	97 (61)	49 (31)	49 (31)
ø40	19 (19)	19 (10)	52 (31)	97 (61)	97 (61)	49 (31)	49 (31)
ø50	19 (19)	18 (10)	19 (19)	97 (61)	97 (61)	48 (30)	48 (30)
ø63	20 (20)	18 (11)	20 (20)	102 (66)	102 (66)	53 (35)	53 (35)
ø80	21 (21)	17 (11)	21 (21)	112 (76)	112 (76)	51 (33)	57 (39)
ø100	21 (21)	17 (11)	21 (21)	121 (85)	121 (85)	61 (43)	67 (49)

Note: ( ) indicates T□V (lead wire L-type).

Min. Stroke with Switch

●T2/T3 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	20 (11)	20 (6)	70 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø40	20 (11)	20 (6)	55 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø50	21 (11)	21 (6)	21 (11)	102 (72)	102 (72)	49 (34)	51 (36)
ø63	21 (12)	21 (7)	21 (12)	107 (77)	107 (77)	54 (39)	56 (41)
ø80	20 (12)	20 (7)	20 (12)	117 (87)	117 (87)	53 (38)	60 (45)
ø100	19 (12)	19 (7)	19 (12)	126 (96)	126 (96)	64 (49)	69 (54)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T1 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	19 (11)	19 (6)	68 (38)	98 (68)	98 (68)	49 (34)	49 (34)
ø40	19 (11)	19 (6)	53 (38)	98 (68)	98 (68)	49 (34)	49 (34)
ø50	20 (11)	20 (6)	20 (11)	100 (70)	100 (70)	48 (33)	50 (35)
ø63	20 (12)	20 (7)	20 (12)	105 (75)	105 (75)	53 (38)	55 (40)
ø80	19 (12)	19 (7)	19 (12)	115 (85)	115 (85)	52 (37)	59 (44)
ø100	18 (12)	18 (7)	18 (12)	124 (94)	124 (94)	63 (48)	68 (53)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T2W/T3W type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	23 (12)	23 (8)	75 (45)	105 (75)	105 (75)	53 (38)	53 (38)
ø40	23 (12)	23 (8)	60 (45)	105 (75)	105 (75)	53 (38)	53 (38)
ø50	23 (13)	23 (8)	23 (13)	107 (77)	107 (77)	51 (36)	53 (38)
ø63	23 (13)	23 (8)	23 (13)	112 (82)	112 (82)	56 (41)	58 (43)
ø80	22 (14)	22 (8)	22 (14)	122 (92)	122 (92)	55 (40)	62 (47)
ø100	22 (14)	22 (8)	22 (14)	131 (101)	131 (101)	66 (51)	72 (57)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T2YD type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	23	23	75	105	105	53	53
ø40	23	23	60	105	105	53	53
ø50	23	23	23	107	107	51	53
ø63	23	23	23	112	112	56	58
ø80	22	22	22	122	122	55	62
ø100	22	22	22	131	131	66	72

Note: ( ) indicates T□V (lead wire L-type).

●T2WL type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	24 (12)	24 (8)	77 (45)	107 (75)	107 (75)	54 (38)	54 (38)
ø40	24 (12)	24 (8)	62 (45)	107 (75)	107 (75)	54 (38)	54 (38)
ø50	24 (13)	24 (8)	24 (13)	109 (77)	109 (77)	52 (36)	54 (38)
ø63	24 (13)	24 (8)	24 (13)	114 (82)	114 (82)	57 (41)	59 (43)
ø80	23 (14)	23 (8)	23 (14)	124 (92)	124 (92)	56 (40)	63 (47)
ø100	23 (14)	23 (8)	23 (14)	133 (101)	133 (101)	67 (51)	73 (57)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Weight Table

(Unit: kg)

Bore Size (mm)	Product Weight at Stroke = 0 mm						Stroke: 50 mm Added weight per	Switch Weight (Per Piece)	Switch Mounting Bracket Weight	Accessory Weight	
	Basic type (00)	Foot Type (LB)	Flange type (FA, FB)	Single Clevis Type (CA)	Double clevis type (CB)	Trunnion Type (TA, TB, TC)				I	Y
ø32	0.50	0.61	0.72	0.65	0.68	0.67	0.12	Refer to the mass described in the switch specifications on P. 971	0.024	0.07	0.10
ø40	0.66	0.80	0.94	0.85	0.85	1.00	0.17		0.024	0.07	0.13
ø50	1.13	1.29	1.61	1.54	1.54	1.61	0.23		0.022	0.20	0.30
ø63	1.39	1.73	2.15	1.95	1.96	2.27	0.25		0.022	0.20	0.30
ø80	2.66	3.09	4.23	3.93	3.94	4.15	0.40		0.026	0.52	0.94
ø100	3.77	4.63	6.09	5.49	5.52	6.34	0.51		0.024	0.48	0.92

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø32	Push	40.2	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	34.6	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	62.8	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	52.8	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.2	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	1.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push	2.51×10^2	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	2.27×10^2	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push	3.93×10^2	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3	6.28×10^3	7.07×10^3	7.85×10^3
	Pull	3.57×10^2	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

Mounting Bracket Model No. Notation Method

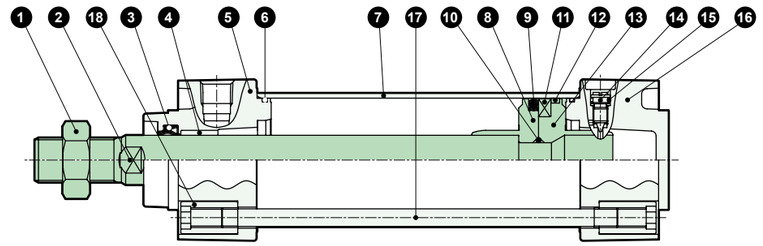
Bore Size (mm) / Mounting bracket	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCG-LB-32	SCG-LB-40	SCG-LB-50	SCG-LB-63	SCG-LB-80	SCG-LB-100
Flange (FA)	SCG-FA-32	SCG-FA-40	SCG-FA-50	SCG-FA-63	SCG-FA-80	SCG-FA-100
Single Clevis (CA)	SCG-CA-32	SCG-CA-40	SCG-CA-50	SCG-CA-63	SCG-CA-80	SCG-CA-100
Double Clevis (CB)	SCG-CB-32	SCG-CB-40	SCG-CB-50	SCG-CB-63	SCG-CB-80	SCG-CB-100

*1: Foot type mounting bracket (LB) comes in a set of 2.
*2: Mounting bolts are included to each mounting bracket.

Outline Dimension Drawing

Same as double acting/single rod type. Please refer to P. 496 to 510.

Internal Structure Diagram/Material



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating	10	Piston Gasket	Nitrile Rubber	
2	Piston Rod	Steel	Industrial Hard Chrome Plating	11	Magnet	Plastic	
3	Rod Packing	Nitrile Rubber		12	Wear Ring	Polyacetal	
4	Bushing	Oil-Impregnated Bearing Alloy		13	Piston H	Aluminum Alloy	
5	Rod Cover	Aluminum Alloy	Painting	14	Cushion Needle	Copper Alloy	Nickel Plating
6	Cylinder Gasket	Nitrile Rubber		15	Needle Gasket	Nitrile Rubber	
7	Cylinder Tube	Aluminum Alloy	Hard Anodized	16	Head Cover	Aluminum Alloy	Painting
8	Piston R	Aluminum Alloy		17	Tie Rod	Steel	Zinc Chromate
9	Piston Packing	Nitrile Rubber		18	Round Nut	Steel	Zinc Chromate

Mounting Bracket Material

Mounting type	Material	Remarks
Foot (LB)	Steel	Nickel Plating
Flange (FA / FB)	Steel	Painting
Single clevis (CA), Double clevis (CB)	Cast Iron	Painting
Trunnion (TA, TB, TC)	Cast Iron	Painting

Note: Mounting brackets are attached to the product and shipped.
However, in the case of trunnion types (TA, TB, TC), they will be shipped assembled.

For maintenance parts, please visit the CKD Equipment Product Site(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts



Tie-rod cylinder Double-acting, Low-friction type

SCG-U Series

●Bore size: ø32, ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

SCG-U – LB – 32 [ ] N – 100 ——— M Y

Model No. ❶ ❷ ❸ ❹ ❼ ❽

With Switch
(Built-in magnet for switch)

SCG-U – LB – 32 [ ] N – 100 – T2H – R – M Y

Model No. ❶ Mounting type ❷ Bore Size ❸ Piping thread type Cushion: None ❹ Stroke ❺ Switch Model No. ❻ Number of Switches ❼ Option ❽ Accessories

❶Mounting type

Mounting brackets are included with the product and shipped. (However, trunnion types are shipped assembled.)

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and Split Pin Attached)	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TC	Intermediate Trunnion Type	

❷Bore Size (mm)

Code	Content
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

❹Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø32	1 to 600	Every 1 mm
ø40		
ø50		
ø63		
ø80	1 to 700	
ø100	1 to 800	

Note: For minimum stroke with switch, please refer to P. 546 and 547.

❺Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*5

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+) 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH3
5 m TOH5

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

❻Number of Switches

	Code	Content
*1	R	With 1 on Rod Side
*1	H	With 1 on Head Side
	D	With 2 pcs
	T	With 3 pcs

*1: If mounting type TA or TB is selected, the number of switches is limited to "H" (1 on head side) for TA, and "R" (1 on rod side) for TB.

❼Option

Code	Content
M	Piston Rod Material (Stainless Steel)

❽Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Split Pin Attached)	
	B1	Single Bracket	
	B2	Double Yoke Bracket (Pin and Split Pin Attached)	
	B3	Single Bracket	
	B4	Trunnion Type 2nd Bracket (2 pcs/set)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, refer to P. 610 to 613.

Code	Content
-XK◇	Mounting Bracket Rotational Assembly
-XAQ◇◇	Trunnion Position Specification
-XP7	Knuckle fixed by pin driving
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)

SCG-U – ..... – XP7

*For combinations of variations and options, see P. 489.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

SCG – T0H – 40

❺ Switch Model No. ❷ Bore Size

●Switch body only

SW – T0H

❺ Switch Model No.

●Switch mounting bracket set

SCG – T – 40

Mounting bracket ❷ Bore Size

Note: Please consult us separately if using environmentally compatible T-type switches.

Specifications

Item		SCG-U					
Bore Size	mm	ø32	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type					
Operating Fluid		Compressed Air					
Max. Working Pressure	MPa	0.7					
Min. Operating Pressure	MPa	0.03					
Proof Pressure	MPa	1.0					
Ambient Temperature	°C	5 to 60					
Port Size		Rc1/8	Rc1/4		Rc3/8		Rc1/2
Stroke tolerance	mm	$^{+1.0}_{0}$ (Up to 360), $^{+1.4}_{0}$ (361 to 800)					
Operating Piston Speed	mm/s	10 to 1000 (Please use within the allowable absorbed energy.)					
Cushion		None					
Lubrication		Not Available					
Internal leakage	L/min	5				8	
Allowable Absorbed Energy	J	0.018	0.032	0.057	0.057	0.112	0.153
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.					

Note: This product cannot be disassembled.

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ø32	25, 50, 75, 100, 150, 200, 250 300, 350, 400, 450, 500	600	1
ø40			
ø50			
ø63			
ø80		700	
ø100		800	

Note: Intermediate strokes can be manufactured in 1 mm increments.

Min. Stroke with Switch

●T0/T5 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	20 (18)	20 (10)	70 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø40	20 (19)	20 (10)	55 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø50	21 (19)	21 (10)	21 (19)	102 (72)	102 (72)	49 (34)	51 (36)
ø63	21 (20)	21 (11)	21 (20)	107 (77)	107 (77)	54 (39)	56 (41)
ø80	21 (21)	20 (11)	21 (21)	117 (87)	117 (87)	53 (38)	60 (45)
ø100	21 (21)	19 (11)	21 (21)	126 (96)	126 (96)	64 (49)	69 (54)

Note: ( ) indicates T□V (lead wire L-type).

●T8 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	19 (18)	19 (10)	67 (31)	97 (61)	97 (61)	49 (31)	49 (31)
ø40	19 (19)	19 (10)	52 (31)	97 (61)	97 (61)	49 (31)	49 (31)
ø50	19 (19)	18 (10)	19 (19)	97 (61)	97 (61)	48 (30)	48 (30)
ø63	20 (20)	18 (11)	20 (20)	102 (66)	102 (66)	53 (35)	53 (35)
ø80	21 (21)	17 (11)	21 (21)	112 (76)	112 (76)	51 (33)	57 (39)
ø100	21 (21)	17 (11)	21 (21)	121 (85)	121 (85)	61 (43)	67 (49)

Note: ( ) indicates T□V (lead wire L-type).

Min. Stroke with Switch

●T2/T3 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	20 (11)	20 (6)	70 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø40	20 (11)	20 (6)	55 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø50	21 (11)	21 (6)	21 (11)	102 (72)	102 (72)	49 (34)	51 (36)
ø63	21 (12)	21 (7)	21 (12)	107 (77)	107 (77)	54 (39)	56 (41)
ø80	20 (12)	20 (7)	20 (12)	117 (87)	117 (87)	53 (38)	60 (45)
ø100	19 (12)	19 (7)	19 (12)	126 (96)	126 (96)	64 (49)	69 (54)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T1 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	19 (11)	19 (6)	68 (38)	98 (68)	98 (68)	49 (34)	49 (34)
ø40	19 (11)	19 (6)	53 (38)	98 (68)	98 (68)	49 (34)	49 (34)
ø50	20 (11)	20 (6)	20 (11)	100 (70)	100 (70)	48 (33)	50 (35)
ø63	20 (12)	20 (7)	20 (12)	105 (75)	105 (75)	53 (38)	55 (40)
ø80	19 (12)	19 (7)	19 (12)	115 (85)	115 (85)	52 (37)	59 (44)
ø100	18 (12)	18 (7)	18 (12)	124 (94)	124 (94)	63 (48)	68 (53)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T2W/T3W type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	23 (12)	23 (8)	75 (45)	105 (75)	105 (75)	53 (38)	53 (38)
ø40	23 (12)	23 (8)	60 (45)	105 (75)	105 (75)	53 (38)	53 (38)
ø50	23 (13)	23 (8)	23 (13)	107 (77)	107 (77)	51 (36)	53 (38)
ø63	23 (13)	23 (8)	23 (13)	112 (82)	112 (82)	56 (41)	58 (43)
ø80	22 (14)	22 (8)	22 (14)	122 (92)	122 (92)	55 (40)	62 (47)
ø100	22 (14)	22 (8)	22 (14)	131 (101)	131 (101)	66 (51)	72 (57)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T2YD type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	23	23	75	105	105	53	53
ø40	23	23	60	105	105	53	53
ø50	23	23	23	107	107	51	53
ø63	23	23	23	112	112	56	58
ø80	22	22	22	122	122	55	62
ø100	22	22	22	131	131	66	72

Note: ( ) indicates T□V (lead wire L-type).

●T2WL type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	24 (12)	24 (8)	77 (45)	107 (75)	107 (75)	54 (38)	54 (38)
ø40	24 (12)	24 (8)	62 (45)	107 (75)	107 (75)	54 (38)	54 (38)
ø50	24 (13)	24 (8)	24 (13)	109 (77)	109 (77)	52 (36)	54 (38)
ø63	24 (13)	24 (8)	24 (13)	114 (82)	114 (82)	57 (41)	59 (43)
ø80	23 (14)	23 (8)	23 (14)	124 (92)	124 (92)	56 (40)	63 (47)
ø100	23 (14)	23 (8)	23 (14)	133 (101)	133 (101)	67 (51)	73 (57)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Weight Table

(Unit: kg)

Bore Size (mm)	Product Weight at Stroke = 0 mm						Stroke: Added weight per 50 mm	Switch Weight (Per Piece)	Switch Mounting Bracket Weight	Mounting Bracket Weight	
	Basic type (00)	Foot Type (LB)	Flange Type (FA,FB)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion Type (TC)				I	Y
ø32	0.50	0.61	0.58	0.65	0.68	0.67	0.12	Refer to the mass described in the switch specifications on P. 971	0.024	0.07	0.10
ø40	0.66	0.80	0.77	0.85	0.85	1.00	0.17		0.024	0.07	0.13
ø50	1.13	1.29	1.31	1.54	1.54	1.61	0.23		0.022	0.20	0.30
ø63	1.39	1.73	1.68	1.95	1.96	2.27	0.25		0.022	0.20	0.30
ø80	2.66	3.09	4.23	3.93	3.94	4.15	0.40		0.026	0.52	0.94
ø100	3.77	4.63	6.09	5.49	5.52	6.34	0.51		0.024	0.48	0.92

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa								
		0.03	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø32	Push	24.1	80.4	1.21 × 10²	1.61 × 10²	2.41 × 10²	3.22 × 10²	4.02 × 10²	4.83 × 10²	5.63 × 10²
	Pull	20.7	69.1	1.04 × 10²	1.38 × 10²	2.07 × 10²	2.76 × 10²	3.46 × 10²	4.15 × 10²	4.84 × 10²
ø40	Push	37.8	1.26 × 10²	1.88 × 10²	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²
	Pull	31.8	1.06 × 10²	1.58 × 10²	2.11 × 10²	3.17 × 10²	4.22 × 10²	5.28 × 10²	6.33 × 10²	7.39 × 10²
ø50	Push	58.8	1.96 × 10²	2.95 × 10²	3.93 × 10²	5.89 × 10²	7.85 × 10²	9.82 × 10²	1.18 × 10³	1.37 × 10³
	Pull	49.5	1.65 × 10²	2.47 × 10²	3.30 × 10²	4.95 × 10²	6.60 × 10²	8.25 × 10²	9.90 × 10²	1.15 × 10³
ø63	Push	93.6	3.12 × 10²	4.68 × 10²	6.23 × 10²	9.35 × 10²	1.25 × 10³	1.56 × 10³	1.87 × 10³	2.18 × 10³
	Pull	84.0	2.80 × 10²	4.20 × 10²	5.61 × 10²	8.41 × 10²	1.12 × 10³	1.40 × 10³	1.68 × 10³	1.96 × 10³
ø80	Push	1.51 × 10²	5.03 × 10²	7.54 × 10²	1.01 × 10³	1.51 × 10³	2.01 × 10³	2.51 × 10³	3.02 × 10³	3.52 × 10³
	Pull	1.36 × 10²	4.54 × 10²	6.80 × 10²	9.07 × 10²	1.36 × 10³	1.81 × 10³	2.27 × 10³	2.72 × 10³	3.17 × 10³
ø100	Push	2.36 × 10²	7.85 × 10²	1.18 × 10³	1.57 × 10³	2.36 × 10³	3.14 × 10³	3.93 × 10³	4.71 × 10³	5.50 × 10³
	Pull	2.15 × 10²	7.15 × 10²	1.07 × 10³	1.43 × 10³	2.14 × 10³	2.86 × 10³	3.57 × 10³	4.29 × 10³	5.00 × 10³

Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCG-LB-32	SCG-LB-40	SCG-LB-50	SCG-LB-63	SCG-LB-80	SCG-LB-100
Flange (FA) (FB) *1	SCG-FA-32	SCG-FA-40	SCG-FA-50	SCG-FA-63	SCG-FA-80	SCG-FA-100
Single Clevis (CA)	SCG-CA-32	SCG-CA-40	SCG-CA-50	SCG-CA-63	SCG-CA-80	SCG-CA-100
Double Clevis (CB)	SCG-CB-32	SCG-CB-40	SCG-CB-50	SCG-CB-63	SCG-CB-80	SCG-CB-100

*1: Foot type mounting bracket (LB) comes in a set of 2.
*2: Mounting bolts are included to each mounting bracket.

Outline Dimension Drawing

Same as double-acting, single-rod type SCG series, both-sides air cushion type.
Please refer to P. 496 to 510.

MEMO



Tie-rod cylinder Double-acting, Double-rod type

SCG-D Series

●Bore size: ø32, ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

With Switch
(Built-in magnet for switch)

	SCG-D	LB	32		B	100	T2H	R	J	Y
	Model No.	❶ Mounting type	❷ Bore Size	❸ Piping thread type	❹ Cushion	❺ Stroke	❻ Switch Model No.	❼ Number of Switches	❽ Option	❾ Accessories

Mounting brackets are included with the product and shipped. However, for trunnion type (TA, TB, TC) or when bellows are included and the mounting bracket is FA, they will be shipped assembled.

❶Mounting type

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TC	Intermediate Trunnion Type	

❷Bore Size (mm)

Code	Content
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

❹Cushion

Code	Content
B	Air cushion on both sides (basic type)
D	Both Sides Rubber Cushion

Note: The rubber cushion type is longer overall than the air cushion type.

❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø32	1 to 600	Every 1 mm
ø40		
ø50		
ø63		
ø80	1 to 700	
ø100	1 to 800	

Note: For minimum stroke with switch, please refer to P. 552 and 553.

❻Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+) 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH3
5 m TOH5

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

❼Number of Switches

	Code	Content
*1	R	With 1 on Rod Side
*1	H	With 1 on Head Side
	D	With 2 pcs
	T	With 3 pcs

*1: If mounting type TA or TB is selected, the number of switches is limited to "H" (1 on head side) for TA, and "R" (1 on rod side) for TB.

❽Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
J	Bellows	100°C	200°C	
M	Piston Rod Material (Stainless Steel)			

Note: Instantaneous maximum temperature is the temperature when sparks, chips, etc. momentarily contact the bellows.

❾Accessories

Code	Content	
I	Single Knuckle	
Y	Double Knuckle (Pin and Split Pin Attached)	
B4	Trunnion Type 2nd Bracket (2 pcs/set)	

About Custom Product Specifications

For details, refer to P. 610 to 613.

Code	Content
-XK◇	Mounting Bracket Rotational Assembly
-XAQ◇◇	Trunnion Position Specification
-XP7	Knuckle fixed by pin driving
-XJ9	Without Bellows
-T2	Fluorine Packing Type
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
SCG-D -..... -XP7

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

● Uses food-grade lubricant usable in food manufacturing processes

SCG-D -..... -FP1

*For combinations of variations and options, see P. 489.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

SCG - T0H - 40
❻ Switch Model No. ❷ Bore Size

●Switch body only

SW - T0H
❻ Switch Model No.

●Switch mounting bracket set

SCG - T - 40
Mounting bracket ❷ Bore Size

Note: Please consult us separately if using environmentally compatible T-type switches.

Specifications

Item		SCG-D					
Bore Size mm		ø32	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type					
Operating Fluid		Compressed Air					
Max. Working Pressure MPa		1.0					
Min. Operating Pressure MPa		0.1					
Proof Pressure MPa		1.6					
Ambient Temperature °C		-10 to 60 (No freezing)					
Port Size		Rc1/8	Rc1/4		Rc3/8		Rc1/2
Stroke tolerance mm	With Rubber Cushion	$^{+1.4}_{0}$ (Up to 800)					
	With Air Cushion	$^{+1.0}_{0}$ (Up to 360), $^{+1.4}_{0}$ (361 to 800)					
Operating Piston Speed mm/s		50 to 1000 (Please use within the allowable absorbed energy.)					
Cushion		Air cushion/rubber cushion can be selected					
Effective air cushion length mm		8.6	8.6	13.4	13.4	15.4	15.4
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)					
Lubricated allowable absorbed energy J	With Rubber Cushion	0.5	0.9	1.6	1.6	3.3	5.8
	With Air Cushion	2.5	3.7	8.0	14.4	25.4	45.6

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ø32	25, 50, 75, 100, 150, 200, 250 300, 350, 400, 450, 500	600	1
ø40			
ø50			
ø63			
ø80		700	
ø100		800	

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: If the maximum stroke is exceeded, product specifications may not be met depending on the conditions, so please consult us.
*3: In the case of bellows-equipped models, the producible stroke for Bore sizes ø32 to ø40 is 500 mm, for ø50 to ø63 is 600 mm, and for ø80 to ø100 is 800 mm.

Min. Stroke with Switch

●T0/T5 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	20 (18)	20 (10)	70 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø40	20 (19)	20 (10)	55 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø50	21 (19)	21 (10)	21 (19)	102 (72)	102 (72)	49 (34)	51 (36)
ø63	21 (20)	21 (11)	21 (20)	107 (77)	107 (77)	54 (39)	56 (41)
ø80	21 (21)	20 (11)	21 (21)	117 (87)	117 (87)	53 (38)	60 (45)
ø100	21 (21)	19 (11)	21 (21)	126 (96)	126 (96)	64 (49)	69 (54)

Note: Note: ( ) indicates T□V (lead wire L-type).

● T8 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	19 (18)	19 (10)	67 (31)	97 (61)	97 (61)	49 (31)	49 (31)
ø40	19 (19)	19 (10)	52 (31)	97 (61)	97 (61)	49 (31)	49 (31)
ø50	19 (19)	18 (10)	19 (19)	97 (61)	97 (61)	48 (30)	48 (30)
ø63	20 (20)	18 (11)	20 (20)	102 (66)	102 (66)	53 (35)	53 (35)
ø80	21 (21)	17 (11)	21 (21)	112 (76)	112 (76)	51 (33)	57 (39)
ø100	21 (21)	17 (11)	21 (21)	121 (85)	121 (85)	61 (43)	67 (49)

Note: Note: ( ) indicates T□V (lead wire L-type).

Min. Stroke with Switch

●T2/T3 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	20 (11)	20 (6)	70 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø40	20 (11)	20 (6)	55 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø50	21 (11)	21 (6)	21 (11)	102 (72)	102 (72)	49 (34)	51 (36)
ø63	21 (12)	21 (7)	21 (12)	107 (77)	107 (77)	54 (39)	56 (41)
ø80	20 (12)	20 (7)	20 (12)	117 (87)	117 (87)	53 (38)	60 (45)
ø100	19 (12)	19 (7)	19 (12)	126 (96)	126 (96)	64 (49)	69 (54)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T1 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	19 (11)	19 (6)	68 (38)	98 (68)	98 (68)	49 (34)	49 (34)
ø40	19 (11)	19 (6)	53 (38)	98 (68)	98 (68)	49 (34)	49 (34)
ø50	20 (11)	20 (6)	20 (11)	100 (70)	100 (70)	48 (33)	50 (35)
ø63	20 (12)	20 (7)	20 (12)	105 (75)	105 (75)	53 (38)	55 (40)
ø80	19 (12)	19 (7)	19 (12)	115 (85)	115 (85)	52 (37)	59 (44)
ø100	18 (12)	18 (7)	18 (12)	124 (94)	124 (94)	63 (48)	68 (53)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T2W/T3W type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	23 (12)	23 (8)	75 (45)	105 (75)	105 (75)	53 (38)	53 (38)
ø40	23 (12)	23 (8)	60 (45)	105 (75)	105 (75)	53 (38)	53 (38)
ø50	23 (13)	23 (8)	23 (13)	107 (77)	107 (77)	51 (36)	53 (38)
ø63	23 (13)	23 (8)	23 (13)	112 (82)	112 (82)	56 (41)	58 (43)
ø80	22 (14)	22 (8)	22 (14)	122 (92)	122 (92)	55 (40)	62 (47)
ø100	22 (14)	22 (8)	22 (14)	131 (101)	131 (101)	66 (51)	72 (57)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T2YD type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	23	23	75	105	105	53	53
ø40	23	23	60	105	105	53	53
ø50	23	23	23	107	107	51	53
ø63	23	23	23	112	112	56	58
ø80	22	22	22	122	122	55	62
ø100	22	22	22	131	131	66	72

Note: Note: ( ) indicates T□V (lead wire L-type).

●T2WL type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	24 (12)	24 (8)	77 (45)	107 (75)	107 (75)	54 (38)	54 (38)
ø40	24 (12)	24 (8)	62 (45)	107 (75)	107 (75)	54 (38)	54 (38)
ø50	24 (13)	24 (8)	24 (13)	109 (77)	109 (77)	52 (36)	54 (38)
ø63	24 (13)	24 (8)	24 (13)	114 (82)	114 (82)	57 (41)	59 (43)
ø80	23 (14)	23 (8)	23 (14)	124 (92)	124 (92)	56 (40)	63 (47)
ø100	23 (14)	23 (8)	23 (14)	133 (101)	133 (101)	67 (51)	73 (57)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Weight Table

(Unit: kg)

Bore Size (mm)	Product Weight at Stroke = 0 mm				Stroke: Added weight per 50 mm	Switch Weight (Per Piece)	Switch Mounting Bracket Weight	Accessory Weight	
	Basic type (00)	Foot Type (LB)	Flange Type (FA, FB)	Trunnion Type (TA, TB, TC)				I	Y
ø32	0.57	0.68	0.79	0.74	0.16	Refer to the mass described in the switch specifications on P. 971	0.024	0.07	0.10
ø40	0.80	0.94	1.08	1.14	0.25		0.024	0.07	0.13
ø50	1.38	1.54	1.86	1.86	0.35		0.022	0.20	0.30
ø63	1.64	1.98	2.40	2.52	0.37		0.022	0.20	0.30
ø80	3.11	3.54	4.68	4.60	0.59		0.026	0.52	0.94
ø100	4.41	5.27	6.73	6.98	0.79		0.024	0.48	0.92

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø32	Push/Pull	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push/Pull	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push/Pull	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push/Pull	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push/Pull	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push/Pull	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

Mounting Bracket Model No. Notation Method

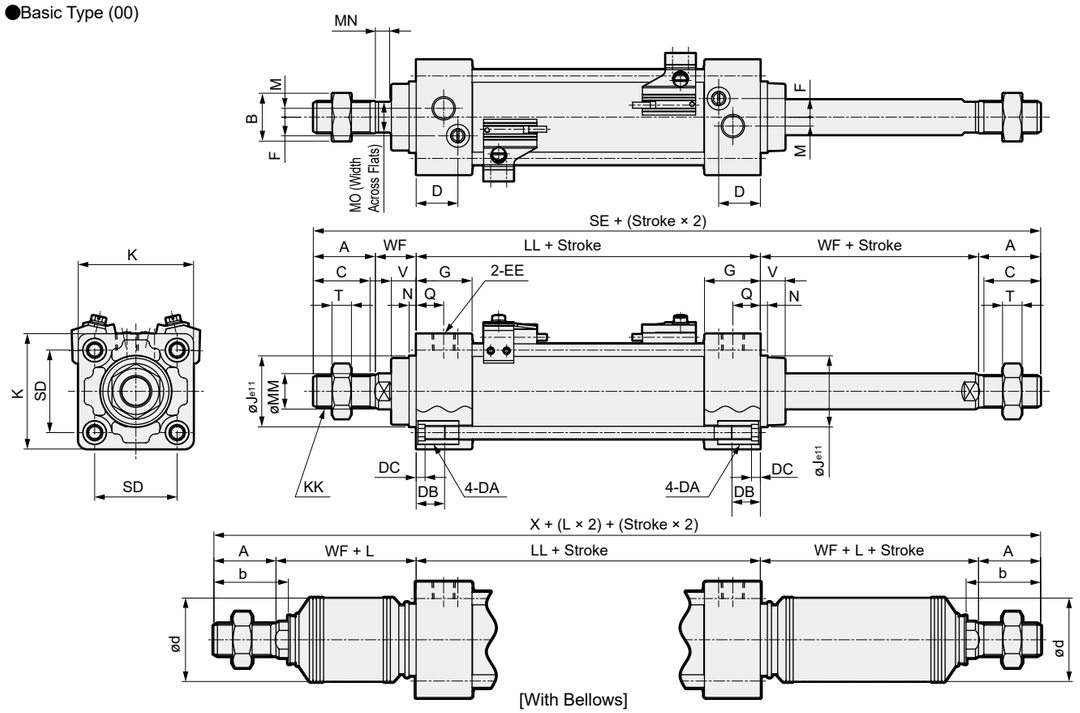
Bore Size (mm) / Mounting bracket	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCG-LB-32	SCG-LB-40	SCG-LB-50	SCG-LB-63	SCG-LB-80	SCG-LB-100
Flange (FA) (FB) *1	SCG-FA-32	SCG-FA-40	SCG-FA-50	SCG-FA-63	SCG-FA-80	SCG-FA-100

*1: For bellows-equipped flanges (FA, FB), please specify as "SCG-FA-(Bore size)-J".
*2: Foot type mounting bracket (LB) is 2 pcs/set.
*3: Mounting bolts are included to each mounting bracket.

MEMO

Outline Dimension Drawing

●Basic Type (00)



[With Bellows]

Code / Bore Size (mm)	Basic Type (00) Basic Dimensions												
	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK
ø32	22	17	20	19	M6	16	5	Rc1/8	6.5	27	30	46	M10 × 1.25
ø40	30	22	27	19	M6	16	5	Rc1/4	9	27	35	52	M14 × 1.5
ø50	35	27	32	23.5	M8	16	5	Rc1/4	10.5	31.5	40	65	M18 × 1.5
ø63	35	27	32	21.5	M8	16	5	Rc3/8	12	31.5	45	75	M18 × 1.5
ø80	40	32	37	28	M10	16	5	Rc3/8	14	38	45	95	M22 × 1.5
ø100	40	41	37	28	M10	16	5	Rc1/2	15	38	55	114	M26 × 1.5

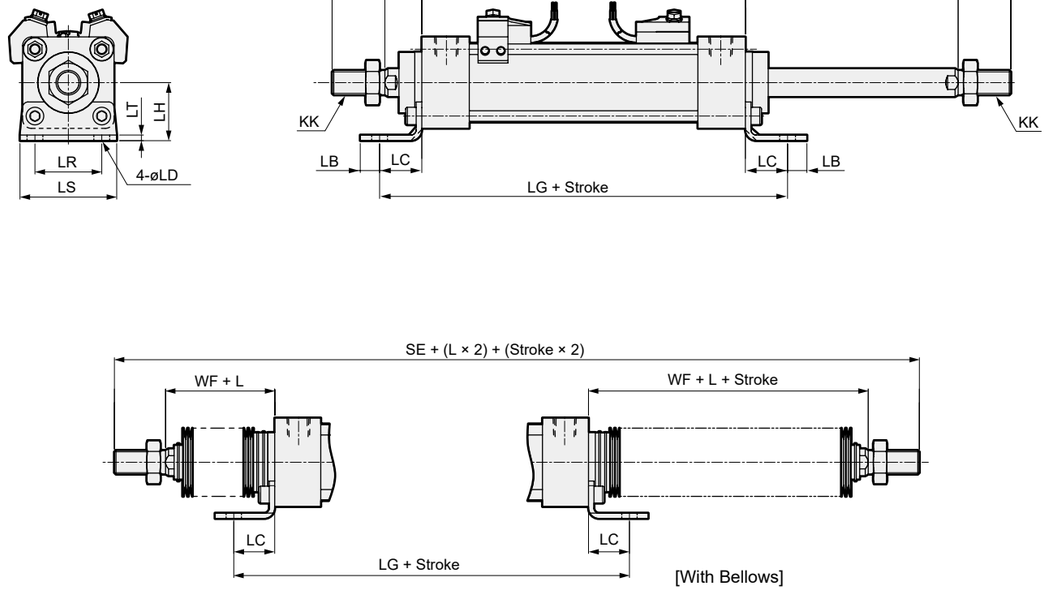
Code / Bore Size (mm)											
	LL *1	M	MM	MN	MO	N	Q	SD	SE *1	T	V	WF
ø32	84 (90)	4	12	5.5	10	4	13	32.5	178 (184)	6	13	25
ø40	84 (90)	4	16	6	14	4	14	38	186 (192)	8	13	21
ø50	94 (102)	5	20	8	17	4	15.5	46.5	210 (218)	11	14	23
ø63	94 (102)	9	20	8	17	4	16.5	56.5	210 (218)	11	14	23
ø80	114 (124)	11.5	25	11	22	4	19	72	258 (268)	13	20	32
ø100	114 (124)	17	30	13	27	4	19	89	258 (268)	16	20	32

Code / Bore Size (mm)	With Bellows												
	b	d	L										
			50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	31.5	38	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	35	40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	42	47	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	42	47	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	50	53	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	52.5	61	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Axial Foot Type (LB)



[With Bellows]

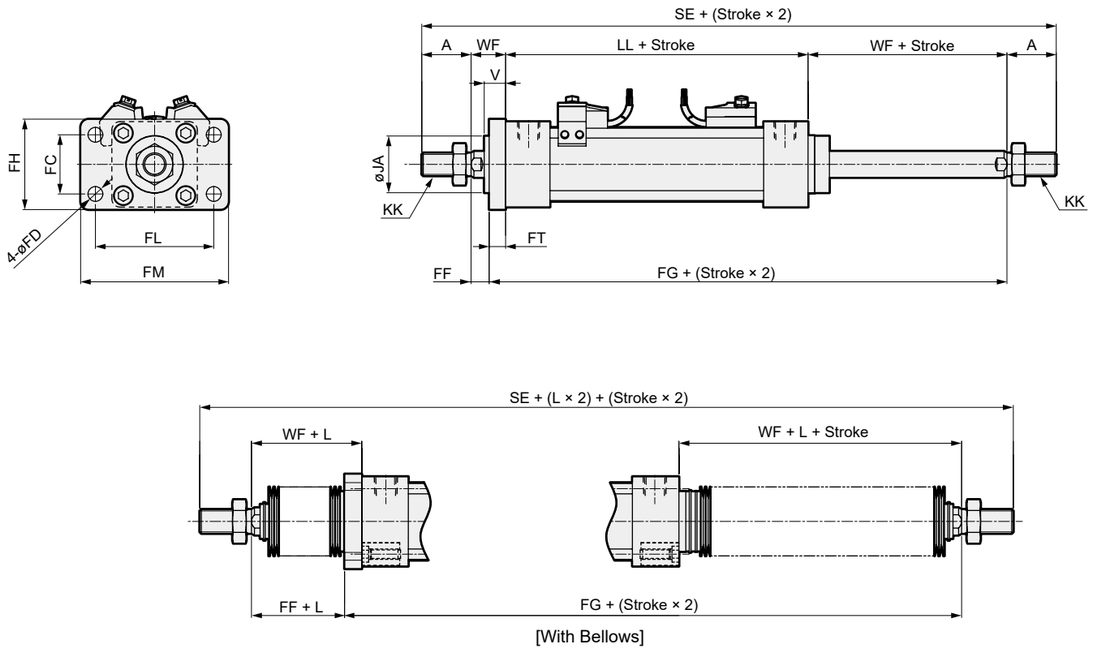
Code / Bore Size (mm)	Axial Foot Type (LB) Mounting Dimensions												
	A	KK	LL *1	SE *1	WF	LB	LC	LD	LG *1	LH	LR	LS	LT
ø32	22	M10 × 1.25	84 (90)	178 (184)	25	9	22	7	128 (134)	30	32	50	3.2
ø40	30	M14 × 1.5	84 (90)	186 (192)	21	11	24	9	132 (138)	33	38	55	3.2
ø50	35	M18 × 1.5	94 (102)	210 (218)	23	11	27	9	148 (156)	40	46	70	3.2
ø63	35	M18 × 1.5	94 (102)	210 (218)	23	14	27	12	148 (156)	45	56	80	4.5
ø80	40	M22 × 1.5	114 (124)	258 (268)	32	14	30	12	174 (184)	55	72	95	4.5
ø100	40	M26 × 1.5	114 (124)	258 (268)	32	16	32	14	178 (188)	65	89	114	6

Code / Bore Size (mm)	With Bellows											
	L											
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800	
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37				
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32				
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41			
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41			
ø80	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63	
ø100	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63	

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)



[With Bellows]

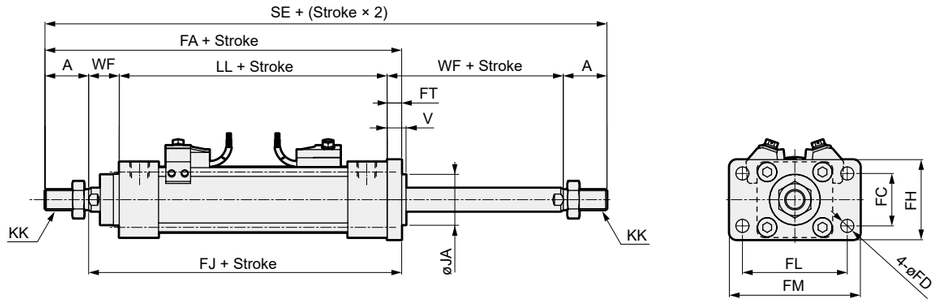
Code / Bore Size (mm)	Rod Side Flange Type (FA) Mounting Dimensions														
	A	JA	KK	LL *1	SE *1	V	WF	FC	FD	FF	FG *1	FH	FL	FM	FT
ø32	22	29	M10 × 1.25	84 (90)	178 (184)	13	25	32	7	15	119 (125)	50	64	79	10
ø40	30	30	M14 × 1.5	84 (90)	186 (192)	13	21	36	9	11	115 (121)	55	72	90	10
ø50	35	38	M18 × 1.5	94 (102)	210 (218)	14	23	45	9	11	129 (137)	70	90	110	12
ø63	35	38	M18 × 1.5	94 (102)	210 (218)	14	23	50	9	11	129 (137)	80	100	120	12
ø80	40	43	M22 × 1.5	114 (124)	258 (268)	20	32	63	12	16	162 (172)	100	126	153	16
ø100	40	51	M26 × 1.5	114 (124)	258 (268)	20	32	75	14	16	162 (172)	120	150	178	16

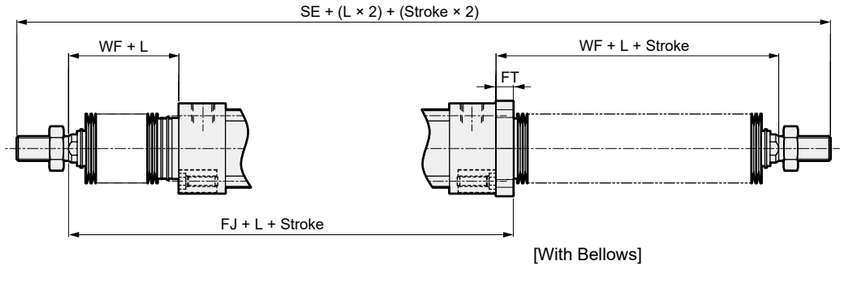
Code / Bore Size (mm)	With Bellows											
	FG *1	L										
		50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	119 (125)	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	115 (121)	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	129 (137)	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	129 (137)	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	162 (172)	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	162 (172)	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Head Side Flange Type (FB)





[With Bellows]

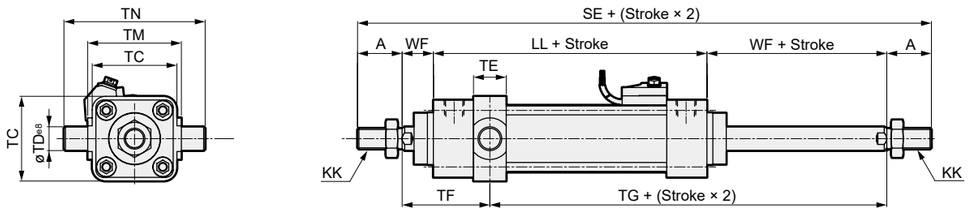
Code / Bore Size (mm)	Head Side Flange Type (FB) Mounting Dimensions														
	A	JA	KK	LL *1	SE *1	V	WF	FA *1	FC	FD	FH	FJ *1	FL	FM	FT
ø32	22	29	M10 × 1.25	84 (90)	178 (184)	13	25	141 (147)	40	9	57	119 (125)	64	79	10
ø40	30	30	M14 × 1.5	84 (90)	186 (192)	13	21	145 (151)	40	9	57	115 (121)	72	90	10
ø50	35	38	M18 × 1.5	94 (102)	210 (218)	14	23	164 (172)	47	9	65	129 (137)	90	110	12
ø63	35	38	M18 × 1.5	94 (102)	210 (218)	14	23	164 (172)	60	11	80	129 (137)	100	120	12
ø80	40	43	M22 × 1.5	114 (124)	258 (268)	20	32	202 (212)	74	14	98	162 (172)	126	153	16
ø100	40	51	M26 × 1.5	114 (124)	258 (268)	20	32	202 (212)	88	14	118	162 (172)	150	178	16

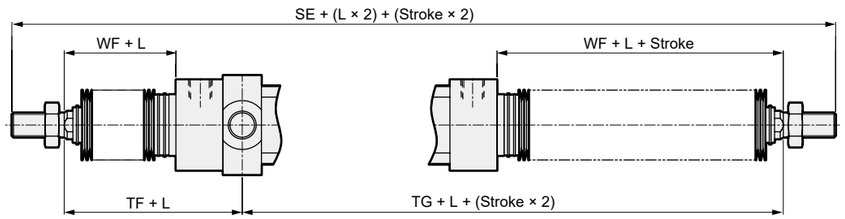
Code / Bore Size (mm)	With Bellows										
	L										
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Rod side trunnion type (TA)





[With Bellows]

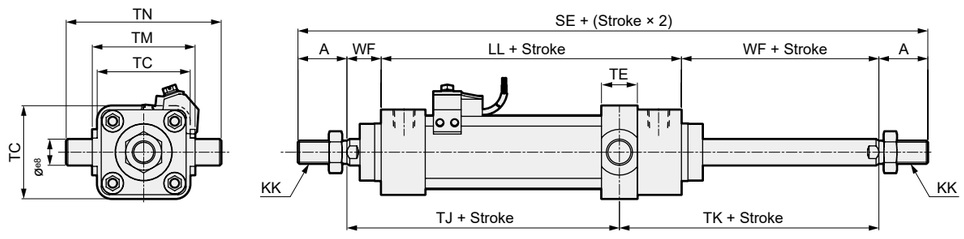
Code / Bore Size (mm)	A	KK	LL *1	SE *1	WF	TC	TD	TE	TF	TG *1	TM	TN
ø32	22	M10 × 1.25	84 (90)	178 (184)	25	47	12	17	61.5	72.5 (78.5)	50	74
ø40	30	M14 × 1.5	84 (90)	186 (192)	21	57	16	22	60	66 (72)	63	95
ø50	35	M18 × 1.5	94 (102)	210 (218)	23	67	16	22	66.5	73.5 (81.5)	75	107
ø63	35	M18 × 1.5	94 (102)	210 (218)	23	82	20	28	69.5	70.5 (78.5)	90	130
ø80	40	M22 × 1.5	114 (124)	258 (268)	32	100	20	34	88	90 (100)	110	150
ø100	40	M26 × 1.5	114 (124)	258 (268)	32	121	25	40	91	87 (97)	132	182

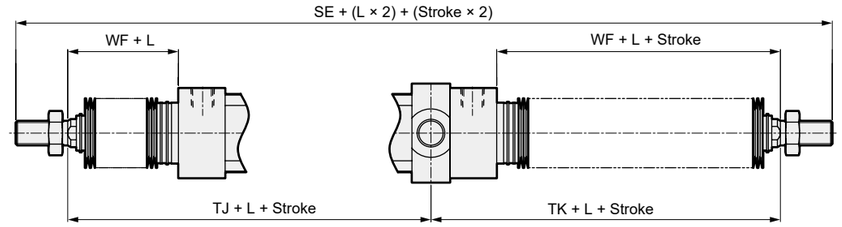
Code / Bore Size (mm)	With Bellows L: 50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Head Side Trunnion Type (TB)





[With Bellows]

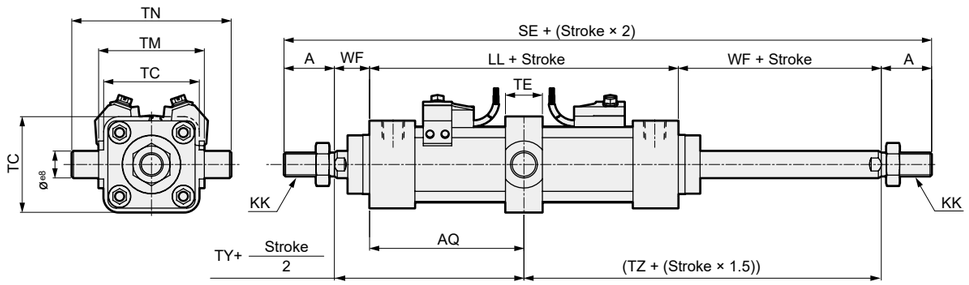
Code / Bore Size (mm)	A	KK	LL *1	SE *1	WF	TC	TD	TE	TJ *1	TK	TM	TN
ø32	22	M10 × 1.25	84 (90)	178 (184)	25	47	12	17	72.5 (78.5)	61.5	50	74
ø40	30	M14 × 1.5	84 (90)	186 (192)	21	57	16	22	66 (72)	60	63	95
ø50	35	M18 × 1.5	94 (102)	210 (218)	23	67	16	22	73.5 (81.5)	66.5	75	107
ø63	35	M18 × 1.5	94 (102)	210 (218)	23	82	20	28	70.5 (78.5)	69.5	90	130
ø80	40	M22 × 1.5	114 (124)	258 (268)	32	100	20	34	90 (100)	88	110	150
ø100	40	M26 × 1.5	114 (124)	258 (268)	32	121	25	40	87 (97)	91	132	182

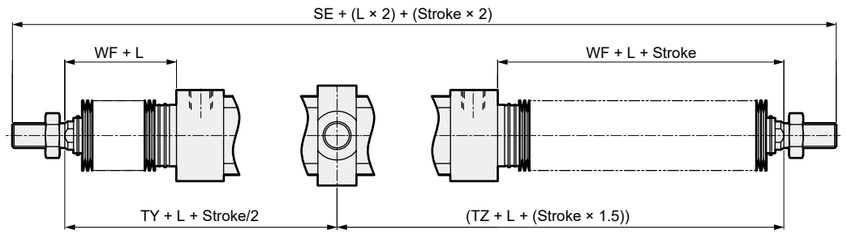
Code / Bore Size (mm)	With Bellows L: 50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Intermediate trunnion type (TC)





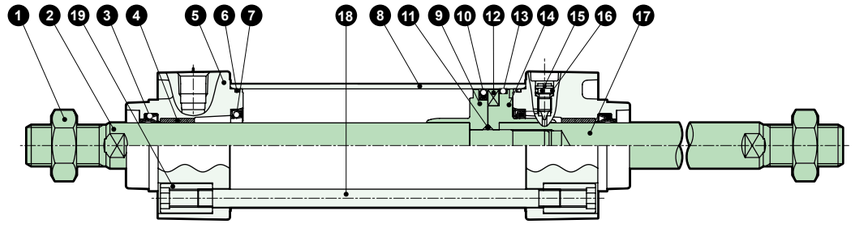
[With Bellows]

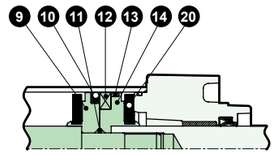
Code	Intermediate Trunnion Type (TC) Mounting Dimensions												
Bore Size (mm)	A	KK	LL *1	SE *1	WF	AQ *1	TC	TD	TE	TY *1	TZ *1	TM	TN
ø32	22	M10 × 1.25	84 (90)	178 (184)	25	42 (45) + Stroke/2	47	12	17	67 (70)	67 (70)	50	74
ø40	30	M14 × 1.5	84 (90)	186 (192)	21	42 (45) + Stroke/2	57	16	22	63 (66)	63 (66)	63	95
ø50	35	M18 × 1.5	94 (102)	210 (218)	23	47 (51) + Stroke/2	67	16	22	70 (74)	70 (74)	75	107
ø63	35	M18 × 1.5	94 (102)	210 (218)	23	47 (51) + Stroke/2	82	20	28	70 (74)	70 (74)	90	130
ø80	40	M22 × 1.5	114 (124)	258 (268)	32	57 (62) + Stroke/2	100	20	34	89 (94)	89 (94)	110	150
ø100	40	M26 × 1.5	114 (124)	258 (268)	32	57 (62) + Stroke/2	121	25	40	89 (94)	89 (94)	132	182

Code	With Bellows										
	L										
Bore Size (mm)	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø80	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63
ø100	29	42	54	67	92	117	142	167	192	217	0.35 × Stroke - 63

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Internal Structure Diagram/Material





With Rubber Cushion

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating	11	Piston Gasket	Nitrile Rubber	
2	Piston Rod A	Steel	Industrial Hard Chrome Plating	12	Magnet	Plastic	
3	Rod Packing	Nitrile Rubber		13	Wear Ring	Polyacetal	
4	Bushing	Oil-Impregnated Bearing Alloy		14	Piston H	Aluminum Alloy	
5	Rod Cover	Aluminum Alloy	Painting	15	Cushion Needle	Copper Alloy	Nickel Plating
6	Cylinder Gasket	Nitrile Rubber		16	Needle Gasket	Nitrile Rubber	
7	Cushion Packing	Nitrile Rubber, Steel	Only with air cushion	17	Piston Rod B	Steel	Industrial Hard Chrome Plating
8	Cylinder Tube	Aluminum Alloy	Hard Anodized	18	Tie Rod	Steel	Zinc Chromate
9	Piston R	Aluminum Alloy		19	Round Nut	Steel	Zinc Chromate
10	Piston Packing	Nitrile Rubber		20	Cushion Rubber	Urethane Rubber	Only with rubber cushion

Mounting Bracket Material

Mounting type	Material	Remarks
Foot (LB)	Steel	Nickel Plating
Flange (FA / FB)	Steel	Painting
Trunnion (TA, TB, TC)	Cast Iron	Painting

Note: Mounting brackets are attached to the product and shipped.
However, for trunnion types (TA, TB, TC) and bellows-equipped models with LB or FA mounting brackets, they will be shipped assembled.

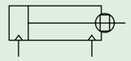
For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts



Tie-rod cylinder Double-acting, Non-rotating type

SCG-M Series

●Bore size: ø32, ø40, ø50, ø63

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

SCG-M	LB	40		B	100			J	I
Model No.	❶	❷	❸	❹	❺			❽	❾

With Switch
(Built-in magnet for switch)

SCG-M	LB	40		B	100	T2H	R	J	I
Model No.	❶ Mounting type	❷ Bore Size	❸ Piping thread type	❹ Cushion	❺ Stroke	❻ Switch Model No.	❼ Number of Switches	❽ Option	❾ Accessories

Mounting brackets are included with the product and shipped. However, for trunnion type (TA, TB, TC) or when bellows are included and the mounting bracket is FA, they will be shipped assembled.

❶Mounting type

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and Split Pin Attached)	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TC	Intermediate Trunnion Type	

❷Bore Size (mm)

Code	Content
32	ø32
40	ø40
50	ø50
63	ø63

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

❹Cushion

Code	Content
B	Both Sides Air Cushion
D	Both Sides Rubber Cushion

Note: The rubber cushion type is longer overall than the air cushion type.

❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø32	1 to 600	Every 1 mm
ø40		
ø50		
ø63		

Note: For minimum stroke with switch, please refer to P. 566 and 567.

❻Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp / Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	 *5
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

**Lead wire length, connector specification*

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+) 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

❼Number of Switches

	Code	Content
*1	R	With 1 on Rod Side
*1	H	With 1 on Head Side
	D	With 2 pcs
	T	With 3 pcs

*1: If mounting type TA or TB is selected, the number of switches is limited to "H" (1 on head side) for TA, and "R" (1 on rod side) for TB.

❽Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
J	Bellows	100°C	200°C	

Note: The instantaneous max. temperature is that at which sparks, cutting chips, etc., instantaneously contact bellows.

❾Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Split Pin Attached)	
	B1	Single Bracket	
	B2	Double Yoke Bracket (Pin and Split Pin Attached)	
	B3	Single Bracket	
	B4	Trunnion Type 2nd Bracket (2 pcs/set)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, refer to P. 610 to 613.

Code	Content
-XK◇	Mounting Bracket Rotational Assembly
-XAQ◇◇	Trunnion Position Specification
-XP7	Knuckle fixed by pin driving
-XJ9	Without Bellows
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
SCG-M – ..... – XP7

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

● Uses food-grade lubricant usable in food manufacturing processes

SCG-M – ..... – FP1

*For combinations of variations and options, see P. 489.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

SCG	–	T0H	–	40
		❻ Switch Model No.		❷ Bore Size

●Switch body only

SW	–	T0H
		❻ Switch Model No.

●Switch mounting bracket set

SCG	–	T	–	40
		Mounting bracket		❷ Bore Size

Note: Please consult us separately if using environmentally compatible T-type switches.

Specifications

Item		SCG-M			
Bore Size mm		ø32	ø40	ø50	ø63
Actuation method		Double Acting Type			
Operating Fluid		Compressed Air			
Max. Working Pressure MPa		1.0			
Min. Operating Pressure MPa		0.1			0.05
Proof Pressure MPa		1.6			
Ambient Temperature °C		-10 to 60 (No freezing)			
Port Size		Rc1/8	Rc1/4		Rc3/8
Stroke tolerance mm	With Rubber Cushion	$^{+1.4}_{0}$ (to 600)			
	With Air Cushion	$^{+1.0}_{0}$ (Up to 360), $^{+1.4}_{0}$ (361 to 600)			
Operating Piston Speed mm/s		50 to 1000 (Please use within the allowable absorbed energy.)			
Cushion		Air cushion/rubber cushion can be selected			
Effective air cushion length mm		8.6	8.6	13.4	13.4
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)			
Non-rotating accuracy degrees		±1			
Allowable Absorbed Energy J	With Rubber Cushion	0.5	0.9	1.6	1.6
	With Air Cushion	2.5	3.7	8.0	14.4

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ø32	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	1
ø40			
ø50			
ø63			

Note: Intermediate strokes can be manufactured in 1 mm increments.

Min. Stroke with Switch

●T0/T5 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	20 (18)	20 (10)	70 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø40	20 (19)	20 (10)	55 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø50	21 (19)	21 (10)	21 (19)	102 (72)	102 (72)	49 (34)	51 (36)
ø63	21 (20)	21 (11)	21 (20)	107 (77)	107 (77)	54 (39)	56 (41)

Note: Note: ( ) indicates T□V (lead wire L-type).

●T8 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	19 (18)	19 (10)	67 (31)	97 (61)	97 (61)	49 (31)	49 (31)
ø40	19 (19)	19 (10)	52 (31)	97 (61)	97 (61)	49 (31)	49 (31)
ø50	19 (19)	18 (10)	19 (19)	97 (61)	97 (61)	48 (30)	48 (30)
ø63	20 (20)	18 (11)	20 (20)	102 (66)	102 (66)	53 (35)	53 (35)

Note: Note: ( ) indicates T□V (lead wire L-type).

Min. Stroke with Switch

●T2/T3 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	20 (11)	20 (6)	70 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø40	20 (11)	20 (6)	55 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø50	21 (11)	21 (6)	21 (11)	102 (72)	102 (72)	49 (34)	51 (36)
ø63	21 (12)	21 (7)	21 (12)	107 (77)	107 (77)	54 (39)	56 (41)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T1 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	19 (11)	19 (6)	68 (38)	98 (68)	98 (68)	49 (34)	49 (34)
ø40	19 (11)	19 (6)	53 (38)	98 (68)	98 (68)	49 (34)	49 (34)
ø50	20 (11)	20 (6)	20 (11)	100 (70)	100 (70)	48 (33)	50 (35)
ø63	20 (12)	20 (7)	20 (12)	105 (75)	105 (75)	53 (38)	55 (40)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T2W/T3W type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	23 (12)	23 (8)	75 (45)	105 (75)	105 (75)	53 (38)	53 (38)
ø40	23 (12)	23 (8)	60 (45)	105 (75)	105 (75)	53 (38)	53 (38)
ø50	23 (13)	23 (8)	23 (13)	107 (77)	107 (77)	51 (36)	53 (38)
ø63	23 (13)	23 (8)	23 (13)	112 (82)	112 (82)	56 (41)	58 (43)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T2YD type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	23	23	75	105	105	53	53
ø40	23	23	60	105	105	53	53
ø50	23	23	23	107	107	51	53
ø63	23	23	23	112	112	56	58

Note: Note: ( ) indicates T□V (lead wire L-type).

● T2WL type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	24 (12)	24 (8)	77 (45)	107 (75)	107 (75)	54 (38)	54 (38)
ø40	24 (12)	24 (8)	62 (45)	107 (75)	107 (75)	54 (38)	54 (38)
ø50	24 (13)	24 (8)	24 (13)	109 (77)	109 (77)	52 (36)	54 (38)
ø63	24 (13)	24 (8)	24 (13)	114 (82)	114 (82)	57 (41)	59 (43)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Weight Table

(Unit: kg)

Bore Size (mm)	Product Weight at Stroke = 0 mm						Stroke: Added weight per 50 mm	Switch Weight (Per Piece)	Switch Mounting Bracket Weight	Mounting Bracket Weight	
	Basic type (00)	Foot Type (LB)	Flange type (FA, FB)	Single Clevis Type (CA)	Double clevis type (CB)	Trunnion Type (TC)				I	Y
ø32	0.50	0.61	0.58	0.65	0.68	0.67	0.12	Refer to the mass described in the switch specifications on P. 971	0.024	0.07	0.10
ø40	0.66	0.80	0.77	0.85	0.85	1.00	0.17		0.024	0.07	0.13
ø50	1.13	1.29	1.31	1.54	1.54	1.61	0.23		0.022	0.20	0.30
ø63	1.39	1.73	1.68	1.95	1.96	2.27	0.25		0.022	0.20	0.30

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø32	Push	-	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	-	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	-	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	-	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	-	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	-	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	1.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3

Mounting Bracket Model No. Notation Method

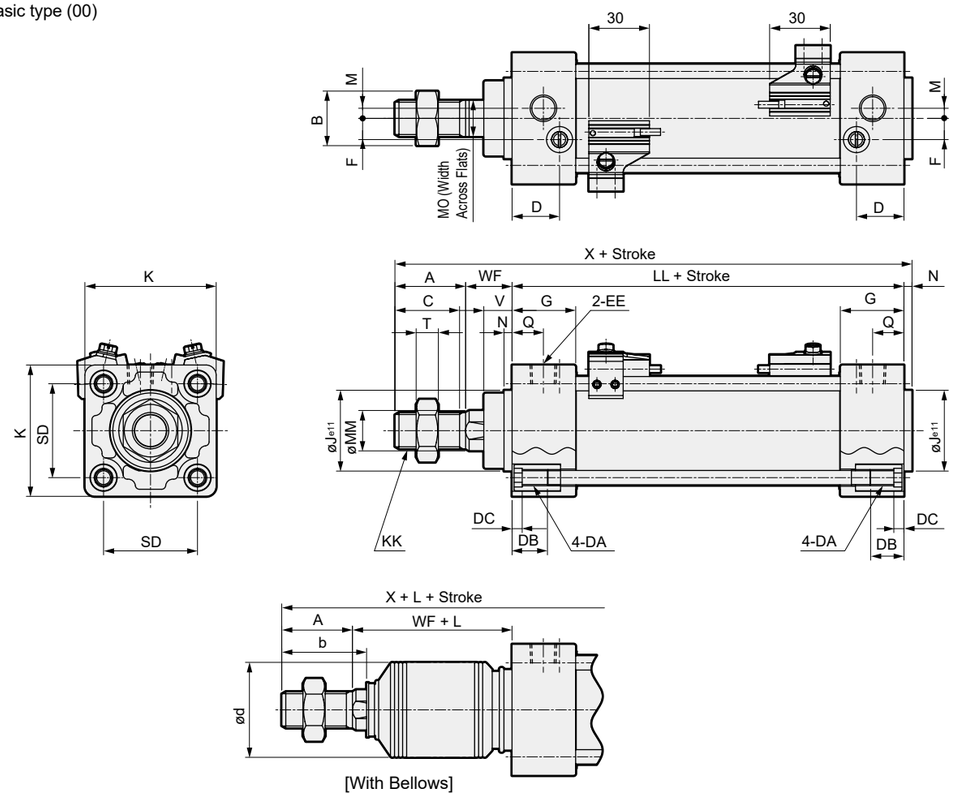
Bore Size (mm) / Mounting bracket	ø32	ø40	ø50	ø63
Foot (LB)	SCG-LB-32	SCG-LB-40	SCG-LB-50	SCG-LB-63
Flange (FA) (FB) *1	SCG-FA-32	SCG-FA-40	SCG-FA-50	SCG-FA-63
Single Clevis (CA)	SCG-CA-32	SCG-CA-40	SCG-CA-50	SCG-CA-63
Double Clevis (CB)	SCG-CB-32	SCG-CB-40	SCG-CB-50	SCG-CB-63

*1: For flange (FA) with bellows, specify "SCG-FA-(Bore Size)-J".
*2: Foot type mounting bracket (LB) is 2 pcs/set.
*3: Mounting bolts are included to each mounting bracket.

MEMO

Outline Dimension Drawing

● Basic type (00)



Code / Bore Size (mm)	Basic Type (00) Basic Dimensions												
	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK
ø32	22	17	20	19	M6	16	5	Rc1/8	6.5	27	30	46	M10 × 1.25
ø40	30	22	27	19	M6	16	5	Rc1/4	9	27	35	52	M14 × 1.5
ø50	35	27	32	23.5	M8	16	5	Rc1/4	10.5	31.5	40	65	M18 × 1.5
ø63	35	27	32	21.5	M8	16	5	Rc3/8	12	31.5	45	75	M18 × 1.5

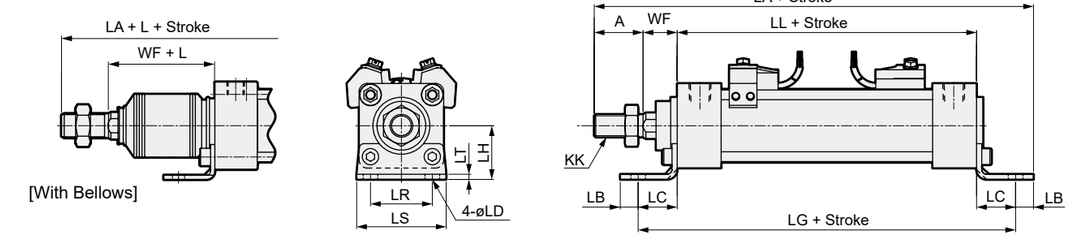
Code / Bore Size (mm)	LL *1	M	MM	MO	N	Q	SD	T	V	WF	X *1
ø32	84 (90)	4	12	10	4	13	32.5	6	13	25	135 (141)
ø40	84 (90)	4	16	14	4	14	38	8	13	21	139 (145)
ø50	94 (102)	5	20	18	4	15.5	46.5	11	14	23	156 (164)
ø63	94 (102)	9	20	18	4	16.5	56.5	11	14	23	156 (164)

Code / Bore Size (mm)	With Bellows		L									
	b	d	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	31.5	38	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	35	40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	42	47	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	42	47	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Axial Foot Type (LB)

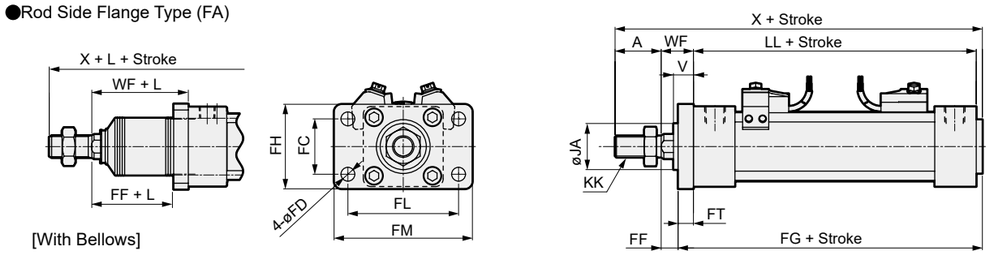


Code / Bore Size (mm)	Axial Foot Type (LB) Mounting Dimensions												
	A	KK	LL *1	WF	LA *1	LB	LC	LD	LG *1	LH	LR	LS	LT
ø32	22	M10 × 1.25	84 (90)	25	162 (168)	9	22	7	128 (134)	30	32	50	3.2
ø40	30	M14 × 1.5	84 (90)	21	170 (176)	11	24	9	132 (138)	33	38	55	3.2
ø50	35	M18 × 1.5	94 (102)	23	190 (198)	11	27	9	148 (156)	40	46	70	3.2
ø63	35	M18 × 1.5	94 (102)	23	193 (201)	14	27	12	148 (156)	45	56	80	4.5

Code / Bore Size (mm)	With Bellows										
	L										
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

●Rod Side Flange Type (FA)



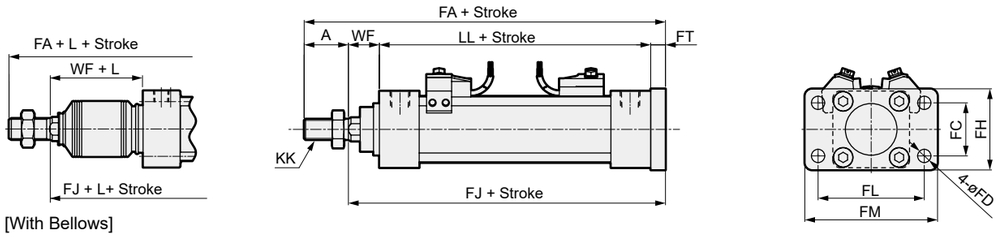
Code / Bore Size (mm)	Rod Side Flange Type (FA) Mounting Dimensions														
	A	JA	KK	LL *1	V	WF	X *1	FC	FD	FF	FG *1	FH	FL	FM	FT
ø32	22	29	M10 × 1.25	84 (90)	13	25	135 (141)	32	7	15	98 (104)	50	64	79	10
ø40	30	30	M14 × 1.5	84 (90)	13	21	139 (145)	36	9	11	98 (104)	55	72	90	10
ø50	35	38	M18 × 1.5	94 (102)	14	23	156 (164)	45	9	11	110 (118)	70	90	110	12
ø63	35	38	M18 × 1.5	94 (102)	14	23	156 (164)	50	9	11	110 (118)	80	100	120	12

Code / Bore Size (mm)	With Bellows										
	L										
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Head Side Flange Type (FB)



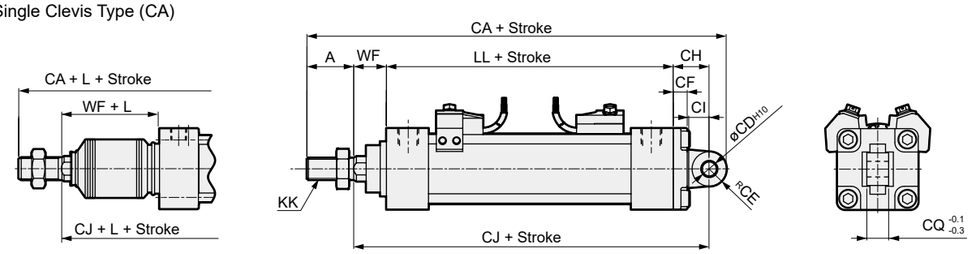
[With Bellows]

Code / Bore Size (mm)	Head Side Flange Type (FB) Mounting Dimensions											
	A	KK	LL *1	WF	FA *1	FC	FD	FH	FJ *1	FL	FM	FT
ø32	22	M10 × 1.25	84 (90)	25	141 (147)	40	9	57	119 (125)	64	79	10
ø40	30	M14 × 1.5	84 (90)	21	145 (151)	40	9	57	115 (121)	72	90	10
ø50	35	M18 × 1.5	94 (102)	23	164 (172)	47	9	65	129 (137)	90	110	12
ø63	35	M18 × 1.5	94 (102)	23	164 (172)	60	11	80	129 (137)	100	120	12

Code / Bore Size (mm)	With Bellows											
	b	d	L									
			50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	31.5	38	26	39	51	64	89	114	139	0.35 × Stroke - 37		
ø40	35	40	30	43	55	68	93	118	143	0.35 × Stroke - 32		
ø50	42	47	31	44	56	69	94	119	144	169	0.35 × Stroke - 41	
ø63	42	47	31	44	56	69	94	119	144	169	0.35 × Stroke - 41	

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

●Single Clevis Type (CA)



[With Bellows]

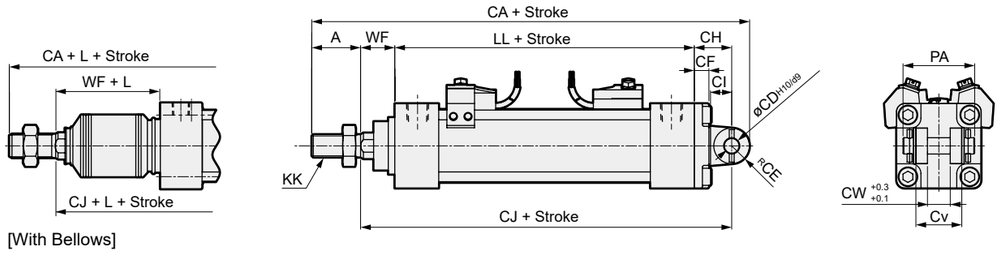
Code / Bore Size (mm)	Single Clevis Type (CA) Mounting Dimensions											
	A	KK	LL *1	WF	CA *1	CD	CE	CF	CH	CI	CJ *1	CQ
ø32	22	M10 × 1.25	84 (90)	25	164.5 (170.5)	10	10.5	9	23	13	132 (138)	14
ø40	30	M14 × 1.5	84 (90)	21	169 (175)	10	11	9	23	13	128 (134)	14
ø50	35	M18 × 1.5	94 (102)	23	197 (205)	14	15	12	30	17	147 (155)	20
ø63	35	M18 × 1.5	94 (102)	23	197 (205)	14	15	12	30	17	147 (155)	20

Code / Bore Size (mm)	With Bellows										
	L										
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Double Yoke Clevis Type (CB)



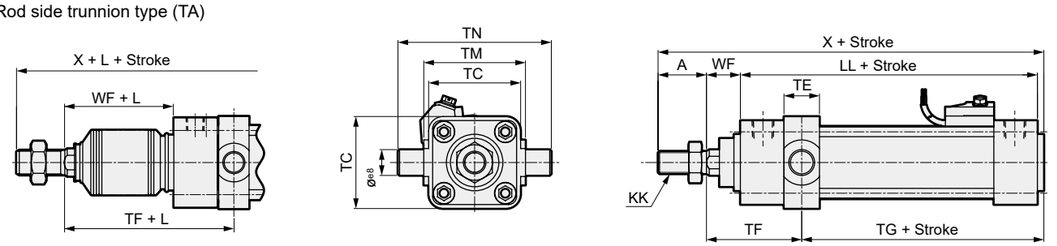
[With Bellows]

Code / Bore Size (mm)	Double clevis type (CB) Mounting dimensions													
	A	KK	LL *1	WF	CA *1	CD	CE	CF	CH	CI	CJ *1	Cv	CW	PA
ø32	22	M10 × 1.25	84 (90)	25	164.5 (170.5)	10	10.5	9	23	13	132 (138)	28	14	44
ø40	30	M14 × 1.5	84 (90)	21	169 (175)	10	11	9	23	13	128 (134)	28	14	44
ø50	35	M18 × 1.5	94 (102)	23	197 (205)	14	15	12	30	17	147 (155)	40	20	60
ø63	35	M18 × 1.5	94 (102)	23	197 (205)	14	15	12	30	17	147 (155)	40	20	60

Code / Bore Size (mm)	With Bellows											
	b	d	L									
			50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	31.5	38	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	35	40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	42	47	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	42	47	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

●Rod side trunnion type (TA)



[With Bellows]

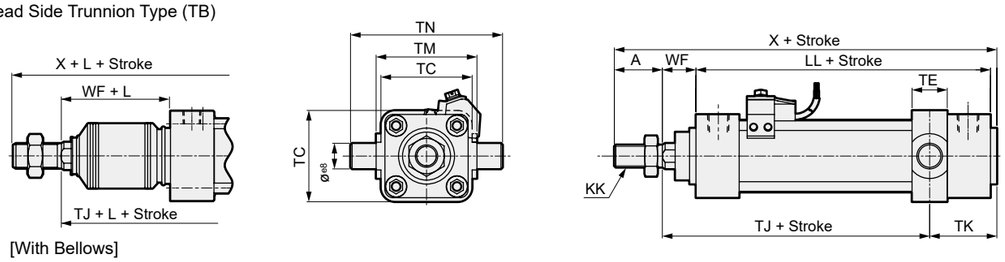
Code / Bore Size (mm)	Rod Side Trunnion Type (TA) Mounting Dimensions												
	A	KK	LL *1	WF	X *1	TC	TD	TE	TF	TG *1	TM	TN	
ø32	22	M10 × 1.25	84	(90)	25	135 (141)	47	12	17	61.5	51.5 (57.5)	50	74
ø40	30	M14 × 1.5	84	(90)	21	139 (145)	57	16	22	60	49 (55)	63	95
ø50	35	M18 × 1.5	94	(102)	23	156 (164)	67	16	22	66.5	54.5 (62.5)	75	107
ø63	35	M18 × 1.5	94	(102)	23	156 (164)	82	20	28	69.5	51.5 (59.5)	90	130

Code / Bore Size (mm)	With Bellows										
	L										
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Head Side Trunnion Type (TB)



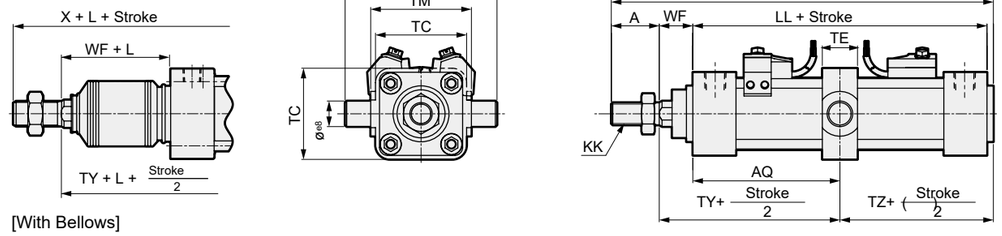
[With Bellows]

Code / Bore Size (mm)	Head Side Trunnion Type (TB) Mounting Dimensions											
	A	KK	LL *1	WF	X *1	TC	TD	TE	TJ *1	TK	TM	TN
ø32	22	M10 × 1.25	84 (90)	25	135 (141)	47	12	17	72.5 (78.5)	40.5	50	74
ø40	30	M14 × 1.5	84 (90)	21	139 (145)	57	16	22	66 (72)	43	63	95
ø50	35	M18 × 1.5	94 (102)	23	156 (164)	67	16	22	73.5 (81.5)	47.5	75	107
ø63	35	M18 × 1.5	94 (102)	23	156 (164)	82	20	28	70.5 (78.5)	50.5	90	130

Code / Bore Size (mm)	With Bellows L									
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

●Intermediate trunnion type (TC)



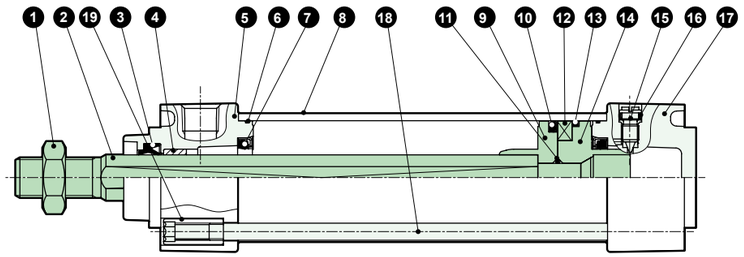
[With Bellows]

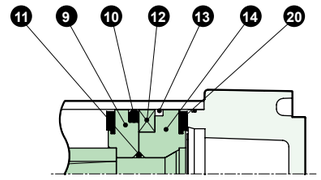
Code / Bore Size (mm)	Intermediate Trunnion Type (TC) Mounting Dimensions												
	A	KK	LL *1	WF	X *1	AQ *1	TC	TD	TE	TY *1	TZ *1	TM	TN
ø32	22	M10 × 1.25	84 (90)	25	135 (141)	42 (45) + Stroke/2	47	12	17	67 (70)	46 (49)	50	74
ø40	30	M14 × 1.5	84 (90)	21	139 (145)	42 (45) + Stroke/2	57	16	22	63 (66)	46 (49)	63	95
ø50	35	M18 × 1.5	94 (102)	23	156 (164)	47 (51) + Stroke/2	67	16	22	70 (74)	51 (55)	75	107
ø63	35	M18 × 1.5	94 (102)	23	156 (164)	47 (51) + Stroke/2	82	20	28	70 (74)	51 (55)	90	130

Code / Bore Size (mm)	With Bellows L									
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 to 600	Over 600 to 700	Over 700 to 800	When Exceeding 800
ø32	26	39	51	64	89	114	139	0.35 × Stroke - 37			
ø40	30	43	55	68	93	118	143	0.35 × Stroke - 32			
ø50	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		
ø63	31	44	56	69	94	119	144	169	0.35 × Stroke - 41		

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Internal Structure Diagram/Material





With Rubber Cushion

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating	11	Piston Gasket	Nitrile Rubber	
2	Piston Rod	ø32: Stainless copper		12	Magnet	Plastic	
		ø40 to 63: Steel	Industrial Hard Chrome Plating	13	Wear Ring	Polyacetal	
3	Rod Packing	Nitrile Rubber		14	Piston H	Aluminum Alloy	
4	Bushing	Oil-Impregnated Bearing Alloy		15	Cushion Needle	Copper Alloy	Nickel Plating
5	Rod Cover	Aluminum Alloy	Painting	16	Needle Gasket	Nitrile Rubber	
6	Cylinder Gasket	Nitrile Rubber		17	Head Cover	Aluminum Alloy	Painting
7	Cushion Packing	Nitrile Rubber, Steel	Only with air cushion	18	Tie Rod	Steel	Zinc Chromate
8	Cylinder Tube	Aluminum Alloy	Hard Anodized	19	Round Nut	Steel	Zinc Chromate
9	Piston R	Aluminum Alloy		20	Cushion Rubber	Urethane Rubber	Only with rubber cushion
10	Piston Packing	Nitrile Rubber					

Mounting Bracket Material

Mounting type	Material	Remarks
Foot (LB)	Steel	Nickel Plating
Flange (FA / FB)	Steel	Painting
Single clevis (CA), Double clevis (CB)	Cast Iron	Painting
Trunnion (TA, TB, TC)	Cast Iron	Painting

Note: Mounting brackets are included with the product upon shipment.
However, for trunnion types (TA, TB, TC) and bellows-equipped models with LB or FA mounting type, they will be shipped assembled.

For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts



Tie-rod cylinder Double-acting, Heavy-duty scraper type

SCG-G Series

●Bore size: ø32, ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

SCG-G – LB – 40 – B – 100 – M I

Model No. ❶ ❷ ❸ ❹ ❺ ❽ ❾

With Switch
(Built-in magnet for switch)

SCG-G – LB – 40 – B – 100 – T2H – R – M I

Model No. ❶ Mounting type ❷ Bore Size ❸ Piping thread type ❹ Cushion ❺ Stroke ❻ Switch Model No. ❼ Number of Switches ❽ Option ❾ Accessories

❶Mounting type

Mounting brackets are included with the product and shipped. (However, trunnion types are shipped assembled.)

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and Split Pin Attached)	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TC	Intermediate Trunnion Type	

❷Bore Size (mm)

Code	Content
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

❹Cushion

Code	Content
B	Both Sides Air Cushion
D	Both Sides Rubber Cushion

Note: The rubber cushion type is longer overall than the air cushion type.

❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø32	1 to 600	Every 1 mm
ø40		
ø50		
ø63		
ø80	1 to 700	
ø100	1 to 800	

Note: For minimum stroke with switch, please refer to P. 578 and 579.

❻Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*5

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+) 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH 3
5 m TOH 5

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

❼Number of Switches

	Code	Content
*1	R	With 1 on Rod Side
*1	H	With 1 on Head Side
	D	With 2 pcs
	T	With 3 pcs

*1: If mounting type TA or TB is selected, the number of switches is limited to "H" (1 on head side) for TA, and "R" (1 on rod side) for TB.

❽Option

Code	Content
M	Piston Rod Material (Stainless Steel)

❾Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Split Pin Attached)	
	B1	Single Bracket	
	B2	Double Yoke Bracket (Pin and Split Pin Attached)	
	B3	Single Bracket	
	B4	Trunnion Type 2nd Bracket (2 pcs/set)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, refer to P. 610 to 613.

Code	Content
-XK□	Mounting Bracket Rotational Assembly
-XAQ□□	Trunnion Position Specification
-XP7	Knuckle fixed by pin driving
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
SCG-G –..... – XP7

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

● Uses food-grade lubricant usable in food manufacturing processes

SCG-G –..... – FP1

*For combinations of variations and options, see P. 489.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

SCG – T0H – 40

❻ Switch Model No. ❷ Bore Size

●Switch body only

SW – T0H

❻ Switch Model No.

●Switch mounting bracket set

SCG – T – 40

Mounting bracket ❷ Bore Size

Note: Please consult us separately if using environmentally compatible T-type switches.

Specifications

Item		SCG-G					
Bore Size mm		ø32	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type					
Operating Fluid		Compressed Air					
Max. Working Pressure MPa		1.0					
Min. Operating Pressure MPa		0.1					
Proof Pressure MPa		1.6					
Ambient Temperature °C		-10 to 60 (No freezing)					
Port Size		Rc1/8	Rc1/4		Rc3/8		Rc1/2
Stroke tolerance mm	With Rubber Cushion	$^{+1.4}_{0}$ (Up to 1000), $^{+1.8}_{0}$ (1001 to 1500)					
	With Air Cushion	$^{+1.0}_{0}$ (Up to 360), $^{+1.4}_{0}$ (361 to 1000), $^{+1.8}_{0}$ (1001 to 1500)					
Operating Piston Speed mm/s		50 to 1000 (Please use within the allowable absorbed energy.)					
Cushion		Air cushion/rubber cushion can be selected					
Effective air cushion length mm		8.6	8.6	13.4	13.4	15.4	15.4
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)					
Allowable Absorbed Energy J	With Rubber Cushion	0.5	0.9	1.6	1.6	3.3	5.8
	With Air Cushion	2.5	3.7	8.0	14.4	25.4	45.6

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Manufacturable Stroke (mm)	Min. Stroke (mm)
ø32	25, 50, 75, 100, 150, 200, 250 300, 350, 400, 450, 500	600	700	1
ø40			800	
ø50			1200	
ø63			1200	
ø80		700	1400	
ø100		800	1500	

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: If the maximum stroke is exceeded, product specifications may not be met depending on the conditions, so please consult us.

Min. Stroke with Switch

●T0/T5 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	20 (18)	20 (10)	70 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø40	20 (19)	20 (10)	55 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø50	21 (19)	21 (10)	21 (19)	102 (72)	102 (72)	49 (34)	51 (36)
ø63	21 (20)	21 (11)	21 (20)	107 (77)	107 (77)	54 (39)	56 (41)
ø80	21 (21)	20 (11)	21 (21)	117 (87)	117 (87)	53 (38)	60 (45)
ø100	21 (21)	19 (11)	21 (21)	126 (96)	126 (96)	64 (49)	69 (54)

Note: Note: ( ) indicates T□V (lead wire L-type).

●T8 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	19 (18)	19 (10)	67 (31)	97 (61)	97 (61)	49 (31)	49 (31)
ø40	19 (19)	19 (10)	52 (31)	97 (61)	97 (61)	49 (31)	49 (31)
ø50	19 (19)	18 (10)	19 (19)	97 (61)	97 (61)	48 (30)	48 (30)
ø63	20 (20)	18 (11)	20 (20)	102 (66)	102 (66)	53 (35)	53 (35)
ø80	21 (21)	17 (11)	21 (21)	112 (76)	112 (76)	51 (33)	57 (39)
ø100	21 (21)	17 (11)	21 (21)	121 (85)	121 (85)	61 (43)	67 (49)

Note: Note: ( ) indicates T□V (lead wire L-type).

Min. Stroke with Switch

●T2/T3 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	20 (11)	20 (6)	70 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø40	20 (11)	20 (6)	55 (40)	100 (70)	100 (70)	50 (35)	50 (35)
ø50	21 (11)	21 (6)	21 (11)	102 (72)	102 (72)	49 (34)	51 (36)
ø63	21 (12)	21 (7)	21 (12)	107 (77)	107 (77)	54 (39)	56 (41)
ø80	20 (12)	20 (7)	20 (12)	117 (87)	117 (87)	53 (38)	60 (45)
ø100	19 (12)	19 (7)	19 (12)	126 (96)	126 (96)	64 (49)	69 (54)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T1 type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	19 (11)	19 (6)	68 (38)	98 (68)	98 (68)	49 (34)	49 (34)
ø40	19 (11)	19 (6)	53 (38)	98 (68)	98 (68)	49 (34)	49 (34)
ø50	20 (11)	20 (6)	20 (11)	100 (70)	100 (70)	48 (33)	50 (35)
ø63	20 (12)	20 (7)	20 (12)	105 (75)	105 (75)	53 (38)	55 (40)
ø80	19 (12)	19 (7)	19 (12)	115 (85)	115 (85)	52 (37)	59 (44)
ø100	18 (12)	18 (7)	18 (12)	124 (94)	124 (94)	63 (48)	68 (53)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T2W/T3W type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	23 (12)	23 (8)	75 (45)	105 (75)	105 (75)	53 (38)	53 (38)
ø40	23 (12)	23 (8)	60 (45)	105 (75)	105 (75)	53 (38)	53 (38)
ø50	23 (13)	23 (8)	23 (13)	107 (77)	107 (77)	51 (36)	53 (38)
ø63	23 (13)	23 (8)	23 (13)	112 (82)	112 (82)	56 (41)	58 (43)
ø80	22 (14)	22 (8)	22 (14)	122 (92)	122 (92)	55 (40)	62 (47)
ø100	22 (14)	22 (8)	22 (14)	131 (101)	131 (101)	66 (51)	72 (57)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T2YD type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	23	23	75	105	105	53	53
ø40	23	23	60	105	105	53	53
ø50	23	23	23	107	107	51	53
ø63	23	23	23	112	112	56	58
ø80	22	22	22	122	122	55	62
ø100	22	22	22	131	131	66	72

Note: Note: ( ) indicates T□V (lead wire L-type).

●T2WL type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	24 (12)	24 (8)	77 (45)	107 (75)	107 (75)	54 (38)	54 (38)
ø40	24 (12)	24 (8)	62 (45)	107 (75)	107 (75)	54 (38)	54 (38)
ø50	24 (13)	24 (8)	24 (13)	109 (77)	109 (77)	52 (36)	54 (38)
ø63	24 (13)	24 (8)	24 (13)	114 (82)	114 (82)	57 (41)	59 (43)
ø80	23 (14)	23 (8)	23 (14)	124 (92)	124 (92)	56 (40)	63 (47)
ø100	23 (14)	23 (8)	23 (14)	133 (101)	133 (101)	67 (51)	73 (57)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Weight Table

(Unit: kg)

Bore Size (mm)	Product Weight at Stroke = 0 mm						Stroke: Added weight per 50 mm	Switch Weight (Per Piece)	Switch Mounting Bracket Weight	Accessory Weight	
	Basic type (00)	Foot Type (LB)	Flange type (FA, FB)	Single Clevis Type (CA)	Double clevis type (CB)	Trunnion Type (TA, TB, TC)				I	Y
ø32	0.51	0.62	0.73	0.66	0.69	0.68	0.12	Refer to the mass described in the switch specifications on P. 971	0.024	0.07	0.10
ø40	0.68	0.82	0.96	0.86	0.86	1.02	0.17		0.024	0.07	0.13
ø50	1.16	1.32	1.64	1.56	1.57	1.64	0.23		0.022	0.20	0.30
ø63	1.42	1.76	2.18	1.97	1.99	2.29	0.25		0.022	0.20	0.30
ø80	2.69	3.12	4.26	3.96	3.96	4.18	0.40		0.026	0.52	0.94
ø100	3.80	4.66	6.12	5.52	5.55	6.37	0.51		0.024	0.48	0.92

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø32	Push	80.4	1.21 × 10²	1.61 × 10²	2.41 × 10²	3.22 × 10²	4.02 × 10²	4.83 × 10²	5.63 × 10²	6.43 × 10²	7.24 × 10²	8.04 × 10²
	Pull	69.1	1.04 × 10²	1.38 × 10²	2.07 × 10²	2.76 × 10²	3.46 × 10²	4.15 × 10²	4.84 × 10²	5.53 × 10²	6.22 × 10²	6.91 × 10²
ø40	Push	1.26 × 10²	1.88 × 10²	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²	1.01 × 10³	1.13 × 10³	1.26 × 10³
	Pull	1.06 × 10²	1.58 × 10²	2.11 × 10²	3.17 × 10²	4.22 × 10²	5.28 × 10²	6.33 × 10²	7.39 × 10²	8.44 × 10²	9.50 × 10²	1.06 × 10³
ø50	Push	1.96 × 10²	2.95 × 10²	3.93 × 10²	5.89 × 10²	7.85 × 10²	9.82 × 10²	1.18 × 10³	1.37 × 10³	1.57 × 10³	1.77 × 10³	1.96 × 10³
	Pull	1.65 × 10²	2.47 × 10²	3.30 × 10²	4.95 × 10²	6.60 × 10²	8.25 × 10²	9.90 × 10²	1.15 × 10³	1.32 × 10³	1.48 × 10³	1.65 × 10³
ø63	Push	3.12 × 10²	4.68 × 10²	6.23 × 10²	9.35 × 10²	1.25 × 10³	1.56 × 10³	1.87 × 10³	2.18 × 10³	2.49 × 10³	2.81 × 10³	3.12 × 10³
	Pull	2.80 × 10²	4.20 × 10²	5.61 × 10²	8.41 × 10²	1.12 × 10³	1.40 × 10³	1.68 × 10³	1.96 × 10³	2.24 × 10³	2.52 × 10³	2.80 × 10³
ø80	Push	5.03 × 10²	7.54 × 10²	1.01 × 10³	1.51 × 10³	2.01 × 10³	2.51 × 10³	3.02 × 10³	3.52 × 10³	4.02 × 10³	4.52 × 10³	5.03 × 10³
	Pull	4.54 × 10²	6.80 × 10²	9.07 × 10²	1.36 × 10³	1.81 × 10³	2.27 × 10³	2.72 × 10³	3.17 × 10³	3.63 × 10³	4.08 × 10³	4.54 × 10³
ø100	Push	7.85 × 10²	1.18 × 10³	1.57 × 10³	2.36 × 10³	3.14 × 10³	3.93 × 10³	4.71 × 10³	5.50 × 10³	6.28 × 10³	7.07 × 10³	7.85 × 10³
	Pull	7.15 × 10²	1.07 × 10³	1.43 × 10³	2.14 × 10³	2.86 × 10³	3.57 × 10³	4.29 × 10³	5.00 × 10³	5.72 × 10³	6.43 × 10³	7.15 × 10³

Mounting Bracket Model No. Notation Method

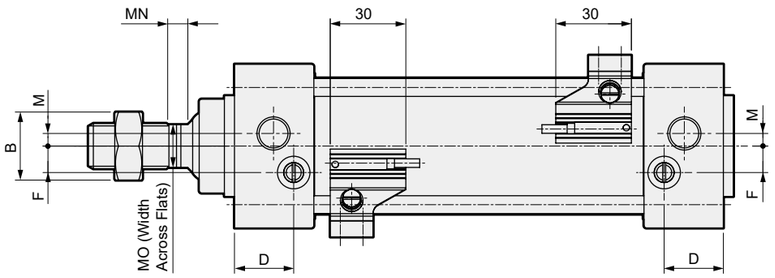
Bore Size (mm) / Mounting bracket	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCG-LB-32	SCG-LB-40	SCG-LB-50	SCG-LB-63	SCG-LB-80	SCG-LB-100
Flange (FA) (FB)	SCG-FA-32	SCG-FA-40	SCG-FA-50	SCG-FA-63	SCG-FA-80	SCG-FA-100
Single Clevis (CA)	SCG-CA-32	SCG-CA-40	SCG-CA-50	SCG-CA-63	SCG-CA-80	SCG-CA-100
Double Clevis (CB)	SCG-CB-32	SCG-CB-40	SCG-CB-50	SCG-CB-63	SCG-CB-80	SCG-CB-100

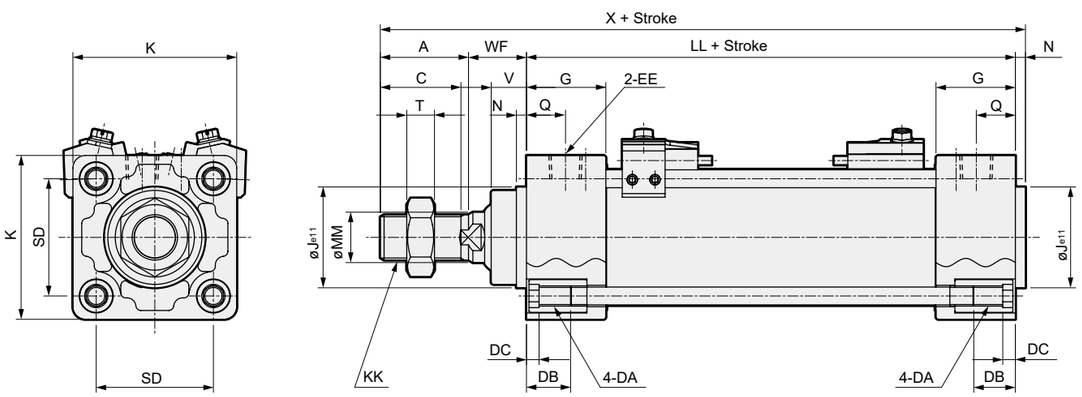
*1: Foot type mounting bracket (LB) comes in a set of 2.
*2: Mounting bolts are included to each mounting bracket.

MEMO

Outline Dimension Drawing

● Basic Type (00)





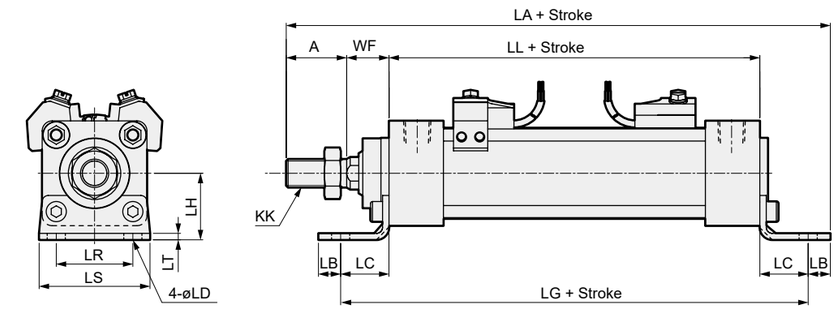
Code / Bore Size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK
ø32	22	17	20	19	M6	16	5	Rc1/8	6.5	27	30	46	M10 × 1.25
ø40	30	22	27	19	M6	16	5	Rc1/4	9	27	35	52	M14 × 1.5
ø50	35	27	32	23.5	M8	16	5	Rc1/4	10.5	31.5	40	65	M18 × 1.5
ø63	35	27	32	21.5	M8	16	5	Rc3/8	12	31.5	45	75	M18 × 1.5
ø80	40	32	37	28	M10	16	5	Rc3/8	14	38	45	95	M22 × 1.5
ø100	40	41	37	28	M10	16	5	Rc1/2	15	38	55	114	M26 × 1.5

Code / Bore Size (mm)	LL *1	M	MM	MN	MO	N	Q	SD	T	V	WF	X *1
ø32	84 (90)	4	12	5.5	10	4	13	32.5	6	13	25	135 (141)
ø40	84 (90)	4	16	4.5	14	4	14	38	8	13	21	139 (145)
ø50	94 (102)	5	20	8	17	4	15.5	46.5	11	14	23	156 (164)
ø63	94 (102)	9	20	8	17	4	16.5	56.5	11	14	23	156 (164)
ø80	114 (124)	11.5	25	7.5	22	4	19	72	13	20	32	190 (200)
ø100	114 (124)	17	30	7	27	4	19	89	16	20	32	190 (200)

*1: Dimensions in ( ) indicate rubber cushion type.
***2: For dimensions with each switch, refer to P. 608, 609.**
***3: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

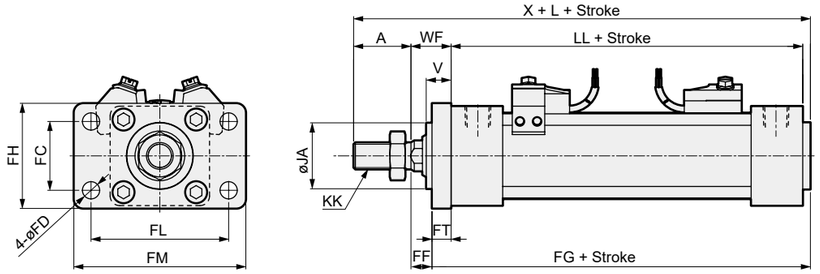
● Axial foot type (LB)



Code / Bore Size (mm)	A	KK	LL *1	WF	LA *1	LB	LC	LD	LG *1	LH	LR	LS	LT
ø32	22	M10 × 1.25	84 (90)	25	162 (168)	9	22	7	128 (134)	30	32	50	3.2
ø40	30	M14 × 1.5	84 (90)	21	170 (176)	11	24	9	132 (138)	33	38	55	3.2
ø50	35	M18 × 1.5	94 (102)	23	190 (198)	11	27	9	148 (156)	40	46	70	3.2
ø63	35	M18 × 1.5	94 (102)	23	193 (201)	14	27	12	148 (156)	45	56	80	4.5
ø80	40	M22 × 1.5	114 (124)	32	230 (240)	14	30	12	174 (184)	55	72	95	4.5
ø100	40	M26 × 1.5	114 (124)	32	234 (244)	16	32	14	178 (188)	65	89	114	6

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

● Rod Side Flange Type (FA)

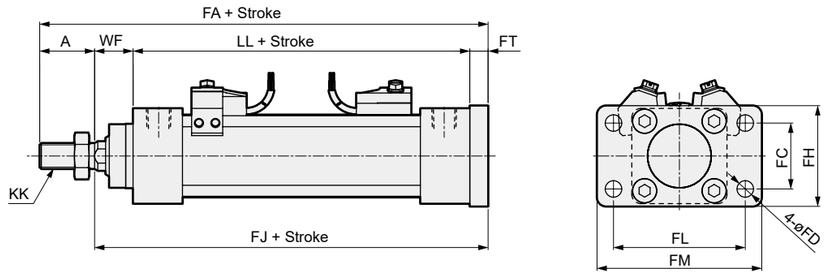


Code / Bore Size (mm)	A	JA	KK	LL *1	V	WF	X *1	FC	FD	FF	FG *1	FH	FL	FM	FT
ø32	22	29	M10 × 1.25	84 (90)	13	25	135 (141)	32	7	15	98 (104)	50	64	79	10
ø40	30	30	M14 × 1.5	84 (90)	13	21	139 (145)	36	9	11	98 (104)	55	72	90	10
ø50	35	38	M18 × 1.5	94 (102)	14	23	156 (164)	45	9	11	110 (118)	70	90	110	12
ø63	35	38	M18 × 1.5	94 (102)	14	23	156 (164)	50	9	11	110 (118)	80	100	120	12
ø80	40	43	M22 × 1.5	114 (124)	20	32	190 (200)	63	12	16	134 (144)	100	126	153	16
ø100	40	51	M26 × 1.5	114 (124)	20	32	190 (200)	75	14	16	134 (144)	120	150	178	16

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

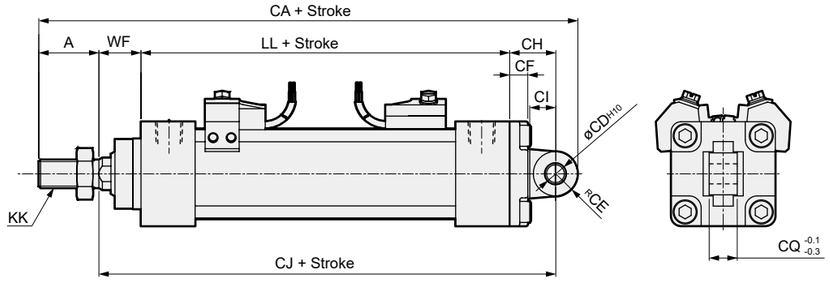
● Head Side Flange Type (FB)



Code / Bore Size (mm)	Head Side Flange Type (FB) Mounting Dimensions											
	A	KK	LL *1	WF	FA *1	FC	FD	FH	FJ *1	FL	FM	FT
ø32	22	M10 × 1.25	84 (90)	25	141 (147)	40	9	57	119 (125)	64	79	10
ø40	30	M14 × 1.5	84 (90)	21	145 (151)	40	9	57	115 (121)	72	90	10
ø50	35	M18 × 1.5	94 (102)	23	164 (172)	47	9	65	129 (137)	90	110	12
ø63	35	M18 × 1.5	94 (102)	23	164 (172)	60	11	80	129 (137)	100	120	12
ø80	40	M22 × 1.5	114 (124)	32	202 (212)	74	14	98	162 (172)	126	153	16
ø100	40	M26 × 1.5	114 (124)	32	202 (212)	88	14	118	162 (172)	150	178	16

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

● Single Yoke Clevis Type (CA)

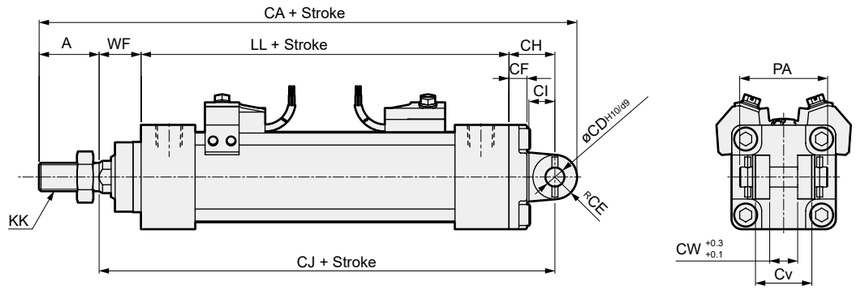


Code / Bore Size (mm)	Single Clevis Type (CA) Mounting Dimensions											
	A	KK	LL *1	WF	CA *1	CD	CE	CF	CH	CI	CJ *1	CQ
ø32	22	M10 × 1.25	84 (90)	25	164.5 (170.5)	10	10.5	9	23	13	132 (138)	14
ø40	30	M14 × 1.5	84 (90)	21	169 (175)	10	11	9	23	13	128 (134)	14
ø50	35	M18 × 1.5	94 (102)	23	197 (205)	14	15	12	30	17	147 (155)	20
ø63	35	M18 × 1.5	94 (102)	23	197 (205)	14	15	12	30	17	147 (155)	20
ø80	40	M22 × 1.5	114 (124)	32	251 (261)	22	23	15	42	26	188 (198)	30
ø100	40	M26 × 1.5	114 (124)	32	251 (261)	22	23	15	42	26	188 (198)	30

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

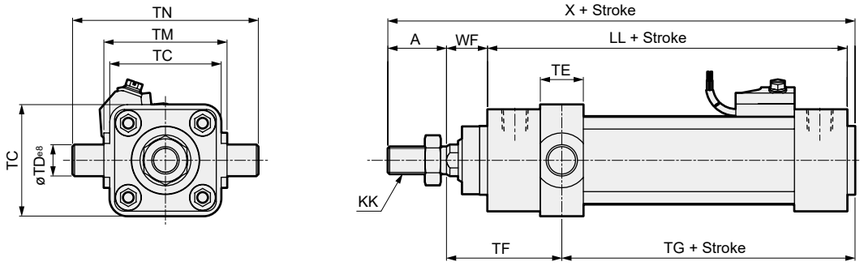
● Double Yoke Clevis Type (CB)



Code / Bore Size (mm)	Double Clevis Type (CB) Mounting Dimensions													
	A	KK	LL *1	WF	CA *1	CD	CE	CF	CH	CI	CJ *1	Cv	CW	PA
ø32	22	M10 × 1.25	84 (90)	25	164.5 (170.5)	10	10.5	9	23	13	132 (138)	28	14	44
ø40	30	M14 × 1.5	84 (90)	21	169 (175)	10	11	9	23	13	128 (134)	28	14	44
ø50	35	M18 × 1.5	94 (102)	23	197 (205)	14	15	12	30	17	147 (155)	40	20	60
ø63	35	M18 × 1.5	94 (102)	23	197 (205)	14	15	12	30	17	147 (155)	40	20	60
ø80	40	M22 × 1.5	114 (124)	32	251 (261)	22	23	15	42	26	188 (198)	60	30	82
ø100	40	M26 × 1.5	114 (124)	32	251 (261)	22	23	15	42	26	188 (198)	60	30	82

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

● Rod Side Trunnion Type (TA)

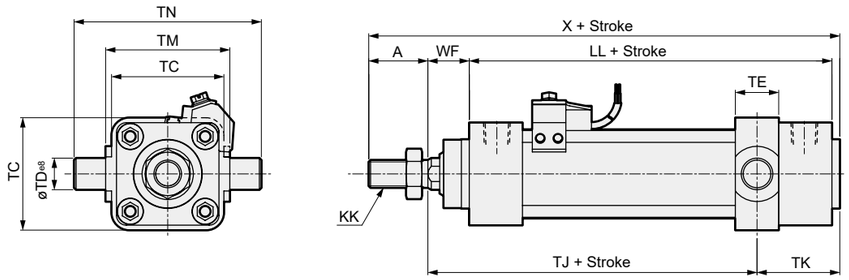


Code / Bore Size (mm)	Rod Side Trunnion Type (TA) Mounting Dimensions											
	A	KK	LL *1	WF	X *1	TC	TD	TE	TF	TG *1	TM	TN
ø32	22	M10 × 1.25	84 (90)	25	135 (141)	47	12	17	61.5	51.5 (57.5)	50	74
ø40	30	M14 × 1.5	84 (90)	21	139 (145)	57	16	22	60	49 (55)	63	95
ø50	35	M18 × 1.5	94 (102)	23	156 (164)	67	16	22	66.5	54.5 (62.5)	75	107
ø63	35	M18 × 1.5	94 (102)	23	156 (164)	82	20	28	69.5	51.5 (59.5)	90	130
ø80	40	M22 × 1.5	114 (124)	32	190 (200)	100	20	34	88	62 (72)	110	150
ø100	40	M26 × 1.5	114 (124)	32	190 (200)	121	25	40	91	59 (69)	132	182

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

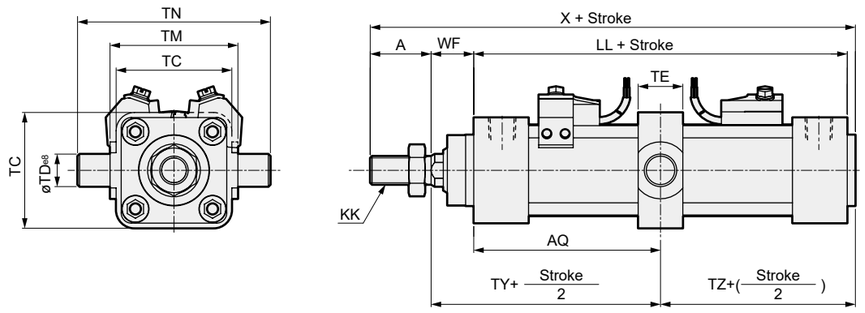
● Head Side Trunnion Type (TB)



Code	Head Side Trunnion Type (TB) Mounting Dimensions											
Bore Size (mm)	A	KK	LL *1	WF	X *1	TC	TD	TE	TJ *1	TK	TM	TN
ø32	22	M10 × 1.25	84 (90)	25	135 (141)	47	12	17	72.5 (78.5)	40.5	50	74
ø40	30	M14 × 1.5	84 (90)	21	139 (145)	57	16	22	66 (72)	43	63	95
ø50	35	M18 × 1.5	94 (102)	23	156 (164)	67	16	22	73.5 (81.5)	47.5	75	107
ø63	35	M18 × 1.5	94 (102)	23	156 (164)	82	20	28	70.5 (78.5)	50.5	90	130
ø80	40	M22 × 1.5	114 (124)	32	190 (200)	100	20	34	90 (100)	60	110	150
ø100	40	M26 × 1.5	114 (124)	32	190 (200)	121	25	40	87 (97)	63	132	182

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

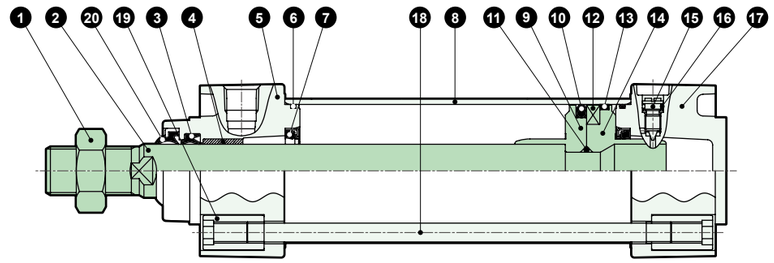
● Intermediate Trunnion Type (TC)

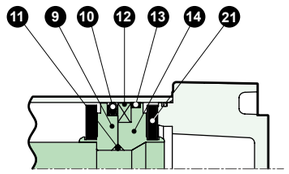


Code	Intermediate Trunnion Type (TC) Mounting Dimensions												
Bore Size (mm)	A	KK	LL *1	WF	X *1	AQ *1	TC	TD	TE	TY *1	TZ *1	TM	TN
ø32	22	M10 × 1.25	84 (90)	25	135 (141)	42 (45) + Stroke/2	47	12	17	67 (70)	46 (49)	50	74
ø40	30	M14 × 1.5	84 (90)	21	139 (145)	42 (45) + Stroke/2	57	16	22	63 (66)	46 (49)	63	95
ø50	35	M18 × 1.5	94 (102)	23	156 (164)	47 (51) + Stroke/2	67	16	22	70 (74)	51 (55)	75	107
ø63	35	M18 × 1.5	94 (102)	23	156 (164)	47 (51) + Stroke/2	82	20	28	70 (74)	51 (55)	90	130
ø80	40	M22 × 1.5	114 (124)	32	190 (200)	57 (62) + Stroke/2	100	20	34	89 (94)	61 (66)	110	150
ø100	40	M26 × 1.5	114 (124)	32	190 (200)	57 (62) + Stroke/2	121	25	40	89 (94)	61 (66)	132	182

*1: Dimensions in ( ) indicate rubber cushion type.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, refer to P. 608, 609.**
***4: For outer dimensions diagram of accessories, refer to P. 511.**

Internal Structure Diagram/Material





With Rubber Cushion

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating	12	Magnet	Plastic	
2	Piston Rod	Steel	Industrial Hard Chrome Plating	13	Wear Ring	Polyacetal	
3	Rod Packing	Nitrile Rubber		14	Piston H	Aluminum Alloy	
4	Bushing	Oil-Impregnated Bearing Alloy		15	Cushion Needle	Copper Alloy	Nickel Plating
5	Rod Cover	Aluminum Alloy	Painting	16	Needle Gasket	Nitrile Rubber	
6	Cylinder Gasket	Nitrile Rubber		17	Head Cover	Aluminum Alloy	Painting
7	Cushion Packing	Nitrile Rubber, Steel	Only with air cushion	18	Tie Rod	Steel	Zinc Chromate
8	Cylinder Tube	Aluminum Alloy	Hard Anodized	19	Round Nut	Steel	Zinc Chromate
9	Piston R	Aluminum Alloy		20	Scraper	Nitrile Rubber, Steel	
10	Piston Packing	Nitrile Rubber		21	Cushion Rubber	Urethane Rubber	Only with rubber cushion
11	Piston Gasket	Nitrile Rubber					

Mounting Bracket Material

Mounting type	Material	Remarks
Foot (LB)	Steel	Nickel Plating
Flange (FA / FB)	Steel	Painting
Single clevis (CA), Double clevis (CB)	Cast Iron	Painting
Trunnion (TA, TB, TC)	Cast Iron	Painting

Note: Mounting brackets are attached to the product and shipped.
However, in the case of trunnion types (TA, TB, TC), they will be shipped assembled.

For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts



Tie-rod cylinder Double-acting, Cutting oil resistant type

SCG-G2/G3 Series

● Bore size: ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

SCG-G2 - LB - 40 [ ] B - 100 ——— Y
① ② ③ ④ ⑤ ⑧

With Switch
(Built-in magnet for switch)

SCG-G2 - LB - 40 [ ] B - 100 - T2H - R - Y
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Model No.
② Mounting type
③ Bore Size
④ Piping thread type
B Both sides air cushion *1
⑤ Stroke
⑥ Switch Model No.
⑦ Number of Switches
⑧ Accessories

*1: Please consult us regarding the manufacture of models with rubber cushion.

① Model No.

Code	Content
SCG-G2	Cutting Oil Resistant Scraper + NBR Packing
SCG-G3	Cutting Oil Resistant Scraper + FKM Packing

② Mounting type

Mounting brackets are included with the product and shipped. (However, trunnion types are shipped assembled.)

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and Split Pin Attached)	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TC	Intermediate Trunnion Type	

③ Bore Size (mm)

Code	Content
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

Note: Please consult us regarding the manufacture of Bore size ø32.

④ Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

⑤ Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø40	1 to 600	Every 1 mm
ø50		
ø63		
ø80	1 to 700	
ø100	1 to 800	

Note: For minimum stroke with switch, refer to P. 590.

⑥ Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC voltage	Load Current (mA) DC voltage	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	For 2-Color Cutting Oil	2-wire	—	10 to 30	—	5 to 20 *2	T2YLH□	T2YLV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3YLH□	T3YLV□	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

***Lead wire length, connector specification**

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
*5 W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m T2YLH
3 m T2YLH3
5 m T2YLH5

⑦ Number of Switches

Code	Content
*1 R	With 1 on Rod Side
*1 H	With 1 on Head Side
D	With 2 pcs
T	With 3 pcs

*1: If mounting type TA or TB is selected, the number of switches is limited to "H" (1 on head side) for TA, and "R" (1 on rod side) for TB.

⑧ Accessories

Code	Content	
*1 I	Single Knuckle	
*1 Y	Double Knuckle (Pin and Split Pin Attached)	
B1	Single Bracket	
B2	Double Yoke Bracket (Pin and Split Pin Attached)	
B3	Single Bracket	
B4	Trunnion Type 2nd Bracket (2 pcs/set)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, refer to P. 610 to 613.

Code	Content
-XK◇	Mounting Bracket Rotational Assembly
-XAQ◇◇	Trunnion Position Specification
-XP7	Knuckle fixed by pin driving
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
SCG-G2,G3-..... -XP7

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

● Uses food-grade lubricant usable in food manufacturing processes
SCG-G2/G3 -..... -FP1

*For combinations of variations and options, see P. 489.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set
SCG - T2YLH - 40
⑦ Switch Model No. ③ Bore Size

●Switch body only
SW - T2YLH
⑦ Switch Model No.

●Switch mounting bracket set
SCG-G2 - T - 40
Mounting bracket ③ Bore Size

Note: Please consult us separately if using environmentally compatible T-type switches.

Specifications

Item		SCG-G2 G3				
Bore Size	mm	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting, Coolant Proof Type				
Operating Fluid		Compressed Air				
Max. Working Pressure	MPa	1.0				
Min. Operating Pressure	MPa	0.1				
Proof Pressure	MPa	1.6				
Ambient Temperature	°C	-10 to 60 (No freezing)				
Port Size		Rc1/4		Rc3/8		Rc1/2
Stroke tolerance	mm	$^{+1.0}_{0}$ (Up to 360) $^{+1.4}_{0}$ (361 to 1000), $^{+1.8}_{0}$(1001 to 1500)				
Operating Piston Speed	mm/s	50 to 1000 (Please use within the allowable absorbed energy.)				
Cushion		Air Cushion				
Effective air cushion length	mm	8.6	13.4	13.4	15.4	15.4
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)				
Allowable Absorbed Energy	J	3.7	8.0	14.4	25.4	45.6

*1: Please consult us regarding the manufacture of Bore size ø32.
*2: Please consult us regarding the manufacture of models with rubber cushion.

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Manufacturable Stroke (mm)	Min. Stroke (mm)
ø40	25, 50, 75, 100,150, 200, 250 300, 350, 400, 450, 500	600	800	1
ø50			1200	
ø63			1200	
ø80		700	1400	
ø100		800	1500	

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: If the maximum stroke is exceeded, product specifications may not be met depending on the conditions, so please consult us.

Min. Stroke with Switch

●Minimum stroke with T2YL/T3YL type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	26 (12)	26 (8)	82 (45)	112 (75)	112 (75)	56 (38)	56 (38)
ø40	26 (12)	26 (8)	67 (45)	112 (75)	112 (75)	56 (38)	56 (38)
ø50	27 (13)	27 (8)	27 (13)	114 (77)	114 (77)	55 (36)	57 (38)
ø63	27 (13)	27 (8)	27 (13)	119 (82)	119 (82)	60 (41)	62 (43)
ø80	26 (14)	26 (8)	26 (14)	129 (92)	129 (92)	59 (40)	66 (47)
ø100	25 (14)	25 (8)	25 (14)	138 (101)	138 (101)	69 (51)	75 (57)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T2WL type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	24 (12)	24 (8)	77 (45)	107 (75)	107 (75)	54 (38)	54 (38)
ø40	24 (12)	24 (8)	62 (45)	107 (75)	107 (75)	54 (38)	54 (38)
ø50	24 (13)	24 (8)	24 (13)	109 (77)	109 (77)	52 (36)	54 (38)
ø63	24 (13)	24 (8)	24 (13)	114 (82)	114 (82)	57 (41)	59 (43)
ø80	23 (14)	23 (8)	23 (14)	124 (92)	124 (92)	56 (40)	63 (47)
ø100	23 (14)	23 (8)	23 (14)	133 (101)	133 (101)	67 (51)	73 (57)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Weight Table

(Unit: kg)

Bore size (mm)	Product Weight at Stroke = 0 mm						Stroke: Added weight per 50 mm	Switch Weight (Per Piece)	Switch Mounting Bracket Weight	Accessory Weight	
	Basic type (00)	Foot Type (LB)	Flange Type (FA,FB)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion Type (TA, TB, TC)				I	Y
ø40	0.66	0.80	0.94	0.85	0.85	1.00	0.17	Please refer to the weight listed in the switch specifications on P. 971.	0.024	0.07	0.13
ø50	1.13	1.29	1.61	1.54	1.54	1.61	0.23		0.022	0.20	0.30
ø63	1.39	1.73	2.15	1.95	1.96	2.27	0.25		0.022	0.20	0.30
ø80	2.66	3.09	4.23	3.93	3.94	4.15	0.40		0.026	0.52	0.94
ø100	3.77	4.63	6.09	5.49	5.52	6.34	0.51		0.024	0.48	0.92

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	1.26 × 10²	1.88 × 10²	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²	1.01 × 10³	1.13 × 10³	1.26 × 10³
	Pull	1.06 × 10²	1.58 × 10²	2.11 × 10²	3.17 × 10²	4.22 × 10²	5.28 × 10²	6.33 × 10²	7.39 × 10²	8.44 × 10²	9.50 × 10²	1.06 × 10³
ø50	Push	1.96 × 10²	2.95 × 10²	3.93 × 10²	5.89 × 10²	7.85 × 10²	9.82 × 10²	1.18 × 10³	1.37 × 10³	1.57 × 10³	1.77 × 10³	1.96 × 10³
	Pull	1.65 × 10²	2.47 × 10²	3.30 × 10²	4.95 × 10²	6.60 × 10²	8.25 × 10²	9.90 × 10²	1.15 × 10³	1.32 × 10³	1.48 × 10³	1.65 × 10³
ø63	Push	3.12 × 10²	4.68 × 10²	6.23 × 10²	9.35 × 10²	1.25 × 10³	1.56 × 10³	1.87 × 10³	2.18 × 10³	2.49 × 10³	2.81 × 10³	3.12 × 10³
	Pull	2.80 × 10²	4.20 × 10²	5.61 × 10²	8.41 × 10²	1.12 × 10³	1.40 × 10³	1.68 × 10³	1.96 × 10³	2.24 × 10³	2.52 × 10³	2.80 × 10³
ø80	Push	5.03 × 10²	7.54 × 10²	1.01 × 10²	1.51 × 10³	2.01 × 10³	2.51 × 10³	3.02 × 10³	3.52 × 10³	4.02 × 10³	4.52 × 10³	5.03 × 10³
	Pull	4.54 × 10²	6.80 × 10²	9.07 × 10²	1.36 × 10³	1.81 × 10³	2.27 × 10³	2.72 × 10³	3.17 × 10³	3.63 × 10³	4.08 × 10³	4.54 × 10³
ø100	Push	7.85 × 10²	1.18 × 10³	1.57 × 10³	2.36 × 10³	3.14 × 10³	3.93 × 10³	4.71 × 10³	5.50 × 10³	6.28 × 10³	7.07 × 10³	7.85 × 10³
	Pull	7.15 × 10²	1.07 × 10³	1.43 × 10³	2.14 × 10³	2.86 × 10³	3.57 × 10³	4.29 × 10³	5.00 × 10³	5.72 × 10³	6.43 × 10³	7.15 × 10³

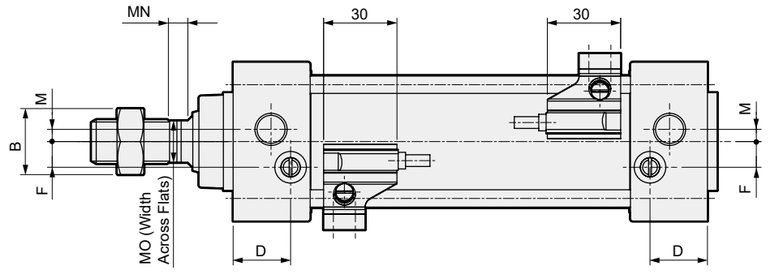
Mounting Bracket Model No. Notation Method

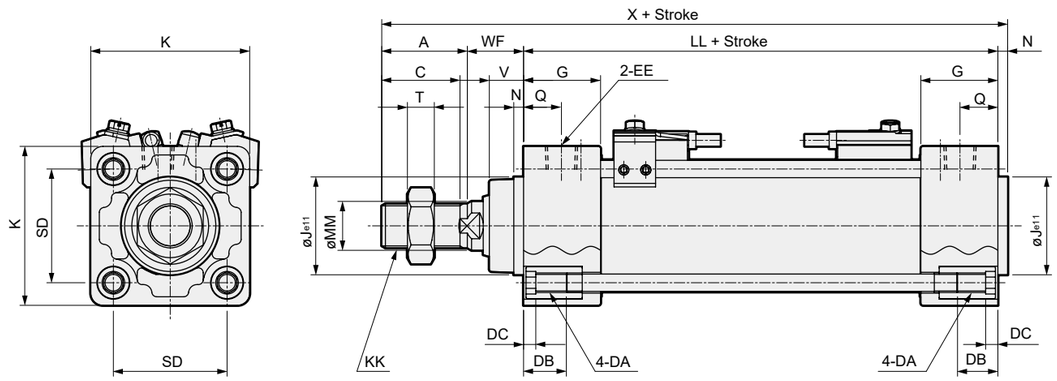
Bore Size (mm) / Mounting bracket	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCG-LB-40	SCG-LB-50	SCG-LB-63	SCG-LB-80	SCG-LB-100
Flange (FA) (FB)	SCG-FA-40	SCG-FA-50	SCG-FA-63	SCG-FA-80	SCG-FA-100
Single Clevis (CA)	SCG-CA-40	SCG-CA-50	SCG-CA-63	SCG-CA-80	SCG-CA-100
Double Clevis (CB)	SCG-CB-40	SCG-CB-50	SCG-CB-63	SCG-CB-80	SCG-CB-100

Note: Foot type mounting bracket (LB) comes in a set of 2.
*2: Mounting bolts are included to each mounting bracket.

Outline Dimension Drawing

● Basic type (00)





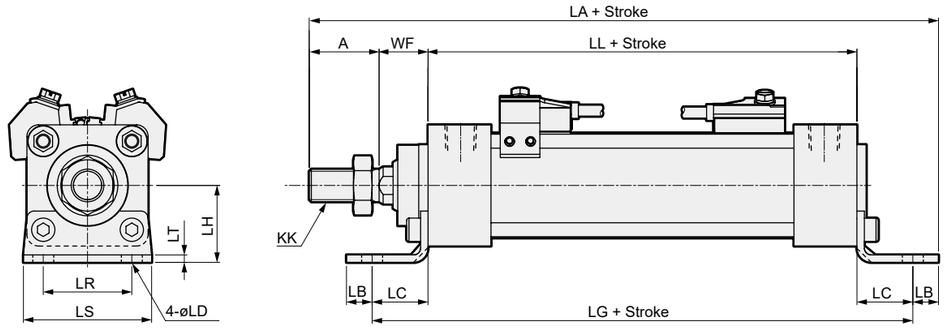
Code	Basic Type (00) Basic Dimensions												
Bore Size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK
ø40	30	22	27	19	M6	16	5	Rc1/4	9	27	35	52	M14 × 1.5
ø50	35	27	32	23.5	M8	16	5	Rc1/4	10.5	31.5	40	65	M18 × 1.5
ø63	35	27	32	21.5	M8	16	5	Rc3/8	12	31.5	45	75	M18 × 1.5
ø80	40	32	37	28	M10	16	5	Rc3/8	14	38	45	95	M22 × 1.5
ø100	40	41	37	28	M10	16	5	Rc1/2	15	38	55	114	M26 × 1.5

Code												
Bore Size (mm)	LL	M	MM	MN	MO	N	Q	SD	T	V	WF	X
ø40	84	4	16	4.5	14	4	14	38	8	13	21	139
ø50	94	5	20	8	17	4	15.5	46.5	11	14	23	156
ø63	94	9	20	8	17	4	16.5	56.5	11	14	23	156
ø80	114	11.5	25	7.5	22	4	19	72	13	20	32	190
ø100	114	17	30	7	27	4	19	89	16	20	32	190

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

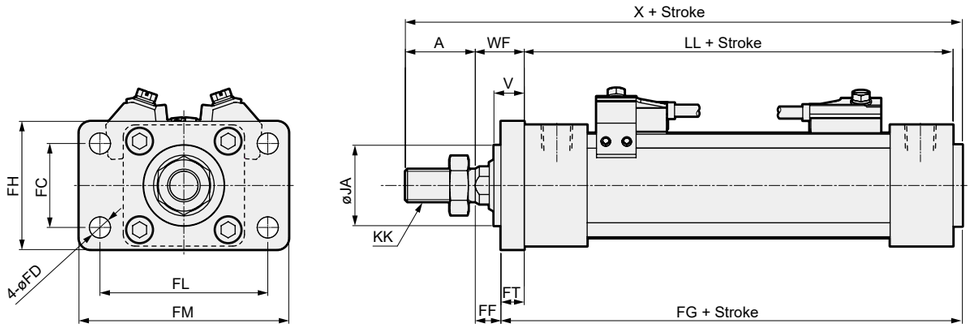
●Axial Foot Type (LB)



Code	Axial Foot Type (LB) Mounting Dimensions												
Bore Size (mm)	A	KK	LL	WF	LA	LB	LC	LD	LG	LH	LR	LS	LT
ø40	30	M14 × 1.5	84	21	170	11	24	9	132	33	38	55	3.2
ø50	35	M18 × 1.5	94	23	190	11	27	9	148	40	46	70	3.2
ø63	35	M18 × 1.5	94	23	193	14	27	12	148	45	56	80	4.5
ø80	40	M22 × 1.5	114	32	230	14	30	12	174	55	72	95	4.5
ø100	40	M26 × 1.5	114	32	234	16	32	14	178	65	89	114	6

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

●Rod Side Flange Type (FA)

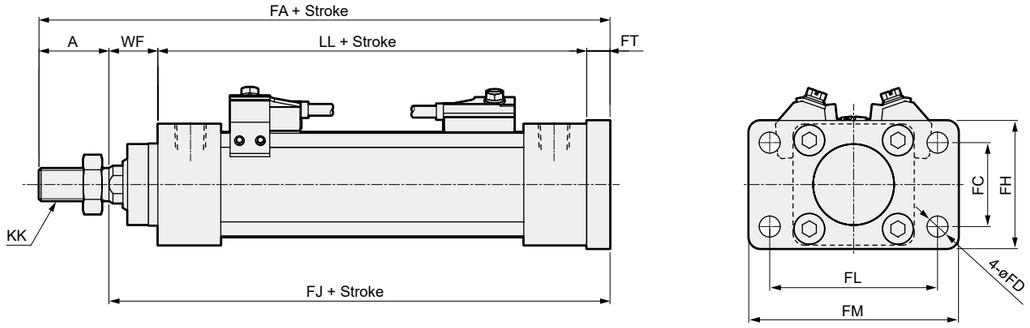


Code	Rod Side Flange Type (FA) Mounting Dimensions														
Bore Size (mm)	A	JA	KK	LL	V	WF	X	FC	FD	FF	FG	FH	FL	FM	FT
ø40	30	30	M14 × 1.5	84	13	21	139	36	9	11	98	55	72	90	10
ø50	35	38	M18 × 1.5	94	14	23	156	45	9	11	110	70	90	110	12
ø63	35	38	M18 × 1.5	94	14	23	156	50	9	11	110	80	100	120	12
ø80	40	43	M22 × 1.5	114	20	32	190	63	12	16	134	100	126	153	16
ø100	40	51	M26 × 1.5	114	20	32	190	75	14	16	134	120	150	178	16

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

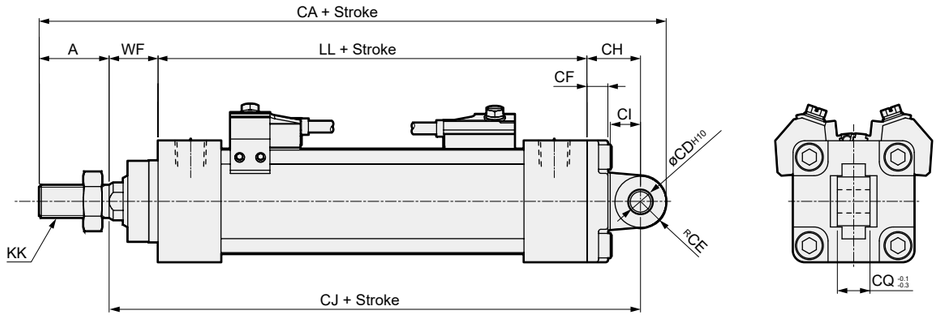
●Head Side Flange Type (FB)



Code / Bore Size (mm)	Head Side Flange Type (FB) Mounting Dimensions											
	A	KK	LL	WF	FA	FC	FD	FH	FJ	FL	FM	FT
ø40	30	M14 × 1.5	84	21	145	40	9	57	115	72	90	10
ø50	35	M18 × 1.5	94	23	164	47	9	65	129	90	110	12
ø63	35	M18 × 1.5	94	23	164	60	11	80	129	100	120	12
ø80	40	M22 × 1.5	114	32	202	74	14	98	162	126	153	16
ø100	40	M26 × 1.5	114	32	202	88	14	118	162	150	178	16

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

●Single Clevis Type (CA)

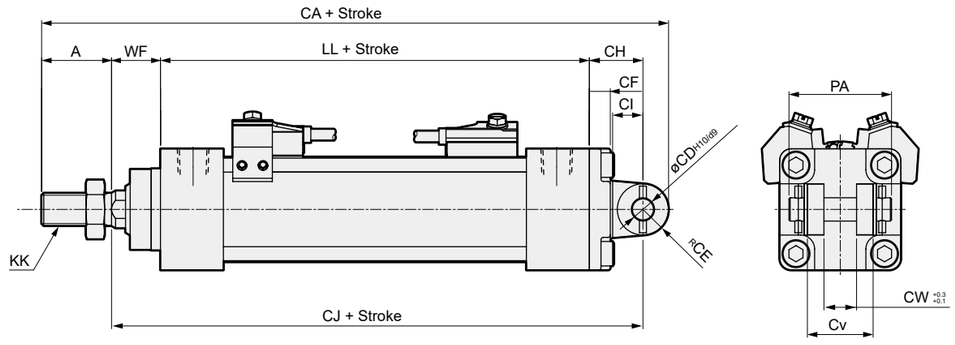


Code / Bore Size (mm)	Single Clevis Type (CA) Mounting Dimensions											
	A	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	CQ
ø40	30	M14 × 1.5	84	21	169	10	11	9	23	13	128	14
ø50	35	M18 × 1.5	94	23	197	14	15	12	30	17	147	20
ø63	35	M18 × 1.5	94	23	197	14	15	12	30	17	147	20
ø80	40	M22 × 1.5	114	32	251	22	23	15	42	26	188	30
ø100	40	M26 × 1.5	114	32	202	22	23	15	42	26	188	30

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

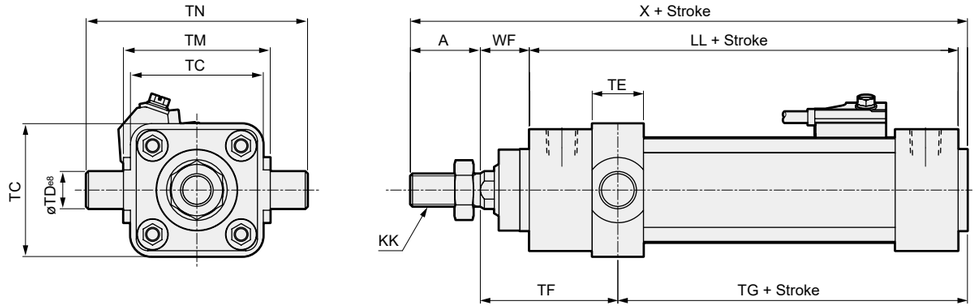
●Double clevis type (CB)



Code / Bore Size (mm)	Double Clevis Type (CB) Mounting Dimensions													
	A	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	Cv	CW	PA
ø40	30	M14 × 1.5	84	21	169	10	11	9	23	13	128	28	14	44
ø50	35	M18 × 1.5	94	23	197	14	15	12	30	17	147	40	20	60
ø63	35	M18 × 1.5	94	23	197	14	15	12	30	17	147	40	20	60
ø80	40	M22 × 1.5	114	32	251	22	23	15	42	26	188	60	30	82
ø100	40	M26 × 1.5	114	32	251	22	23	15	42	26	188	60	30	82

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

●Rod side trunnion type (TA)

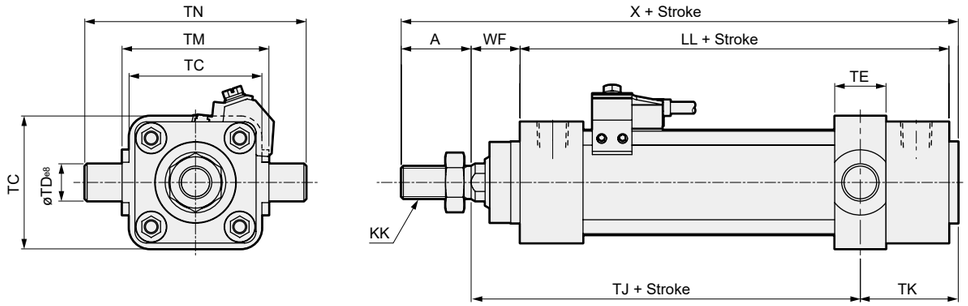


Code / Bore Size (mm)	Rod Side Trunnion Type (TA) Mounting Dimensions											
	A	KK	LL	WF	X	TC	TD	TE	TF	TG	TM	TN
ø40	30	M14 × 1.5	84	21	139	57	16	22	60	49	63	95
ø50	35	M18 × 1.5	94	23	156	67	16	22	66.5	54.5	75	107
ø63	35	M18 × 1.5	94	23	156	82	20	28	69.5	51.5	90	130
ø80	40	M22 × 1.5	114	32	190	100	20	34	88	62	110	150
ø100	40	M26 × 1.5	114	32	190	121	25	40	91	59	132	182

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

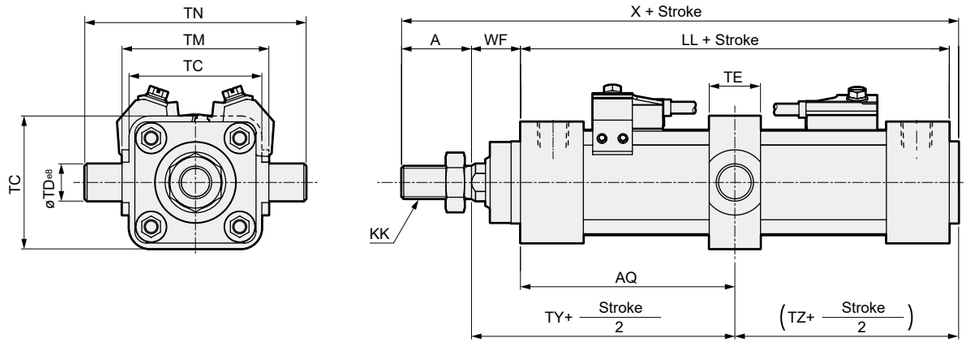
●Head Side Trunnion Type (TB)



Code	Head Side Trunnion Type (TB) Mounting Dimensions											
Bore Size (mm)	A	KK	LL	WF	X	TC	TD	TE	TJ	TK	TM	TN
ø40	30	M14 × 1.5	84	21	139	57	16	22	66	43	63	95
ø50	35	M18 × 1.5	94	23	156	67	16	22	73.5	47.5	75	107
ø63	35	M18 × 1.5	94	23	156	82	20	28	70.5	50.5	90	130
ø80	40	M22 × 1.5	114	32	190	100	20	34	90	60	110	150
ø100	40	M26 × 1.5	114	32	190	121	25	40	87	63	132	182

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

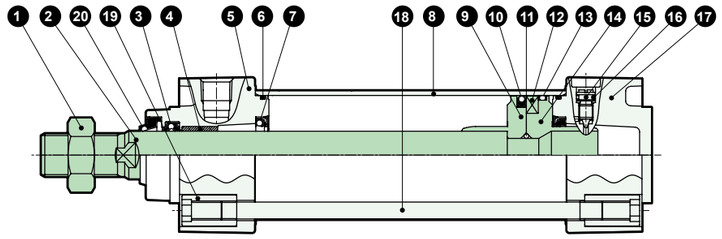
●Intermediate trunnion type (TC)



Code	Intermediate Trunnion Type (TC) Mounting Dimensions												
Bore Size (mm)	A	KK	LL	WF	X	AQ	TC	TD	TE	TY	TZ	TM	TN
ø40	30	M14 × 1.5	84	21	139	42 + Stroke/2	57	16	22	63	46	63	95
ø50	35	M18 × 1.5	94	23	156	47 + Stroke/2	67	16	22	70	51	75	107
ø63	35	M18 × 1.5	94	23	156	47 + Stroke/2	82	20	28	70	51	90	130
ø80	40	M22 × 1.5	114	32	190	57 + Stroke/2	100	20	34	89	61	110	150
ø100	40	M26 × 1.5	114	32	190	57 + Stroke/2	121	25	40	89	61	132	182

***1: For dimensions with each switch, refer to P. 608, 609.**
***2: For outer dimensions diagram of accessories, refer to P. 511.**

Internal Structure Diagram/Material



Part No.	Part Name		Material	Remarks	Part No.	Part Name		Material	Remarks
1	Rod Nut		Stainless Steel		11	Piston Gasket	G2	Nitrile Rubber	
2	Piston Rod		Stainless Steel	Industrial hard chrome plating			G3	Fluoro Rubber	
3	Rod Packing	G2	Nitrile Rubber		12	Magnet		Plastic	
		G3	Fluoro Rubber		13	Wear Ring		Polyacetal	
4	Bushing		Oil-Impregnated Bearing Alloy		14	Piston H		Aluminum Alloy	Chromate
5	Rod Cover		Aluminum Alloy	Painting	15	Cushion Needle		Steel alloy	Nickel Plating
6	Cylinder Gasket	G2	Nitrile Rubber		16	Needle Gasket	G2	Nitrile Rubber	
		G3	Fluoro Rubber				G3	Fluoro Rubber	
7	Cushion Packing	G2	Nitrile Rubber, Steel	Only with air cushion	17	Head Cover		Aluminum Alloy	Painting
		G3	Fluororubber, Steel	Only with air cushion	18	Tie Rod		Steel	Zinc Chromate
8	Cylinder Tube		Aluminum Alloy	Hard Anodized	19	Round Nut		Steel	Zinc Chromate
9	Piston R		Aluminum Alloy	Chromate	20	Scraper	G2	Nitrile Rubber, Steel	
10	Piston Packing	G2	Nitrile Rubber				G3	Fluororubber, Steel	
		G3	Fluoro Rubber						

Mounting Bracket Material

Mounting type	Material	Remarks
Foot (LB)	Steel	Nickel Plating
Flange (FA / FB)	Steel	Painting
Single clevis (CA), Double clevis (CB)	Cast Iron	Painting
Trunnion (TA, TB, TC)	Cast Iron	Painting

Note: Mounting brackets are attached to the product and shipped.
However, in the case of trunnion types (TA, TB, TC), they will be shipped assembled.

For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts



Tie-rod cylinder Double-acting, Spatter adhesion prevention type

SCG-G4 Series

●Bore size: ø32, ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

With Switch
(Built-in magnet for switch)

	❶	❷	❸	❹	❺	❻	❼	❽	❾
Without Switch	SCG-G4	LB	40		B	100		M	I
With Switch	SCG-G4	LB	40		B	100	T2YD	R	M	I
	Model No.	Mounting type	Bore Size	Piping thread type	Cushion	Stroke	Switch Model No.	Number of Switches	Option	Accessories

❶Mounting type

Mounting brackets are included with the product and shipped. (However, trunnion types are shipped assembled.)

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and Split Pin Attached)	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TC	Intermediate Trunnion Type	

❷Bore Size (mm)

Code	Content
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

❹Cushion

Code	Content
B	Both Sides Air Cushion
D	Both Sides Rubber Cushion

Note: The rubber cushion type is longer overall than the air cushion type.

❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø32	1 to 600	Every 1 mm
ø40		
ø50		
ø63		
ø80	1 to 700	
ø100	1 to 800	

Note: For minimum stroke with switch, refer to P. 600.

❻Switch Model No.

For switch details, please refer to P. 971. Switches are included with the product and shipped.

	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V)		Load Current (mA)		Lead Wire *1		
			AC	DC	AC	DC	Straight	L-shape	
Contact			—	24 ± 10%	—	5 to 20	T2YD□	–	
Solid State	2-Color for AC Magnetic Field	2-wire	—		—		T2YDT□	–	

*1: For "□" in the switch model number, enter the code selected from the "*Lead wire length" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

***Lead wire length**

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

Example) Lead wire length
1 m T2YD
3 m T2YD3
5 m T2YD5

❼Number of Switches

	Code	Content
*1	R	With 1 on Rod Side
*1	H	With 1 on Head Side
	D	With 2 pcs
	T	With 3 pcs

*1: If mounting type TA or TB is selected, the number of switches is limited to "H" (1 on head side) for TA, and "R" (1 on rod side) for TB.

❽Option

Code	Content
M	Piston Rod Material (Stainless Steel)

❾Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and Split Pin Attached)	
	B1	Single Bracket	
	B2	Double Yoke Bracket (Pin and Split Pin Attached)	
	B3	Single Bracket	
	B4	Trunnion Type 2nd Bracket (2 pcs/set)	

*1: "I" and "Y" cannot be selected at the same time.

About Custom Product Specifications

For details, refer to P. 610 to 613.

Code	Content
-XK◇	Mounting Bracket Rotational Assembly
-XAQ◇◇	Trunnion Position Specification
-XP7	Knuckle fixed by pin driving
-A2	With 2 Rod Nuts
Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example)
SCG-G4-.....-XP7

*For combinations of variations and options, see P. 489.

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set
SCG-T2YD-40
(6 Switch Model No., 2 Bore Size)

●Switch body only
SW-T2YD
(6 Switch Model No.)

●Switch mounting bracket set
SCG-T-40
(Mounting bracket, 2 Bore Size)

Note: Please consult us separately if using environmentally compatible T-type switches.

Specifications

Item			SCG-G4					
Bore Size		mm	ø32	ø40	ø50	ø63	ø80	ø100
Actuation method			Double Acting Type					
Operating Fluid			Compressed Air					
Max. Working Pressure		MPa	1.0					
Min. Operating Pressure		MPa	0.1					
Proof Pressure		MPa	1.6					
Ambient Temperature		°C	-10 to 60 (No freezing)					
Port Size			Rc1/8	Rc1/4		Rc3/8		Rc1/2
Stroke tolerance mm	With Rubber Cushion		$^{+1.4}_{0}$ (Up to 1000), $^{+1.8}_{0}$(1001 to 1500)					
	With Air Cushion		$^{+1.0}_{0}$ (Up to 360), $^{+1.4}_{0}$ (361 to 1000), $^{+1.8}_{0}$(1001 to 1500)					
Operating Piston Speed		mm/s	50 to 1000 (Please use within the allowable absorbed energy.)					
Cushion			Air cushion/rubber cushion can be selected					
Effective air cushion length		mm	8.6	8.6	13.4	13.4	15.4	15.4
Lubrication			Not required (When lubricating, use turbine oil Class 1 ISO VG32)					
Allowable Absorbed Energy J	With Rubber Cushion		0.5	0.9	1.6	1.6	3.3	5.8
	With Air Cushion		2.5	3.7	8.0	14.4	25.4	45.6

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Manufacturable Stroke (mm)	Min. Stroke (mm)
ø32	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	700	1
ø40			800	
ø50			1200	
ø63			1200	
ø80		700	1400	
ø100		800	1500	

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: If the maximum stroke is exceeded, product specifications may not be met depending on the conditions, so please consult us.

Min. Stroke with Switch

●T2YD type switch

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Rod Side Trunnion Mounting	Head Side Trunnion Mounting
Bore Size (mm)	2	1	2	1	2	1	1
ø32	23	23	75	105	105	53	53
ø40	23	23	60	105	105	53	53
ø50	23	23	23	107	107	51	53
ø63	23	23	23	112	112	56	58
ø80	22	22	22	122	122	55	62
ø100	22	22	22	131	131	66	72

Note: Note: ( ) indicates T□V (lead wire L-type).

Weight Table

(Unit: kg)

Bore Size (mm)	Product Weight at Stroke = 0 mm						Stroke: 50 mm Added weight per	Switch Weight (Per Piece)	Switch Mounting Bracket Weight	Accessory Weight	
	Basic type (00)	Foot Type (LB)	Flange Type (FA,FB)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion Type (TA, TB, TC)				I	Y
ø32	0.51	0.62	0.73	0.66	0.69	0.68	0.12	Refer to the mass described in the switch specifications on P. 971	0.024	0.07	0.10
ø40	0.68	0.82	0.96	0.86	0.86	1.02	0.17		0.024	0.07	0.13
ø50	1.16	1.32	1.64	1.56	1.57	1.64	0.23		0.022	0.20	0.30
ø63	1.42	1.76	2.18	1.97	1.99	2.29	0.25		0.022	0.20	0.30
ø80	2.69	3.12	4.26	3.96	3.96	4.18	0.40		0.026	0.52	0.94
ø100	3.80	4.66	6.12	5.52	5.55	6.37	0.51		0.024	0.48	0.92

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø32	Push	80.4	1.21 × 10²	1.61 × 10²	2.41 × 10²	3.22 × 10²	4.02 × 10²	4.83 × 10²	5.63 × 10²	6.43 × 10²	7.24 × 10²	8.04 × 10²
	Pull	69.1	1.04 × 10²	1.38 × 10²	2.07 × 10²	2.76 × 10²	3.46 × 10²	4.15 × 10²	4.84 × 10²	5.53 × 10²	6.22 × 10²	6.91 × 10²
ø40	Push	1.26 × 10²	1.88 × 10²	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²	1.01 × 10³	1.13 × 10³	1.26 × 10³
	Pull	1.06 × 10²	1.58 × 10²	2.11 × 10²	3.17 × 10²	4.22 × 10²	5.28 × 10²	6.33 × 10²	7.39 × 10²	8.44 × 10²	9.50 × 10²	1.06 × 10³
ø50	Push	1.96 × 10²	2.95 × 10²	3.93 × 10²	5.89 × 10²	7.85 × 10²	9.82 × 10²	1.18 × 10³	1.37 × 10³	1.57 × 10³	1.77 × 10³	1.96 × 10³
	Pull	1.65 × 10²	2.47 × 10²	3.30 × 10²	4.95 × 10²	6.60 × 10²	8.25 × 10²	9.90 × 10²	1.15 × 10³	1.32 × 10³	1.48 × 10³	1.65 × 10³
ø63	Push	3.12 × 10²	4.68 × 10²	6.23 × 10²	9.35 × 10²	1.25 × 10³	1.56 × 10³	1.87 × 10³	2.18 × 10³	2.49 × 10³	2.81 × 10³	3.12 × 10³
	Pull	2.80 × 10²	4.20 × 10²	5.61 × 10²	8.41 × 10²	1.12 × 10³	1.40 × 10³	1.68 × 10³	1.96 × 10³	2.24 × 10³	2.52 × 10³	2.80 × 10³
ø80	Push	5.03 × 10²	7.54 × 10²	1.01 × 10³	1.51 × 10³	2.01 × 10³	2.51 × 10³	3.02 × 10³	3.52 × 10³	4.02 × 10³	4.52 × 10³	5.03 × 10³
	Pull	4.54 × 10²	6.80 × 10²	9.07 × 10²	1.36 × 10³	1.81 × 10³	2.27 × 10³	2.72 × 10³	3.17 × 10³	3.63 × 10³	4.08 × 10³	4.54 × 10³
ø100	Push	7.85 × 10²	1.18 × 10³	1.57 × 10³	2.36 × 10³	3.14 × 10³	3.93 × 10³	4.71 × 10³	5.50 × 10³	6.28 × 10³	7.07 × 10³	7.85 × 10³
	Pull	7.15 × 10²	1.07 × 10³	1.43 × 10³	2.14 × 10³	2.86 × 10³	3.57 × 10³	4.29 × 10³	5.00 × 10³	5.72 × 10³	6.43 × 10³	7.15 × 10³

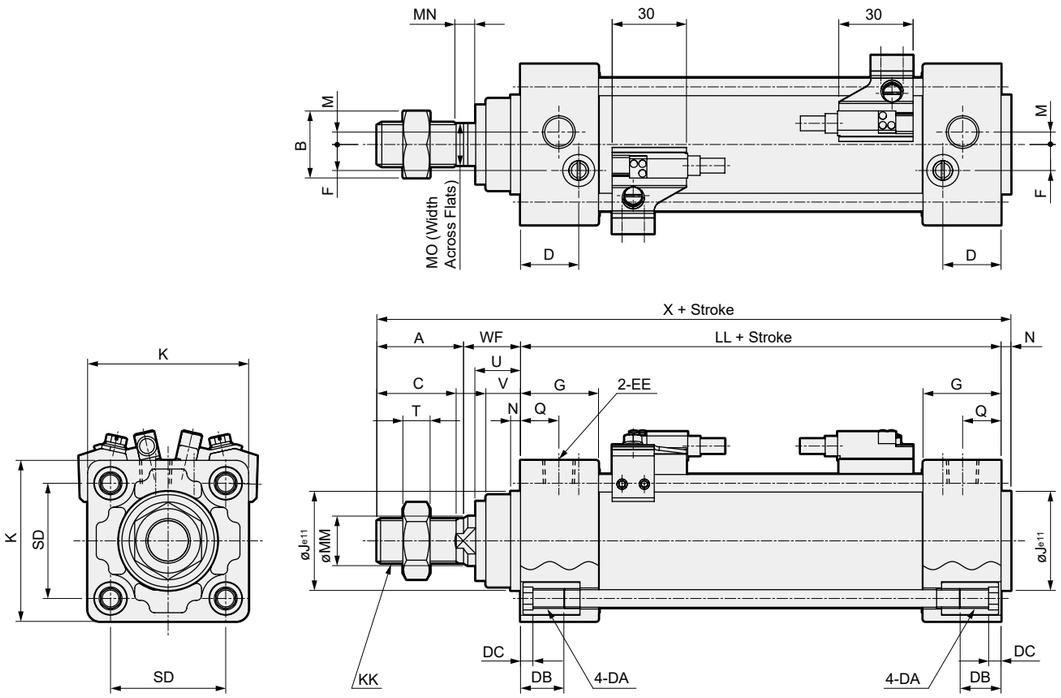
Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCG-LB-32	SCG-LB-40	SCG-LB-50	SCG-LB-63	SCG-LB-80	SCG-LB-100
Flange (FA) (FB)	SCG-FA-32	SCG-FA-40	SCG-FA-50	SCG-FA-63	SCG-FA-80	SCG-FA-100
Single Clevis (CA)	SCG-CA-32	SCG-CA-40	SCG-CA-50	SCG-CA-63	SCG-CA-80	SCG-CA-100
Double Clevis (CB)	SCG-CB-32	SCG-CB-40	SCG-CB-50	SCG-CB-63	SCG-CB-80	SCG-CB-100

*1: Foot type mounting bracket (LB) comes in a set of 2.
*2: Mounting bolts are included to each mounting bracket.

Outline Dimension Drawing

● Basic type (00)



Code / Bore Size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK
ø32	22	17	20	19	M6	16	5	Rc1/8	6.5	27	30	46	M10 × 1.25
ø40	30	22	27	19	M6	16	5	Rc1/4	9	27	35	52	M14 × 1.5
ø50	35	27	32	23.5	M8	16	5	Rc1/4	10.5	31.5	40	65	M18 × 1.5
ø63	35	27	32	21.5	M8	16	5	Rc3/8	12	31.5	45	75	M18 × 1.5
ø80	40	32	37	28	M10	16	5	Rc3/8	14	38	45	95	M22 × 1.5
ø100	40	41	37	28	M10	16	5	Rc1/2	15	38	55	114	M26 × 1.5

Code / Bore Size (mm)	LL *1	M	MM	MN	MO	N	Q	SD	T	U	V	WF	X *1
ø32	84 (90)	4	12	5.5	10	4	13	32.5	6	14	13	25	135 (141)
ø40	84 (90)	4	16	4.5	14	4	14	38	8	16	13	21	139 (145)
ø50	94 (102)	5	20	8	17	4	15.5	46.5	11	18	14	23	156 (164)
ø63	94 (102)	9	20	8	17	4	16.5	56.5	11	18	14	23	156 (164)
ø80	114 (124)	11.5	25	7.5	22	4	19	72	13	24	20	32	190 (200)
ø100	114 (124)	17	30	7	27	4	19	89	16	24	20	32	190 (200)

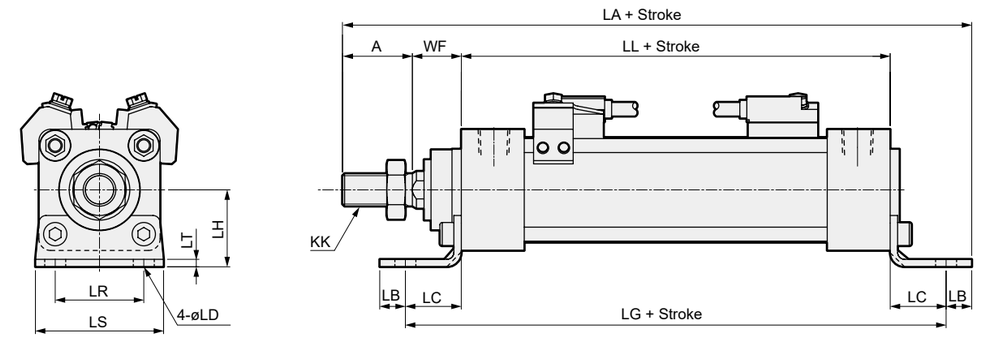
*1: Dimensions in ( ) indicate rubber cushion type.

***2: For dimensions with each switch, refer to P. 608, 609.**

***3: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Axial Foot Type (LB)



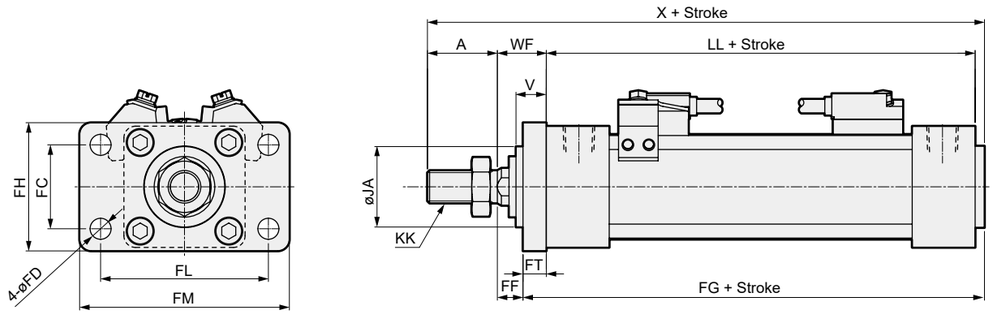
Code / Bore Size (mm)	A	KK	LL *1	WF	LA *1	LB	LC	LD	LG *1	LH	LR	LS	LT
ø32	22	M10 × 1.25	84 (90)	25	162 (168)	9	22	7	128 (134)	30	32	50	3.2
ø40	30	M14 × 1.5	84 (90)	21	170 (176)	11	24	9	132 (138)	33	38	55	3.2
ø50	35	M18 × 1.5	94 (102)	23	190 (198)	11	27	9	148 (156)	40	46	70	3.2
ø63	35	M18 × 1.5	94 (102)	23	193 (201)	14	27	12	148 (156)	45	56	80	4.5
ø80	40	M22 × 1.5	114 (124)	32	230 (240)	14	30	12	174 (184)	55	72	95	4.5
ø100	40	M26 × 1.5	114 (124)	32	234 (244)	16	32	14	178 (188)	65	89	114	6

*1: Dimensions in ( ) indicate rubber cushion type.

***2: For dimensions with each switch, refer to P. 608, 609.**

***3: For outer dimensions diagram of accessories, refer to P. 511.**

●Rod Side Flange Type (FA)



Code / Bore Size (mm)	A	KK	LL *1	V	WF	X *1	FC	FD	FF	FG *1	FH	JA	FL	FM	FT
ø32	22	M10 × 1.25	84 (90)	13	25	135 (141)	32	7	15	98 (104)	50	29	64	79	10
ø40	30	M14 × 1.5	84 (90)	13	21	139 (145)	36	9	11	98 (104)	55	30	72	90	10
ø50	35	M18 × 1.5	94 (102)	14	23	156 (164)	45	9	11	110 (118)	70	38	90	110	12
ø63	35	M18 × 1.5	94 (102)	14	23	156 (164)	50	9	11	110 (118)	80	38	100	120	12
ø80	40	M22 × 1.5	114 (124)	20	32	190 (200)	63	12	16	134 (144)	100	43	126	153	16
ø100	40	M26 × 1.5	114 (124)	20	32	190 (200)	75	14	16	134 (144)	120	51	150	178	16

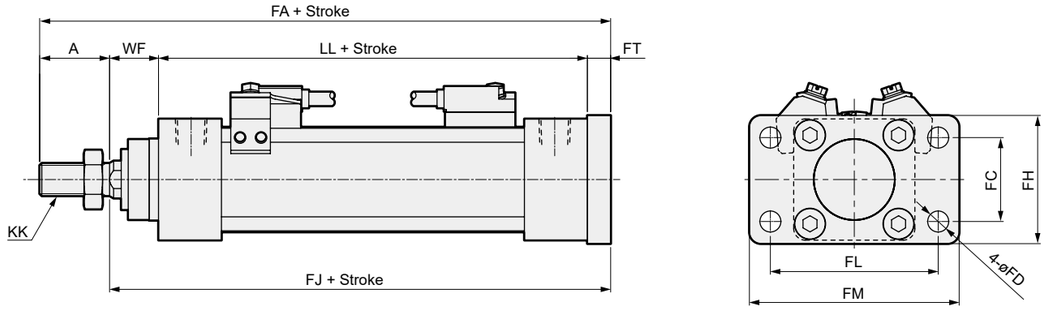
*1: Dimensions in ( ) indicate rubber cushion type.

***2: For dimensions with each switch, refer to P. 608, 609.**

***3: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Rod side flange type (FB)



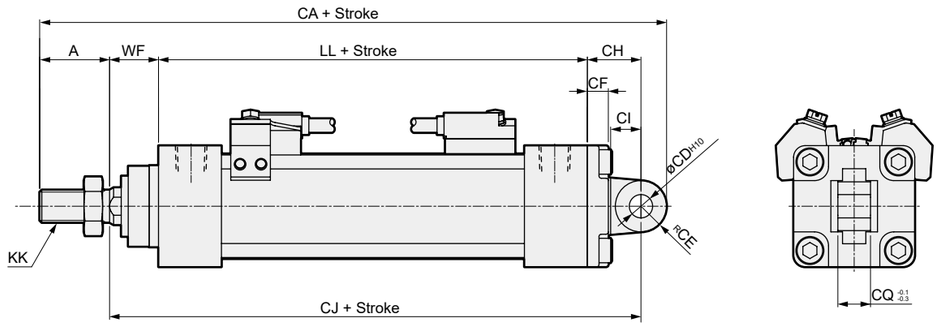
Code / Bore Size (mm)	Rod Side Flange Type (FB) Mounting Dimensions											
	A	KK	LL *1	WF	FA *1	FC	FD	FH	FJ *1	FL	FM	FT
ø32	22	M10 × 1.25	84 (90)	25	141 (147)	40	9	57	119 (125)	64	79	10
ø40	30	M14 × 1.5	84 (90)	21	145 (151)	40	9	57	115 (121)	72	90	10
ø50	35	M18 × 1.5	94 (102)	23	164 (172)	47	9	65	129 (137)	90	110	12
ø63	35	M18 × 1.5	94 (102)	23	164 (172)	60	11	80	129 (137)	100	120	12
ø80	40	M22 × 1.5	114 (124)	32	202 (212)	74	14	98	162 (172)	126	153	16
ø100	40	M26 × 1.5	114 (124)	32	202 (212)	88	14	118	162 (172)	150	178	16

*1: Dimensions in ( ) indicate rubber cushion type.

***2: For dimensions with each switch, refer to P. 608, 609.**

***3: For outer dimensions diagram of accessories, refer to P. 511.**

●Single Clevis Type (CA)



Code / Bore Size (mm)	Single Clevis Type (CA) Mounting Dimensions											
	A	KK	LL *1	WF	CA *1	CD	CE	CF	CH	CI	CJ *1	CQ
ø32	22	M10 × 1.25	84 (90)	25	164.5 (170.5)	10	10.5	9	23	13	132 (138)	14
ø40	30	M14 × 1.5	84 (90)	21	169 (175)	10	11	9	23	13	128 (134)	14
ø50	35	M18 × 1.5	94 (102)	23	197 (205)	14	15	12	30	17	147 (155)	20
ø63	35	M18 × 1.5	94 (102)	23	197 (205)	14	15	12	30	17	147 (155)	20
ø80	40	M22 × 1.5	114 (124)	32	251 (261)	22	23	15	42	26	188 (198)	30
ø100	40	M26 × 1.5	114 (124)	32	251 (261)	22	23	15	42	26	188 (198)	30

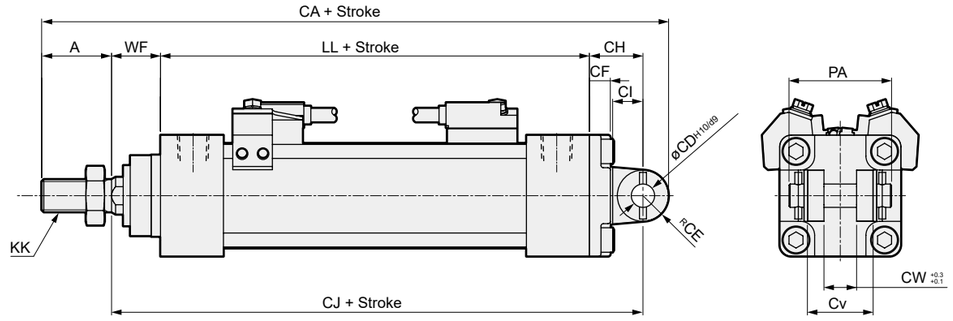
*1: Dimensions in ( ) indicate rubber cushion type.

***2: For dimensions with each switch, refer to P. 608, 609.**

***3: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Double clevis type (CB)



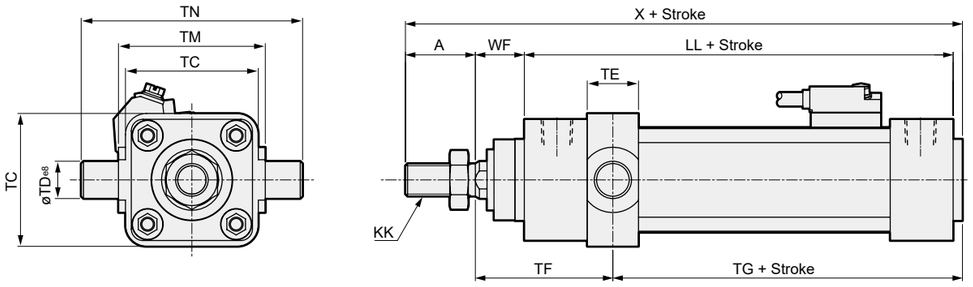
Code / Bore Size (mm)	Double Clevis Type (CB) Mounting Dimensions													
	A	KK	LL *1	WF	CA *1	CD	CE	CF	CH	CI	CJ *1	Cv	CW	PA
ø32	22	M10 × 1.25	84 (90)	25	164.5 (170.5)	10	10.5	9	23	13	132 (138)	28	14	44
ø40	30	M14 × 1.5	84 (90)	21	169 (175)	10	11	9	23	13	128 (134)	28	14	44
ø50	35	M18 × 1.5	94 (102)	23	197 (205)	14	15	12	30	17	147 (155)	40	20	60
ø63	35	M18 × 1.5	94 (102)	23	197 (205)	14	15	12	30	17	147 (155)	40	20	60
ø80	40	M22 × 1.5	114 (124)	32	251 (261)	22	23	15	42	26	188 (198)	60	30	82
ø100	40	M26 × 1.5	114 (124)	32	251 (261)	22	23	15	42	26	188 (198)	60	30	82

*1: Dimensions in ( ) indicate rubber cushion type.

***2: For dimensions with each switch, refer to P. 608, 609.**

***3: For outer dimensions diagram of accessories, refer to P. 511.**

●Rod side trunnion type (TA)



Code / Bore Size (mm)	Rod Side Trunnion Type (TA) Mounting Dimensions											
	A	KK	LL *1	WF	X *1	TC	TD	TE	TF	TG *1	TM	TN
ø32	22	M10 × 1.25	84 (90)	25	135 (141)	47	12	17	61.5	51.5 (57.5)	50	74
ø40	30	M14 × 1.5	84 (90)	21	139 (145)	57	16	22	60	49 (55)	63	95
ø50	35	M18 × 1.5	94 (102)	23	156 (164)	67	16	22	66.5	54.5 (62.5)	75	107
ø63	35	M18 × 1.5	94 (102)	23	156 (164)	82	20	28	69.5	51.5 (59.5)	90	130
ø80	40	M22 × 1.5	114 (124)	32	190 (200)	100	20	34	88	62 (72)	110	150
ø100	40	M26 × 1.5	114 (124)	32	190 (200)	121	25	40	91	59 (69)	132	182

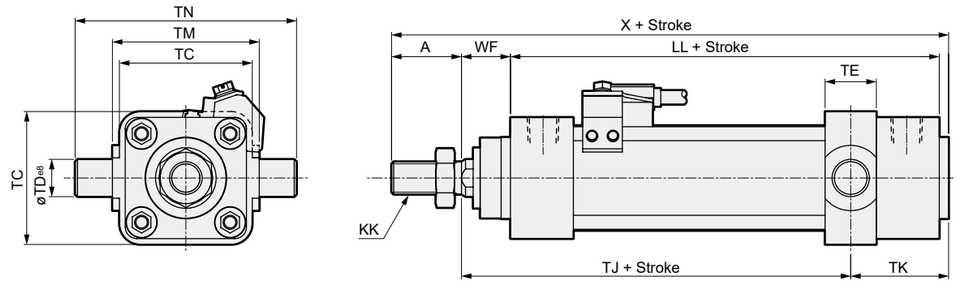
*1: Dimensions in ( ) indicate rubber cushion type.

***2: For dimensions with each switch, refer to P. 608, 609.**

***3: For outer dimensions diagram of accessories, refer to P. 511.**

Outline Dimension Drawing

●Head Side Trunnion Type (TB)



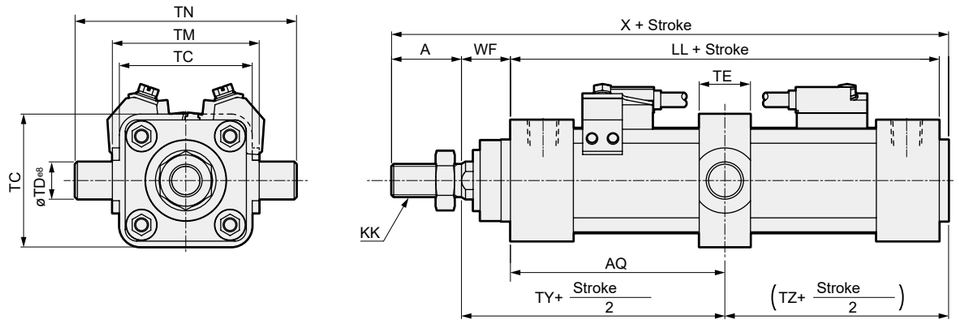
Code / Bore Size (mm)	Head Side Trunnion Type (TB) Mounting Dimensions											
	A	KK	LL *1	WF	X *1	TC	TD	TE	TJ *1	TK	TM	TN
ø32	22	M10 × 1.25	84 (90)	25	135 (141)	47	12	17	72.5 (78.5)	40.5	50	74
ø40	30	M14 × 1.5	84 (90)	21	139 (145)	57	16	22	66 (72)	43	63	95
ø50	35	M18 × 1.5	94 (102)	23	156 (164)	67	16	22	73.5 (81.5)	47.5	75	107
ø63	35	M18 × 1.5	94 (102)	23	156 (164)	82	20	28	70.5 (78.5)	50.5	90	130
ø80	40	M22 × 1.5	114 (124)	32	190 (200)	100	20	34	90 (100)	60	110	150
ø100	40	M26 × 1.5	114 (124)	32	190 (200)	121	25	40	87 (97)	63	132	182

*1: Dimensions in ( ) indicate rubber cushion type.

***2: For dimensions with each switch, refer to P. 608, 609.**

***3: For outer dimensions diagram of accessories, refer to P. 511.**

●Intermediate trunnion type (TC)



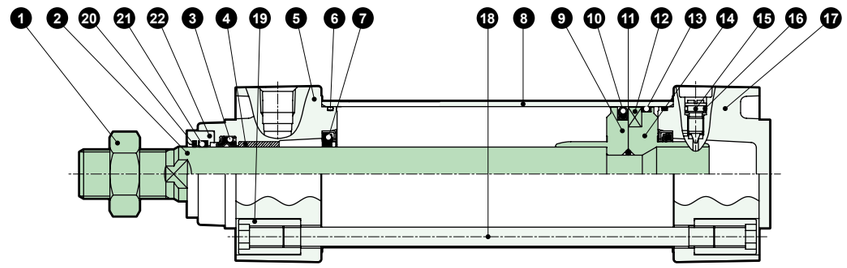
Code / Bore Size (mm)	Intermediate Trunnion Type (TC) Mounting Dimensions												
	A	KK	LL *1	WF	X *1	AQ *1	TC	TD	TE	TY *1	TZ *1	TM	TN
ø32	22	M10 × 1.25	84 (90)	25	135 (141)	42 (45) + Stroke/2	47	12	17	67 (70)	46 (49)	50	74
ø40	30	M14 × 1.5	84 (90)	21	139 (145)	42 (45) + Stroke/2	57	16	22	63 (66)	46 (49)	63	95
ø50	35	M18 × 1.5	94 (102)	23	156 (164)	47 (51) + Stroke/2	67	16	22	70 (74)	51 (55)	75	107
ø63	35	M18 × 1.5	94 (102)	23	156 (164)	47 (51) + Stroke/2	82	20	28	70 (74)	51 (55)	90	130
ø80	40	M22 × 1.5	114 (124)	32	190 (200)	57 (62) + Stroke/2	100	20	34	89 (94)	61 (66)	110	150
ø100	40	M26 × 1.5	114 (124)	32	190 (200)	57 (62) + Stroke/2	121	25	40	89 (94)	61 (66)	132	182

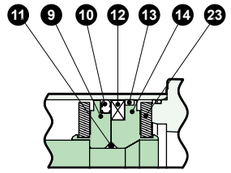
*1: Dimensions in ( ) indicate rubber cushion type.

***2: For dimensions with each switch, refer to P. 608, 609.**

***3: For outer dimensions diagram of accessories, refer to P. 511.**

Internal Structure Diagram/Material





With Rubber Cushion

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Nickel Plating	13	Wear Ring	Polyacetal	
2	Piston Rod	Steel	Industrial Hard Chrome Plating	14	Piston H	Aluminum Alloy	
3	Rod Packing	Nitrile Rubber		15	Cushion Needle	Copper Alloy	Nickel Plating
4	Bushing	Oil-Impregnated Bearing Alloy		16	Needle Gasket	Nitrile Rubber	
5	Rod Cover	Aluminum Alloy	Painting	17	Head Cover	Aluminum Alloy	Painting
6	Cylinder Gasket	Nitrile Rubber		18	Tie Rod	Steel	Zinc Chromate
7	Cushion Packing	Nitrile Rubber, Steel	Only with air cushion	19	Round Nut	Steel	Zinc Chromate
8	Cylinder Tube	Aluminum Alloy	Hard Anodized	20	Coil scraper	Copper Alloy	
9	Piston R	Aluminum Alloy		21	Lube keeper	Special Resin	
10	Piston Packing	Nitrile Rubber		22	Adapter	Stainless Steel	
11	Piston Gasket	Nitrile Rubber		23	Cushion Rubber	Urethane Rubber	Only with rubber cushion
12	Magnet	Plastic					

Mounting Bracket Material

Mounting type	Material	Remarks
Foot (LB)	Steel	Nickel Plating
Flange (FA / FB)	Steel	Painting
Single clevis (CA), Double clevis (CB)	Cast Iron	Painting
Trunnion (TA, TB, TC)	Cast Iron	Painting

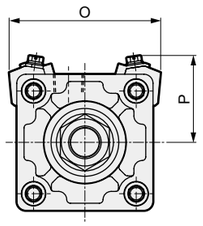
Note: Mounting brackets are attached to the product and shipped. However, in the case of trunnion types (TA, TB, TC), they will be shipped assembled.

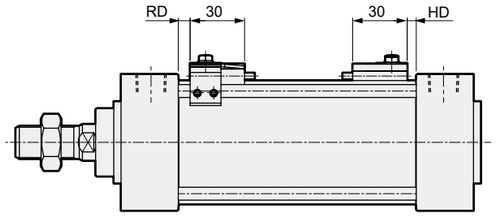
For Maintenance Parts, please visit the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

SCG Series Switch-equipped External Dimension Diagram

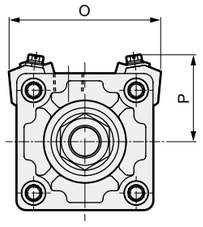
● T0H/V, T5H/V, T2H/V, T3H/V, T3PH/V, T2[H/V]R3, T2WH/V, T3WH/V, T2WLH/V, T8H/V, T2JH/V, T2YLH, T3YLH

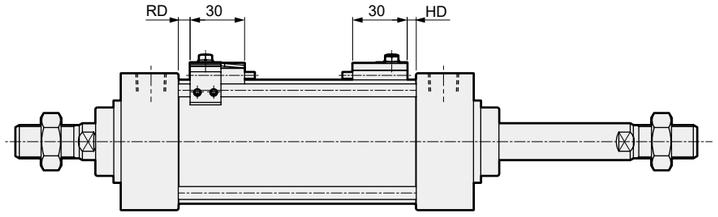
SCG, SCG-Q-R, SCG-Q-H, SCG-O, SCG-U, SCG-M, SCG-G, SCG-G2, SCG-G3





, SCG-D





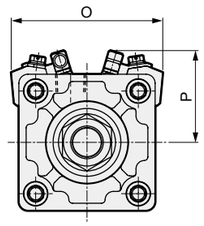
Code / Bore Size (mm)	O	P	T0, T5, T2, T3, T3P, T2□R3 RD	T0, T5, T2, T3, T3P, T2□R3 HD	T2W, T3W, T2WL RD	T2W, T3W, T2WL HD	T8 RD	T8 HD	T2J, T2YLH, T3YLH RD	T2J, T2YLH, T3YLH HD
	SCG, SCG-Q-R, SCG-Q-H, SCG-O, SCG-U, SCG-M, SCG-G, SCG-G2, SCG-G3, SCG-D									
ø32	59	38	5 (8)	5 (8)	7.5 (10.5)	7.5 (10.5)	0 (2)	0 (2)	4 (7)	4 (7)
ø40	66	41	5 (8)	5 (8)	7.5 (10.5)	7.5 (10.5)	0 (2)	0 (2)	4 (7)	4 (7)
ø50	72	43	6.5 (10.5)	5 (9)	9 (13)	7 (11)	0.5 (4.5)	0 (3)	5.5 (9.5)	4 (8)
ø63	83	48	6.5 (10.5)	5 (9)	9 (13)	7 (11)	0.5 (4.5)	0 (3)	5.5 (9.5)	4 (8)
ø80	104	57	12.5 (17.5)	6 (11)	15 (20)	8 (13)	6.5 (11.5)	0 (5)	11.5 (16.5)	5 (10)
ø100	121	63	12 (17)	6.5 (11.5)	14.5 (19.5)	8.5 (13.5)	6 (11)	0.5 (5.5)	11 (16)	5.5 (10.5)

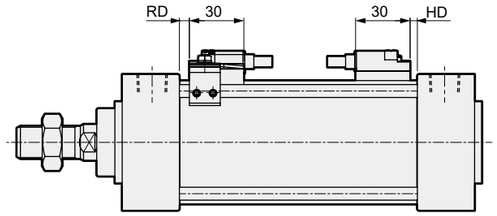
*1: For switch mountability, refer to the model number display method for each variation.
*2: Dimensions in ( ) indicate rubber cushion type.

SCG Series Switch-equipped External Dimension Diagram

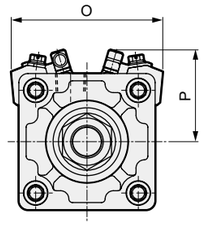
●T1H/V, T2YD, T2YDT

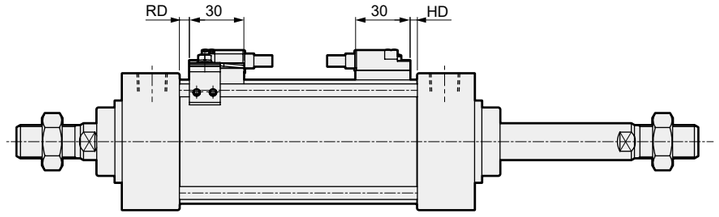
SCG, SCG-Q-R, SCG-Q-H, SCG-O, SCG-U, SCG-M, SCG-G, SCG-G4





, SCG-D





Code / Bore Size (mm)	O	P	T1, T2YD, T2YDT RD	T1, T2YD, T2YDT HD
	SCG, SCG-Q-R, SCG-Q-H, SCG-O, SCG-U, SCG-M, SCG-G, SCG-G4, SCG-D			
ø32	59	38	4 (7)	4 (7)
ø40	66	41	4 (7)	4 (7)
ø50	72	44	5.5 (9.5)	4 (8)
ø63	83	50	5.5 (9.5)	4 (8)
ø80	104	57	11.5 (16.5)	5 (10)
ø100	121	64	11 (16)	5.5 (10.5)

*1: For switch mountability, refer to the model number display method for each variation.
*2: Dimensions in ( ) indicate rubber cushion type.

■ Mounting Bracket Rotated Assembly (-XK□)

Content: Specifies the mounting position of the mounting bracket.

Model No. Notation Method

SCG - 00 - 40 B - 100 - XK1

Model No.
Please see the SCG model No. notation method.

❶ Mounting bracket Mounting position

❶Mounting bracket mounting position

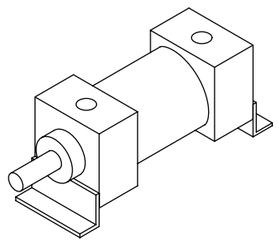
Code	Content
XK1	Rotate mounting bracket 90° clockwise
XK2	Rotate mounting bracket 180° clockwise
XK3	Rotate mounting bracket 270° clockwise

*1: For flanges and trunnions, only XK1 (90° rotation) is applicable.

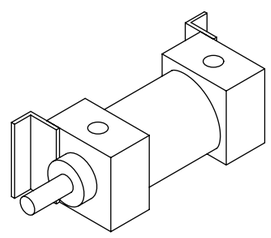
External view

*Port and cushion needle positions do not change.

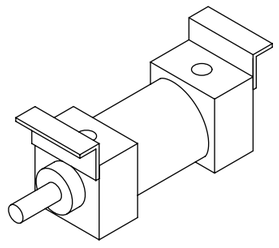
●Basic



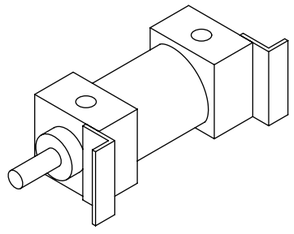
● K1



● K2



● K3



■ Trunnion Position Specification (-XAQ□□)

Content: Specify the dimension from the rod cover end face to the center of the trunnion axis.

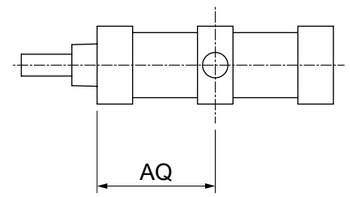
Model No. Notation Method

SCG - TC - 40 B - 100 - XAQ 130

Model No.
Please see the SCG model No. notation method.

Custom dimension
Refer to the external dimensions list.

Outer Dimensions Diagram



Basic type

Knuckle Fixed by Pinning (-XP7)

Content: Also, drive a spring pin into the knuckle to prevent loosening.

Model No. Notation Method

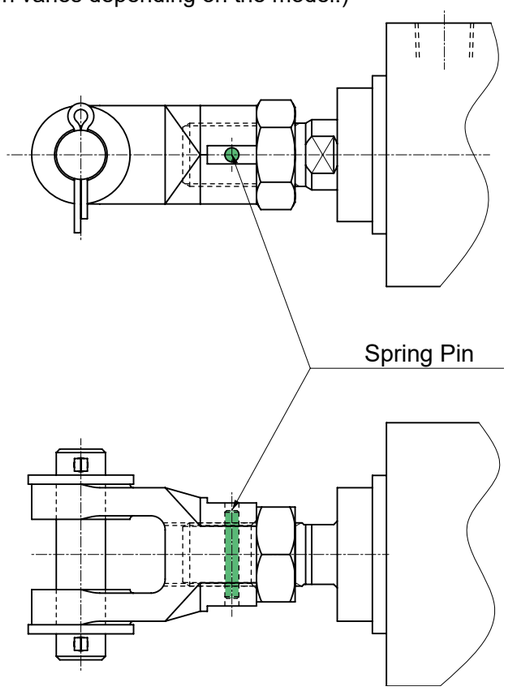
SCG - TC - 40 B - 100 - Y -XP7

Model No.

Please see the SCG model No. notation method.

Outer Dimensions Diagram

Same as with Knuckle specification.
(Spring pin driving direction varies depending on the model.)



Without Bellows (-XJ9)

Content: Piston rod with dimensions for bellows, but bellows not assembled

Model No. Notation Method

SCG - 00 - 40 B - 100 - XJ9

Model No.

Please see the SCG model No. notation method.

Outline Dimension Drawing

Same dimensions as with bellows, but bellows are not included.

Fluorine Packing Type (-T2)

Content: Change the rod packing, piston packing and O-rings to FKM. (Cushion packing is not changed)

Model No. Notation Method

SCG - T2 - 00 - 40 B - 100

Model No.

Please see the SCG model No. notation method.

Outer Dimensions Diagram

Same as standard type.

With 2 Rod Nuts (-A2)

Content: Shipped with 2 rod nuts, same as standard.

Model No. Notation Method

SCG - 00 - 40 B - 100 - A2

Model No.

Please see the SCG model No. notation method.

Outer Dimensions Diagram

Same as standard type except that 2 rod nuts are included.

Pneumatic Equipment

To Use This Product Safely

Be sure to read this before use.

For general cylinder information, see Intro 41, and for cylinder switches, see P. 1026.

Individual Precautions: Tie-rod cylinder SCG Series

During Design / Selection

1. Common

Caution

■Install a speed controller on the cylinder.
Install a speed controller on the cylinder. Please use within the operating piston speed range of each series.

Caution

■Rubber cushion type and air cushion type are available as cushion mechanisms built into the cylinder. The purpose of the air cushion is to absorb the kinetic energy held by the piston by utilizing the compressibility of air, and to prevent the piston and cover from hitting impulsively at the stroke end. Therefore, the cushion is not for low-speed operation (deceleration operation) of the piston speed from near the stroke end. The table below shows the kinetic energy that can be absorbed by the cushion. If the kinetic energy exceeds this value or if you want to avoid bouncing due to air compressibility, please consider a separate shock absorber.

Bore Size (mm)	Rubber Cushion	Air Cushion	
	Allowable Absorption Energy J	Effective air cushion Length (mm)	Allowable Absorption Energy J
ø32	0.5	8.6	2.5
ø40	0.9	8.6	3.7
ø50	1.6	13.4	8.0
ø63	1.6	13.4	14.4
ø80	3.3	15.4	25.4
ø100	5.8	15.4	45.6

$$\text{Kinetic Energy (J)} = \frac{1}{2} \times \text{Mass (kg)} \times \frac{1}{2} \text{[Speed (m/s)]}^2$$

(Note) How to calculate kinetic energy

The average speed of the cylinder is obtained by $Va = \frac{L}{T}$.

Va : Average speed (m/s)

L : Cylinder stroke (m)

T : Operating Time (s)

On the other hand, the cylinder speed just before entering the cushion is It can be obtained by the following simplified formula.

$$Vm = \times \frac{L}{T} (1 + 1.5 \times \frac{\omega}{100})$$

Vm: Speed just before entering cushion (m/s)

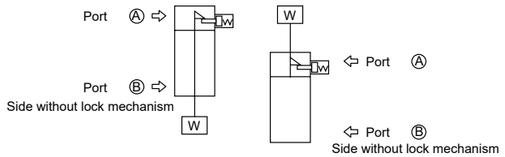
ω : Cylinder load factor (%)

For calculating kinetic energy, use this Vm value as the speed.

2. Drop prevention type SCG-Q

Warning

■In a locked state, if pressure is supplied to the port Ⓐ from a state where both ports are unpressurized, the lock may not release, or the lock may suddenly release and the piston rod may fly out, which is very dangerous. When releasing the lock mechanism, always supply pressure to the port Ⓑ and release it from a state where no load is applied to the lock mechanism.



■When using a quick exhaust valve to increase the lowering speed, the cylinder body may start moving before the lock pin operates, and normal release may not be possible. Do not use a quick exhaust valve with a drop prevention type cylinder.

■Do not use 3-position valves.
Do not use in combination with 3-position valves (especially closed-center metal seal type). If pressure is sealed in the port on the side with the lock mechanism, the lock will not engage. Also, even if locked, air leaked from the solenoid valve may enter the cylinder, and the lock may be released over time.

Caution

■Keep the cylinder load factor at 50% or less.
If the load factor is high, the lock may not be released, or it may lead to damage to the lock part.

■If back pressure is applied to the lock mechanism side, the lock may be released, so use a single solenoid valve or a manifold with individual exhaust.

■Do not use multiple cylinders synchronized.
Do not use a method where two or more fall prevention type cylinders are synchronized to move one workpiece. The lock of one of the cylinders may become unremovable.

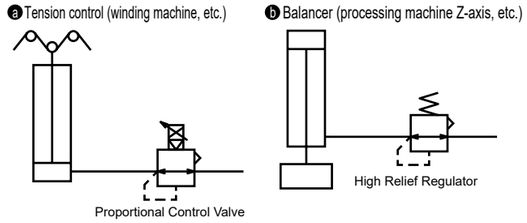
3. Low-friction type SCG-U

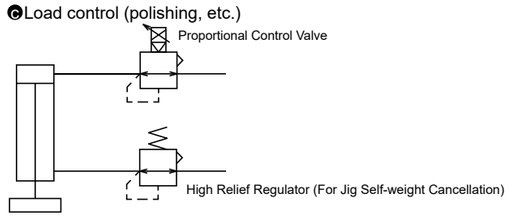
Warning

■Durability varies depending on usage conditions and model characteristics.
This cylinder is a cylinder with internal leakage. For leakage volume, check the specifications (P. 546).

Caution

■When used with a balancer, etc., it may be better not to install a speed controller to improve supply/exhaust efficiency. Depending on the application, circuits ⓐ to ⓒ below are recommended.

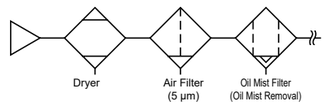




*To improve supply/exhaust characteristics, maximize piping volume as much as possible.

■Do not lubricate. It will cause characteristics to fluctuate.

■Poor quality air will adversely affect characteristics and durability, so please use clean air with the piping below.



■Install the speed controller near the cylinder.
If installed far from the cylinder, adjustment will be unstable.

■Generally, the higher the air pressure and the lower the load factor, the more stable the speed.
Use with a load factor of 50% or less.

4. Cutting oil resistant type SCG-G2/G3

Caution

■Do not apply an eccentric load to the piston rod. This may reduce the life of scrapers and bearings.

■Please note that if there is no scattering of cutting oil or water with G2 and G3 series, the lubrication of the piston rod will be cut off and the service life will be reduced. In such cases, please use the G series.

5. Spatter adhesion prevention type SCG-G4

Warning

■This cylinder series has improved durability in a spatter scattering atmosphere compared to general-purpose cylinders. However, please note that durability may be inferior to general type cylinders when used in other atmospheres.

During Use

1. Drop prevention type SCG-Q

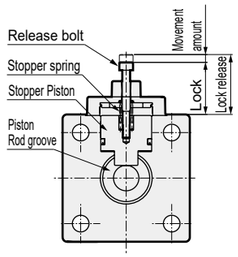
⚠Caution

■ Supply pressure equal to or higher than the minimum operating pressure to the port on the side with the lock mechanism.

■ If the piping on the side with the lock mechanism is thin and long, or if the speed controller is far from the cylinder port, the exhaust speed may be slow and it may take time for the lock to engage, so please be careful.

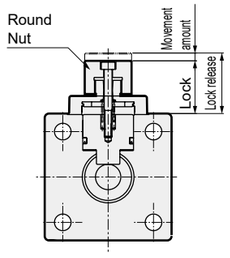
■ Use the speed controller with meter-out control.
Lock may not be released with meter-in control.

■ Manual operation non-locking type release method
Screw the release bolt into the stopper piston and pull the bolt with a force of 20N or more by the amount of movement, and the stopper piston will move and the lock will be released. (When mounted horizontally with no load or when the opposite port is pressurized) Also, when you release your hand, the built-in spring returns the stopper piston to its original position, and when it re-enters the piston rod groove, the piston will be locked.



Bore Size (mm)	Lock	Lock release	Movement amount	Release bolt
ø32	19.5	22.5	3	M3×25
ø40	18	21	3	M3×25
ø50	26.5	30.5	4	M4×35
ø63	21.5	25.5	4	M4×35
ø80	19	23	4	M4×35
ø100	21.5	25.5	4	M4×35

■ Manual operation locking type release method
When the round nut is turned to the left (counterclockwise), the stopper piston moves and the lock is released. Also, if you turn it to the right to the lock position, the stopper piston will return, and when it re-enters the piston rod groove, the piston will be locked.



Bore Size (mm)	Lock	Lock release	Movement amount
ø32	20	23	3
ø40	18.5	21.5	3
ø50	27	31	4
ø63	22	26	4
ø80	19.5	23.5	4
ø100	22	26	4

2. Low-friction type SCG-U

⚠Caution

■ Do not apply lateral load to the cylinder. Also, install the sliding guide so that it does not get twisted.
- Operation will become unstable if there are fluctuations in load or resistance.
- In the case of a long stroke, the speed becomes unstable due to the self-weight of the piston rod. Please install and use a guide.
- Guides with a large difference between static friction and dynamic friction will result in unstable operation.

■ Avoid use in places with vibration.
- Operation becomes unstable due to the influence of vibration.

■ Avoid use in steam, humid environments, or alkaline atmospheres.

3. Non-rotating type SCG-M

⚠Caution

■ Do not use in a way that applies rotational torque to the piston rod.
The non-rotating bushing will deform and the service life will be significantly reduced.

For precautions regarding mounting, installation, adjustment, use, and maintenance, please see "Precautions for Use" in this catalog and the CKD Components Product website (https://www.ckd.co.jp/kiki/en/) -> "Model No." -> Instruction Manual

MEMO

General Type

SCA2

Medium Bore Size Cylinder

ø40, ø50, ø63, ø80, ø100



Overview

This is a series of general-purpose cylinders with medium bore diameters (ø40 to ø100) where both end covers are fixed with tie rods. A wide variety of variations. This cylinder has the No. 1 reliability as a general-purpose cylinder.

Features

Easy Conversion to Switch-Equipped Type

A magnet is equipped as standard, allowing for easy conversion to a switch-equipped cylinder simply by mounting a detection switch suitable for your application.

Easy change of mounting brackets

Mounting brackets are interchangeable and can be easily changed. This simplifies inventory management. Aluminum is used for the main parts, including both end covers, the piston, and the tube. This results in a lightweight design with improved corrosion and impact resistance.

Lightweight and Highly Corrosion-Resistant

Aluminum is used for the main parts, including both end covers, the piston, and the tube. This results in a lightweight design with improved corrosion and impact resistance.

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System Table

Medium Bore Size Cylinder SCA2 Series

* For environmentally resistant type and with valve, please refer to P. 780 and 830.

●: Standard, ◎: Option, ○: Custom Products, : Not manufacturable

Variation	Model No. / Circuit Diagram Symbol	Bore Size (mm)	Standard Stroke (mm)												Min. Stroke (mm)	Maximum Stroke (mm)	Producible Stroke (mm)	Intermediate stroke (mm) increments	Basic type		Mounting type														Cushion				Option					Accessories						Switch	Page
			25	50	75	100	150	200	250	300	350	400	450	500					00		Axial Foot Type LB	Rod Side Flange Type FA	Head Side Flange Type FB	Head side special flange type FC	Single Clevis Type CA	Double Clevis Type CB	Intermediate Trunnion Type TC	Rod Side Trunnion Type TA	Head Side Trunnion Type TB	Intermediate tapped trunnion type TF	Rod side tapped trunnion type TD	Head side tapped trunnion type TE	Without Cushion N	Both sides cushion B	Rod side cushion R	Head side cushion H	Bellows (100°C) J	Bellows (250°C) L	Piston Rod Material (Stainless Steel) M	Cushion needle position S	Cushion needle position T	Single Knuckle I	Double Knuckle Y	Single Bracket B1	Double Yoke Bracket B2	Single Bracket B3	Trunnion Type 2nd Bracket B4		
Double Acting Type	SCA2	ø40, ø50	●	●	●	●	●	●	●	●	●	●	●	●	1	600	1600 2,000	1	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	626
		ø63																																														
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	2500		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800			●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
Double Acting, Stroke Adjustment (Push)	SCA2-P	ø40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	25	600	600	1	●		●	●	●				●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		648
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		●	●	●				●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		●	●	●				●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				
Double Acting, Stroke Adjustment (Retracting)	SCA2-R	ø40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	25	600	600	1	●		●	●					●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		662
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		●	●					●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		●	●					●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
Double Acting/Heat Resistant Type	SCA2-T	ø40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	600	1	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		674
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
Double Acting, Drop Prevention Type	SCA2-Q2	ø40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	5	600	600	1	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	◎	◎			◎	◎	◎	◎	◎	◎	◎	686
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	◎	◎			◎	◎	◎	◎	◎	◎	◎	
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	◎	◎			◎	◎	◎	◎	◎	◎	◎	
Double-acting, Low friction type (At low pressure (0.2MPa or less))	SCA2-O	ø40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	600	1	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			◎				◎	◎	◎	◎	◎	◎	◎	706
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			◎				◎	◎	◎	◎	◎	◎	◎	
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			◎				◎	◎	◎	◎	◎	◎	◎	
Double-acting, Low friction type (Constant friction when pressurized)	SCA2-U	40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	600	1	●		●	●																												712
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			◎				◎	◎	◎	◎	◎	◎	◎	
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		●	●																												
Double Acting/ Double Rod Type	SCA2-D	ø40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	800	1	●		●	●	●				●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎				◎		718
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700			●		●	●	●				●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎				◎		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800			●		●	●	●				●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎				◎		
Double Acting, Back-to-Back Type	SCA2-B	ø40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	600	1	●		●	●						●	●		●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎				◎		736
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		●	●						●	●		●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎				◎		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		●	●						●	●		●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎				◎		
Double Acting, Two-Stage Type	SCA2-W	ø40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	2	600	600	1	●		●	●	●	●	●	●		●	●		●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		748
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		●	●	●	●	●	●		●	●		●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		●	●	●	●	●	●		●	●		●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
Double-acting, Steel tube type	SCA2-K	ø40	●	●	●	●	●	●	●	●	●	●	●	●	1	600	1600	1	●		●	●	●	●	●	●				●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		762
		ø50																																														
		ø63	●	●	●	●	●	●	●	●	●	●	●	●			1900		●		●	●	●	●	●	●				●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700			●		●	●	●	●	●	●				●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800			●		●	●	●	●	●	●				●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
Double Acting, Low Hydraulic Pressure Type	SCA2-H	ø40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	600	1	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		774
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		

Note: ø40 cannot be selected for tapped trunnion types (TF, TD, TE).
Note: Support type TA, fall prevention mechanism R cannot be manufactured.
Note: Support type TB, fall prevention mechanism H cannot be manufactured.

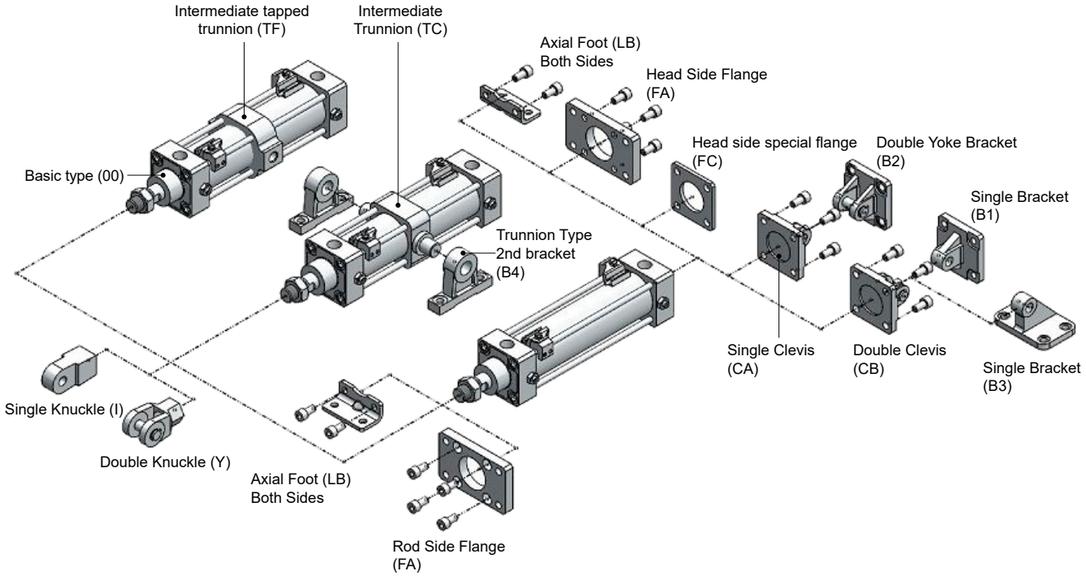
Medium Bore Size Cylinder SCA2 Series

●: Standard, ◎: Option, ○: Custom Products, : Not manufacturable

Variation	Model No. / Circuit Diagram Symbol	Bore Size (mm)	Standard Stroke (mm)												Min. Stroke (mm)	Maximum Stroke (mm)	Manufacturable stroke (mm)	Intermediate stroke (mm) increments	Mounting type: Basic type	Mounting type: Axial Foot Type	Mounting type: Rod Side Flange Type	Mounting type: Head Side Flange Type	Mounting type: Head side special flange type	Mounting type: Single Clevis Type	Mounting type: Double Clevis Type	Mounting type: Intermediate Trunnion Type	Mounting type: Rod Side Trunnion Type	Mounting type: Head Side Trunnion Type	Mounting type: Intermediate tapped trunnion type	Mounting type: Rod side tapped trunnion type	Mounting type: Head side tapped trunnion type	Cushion: Without Cushion	Cushion: Both sides cushion	Cushion: Rod side cushion	Cushion: Head side cushion	Option: Bellows (100°C)	Option: Bellows (250°C)	Option: Piston Rod Material (Stainless Steel)	Option: Cushion needle position S	Option: Cushion needle position T	Accessories: Single Knuckle	Accessories: Double Knuckle	Accessories: Single Bracket	Accessories: Double Yoke Bracket	Accessories: Single Bracket	Accessories: Trunnion Type 2nd Bracket	Switch	Page
			25	50	75	100	150	200	250	300	350	400	450	500					00	LB	FA	FB	FC	CA	CB	TC	TA	TB	TF	TD	TE	N	B	R	H	J	L	M	S	T	I	Y	B1	B2	B3	B4		
Double Acting, Heavy Duty Scraper Type	SCA2-G	ø40	●	●	●	●	●	●	●	●	●	●	●	●	1	600	1600	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	780
		ø50															2,000																														
		ø63																																												
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	2500																														
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800																														
Double Acting, Coolant Proof Type	SCA2-G2, G3	ø40	●	●	●	●	●	●	●	●	●	●	●	●	1	600	1600	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	798
		ø50															2,000																														
		ø63																																												
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	2500																														
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800																														
Double-acting, Coil scraper type Double Acting, Spatter Adhesion Prevention Type	SCA2-G1, G4	ø40	●	●	●	●	●	●	●	●	●	●	●	●	1	600	1600	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	814
		ø50															2,000																														
		ø63																																												
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	2500																														
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800																														
Double Acting, with Valve	SCA2-V	ø40 to ø63		●	●	●	●	●	●	●	●	●	●	●	50	600	600	1	●	●	●		●	●	●	●		●	●		●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	830
		ø80		●	●	●	●	●	●	●	●	●	●	●		700	700																														
		ø100		●	●	●	●	●	●	●	●	●	●	●		800	800																														

Note: ø40 cannot be selected for tapped trunnion types (TF, TD, TE).

Combination of Mounting Brackets and Accessories



Combination Availability Table for Variations and Option Items

● Symbol: Standard
◎ Symbol: Option
○ Symbol: Custom Products
△ Symbol: Manufacturable depending on conditions (Please consult us.)
× Symbol: Not manufacturable
H Symbol: Only head side fall prevention is supported (Custom product)
R Symbol: Only rod side fall prevention is supported (Custom product)

*1: Support only for S2 side
*2: Increasing rod sealant and bearings leads to a larger resistance and thus causes a change in the min. starting pressure.
*3: The valve mounting position differs from the standard.
*4: The minimum starting pressure on the S2 side is higher than the standard for the low friction type. Please consult us.
*5: The minimum starting pressure value increases due to the resistance during bellows expansion and contraction. Please consult us.
*6: For coolant proof scraper G2 and G3, refer to "Coolant proof pneumatic components guide" CC-N-375.
*7: The max. stroke available for the ø63 to ø100 bore size models with bellows is 2000 mm.

		Category	Variation																								Piping thread		Option			
			Double Acting Basic Type	Double Acting Double Rod Type	Back-to-Back Type	Two-stage stroke type	Stroke adjustment Push	Stroke adjustment Pull	Drop prevention type	With Valve	Cylinder tube Steel pipe	Low Hydraulic Pressure Type	Heat resistant type (120°C)	Low friction type (at low pressure)	Low friction type (when pressurized)	Heavy-Duty Scraper Type	Coil Scraper Type	Cutting oil resistant scraper (NBR)	Cutting oil resistant scraper (FKM)	Sputter adhesion prevention type	With Cylinder Switch	With cylinder switch, for strong magnetic field	With cylinder switch For heat resistance	NPT	G	With bellows, Polyolefin	With Bellows, Silicone Rubber	Piston Rod Material (Stainless Steel)	Cushion needle position specification
		Code	None	D	B	W	P	R	Q2	V	K	H	T	O	U	G	G1	G2	G3	G4	None	L2	L2T	N	G	J	L	M	R,S,T
Variation	Double Acting Basic Type	Blank																												
	Double Acting Double Rod Type	D			×	*1	×	×	○	△	○	△	△	*2	*2	○	○	○	○	○	●	○	○	○	○	*7	*7	◎	◎
	Back-to-Back Type	B				×	×	×	○	△	○	○	○	○	△	○	○	○	○	○	●	○	○	○	○	◎	◎	◎	◎
	Two-stage stroke type	W					×	×	×	*3	○	○	○	*4	*4	○	○	○	○	○	●	○	○	○	○	◎	◎	◎	◎
	Stroke adjustment Push	P						×	H	○	○	△	△	*2	*2	△	△	△	△	△	●	○	○	○	○	◎	◎	◎	◎
	Stroke adjustment Pull	R							R	○	○	×	△	○	○	○	○	○	○	○	●	○	○	○	○	◎	◎	◎	◎
	Drop prevention type	Q2								×	○	×	×	△	×	△	△	△	△	△	●	○	×	○	○	△	△	◎	◎
	With Valve	V									○	×	×	×	×	○	○	×	×	○	●	○	×	○	○	◎	◎	◎	◎
	Cylinder tube Steel pipe	K										○	○	○	△	○	○	×	×	○	×	×	×	○	○	◎	◎	◎	◎
	Low Hydraulic Pressure Type	H											×	×	×	△	○	×	×	×	●	○	×	○	○	◎	◎	◎	◎
	Heat resistant type (120°C)	T												×	×	×	○	×	×	×	×	○	×	○	○	×	◎	◎	◎
	Low friction type (low friction at low pressure)	O													×	×	×	×	×	×	●	○	×	○	○	*5	*5	◎	
	Low friction type (constant friction when pressurized)	U														×	×	×	×	×	●	○	×	○	○	×	×	◎	
	Heavy-Duty Scraper Type	G																			●	○	×	○	○	○	○	◎	◎
	Coil Scraper Type	G1																			●	○	○	○	○	×	×	○	◎
	Coolant Proof Scraper (NBR)	G2																			●	○	×	○	○	×	×	●	◎
	Coolant Proof Scraper (FKM)	G3																			●	○	×	○	○	×	×	●	◎
	Sputter adhesion prevention type	G4																			●	○	×	○	○	×	×	○	◎
	With Cylinder Switch	Blank																				×	×	○	○	◎	◎	◎	◎
	With cylinder switch, for strong magnetic field	L2																					×	○	○	○	○	○	○
	With cylinder switch For heat resistance	L2T																						○	○	○	○	○	○
Piping thread	NPT	N																								◎	◎	◎	◎
	G	G																								◎	◎	◎	◎
Option	With bellows, Polyolefin	J																											○
	With Bellows, Silicone Rubber	L																											○
	Piston Rod Material (Stainless Steel)	M																											○
	Cushion needle position specification	R,S,T																											
Accessories	Cylinder Switch	Separately Shown	◎	◎	◎	◎	◎	◎	◎	◎	×	◎	×	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎
	Single Knuckle	I	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎
	Double Knuckle	Y	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎
	Single Bracket	B1	◎	×	×	◎	×	×	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎
	Double Yoke Bracket	B2	◎	×	×	◎	×	×	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎
	Single Bracket	B3	◎	×	×	◎	×	×	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎
	Bracket for trunnion	B4	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎

[Model No. Notation Method]

SCA2 - D G2 - LB - 50 - [ ] - B - 50 - T2WLH3 - D - [ ]

Model No.	Variation	❶	❷	❸	❹	❺	❻	❼	❽
SCA2	D G2	LB	50		B	50	T2WLH3	D	
	Double Rod, Coolant Proof Scraper Type	Mounting Style: Axial Foot Type	Bore size: ø50 mm	Port Thread Type: Rc Thread	Cushion: With Cushion on Both Sides	Stroke: 50 mm	Switch Model No.: Improved water resistance switch, 3 m lead wire	Number of Switches: With 2 pcs	Option: None

*Enter symbols in order from left to right in the table above.

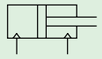
*1: Back-to-back type has two cylinders. When indicating each variation, use the following method.
- If only S1 has a variation, enter the variation symbol before the S1 stroke. (Example) SCA2-B-40-O100-150: Only S1 is low friction type.
- If only S2 has a variation, enter the variation symbol before the S2 stroke. (Example) SCA2-B-40-100-O150: Only S2 is low friction type.
- If S1 and S2 have the same variation, please enter the variation code before the bore size. (Example) SCA2-BO-40-100-150: Both S1 and S2 are low friction type.



Medium Bore Size Cylinder
Double-acting, Single rod type, With switch

SCA2 Series

●Bore size: ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

With Switch
(Built-in magnet for switch)

Strong magnetic field resistant
(H0, H0Y switch)
With Switch
(Built-in magnet for switch)

	Model No.	❶ Mounting type	❷ Bore Size	❸ Piping thread type	❹ Cushion	❺ Stroke	❻ Switch Model No.	❼ Number of Switches	❽ Option	❾ Accessories
Without Switch	SCA2 - LB - 40		B - 100						S	I
With Switch	SCA2 - LB - 40		B - 100		T0H	R			S	I
Strong magnetic field resistant / With Switch	SCA2-L2 - LB - 40		B - 100		H0Y	R			S	I

❶Mounting type

Mounting brackets are included to the product and shipped. However, trunnion type/bellows-equipped models with rod side flange will be shipped assembled.

Code	Content		Code	Content		Code	Content	
00	Basic type		CA	Single Clevis Type		TF	Intermediate tapped trunnion type (ø50 to ø100)	
LB	Axial Foot Type		CB	Double Clevis Type (Pin and Washer Split Pin Attached)		TD	Rod side tapped trunnion type (ø50 to ø100)	
FA	Rod Side Flange Type		TC	Intermediate Trunnion Type		TE	Head side tapped trunnion type (ø50 to ø100)	
FB	Head Side Flange Type		TA	Rod Side Trunnion Type				
FC	Head side special flange		TB	Head Side Trunnion Type				

❷Bore Size (mm)

Code	Content
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom product)
G	G thread (Custom product)

❹Cushion

Code	Content
B	Both Sides Air Cushion
R	With rod side cushion
H	With head side cushion
N	Without Cushion

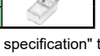
❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø40	1 to 600	Every 1 mm
ø50	1 to 600	
ø63	1 to 600	
ø80	1 to 700	
ø100	1 to 800	

Note: For minimum stroke with switch, please refer to P. 628 and 629.

❻Switch Model No.

For switch details, please refer to P. 971. Switches are included to the product and shipped.

Contact	Indicator Lamp / Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T5V□	T5V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	
	For 1-color strong magnetic field		110	12/24	7 to 20	5 to 50	H0□	-	
	For 2-color strong magnetic field		—	24 ± 10%	—	5 to 20	H0Y□	-	

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

5

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH3
5 m TOH5

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model No.s listed above are also available. (Custom Product) For details, see P. 971.

❼Number of Switches

Code	Content
*1 R	With 1 pc on rod side
*1 H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

*1: ❶When "TA", "TD", "TB", or "TE" is selected as the mounting method, the number of switches is limited to "H" (1 on the head side) for "TA" and "TD", and "R" (1 on the rod side) for "TB" and "TE".

❽Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
J	Bellows	100°C	200°C	
L		250°C	400°C	
M	Piston Rod Material (Stainless Steel)			
Blank	Cushion needle position R (Standard)			T Standard S
S	Cushion needle position S *2			
T	Cushion needle position T			

*1: Instantaneous maximum temperature is the temperature when sparks, chips, etc. instantaneously hit the bellows.
*2: ❶When mounting type "TA", "TD", "TB", "TE" is selected, the cushion needle position is fixed to "S" (Blank) and cannot be selected.

❾Accessories

Code	Content	
I	Single Knuckle *1	
Y	Double Knuckle (Pin and retaining ring included) *1	
B1	Single Bracket	
B2	Double Yoke Bracket (Pin and retaining ring included)	
B3	Single Bracket	
B4	Trunnion Type 2nd Bracket (2 pieces/set)	

*1: "I" and "Y" cannot be selected at the same time.

*For combinations of variations and options, see P. 625.

Regarding specifications of custom products

Details: refer to P. 854 to 861.

Code	Content	Code	Content	Code	Content
-XR◇◇◇◇	Port/Cushion needle position specification	-XP7	Knuckle fixed by pin driving	-XT9	Scraper/Rod packing only Fluororubber
-XK◇	Mounting Bracket Rotational Assembly	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	-T2	Fluorine Packing Type
-XAQ◇◇	Trunnion Position Specification	-XM1	Tie rod material SUS	-A2	With 2 Rod Nuts
-XP5	Knuckle Pin/Clevis Pin Split Pin	-XJ9	Without Bellows	Rod end Shape change	Refer to Ending P. 11.

Model No. Example) SCA2-.....-XP5

Food Manufacturing Process Compatible Specification
(Catalog No. CC-1271AA)
●Uses food grade grease that can be used in food manufacturing processes
SCA2 – ..... – FP1

Outdoor series
(Catalog No. CC-1276AA)
●Outdoor equipment products that support outdoor facilities in harsh environments
SCA2-.....-W

Oil-free specification
(Catalog No. RJ-001AA)
●Grease scatter prevention structure
SCA2-.....-P12

Switch Single Unit Model No. Notation Method

[T type switch]
●Switch body + Mounting bracket set
SCA2 - T0H - 40
❻ Switch Model No. ❷ Bore Size

●Switch body only
SW - T0H
❻ Switch Model No.
*Please consult us separately if using environmentally compatible T-type switches.

●Switch mounting bracket set
SCA2 - TS - 40
Mounting bracket ❷ Bore Size

[H type switch]
●Switch body + Mounting bracket set
SCA2-L2 - H0 - 40
❻ Switch Model No. ❷ Bore Size

●Switch body only
SW - H0
❻ Switch Model No.

●Mounting bracket set
SCA2-L2 - H - 40
❷ Bore Size

[T2YD type switch]
●Switch body + Mounting bracket set
SCA2 - T2YD - 40
❻ Switch Model No. ❷ Bore Size

●Switch body only
SW - T2YD
❻ Switch Model No.

●Mounting bracket set
SCA2 - T - 40
❷ Bore Size

Specifications

Item		SCA2, SCA2-L2				
Bore Size mm		ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type				
Operating Fluid		Compressed Air				
Max. Working Pressure MPa		1.0				
Min. Operating Pressure MPa		0.05				
Proof Pressure MPa		1.6				
Ambient Temperature °C		–10 to 60 (Provided that freezing does not occur)				
Port Size		Rc 1/4	Rc 3/8		Rc 1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Operating Piston Speed mm/s		50 to 1000 (Use within allowable absorbed energy.)				
Cushion		Air Cushion				
Effective air cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)				
Allowable absorbed energy J	With Cushion	4.29	8.37	15.8	27.9	49.8
	Without Cushion	0.067	0.079	0.079	0.201	0.301
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.				

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Producible Stroke (mm)	Min. Stroke (mm)
ø40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	1600	1
ø50			2,000	
ø63			2500	
ø80		700		
ø100		800	*3	

*1: Intermediate strokes can be manufactured in 1 mm increments.
***2: If the maximum stroke is exceeded, the product specifications may not be met depending on the conditions, so please consult us.**
*3: For bellows-equipped models with Bore sizes ø63 to ø100, the producible stroke is up to 2000 mm.

Min. Stroke with Switch

●Minimum stroke with T0/T5 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (20)	20 (10)	60 (45)	110 (110)	110 (110)	50 (50)	50 (50)
ø50	20 (20)	15 (10)	20 (20)	135 (135)	135 (135)	60 (60)	60 (60)
ø63	20 (20)	15 (10)	20 (20)	110 (95)	110 (95)	50 (45)	50 (45)
ø80	25 (25)	15 (15)	25 (25)	115 (85)	115 (85)	55 (40)	55 (40)
ø100	25 (25)	15 (15)	25 (25)	125 (95)	125 (95)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T8 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (20)	15 (10)	50 (35)	95 (85)	95 (85)	45 (40)	45 (40)
ø50	20 (20)	10 (10)	20 (20)	115 (115)	115 (115)	50 (50)	50 (50)
ø63	20 (20)	10 (10)	20 (20)	95 (75)	95 (75)	45 (35)	45 (35)
ø80	25 (25)	15 (15)	25 (25)	100 (70)	100 (70)	50 (35)	50 (35)
ø100	25 (25)	15 (15)	25 (25)	110 (80)	110 (80)	55 (40)	55 (40)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Min. Stroke with Switch

●Minimum stroke with T2/T3 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	105 (75)	105 (75)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	110 (80)	110 (80)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	115 (85)	115 (85)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	125 (95)	125 (95)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T1/T2YD type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	100 (70)	100 (70)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	105 (75)	105 (75)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	110 (80)	110 (80)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	120 (90)	120 (90)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type). However, T2YD does not have an L-shaped lead wire type (V).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T2W/T3W/T2WL type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (10)	20 (5)	65 (50)	110 (80)	110 (80)	50 (35)	50 (35)
ø50	20 (10)	20 (5)	20 (10)	110 (80)	110 (80)	50 (35)	50 (35)
ø63	20 (10)	20 (5)	20 (10)	115 (85)	115 (85)	55 (40)	55 (40)
ø80	15 (10)	15 (5)	15 (10)	120 (90)	120 (90)	55 (40)	55 (40)
ø100	10 (10)	10 (5)	10 (10)	130 (100)	130 (100)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Cylinder Weight

(Unit: kg)

Bore Size (mm)	Product Weight when stroke (S) = 0 mm							Switch weight	Switch Mounting Bracket Weight		S = Added weight per 10 mm
	Basic Type (00)	Foot Type (LB)	Flange Type (FA, FB)	Special flange type (FC)	Single Clevis Type (CA)	Double clevis type (CB)	Trunnion Type (TA, TB, TC)		T type	H type	
ø40	0.83	1.00	1.24	0.92	1.15	1.19	1.21	Please refer to the weight listed in the switch specifications of P. 971	0.024	0.028	0.39
ø50	1.20	1.45	1.69	1.31	1.58	1.61	1.74		0.022	0.026	0.46
ø63	1.60	1.97	2.69	1.78	2.17	2.22	2.45		0.020	0.024	0.50
ø80	2.60	3.34	4.46	2.96	3.87	4.08	3.94		0.026	0.029	0.90
ø100	4.20	5.11	6.94	4.75	5.84	6.02	6.77		0.024	0.028	1.12

(Example) Product Weight of SCA2-LB-50B-200-TOH-D

- Product Weight at 0 mm stroke ..... 1.45 kg
- Added weight at 200 mm stroke ..... $0.46 \times \frac{200}{100} = 0.92$ kg
- Weight of 2 TOH switches ..... 0.018 × 2 = 0.036 kg
- Weight of 2 mounting brackets .....0.022 × 2=0.044 kg
- Product Weight ..... 1.45 + 0.92 + 0.036 + 0.044 = 2.450 kg

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	62.8	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	52.8	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.2	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	1.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push	2.51×10^2	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	2.27×10^2	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push	3.93×10^2	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3	6.28×10^3	7.07×10^3	7.85×10^3
	Pull	3.57×10^2	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

Mounting Bracket Model No. Notation Method

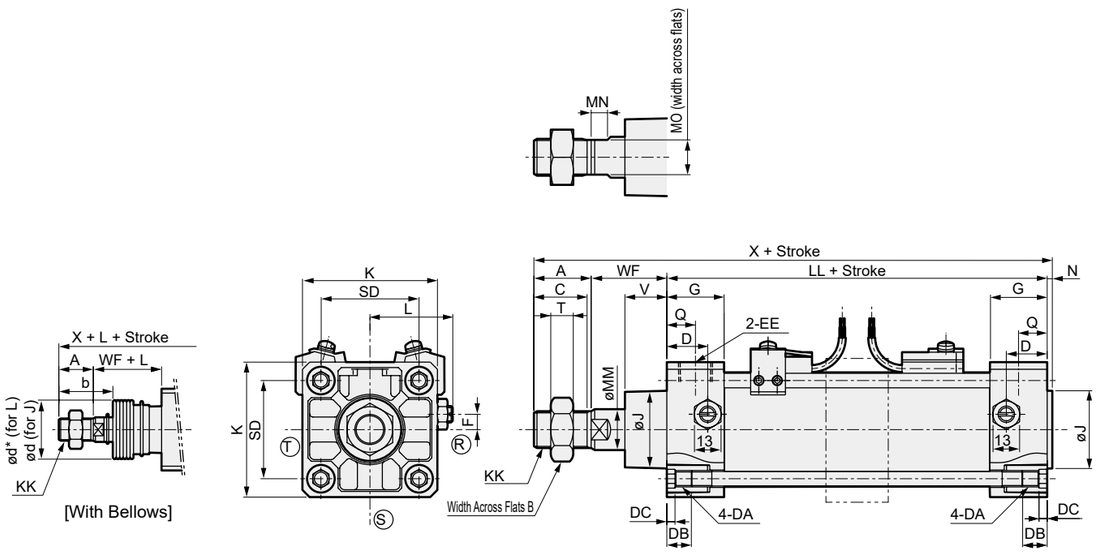
Bore Size (mm) / Mounting bracket	ø40	ø50	ø63	ø80	ø100
Foot (LB) *2	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Single Clevis (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Double Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

***1: For the material of the mounting brackets, please refer to P. 646.**
*2: Foot type mounting brackets come in sets of 2.
*3: Mounting bolts are included to each mounting bracket.

MEMO

Outline Dimension Drawing

●Basic Type (OO)



Code	Basic Type (OO) Basic Dimensions																
Bore Size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL	MM	MN	MO
ø40	22	22	20	18	M8	12	4	Rc 1/4	7.5	26	31	57	M14 × 1.5	38 to 39.5	93	16	8	14
ø50	28	27	26	20	M8	12	4	Rc 3/8	0	28	38	66	M18 × 1.5	41 to 43.5	101	20	8.5	17
ø63	28	27	26	22	M8	12	4	Rc 3/8	0	30	38	80	M18 × 1.5	47.5 to 50.0	105	20	8.5	17
ø80	36	32	34	26	M12	16	5	Rc 1/2	0	34	43	98	M22 × 1.5	56 to 59	116	25	11	22
ø100	45	41	43	28	M12	16	5	Rc 1/2	0	36	51	118	M26 × 1.5	66 to 69	128	30	13	27

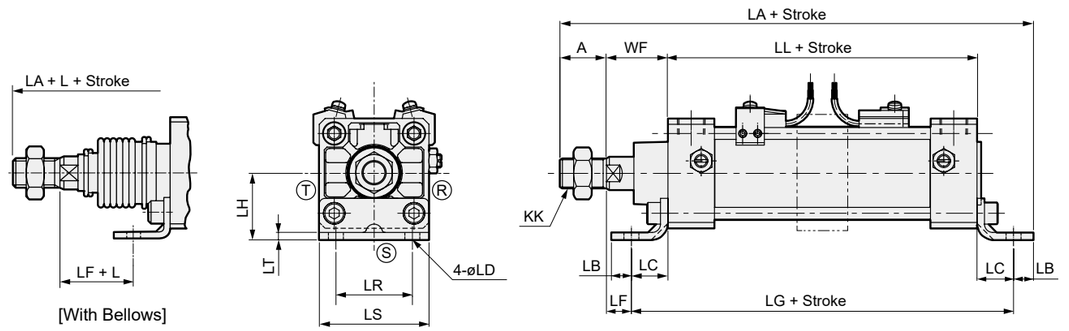
Code								With Bellows								
											L					
Bore Size (mm)	N	Q	SD	T	V	WF	X	b	d	d*	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400
ø40	2	13	40.5	8	18.5	33.5	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5
ø50	2.5	14	48	11	20.5	37	168.5	47	47	48	22	36	49	63	90	119
ø63	3	15	59	11	21	35	171	45	47	48	22	36	49	63	90	119
ø80	3.5	17	74	13	23.5	48	203.5	58.5	53	55	14	26	38	49	72	96
ø100	4	18	90	16	32	53	230	69.5	61	65	20	32	42	53	76	98

Code	With Bellows	
	L	
Bore Size (mm)	Over 400 to 500	*2 When exceeding 500
ø40	174.5	(Stroke/3.0) + 8
ø50	146	(Stroke/3.6) + 7.5
ø63	146	(Stroke/3.6) + 7.5
ø80	119	(Stroke/4.3) + 2.5
ø100	120	(Stroke/4.5) + 9

*1:ⓇⓈⓉ [Square symbol] indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

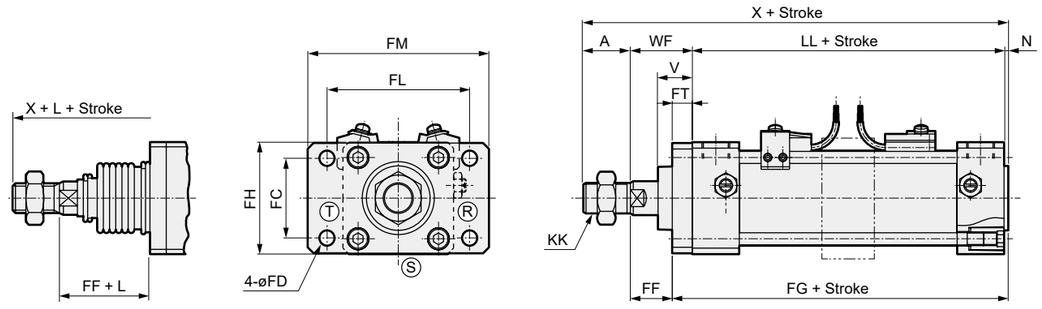
●Axial Foot Type (LB)



Code	Axial Foot Type (LB) Mounting Dimensions														With Bellows							
															L							
Bore Size (mm)	A	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	33.5	178	10	19.5	9	14	132	40	40	57	3.2	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	37	200	12	22	9	15	145	40	46	66	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	35	210	12	30	11	5	165	50	60	80	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	48	251	14	37	14	11	190	60	74	98	6.0	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	53	278	21	31	14	22	190	67	80	118	6.0	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉindicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

●Rod Side Flange Type (FA)

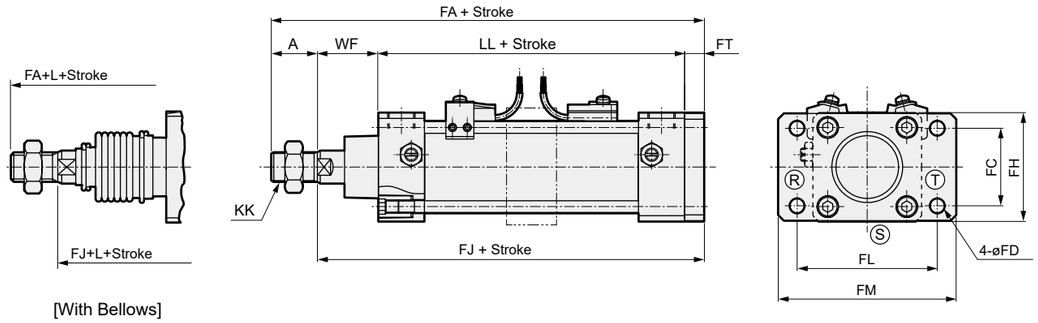


Code	Rod Side Flange Type (FA) Mounting Dimensions															With Bellows							
																L							
Bore Size (mm)	A	KK	LL	N	V	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	2	18.5	33.5	150.5	40	9	21.5	107	57	80	100	12	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	2.5	20.5	37	168.5	47	9	25	115.5	65	85	108	12	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	21	35	171	60	11	19	124	80	106	130	16	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	23.5	48	203.5	74	14	29	138.5	98	125	153	19	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	32	53	230	88	14	34	151	118	144	180	19	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉindicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

●Head Side Flange Type (FB)

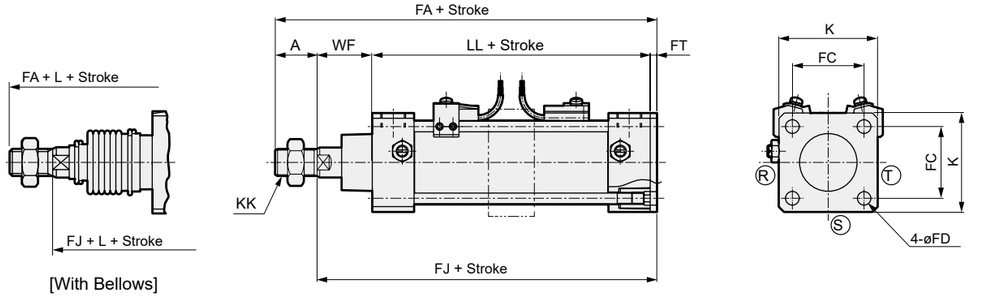


[With Bellows]

Code	Head Side Flange Type (FB) Mounting Dimensions												With Bellows							
													L							
Bore Size (mm)	A	KK	LL	WF	FA	FC	FD	FH	FJ	FL	FM	FT	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	33.5	160.5	40	9	57	138.5	80	100	12	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	37	178	47	9	65	150	85	108	12	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	35	184	60	11	80	156	106	130	16	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	48	219	74	14	98	183	125	153	19	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	53	245	88	14	118	200	144	180	19	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉindicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

●Head side special flange type (FC)



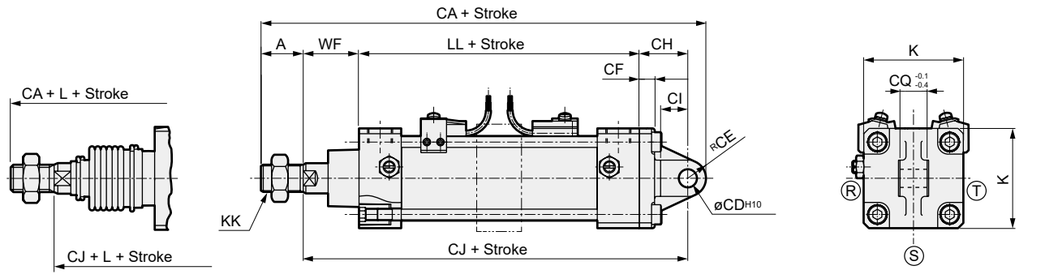
[With Bellows]

Code	Head side special flange type (FC) Mounting method										With Bellows							
											L							
Bore Size (mm)	A	K	KK	LL	WF	FA	FC	FD	FJ	FT	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	57	M14 × 1.5	93	33.5	153	40.5	9	131	4.5	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	66	M18 × 1.5	101	37	170.5	48	9	142.5	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	80	M18 × 1.5	105	35	172.5	59	9	144.5	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	98	M22 × 1.5	116	48	206	74	14	170	6	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	118	M26 × 1.5	128	53	232	90	14	187	6	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉindicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

●Single Clevis Type (CA)

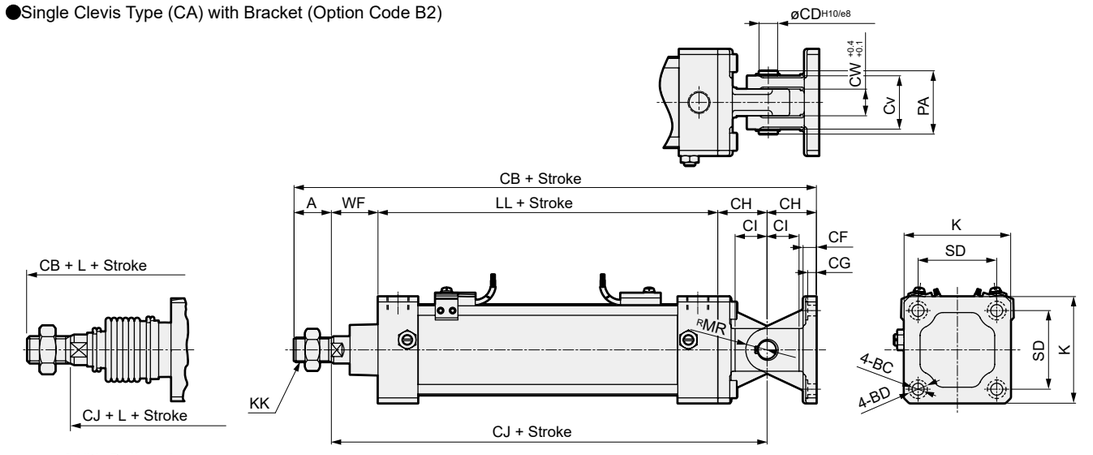


[With Bellows]

Code	Single Clevis Type (CA) Mounting Dimensions													With Bellows							
														L							
Bore Size (mm)	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	CQ	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	57	M14 × 1.5	93	33.5	192.5	12	12	10	32	18	158.5	18	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	66	M18 × 1.5	101	37	210	12	12	10	32	18	170	18	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	80	M18 × 1.5	105	35	221	14	16	10	37	24	177	20	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	98	M22 × 1.5	116	48	272	20	20	14	52	30	216	28	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	118	M26 × 1.5	128	53	298	20	20	16	52	30	233	28	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉindicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

●Single Clevis Type (CA) with Bracket (Option Code B2)



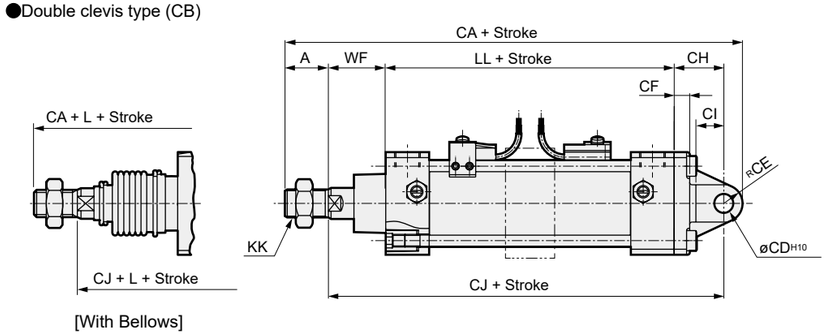
[With Bellows]

Code	Single Clevis Type (CA) With Bracket (Option Code B2) Mounting Dimensions																		With Bellows							
																			L							
Bore Size (mm)	A	K	KK	LL	WF	CB	CD	CF	CG	CH	CI	CJ	Cv	CW	BC	BD	MR	PA	SD	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	57	M14 × 1.5	93	33.5	212.5	12	10	6.5	32	18	158.5	36	18	9	14	12	43.5	40.5	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	66	M18 × 1.5	101	37	230	12	10	6.5	32	18	170	36	18	9	14	12	43.5	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	80	M18 × 1.5	105	35	242	14	10	6.5	37	24	177	40	20	9	14	16	47.5	59	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	98	M22 × 1.5	116	48	304	20	14	10.5	52	30	216	56	28	14	20	20	64	74	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	118	M26 × 1.5	128	53	330	20	16	10.5	52	30	233	56	28	14	20	20	64	90	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

●Double clevis type (CB)

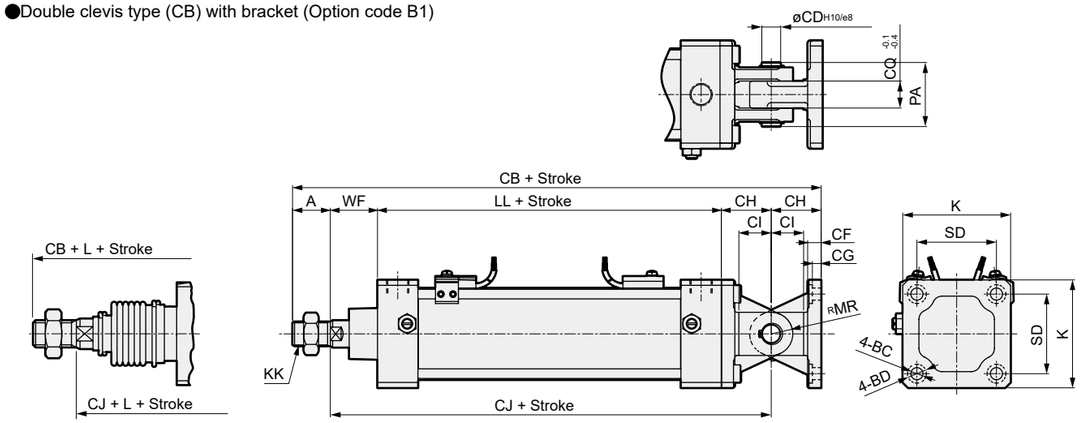


[With Bellows]

Code	Double Clevis Type (CB) Mounting Dimensions														With Bellows							
															L							
Bore Size (mm)	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	Cv	CW	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	57	M14 × 1.5	93	33.5	192.5	12	12	10	32	18	158.5	36	18	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	66	M18 × 1.5	101	37	210	12	12	10	32	18	170	36	18	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	80	M18 × 1.5	105	35	221	14	16	10	37	24	177	40	20	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	98	M22 × 1.5	116	48	272	20	20	14	52	30	216	56	28	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	118	M26 × 1.5	128	53	298	20	20	16	52	30	233	56	28	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
*3: Pins are attached.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

●Double clevis type (CB) with bracket (Option code B1)



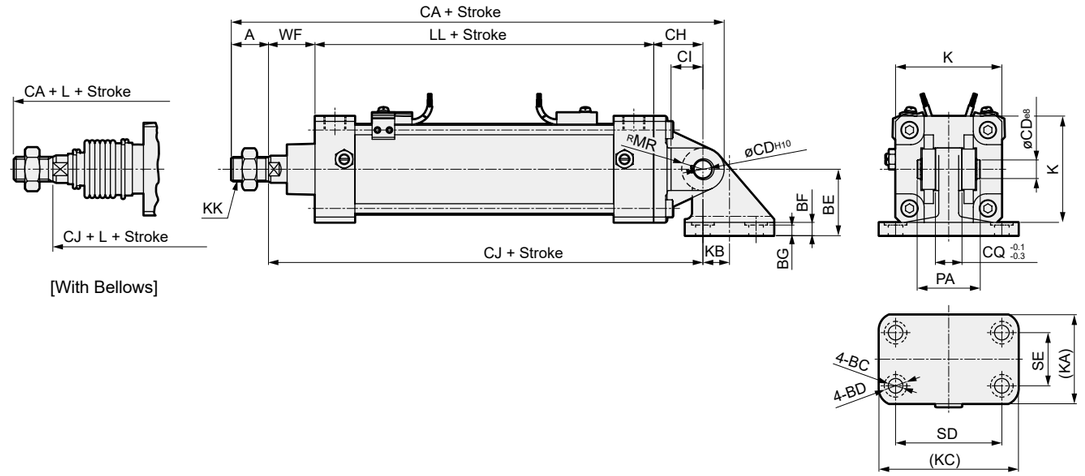
[With Bellows]

Code	Double Clevis Type (CB) With Bracket (Option Code B1) Mounting Dimensions																		With Bellows							
																			L							
Bore Size (mm)	A	K	KK	LL	WF	CB	CD	CF	CG	CH	CI	CJ	CQ	BC	BD	MR	PA	SD	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	57	M14 × 1.5	93	33.5	232.5	12	10	6.5	32	18	158.5	18	9	14	12	43.5	40.5	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	66	M18 × 1.5	101	37	250	12	10	6.5	32	18	170	18	9	14	12	43.5	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	80	M18 × 1.5	105	35	263	14	10	6.5	37	24	177	20	9	14	16	47.5	59	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	98	M22 × 1.5	116	48	336	20	14	10.5	52	30	216	28	14	20	20	64	74	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	118	M26 × 1.5	128	53	362	20	16	10.5	52	30	233	28	14	20	20	64	90	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1:ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
*3: Pins are attached.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

●Double clevis type (CB) with bracket (Option code B3)



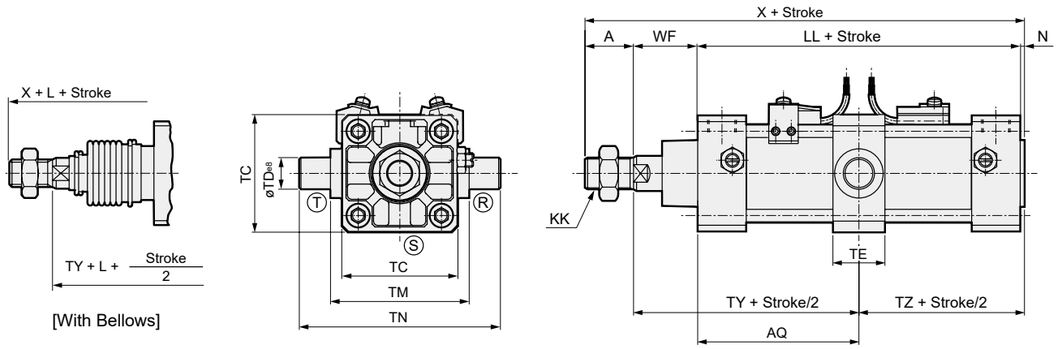
[With Bellows]

Code	Double clevis type (CB) with bracket (Option code B3) Mounting dimensions																						With Bellows							
																							L							
Bore Size (mm)	A	K	KK	LL	WF	CA	CD	CH	CI	CJ	CQ	BC	BD	BE	BF	BG	KA	KB	KC	MR	PA	SD	SE	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	57	M14 × 1.5	93	33.5	192.5	12	32	18	158.5	18	9	14	40	8	6.5	57	17.5	85	12	43.5	65	35	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	66	M18 × 1.5	101	37	210	12	32	18	170	18	9	14	40	8	6.5	57	17.5	85	12	43.5	65	35	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	80	M18 × 1.5	105	35	221	14	37	24	177	20	9	14	50	10	8	67	20	105	16	47.5	80	40	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	98	M22 × 1.5	116	48	272	20	52	30	216	28	14	20	65	12	10	93	30	130	20	64	100	60	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	118	M26 × 1.5	128	53	298	20	52	30	233	28	14	20	65	12	10	93	30	130	20	64	100	60	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉindicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
*3: Pins are attached.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

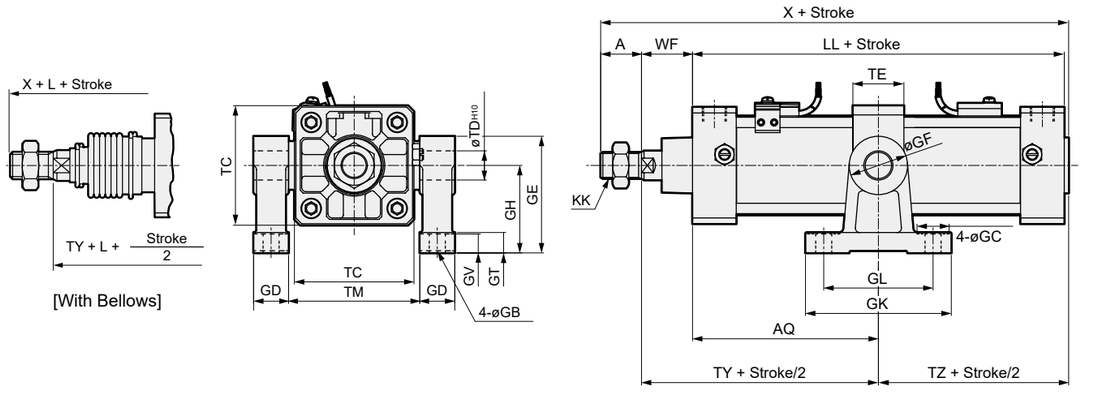
●Intermediate trunnion type (TC)



Code / Bore Size (mm)	Intermediate Trunnion Type (TC) Mounting Dimensions															With Bellows L							
	A	KK	LL	N	WF	X	AQ	TC	TD	TE	TM	TN	TY	TZ	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	2	33.5	150.5	46.5 + Stroke/2	57	16	30	63	95	80	48.5	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	2.5	37	168.5	50.5 + Stroke/2	67	18	30	80	116	87.5	53	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	35	171	52.5 + Stroke/2	82	20	35	90	130	87.5	55.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	48	203.5	58 + Stroke/2	100	25	40	115	165	106	61.5	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	53	230	64 + Stroke/2	121	35	50	135	205	117	68	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉindicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**

●Intermediate trunnion type (TC) with bracket (Option code B4)

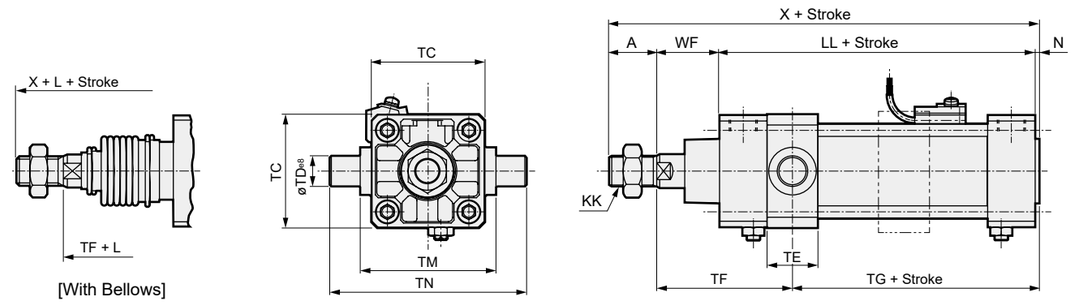


Code / Bore Size (mm)	Intermediate Trunnion Type (TC) with Bracket (Option Code B4) Mounting Dimensions																					With Bellows L								
	A	KK	LL	WF	X	AQ	TC	TD	TE	TY	TZ	TM	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	33.5	150.5	46.5 + Stroke/2	57	16	30	80	48.5	63	9	17	19	61	32	45	80	60	12	11	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	37	168.5	50.5 + Stroke/2	67	18	30	87.5	53	80	9	17	19	63	36	45	85	65	12	11	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	35	171	52.5 + Stroke/2	82	20	35	87.5	55.5	90	11	22	24	80	40	60	100	75	14	13	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	48	203.5	58 + Stroke/2	100	25	40	106	61.5	115	14	24	26	85	50	60	115	85	14	13	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	53	230	64 + Stroke/2	121	35	50	117	68	135	14	24	35	107	64	75	130	100	17	16	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

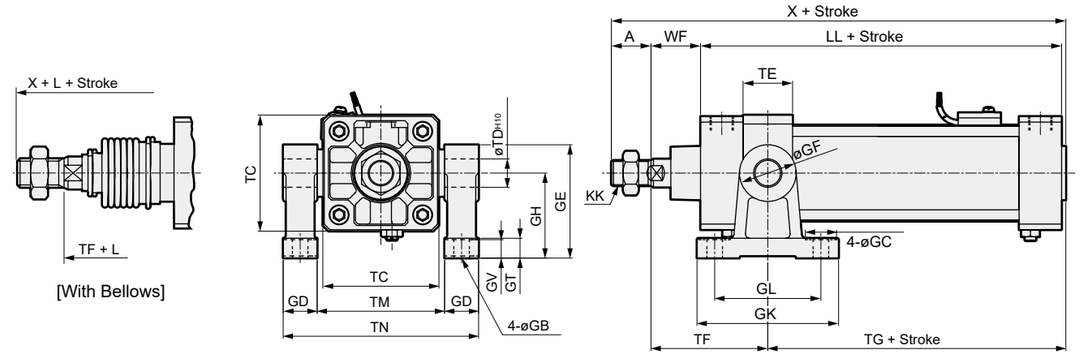
●Rod side trunnion type (TA)



Code / Bore Size (mm)	Rod Side Trunnion Type (TA) Mounting Dimensions													With Bellows L							
	A	KK	LL	N	WF	X	TC	TD	TE	TF	TG	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	M14 × 1.5	93	2	33.5	150.5	57	16	30	74.5	54	63	95	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	2.5	37	168.5	67	18	30	80	60.5	80	116	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	35	171	82	20	35	82.5	60.5	90	130	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	48	203.5	100	25	40	102	65.5	115	165	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	53	230	121	35	50	114	71	135	205	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the rod side stroke end is not possible.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

●Rod side trunnion type (TA) with bracket (Option code B4)

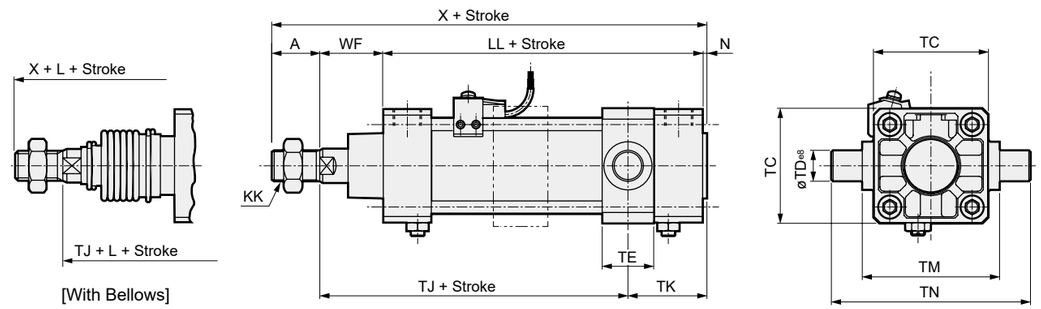


Code / Bore Size (mm)	Rod Side Trunnion Type (TA) with Bracket (Option Code B4) Mounting Dimensions																				With Bellows L							
	A	KK	LL	WF	X	TC	TD	TE	TF	TG	TM	TN	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	M14 × 1.5	93	33.5	150.5	57	16	30	74.5	54	63	95	9	17	19	61	32	45	80	60	12	11	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	37	168.5	67	18	30	80	60.5	80	116	9	17	19	63	36	45	85	65	12	11	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	35	171	82	20	35	82.5	60.5	90	130	11	22	24	80	40	60	100	75	14	13	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	48	203.5	100	25	40	102	65.5	115	165	14	24	26	85	50	60	115	85	14	13	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	53	230	121	35	50	114	71	135	205	14	24	35	107	64	75	130	100	17	16	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the rod side stroke end is not possible.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

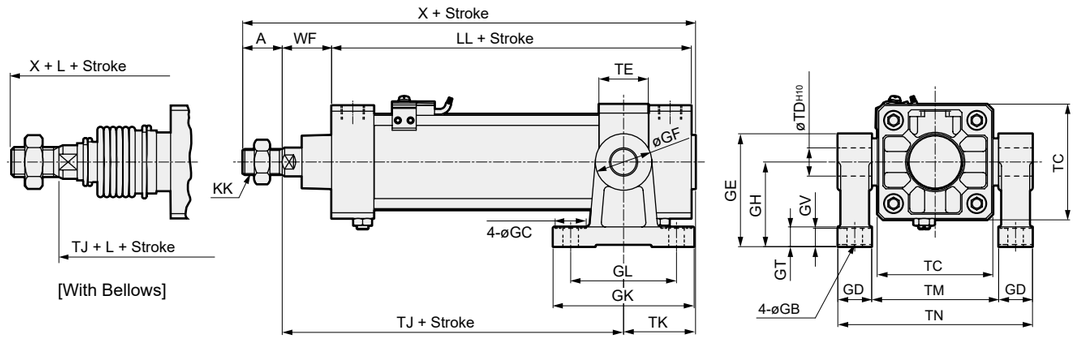
●Head Side Trunnion Type (TB)



Code	Head Side Trunnion Type (TB) Mounting Dimensions													With Bellows							
														L							
Bore Size (mm)	A	KK	LL	N	WF	X	TC	TD	TE	TJ	TM	TN	TK	50 or less	Over 50 to 100	Over 100 to 150	150 Exceeding and 200 or less	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	M14 × 1.5	93	2	33.5	150.5	57	16	30	85	63	95	43.5	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	2.5	37	168.5	67	18	30	94.5	80	116	46	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	35	171	82	20	35	92	90	130	51	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	48	203.5	100	25	40	109.5	115	165	58	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	53	230	121	35	50	119.5	135	205	65.5	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the head side stroke end is not possible.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

●Head side trunnion type (TB) with bracket (Option code B4)

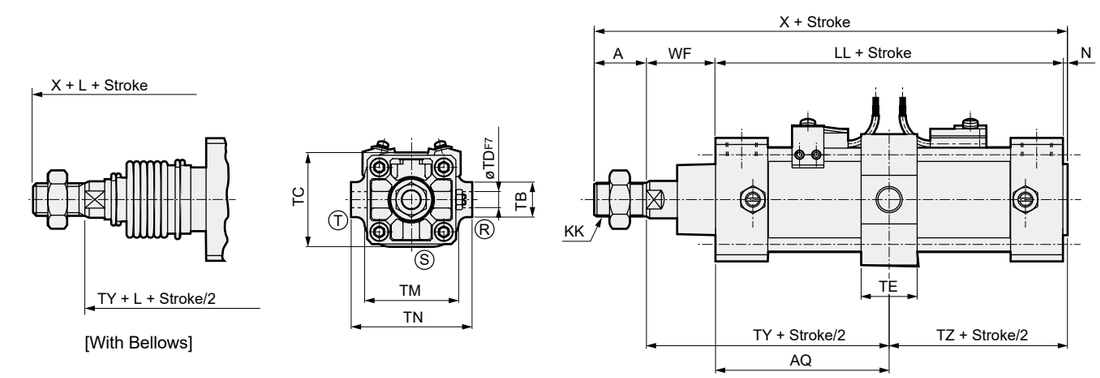


Code	Head Side Trunnion Type (TB) with Bracket (Option Code B4) Mounting Dimensions																				With Bellows								
																					L								
Bore Size (mm)	A	KK	LL	WF	X	TC	TD	TE	TJ	TK	TM	TN	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	M14 × 1.5	93	33.5	150.5	57	16	30	85	43.5	63	95	9	17	19	61	32	45	80	60	12	11	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	37	168.5	67	18	30	94.5	46	80	116	9	17	19	63	36	45	85	65	12	11	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	35	171	82	20	35	92	51	90	130	11	22	24	80	40	60	100	75	14	13	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	48	203.5	100	25	40	109.5	58	115	165	14	24	26	85	50	60	115	85	14	13	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	53	230	121	35	50	119.5	65.5	135	205	14	24	35	107	64	75	130	100	17	16	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the head side stroke end is not possible.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

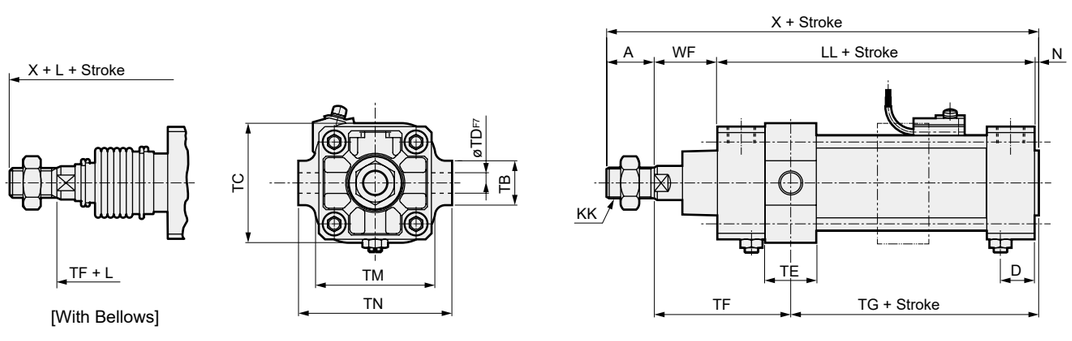
●Intermediate tapped trunnion type (TF)



Code	Intermediate tapped trunnion type (TF) Mounting dimensions														With Bellows							
															L							
Bore Size (mm)	A	KK	LL	N	WF	X	AQ	TB	TC	TD	TE	TM	TN	TY	TZ	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø50	28	M18 × 1.5	101	2.5	37	168.5	50.5 + Stroke/2	26	70	12	30	70	90	87.5	53	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	35	171	52.5 + Stroke/2	30	86	14	35	86	104	87.5	55.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	48	203.5	58 + Stroke/2	35	105	20	40	105	134	106	61.5	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	53	230	64 + Stroke/2	40	123	20	40	127	150	117	68	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: Ⓡ Ⓢ Ⓣ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**

●Rod side tapped trunnion type (TD)

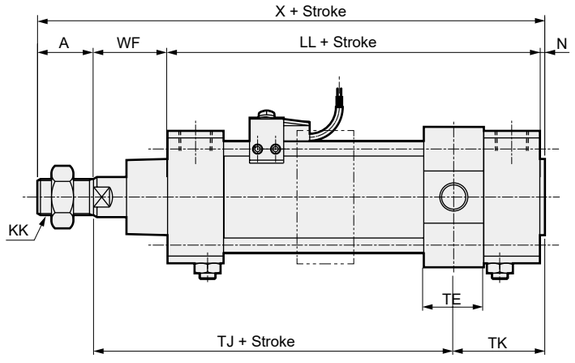


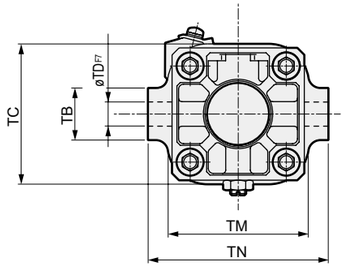
Code	Rod side tapped trunnion type (TD) Mounting dimensions														With Bellows							
															L							
Bore Size (mm)	A	KK	LL	N	WF	X	TB	TC	TD	TE	TF	TG	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø50	28	M18 × 1.5	101	2.5	37	168.5	26	70	12	30	80	60.5	70	90	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	35	171	30	86	14	35	82.5	60.5	86	104	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	48	203.5	35	105	20	40	102	65.5	105	134	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	53	230	40	123	20	40	109	76	127	150	20	32	42	53	76	98	120	(Stroke/4.5) + 9

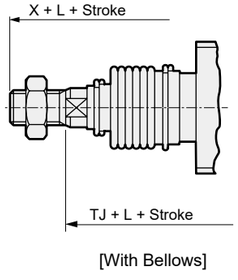
*1: The position of the cushion needle cannot be changed.
*2: Position detection at the rod side stroke end is not possible.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

●Head side tapped trunnion type (TE)







[With Bellows]

Code	Head side tapped trunnion type (TE) Mounting dimensions													
Bore Size (mm)	A	KK	LL	N	WF	X	TB	TC	TD	TE	TJ	TM	TN	TK
ø50	28	M18 × 1.5	101	2.5	37	168.5	26	70	12	30	94.5	70	90	46
ø63	28	M18 × 1.5	105	3	35	171	30	86	14	35	92	86	104	51
ø80	36	M22 × 1.5	116	3.5	48	203.5	35	105	20	40	109.5	105	134	58
ø100	45	M26 × 1.5	128	4	53	230	40	123	20	40	124.5	127	150	60.5

Code	With Bellows							
Bore Size (mm)	L							
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the head side stroke end is not possible.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

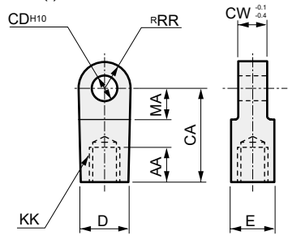
MEMO

Accessories Outline Dimension Drawing

, The mounting dimensions (øCD, CW, CQ) of the clevis type, knuckle, and 2nd bracket are the same, and all combinations are possible.
, Please specify by model No. when ordering.

● Single Knuckle (I)

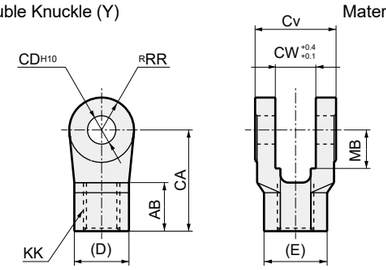
Material: Cast iron coating



Model No.	Applicable Bore Size (mm)	AA	CA	CD	CW	D	E	KK	MA	RR	Weight (kg)
S1-I-40	40	20	50	12	18	27	27	M14 × 1.5	21	16	0.26
S1-I-50	50	21	50	12	18	27	27	M18 × 1.5	21	16	0.24
S1-I-63	63	21	50	14	20	27	27	M18 × 1.5	21	16	0.25
S1-I-80	80	30	70	20	28	46	41	M22 × 1.5	30	25	0.88
S1-I-100	100	30	70	20	28	46	41	M26 × 1.5	30	25	0.84

● Double Knuckle (Y)

Material: Cast iron coating

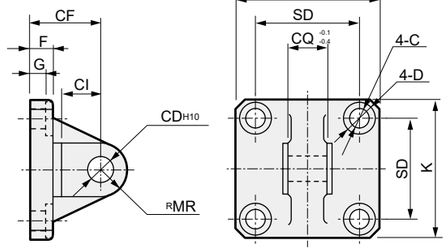


Model No.	Applicable Bore Size (mm)	AB	CA	CD	Cv	CW	D	E	KK	MB	RR	Weight (kg)
S1-Y-40	40	24	50	12	36	18	27	31.2	M14 × 1.5	19	16	0.25
S1-Y-50	50	24	50	12	36	18	27	31.2	M18 × 1.5	19	16	0.24
S1-Y-63	63	24	50	14	40	20	27	31.2	M18 × 1.5	19	16	0.26
S1-Y-80	80	35	70	20	56	28	41	47.3	M22 × 1.5	30	25	0.90
S1-Y-100	100	35	70	20	56	28	41	47.3	M26 × 1.5	30	25	0.85

*1: Pin and retaining ring are included.
*2: MB dimension represents the effective length of CW dimension.

● Single Bracket (B1)

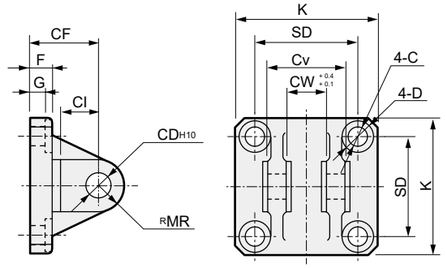
Material: Cast iron coating



Model No.	Applicable Bore Size (mm)	C	CD	CF	CI	CQ	D	F	G	K	MR	SD	Weight (kg)
S1-B1-40	40	9	12	32	18	18	14	10	6.5	57	12	40.5	0.32
S1-B1-50	50	9	12	32	18	18	14	10	6.5	66	12	48	0.38
S1-B1-63	63	9	14	37	24	20	14	10	6.5	80	16	59	0.57
S1-B1-80	80	14	20	52	30	28	20	14	10.5	98	20	74	1.27
S1-B1-100	100	14	20	52	30	28	20	16	10.5	118	20	90	1.64

●Double Bracket (B2)

Material: Cast iron coating

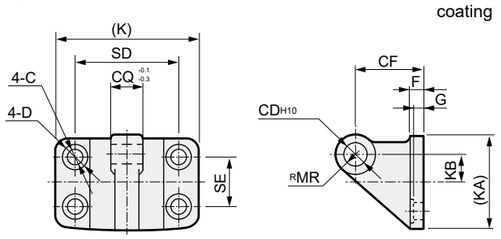


Model No.	Applicable Bore Size (mm)	C	CD	CF	CI	Cv	CW	D	F	G	K	MR	SD	Weight (kg)
S1-B2-40	40	9	12	32	18	36	18	14	10	6.5	57	12	40.5	0.36
S1-B2-50	50	9	12	32	18	36	18	14	10	6.5	66	12	48	0.41
S1-B2-63	63	9	14	37	24	40	20	14	10	6.5	80	16	59	0.62
S1-B2-80	80	14	20	52	30	56	28	20	14	10.5	98	20	74	1.48
S1-B2-100	100	14	20	52	30	56	28	20	16	10.5	118	20	90	1.82

Note: The pin and retaining ring are included.

●Single Clevis Bracket (B3)

Material: Cast iron coating

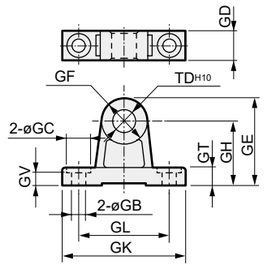


Model No.	Applicable Bore Size (mm)	C	CD	CF	CQ	D	F	G	K	KA	KB	MR	SD	SE	Weight (kg)
S1-B3-40	ø40, ø50	9	12	40	18	14	8	6.5	85	57	17.5	12	65	35	0.44
S1-B3-63	ø63	11	14	50	20	17	10	8	105	67	20	16	80	40	0.77
S1-B3-80	ø80, ø100	14	20	65	28	20	12	10	130	93	30	20	100	60	1.64

Accessories Outline Dimension Drawing

●Trunnion type 2nd bracket (B4)

Material: Cast iron coating



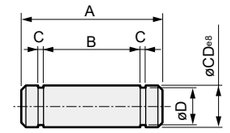
Code / Model No.	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV	TD	Weight (kg)
S1-B4-40	9	17	19	61	32	45	80	60	12	11	16	0.25
S1-B4-50	9	17	19	63	36	45	85	65	12	11	18	0.28
S1-B4-63	11	22	24	80	40	60	100	75	14	13	20	0.52
S1-B4-80	14	24	26	85	50	60	115	85	14	13	25	0.70
S1-B4-100	14	24	35	107	64	75	130	100	17	16	35	1.48

Note: Brackets come in sets of 2.

● Pin (P)

Material: Steel Zinc Chromate

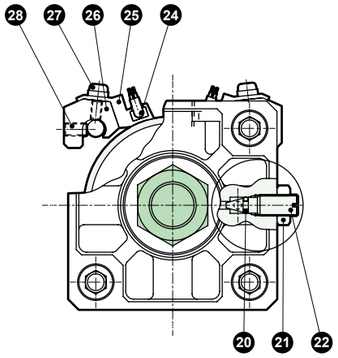
Pin (P): For double clevis, double knuckle, double bracket

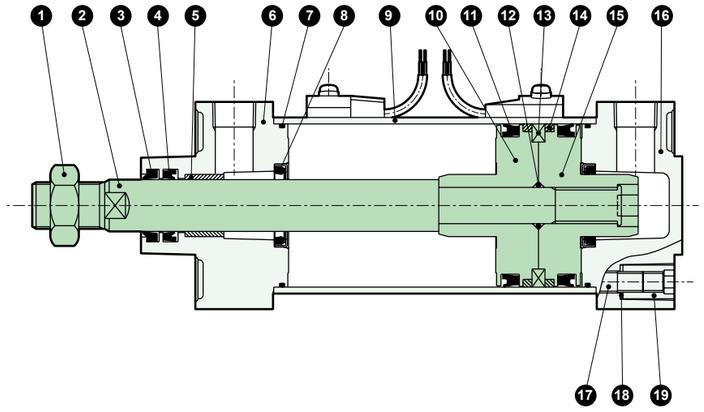


Model No.	Applicable Bore Size (mm)	A	B	C	D	CD	Retaining Ring to Use	Weight (kg)
S1-P-40	40, 50	43.5	36.2	1.15	11.5	12	C-type for Shaft 12	0.04
S1-P-63	63	47.5	40.2	1.15	13.4	14	C-type 14 for Shaft	0.06
S1-P-80	80, 100	64	56.2	1.35	19	20	C-type for shaft 20	0.16

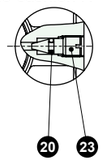
Note: Retaining ring is included.

Internal Structure Diagram/Material





No cushion N



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	16	Head Cover	Aluminum Alloy	Painting
2	Piston Rod	Steel	Industrial Hard Chrome Plating	17	Tie Rod	Steel	Zinc Chromate
3	Scraper	Nitrile Rubber		18	Belleville washer	Steel	Black Oxide
4	Rod Packing	Nitrile Rubber		19	Round Nut	Steel	Zinc Chromate
5	Bushing	Oil-Impregnated Bearing Alloy		20	Needle Gasket	Nitrile Rubber	
6	Rod Cover	Aluminum Alloy	Painting	21	Needle nut	Copper Alloy	Nickel plating (only with cushion)
7	Cylinder Gasket	Nitrile Rubber		22	Cushion Needle	Copper Alloy	Nickel plating (only with cushion)
8	Cushion Packing	Nitrile Rubber, Steel	Only with cushion	23	Cushion plug	Copper Alloy	Nickel plating (only without cushion)
9	Cylinder Tube	Aluminum Alloy	Hard Anodized	With Switch			
10	Piston R	Aluminum Alloy		24	Switch		
11	Piston Packing	Nitrile Rubber		25	Switch holder	Aluminum Alloy	
12	Piston Gasket	Nitrile Rubber		26	Switch mounting base	Aluminum Alloy	
13	Magnet	Plastic		27	With captive washer Phillips pan head screw	Steel	Zinc Chromate
14	Wear Ring	Polyacetal					
15	Piston H	Aluminum Alloy		28	Hexagon socket head set screw	Alloy Steel	Black Oxide

Mounting Bracket Material

Mounting type	Material	Remarks
Foot (LB)	Steel	Painting
Flange (FA, FB, FC)	Steel	Painting
Single clevis (CA), Double clevis (CB)	Cast Iron	Painting
Trunnion (TC, TA, TB)	Cast Iron	Painting

For maintenance parts, please visit the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts.

MEMO

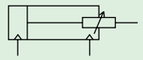
General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending



Medium Bore Size Cylinder
Double Acting, Stroke Adjustment Type (Push)

SCA2-P Series

● Bore size: ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

With Switch
(Built-in magnet for switch)

	SCA2-P	LB	40		B	100	25	T0H	R	S	I
Model No.		❶ Mounting type	❷ Bore Size	❸ Piping thread type	❹ Cushion	❺ Stroke	❻ Stroke adjustment range	❼ Switch Model No.	❽ Number of Switches	❾ Option	❿ Accessories

Mounting brackets are included to the product and shipped. (However, axial foot type, head side flange type, and each trunnion type are shipped assembled.)

❶Mounting type

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
TC	Intermediate Trunnion Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TF	Intermediate tapped trunnion type (ø50 to ø100)	
TD	Rod side tapped trunnion type (ø50 to ø100)	
TE	Head side tapped trunnion type (ø50 to ø100)	

❷Bore Size (mm)

Code	Content
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom order)
G	G thread (Custom order)

❹Cushion

	Code	Content
*1	B	With Cushion on Both Sides
*1	R	With rod side cushion
	H	With head side cushion
	N	Without Cushion

*1: Even if "B""R" cushion is selected, the PUSH side cushion effect may not be obtained depending on the adjustment stroke.

❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø40	25 to 600	Every 1 mm
ø50	25 to 600	
ø63	25 to 600	
ø80	25 to 700	
ø100	25 to 800	

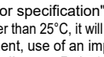
Note: For minimum stroke with switch, please refer to P. 650 and 651.

❻Stroke adjustment range (mm)

Code	Content
25	25
50	50
75	75
100	100

❼Switch Model No.

For switch details, please refer to P. 971. Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	-	
			—		—		T2YDT□	-	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model No.s listed above are also available. (Custom Product) For details, see P. 971.

*5

**Lead wire length, connector specification*

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH3
5 m TOH5

❽Number of Switches

	Code	Content
*1	R	With 1 pc on rod side
*1	H	With 1 pc on head side
	D	With 2 pcs
	T	With 3 pcs

*1: ❶When "TA", "TD", "TB", or "TE" is selected as the mounting method, the number of switches is limited to "H" (1 on the head side) for "TA" and "TD", and "R" (1 on the rod side) for "TB" and "TE".

❾Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
	J	Bellows	100°C	200°C	
	L		250°C	400°C	
	M	Piston Rod Material (Stainless Steel)			
*2	Blank	Cushion needle position R (Standard)			T Standard S
	S	Cushion needle position S			
	T	Cushion needle position T			

*1: Instantaneous maximum temperature is the temperature when sparks, chips, etc. instantaneously hit the bellows.
*2: ❶When mounting type "TA", "TD", "TB", "TE" is selected, the cushion needle position is fixed to "S" (Blank) and cannot be selected.

❿Accessories

Code	Content	
I	Single Knuckle *1	
Y	Double Knuckle (Pin and retaining ring included) *1	
B4	Trunnion type 2nd bracket (2 pieces/set)	

*1: "I" and "Y" cannot be selected at the same time.

*For combinations of variations and options, see P. 625.

Regarding specifications of custom products

Details: refer to P. 854 to 861.

Code	Content	Code	Content	Code	Content
-XR◇◇◇◇	Port/Cushion needle position specification	-XP7	Knuckle fixed by pin driving	-XT9	Scraper/Rod packing only Fluororubber
-XK◇	Mounting Bracket Rotational Assembly	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	-T2	Fluorine Packing Type
-XAQ◇◇	Trunnion Position Specification	-XM1	Tie rod material SUS	-A2	With 2 Rod Nuts
-XP5	Knuckle Pin/Clevis Pin Split Pin	-XJ9	Without Bellows	Rod end Shape change	Refer to Ending P. 11.

Model No. Example) SCA2-P -..... -XP5

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCA2-P -..... -FP1

Switch Single Unit Model No. Notation Method

[T type switch]

●Switch body + Mounting bracket set
SCA2 - T0H - 40
❼ Switch Model No. / ❷ Bore Size

●Switch body only
SW - T0H
❼ Switch Model No.

●Switch mounting bracket set
SCA2 - TS - 40
Mounting bracket / ❷ Bore Size

*Please consult us separately if using environmentally compatible T-type switches.

[T2YD type switch]

●Switch body + Mounting bracket set
SCA2 - T2YD - 40
❼ Switch Model No. / ❷ Bore Size

●Switch body only
SW - T2YD
❼ Switch Model No.

●Mounting bracket set
SCA2 - T - 40
❷ Bore Size

Specifications

Item		SCA2-P (Stroke adjustment type, Push)				
Bore Size	mm	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type				
Operating Fluid		Compressed Air				
Max. Working Pressure	MPa	1.0				
Min. Operating Pressure	MPa	0.1				
Proof Pressure	MPa	1.6				
Ambient Temperature	°C	–10 to 60 (Provided that freezing does not occur)				
Port Size		Rc 1/4	Rc 3/8		Rc 1/2	
Stroke tolerance	mm	$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Operating Piston Speed	mm/s	50 to 1000 (Use within allowable absorbed energy.)				
Cushion		Air Cushion				
Effective air cushion length	mm	14.6	16.6	16.6	20.6	23.6
Stroke adjustment range	mm	25, 50, 75, 100				
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)				
Allowable absorbed energy J	With cushion (*1)	4.29	8.37	15.8	27.9	49.8
	Without Cushion	0.067	0.079	0.079	0.201	0.301
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.				

*1: Excluding PUSH side. The PUSH side may not have a cushion effect depending on the adjustment stroke.

Stroke

Bore Size (mm)	Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
ø40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	25
ø50			
ø63			
ø80		700	
ø100		800	

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

●Minimum stroke with T0/T5 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	25 (25)	25 (25)	60 (45)	110 (110)	110 (110)	50 (50)	50 (50)
ø50	25 (25)	25 (25)	25 (25)	135 (135)	135 (135)	60 (60)	60 (60)
ø63	25 (25)	25 (25)	25 (25)	110 (95)	110 (95)	50 (45)	50 (45)
ø80	25 (25)	25 (25)	25 (25)	115 (85)	115 (85)	55 (40)	55 (40)
ø100	25 (25)	25 (25)	25 (25)	125 (95)	125 (95)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

● Minimum stroke with T8 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	25 (25)	25 (25)	50 (35)	95 (85)	95 (85)	45 (40)	45 (40)
ø50	25 (25)	25 (25)	25 (25)	115 (115)	115 (115)	50 (50)	50 (50)
ø63	25 (25)	25 (25)	25 (25)	95 (75)	95 (75)	45 (35)	45 (35)
ø80	25 (25)	25 (25)	25 (25)	110 (70)	110 (70)	50 (35)	50 (35)
ø100	25 (25)	25 (25)	25 (25)	110 (80)	110 (80)	55 (40)	55 (40)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Min. Stroke with Switch

●Minimum stroke with T2/T3 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	25 (25)	25 (25)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	25 (25)	25 (25)	25 (25)	105 (75)	105 (75)	45 (30)	45 (30)
ø63	25 (25)	25 (25)	25 (25)	110 (80)	110 (80)	50 (35)	50 (35)
ø80	25 (25)	25 (25)	25 (25)	115 (85)	115 (85)	55 (40)	55 (40)
ø100	25 (25)	25 (25)	25 (25)	125 (95)	125 (95)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

● Minimum stroke with T1/T2YD type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	100 (70)	100 (70)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	105 (75)	105 (75)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	110 (80)	110 (80)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	120 (90)	120 (90)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type). However, T2YD does not have an L-shaped lead wire type (V).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

● Minimum stroke with T2W/T3W/T2WL type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	25 (25)	25 (25)	65 (50)	110 (80)	110 (80)	50 (35)	50 (35)
ø50	25 (25)	25 (25)	25 (25)	110 (80)	110 (80)	50 (35)	50 (35)
ø63	25 (25)	25 (25)	25 (25)	115 (85)	115 (85)	55 (40)	55 (40)
ø80	25 (25)	25 (25)	25 (25)	120 (90)	120 (90)	55 (40)	55 (40)
ø100	25 (25)	25 (25)	25 (25)	130 (100)	130 (100)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Cylinder Weight

(Unit: kg)

Bore Size (mm)	Product Weight when stroke (S) = 0 mm						Switch weight	Switch Mounting Bracket Weight	S = Added weight per 10 mm
	Basic type 00	Foot Type (LB)	Flange Type (FA, FB)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion Type (TA, TB, TC)		T type	
ø40	1.20	1.37	1.61	1.52	1.56	1.58	Refer to the mass described in the switch specifications on P. 971	0.024	0.78
ø50	1.70	1.95	2.19	2.08	2.11	2.24		0.022	0.99
ø63	2.16	2.53	3.25	2.73	2.78	3.01		0.020	1.03
ø80	3.80	4.54	5.66	5.07	5.28	5.14		0.026	2.15
ø100	5.40	6.31	8.14	7.04	7.22	7.97		0.024	2.47

(Example) Product Weight of SCA2-P-LB-50B-200-25-TOH-D

Product Weight at 0 mm stroke ..... 1.95 kg
Added weight at 200 mm stroke ..... $0.99 \times \frac{200}{100} = 1.98$ kg
Weight of 2 TOH switches.....0.018 x 2 = 0.036 kg
Weight of 2 mounting brackets .....0.022 × 2=0.044 kg
Product Weight ..... 1.95 +1.98+0.036 + 0.044 = 4.010 kg

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push/Pull	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push/Pull	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push/Pull	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push/Pull	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push/Pull	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

Mounting Bracket Model No. Notation Method

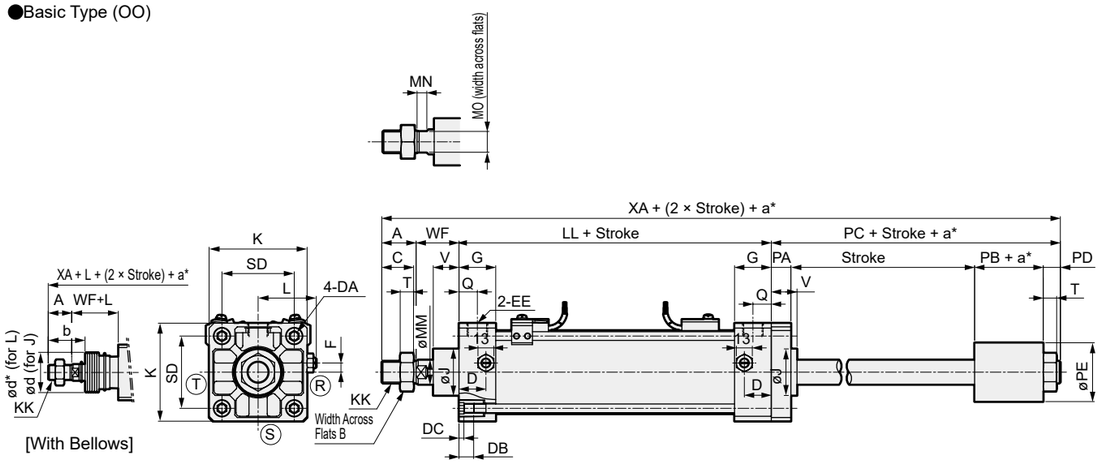
Bore Size (mm) / Mounting bracket	ø40	ø50	ø63	ø80	ø100
Flange (FA)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100

***1: For the material of the mounting brackets, please refer to P. 646.**
*2: Mounting bolts are included to each mounting bracket.

MEMO

Outline Dimension Drawing

●Basic Type (OO)



Note: a is the adjustment stroke.

Code	Basic Type (OO) Basic Dimensions													
Bore Size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK	L
ø40	22	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14 × 1.5	38 to 39.5
ø50	28	27	26	20	M8	12	4	Rc3/8	0	28	38	66	M18 × 1.5	41 to 43.5
ø63	28	27	26	22	M8	12	4	Rc3/8	0	30	38	80	M18 × 1.5	47.5 to 50
ø80	36	32	34	26	M12	16	5	Rc1/2	0	34	43	98	M22 × 1.5	56 to 59
ø100	45	41	43	28	M12	16	5	Rc1/2	0	36	51	118	M26 × 1.5	66 to 69

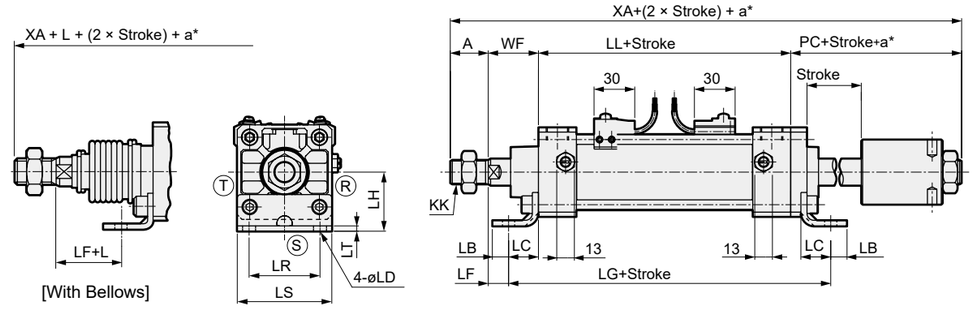
Code														
Bore Size (mm)	LL	MM	MN	MO	PA	PB	PC	PD	PE	Q	SD	T	V	WF	XA
ø40	93	16	8	14	12	29	52.5	11.5	40	13	40.5	8	18.5	33.5	201
ø50	101	20	8.5	17	12	35	61	14	48	14	48	11	20.5	37	227
ø63	105	20	8.5	17	16	31	61	14	48	15	59	11	21	35	229
ø80	116	25	11	22	19	33	68	16	60	17	74	13	23.5	48	268
ø100	128	30	13	27	19	50	90	21	70	18	90	16	32	53	316

Code	With Bellows										
	L										
Bore Size (mm)	b	d	d*	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

●Axial Foot Type (LB)

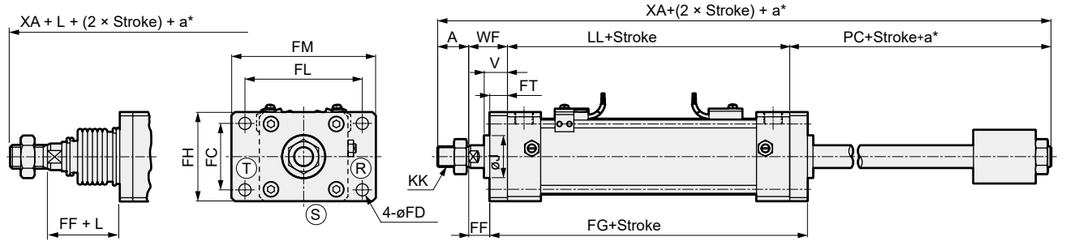


Note: a is the adjustment stroke.

Code	Axial Foot Type (LB) Mounting Dimensions															With Bellows								
																L								
Bore Size (mm)	A	KK	LL	PC	WF	XA	LB	LC	LD	LF	LG	LH	LR	LS	LT	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	52	33.5	200.5	10	19.5	9	14	140.8	40	40	57	3.2	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	61	37	227	12	22	9	15	152.5	40	46	66	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	61	35	229	12	30	11	5	176.5	50	60	80	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	68	48	268	14	37	14	11	203	60	74	98	6.0	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	90	53	316	21	31	14	12	203	67	80	118	6.0	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
*3: In the case of foot type mounting, the axial pitch dimension of the mounting holes differs from the standard type.
***4: Refer to P. 850 to 853 for dimensions with switch.** * "a" indicates the adjustment stroke.
***5: For outer dimensions diagram of accessories, refer to P. 644.**

●Rod Side Flange Type (FA)



[With Bellows]

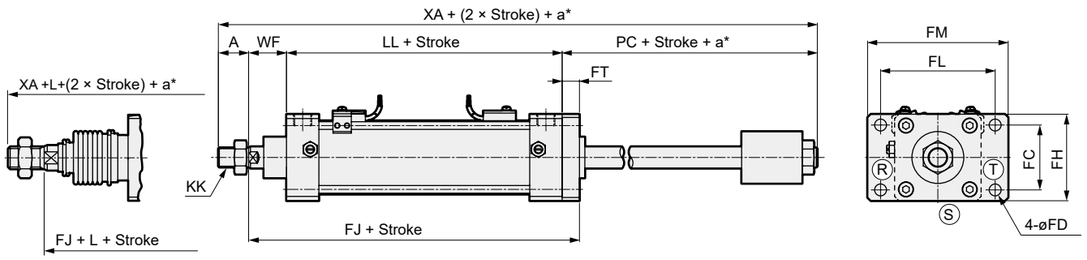
Note: a is the adjustment stroke.

Code	Rod Side Flange Type (FA) Mounting Dimensions																With Bellows								
																	L								
Bore Size (mm)	A	J	KK	LL	PC	V	WF	XA	FC	FD	FF	FG	FH	FL	FM	FT	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	31	M14 × 1.5	93	52.5	18.5	33.5	201	40	9	21.5	117	57	80	100	12	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	38	M18 × 1.5	101	61	20.5	37	227	47	9	25	125	65	85	108	12	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	38	M18 × 1.5	105	61	21	35	229	60	11	19	137	80	106	130	16	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	43	M22 × 1.5	116	68	23.5	48	268	74	14	29	154	98	125	153	19	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	51	M26 × 1.5	128	90	32	53	316	88	14	34	166	118	144	180	19	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

●Rod side flange type (FB)



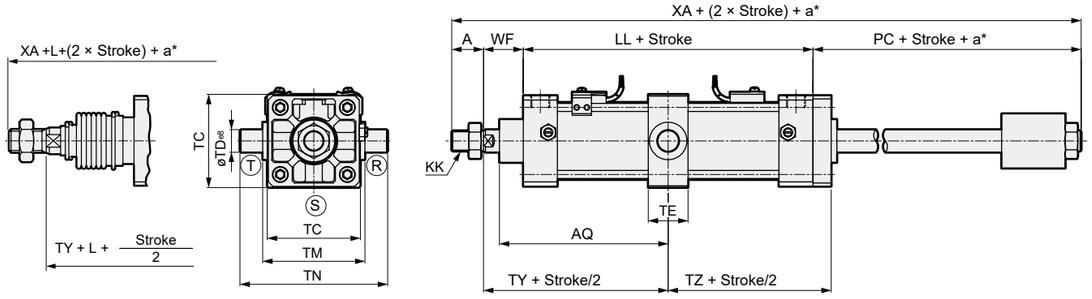
[With Bellows]

Note: a is the adjustment stroke.

Code / Bore Size (mm)	Rod Side Flange Type (FB) Mounting Dimensions													With Bellows L							
	A	KK	LL	PC	WF	XA	FC	FD	FJ	FH	FL	FM	FT	50 or less	Over 50 to 100	Over 100 to 150	150 Exceeding and 200 or less	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	52.5	33.5	201	40	9	138.5	57	80	100	12	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	61	37	227	47	9	150	65	85	108	12	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	61	35	229	60	11	156	80	106	130	16	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	68	48	268	74	14	183	98	125	153	19	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	90	53	316	88	14	200	118	144	180	19	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: Ⓡ Ⓢ Ⓣ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

●Intermediate trunnion type (TC)



[With Bellows]

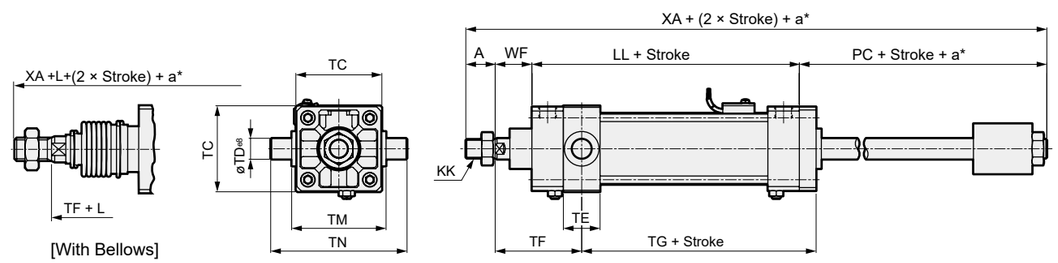
Note: a is the adjustment stroke.

Code / Bore Size (mm)	Intermediate Trunnion Type (TC) Mounting Dimensions														With Bellows L							
	A	KK	LL	PC	WF	XA	AQ	TC	TD	TE	TY	TZ	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	150 Exceeding and 200 or less	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	52.5	33.5	201	46.5 + Stroke/2	57	16	30	80	58.5	63	95	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	61	37	227	50.5 + Stroke/2	67	18	30	87.5	62.5	80	116	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	61	35	229	52.5 + Stroke/2	82	20	35	87.5	68.5	90	130	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	68	48	268	58 + Stroke/2	100	25	40	106	77	115	165	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	90	53	316	64 + Stroke/2	121	35	50	117	83	135	205	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: Ⓡ Ⓢ Ⓣ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Rod side trunnion type (TA)



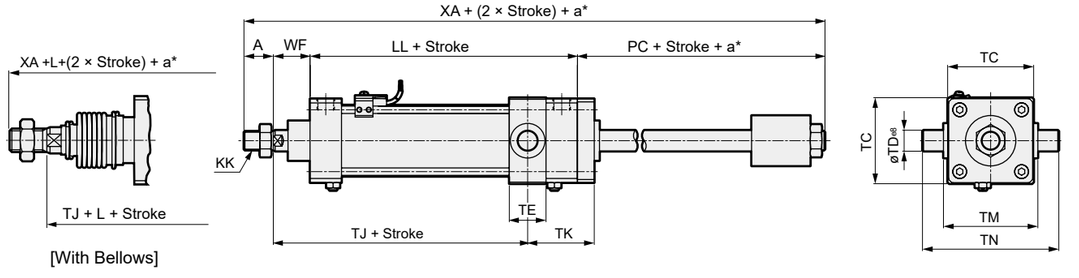
[With Bellows]

Note: a is the adjustment stroke.

Code / Bore Size (mm)	Rod Side Trunnion Type (TA) Mounting Dimensions													With Bellows L							
	A	KK	LL	PC	WF	XA	TC	TD	TE	TF	TG	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	M14 × 1.5	93	52.5	33.5	201	57	16	30	74.5	64	63	95	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	61	37	227	67	18	30	80	60.5	80	116	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	61	35	229	82	20	35	82.5	60.5	90	130	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	68	48	268	100	25	40	102	65.5	115	165	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	90	53	316	121	35	50	114	71	135	205	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the rod side stroke end is not possible.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

●Head Side Trunnion Type (TB)



[With Bellows]

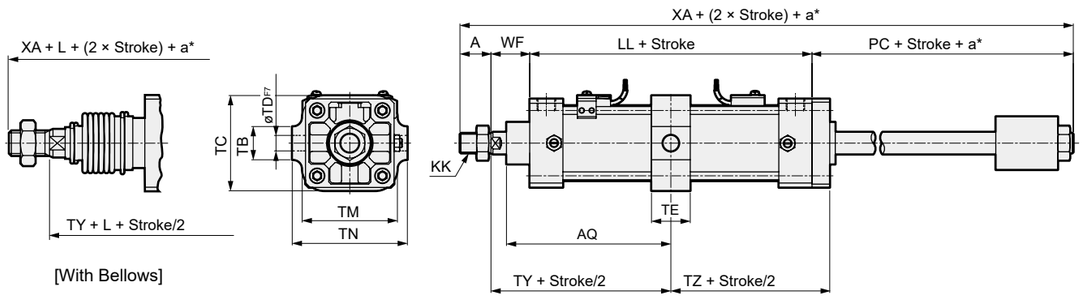
Note: a is the adjustment stroke.

Code / Bore Size (mm)	Head Side Trunnion Type (TB) Mounting Dimensions														With Bellows L							
	A	KK	LL	PC	WF	XA	TC	TD	TE	TJ	TK	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	M14 × 1.5	93	52.5	33.5	201	57	16	30	85	53.5	63	95	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	61	37	227	67	18	30	94.5	55.5	80	116	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	61	35	229	82	20	35	92	64	90	130	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	68	48	268	100	25	40	109.5	73.5	115	165	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	90	53	316	121	35	50	119.5	80.5	135	205	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the head side stroke end is not possible.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

●Intermediate tapped trunnion type (TF)



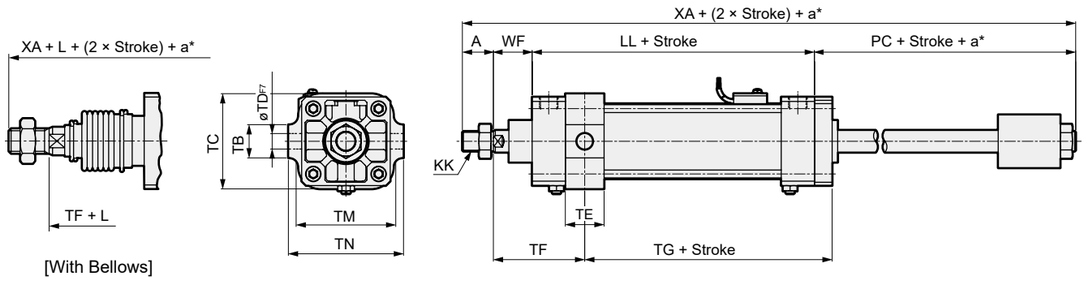
[With Bellows]

Note: a is the adjustment stroke.

Code / Bore Size (mm)	Intermediate tapped trunnion type (TF) Mounting dimensions															With Bellows L							
	A	KK	LL	PC	WF	XA	AQ	TB	TC	TD	TE	TY	TZ	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø50	28	M18 × 1.5	101	61	37	227	50.5 + Stroke/2	26	70	12	30	87.5	62.5	70	90	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	61	35	229	52.5 + Stroke/2	30	86	14	35	87.5	68.5	86	104	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	68	48	268	58 + Stroke/2	35	105	20	40	106	77	105	134	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	90	53	316	64 + Stroke/2	40	123	20	40	117	83	127	150	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉindicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**

●Rod side tapped trunnion type (TD)



[With Bellows]

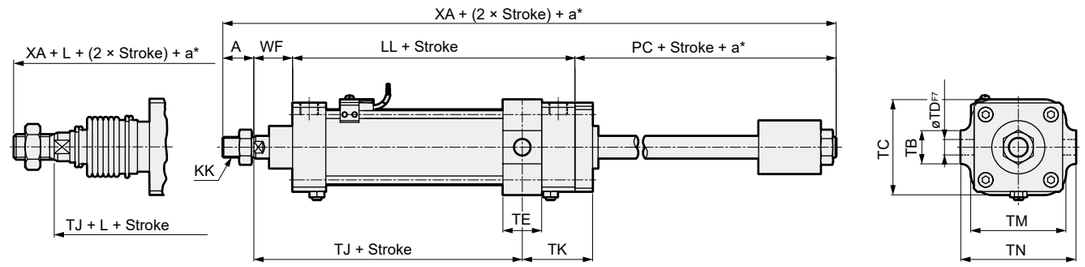
Note: a is the adjustment stroke.

Code / Bore Size (mm)	Rod side tapped trunnion type (TD) Mounting dimensions														With Bellows L							
	A	KK	LL	PC	WF	XA	TB	TC	TD	TE	TF	TG	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	150 Exceeding and 200 or less	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø50	28	M18 × 1.5	101	61	37	227	26	70	12	30	80	70	70	90	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	61	35	229	30	86	14	35	82.5	73.5	86	104	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	68	48	268	35	105	20	40	102	81	105	134	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	90	53	316	40	123	20	40	109	91	127	150	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the rod side stroke end is not possible.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

●Head side tapped trunnion type (TE)



[With Bellows]

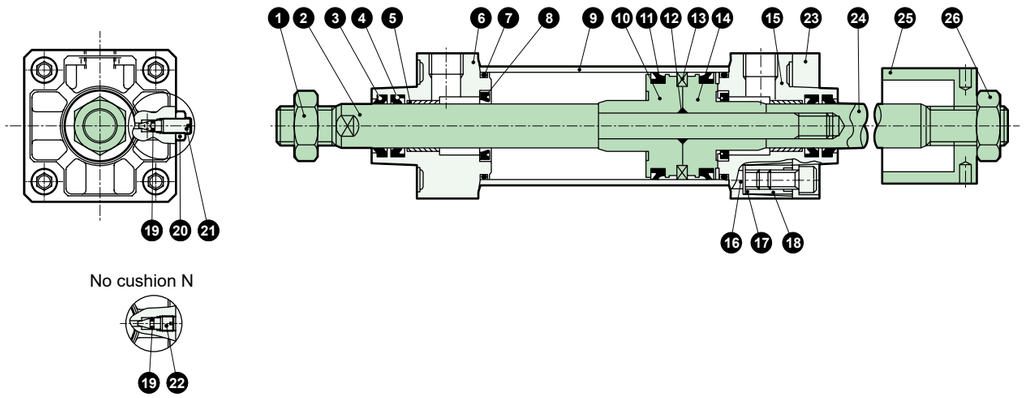
Note: a is the adjustment stroke.

Code / Bore Size (mm)	Head side tapped trunnion type (TE) Mounting dimensions													
	A	KK	LL	PC	WF	XA	TB	TC	TD	TE	TJ	TK	TM	TN
ø50	28	M18 × 1.5	101	61	37	227	26	70	12	30	94.5	55.5	70	90
ø63	28	M18 × 1.5	105	61	35	229	30	86	14	35	92	64	86	104
ø80	36	M22 × 1.5	116	68	48	268	35	105	20	40	109.5	73.5	105	134
ø100	45	M26 × 1.5	128	90	53	316	40	123	20	40	124.5	75.5	127	150

Code / Bore Size (mm)	With Bellows L							
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the head side stroke end is not possible.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Internal Structure Diagram/Material



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	14	Piston H	Aluminum Alloy	
2	Piston Rod	Steel	Industrial Hard Chrome Plating	15	Head Cover	Aluminum Alloy	Painting
3	Scraper	Nitrile Rubber		16	Tie Rod	Steel	Zinc Chromate
4	Rod Packing	Nitrile Rubber		17	Belleville washer	Steel	Black Oxide
5	Bushing	Oil-Impregnated Bearing Alloy		18	Round Nut	Steel	Zinc Chromate
6	Rod Cover	Aluminum Alloy	Painting	19	Needle Gasket	Nitrile Rubber	
7	Cylinder Gasket	Nitrile Rubber		20	Needle nut	Copper Alloy	Nickel Plating
8	Cushion Packing	Nitrile Rubber, Steel	Only with cushion	21	Cushion Needle	Copper Alloy	Nickel Plating
9	Cylinder Tube	Aluminum Alloy	Hard Anodized	22	Cushion plug	Copper Alloy	Nickel Plating
10	Piston R	Aluminum Alloy		23	Plate	Steel	Manganese phosphate
11	Piston Packing	Nitrile Rubber		24	Piston rod (2)	Steel	Industrial Hard Chrome Plating
12	Piston Gasket	Nitrile Rubber		25	Adjusting Stopper	Steel	Manganese phosphate
13	Magnet	Plastic		26	Lock Nut	Steel	Zinc Chromate

For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts.

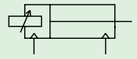
MEMO



Medium Bore Size Cylinder
Double Acting, Stroke Adjustment Type (Retracting)

SCA2-R Series

● Bore size: ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

SCA2-R – LB – 40 – B – 100 – 25 – S – I

Model No. ❶ ❷ ❸ ❹ ❺ ❻ ❾ ❿

With Switch
(Built-in magnet for switch)

SCA2-R – LB – 40 – B – 100 – 25 – T0H – R – S – I

Model No. ❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶ Mounting type · ❷ Bore Size · ❸ Piping thread type · ❹ Cushion · ❺ Stroke · ❻ Stroke adjustment range · ❼ Switch Model No. · ❽ Number of Switches · ❾ Option · ❿ Accessories

*1: Mounting brackets are included to the product and shipped. (However, the axial foot and trunnion types are shipped pre-assembled.)

❶ Mounting type

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
TC	Intermediate Trunnion Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TF	Intermediate tapped trunnion type (ø40 cannot be selected)	
TD	Rod side tapped trunnion type (ø40 cannot be selected)	
TE	Head side tapped trunnion type (ø40 cannot be selected)	

❷ Bore Size (mm)

Code	Content
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸ Piping thread type

Code	Content	
Blank	Rc Thread	*1
N	NPT thread (Custom order)	*1
G	G thread (Custom order)	

❹ Cushion

Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

*1: Even if cushions "B" and "R" are selected, the PULL side cushioning may not be effective, depending on the adjustment stroke.

❺ Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø40	25 to 600	Every 1 mm
ø50	25 to 600	
ø63	25 to 600	
ø80	25 to 700	
ø100	25 to 800	

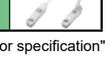
Note: For the minimum stroke with switch, please refer to P. 664 and P. 665.

❻ Stroke adjustment range (mm)

Code	Content
25	25
50	50
75	75
100	100

❼ Switch Model No.

For switch details, please refer to P. 971. Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model No.s listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+) 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

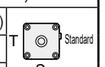
Example) Lead wire length
1 m TOH
3 m TOH3
5 m TOH5

❽ Number of Switches

Code	Content	
R	With 1 pc on rod side	*1
H	With 1 pc on head side	*1
D	With 2 pcs	
T	With 3 pcs	

*1: When mounting styles TA, TD, TB, or TE are selected, the number of switches is limited to "H" (1 pc. on head side) for TA and TD, and "R" (1 pc. on rod side) for TB and TE.

❾ Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
J	Bellows	100°C	200°C	
L		250°C	400°C	
M	Piston Rod Material (Stainless Steel)			
Blank	Cushion needle position R (Standard)			 T Standard S
S	Cushion needle position S			
T	Cushion needle position T			

*2

*1: Instantaneous maximum temperature is the temperature when sparks, chips, etc. instantaneously hit the bellows.
*2: ❶When mounting type "TA", "TD", "TB", "TE" is selected, the cushion needle position is fixed to "S" (Blank) and cannot be selected.

❿ Accessories

Code	Content	
I	Single knuckle *1	
Y	Double Knuckle (Pin and retaining ring included) *1	
B4	Trunnion type 2nd bracket (2 pieces/set)	

*1: "I" and "Y" cannot be selected at the same time.

*For combinations of variations and options, see P. 625.

Regarding specifications of custom products

Details: refer to P. 854 to 861.

Code	Content	Code	Content	Code	Content
-XR◇◇◇◇	Port/Cushion needle position specification	-XP7	Knuckle fixed by pin driving	-XT9	Scraper/Rod packing only Fluororubber
-XK◇	Mounting Bracket Rotational Assembly	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	-A2	With 2 Rod Nuts
-XAQ◇◇	Trunnion Position Specification	-XM1	Tie rod material SUS	Rod end Shape change	Refer to Ending P. 11.
-XP5	Knuckle Pin/Clevis Pin Split Pin	-XJ9	Without Bellows		

Model No. Example) SCA2-R –..... – XP5

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCA2-R –..... – FP1

Switch Single Unit Model No. Notation Method

[T type switch]

●Switch body + Mounting bracket set
SCA2 – T0H – 40
❼ Switch Model No. · ❷ Bore Size

● Switch body only
SW – T0H
❼ Switch Model No.

● Switch Mounting Bracket Set
SCA2 – TS – 40
Mounting bracket · ❷ Bore Size

*Please consult us separately if using environmentally compatible T-type switches.

[T2YD type switch]

● Switch body + Mounting bracket set
SCA2 – T2YD – 40
❼ Switch Model No. · ❷ Bore Size

● Switch body only
SW – T2YD
❼ Switch Model No.

● Mounting bracket set
SCA2 – T – 40
❷ Bore Size

Specifications

Item		SCA2-R (Stroke adjustment type, Pull)				
Bore Size mm		ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type				
Operating Fluid		Compressed Air				
Max. Working Pressure MPa		1.0				
Min. Operating Pressure MPa		0.05				
Proof Pressure MPa		1.6				
Ambient Temperature °C		–10 to 60 (Provided that freezing does not occur)				
Port Size		Rc 1/4	Rc 3/8		Rc 1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Operating Piston Speed mm/s		50 to 1000 (Use within allowable absorbed energy.)				
Cushion		Air Cushion				
Effective air cushion length mm		14.6	16.6	16.6	20.6	23.6
Stroke adjustment range mm		25, 50, 75, 100				
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)				
Allowable absorbed energy J	With cushion (*1)	4.29	8.37	15.8	27.9	49.8
	Without Cushion	0.067	0.079	0.079	0.201	0.301
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.				

*1: Excluding PULL side. The PULL side may not have a cushion effect depending on the adjustment stroke.

Stroke

Bore Size (mm)	Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
ø40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	25
ø50			
ø63			
ø80		700	
ø100		800	

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

●Minimum stroke with T0/T5 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	25 (25)	25 (25)	60 (45)	110 (110)	110 (110)	50 (50)	50 (50)
ø50	25 (25)	25 (25)	25 (25)	135 (135)	135 (135)	60 (60)	60 (60)
ø63	25 (25)	25 (25)	25 (25)	110 (95)	110 (95)	50 (45)	50 (45)
ø80	25 (25)	25 (25)	25 (25)	115 (85)	115 (85)	55 (40)	55 (40)
ø100	25 (25)	25 (25)	25 (25)	125 (95)	125 (95)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T8 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	25 (25)	25 (25)	50 (35)	95 (85)	95 (85)	45 (40)	45 (40)
ø50	25 (25)	25 (25)	25 (25)	115 (115)	115 (115)	50 (50)	50 (50)
ø63	25 (25)	25 (25)	25 (25)	95 (75)	95 (75)	45 (35)	45 (35)
ø80	25 (25)	25 (25)	25 (25)	100 (70)	100 (70)	50 (35)	50 (35)
ø100	25 (25)	25 (25)	25 (25)	110 (80)	110 (80)	55 (40)	55 (40)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Min. Stroke with Switch

●Minimum stroke with T2/T3 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	25 (25)	25 (25)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	25 (25)	25 (25)	25 (25)	105 (75)	105 (75)	45 (30)	45 (30)
ø63	25 (25)	25 (25)	25 (25)	110 (80)	110 (80)	50 (35)	50 (35)
ø80	25 (25)	25 (25)	25 (25)	115 (85)	115 (85)	55 (40)	55 (40)
ø100	25 (25)	25 (25)	25 (25)	125 (95)	125 (95)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

● Minimum stroke with T1/T2YD type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	100 (70)	100 (70)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	105 (75)	105 (75)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	110 (80)	110 (80)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	120 (90)	120 (90)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type). However, T2YD does not have an L-shaped lead wire type (V).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

● Minimum stroke with T2W/T3W/T2WL type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	25 (25)	25 (25)	65 (50)	110 (80)	110 (80)	50 (35)	50 (35)
ø50	25 (25)	25 (25)	25 (25)	110 (80)	110 (80)	50 (35)	50 (35)
ø63	25 (25)	25 (25)	25 (25)	115 (85)	115 (85)	55 (40)	55 (40)
ø80	25 (25)	25 (25)	25 (25)	120 (90)	120 (90)	55 (40)	55 (40)
ø100	25 (25)	25 (25)	25 (25)	130 (100)	130 (100)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Cylinder Weight

(Unit: kg)

Bore Size (mm)	Product Weight when stroke (S) = 0 mm						Switch weight	Switch Mounting Bracket Weight	S = Added weight per 10 mm
	Basic Type (00)	Foot Type (LB)	Flange type (FA, FB)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion type (TA, TB, TC)		T type	
ø40	0.96	1.13	1.37	1.28	1.32	1.34	Refer to the mass described in the switch specifications on P. 971	0.024	0.55
ø50	1.45	1.70	1.94	1.83	1.86	1.99		0.022	0.71
ø63	1.88	2.25	2.97	2.45	2.50	2.73		0.020	0.75
ø80	3.15	3.89	5.01	4.42	4.63	4.49		0.026	1.26
ø100	4.80	5.71	7.54	6.44	6.62	7.37		0.024	1.37

(Example) Product Weight of SCA2-R-LB-50B-200-25-TOH-D

- Product Weight at 0 mm stroke ..... 1.70 kg
- Added weight at 200 mm stroke ..... $0.71 \times \frac{200}{100} = 1.42$ kg
- Weight of 2 TOH switches.....0.018 x 2 = 0.036 kg
- Weight of 2 mounting brackets .....0.022 × 2=0.044 kg
- Product Weight ..... 1.70 + 1.42 + 0.036 + 0.044 = 3.200 kg

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	62.8	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	52.8	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.2	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	1.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push	2.51×10^2	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	2.27×10^2	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push	3.93×10^2	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3	6.28×10^3	7.07×10^3	7.85×10^3
	Pull	3.57×10^2	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket	ø40	ø50	ø63	ø80	ø100
Flange (FA)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100

***1: For the material of the mounting brackets, please refer to P. 646.**

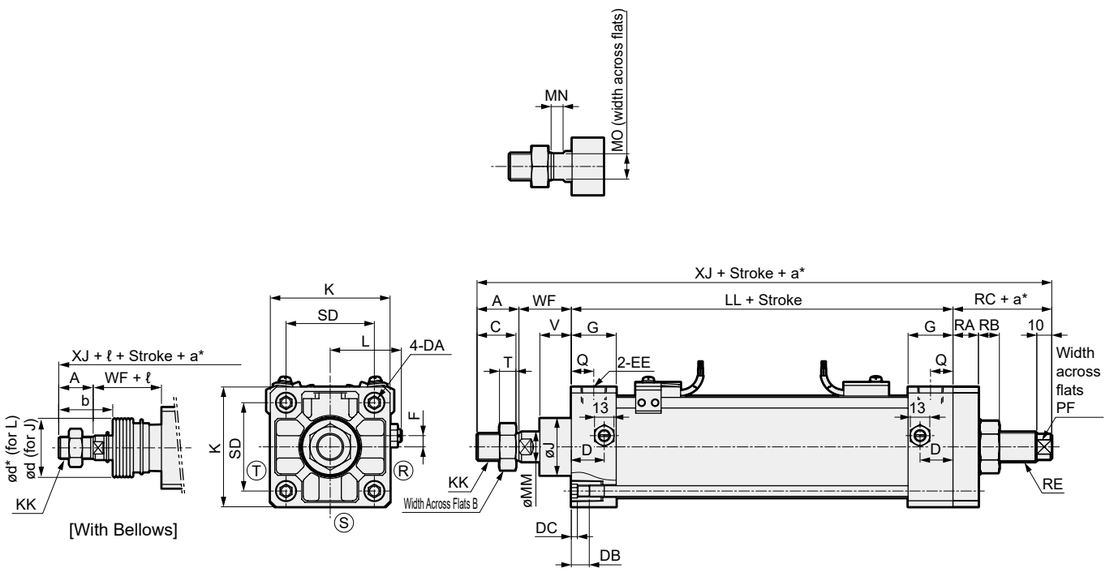
*2: Mounting bolts are included to each mounting bracket.

MEMO

General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending

Outline Dimension Drawing

●Basic Type (OO)



*: a is the adjustment stroke.

Code	Basic Type (OO) Basic Dimensions														
Bore Size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL
ø40	22	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14 × 1.5	38 to 39.5	93
ø50	28	27	26	20	M8	12	4	Rc3/8	0	28	38	66	M18 × 1.5	41 to 43.5	101
ø63	28	27	26	22	M8	12	4	Rc3/8	0	30	38	80	M18 × 1.5	47.5 to 50	105
ø80	36	32	34	26	M12	16	5	Rc1/2	0	34	43	98	M22 × 1.5	56 to 59	116
ø100	45	41	43	28	M12	16	5	Rc1/2	0	36	51	118	M26 × 1.5	66 to 69	128

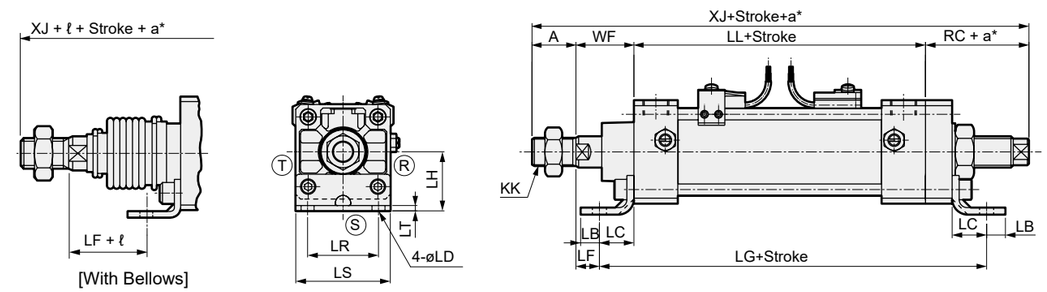
Code													
Bore Size (mm)	MM	MN	MO	PF	Q	RA	RB	RC	RE	SD	T	V	WF	XJ
ø40	16	8	14	11	13	14	11	35	M16 × 1.5	40.5	8	18.5	33.5	183.5
ø50	20	8.5	17	14	14	17	14	41	M20 × 1.5	48	11	20.5	37	207
ø63	20	8.5	17	14	15	17	14	41	M20 × 1.5	59	11	21	35	209
ø80	25	11	22	17	17	20	16	46	M24 × 1.5	74	13	23.5	48	246
ø100	30	13	27	17	18	20	16	46	M24 × 1.5	90	16	32	53	272

Code	With Bellows										
	ℓ										
Bore Size (mm)	b	d	d*	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the ℓ dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

●Axial Foot Type (LB)

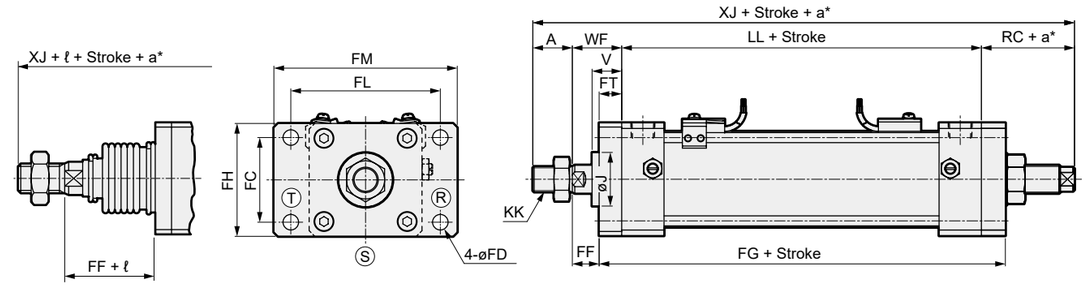


*: a is the adjustment stroke.

Code	Axial Foot Type (LB) Mounting Dimensions															With Bellows								
																ℓ								
Bore Size (mm)	A	KK	LL	RC	WF	XJ	LB	LC	LD	LF	LG	LH	LR	LS	LT	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	35	33.5	183.5	10	19.5	9	14	132	40	40	57	3.2	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	41	37	207	12	22	9	15	145	40	46	66	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	41	35	209	12	30	11	5	165	50	60	80	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	46	48	246	14	37	14	11	190	60	74	98	6	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	46	53	272	21	31	14	22	190	67	80	118	6	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the ℓ dimension to the nearest whole number.
*3: In the case of foot type mounting, the axial pitch dimension of the mounting holes differs from the standard type.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**

●Rod Side Flange Type (FA)



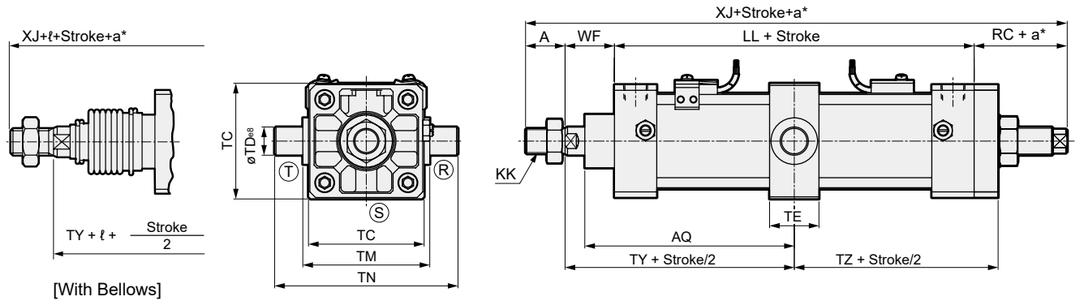
*: a is the adjustment stroke.

Code	Rod Side Flange Type (FA) Mounting Dimensions																With Bellows								
																	ℓ								
Bore Size (mm)	A	J	KK	LL	RC	V	WF	XJ	FC	FD	FF	FG	FH	FL	FM	FT	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	31	M14 × 1.5	93	35	18.5	33.5	183.5	40	9	21.5	119	57	80	100	12	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	38	M18 × 1.5	101	41	20.5	37	207	47	9	25	130	65	85	108	12	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	38	M18 × 1.5	105	41	21	35	209	60	11	19	138	80	106	130	16	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	43	M22 × 1.5	116	46	23.5	48	246	74	14	29	155	98	125	153	19	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	51	M26 × 1.5	128	46	32	53	272	88	14	34	167	118	144	180	19	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the ℓ dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

●Intermediate trunnion type (TC)



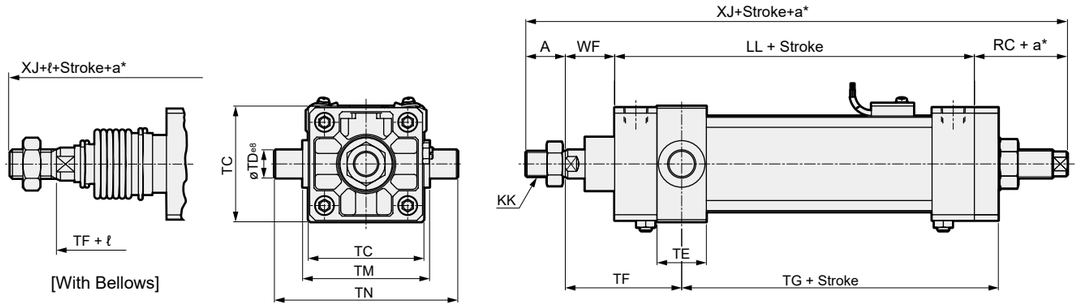
[With Bellows]

*: a is the adjustment stroke.

Code / Bore Size (mm)	Intermediate Trunnion Type (TC) Mounting Dimensions														With Bellows ℓ							
	A	KK	LL	RC	WF	XJ	AQ	TC	TD	TE	TY	TZ	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	35	33.5	183.5	46.5 + Stroke/2	57	16	30	80	60.5	63	95	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	41	37	207	50.5 + Stroke/2	67	18	30	87.5	67.5	80	116	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	41	35	209	52.5 + Stroke/2	82	20	35	87.5	69.5	90	130	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	46	48	246	58 + Stroke/2	100	25	40	106	78	115	165	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	46	53	272	64 + Stroke/2	121	35	50	117	84	135	205	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉindicates the position of the cushion needle.
*2: Round up the ℓ dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**

●Rod side trunnion type (TA)



[With Bellows]

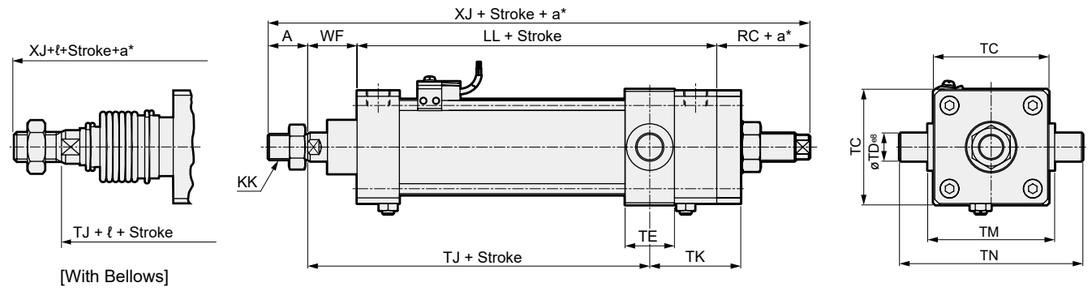
*: a is the adjustment stroke.

Code / Bore Size (mm)	Rod Side Trunnion Type (TA) Mounting Dimensions													With Bellows ℓ							
	A	KK	LL	RC	WF	XJ	TC	TD	TE	TF	TG	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	M14 × 1.5	93	35	33.5	183.5	57	16	30	74.5	66	63	95	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	41	37	207	67	18	30	80	75	80	116	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	41	35	209	82	20	35	82.5	74.5	90	130	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	46	48	246	100	25	40	102	82	115	165	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	46	53	272	121	35	50	114	87	135	205	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the rod side stroke end is not possible.
*3: Round up the ℓ dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

●Head Side Trunnion Type (TB)



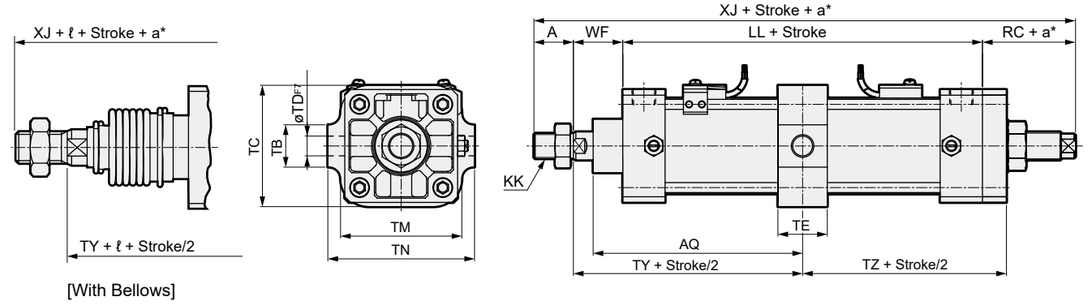
[With Bellows]

*: a is the adjustment stroke.

Code / Bore Size (mm)	Head Side Trunnion Type (TB) Mounting Dimensions													With Bellows ℓ							
	A	KK	LL	RC	WF	XJ	TC	TD	TE	TJ	TK	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	M14 × 1.5	93	35	33.5	183.5	57	16	30	85	55.5	63	95	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	41	37	207	67	18	30	94.5	60.5	80	116	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	41	35	209	82	20	35	92	65	90	130	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	46	48	246	100	25	40	109.5	74.5	115	165	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	46	53	272	121	35	50	119.5	81.5	135	205	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the head side stroke end is not possible.
*3: Round up the ℓ dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

●Intermediate tapped trunnion type (TF)



[With Bellows]

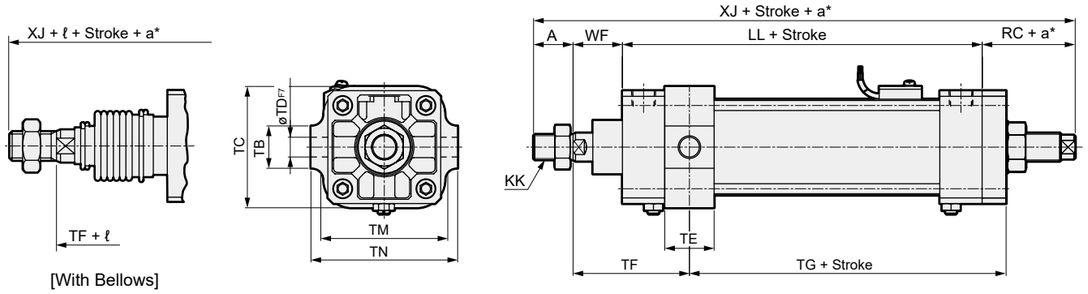
*: a is the adjustment stroke.

Code / Bore Size (mm)	Intermediate tapped trunnion type (TF) Mounting dimensions															With Bellows ℓ							
	A	KK	LL	RC	WF	XJ	AQ	TB	TC	TD	TE	TY	TZ	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø50	28	M18 × 1.5	101	41	37	207	50.5 + Stroke/2	26	70	12	30	87.5	67.5	70	90	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	41	35	209	52.5 + Stroke/2	30	86	14	35	87.5	69.5	86	104	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	46	48	246	58 + Stroke/2	35	105	20	40	106	78	105	134	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	46	53	272	64 + Stroke/2	40	123	20	40	117	84	127	150	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉindicates the position of the cushion needle.
*2: Round up the ℓ dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Rod side tapped trunnion type (TD)



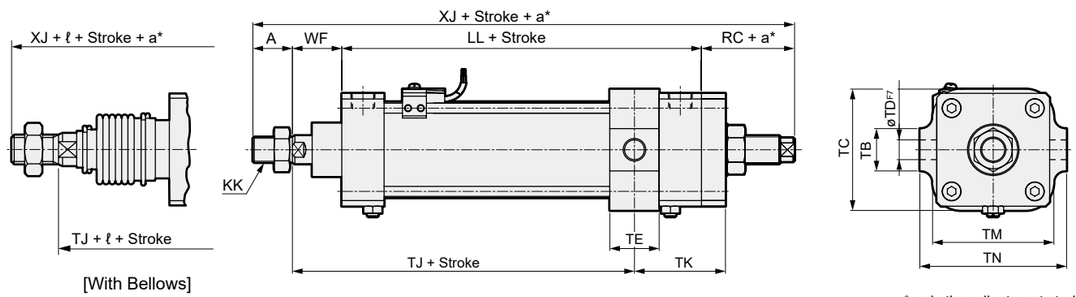
[With Bellows]

*: a is the adjustment stroke.

Code	Rod side tapped trunnion type (TD) Mounting dimensions														With Bellows							
															ℓ							
Bore Size (mm)	A	KK	LL	RC	WF	XJ	TB	TC	TD	TE	TF	TG	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø50	28	M18 × 1.5	101	41	37	207	26	70	12	30	80	75	70	90	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	41	35	209	30	86	14	35	82.5	74.5	86	104	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	46	48	246	35	105	20	40	102	82	105	134	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	46	53	272	40	123	20	40	109	92	127	150	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the rod side stroke end is not possible.
*3: Round up the ℓ dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

●Head side tapped trunnion type (TE)



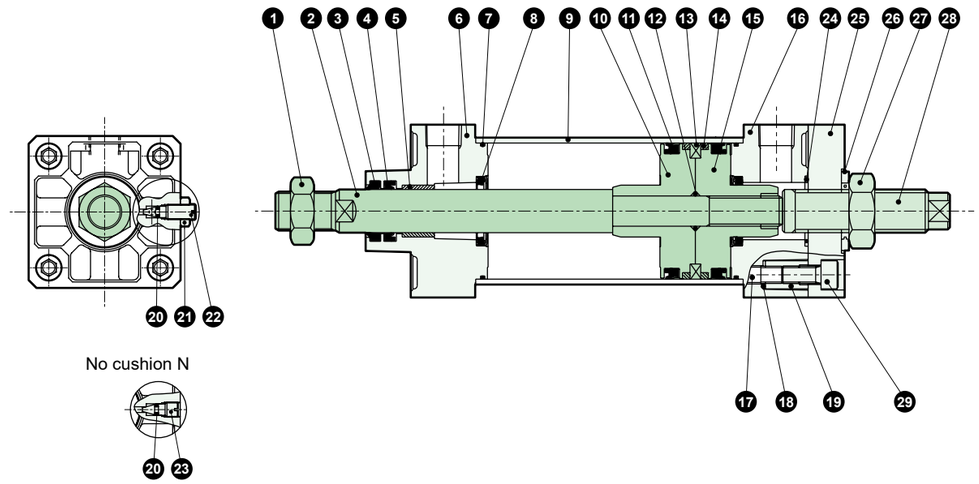
[With Bellows]

*: a is the adjustment stroke.

Code	Head side tapped trunnion type (TE) Mounting dimensions															With Bellows							
																ℓ							
Bore Size (mm)	A	KK	LL	RC	WF	XJ	TB	TC	TD	TE	TJ	TK	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø50	28	M18 × 1.5	101	41	37	207	26	70	12	30	94.5	60.5	70	90	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	41	35	209	30	86	14	35	92	65	86	104	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	46	48	246	35	105	20	40	109.5	74.5	105	134	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	46	53	272	40	123	20	40	124.5	76.5	127	150	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the head side stroke end is not possible.
*3: Round up the ℓ dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Internal Structure Diagram/Material



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	16	Head Cover	Aluminum Alloy	Painting
2	Piston Rod	Steel	Industrial Hard Chrome Plating	17	Tie Rod	Steel	Zinc Chromate
3	Scraper	Nitrile Rubber		18	Belleville washer	Steel	Black Oxide
4	Rod Packing	Nitrile Rubber		19	Round Nut	Steel	Zinc Chromate
5	Bushing	Oil-Impregnated Bearing Alloy		20	Needle Gasket	Nitrile Rubber	
6	Rod Cover	Aluminum Alloy	Painting	21	Needle nut	Copper Alloy	Nickel Plating
7	Cylinder Gasket	Nitrile Rubber		22	Cushion Needle	Copper Alloy	Nickel Plating
8	Cushion Packing	Nitrile Rubber, Steel	(Only with cushion)	23	Cushion plug	Copper Alloy	Nickel Plating
9	Cylinder Tube	Aluminum Alloy	Hard Anodized	24	Head cover gasket	Nitrile Rubber	
10	Piston R	Aluminum Alloy		25	Head plate	Steel	Manganese phosphate
11	Piston Packing	Nitrile Rubber		26	Seal Washer	Nitrile Rubber, Steel	Zinc Chromate
12	Piston Gasket	Nitrile Rubber		27	Nut	Steel	Zinc Chromate
13	Magnet	Plastic		28	Stud bolt	Steel	Zinc Chromate
14	Wear Ring	Polyacetal		29	Hexagon Socket Head Cap Screw	Alloy Steel	Black Oxide
15	Piston H	Aluminum Alloy					

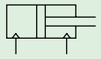
For maintenance parts, please visit the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts.



Medium Bore Size Cylinder
Double Acting/Heat Resistant Type

SCA2-T Series

●Bore size: ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Without magnet for switch)

With Switch
(Built-in magnet for switch)

		❶ Mounting type	❷ Bore Size	❸ Piping thread type	❹ Cushion	❺ Stroke	❻ Switch Model No.	❼ Number of Switches	❽ Option	❾ Accessories
SCA2-T	Model No.	LB	40		B	100			S	I
SCA2-L2T	Model No.	LB	40		B	150	E0	R	S	I

*1: Mounting brackets are included to the product and shipped. (However, trunnion types are shipped assembled.)

❶Mounting type

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
FC	Head side special flange type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and retaining ring included)	
TC	Intermediate Trunnion Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TF	Intermediate tapped trunnion type (ø50 to ø100)	
TD	Rod side tapped trunnion type (ø50 to ø100)	
TE	Head side tapped trunnion type (ø50 to ø100)	

❷Bore Size (mm)

Code	Content
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸ Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom product)
G	G thread (Custom product)

❹Cushion

Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø40	1 to 600	Every 1 mm
ø50	1 to 600	
ø63	1 to 600	
ø80	1 to 700	
ø100	1 to 800	

*1: If equipped with a switch, strokes of 150 mm or less cannot be selected.
*2: For minimum stroke with switch, refer to P. 676.

❻Switch Model No.

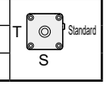
For switch details, please refer to P. 971.
Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire Straight	Lead Wire L-shape	
Reed	1-Color Heat resistant	2-wire	110/220	12/24	7 to 20/7 to 10	5 to 50	E0*	-	

❼Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

❽ Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
L	Bellows	250°C	400°C	
M	Piston Rod Material (Stainless Steel)			
Blank	Cushion needle position R (Standard)			
S	Cushion needle position S			
T	Cushion needle position T			

*2

*1: Instantaneous maximum temperature is the temperature when sparks, chips, etc. instantaneously hit the bellows.
*2: ❶When mounting type "TA", "TD", "TB", "TE" is selected, the cushion needle position is fixed to "S" (Blank) and cannot be selected.

❾Accessories

Code	Content	
I	Single knuckle *1	
Y	Double Knuckle (Pin and retaining ring included) *1	
B1	Single Bracket	
B2	Double Yoke Bracket (Pin and retaining ring included)	
B3	Single Bracket	
B4	Trunnion type 2nd bracket (2 pieces/set)	

*1: "I" and "Y" cannot be selected at the same time.

*For combinations of variations and options, see P. 625.

Regarding specifications of custom products Details: refer to P. 854 to 861.

Code	Content	Code	Content	Code	Content
-XR◇◇◇◇	Port/Cushion needle position specification	-XP7	Knuckle fixed by pin driving	-A2	With 2 Rod Nuts
-XK◇	Mounting Bracket Rotational Assembly	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	Rod end Shape change	Refer to Ending P. 11.
-XAQ◇◇	Trunnion Position Specification	-XM1	Tie rod material SUS		
-XP5	Knuckle Pin/Clevis Pin Split Pin	-XJ9	Without Bellows		

Model No. Example) SCA2-T-..... -XP5

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

SCA2 - E0 - 40
E0: ❻ Switch Model No.
40: ❷ Bore Size

●Switch body only

SW - E0
E0: ❻ Switch Model No.

●Mounting bracket set

SCA2 - E - 40
E: Mounting bracket
40: ❷ Bore Size

Specifications

Item		SCA2-T, SCA2-L2T (Heat resistant type)				
Bore Size mm		ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type				
Operating Fluid		Compressed Air				
Max. Working Pressure MPa		1.0				
Min. Operating Pressure MPa		0.05				
Proof Pressure MPa		1.6				
Ambient Temperature °C		5 to 120				
Port Size		Rc 1/4	Rc 3/8		Rc 1/2	
Stroke tolerance mm		$^{+0.9}_{0}$(Up to 360) $^{+1.4}_{0}$(Up to 800)				
Operating Piston Speed mm/s		50 to 1000 (Please use within the absorbed energy.)				
Cushion		Air Cushion				
Effective air cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not possible *1				
Allowable Absorbed Energy J	With Cushion	4.29	8.37	15.8	27.9	49.8
	Without Cushion	0.067	0.079	0.079	0.201	0.301
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.				

*1: Grease up regularly with heat-resistant grease.

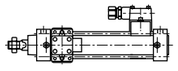
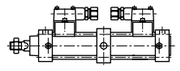
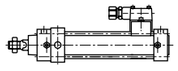
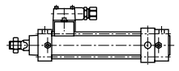
Stroke

Bore Size (mm)	Standard stroke of main body without switch (mm)	Standard stroke of main body with switch (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
ø40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	150, 200, 250, 300, 350, 400, 450, 500	600	*2
ø50				
ø63				1
ø80			700	
ø100			800	

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: If equipped with a switch, please refer to the minimum stroke table for switches below.

Min. Stroke with Switch

(Unit: mm)

Diagram	When mounting on different surfaces	When mounting on the same surface		Intermediate (tapped) trunnion mounting		Rod side (tapped) trunnion mounting	Head side (tapped) trunnion mounting
						 Position detection at the rod side stroke end is not possible.	 Position detection at the head side stroke end is not possible.
Number of Switches / Bore Size (mm)	2	1	2	1	2	1	1
ø40	150	150	335	335	335	150	150
ø50	145	145	335	335	335	145	145
ø63	145	145	335	335	335	145	145
ø80	145	145	335	335	335	145	145
ø100	140	140	335	335	335	140	140

Cylinder Weight

(Unit: kg)

Bore Size (mm)	Product Weight when stroke (S) = 0 mm							Switch weight	Switch Mounting Bracket Weight	S = Added weight per 10 mm
	Basic type (OO)	Foot Type (LB)	Flange Type (FA, FB)	Special flange type (FC)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion Type (TA, TB, TC)		EO type	
ø40	0.83	1.00	1.24	0.92	1.15	1.19	1.21	Refer to the mass described in the switch specifications on P. 971	0.043	0.39
ø50	1.20	1.45	1.69	1.31	1.58	1.61	1.74		0.059	0.46
ø63	1.60	1.97	2.69	1.78	2.17	2.22	2.45		0.070	0.50
ø80	2.60	3.34	4.46	2.96	3.87	4.08	3.94		0.105	0.90
ø100	4.20	5.11	6.94	4.75	5.84	6.02	6.77		0.132	1.12

(Example) Product Weight of SCA2-L2T-LB-50B-200-EO-D
- Product Weight at 0 mm stroke ..... 1.45 kg
- Added weight at 200 mm stroke ..... $0.46 \times \frac{200}{100} = 0.92$ kg
- Weight of 2 EO switches ..... 0.164×2=0.328 kg
- Weight of 2 mounting brackets ..... 0.059×2=0.118 kg
- Product weight ..... 1.45+0.92+0.328+0.118=2.816 kg

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	62.8	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	52.8	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.2	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	1.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push	2.51×10^2	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	2.27×10^2	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push	3.93×10^2	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3	6.28×10^3	7.07×10^3	7.85×10^3
	Pull	3.57×10^2	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

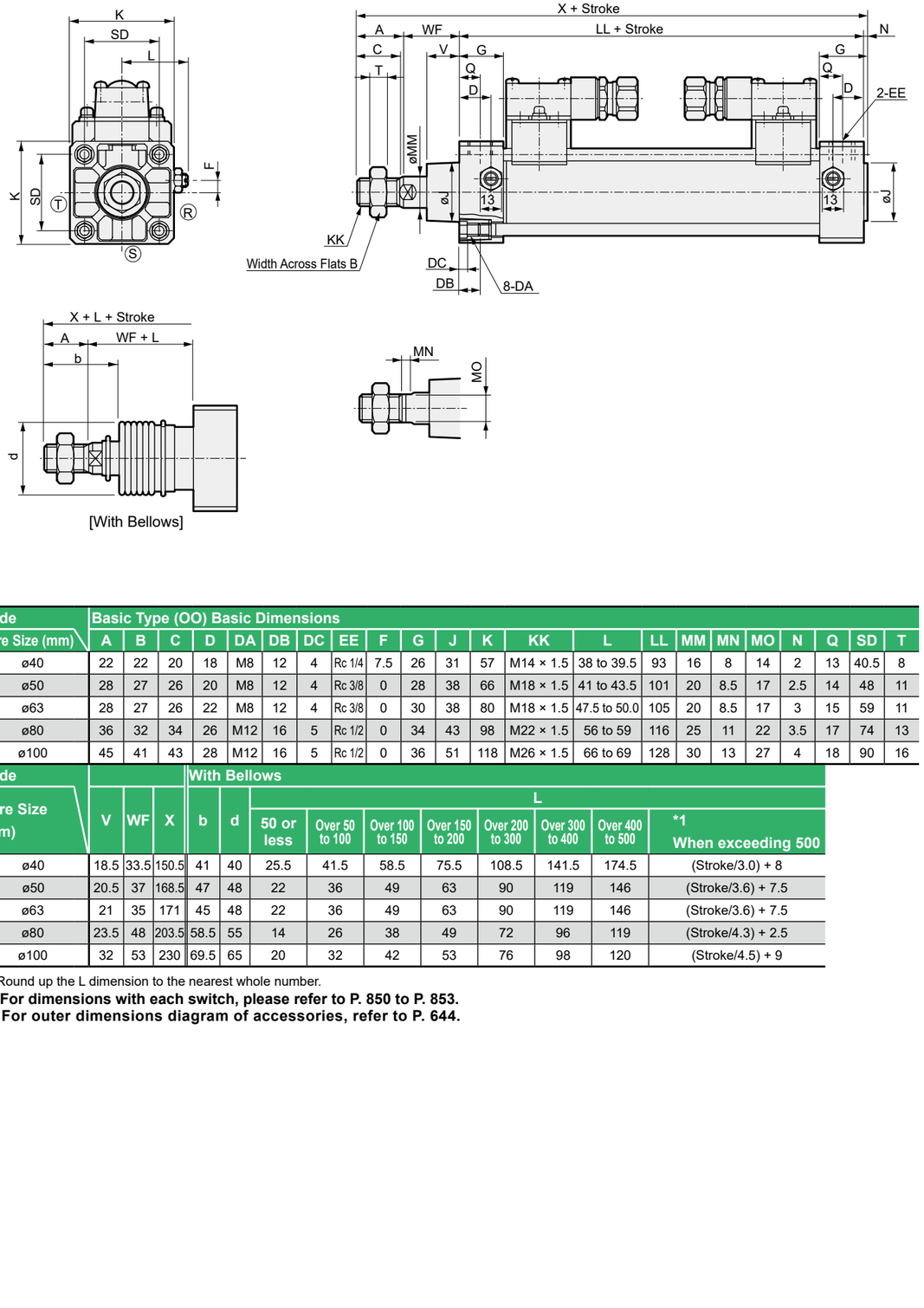
Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket	ø40	ø50	ø63	ø80	ø100
Foot (LB) *2	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Single Clevis (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Double Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

***1:** For the material of the mounting brackets, please refer to P. 646.
*2: Foot type mounting brackets come in sets of 2.
*3: Mounting bolts are included to each mounting bracket.

Outline Dimension Drawing

●Basic Type (OO)



Code	Basic Type (OO) Basic Dimensions																				
Bore Size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL	MM	MN	MO	N	Q	SD	T
ø40	22	22	20	18	M8	12	4	Rc 1/4	7.5	26	31	57	M14 × 1.5	38 to 39.5	93	16	8	14	2	13	40.5	8
ø50	28	27	26	20	M8	12	4	Rc 3/8	0	28	38	66	M18 × 1.5	41 to 43.5	101	20	8.5	17	2.5	14	48	11
ø63	28	27	26	22	M8	12	4	Rc 3/8	0	30	38	80	M18 × 1.5	47.5 to 50.0	105	20	8.5	17	3	15	59	11
ø80	36	32	34	26	M12	16	5	Rc 1/2	0	34	43	98	M22 × 1.5	56 to 59	116	25	11	22	3.5	17	74	13
ø100	45	41	43	28	M12	16	5	Rc 1/2	0	36	51	118	M26 × 1.5	66 to 69	128	30	13	27	4	18	90	16

Code				With Bellows									
Bore Size (mm)	V	WF	X	b	d	L							
						50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*1 When exceeding 500
ø40	18.5	33.5	150.5	41	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	20.5	37	168.5	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	21	35	171	45	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	23.5	48	203.5	58.5	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	32	53	230	69.5	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9

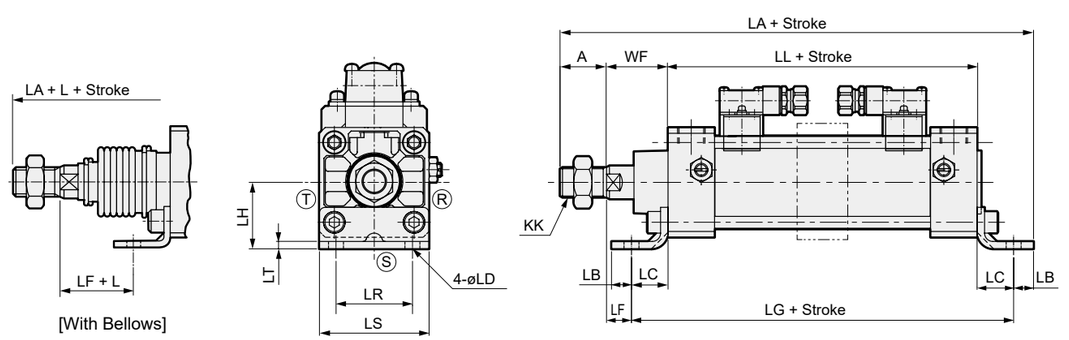
*1: Round up the L dimension to the nearest whole number.

***2: For dimensions with each switch, please refer to P. 850 to P. 853.**

***3: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Axial Foot Type (LB)



Code	Axial Foot Type (LB) Mounting Dimensions														With Bellows							
Bore Size (mm)	A	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT	L							
															50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	33.5	178	10	19.5	9	14	132	40	40	57	3.2	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	37	200	12	22	9	15	145	40	46	66	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	35	210	12	30	11	5	165	50	60	80	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	48	251	14	37	14	11	190	60	74	98	6.0	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	53	278	21	31	14	22	190	67	80	118	6.0	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉindicates the position of the cushion needle.

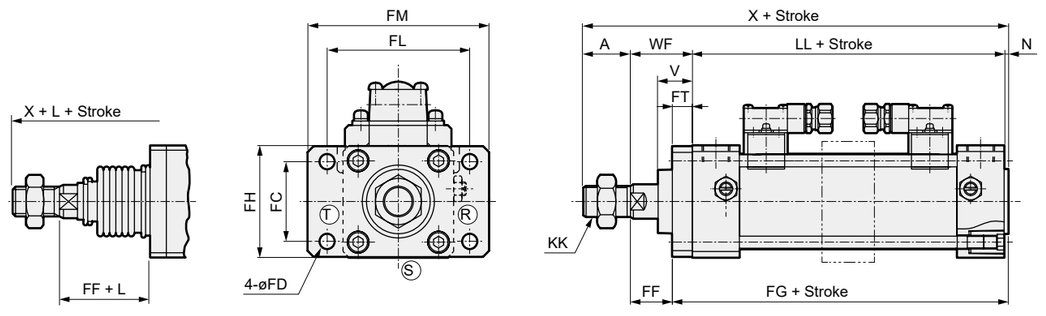
*2: Round up the L dimension to the nearest whole number.

***3: For dimensions with each switch, please refer to P. 850 to P. 853.**

***4: For outer dimensions diagram of accessories, refer to P. 644.**

***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

●Rod Side Flange Type (FA)



Code	Rod Side Flange Type (FA) Mounting Dimensions															With Bellows							
Bore Size (mm)	A	KK	LL	N	V	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	L							
																50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	2	18.5	33.5	150.5	40	9	21.5	107	57	80	100	12	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	2.5	20.5	37	168.5	47	9	25	115.5	65	85	108	12	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	21	35	171	60	11	19	124	80	106	130	16	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	23.5	48	203.5	74	14	29	138.5	98	125	153	19	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	32	53	230	88	14	34	151	118	144	180	19	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.

*2: Round up the L dimension to the nearest whole number.

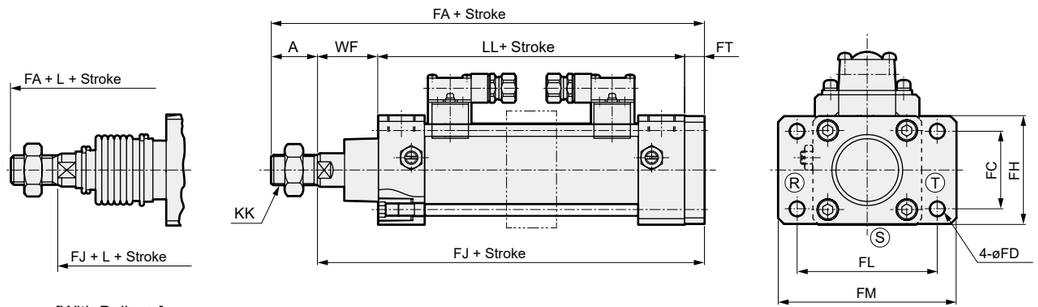
***3: For dimensions with each switch, please refer to P. 850 to P. 853.**

***4: For outer dimensions diagram of accessories, refer to P. 644.**

***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

●Head Side Flange Type (FB)

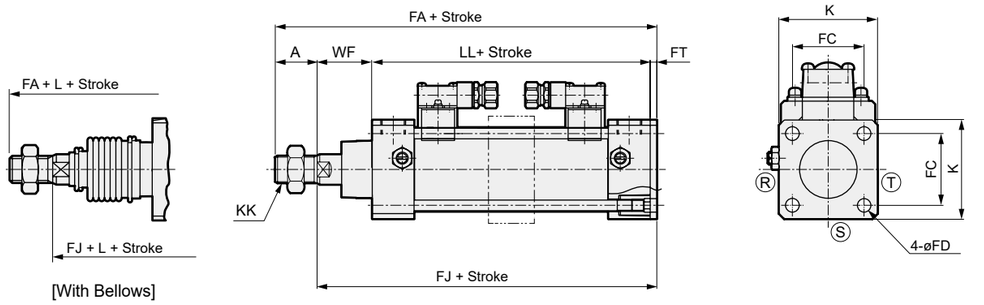


[With Bellows]

Code / Bore Size (mm)	A	KK	LL	WF	FA	FC	FD	FH	FJ	FL	FM	FT	With Bellows L: 50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	33.5	160.5	40	9	57	138.5	80	100	12	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	37	178	47	9	65	150	85	108	12	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	35	184	60	11	80	156	106	130	16	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	48	219	74	14	98	183	125	153	19	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	53	245	88	14	118	200	144	180	19	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

●Head side special flange type (FC)



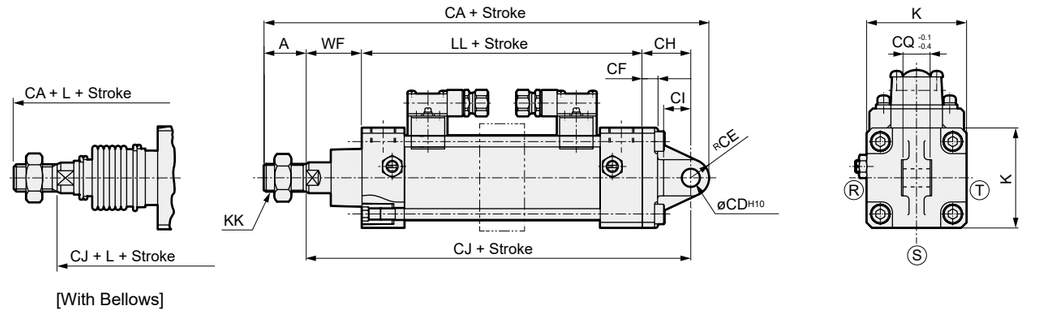
[With Bellows]

Code / Bore Size (mm)	A	K	KK	LL	WF	FA	FC	FD	FJ	FT	With Bellows L: 50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	57	M14 × 1.5	93	33.5	153	40.5	9	131	4.5	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	66	M18 × 1.5	101	37	170.5	48	9	142.5	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	80	M18 × 1.5	105	35	172.5	59	9	144.5	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	98	M22 × 1.5	116	48	206	74	14	170	6	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	100	M26 × 1.5	128	53	232	90	14	187	6	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

●Single Clevis Type (CA)

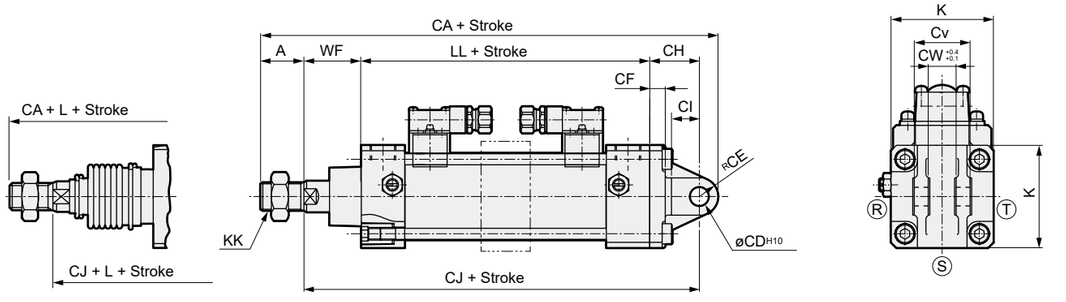


[With Bellows]

Code / Bore Size (mm)	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	CQ	With Bellows L: 50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	57	M14 × 1.5	93	33.5	192.5	12	12	10	32	18	158.5	18	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	66	M18 × 1.5	101	37	210	12	12	10	32	18	170	18	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	80	M18 × 1.5	105	35	221	14	16	10	37	24	177	20	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	98	M22 × 1.5	116	48	272	20	20	14	52	30	216	28	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	118	M26 × 1.5	128	53	298	20	20	16	52	30	233	28	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

●Double clevis type (CB)



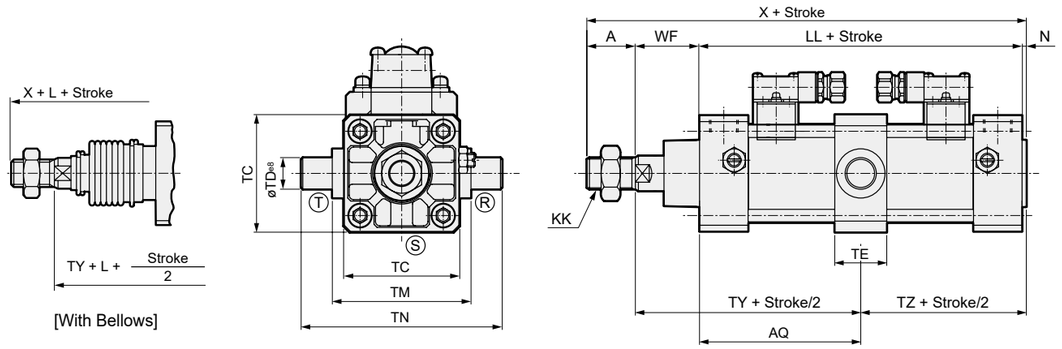
[With Bellows]

Code / Bore Size (mm)	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	Cv	CW	With Bellows L: 50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	57	M14 × 1.5	93	33.5	192.5	12	12	10	32	18	158.5	36	18	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	66	M18 × 1.5	101	37	210	12	12	10	32	18	170	36	18	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	80	M18 × 1.5	105	35	221	14	16	10	37	24	177	40	20	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	98	M22 × 1.5	116	48	272	20	20	14	52	30	216	56	28	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	118	M26 × 1.5	128	53	298	20	20	16	52	30	233	56	28	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
*3: Pins are attached.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

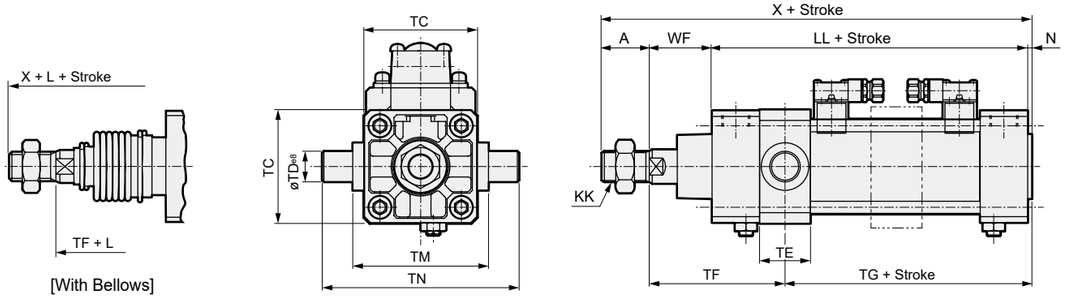
●Intermediate trunnion type (TC)



Code / Bore Size (mm)	Intermediate Trunnion Type (TC) Mounting Dimensions														With Bellows L							
	A	KK	LL	N	WF	X	AQ	TC	TD	TE	TM	TN	TY	TZ	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	2	33.5	150.5	46.5 + Stroke/2	57	16	30	63	95	80	48.5	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	2.5	37	168.5	50.5 + Stroke/2	67	18	30	80	116	87.5	53	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	35	171	52.5 + Stroke/2	82	20	35	90	130	87.5	55.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	48	203.5	58 + Stroke/2	100	25	40	115	165	106	61.5	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	53	230	64 + Stroke/2	121	35	50	135	205	117	68	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉindicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**

●Rod side trunnion type (TA)

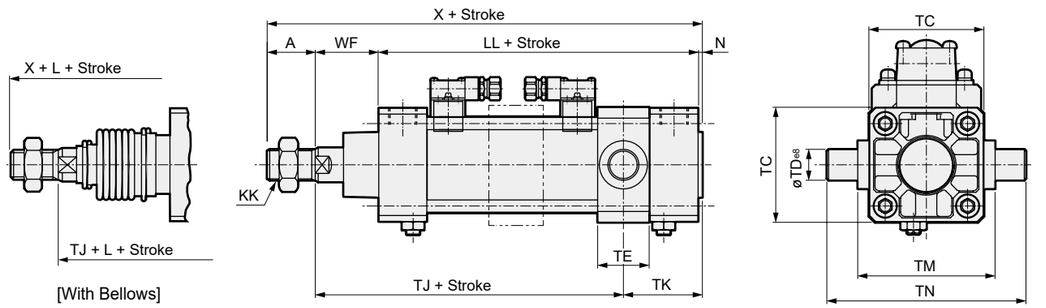


Code / Bore Size (mm)	Rod Side Trunnion Type (TA) Mounting Dimensions													With Bellows L							
	A	KK	LL	N	WF	X	TC	TD	TE	TF	TG	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	2	33.5	150.5	57	16	30	74.5	54	63	95	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	2.5	37	168.5	67	18	30	80	60.5	80	116	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	35	171	82	20	35	82.5	60.5	90	130	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	48	203.5	100	25	40	102	65.5	115	165	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	53	230	121	35	50	114	71	135	205	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the rod side stroke end is not possible.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

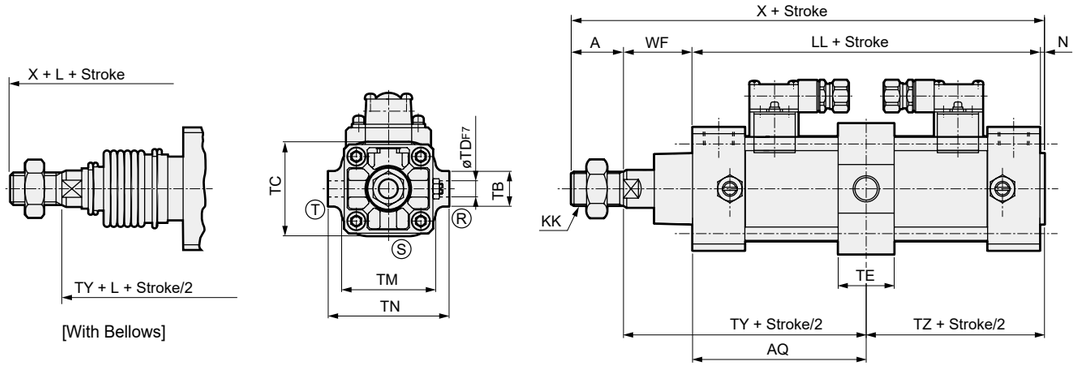
●Head Side Trunnion Type (TB)



Code / Bore Size (mm)	Head Side Trunnion Type (TB) Mounting Dimensions												With Bellows L							
	A	KK	LL	N	WF	X	TC	TD	TE	TJ	TM	TN	TK	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	2	33.5	150.5	57	16	30	85	63	95	43.5	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	2.5	37	168.5	67	18	30	94.5	80	116	46	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	35	171	82	20	35	92	90	130	51	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	48	203.5	100	25	40	109.5	115	165	58	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	53	230	121	35	50	119.5	135	205	65.5	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the head side stroke end is not possible.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

●Intermediate tapped trunnion type (TF)

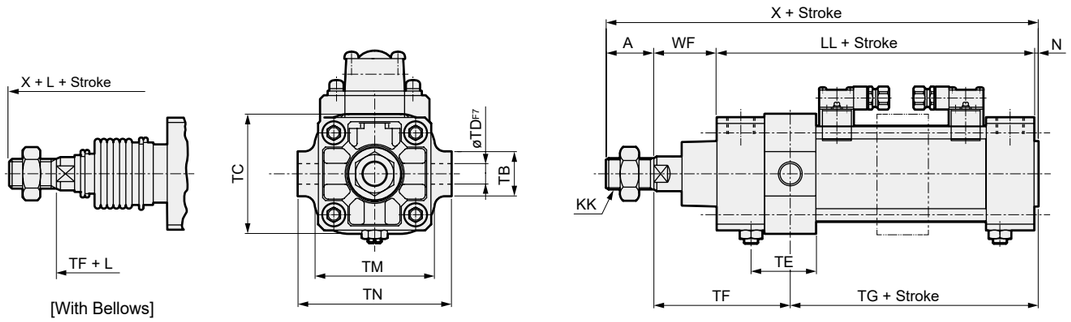


Code / Bore Size (mm)	Intermediate tapped trunnion type (TF) Mounting dimensions															With Bellows L							
	A	KK	LL	N	WF	X	AQ	TB	TC	TD	TE	TM	TN	TY	TZ	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø50	28	M18 × 1.5	101	2.5	37	168.5	50.5 + Stroke/2	26	70	12	30	70	90	87.5	53	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	35	171	52.5 + Stroke/2	30	86	14	35	86	104	87.5	55.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	48	203.5	58 + Stroke/2	35	105	20	40	105	134	106	61.5	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	53	230	64 + Stroke/2	40	123	20	40	127	150	117	68	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

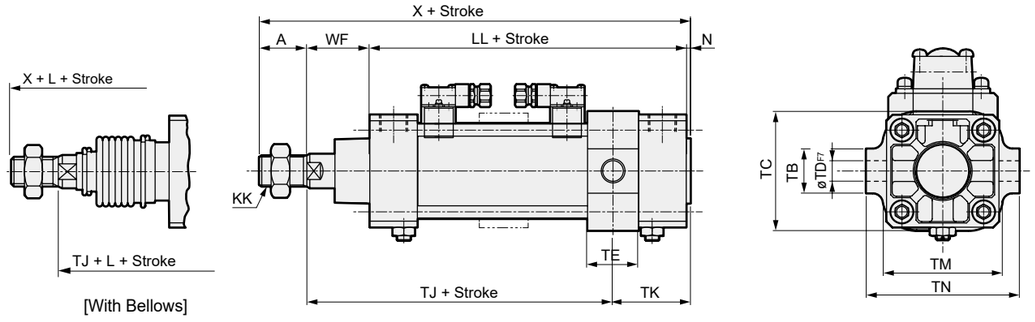
●Rod side tapped trunnion type (TD)



Code	Rod side tapped trunnion type (TD) Mounting dimensions														With Bellows							
															L							
Bore Size (mm)	A	KK	LL	N	WF	X	TB	TC	TD	TE	TF	TG	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø50	28	M18 × 1.5	101	2.5	37	168.5	26	70	12	30	80	60.5	70	90	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	35	171	30	86	14	35	82.5	60.5	86	104	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	48	203.5	35	105	20	40	102	65.5	105	134	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	53	230	40	123	20	40	109	76	127	150	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the rod side stroke end is not possible.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

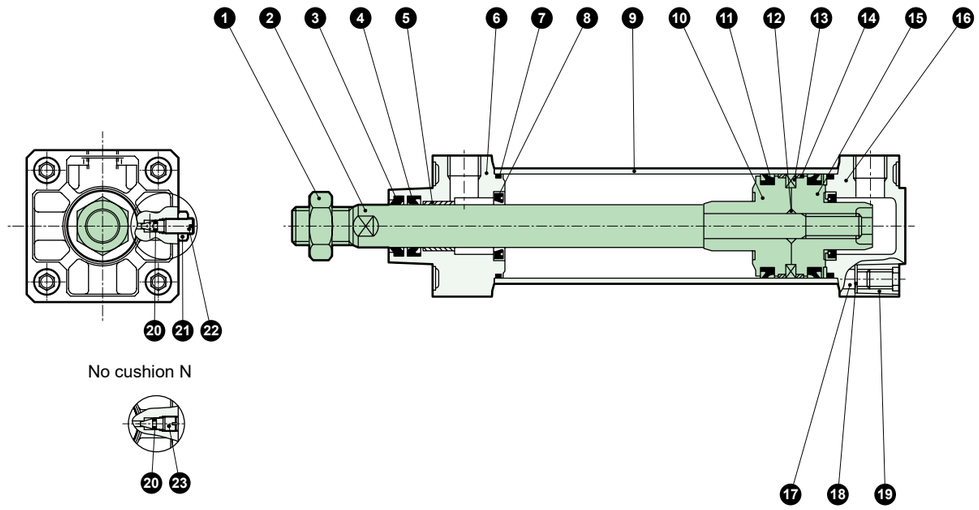
●Head side tapped trunnion type (TE)



Code	Head side tapped trunnion type (TE) Mounting dimensions														With Bellows							
															L							
Bore Size (mm)	A	KK	LL	N	WF	X	TB	TC	TD	TE	TJ	TM	TN	TK	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø50	28	M18 × 1.5	101	2.5	37	168.5	26	70	12	30	94.5	70	90	46	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	35	171	30	86	14	35	92	86	104	51	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	48	203.5	35	105	20	40	109.5	105	134	58	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	53	230	40	123	20	40	124.5	127	150	60.5	20	32	42	53	76	98	120	(Stroke/4.5) + 9

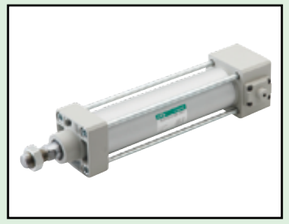
*1: The position of the cushion needle cannot be changed.
*2: Position detection at the head side stroke end is not possible.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Internal Structure Diagram/Material



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	13	Piston Ring	Steel	
2	Piston Rod	Steel	Industrial Hard Chrome Plating		Magnet	Rare earth plastic	Only with switch (L2T)
3	Scraper	Fluoro Rubber		14	Wear Ring	Special Resin	
4	Rod Packing	Fluoro Rubber		15	Piston H	Aluminum Alloy	
5	Bushing	Oil-Impregnated Bearing Alloy		16	Head Cover	Aluminum Alloy	Painting
6	Rod Cover	Aluminum Alloy	Painting	17	Tie Rod	Steel	Zinc Chromate
7	Cylinder Gasket	Fluoro Rubber		18	Belleville washer	Steel	Black Oxide
8	Cushion Packing	Fluororubber, Steel	Only with cushion	19	Round Nut	Steel	Zinc Chromate
9	Cylinder Tube	Aluminum Alloy	Hard Anodized	20	Needle Gasket	Fluoro Rubber	
10	Piston R	Aluminum Alloy		21	Needle nut	Copper Alloy	Nickel Plating
11	Piston Packing	Fluoro Rubber		22	Cushion Needle	Copper Alloy	Nickel Plating
12	Piston Gasket	Fluoro Rubber		23	Cushion plug	Copper Alloy	Nickel Plating

For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts.

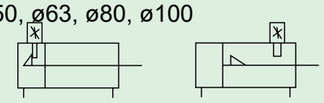


Medium Bore Size Cylinder
Double Acting, Drop Prevention Type

SCA2-Q2 Series

●Bore size: ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol



RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

With Switch (Built-in magnet for switch)

	Model No.	❶ Mounting type	❷ Bore Size	❸ Piping thread type	❹ Cushion	❺ Stroke	❻ Fall prevention mechanism	❼ Switch Model No.	❽ Number of Switches	❾ Option	❿ Accessories
Without Switch	SCA2-Q2 - LB - 40 - B - 100 - H									S	I
With Switch	SCA2-Q2 - LB - 40 - B - 100 - H - T0H - R - S									S	I

❶Mounting type

Mounting brackets are included to the product and shipped. (However, trunnion types are shipped assembled.)

Code	Content	Code	Content	Code	Content
00	Basic type	CA	Single Clevis Type	TF	Intermediate tapped trunnion type (ø50 to ø100)
LB	Axial Foot Type	CB	Double clevis type (pin and retaining ring included)	TD	Rod side tapped trunnion type (ø50 to ø100)
FA	Rod Side Flange Type	TC	Intermediate Trunnion Type	TE	Head side tapped trunnion type (ø50 to ø100)
FB	Head Side Flange Type	TA	Rod side trunnion type *1		
FC	Head side special flange type	TB	Head side trunnion type *2		

*1: Mounting type TA, ❻fall prevention mechanism R cannot be manufactured.
*2: Mounting type TB, ❻fall prevention mechanism H cannot be manufactured.

❷Bore Size (mm)

Code	Content
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom product)
G	G thread (Custom product)

❹Cushion

Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø40	5 to 600	Every 1 mm
ø50	5 to 600	
ø63	5 to 600	
ø80	5 to 700	
ø100	5 to 800	

Note: For minimum stroke with switch, please refer to P. 688 and 689.

❻Drop prevention mechanism

	Code	Content
*1	H	With head side fall prevention
*2	R	With rod side fall prevention

*1: ❶Mounting type TA, fall prevention mechanism R cannot be manufactured.
*2: ❶Mounting type TB, fall prevention mechanism H cannot be manufactured.

❼Switch Model No.

For switch details, please refer to P. 971. Switches are included to the product and shipped.

Contact	Indicator Lamp / Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□
		3-wire (PNP)	—		—		T3PH□	T3PV□
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□
	2-Color for AC Magnetic Field	2-wire	—	24 ± 10%	—	5 to 20	T2YD□	–
			—		—		T2YDT□	–
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: Switches other than the model No.s listed above are also available. (Custom Product) For details, see P. 971.

***Lead wire length**

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

Example) Lead wire length
1 m TOH
3 m TOH3
5 m TOH5

❽Number of Switches

	Code	Content
*1	R	With 1 pc on rod side
*1	H	With 1 pc on head side
	D	With 2 pcs
	T	With 3 pcs

*1: ❶When "TA", "TD", "TB", or "TE" is selected as the mounting method, the number of switches is limited to "H" (1 on the head side) for "TA" and "TD", and "R" (1 on the rod side) for "TB" and "TE".

❾Option

	Code	Content
	M	Piston Rod Material (Stainless Steel)
	Blank	Cushion needle position R (Standard)
*2	S	Cushion needle position S
*1	M0	Non-locking manual override (Release bolt included)
*1	M1	Locking Manual Device

*1: If "M0" or "M1" is not selected as an option, only the non-locking manual device will be provided. Release bolt is not included.
*2: ❶When mounting type "TA", "TD", "TB", "TE" is selected, the cushion needle position is fixed to "S" (Blank) and cannot be selected.

❿Accessories

Code	Content
I	Single Knuckle *1
Y	Double Knuckle (Pin and retaining ring included) *1
B1	Single Bracket
B2	Double Yoke Bracket (Pin and retaining ring included)
B3	Single Bracket
B4	Trunnion type 2nd bracket (2 pieces/set)

*1: "I" and "Y" cannot be selected at the same time.

*For combinations of variations and options, see P. 625.

Regarding specifications of custom products

Details: refer to P. 854 to 861.

Code	Content	Code	Content	Code	Content
-XR◇◇◇◇	Port/Cushion needle position specification	-XP7	Knuckle fixed by pin driving	-A2	With 2 Rod Nuts
-XK◇	Mounting Bracket Rotational Assembly	-XP8	Knuckle Pin/Clevis Pin Split Pin Specification, Knuckle fixed by pinning	Rod end Shape change	Refer to Ending P. 11.
-XAQ◇◇	Trunnion Position Specification	-XM1	Tie rod material SUS		
-XP5	Knuckle Pin/Clevis Pin Split Pin	-XT9	Scraper/Rod packing only Fluoro Rubber		

Model No. Example) SCA2-Q2-.....-XP5

Switch Single Unit Model No. Notation Method

[T type switch]

●Switch body + Mounting bracket set: SCA2 - T0H - 40 (❼ Switch Model No., ❷ Bore Size)

●Switch body only: SW - T0H (❼ Switch Model No.)

●Switch mounting bracket set: SCA2 - TS - 40 (Mounting bracket, ❷ Bore Size)

*Please consult us separately if using environmentally compatible T-type switches.

[T2YD type switch]

●Switch body + Mounting bracket set: SCA2 - T2YD - 40 (❼ Switch Model No., ❷ Bore Size)

●Switch body only: SW - T2YD (❼ Switch Model No.)

●Mounting bracket set: SCA2 - T - 40 (❷ Bore Size)

Specifications

Item		SCA2-Q2 (Drop prevention type)				
Bore Size mm		ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type				
Operating Fluid		Compressed Air				
Max. Working Pressure MPa		1.0				
Min. Operating Pressure MPa		0.1				
Proof Pressure MPa		1.6				
Ambient Temperature °C		–10 to 60 (Provided that freezing does not occur)				
Port Size		Rc 1/4	Rc 3/8		Rc 1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Operating Piston Speed mm/s		50 to 500 (Please use within the allowable absorbed energy.)				
Cushion		Air Cushion				
Effective air cushion length mm		14.6	16.6	16.6	20.6	23.6
Fall prevention mechanism		Head side, Rod side				
Holding Force N		Max. Thrust × 0.7				
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)				
Allowable absorbed energy J	With Cushion	4.29	8.37	15.8	27.9	49.8
	Without Cushion	0.067	0.079	0.079	0.201	0.301
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.				

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ø40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	5
ø50			
ø63			
ø80		700	
ø100		800	

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

●Minimum stroke with T0/T5 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (20)	20 (10)	60 (45)	135 (135)	135 (135)	50 (50)	50 (50)
ø50	20 (20)	15 (10)	20 (20)	160 (160)	160 (160)	60 (60)	60 (60)
ø63	20 (20)	15 (10)	20 (20)	135 (120)	135 (120)	50 (45)	50 (45)
ø80	25 (25)	15 (15)	25 (25)	140 (110)	140 (110)	55 (40)	55 (40)
ø100	25 (25)	15 (15)	25 (25)	150 (120)	150 (120)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T8 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (20)	15 (10)	50 (35)	125 (125)	125 (125)	45 (40)	45 (40)
ø50	20 (20)	10 (10)	20 (20)	150 (150)	150 (150)	50 (50)	50 (50)
ø63	20 (20)	10 (10)	20 (20)	120 (110)	120 (110)	45 (35)	45 (35)
ø80	25 (25)	15 (15)	25 (25)	130 (100)	130 (100)	50 (35)	50 (35)
ø100	25 (25)	15 (15)	25 (25)	140 (110)	140 (110)	55 (40)	55 (40)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Before use, be sure to read "Precautions for Use" (Fall Prevention Type, P. 862 to 865.

Min. Stroke with Switch

●Minimum stroke with T2/T3 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	130 (100)	130 (100)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	130 (100)	130 (100)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	135 (105)	135 (105)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	140 (110)	140 (110)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	150 (120)	150 (120)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T1/T2YD type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	100 (70)	100 (70)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	105 (75)	105 (75)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	110 (80)	110 (80)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	120 (90)	120 (90)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type). However, T2YD does not have an L-shaped lead wire type (V).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T2W/T3W/T2WL type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (10)	20 (5)	65 (50)	135 (105)	135 (105)	50 (35)	50 (35)
ø50	20 (10)	20 (5)	20 (10)	135 (105)	135 (105)	50 (35)	50 (35)
ø63	20 (10)	20 (5)	20 (10)	140 (110)	140 (110)	55 (40)	55 (40)
ø80	15 (10)	15 (5)	15 (10)	145 (115)	145 (115)	55 (40)	55 (40)
ø100	10 (10)	10 (5)	10 (10)	155 (125)	155 (125)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Cylinder Weight

(Unit: kg)

Bore Size (mm)	Product Weight when stroke (S) = 0 mm							Switch weight	Switch Mounting Bracket Weight	S = Added weight per 10 mm
	Basic type (OO)	Foot type (LB)	Flange type (FA, FB)	Special flange type (FC)	Single clevis type (CA)	Double clevis type (CB)	Trunnion type (TA, TB, TC)		T type	
ø40	1.21	1.38	1.62	1.30	1.53	1.57	1.59	Refer to the mass described in the switch specifications on P. 971	0.024	0.39
ø50	1.70	1.95	2.19	1.81	2.08	2.11	2.24		0.022	0.46
ø63	2.36	2.73	3.45	2.54	2.93	2.98	3.21		0.020	0.50
ø80	3.84	4.58	5.70	4.20	5.11	5.32	5.18		0.026	0.90
ø100	6.12	7.03	8.86	6.67	7.76	7.94	8.69		0.024	1.12

(Example) Product Weight of SCA2-Q2-LB-50B-200-H-T0H-D

- Product Weight at 0 mm stroke ..... 1.95 kg
- Added weight at 200 mm stroke ..... $0.46 \times \frac{200}{100} = 0.92$ kg
- Weight of 2 T0H switches.....0.018 x 2 = 0.036 kg
- Weight of 2 mounting brackets .....0.022 × 2=0.044 kg
- Product Weight ..... 1.95 + 0.92 + 0.036 + 0.044 = 2.950 kg

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	1.26 × 10²	1.88 × 10²	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²	1.01 × 10³	1.13 × 10³	1.26 × 10³
	Pull	1.06 × 10²	1.58 × 10²	2.11 × 10²	3.17 × 10²	4.22 × 10²	5.28 × 10²	6.33 × 10²	7.39 × 10²	8.44 × 10²	9.50 × 10²	1.06 × 10³
ø50	Push	1.96 × 10²	2.95 × 10²	3.93 × 10²	5.89 × 10²	7.85 × 10²	9.82 × 10²	1.18 × 10³	1.37 × 10³	1.57 × 10³	1.77 × 10³	1.96 × 10³
	Pull	1.65 × 10²	2.47 × 10²	3.30 × 10²	4.95 × 10²	6.60 × 10²	8.25 × 10²	9.90 × 10²	1.15 × 10³	1.32 × 10³	1.48 × 10³	1.65 × 10³
ø63	Push	3.12 × 10²	4.68 × 10²	6.23 × 10²	9.35 × 10²	1.25 × 10³	1.56 × 10³	1.87 × 10³	2.18 × 10³	2.49 × 10³	2.81 × 10³	3.12 × 10³
	Pull	2.80 × 10²	4.20 × 10²	5.61 × 10²	8.41 × 10²	1.12 × 10³	1.40 × 10³	1.68 × 10³	1.96 × 10³	2.24 × 10³	2.52 × 10³	2.80 × 10³
ø80	Push	5.03 × 10²	7.54 × 10²	1.01 × 10³	1.51 × 10³	2.01 × 10³	2.51 × 10³	3.02 × 10³	3.52 × 10³	4.02 × 10³	4.52 × 10³	5.03 × 10³
	Pull	4.54 × 10²	6.80 × 10²	9.07 × 10²	1.36 × 10³	1.81 × 10³	2.27 × 10³	2.72 × 10³	3.17 × 10³	3.63 × 10³	4.08 × 10³	4.54 × 10³
ø100	Push	7.85 × 10²	1.18 × 10³	1.57 × 10³	2.36 × 10³	3.14 × 10³	3.93 × 10³	4.71 × 10³	5.50 × 10³	6.28 × 10³	7.07 × 10³	7.85 × 10³
	Pull	7.15 × 10²	1.07 × 10³	1.43 × 10³	2.14 × 10³	2.86 × 10³	3.57 × 10³	4.29 × 10³	5.00 × 10³	5.72 × 10³	6.43 × 10³	7.15 × 10³

Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket	ø40	ø50	ø63	ø80	ø100
Foot type (LB) *2	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange Type (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Single Clevis Type (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Double clevis type (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

***1: For the material of the mounting brackets, please refer to P. 646.**

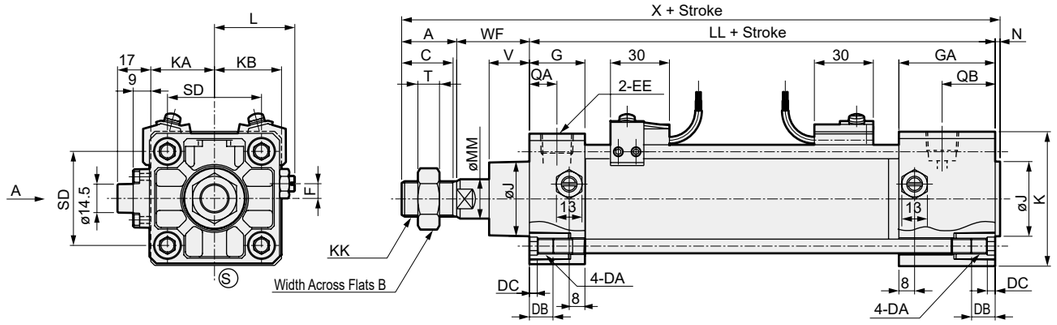
*2: Foot type mounting brackets come in sets of 2.

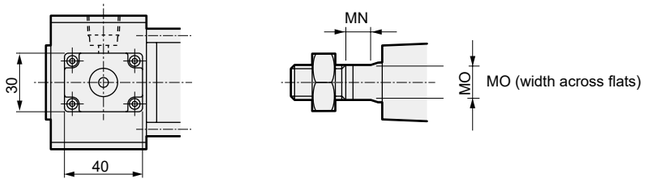
*3: Mounting bolts are included to each mounting bracket.

MEMO

Outline Dimension Drawing

●Basic type (00) With head side fall prevention





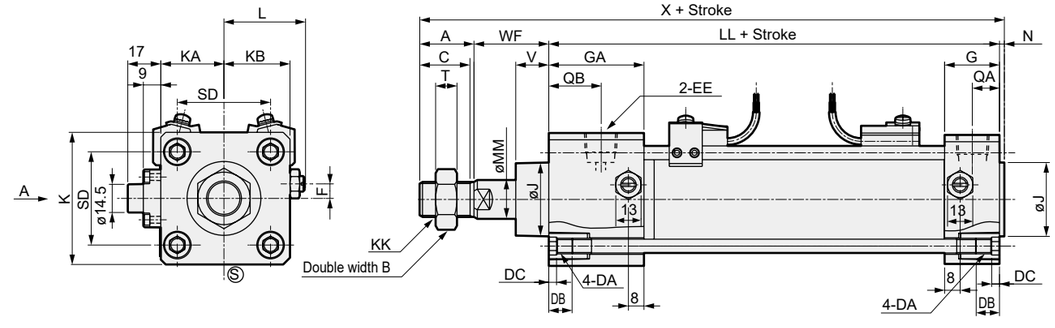
Code	Basic Type (OO)																
Bore Size (mm)	A	B	C	DA	DB	DC	EE	F	G	GA	J	K	KA	KB	KK	L	LL
ø40	22	22	20	M8	12	4	Rc 1/4	7.5	26	49	31	60	30	30	M14 × 1.5	38 to 39.5	120.5
ø50	28	27	26	M8	12	4	Rc 3/8	0	28	49	38	68	32.5	34	M18 × 1.5	41 to 43.5	127
ø63	28	27	26	M8	12	4	Rc 3/8	0	30	49	38	80	38	40	M18 × 1.5	47.5 to 50	130
ø80	36	32	34	M12	16	5	Rc 1/2	0	34	53	43	100	49	50	M22 × 1.5	56 to 59	144
ø100	45	41	43	M12	16	5	Rc 1/2	0	36	53	51	118	58.5	59	M26 × 1.5	66 to 69	156

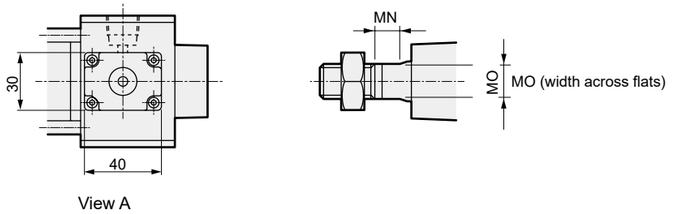
Code											
Bore Size (mm)	MM	MN	MO	N	QA	QB	SD	T	V	WF	X
ø40	16	8	14	2	13	26	40.5	8	18.5	33.5	178
ø50	20	8	17	2.5	14	27	48	11	20.5	37	194.5
ø63	20	8	17	3	15	28	59	11	21	35	196
ø80	25	11	22	3.5	17	27	74	13	23.5	48	231.5
ø100	30	13	27	4	18	27	90	16	32	53	258

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Basic type (00) With head side fall prevention





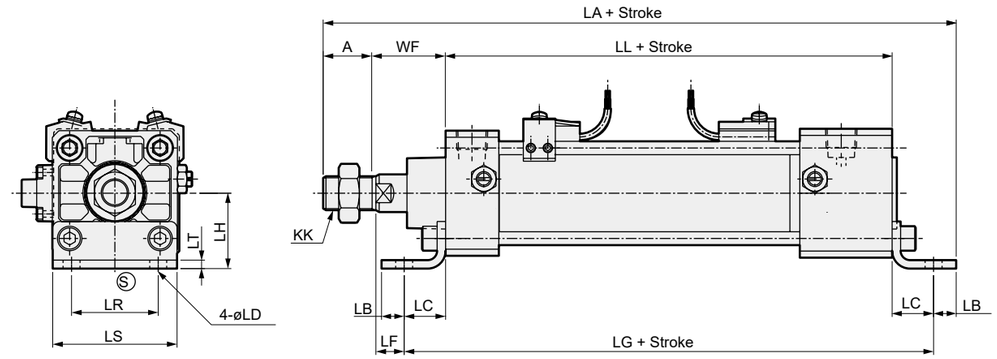
Code	Basic Type (OO)																		
Bore Size (mm)	A	B	C	DA	DB	DC	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN
ø40	22	22	20	M8	12	4	Rc 1/4	7.5	26	49	31	60	30	30	M14 × 1.5	38 to 39.5	120.5	16	8
ø50	28	27	26	M8	12	4	Rc 3/8	0	28	49	38	68	32.5	34	M18 × 1.5	41 to 43.5	127	20	8
ø63	28	27	26	M8	12	4	Rc 3/8	0	30	49	38	80	38	40	M18 × 1.5	47.5 to 50	130	20	8
ø80	36	32	34	M12	16	5	Rc 1/2	0	34	53	43	100	49	50	M22 × 1.5	56 to 59	144	25	11
ø100	45	41	43	M12	16	5	Rc 1/2	0	36	53	51	118	58.5	59	M26 × 1.5	66 to 69	156	30	13

Code									
Bore Size (mm)	MO	N	QA	QB	SD	T	V	WF	X
ø40	14	2	13	26	40.5	8	18.5	33.5	178
ø50	17	2.5	14	27	48	11	17	33.5	191
ø63	17	3	15	28	59	11	17	31	192
ø80	22	3.5	17	27	74	13	18.5	43	226.5
ø100	27	4	18	27	90	16	29	50	255

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

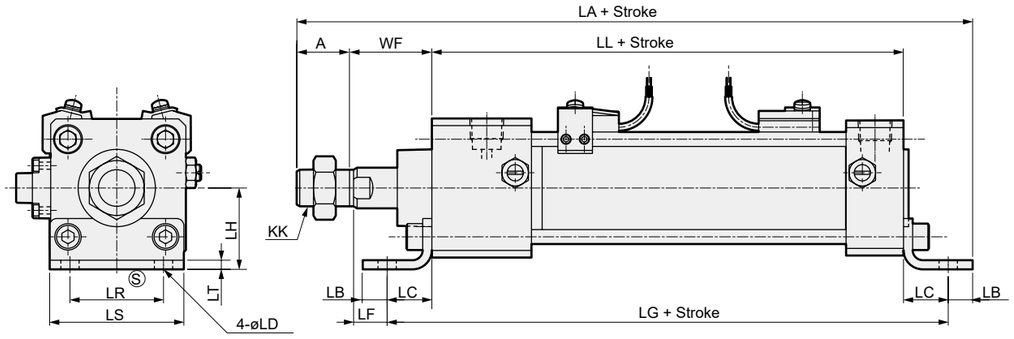
●Axial foot type (LB) With head side fall prevention



Code	Axial Foot Type (LB) Mounting Dimensions													
Bore Size (mm)	A	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT
ø40	22	M14 × 1.5	120.5	33.5	205.5	10	19.5	9	14	159.5	40	40	57	3.2
ø50	28	M18 × 1.5	127	37	226	12	22	9	15	171	40	46	66	4.5
ø63	28	M18 × 1.5	130	35	235	12	30	11	5	190	50	60	80	4.5
ø80	36	M22 × 1.5	144	48	279	14	37	14	11	218	60	74	98	6.0
ø100	45	M26 × 1.5	156	53	306	21	31	14	22	218	67	80	118	6.0

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Axial foot type (LB) With rod side fall prevention

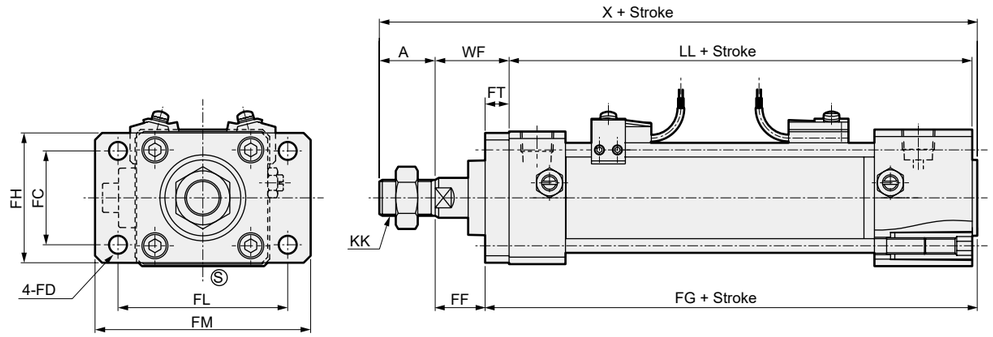


Code	Axial Foot Type (LB) Mounting Dimensions													
Bore Size (mm)	A	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT
ø40	22	M14 × 1.5	120.5	33.5	205.5	10	19.5	9	14	159.5	40	40	57	3.2
ø50	28	M18 × 1.5	127	33.5	222.5	12	22	9	11.5	171	40	46	66	4.5
ø63	28	M18 × 1.5	130	31	231	12	30	11	1	190	50	60	80	4.5
ø80	36	M22 × 1.5	144	43	274	14	37	14	6	218	60	74	98	6.0
ø100	45	M26 × 1.5	156	50	303	21	31	14	19	218	67	80	118	6.0

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

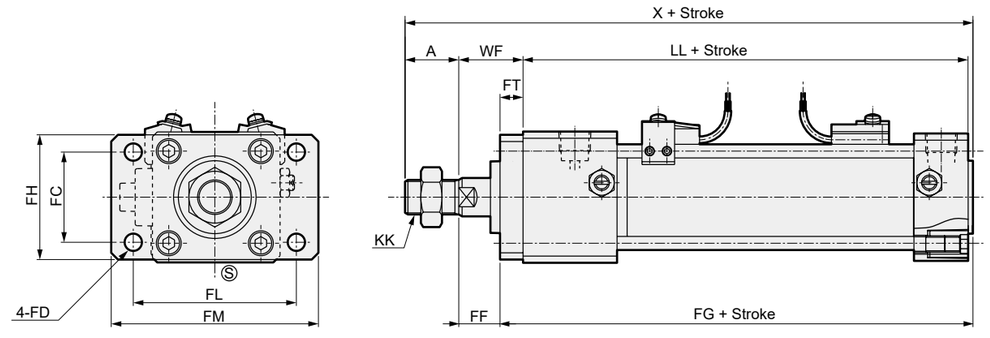
●Rod side flange type (FA) With head side fall prevention



Code	Rod Side Flange Type (FA) Mounting Dimensions												
Bore Size (mm)	A	KK	LL	WF	X	FC	FD	FF	FG	FH	FL	FM	FT
ø40	20	M14 × 1.5	120.5	33.5	178	40	9	21.5	134.5	57	80	100	12
ø50	26	M18 × 1.5	127	37	194.5	47	9	25	141.5	65	85	108	12
ø63	26	M18 × 1.5	130	35	196	60	11	19	149	80	106	130	16
ø80	34	M22 × 1.5	144	48	231.5	74	14	29	166.5	98	125	153	19
ø100	43	M26 × 1.5	156	53	258	88	14	34	179	118	144	180	19

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Rod side flange type (FA) With rod side fall prevention

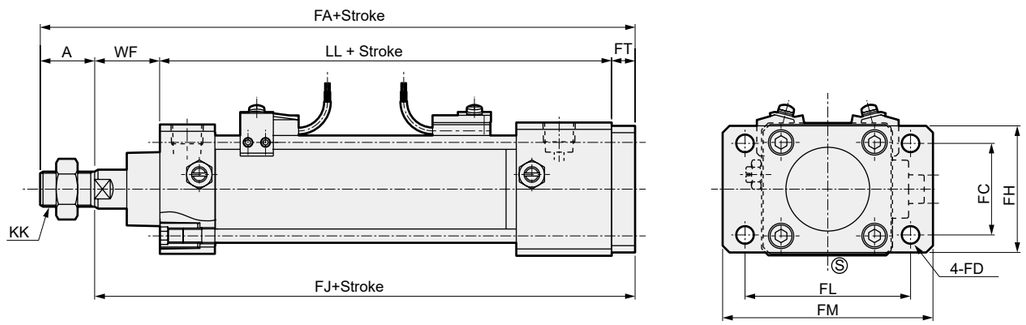


Code	Rod Side Flange Type (FA) Mounting Dimensions												
Bore Size (mm)	A	KK	LL	WF	X	FC	FD	FF	FG	FH	FL	FM	FT
ø40	22	M14 × 1.5	120.5	33.5	178	40	9	21.5	134.5	57	80	100	12
ø50	28	M18 × 1.5	127	33.5	191	47	9	21.5	141.5	65	85	108	12
ø63	28	M18 × 1.5	130	31	192	60	11	15	149	80	106	130	16
ø80	36	M22 × 1.5	144	43	226.5	74	14	24	166.5	98	125	153	19
ø100	45	M26 × 1.5	156	50	255	88	14	31	179	118	144	180	19

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

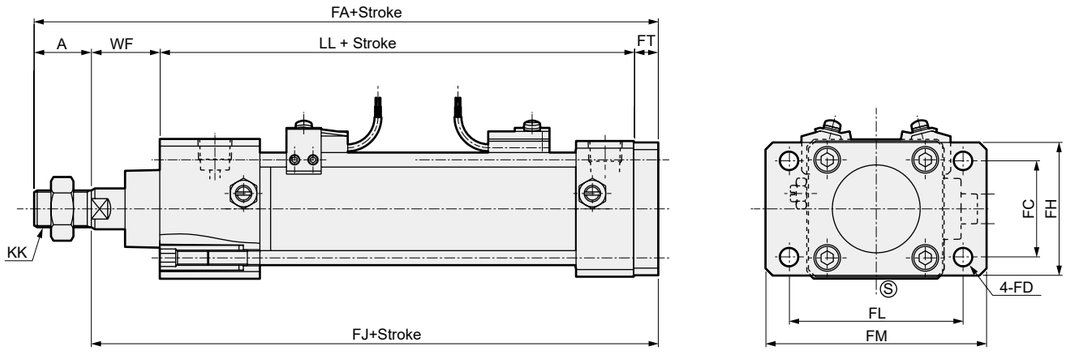
●Head side flange type (FB) With head side fall prevention



Code	Head Side Flange Type (FB) Mounting Dimensions											
Bore Size (mm)	A	KK	LL	WF	FA	FC	FD	FJ	FH	FL	FM	FT
ø40	22	M14 × 1.5	120.5	33.5	188	40	9	166	57	80	100	12
ø50	28	M18 × 1.5	127	37	204	47	9	176	65	85	108	12
ø63	28	M18 × 1.5	130	35	209	60	11	181	80	106	130	16
ø80	36	M22 × 1.5	144	48	247	74	14	211	98	125	153	19
ø100	45	M26 × 1.5	156	53	273	88	14	228	118	144	180	19

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Head side flange type (FB) With rod side fall prevention

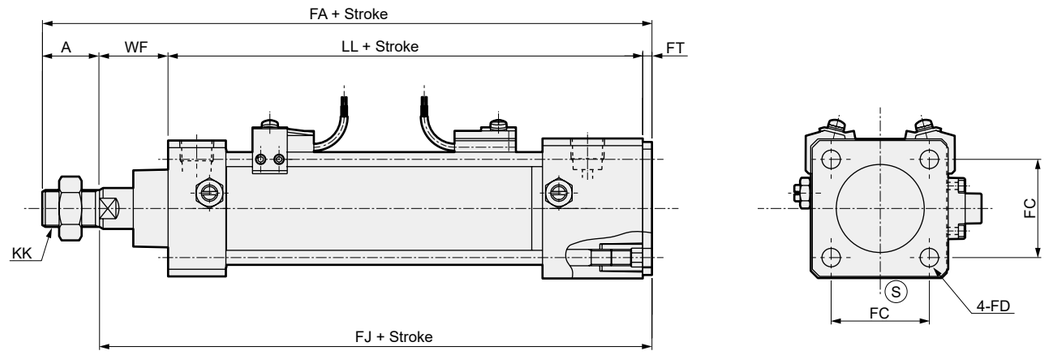


Code	Head Side Flange Type (FB) Mounting Dimensions											
Bore Size (mm)	A	KK	LL	WF	FA	FC	FD	FJ	FH	FL	FM	FT
ø40	22	M14 × 1.5	120.5	33.5	188	40	9	166	57	80	100	12
ø50	28	M18 × 1.5	127	33.5	200.5	47	9	172.5	65	85	108	12
ø63	28	M18 × 1.5	130	31	205	60	11	177	80	106	130	16
ø80	36	M22 × 1.5	144	43	242	74	14	206	98	125	153	19
ø100	45	M26 × 1.5	156	50	270	88	14	225	118	144	180	19

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

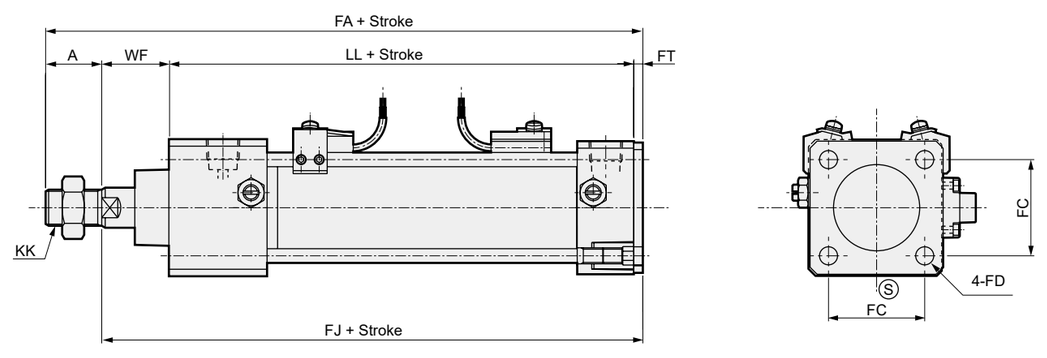
●Head side flange type (FC) With head side fall prevention



Code	Head side special flange type (FC) Mounting dimensions								
Bore Size (mm)	A	KK	LL	WF	FA	FC	FD	FJ	FT
ø40	22	M14 × 1.5	120.5	33.5	180.5	40.5	9	158.5	4.5
ø50	28	M18 × 1.5	127	37	196.5	48	9	168.5	4.5
ø63	28	M18 × 1.5	130	35	197.5	59	9	169.5	4.5
ø80	36	M22 × 1.5	144	48	234	74	14	198	6
ø100	45	M26 × 1.5	156	53	260	90	14	215	6

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Head side flange type (FC) With head side fall prevention

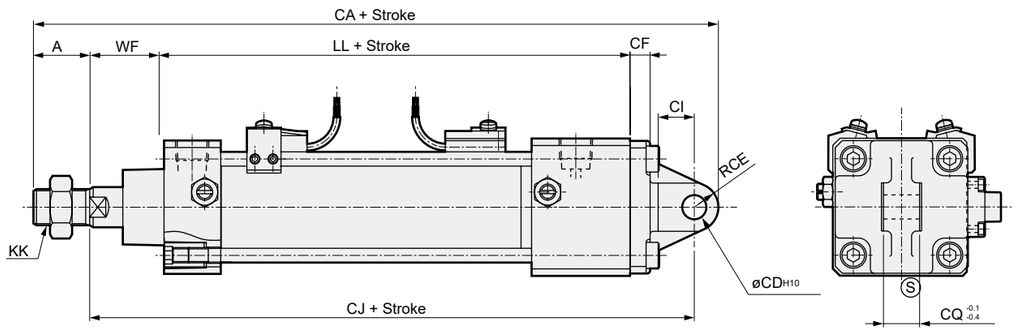


Code	Head side special flange type (FC) Mounting dimensions								
Bore Size (mm)	A	KK	LL	WF	FA	FC	FD	FJ	FT
ø40	22	M14 × 1.5	120.5	33.5	180.5	40	9	158.5	4.5
ø50	28	M18 × 1.5	127	33.5	193	47	9	165	4.5
ø63	28	M18 × 1.5	130	31	193.5	60	11	165.5	4.5
ø80	36	M22 × 1.5	144	43	229	74	14	193	6
ø100	45	M26 × 1.5	156	50	257	88	14	212	6

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

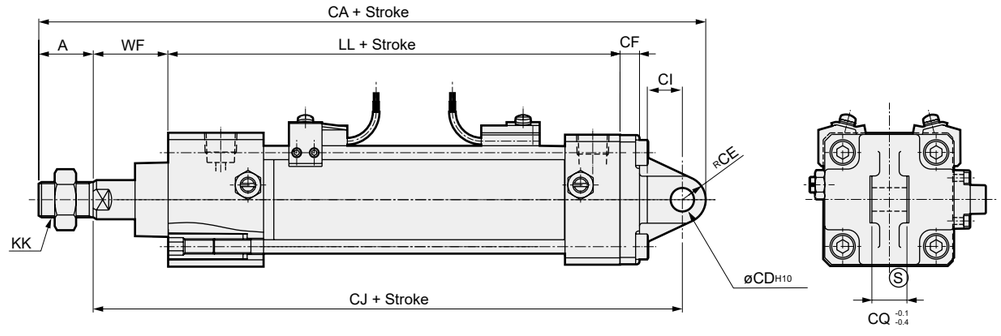
●Single clevis type (CA) With head side fall prevention



Code	Single Clevis Type (CA) Mounting Dimensions										
Bore Size (mm)	A	KK	LL	WF	CA	CD	CE	CF	CI	CJ	CQ
ø40	22	M14 × 1.5	120.5	33.5	220	12	12	10	18	186	18
ø50	28	M18 × 1.5	127	37	236	12	12	10	18	196	18
ø63	28	M18 × 1.5	130	35	246	14	16	10	24	202	20
ø80	36	M22 × 1.5	144	48	300	20	20	14	30	244	28
ø100	45	M26 × 1.5	156	53	326	20	20	16	30	261	28

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Single clevis type (CA) With rod side fall prevention

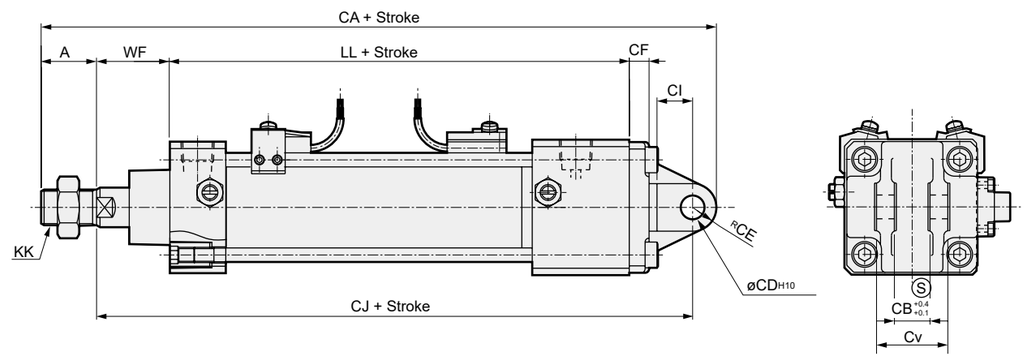


Code	Single Clevis Type (CA) Mounting Dimensions										
Bore Size (mm)	A	KK	LL	WF	CA	CD	CE	CF	CI	CJ	CQ
ø40	22	M14 × 1.5	120.5	33.5	220	12	12	10	18	186	18
ø50	28	M18 × 1.5	127	33.5	232.5	12	12	10	18	192.5	18
ø63	28	M18 × 1.5	130	31	242	14	16	10	24	198	20
ø80	36	M22 × 1.5	144	43	295	20	20	14	30	239	28
ø100	45	M26 × 1.5	156	50	323	20	20	16	30	258	28

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

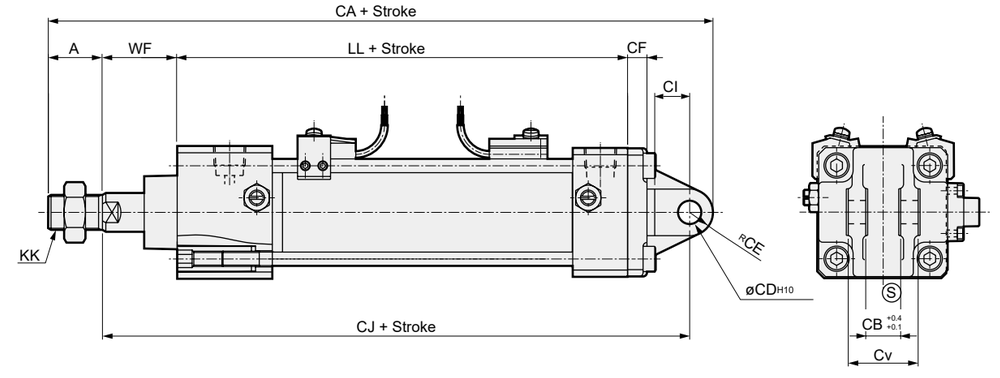
●Double clevis type (CB) With head side fall prevention



Code	Double Clevis Type (CB) Mounting Dimensions											
Bore Size (mm)	A	KK	LL	WF	CA	CB	CD	CE	CF	CI	CJ	Cv
ø40	22	M14 × 1.5	120.5	33.5	220	18	12	12	10	18	186	36
ø50	28	M18 × 1.5	127	37	236	18	12	12	10	18	196	36
ø63	28	M18 × 1.5	130	35	246	20	14	16	10	24	202	40
ø80	36	M22 × 1.5	144	48	300	28	20	20	14	30	244	56
ø100	45	M26 × 1.5	156	53	326	28	20	20	16	30	261	56

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Double clevis type (CB) With rod side fall prevention

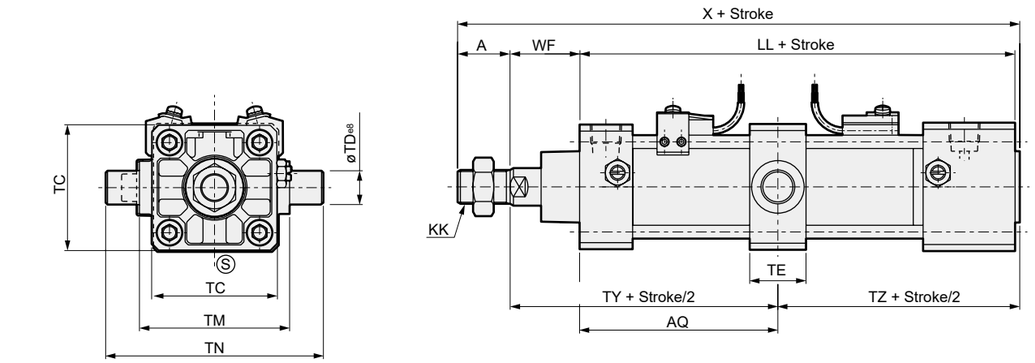


Code	Double Clevis Type (CB) Mounting Dimensions											
Bore Size (mm)	A	KK	LL	WF	CA	CB	CD	CE	CF	CI	CJ	Cv
ø40	22	M14 × 1.5	120.5	33.5	220	18	12	12	10	18	186	36
ø50	28	M18 × 1.5	127	33.5	232.5	18	12	12	10	18	192.5	36
ø63	28	M18 × 1.5	130	31	242	20	14	16	10	24	198	40
ø80	36	M22 × 1.5	144	43	295	28	20	20	14	30	239	56
ø100	45	M26 × 1.5	156	50	323	28	20	20	16	30	258	56

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

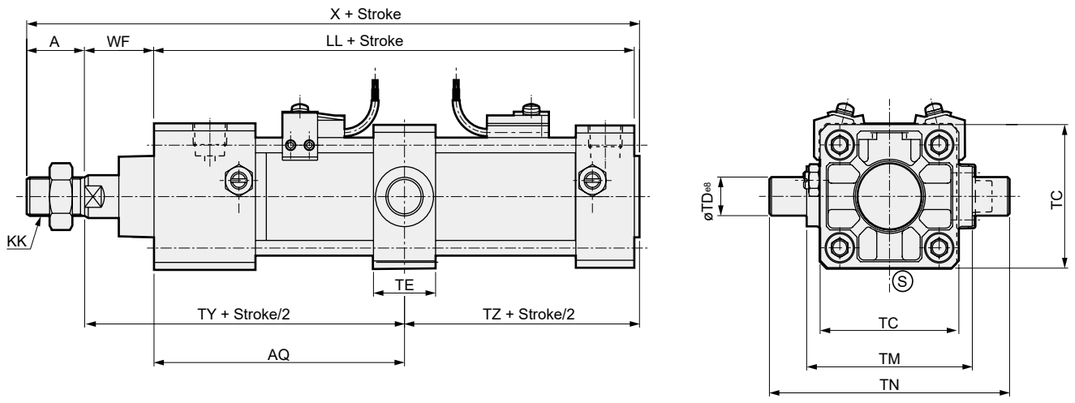
●Intermediate trunnion type (TC) With head side fall prevention



Code	Intermediate Trunnion Type (TC) Mounting Dimensions												
Bore Size (mm)	A	KK	LL	WF	X	AQ	TC	TD	TE	TM	TN	TY	TZ
ø40	22	M14 × 1.5	120.5	33.5	178	60.5 + Stroke/2	57	16	30	63	95	94	62
ø50	28	M18 × 1.5	127	37	194.5	80 + Stroke/2	67	18	30	80	116	100.5	66
ø63	28	M18 × 1.5	130	35	196	65 + Stroke/2	82	20	35	90	130	100	68
ø80	36	M22 × 1.5	144	48	231.5	72 + Stroke/2	100	25	40	115	165	120	75.5
ø100	45	M26 × 1.5	156	53	258	78 + Stroke/2	121	35	50	135	205	131	82

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Intermediate trunnion type (TC) With rod side fall prevention

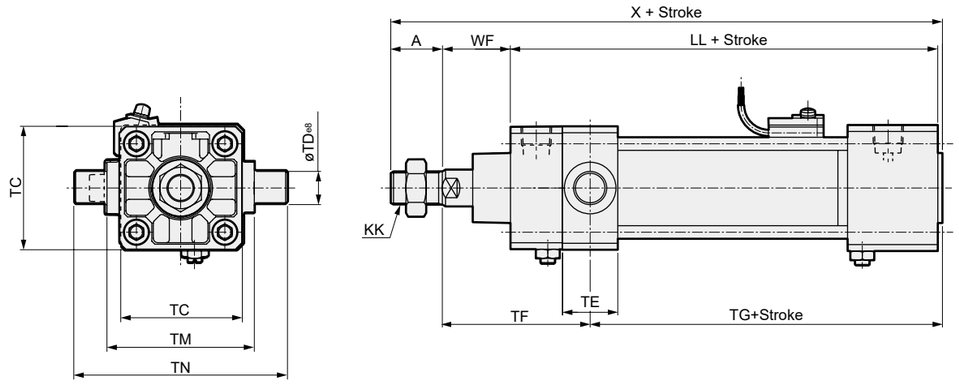


Code	Intermediate Trunnion Type (TC) Mounting Dimensions												
Bore Size (mm)	A	KK	LL	WF	X	AQ	TC	TD	TE	TM	TN	TY	TZ
ø40	22	M14 × 1.5	120.5	33.5	178	60.5 + Stroke/2	57	16	30	63	95	94	62
ø50	28	M18 × 1.5	127	33.5	191	63.5 + Stroke/2	67	18	30	80	116	97	66
ø63	28	M18 × 1.5	130	31	192	65 + Stroke/2	82	20	35	90	130	96	68
ø80	36	M22 × 1.5	144	43	226.5	72 + Stroke/2	100	25	40	115	165	115	75.5
ø100	45	M26 × 1.5	156	50	255	78 + Stroke/2	121	35	50	135	205	128	82

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

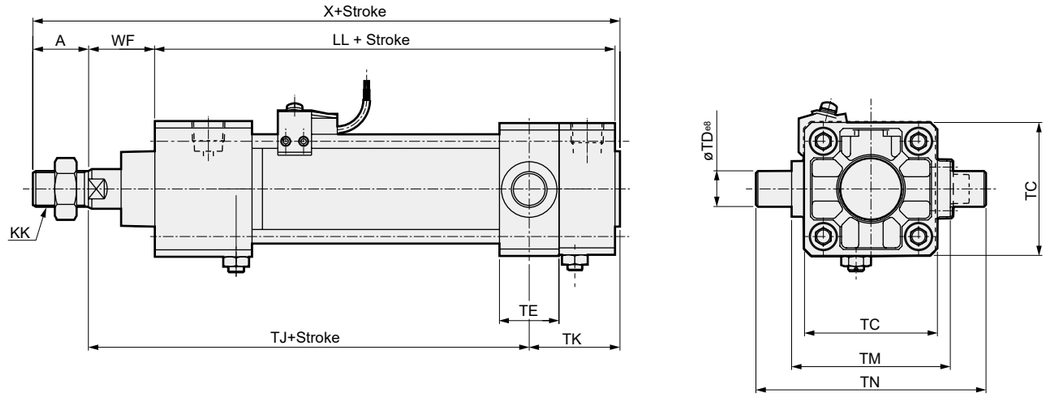
●Rod side trunnion type (TA) With head side fall prevention



Code	Rod Side Trunnion Type (TA) Mounting Dimensions											
Bore Size (mm)	A	KK	LL	WF	X	TC	TD	TE	TF	TG	TM	TN
ø40	22	M14 × 1.5	120.5	33.5	178	57	16	30	74.5	81.5	63	95
ø50	28	M18 × 1.5	127	37	194.5	67	18	30	80	86.5	80	116
ø63	28	M18 × 1.5	130	35	196	82	20	35	82.5	85.5	90	130
ø80	36	M22 × 1.5	144	48	231.5	100	25	40	102	93.5	115	165
ø100	45	M26 × 1.5	156	53	258	121	35	50	114	99	135	205

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**
*3: The position of the cushion needle cannot be changed.

●Head side trunnion type (TB) With rod side fall prevention

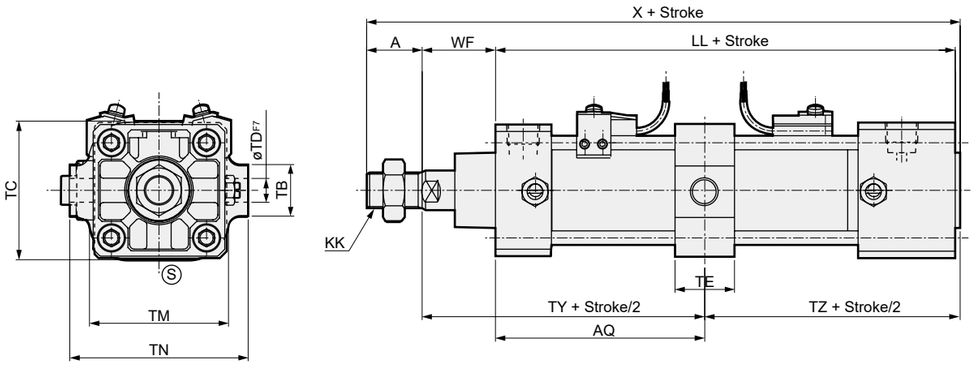


Code	Head Side Trunnion Type (TB) Mounting Dimensions											
Bore Size (mm)	A	KK	LL	WF	X	TC	TD	TE	TJ	TK	TM	TN
ø40	22	M14 × 1.5	120.5	33.5	178	57	16	30	112.5	43.5	63	95
ø50	28	M18 × 1.5	127	33.5	191	67	18	30	117	46	80	116
ø63	28	M18 × 1.5	130	31	192	82	20	35	113	51	90	130
ø80	36	M22 × 1.5	144	43	226.5	100	25	40	132.5	58	115	165
ø100	45	M26 × 1.5	156	50	256	121	35	50	144.5	65.5	135	205

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**
*3: The position of the cushion needle cannot be changed.

Outline Dimension Drawing

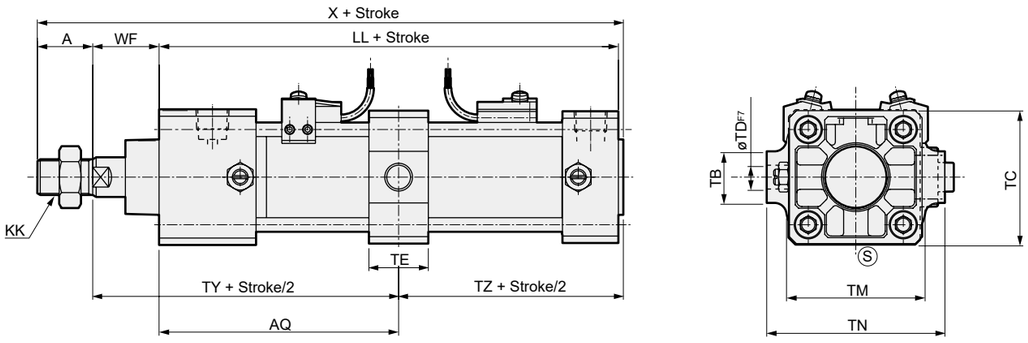
●Intermediate tapped trunnion type (TF) With head side fall prevention



Code	Intermediate tapped trunnion type (TF) Mounting dimensions													
Bore Size (mm)	A	KK	LL	WF	X	AQ	TB	TC	TD	TE	TM	TN	TY	TZ
ø50	28	M18 × 1.5	127	37	194.5	63.5 + Stroke/2	26	70	12	30	70	90	97	66
ø63	28	M18 × 1.5	130	35	196	65 + Stroke/2	30	86	14	35	86	104	96	68
ø80	36	M22 × 1.5	144	48	231.5	72 + Stroke/2	35	105	20	40	105	134	115	75.5
ø100	45	M26 × 1.5	156	53	258	78 + Stroke/2	40	123	20	40	127	150	128	82

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Intermediate tapped trunnion type (TF) With rod side fall prevention

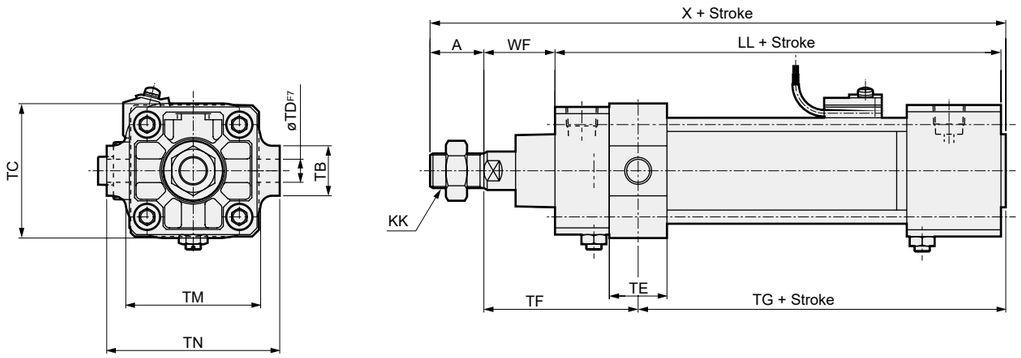


Code	Intermediate tapped trunnion type (TF) Mounting dimensions													
Bore Size (mm)	A	KK	LL	WF	X	AQ	TB	TC	TD	TE	TM	TN	TY	TZ
ø50	28	M18 × 1.5	127	33.5	191	63.5 + Stroke/2	26	70	12	30	70	90	97	66
ø63	28	M18 × 1.5	130	31	192	65 + Stroke/2	30	86	14	35	86	104	96	68
ø80	36	M22 × 1.5	144	43	226.5	72 + Stroke/2	35	105	20	40	105	134	115	75.5
ø100	45	M26 × 1.5	156	50	255	78 + Stroke/2	40	123	20	40	127	150	128	82

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

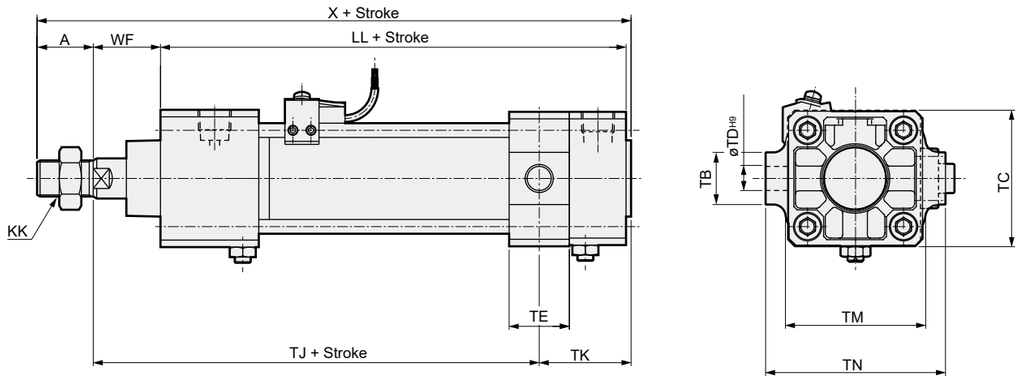
●Rod side tapped trunnion type (TD) With head side fall prevention



Code	Rod side tapped trunnion type (TD) Mounting dimensions												
Bore Size (mm)	A	KK	LL	WF	X	TB	TC	TD	TE	TF	TG	TM	TN
ø50	28	M18 × 1.5	127	37	194.5	26	70	12	30	80	86.5	70	90
ø63	28	M18 × 1.5	130	35	196	30	86	14	35	82.5	85.5	86	104
ø80	36	M22 × 1.5	144	48	231.5	35	105	20	40	102	93.5	105	134
ø100	45	M26 × 1.5	156	53	258	40	123	20	40	109	104	127	150

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**
*3: The position of the cushion needle cannot be changed.

●Head side tapped trunnion type (TE) With rod side fall prevention



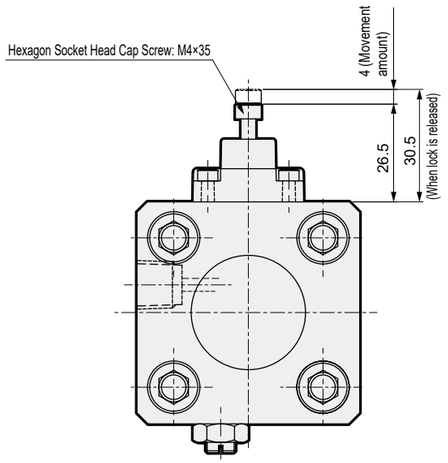
Code	Head side tapped trunnion type (TE) Mounting dimensions												
Bore Size (mm)	A	KK	LL	WF	X	TB	TC	TD	TE	TJ	TK	TM	TN
ø50	28	M18 × 1.5	127	33.5	191	26	70	12	30	117	46	70	90
ø63	28	M18 × 1.5	130	31	192	30	86	14	35	113	51	86	104
ø80	36	M22 × 1.5	144	43	226.5	35	105	20	40	132.5	58	105	134
ø100	45	M26 × 1.5	156	50	255	40	123	20	40	149.5	60.5	127	150

***1: For dimensions with each switch, please refer to P. 850 to 853.**
*2: The position of the cushion needle cannot be changed.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

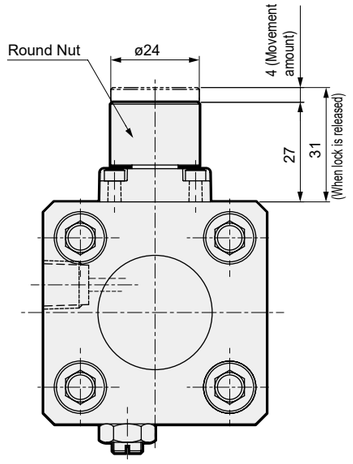
Outline Dimension Drawing

●Main dimensions of MO (non-locking manual override) and M1 (locking manual override)

The manual override has common dimensions for all sizes (ø40 to ø100).



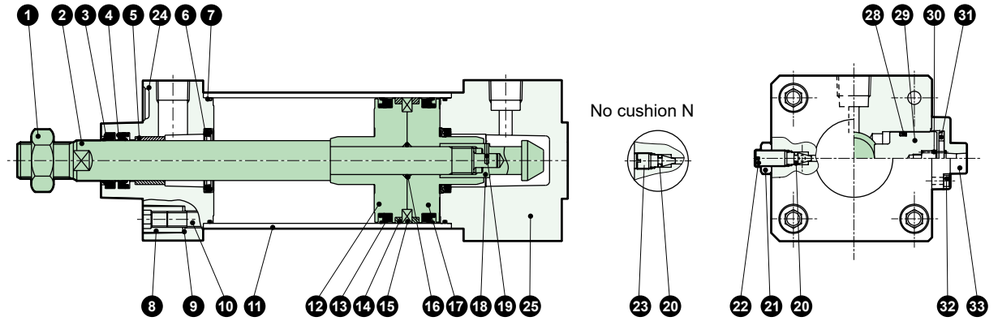
M0 (Non-locking manual override)



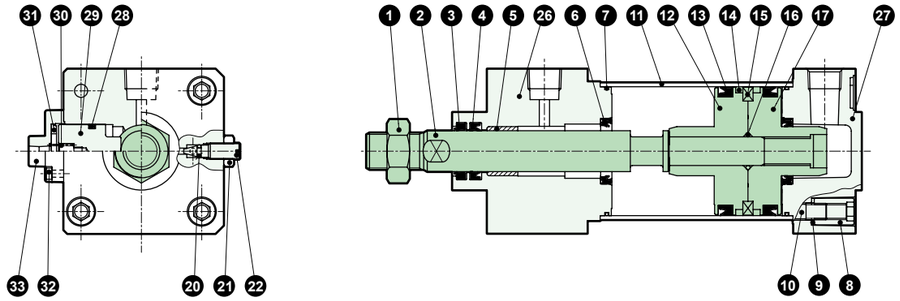
M1 (Locking manual override)

Internal Structure Diagram/Material

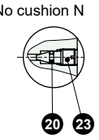
●With head side fall prevention



●With rod side fall prevention



No cushion N



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	18	Sleeve	Steel	Nitriding Treatment
2	Piston Rod	Steel	Industrial Hard Chrome Plating	19	Spring Pin	Steel	Black Oxide
3	Scraper	Nitrile Rubber		20	Needle Gasket	Nitrile Rubber	
4	Rod Packing	Nitrile Rubber		21	Hexagon Nut	Copper Alloy	Nickel Plating
5	Bushing	Oil-Impregnated Bearing Alloy		22	Cushion Needle	Copper Alloy	Nickel Plating
6	Cushion Packing	Nitrile Rubber, Steel	Only with cushion	23	Cushion plug	Copper Alloy	Nickel Plating
7	Cylinder Gasket	Nitrile Rubber		24	Rod cover (1)	Aluminum alloy *1	Painting
8	Round Nut	Steel	Zinc Chromate	25	Head cover (1)	Aluminum alloy *2	Painting
9	Belleville washer	Steel	Black Oxide	26	Rod cover (2)	Aluminum alloy *2	Painting
10	Tie Rod	Steel	Zinc Chromate	27	Head cover (2)	Aluminum alloy *1	Painting
11	Cylinder Tube	Aluminum Alloy	Hard Anodized	28	Stopper packing	Nitrile Rubber	
12	Piston (R)	Aluminum Alloy		29	Stopper Piston	Steel	Nitriding Treatment
13	Piston Packing	Nitrile Rubber		30	Coil Spring	Piano Wire	Electrodeposition Coating
14	Wear Ring	Polyacetal	Painting	31	Cushion Rubber	Urethane Rubber	
15	Magnet	Plastic		32	Hexagon Socket Head Cap Screw	Alloy Steel	Zinc Chromate
16	Piston Gasket	Nitrile Rubber		33	Stopper Cover	Aluminum Alloy	
17	Piston (B)	Aluminum Alloy					

*1: ㉔㉗ indicates aluminum alloy die-cast.
*2: ㉕㉖ indicates aluminum alloy casting.

For maintenance parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts.

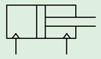


Medium Bore Size Cylinder

Double-acting, Low friction type (Low friction at low pressure (0.2MPa or less))

SCA2-O Series

●Bore size: ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

With Switch
(Built-in magnet for switch)

	Model No.	❶ Mounting type	❷ Bore Size	❸ Piping thread type	Cushion	❹ Stroke	❺ Switch Model No.	❻ Number of Switches	❼ Option	❽ Accessories
Without Switch	SCA2-O	LB	40		N	100			M	I
With Switch	SCA2-O	LB	40		N	100	T0H	R	M	I
		Mounting type	Bore Size	Piping thread type	Cushion: None	Stroke	Switch Model No.	Number of Switches	Option	Accessories

❶Mounting type

Mounting brackets are included to the product and shipped. (However, trunnion types are shipped assembled.)

Code	Content		Code	Content		Code	Content	
00	Basic type		CA	Single Clevis Type		TF	Intermediate tapped trunnion type (ø50 to ø100)	
LB	Axial Foot Type		CB	Double Clevis Type (Pin and retaining ring included)		TD	Rod side tapped trunnion type (ø50 to ø100)	
FA	Rod Side Flange Type		TC	Intermediate Trunnion Type		TE	Head side tapped trunnion type (ø50 to ø100)	
FB	Head Side Flange Type		TA	Rod Side Trunnion Type				
FC	Head side special flange type		TB	Head Side Trunnion Type				

❷Bore Size (mm)

Code	Content
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom product)
G	G thread (Custom product)

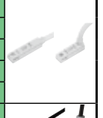
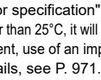
❹ Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø40	1 to 600	Every 1 mm
ø50	1 to 600	
ø63	1 to 600	
ø80	1 to 700	
ø100	1 to 800	

Note: For minimum stroke with switch, please refer to P. 708 and 709.

❺Switch Model No.

For switch details, please refer to P. 971. Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T5V□	T5V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH3
5 m TOH5

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model No.s listed above are also available. (Custom Product) For details, see P. 971.

❻Number of Switches

	Code	Content
*1	R	With 1 pc on rod side
*1	H	With 1 pc on head side
	D	With 2 pcs
	T	With 3 pcs

*1: ❶When "TA", "TD", "TB", or "TE" is selected as the mounting method, the number of switches is limited to "H" (1 on the head side) for "TA" and "TD", and "R" (1 on the rod side) for "TB" and "TE".

❼ Option

Code	Content
M	Piston Rod Material (Stainless Steel)

❽Accessories

Code	Content	
I	Single Knuckle *1	
Y	Double Knuckle (Pin and retaining ring included) *1	
B1	Single Bracket	
B2	Double Yoke Bracket (Pin and retaining ring included)	
B3	Single Bracket	
B4	Trunnion Type 2nd Bracket (2 pieces/set)	

*1: "I" and "Y" cannot be selected at the same time.

*For combinations of variations and options, see P. 625.

Regarding specifications of custom products

Details: refer to P. 854 to 861.

Code	Content	Code	Content	Code	Content
-XR□□□□	Port/Cushion needle position specification	-XP5	Knuckle Pin/Clevis Pin Split Pin	-XM1	Tie rod material SUS
-XK□	Mounting Bracket Rotational Assembly	-XP7	Knuckle fixed by pin driving	-A2	With 2 Rod Nuts
-XAQ□□	Trunnion Position Specification	-XP8	Knuckle Pin/Clevis Pin Split Pin Specification, Knuckle fixed by pinning	Rod end Shape change	Refer to Ending P. 11.

Model No. Example) SCA2-O-..... -XP5

Switch Single Unit Model No. Notation Method

[T type switch]

●Switch body + Mounting bracket set: SCA2 - T0H - 40 (❺ Switch Model No., ❷ Bore Size)

●Switch body only: SW - T0H (❺ Switch Model No.)

●Switch mounting bracket set: SCA2 - TS - 40 (Mounting bracket, ❷ Bore Size)

Note: Please consult us separately if using environmentally compatible T-type switches.

[T2YD type switch]

●Switch body + Mounting bracket set: SCA2 - T2YD - 40 (❺ Switch Model No., ❷ Bore Size)

●Switch body only: SW - T2YD (❺ Switch Model No.)

●Mounting bracket set: SCA2 - T - 40 (❷ Bore Size)

Specifications

Item		SCA2-O (Low friction type)				
Bore Size	mm	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type				
Operating Fluid		Compressed Air				
Max. Working Pressure	MPa	1.0				
Min. Operating Pressure	MPa	0.01				
Proof Pressure	MPa	1.6				
Ambient Temperature	°C	5 to 60				
Port Size		Rc 1/4	Rc 3/8		Rc 1/2	
Stroke tolerance	mm	$^{+0.9}_{0}$ (Up to 360) $^{+1.4}_{0}$ (Up to 800)				
Operating Piston Speed	mm/s	10 to 200 (Use within allowable absorbed energy.)				
Cushion		None				
Lubrication		Not Available				
Allowable Absorbed Energy	J	0.067	0.079	0.079	0.201	0.301
		Since there is no cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.				

Stroke

Bore Size (mm)	Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
ø40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	1
ø50			
ø63			
ø80		700	
ø100		800	

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

●Minimum stroke with T0/T5 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (20)	20 (10)	60 (45)	110 (110)	110 (110)	50 (50)	50 (50)
ø50	20 (20)	15 (10)	20 (20)	135 (135)	135 (135)	60 (60)	60 (60)
ø63	20 (20)	15 (10)	20 (20)	110 (95)	110 (95)	50 (45)	50 (45)
ø80	25 (25)	15 (15)	25 (25)	115 (85)	115 (85)	55 (40)	55 (40)
ø100	25 (25)	15 (15)	25 (25)	125 (95)	125 (95)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T8 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (20)	15 (10)	50 (35)	95 (85)	95 (85)	45 (40)	45 (40)
ø50	20 (20)	10 (10)	20 (20)	115 (115)	115 (115)	50 (50)	50 (50)
ø63	20 (20)	10 (10)	20 (20)	95 (75)	95 (75)	45 (35)	45 (35)
ø80	25 (25)	15 (15)	25 (25)	100 (70)	100 (70)	50 (35)	50 (35)
ø100	25 (25)	15 (15)	25 (25)	110 (80)	110 (80)	55 (40)	55 (40)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Switch specifications

●Minimum stroke with T2/T3 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	105 (75)	105 (75)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	110 (80)	110 (80)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	115 (85)	115 (85)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	125 (95)	125 (95)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T1/T2YD type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	100 (70)	100 (70)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	105 (75)	105 (75)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	110 (80)	110 (80)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	120 (90)	120 (90)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type). However, T2YD does not have an L-shaped lead wire type (V).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T2W/T3W/T2WL type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (10)	20 (5)	65 (50)	110 (80)	110 (80)	50 (35)	50 (35)
ø50	20 (10)	20 (5)	20 (10)	110 (80)	110 (80)	50 (35)	50 (35)
ø63	20 (10)	20 (5)	20 (10)	115 (85)	115 (85)	55 (40)	55 (40)
ø80	15 (10)	15 (5)	15 (10)	120 (90)	120 (90)	55 (40)	55 (40)
ø100	10 (10)	10 (5)	10 (10)	130 (100)	130 (100)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Cylinder Weight

(Unit: kg)

Bore Size (mm)	Product Weight when stroke (S) = 0 mm						Switch weight	Switch Mounting Bracket Weight	S = Added weight per 10 mm
	Basic type 00	Foot Type (LB)	Flange Type (FA, FB)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion Type (TA, TB, TC)		T type	
ø40	0.83	1.00	1.24	1.15	1.19	1.21	Refer to the weight listed in the switch specifications on P. 971.	0.024	0.39
ø50	1.20	1.45	1.69	1.58	1.61	1.74		0.022	0.46
ø63	1.60	1.97	2.69	2.17	2.22	2.45		0.020	0.50
ø80	2.60	3.34	4.46	3.87	4.08	3.94		0.026	0.90
ø100	4.20	5.11	6.94	5.84	6.02	6.77		0.024	1.12

(Example) Product Weight of SCA2-O-LB-50B-200-T0H-D

- Product Weight at 0 mm stroke ..... 1.45 kg
- Added weight at 200 mm stroke ..... $0.46 \times \frac{200}{100} = 0.92$ kg
- Weight of 2 TOH switches.....0.018 x 2 = 0.036 kg
- Weight of 2 mounting brackets .....0.022 × 2=0.044 kg
- Product Weight ..... 1.45 + 0.92 + 0.036 + 0.044 = 2.450 kg

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa											
		0.01	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	1.26 × 10	1.26 × 10²	1.88 × 10²	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²	1.01 × 10³	1.13 × 10³	1.26 × 10³
	Pull	1.06 × 10	1.06 × 10²	1.58 × 10²	2.11 × 10²	3.17 × 10²	4.22 × 10²	5.28 × 10²	6.33 × 10²	7.39 × 10²	8.44 × 10²	9.50 × 10²	1.06 × 10³
ø50	Push	1.96 × 10	1.96 × 10²	2.95 × 10²	3.93 × 10²	5.89 × 10²	7.85 × 10²	9.82 × 10²	1.18 × 10³	1.37 × 10³	1.57 × 10³	1.77 × 10³	1.96 × 10³
	Pull	1.65 × 10	1.65 × 10²	2.47 × 10²	3.30 × 10²	4.95 × 10²	6.60 × 10²	8.25 × 10²	9.90 × 10²	1.15 × 10³	1.32 × 10³	1.48 × 10³	1.65 × 10³
ø63	Push	3.12 × 10	3.12 × 10²	4.68 × 10²	6.23 × 10²	9.35 × 10²	1.25 × 10³	1.56 × 10³	1.87 × 10³	2.18 × 10³	2.49 × 10³	2.81 × 10³	3.12 × 10³
	Pull	2.80 × 10	2.80 × 10²	4.20 × 10²	5.61 × 10²	8.41 × 10²	1.12 × 10³	1.40 × 10³	1.68 × 10³	1.96 × 10³	2.24 × 10³	2.52 × 10³	2.80 × 10³
ø80	Push	5.03 × 10	5.03 × 10²	7.54 × 10²	1.01 × 10³	1.51 × 10³	2.01 × 10³	2.51 × 10³	3.02 × 10³	3.52 × 10³	4.02 × 10³	4.52 × 10³	5.03 × 10³
	Pull	4.54 × 10	4.54 × 10²	6.80 × 10²	9.07 × 10²	1.36 × 10³	1.81 × 10³	2.27 × 10³	2.72 × 10³	3.17 × 10³	3.63 × 10³	4.08 × 10³	4.54 × 10³
ø100	Push	7.85 × 10	7.85 × 10²	1.18 × 10³	1.57 × 10³	2.36 × 10³	3.14 × 10³	3.93 × 10³	4.71 × 10³	5.50 × 10³	6.28 × 10³	7.07 × 10³	7.85 × 10³
	Pull	7.15 × 10	7.15 × 10²	1.07 × 10³	1.43 × 10³	2.14 × 10³	2.86 × 10³	3.57 × 10³	4.29 × 10³	5.00 × 10³	5.72 × 10³	6.43 × 10³	7.15 × 10³

Mounting Bracket Model No. Notation Method

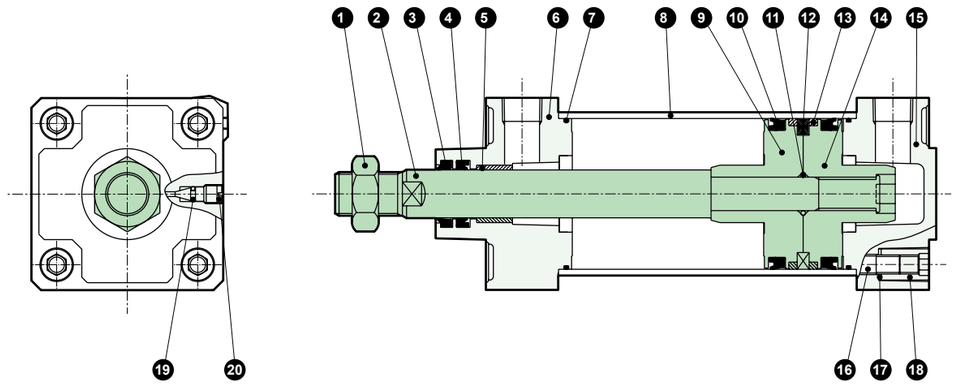
Bore Size (mm) / Mounting bracket	ø40	ø50	ø63	ø80	ø100
Foot (LB) *2	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Single Clevis (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Double Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

***1: For the material of the mounting brackets, please refer to P. 646.**
*2: Foot type mounting brackets come in sets of 2.
*3: Mounting bolts are included to each mounting bracket.

Outline Dimension Drawing

Same as double acting/single rod type. Please refer to P. 632 to 642.

Internal Structure Diagram/Material



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	11	Piston Gasket	Nitrile Rubber	
2	Piston Rod	Steel	Industrial Hard Chrome Plating	12	Magnet	Plastic	
3	Scraper	Nitrile Rubber		13	Wear Ring	Polyacetal	
4	Rod Packing	Nitrile Rubber		14	Piston H	Aluminum Alloy	
5	Bushing	Oil-Impregnated Bearing Alloy		15	Head Cover	Aluminum Alloy	Painting
6	Rod Cover	Aluminum Alloy	Painting	16	Tie Rod	Steel	Zinc Chromate
7	Cylinder Gasket	Nitrile Rubber		17	Belleville washer	Steel	Black Oxide
8	Cylinder Tube	Aluminum Alloy	Hard Anodized	18	Round Nut	Steel	Zinc Chromate
9	Piston R	Aluminum Alloy		19	Needle Gasket	Nitrile Rubber	
10	Piston Packing	Nitrile Rubber		20	Cushion needle stop plug	Copper Alloy	Nickel Plating

For maintenance parts, please visit the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts.

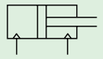


Medium Bore Size Cylinder

Double-acting, Low friction type (Constant friction when pressurized)

SCA2-U Series

●Bore size: ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

With Switch
(Built-in magnet for switch)

	Model No.	❶ Mounting type	❷ Bore Size	❸ Piping thread type	Cushion	❹ Stroke	❺ Switch Model No.	❻ Number of Switches	❼ Option	❽ Accessories
Without Switch	SCA2-U	LB	40		N	100			M	I
With Switch	SCA2-U	LB	40		N	100	T0H	R	M	I
		❶	❷	❸	None	❹	❺	❻	❼	❽

❶Mounting type

Mounting brackets are included to the product and shipped. (However, trunnion types are shipped assembled.)

Code	Content		Code	Content		Code	Content	
00	Basic type		CA	Single Clevis Type		TF	Intermediate tapped trunnion type (ø50 to ø100)	
LB	Axial Foot Type		CB	Double Clevis Type (Pin and retaining ring included)		TD	Rod side tapped trunnion type (ø50 to ø100)	
FA	Rod Side Flange Type		TC	Intermediate Trunnion Type		TE	Head side tapped trunnion type (ø50 to ø100)	
FB	Head Side Flange Type		TA	Rod Side Trunnion Type				
FC	Head side special flange type		TB	Head Side Trunnion Type				

❷Bore Size (mm)

Code	Content
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom product)
G	G thread (Custom product)

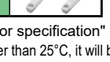
❹ Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø40	1 to 600	Every 1 mm
ø50	1 to 600	
ø63	1 to 600	
ø80	1 to 700	
ø100	1 to 800	

Note: For minimum stroke with switch, please refer to P. 714 and 715.

❺Switch Model No.

For switch details, please refer to P. 971. Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire Straight	Lead Wire L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+) 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH3
5 m TOH5

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model No.s listed above are also available. (Custom Product) For details, see P. 971.

❻Number of Switches

	Code	Content
*1	R	With 1 pc on rod side
*1	H	With 1 pc on head side
	D	With 2 pcs
	T	With 3 pcs

*1: ❶When "TA", "TD", "TB", or "TE" is selected as the mounting method, the number of switches is limited to "H" (1 on the head side) for "TA" and "TD", and "R" (1 on the rod side) for "TB" and "TE".

❼ Option

Code	Content
M	Piston Rod Material (Stainless Steel)

❽Accessories

Code	Content	
I	Single knuckle *1	
Y	Double Knuckle (Pin and retaining ring included) *1	
B1	Single Bracket	
B2	Double Yoke Bracket (Pin and retaining ring included)	
B3	Single Bracket	
B4	Trunnion Type 2nd Bracket (2 pieces/set)	

*1: "I" and "Y" cannot be selected at the same time.

*For combinations of variations and options, see P. 625.

Regarding specifications of custom products Details: refer to P. 854 to 861.

Code	Content	Code	Content	Code	Content
-XR□□□□	Port/Cushion needle position specification	-XP5	Knuckle Pin/Clevis Pin Split Pin	-XM1	Tie rod material SUS
-XK□	Mounting Bracket Rotational Assembly	-XP7	Knuckle fixed by pin driving	-A2	With 2 Rod Nuts
-XAQ□□	Trunnion Position Specification	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	Rod end Shape change	Refer to Ending P. 11.

Model No. Example) SCA2-U-..... -XP5

Switch Single Unit Model No. Notation Method

[T type switch]

●Switch body + Mounting bracket set
SCA2 - T0H - 40
❺ Switch Model No. / ❷ Bore Size

●Switch body only
SW - T0H
❺ Switch Model No.

●Switch mounting bracket set
SCA2 - TS - 40
Mounting bracket / ❷ Bore Size

*Please consult us separately if using environmentally compatible T-type switches.

[T2YD type switch]

●Switch body + Mounting bracket set
SCA2 - T2YD - 40
❺ Switch Model No. / ❷ Bore Size

●Switch body only
SW - T2YD
❺ Switch Model No.

●Mounting bracket set
SCA2 - T - 40
❷ Bore Size

Specifications

Item		SCA2-U				
Bore Size		ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type				
Operating Fluid		Compressed Air				
Max. Working Pressure	MPa	0.7				
Min. Operating Pressure	MPa	0.03				
Proof Pressure	MPa	1.0				
Ambient Temperature	°C	5 to 60				
Port Size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance	mm	$^{+0.9}_{0}$(Up to 360), $^{+1.4}_{0}$(Up to 800)				
Working piston speed	mm	10 to 1000				
Cushion		None				
Lubrication		Not Available				
Internal leakage	m³/min	0.005			0.008	
Allowable absorbed energy		0.067	0.079	0.079	0.201	0.301
		Since there is no cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.				

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ø40	25, 50, 75, 100, 150, 200, 250 300, 350, 400, 450, 500	600	1
ø50			
ø63			
ø80		700	
ø100		800	

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

●Minimum stroke with T0/T5 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (20)	20 (10)	60 (45)	110 (110)	110 (110)	50 (50)	50 (50)
ø50	20 (20)	15 (10)	20 (20)	135 (135)	135 (135)	60 (60)	60 (60)
ø63	20 (20)	15 (10)	20 (20)	110 (95)	110 (95)	50 (45)	50 (45)
ø80	25 (25)	15 (15)	25 (25)	115 (85)	115 (85)	55 (40)	55 (40)
ø100	25 (25)	15 (15)	25 (25)	125 (95)	125 (95)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T8 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (20)	15 (10)	50 (35)	95 (85)	95 (85)	45 (40)	45 (40)
ø50	20 (20)	10 (10)	20 (20)	115 (115)	115 (115)	50 (50)	50 (50)
ø63	20 (20)	10 (10)	20 (20)	95 (75)	95 (75)	45 (35)	45 (35)
ø80	25 (25)	15 (15)	25 (25)	100 (70)	100 (70)	50 (35)	50 (35)
ø100	25 (25)	15 (15)	25 (25)	110 (80)	110 (80)	55 (40)	55 (40)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Minimum Stroke with Switch

●Minimum stroke with T2/T3 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	105 (75)	105 (75)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	110 (80)	110 (80)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	115 (85)	115 (85)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	125 (95)	125 (95)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T1/T2YD type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	100 (70)	100 (70)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	105 (75)	105 (75)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	110 (80)	110 (80)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	120 (90)	120 (90)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type). However, T2YD does not have an L-shaped lead wire type (V).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T2W/T3W/T2WL type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (10)	20 (5)	65 (50)	110 (80)	110 (80)	50 (35)	50 (35)
ø50	20 (10)	20 (5)	20 (10)	110 (80)	110 (80)	50 (35)	50 (35)
ø63	20 (10)	20 (5)	20 (10)	115 (85)	115 (85)	55 (40)	55 (40)
ø80	15 (10)	15 (5)	15 (10)	120 (90)	120 (90)	55 (40)	55 (40)
ø100	10 (10)	10 (5)	10 (10)	130 (100)	130 (100)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Cylinder Weight

(Unit: kg)

Bore Size (mm)	Product Weight when stroke (S) = 0 mm							Switch weight	Switch Mounting Bracket Weight	S = Added weight per 10 mm
	Basic type (OO)	Foot Type (LB)	Flange Type (FA, FB)	Special flange type (FC)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion Type (TA, TB, TC)		T type	
ø40	0.83	1.00	1.24	0.92	1.15	1.19	1.21	Refer to the mass described in the switch specifications on P. 971	0.024	0.39
ø50	1.20	1.45	1.69	1.31	1.58	1.61	1.74		0.022	0.46
ø63	1.60	1.97	2.69	1.78	2.17	2.22	2.45		0.020	0.50
ø80	2.60	3.34	4.46	2.96	3.87	4.08	3.94		0.026	0.90
ø100	4.20	5.11	6.94	4.75	5.84	6.02	6.77		0.024	1.12

(Example) Product Weight of SCA2-U-LB-50B-200-T0H-D

- Product Weight at 0 mm stroke ..... 1.45 kg
- Added weight at 200 mm stroke ..... $0.46 \times \frac{200}{100} = 0.92$ kg
- Weight of 2 TOH switches.....0.018 x 2 = 0.036 kg
- Weight of 2 mounting brackets .....0.022 × 2=0.044 kg
- Product Weight ..... 1.45 + 0.92 + 0.036 + 0.044 = 2.450 kg

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa								
		0.03	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø40	Push	37.8	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2
	Pull	31.8	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2
ø50	Push	58.8	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3
	Pull	49.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3
ø63	Push	93.6	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3
	Pull	84.0	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3
ø80	Push	1.51×10^2	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3
	Pull	1.36×10^3	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3
ø100	Push	2.36×10^2	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3
	Pull	2.15×10^4	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3

Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket	ø40	ø50	ø63	ø80	ø100
Foot (LB) *2	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Single Clevis (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Double Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

***1: For the material of the mounting brackets, please refer to P. 646.**
*2: Foot type mounting brackets come in sets of 2.
*3: Mounting bolts are included to each mounting bracket.

Outline Dimension Drawing

Same as double acting/single rod type.
Please refer to P. 632 to 642.

Do not disassemble

Technical Data

For technical data on sliding resistance values, please refer to P. 412.
The data on P. 412 is for the "SCM-U series", but the "SCA2-U series" also shows the same trend.

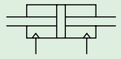
MEMO



Medium Bore Size Cylinder
Double Acting/Double Rod Type

SCA2-D Series

●Bore size: ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

With Switch
(Built-in magnet for switch)

	Model No.	❶ Mounting type	❷ Bore Size	❸ Piping thread type	❹ Cushion	❺ Stroke	❻ Switch Model No.	❼ Number of Switches	❽ Option	❾ Accessories
Without Switch	SCA2-D	LB	40		B	100			S	I
With Switch	SCA2-D	LB	40		B	100	T0H	R	S	I

❶Mounting type

Mounting brackets are included to the product and shipped. (However, trunnion types are shipped assembled.)

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
TC	Intermediate Trunnion Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TF	Intermediate tapped trunnion type (ø50 to ø100)	
TD	Rod side tapped trunnion type (ø50 to ø100)	
TE	Head side tapped trunnion type (ø50 to ø100)	

❷Bore Size (mm)

Code	Content
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom product)
G	G thread (Custom product)

❹Cushion

Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

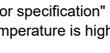
❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø40	1 to 600	Every 1 mm
ø50	1 to 600	
ø63	1 to 600	
ø80	1 to 700	
ø100	1 to 800	

Note: For minimum stroke with switch, please refer to P. 720 and 721.

❻Switch Model No.

For switch details, please refer to P. 971. Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model No.s listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH3
5 m TOH5

❼Number of Switches

	Code	Content
*1	R	With 1 pc on rod side
*1	H	With 1 pc on head side
	D	With 2 pcs
	T	With 3 pcs

*1: ❶When "TA", "TD", "TB", or "TE" is selected as the mounting method, the number of switches is limited to "H" (1 on the head side) for "TA" and "TD", and "R" (1 on the rod side) for "TB" and "TE".

❽Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
*3	J	Bellows	100°C	200°C	
*3	L		250°C	400°C	
	M	Piston Rod Material (Stainless Steel)			
	Blank	Cushion needle position R (Standard)			T R Standard S
*2	S	Cushion needle position S			
	T	Cushion needle position T			

*1: Instantaneous maximum temperature is the temperature when sparks, chips, etc. instantaneously hit the bellows.
*2: ❶When mounting type "TA", "TD", "TB", "TE" is selected, the cushion needle position is fixed to "S" (Blank) and cannot be selected.
*3: If options J and L are selected, the bellows are attached to both rods.

❾Accessories

Code	Content	
I	Single knuckle *1	
Y	Double Knuckle (Pin and retaining ring included) *1	
B4	Trunnion Type 2nd Bracket (2 pieces/set)	

*1: Accessories I and Y come as 2 sets.

*For combinations of variations and options, see P. 625.

Regarding specifications of custom products

Details: refer to P. 854 to 861.

Code	Content	Code	Content	Code	Content
-XR◇◇◇◇	Port/Cushion needle position specification	-XP7	Knuckle fixed by pin driving	-XT9	Scraper/Rod packing only Fluororubber
-XK◇	Mounting Bracket Rotational Assembly	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	-T2	Fluorine Packing Type
-XAQ◇◇	Trunnion Position Specification	-XM1	Tie rod material SUS	-A2	With 2 Rod Nuts
-XP5	Knuckle Pin/Clevis Pin Split Pin	-XJ9	Without Bellows	Rod end Shape change	Refer to Ending P. 11.

Model No. Example) SCA2-D-..... -XP5

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCA2-D-..... -FP1

Switch Single Unit Model No. Notation Method

[T type switch]

●Switch body + Mounting bracket set
SCA2 - T0H - 40
❻ Switch Model No. ❷ Bore Size

●Switch body only
SW - T0H
❻ Switch Model No.

●Switch mounting bracket set
SCA2 - TS - 40
Mounting bracket ❷ Bore Size

*Please consult us separately if using environmentally compatible T-type switches.

[T2YD type switch]

●Switch body + Mounting bracket set
SCA2 - T2YD - 40
❻ Switch Model No. ❷ Bore Size

●Switch body only
SW - T2YD
❻ Switch Model No.

●Mounting bracket set
SCA2 - T - 40
❷ Bore Size

Specifications

Item		SCA2-D (Double rod type)				
Bore Size	mm	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type				
Operating Fluid		Compressed Air				
Max. Working Pressure	MPa	1.0				
Min. Operating Pressure	MPa	0.1				
Proof Pressure	MPa	1.6				
Ambient Temperature	°C	–10 to 60 (Provided that freezing does not occur)				
Port Size		Rc 1/4	Rc 3/8		Rc 1/2	
Stroke tolerance	mm	$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Operating Piston Speed	mm/s	50 to 1000 (Use within allowable absorbed energy.)				
Cushion		Air Cushion				
Effective air cushion length	mm	14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)				
Allowable absorbed energy J	With Cushion	4.29	8.37	15.8	27.9	49.8
	Without Cushion	0.067	0.079	0.079	0.201	0.301
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.				

Stroke

Bore Size (mm)	Standard Stroke (mm)	Maximum Stroke (mm)	Producible Stroke (mm)	Min. Stroke (mm)
ø40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	800	1
ø50				
ø63				
ø80		700		
ø100		800		

*1: Intermediate strokes can be manufactured in 1 mm increments.

***2: If the maximum stroke is exceeded, the product specifications may not be met depending on the conditions, so please consult us.**

Min. Stroke with Switch

● Minimum stroke with T0/T5 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (20)	20 (10)	60 (45)	110 (110)	110 (110)	50 (50)	50 (50)
ø50	20 (20)	15 (10)	20 (20)	135 (135)	135 (135)	60 (60)	60 (60)
ø63	20 (20)	15 (10)	20 (20)	110 (95)	110 (95)	50 (45)	50 (45)
ø80	25 (25)	15 (15)	25 (25)	115 (85)	115 (85)	55 (40)	55 (40)
ø100	25 (25)	15 (15)	25 (25)	125 (95)	125 (95)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

● Minimum stroke with T8 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (20)	15 (10)	50 (35)	95 (85)	95 (85)	45 (40)	45 (40)
ø50	20 (20)	10 (10)	20 (20)	115 (115)	115 (115)	50 (50)	50 (50)
ø63	20 (20)	10 (10)	20 (20)	95 (75)	95 (75)	45 (35)	45 (35)
ø80	25 (25)	15 (15)	25 (25)	100 (70)	100 (70)	50 (35)	50 (35)
ø100	25 (25)	15 (15)	25 (25)	110 (80)	110 (80)	55 (40)	55 (40)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Min. Stroke with Switch

●Minimum stroke with T2/T3 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	105 (75)	105 (75)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	110 (80)	110 (80)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	115 (85)	115 (85)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	125 (95)	125 (95)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T1/T2YD type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	100 (70)	100 (70)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	105 (75)	105 (75)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	110 (80)	110 (80)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	120 (90)	120 (90)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type). However, T2YD does not have an L-shaped lead wire type (V).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T2W/T3W/T2WL type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (10)	20 (5)	65 (50)	110 (80)	110 (80)	50 (35)	50 (35)
ø50	20 (10)	20 (5)	20 (10)	110 (80)	110 (80)	50 (35)	50 (35)
ø63	20 (10)	20 (5)	20 (10)	115 (85)	115 (85)	55 (40)	55 (40)
ø80	15 (10)	15 (5)	15 (10)	120 (90)	120 (90)	55 (40)	55 (40)
ø100	10 (10)	10 (5)	10 (10)	130 (100)	130 (100)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Cylinder Weight

(Unit: kg)

Bore Size (mm)	Product Weight when stroke (S) = 0 mm						Switch weight	Switch Mounting Bracket Weight	S = Added weight per 10 mm
	Basic type 00	Foot Type (LB)	Flange Type (FA, FB)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion Type (TA, TB, TC)		T type	
ø40	1.15	1.32	1.56	1.47	1.51	1.53	Refer to the mass described in the switch specifications on P. 971	0.024	0.55
ø50	1.63	1.88	2.12	2.01	2.04	2.17		0.022	0.71
ø63	2.06	2.43	3.15	2.63	2.68	2.91		0.020	0.75
ø80	3.66	4.40	5.52	4.93	5.14	5.00		0.026	1.29
ø100	5.70	6.61	8.44	7.34	7.52	8.27		0.024	1.67

(Example) Product Weight of SCA2-D-LB-50B-200-TOH-D

Product Weight at 0 mm stroke ..... 1.88 kg
Added weight at 200 mm stroke ..... $0.71 \times \frac{200}{100} = 1.42$ kg
Weight of 2 TOH switches.....0.018 x 2 = 0.036 kg
Weight of 2 mounting brackets .....0.022 × 2=0.044 kg
Product Weight ..... 1.88 + 1.42 + 0.036 + 0.044 = 3.380 kg

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push/Pull	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push/Pull	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push/Pull	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push/Pull	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push/Pull	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

Mounting Bracket Model No. Notation Method

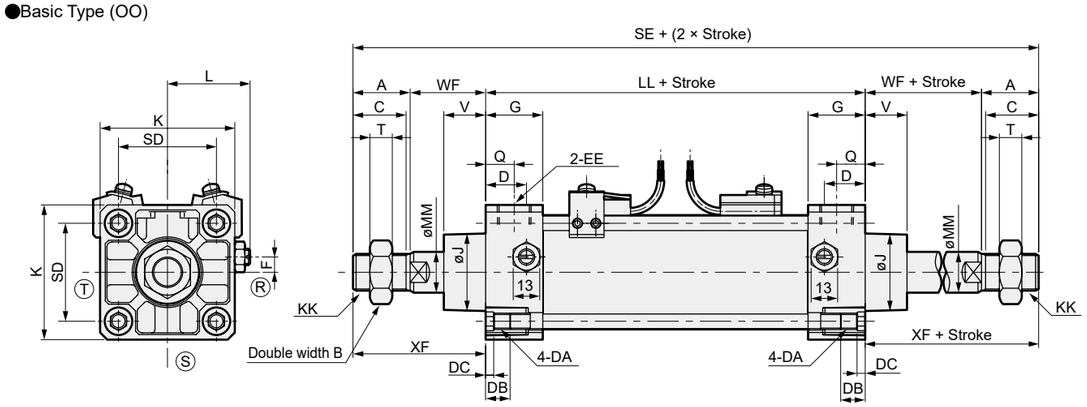
Bore Size (mm) / Mounting bracket	ø40	ø50	ø63	ø80	ø100
Foot (LB) *2	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100

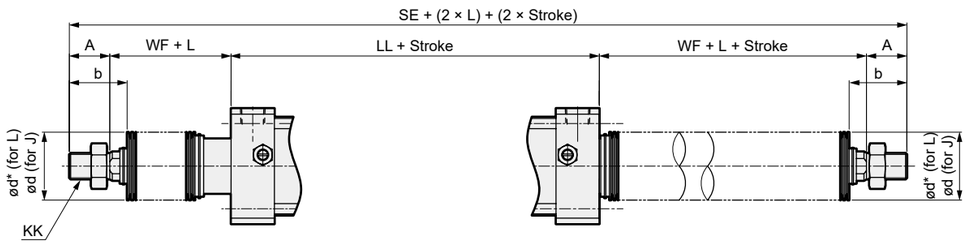
***1: For the material of the mounting brackets, please refer to P. 646.**
*2: Foot type mounting brackets come in sets of 2.
*3: Mounting bolts are included to each mounting bracket.

MEMO

Outline Dimension Drawing

●Basic Type (OO)





[With Bellows]

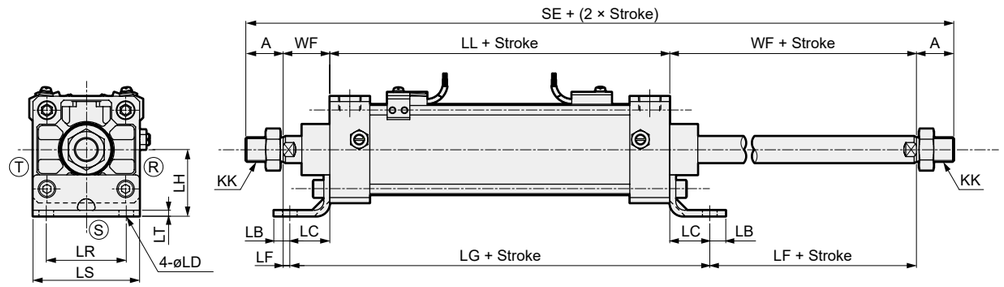
Code	Basic dimensions																						
Bore Size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL	MM	Q	SE	SD	T	V	WF	XF
ø40	22	22	20	18	M8	12	4	Rc 1/4	7.5	26	31	57	M14 × 1.5	38 to 39.5	93	16	13	204	40.5	8	18.5	33.5	55.5
ø50	28	27	26	20	M8	12	4	Rc 3/8	0	28	38	66	M18 × 1.5	41 to 43.5	101	20	14	231	48	11	20.5	37	65
ø63	28	27	26	22	M8	12	4	Rc 3/8	0	30	38	80	M18 × 1.5	47.5 to 50.0	105	20	15	231	59	11	21	35	63
ø80	36	32	34	26	M12	16	5	Rc 1/2	0	34	43	98	M22 × 1.5	56 to 59	116	25	17	284	74	13	23.5	48	84
ø100	45	41	43	28	M12	16	5	Rc 1/2	0	36	51	118	M26 × 1.5	66 to 69	128	30	18	324	90	16	32	53	98

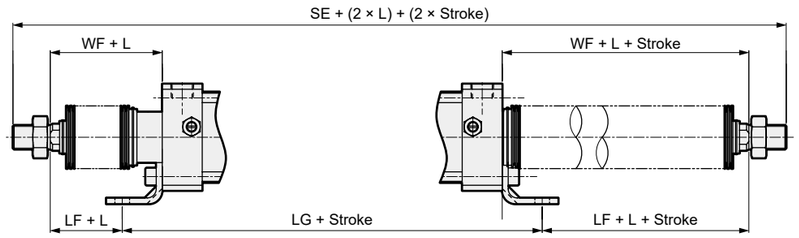
Code	With Bellows									
				L						
Bore Size (mm)	b	d	d*	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.6) + 8
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: The position of the width across flats for wrench on left and right sides is not fixed.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Axial Foot Type (LB)





[With Bellows]

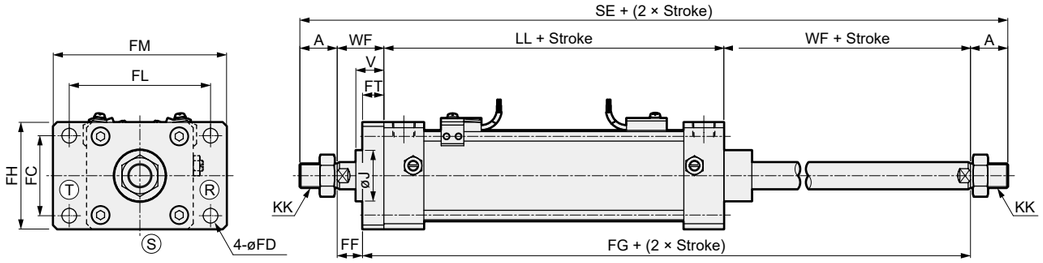
Code	Axial Foot Type (LB) Mounting Dimensions													
Bore Size (mm)	A	KK	LL	SE	WF	LB	LC	LD	LF	LG	LH	LR	LS	LT
ø40	22	M14 × 1.5	93	204	33.5	10	19.5	9	14	132	40	40	57	3.2
ø50	28	M18 × 1.5	101	231	37	12	22	9	15	145	40	46	66	4.5
ø63	28	M18 × 1.5	105	231	35	12	30	11	5	165	50	60	80	4.5
ø80	36	M22 × 1.5	116	284	48	14	37	14	11	190	60	74	98	6
ø100	45	M26 × 1.5	128	324	53	21	31	14	22	190	67	80	118	6

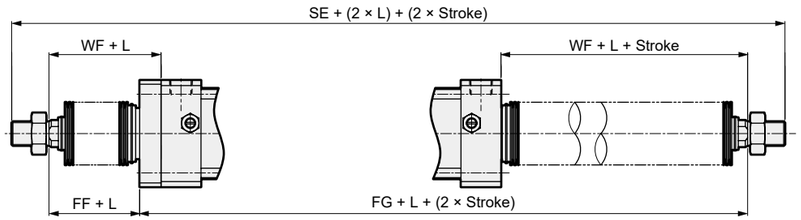
Code	L							
Bore Size (mm)	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: The position of the width across flats for wrench on left and right sides is not fixed.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)





[With Bellows]

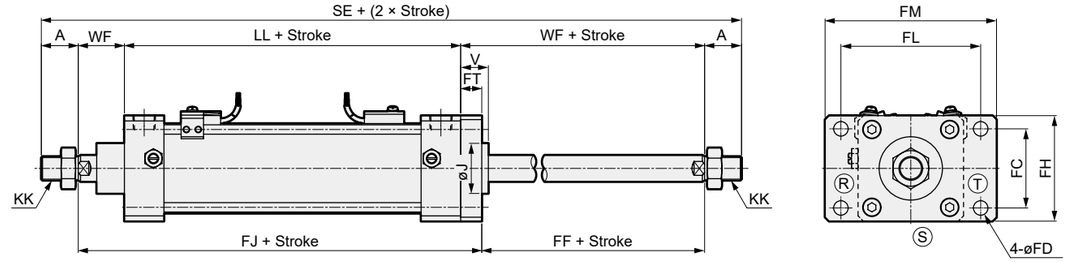
Code	Rod Side Flange Type (FA) Mounting Dimensions														
Bore Size (mm)	A	J	KK	LL	SE	V	WF	FC	FD	FF	FG	FH	FL	FM	FT
ø40	22	31	M14 × 1.5	93	204	18.5	33.5	40	9	21.5	138.5	57	80	100	12
ø50	28	38	M18 × 1.5	101	231	20.5	37	47	9	25	150	65	85	108	12
ø63	28	38	M18 × 1.5	105	231	21	35	60	11	19	156	80	106	130	16
ø80	36	43	M22 × 1.5	116	284	23.5	48	74	14	29	183	98	125	153	19
ø100	45	51	M26 × 1.5	128	324	32	53	88	14	34	200	118	144	180	19

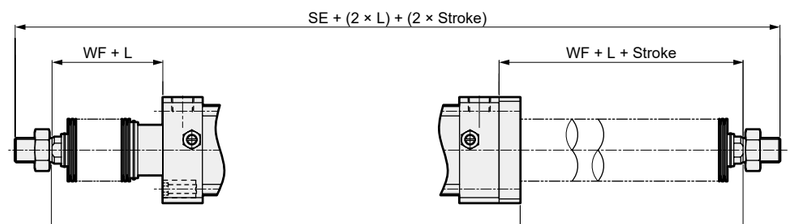
Code	L							
Bore Size (mm)	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: The position of the width across flats for wrench on left and right sides is not fixed.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Head Side Flange Type (FB)





[With Bellows]

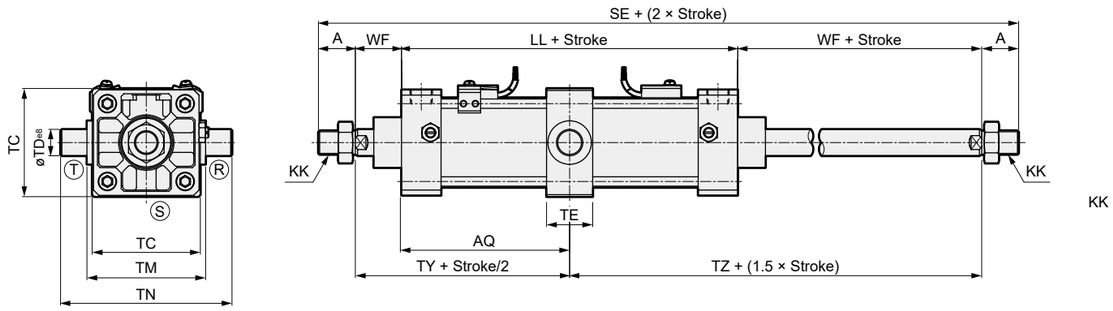
Code	Head Side Flange Type (FB) Mounting Dimensions														
Bore Size (mm)	A	J	KK	LL	SE	V	WF	FC	FD	FF	FH	FJ	FL	FM	FT
ø40	22	31	M14 × 1.5	93	204	18.5	33.5	40	9	21.5	57	138.5	80	100	12
ø50	28	38	M18 × 1.5	101	231	20.5	37	47	9	25	65	150	85	108	12
ø63	28	38	M18 × 1.5	105	231	21	35	60	11	19	80	156	106	130	16
ø80	36	43	M22 × 1.5	116	284	23.5	48	74	14	29	98	183	125	153	19
ø100	45	51	M26 × 1.5	128	324	32	53	88	14	34	118	200	144	180	19

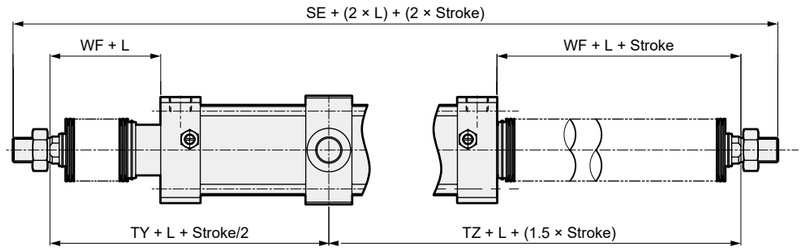
Code	L							
Bore Size (mm)	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: The position of the width across flats for wrench on left and right sides is not fixed.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Intermediate trunnion type (TC)





[With Bellows]

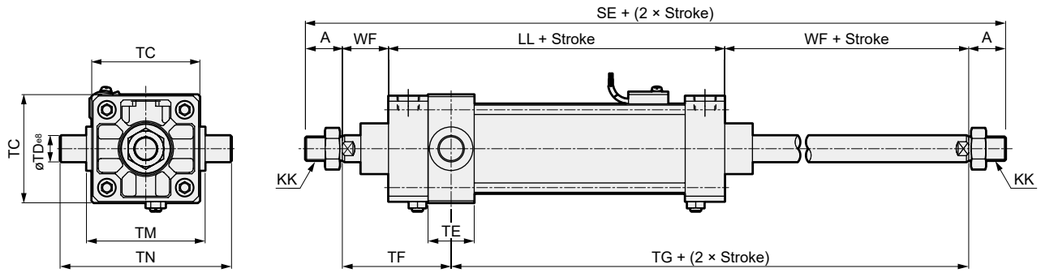
Code	Intermediate Trunnion Type (TC) Mounting Dimensions												
Bore Size (mm)	A	KK	LL	SE	WF	AQ	TC	TD	TE	TY	TZ	TM	TN
ø40	22	M14 × 1.5	93	204	33.5	46.5 + Stroke/2	57	16	30	80	80	63	95
ø50	28	M18 × 1.5	101	231	37	50.5 + Stroke/2	67	18	30	87.5	87.5	80	116
ø63	28	M18 × 1.5	105	231	35	52.5 + Stroke/2	82	20	35	87.5	87.5	90	130
ø80	36	M22 × 1.5	116	284	48	58 + Stroke/2	100	25	40	106	106	115	165
ø100	45	M26 × 1.5	128	324	53	64 + Stroke/2	121	35	50	117	117	135	205

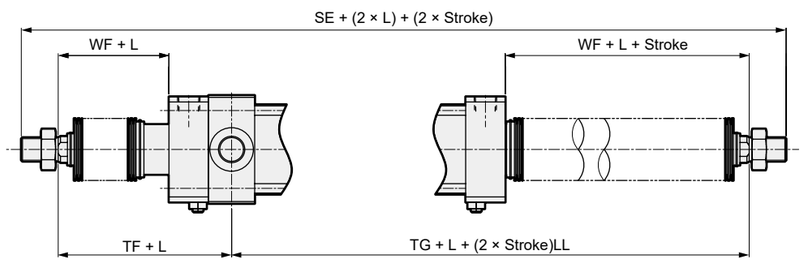
Code	L							
Bore Size (mm)	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: The position of the width across flats for wrench on left and right sides is not fixed.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Rod side trunnion type (TA)





[With Bellows]

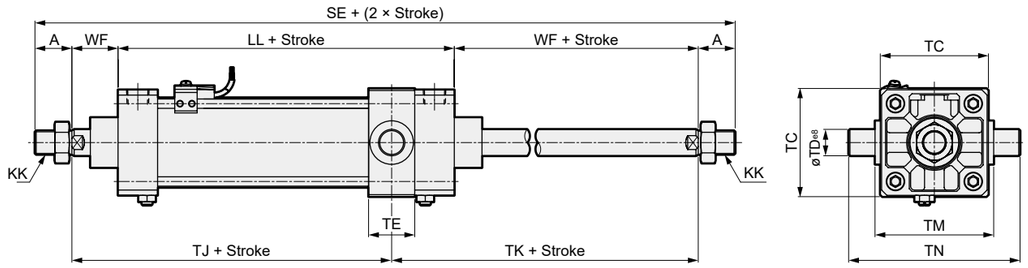
Code	Rod Side Trunnion Type (TA) Mounting Dimensions											
Bore Size (mm)	A	KK	LL	SE	WF	TC	TD	TE	TF	TG	TM	TN
ø40	22	M14 × 1.5	93	204	33.5	57	16	30	74.5	85.5	63	95
ø50	28	M18 × 1.5	101	231	37	67	18	30	80	95	80	116
ø63	28	M18 × 1.5	105	231	35	82	20	35	82.5	92.5	90	130
ø80	36	M22 × 1.5	116	284	48	100	25	40	102	110	115	165
ø100	45	M26 × 1.5	128	324	53	121	35	50	114	120	135	205

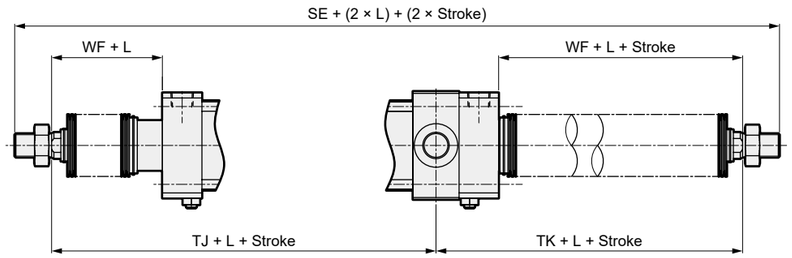
Code	L							
Bore Size (mm)	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the width across flats for spanners on the left and right is not fixed.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Head Side Trunnion Type (TB)





[With Bellows]

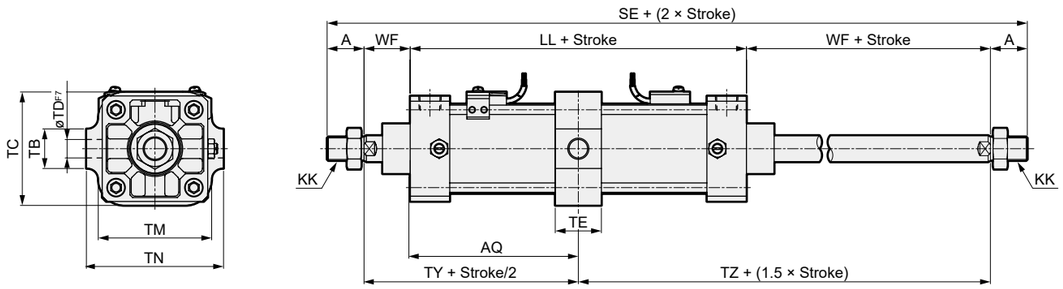
Code	Head Side Trunnion Type (TB) Mounting Dimensions											
Bore Size (mm)	A	KK	LL	SE	WF	TC	TD	TE	TJ	TK	TM	TN
ø40	22	M14 × 1.5	93	204	33.5	57	16	30	85	75	63	95
ø50	28	M18 × 1.5	101	231	37	67	18	30	94.5	80.5	80	116
ø63	28	M18 × 1.5	105	231	35	82	20	35	92	83	90	130
ø80	36	M22 × 1.5	116	284	48	100	25	40	109.5	102.5	115	165
ø100	45	M26 × 1.5	128	324	53	121	35	50	119.5	114.5	135	205

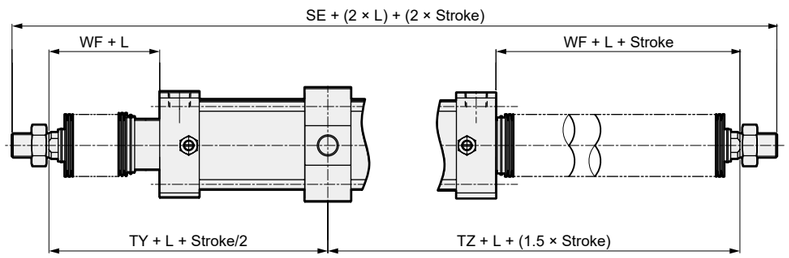
Code	L							
Bore Size (mm)	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the width across flats for spanners on the left and right is not fixed.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Intermediate tapped trunnion type (TF)





[With Bellows]

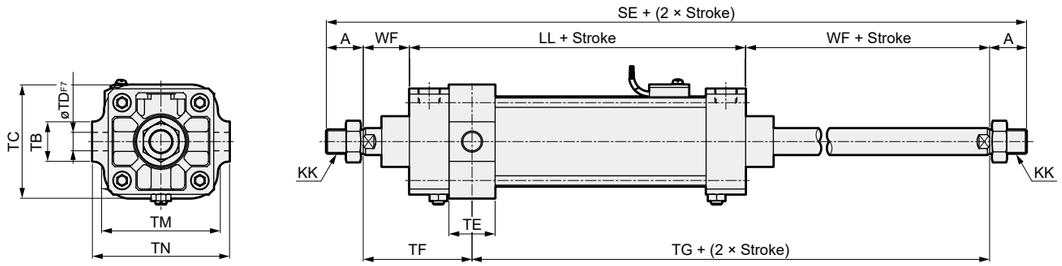
Code	Intermediate tapped trunnion type (TF) Mounting dimensions													
Bore Size (mm)	A	KK	LL	SE	WF	AQ	TB	TC	TD	TE	TY	TZ	TM	TN
ø50	28	M18 × 1.5	101	231	37	50.5 + Stroke/2	26	70	12	30	87.5	87.5	70	90
ø63	28	M18 × 1.5	105	231	35	52.5 + Stroke/2	30	86	14	35	87.5	87.5	86	104
ø80	36	M22 × 1.5	116	284	48	58 + Stroke/2	35	105	20	40	106	106	105	134
ø100	45	M26 × 1.5	128	324	53	64 + Stroke/2	40	123	20	40	117	117	127	150

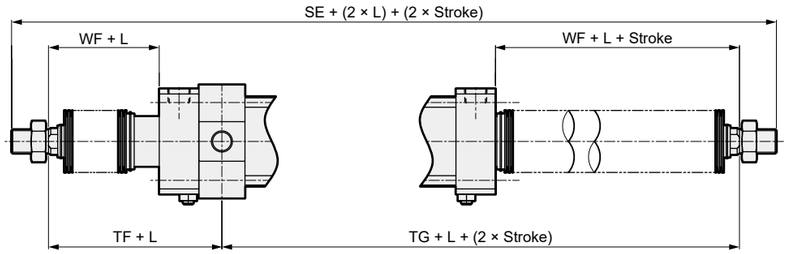
Code	L							
Bore Size (mm)	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the width across flats for spanners on the left and right is not fixed.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Rod side tapped trunnion type (TD)





[With Bellows]

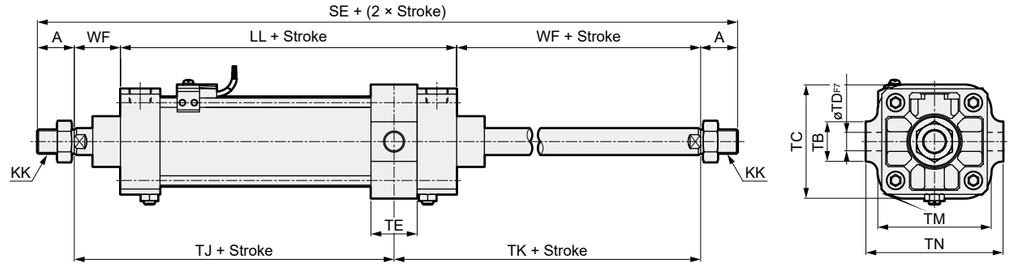
Code	Rod side tapped trunnion type (TD) Mounting dimensions												
Bore Size (mm)	A	KK	LL	SE	WF	TB	TC	TD	TE	TF	TG	TM	TN
ø50	28	M18 × 1.5	101	231	37	26	70	12	30	80	95	70	90
ø63	28	M18 × 1.5	105	231	35	30	86	14	35	82.5	92.5	86	104
ø80	36	M22 × 1.5	116	284	48	35	105	20	40	102	110	105	134
ø100	45	M26 × 1.5	128	324	53	40	123	20	40	109	125	127	150

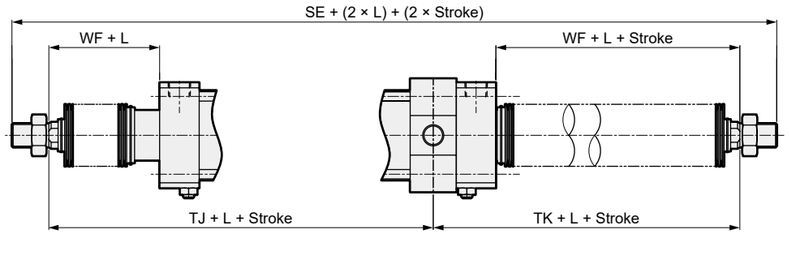
Code	L							
Bore Size (mm)	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the width across flats for spanners on the left and right is not fixed.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Head side tapped trunnion type (TE)





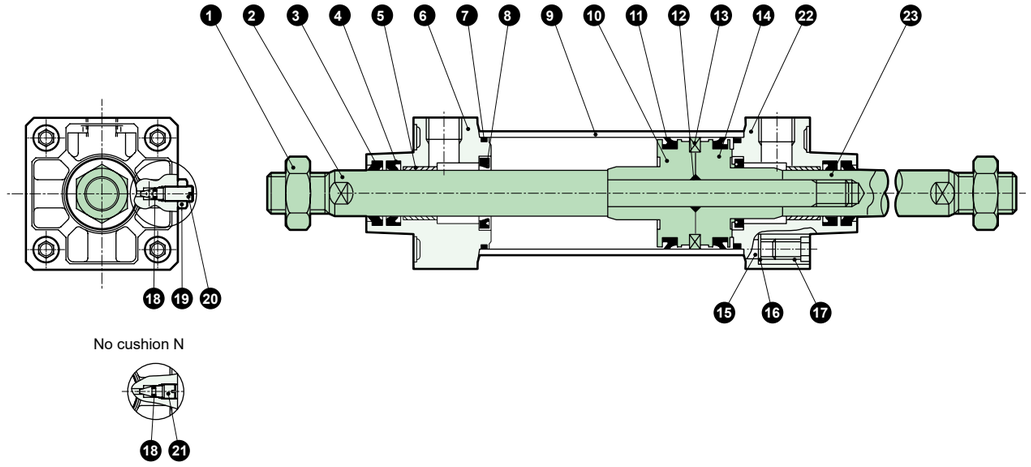
[With Bellows]

Code	Head side tapped trunnion type (TE) Mounting dimensions												
Bore Size (mm)	A	KK	LL	SE	WF	TB	TC	TD	TE	TJ	TK	TM	TN
ø50	28	M18 × 1.5	101	231	37	26	70	12	30	94.5	80.5	70	90
ø63	28	M18 × 1.5	105	231	35	30	86	14	35	92	83	86	104
ø80	36	M22 × 1.5	116	284	48	35	105	20	40	109.5	102.5	105	134
ø100	45	M26 × 1.5	128	324	53	40	123	20	40	124.5	109.5	127	150

Code	L							
Bore Size (mm)	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the width across flats for spanners on the left and right is not fixed.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**

Internal Structure Diagram/Material



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	13	Magnet	Plastic	
2	Piston Rod	Steel	Industrial Hard Chrome Plating	14	Piston H	Aluminum Alloy	
3	Scraper	Nitrile Rubber		15	Tie Rod	Steel	Zinc Chromate
4	Rod Packing	Nitrile Rubber		16	Belleville washer	Steel	Black Oxide
5	Bushing	Oil-Impregnated Bearing Alloy		17	Round Nut	Steel	Zinc Chromate
6	Rod Cover	Aluminum Alloy	Painting	18	Needle Gasket	Nitrile Rubber	
7	Cylinder Gasket	Nitrile Rubber		19	Needle nut	Copper Alloy	Nickel Plating
8	Cushion Packing	Nitrile Rubber, Steel	Only with cushion	20	Cushion Needle	Copper Alloy	Nickel Plating
9	Cylinder Tube	Aluminum Alloy	Hard Anodized	21	Cushion plug	Copper Alloy	Nickel Plating
10	Piston R	Aluminum Alloy		22	Rod Cover Ⓣ	Aluminum Alloy	Painting
11	Piston Packing	Nitrile Rubber		23	Piston rod (2)	Steel	Industrial Hard Chrome Plating
12	Piston Gasket	Nitrile Rubber					

For maintenance parts, please visit the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts.

MEMO

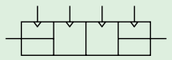
General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending



Medium Bore Size Cylinder
Double Acting, Back-to-Back Type

SCA2-B Series

●Bore size: ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

SCA2-B – LB – 40 – ( ) – B – 100 (– B – 50) – S – I

S1 Stroke of Cylinder 1 · S2 Stroke of Cylinder 2

Model No. ❶ ❷ ❸ ❹ ❺ ❸ ❹ ❺ ❽ ❾

With Switch (Built-in magnet for switch)

SCA2-B – LB – 40 – ( ) – B – 100 – T0H – D (– B – 50 – T0H – R) – S – I

Model No.	❶ Mounting type	❷ Bore Size	❸ Piping thread type	❹ Cushion	❺ Stroke	❻ Switch Model No.	❼ Number of Switches	❸ Piping thread type	❹ Cushion	❺ Stroke	❻ Switch Model No.	❼ Number of Switches	❽ Option	❾ Accessories
				Cylinder 1					Cylinder 2					

Mounting brackets are attached to the product and shipped. (However, trunnion types are shipped assembled.)

❶Mounting type

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TD	Rod side tapped trunnion type (ø50 to ø100)	
TE	Head side tapped trunnion type (ø50 to ø100)	

❷Bore Size (mm)

Code	Content
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom order)
G	G thread (Custom order)

❹Cushion

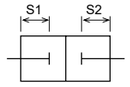
Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø40	1 to 600	Every 1 mm
ø50	1 to 600	
ø63	1 to 600	
ø80	1 to 700	
ø100	1 to 800	

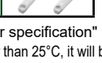
*1: For minimum stroke with switch, refer to P. 738.For minimum stroke with switch, please refer to P. 738 and 739.
*2: Stroke display example

1st Stage Stroke 100 mm Indicated by S1
+ 2nd Stage Stroke 50 mm Indicated by S2
Total stroke 150 mm S1 + S2



❻Switch Model No.

For switch details, please refer to P. 971. Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH3
5 m TOH5

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model No.s listed above are also available. (Custom Product) For details, see P. 971.

❼Number of Switches

	Code	Content
*1	R	With 1 pc on rod side
*1	H	With 1 pc on head side
	D	With 2 pcs
	T	With 3 pcs

*1: ❶When "TA", "TD", "TB", or "TE" is selected as the mounting method, the number of switches is limited to "H" (1 on the head side) for "TA" and "TD", and "R" (1 on the rod side) for "TB" and "TE".

❽ Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
	J	Bellows	100°C	200°C	
	L		250°C	400°C	
	M	Piston Rod Material (Stainless Steel)			
*2	Blank	Cushion needle position R (Standard)			T Standard
	S	Cushion needle position S			S
	T	Cushion needle position T			

*1: Instantaneous maximum temperature is the temperature when sparks, chips, etc. instantaneously hit the bellows.
*2: ❶When mounting type "TA", "TD", "TB", "TE" is selected, the cushion needle position is fixed to "S" (Blank) and cannot be selected.

❾Accessories

Code	Content	
I	Single Knuckle *1	
Y	Double Knuckle (Pin and retaining ring included) *1	
B4	Trunnion type 2nd bracket (2 pieces/set)	

*1: Accessories I and Y come as 2 sets.

*For combinations of variations and options, please refer to P. 625.

Regarding specifications of custom products Details: refer to P. 854 to 861.

Code	Content	Code	Content	Code	Content
-XR◇◇◇◇	Port/Cushion needle position specification	-XP7	Knuckle fixed by pin driving	-XT9	Scraper/Rod packing only Fluororubber
-XK◇	Mounting Bracket Rotational Assembly	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	-T2	Fluorine Packing Type
-XAQ◇◇	Trunnion Position Specification	-XM1	Tie rod material SUS	-A2	With 2 Rod Nuts
-XP5	Knuckle Pin/Clevis Pin Split Pin	-XJ9	Without Bellows	Rod end Shape change	Refer to Ending P. 11.

Model No. Example) SCA2-B -..... -XP5

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCA2-B -..... -FP1

Switch Single Unit Model No. Notation Method

[T type switch]

●Switch body + Mounting bracket set

SCA2 – T0H – 40
❻ Switch Model No. · ❷ Bore Size

● Switch body only

SW – T0H
❻ Switch Model No.

● Switch Mounting Bracket Set

SCA2 – TS – 40
Mounting bracket · ❷ Bore Size

Note: Please consult us separately if using environmentally compatible T-type switches.

[T2YD type switch]

● Switch body + Mounting bracket set

SCA2 – T2YD – 40
❻ Switch Model No. · ❷ Bore Size

● Switch body only

SW – T2YD
❻ Switch Model No.

● Mounting bracket set

SCA2 – T – 40
❷ Bore Size

Specifications

Item		SCA2-B (Back-to-back type)				
Bore Size mm		ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type				
Operating Fluid		Compressed Air				
Max. Working Pressure MPa		1.0				
Min. Operating Pressure MPa		0.05				
Proof Pressure MPa		1.6				
Ambient Temperature °C		–10 to 60 (Provided that freezing does not occur)				
Port Size		Rc 1/4	Rc 3/8		Rc 1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Operating Piston Speed mm/s		50 to 1000 (Use within allowable absorbed energy.)				
Cushion		Air Cushion				
Effective air cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)				
Allowable absorbed energy J	With Cushion	4.29	8.37	15.8	27.9	49.8
	Without Cushion	0.067	0.079	0.079	0.201	0.301
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.				

Stroke

Bore Size (mm)	Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
ø40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	1 (For both cylinder 1 and cylinder 2)
ø50			
ø63			
ø80		700	
ø100		800	

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

●Minimum stroke with T0/T5 type switch

	Different Surface Mounting	Same Surface Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	1
ø40	20 (20)	20 (10)	60 (45)	50 (50)	50 (50)
ø50	20 (20)	15 (10)	20 (20)	60 (60)	60 (60)
ø63	20 (20)	15 (10)	20 (20)	50 (45)	50 (45)
ø80	25 (25)	15 (15)	25 (25)	55 (40)	55 (40)
ø100	25 (25)	15 (15)	25 (25)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T8 type switch

	Different Surface Mounting	Same Surface Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	1
ø40	20 (20)	15 (10)	50 (35)	45 (40)	45 (40)
ø50	20 (20)	10 (10)	20 (20)	50 (50)	50 (50)
ø63	20 (20)	10 (10)	20 (20)	45 (35)	45 (35)
ø80	25 (25)	15 (15)	25 (25)	50 (35)	50 (35)
ø100	25 (25)	15 (15)	25 (25)	55 (40)	55 (40)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Min. Stroke with Switch

●Minimum stroke with T2/T3 type switch

	Different Surface Mounting	Same Surface Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

● Minimum stroke with T1/T2YD type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	100 (70)	100 (70)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	105 (75)	105 (75)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	110 (80)	110 (80)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	120 (90)	120 (90)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type). However, T2YD does not have an L-shaped lead wire type (V).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T2W/T3W/T2WL type switch

	Different Surface Mounting	Same Surface Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	1
ø40	20 (10)	20 (5)	65 (50)	50 (35)	50 (35)
ø50	20 (10)	20 (5)	20 (10)	50 (35)	50 (35)
ø63	20 (10)	20 (5)	20 (10)	55 (40)	55 (40)
ø80	15 (10)	15 (5)	15 (10)	55 (40)	55 (40)
ø100	10 (10)	10 (5)	10 (10)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Cylinder Weight

(Unit: kg)

Bore Size (mm)	Product Weight when stroke (S) = 0 mm						Switch weight	Switch Mounting Bracket Weight	S = Added weight per 10 mm
	Basic type (00)	Foot Type (LB)	Flange Type (FA, FB)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion Type (TA, TB, TC)		T type	
ø40	1.66	1.83	2.07	1.98	2.02	2.04	Refer to the mass described in the switch specifications on P. 971	0.024	0.39
ø50	2.40	2.65	2.89	2.78	2.81	2.94		0.022	0.46
ø63	3.20	3.57	4.29	3.77	3.82	4.05		0.020	0.50
ø80	5.20	5.94	7.06	6.47	6.68	6.54		0.026	0.90
ø100	8.40	9.31	11.14	10.04	10.22	10.97		0.024	1.12

(Example) Product Weight of SCA2-B-LB-50-B200-TOH-D-B100-TOH-R

- Product Weight at 0 mm stroke ..... 2.65 kg
- Added weight at S1 stroke 200 mm ..... $0.46 \times \frac{200}{100} = 0.92$ kg
- Added weight at S2 stroke 100 mm ..... $0.46 \times \frac{100}{100} = 0.46$ kg
- Weight of 3 TOH switches ..... 0.018 × 3 = 0.054 kg
- Weight of 3 mounting brackets ..... 0.022 × 3 = 0.066 kg
- Product Weight ..... 2.65 + 0.92 + 0.46 + 0.054 + 0.066 = 4.150 kg

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	62.8	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	52.8	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.2	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	1.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push	2.51×10^2	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	2.27×10^2	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push	3.93×10^2	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3	6.28×10^3	7.07×10^3	7.85×10^3
	Pull	3.57×10^2	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

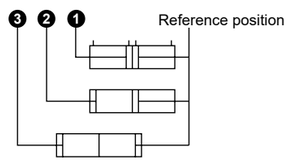
Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket	ø40	ø50	ø63	ø80	ø100
Foot (LB) *2	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100

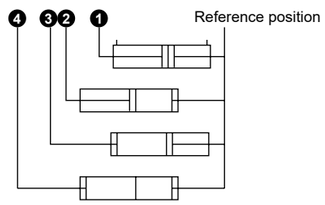
***1: For the material of the mounting brackets, please refer to P. 646.**
*2: Foot type mounting brackets come in sets of 2.
*3: Mounting bolts are included to each mounting bracket.

Usage Example

When combining the same stroke.
3 positions can be taken.



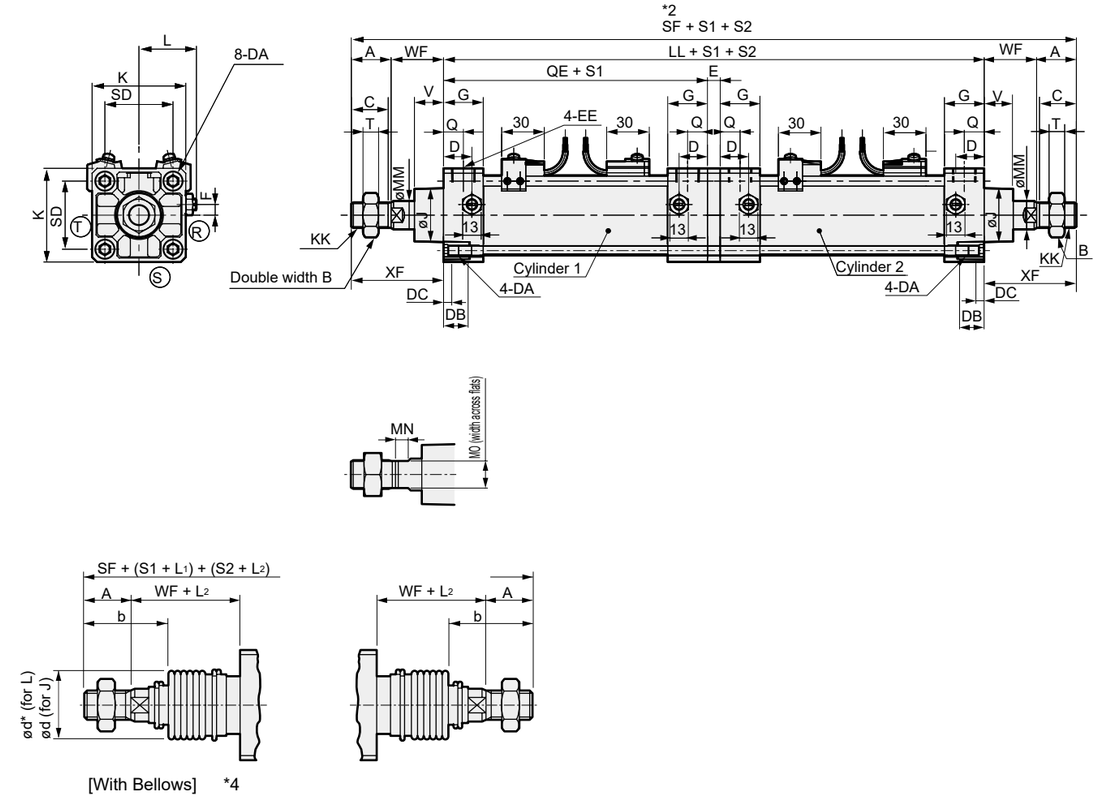
When combining different strokes.
4 positions can be taken.



MEMO

Outline Dimension Drawing

● Back-to-back type (00)



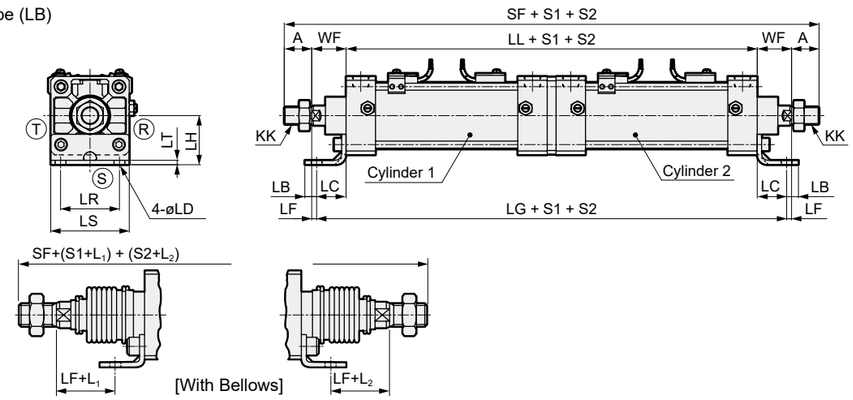
Code / Bore Size (mm)	A	B	C	D	E	F	DA	DB	DC	EE	G	J	K	KK	L	LL	MM	Q	QE	SD	SF	T	V	WF	XF
ø40	22	22	20	18	4.5	7.5	M8	12	4	Rc 1/4	26	31	57	M14 × 1.5	38 to 39.5	190.5	16	13	93	40.5	301.5	8	18.5	33.5	55.5
ø50	28	27	26	20	9	0	M8	12	4	Rc 3/8	28	38	66	M18 × 1.5	41 to 43.5	211	20	14	101	48	341	11	20.5	37	65
ø63	28	27	26	22	9	0	M8	12	4	Rc 3/8	30	38	80	M18 × 1.5	47.5 to 50.0	219	20	15	105	59	345	11	21	35	63
ø80	36	32	34	26	12	0	M12	16	5	Rc 1/2	34	43	98	M22 × 1.5	56 to 59	244	25	17	116	74	412	13	23.5	48	84
ø100	45	41	43	28	12	0	M12	16	5	Rc 1/2	36	51	118	M26 × 1.5	66 to 69	268	30	18	128	90	464	16	32	53	98

Code / Bore Size (mm)	With Bellows										
	b	d	d*	L1, L2							
				50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: S1: Stroke of cylinder 1, S2: Stroke of cylinder 2
*3: Round up the L1 and L2 dimensions to the nearest whole number.
*4: Bellows are included to both rods.
***5: For dimensions with each switch, please refer to P. 850 to 853.**
***6: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

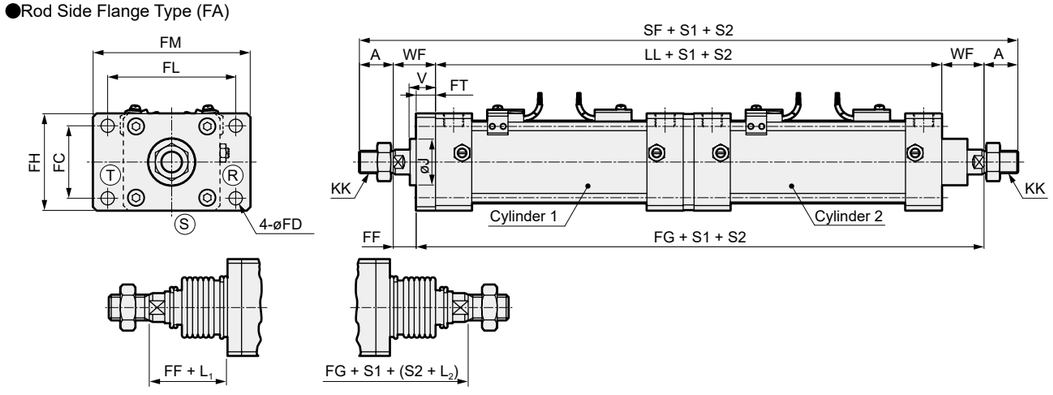
●Axial Foot Type (LB)



Code / Bore Size (mm)	Axial Foot Type (LB) Mounting Dimensions														With Bellows							
	A	KK	LL	SF	WF	LB	LC	LD	LF	LG	LH	LR	LS	LT	L1, L2							
															50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	M14 × 1.5	190.5	301.5	33.5	10	19.5	9	14	229.5	40	40	57	3.2	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	211	341	37	12	22	9	15	255	40	46	66	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	219	345	35	12	30	11	5	279	50	60	80	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	244	412	48	14	37	14	11	318	60	74	98	6	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	268	464	53	21	31	14	22	330	67	80	118	6	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: S1: Stroke of cylinder 1, S2: Stroke of cylinder 2
*3: Round up the L1 and L2 dimensions to the nearest whole number.
*4: Bellows are included to both rods.
***5: For dimensions with each switch, please refer to P. 850 to 853.**
***6: For outer dimensions diagram of accessories, refer to P. 644.**

●Rod Side Flange Type (FA)

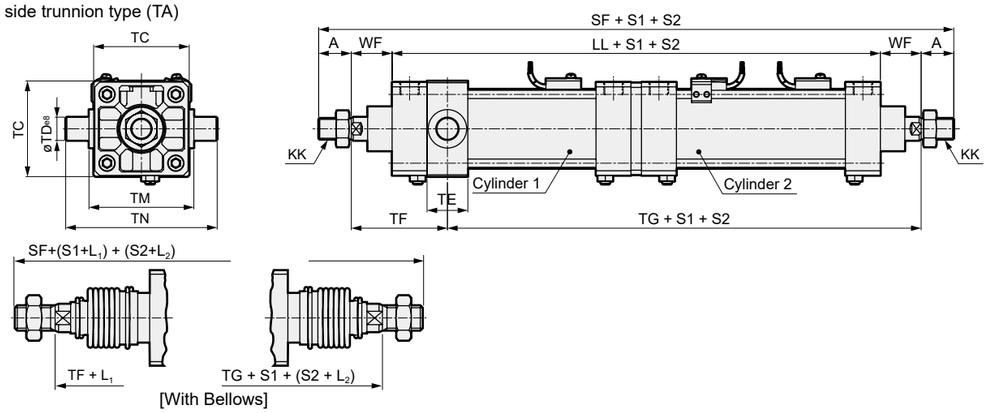


Code / Bore Size (mm)	Rod Side Flange Type (FA) Mounting Dimensions															With Bellows							
	A	J	KK	LL	SF	V	WF	FC	FD	FF	FG	FH	FL	FM	FT	L1, L2							
																50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	31	M14 × 1.5	190.5	301.5	18.5	33.5	40	9	21.5	236	57	80	100	12	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	38	M18 × 1.5	211	341	20.5	37	47	9	25	260	65	85	108	12	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	38	M18 × 1.5	219	345	21	35	60	11	19	270	80	106	130	16	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	43	M22 × 1.5	244	412	23.5	48	74	14	29	311	98	125	153	19	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	51	M26 × 1.5	268	464	32	53	88	14	34	340	118	144	180	19	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: S1: Stroke of cylinder 1, S2: Stroke of cylinder 2
*3: Round up the L1 and L2 dimensions to the nearest whole number.
*4: Bellows are included to both rods.
***5: For dimensions with each switch, please refer to P. 850 to 853.**
***6: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Rod side trunnion type (TA)

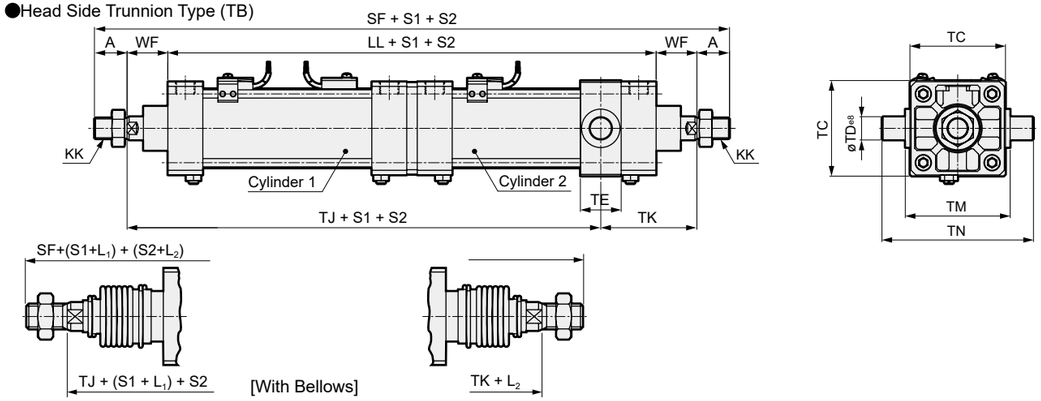


[With Bellows]

Code / Bore Size (mm)	Rod Side Trunnion Type (TA) Mounting Dimensions												With Bellows L1, L2							
	A	KK	LL	SF	WF	TC	TD	TE	TF	TG	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	M14 × 1.5	190.5	301.5	33.5	57	16	30	74.5	183	63	95	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	211	341	37	67	18	30	80	205	80	116	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	219	345	35	82	20	35	82.5	206.5	90	130	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	244	412	48	100	25	40	102	238	115	165	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	268	464	53	121	35	50	114	260	135	205	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: Ⓡ Ⓢ Ⓣ indicates the position of the cushion needle.
*2: S1: Stroke of cylinder 1, S2: Stroke of cylinder 2
*3: Round up the L_1 and L_2 dimensions to the nearest whole number.
*4: Bellows are included to both rods.
***5: For dimensions with each switch, please refer to P. 850 to 853.**
***6: For outer dimensions diagram of accessories, refer to P. 644.**

●Head Side Trunnion Type (TB)



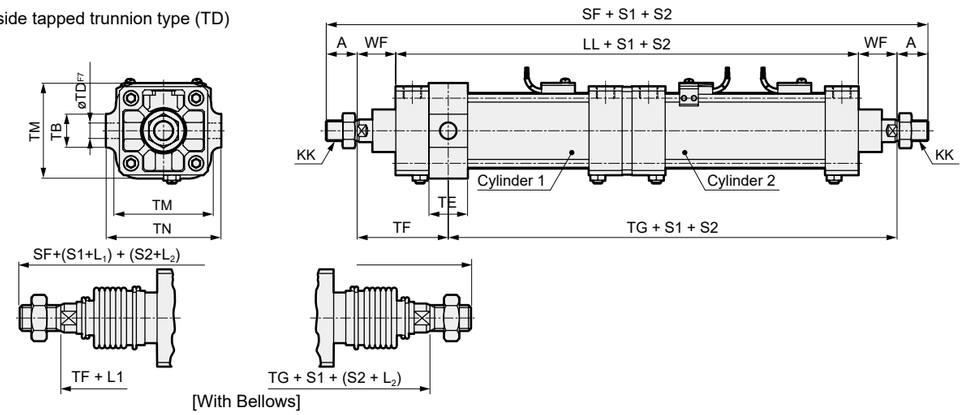
[With Bellows]

Code / Bore Size (mm)	Head Side Trunnion Type (TB) Mounting Dimensions												With Bellows L1, L2							
	A	KK	LL	SF	WF	TC	TD	TE	TJ	TK	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	M14 × 1.5	190.5	301.5	33.5	57	16	30	214	43.5	63	95	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	211	341	37	67	18	30	239	46	80	116	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	219	345	35	82	20	35	238	51	90	130	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	244	412	48	100	25	40	282	58	115	165	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	268	464	53	121	35	50	308.5	65.5	135	205	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: Ⓡ Ⓢ Ⓣ indicates the position of the cushion needle.
*2: S1: Stroke of cylinder 1, S2: Stroke of cylinder 2
*3: Round up the L_1 and L_2 dimensions to the nearest whole number.
*4: Bellows are included to both rods.
***5: For dimensions with each switch, please refer to P. 850 to 853.**
***6: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Rod side tapped trunnion type (TD)

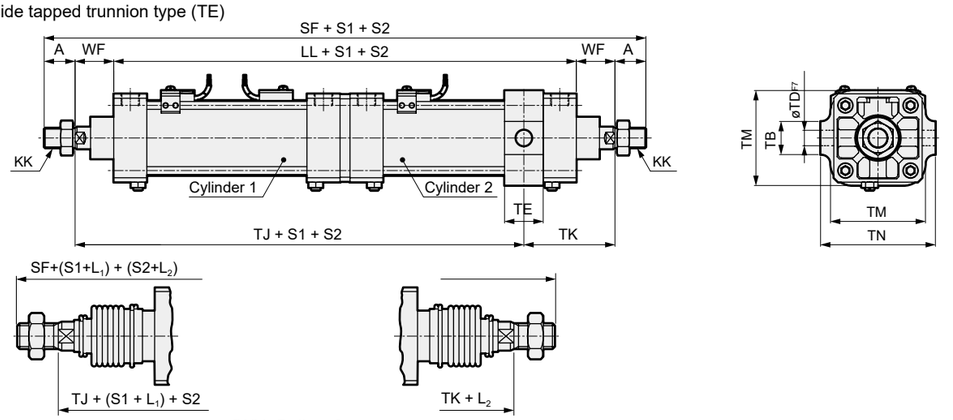


[With Bellows]

Code / Bore Size (mm)	Rod side tapped trunnion type (TD) Mounting dimensions												With Bellows L1, L2							
	A	KK	LL	SF	WF	TB	TD	TE	TF	TG	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø50	28	M18 × 1.5	211	341	37	26	12	30	80	205	70	90	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	219	345	35	30	14	35	82.5	206.5	86	104	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	244	412	48	35	20	40	102	238	105	134	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	268	464	53	40	20	40	109	265	127	150	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: Ⓡ Ⓢ Ⓣ indicates the position of the cushion needle.
*2: S1: Stroke of cylinder 1, S2: Stroke of cylinder 2
*3: Round up the L_1 and L_2 dimensions to the nearest whole number.
*4: Bellows are included to both rods.
***5: For dimensions with each switch, please refer to P. 850 to 853.**
***6: For outer dimensions diagram of accessories, refer to P. 644.**

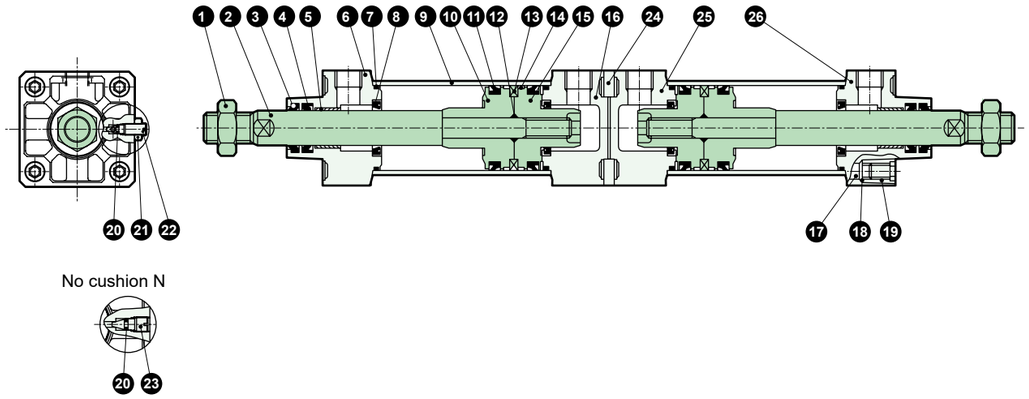
●Head side tapped trunnion type (TE)



[With Bellows]

Code / Bore Size (mm)	Head side tapped trunnion type (TE) Mounting dimensions												With Bellows L1, L2							
	A	KK	LL	SF	WF	TB	TD	TE	TJ	TK	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø50	28	M18 × 1.5	211	341	37	26	12	30	239	46	70	90	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	219	345	35	30	14	35	238	51	86	104	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	244	412	48	35	20	40	282	58	105	134	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	268	464	53	40	20	40	313.5	60.5	127	150	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: Ⓡ Ⓢ Ⓣ indicates the position of the cushion needle.
*2: S1: Stroke of cylinder 1, S2: Stroke of cylinder 2
*3: Round up the L_1 and L_2 dimensions to the nearest whole number.
*4: Bellows are included to both rods.
***5: For dimensions with each switch, please refer to P. 850 to 853.**
***6: For outer dimensions diagram of accessories, refer to P. 644.**



No cushion N

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	14	Wear Ring	Polyacetal	
2	Piston Rod	Steel	Industrial Hard Chrome Plating	15	Piston H	Aluminum Alloy	
3	Scraper	Nitrile Rubber		16	Head Cover	Aluminum Alloy	Painting
4	Rod Packing	Nitrile Rubber		17	Tie Rod	Steel	Zinc Chromate
5	Bushing	Oil-Impregnated Bearing Alloy		18	Belleville washer	Steel	Black Oxide
6	Rod Cover	Aluminum Alloy	Painting	19	Round Nut	Steel	Zinc Chromate
7	Cylinder Gasket	Nitrile Rubber		20	Needle Gasket	Nitrile Rubber	
8	Cushion Packing	Nitrile Rubber, Steel	Only with cushion	21	Needle nut	Copper Alloy	Nickel Plating
9	Cylinder Tube	Aluminum Alloy	Hard Anodized	22	Cushion Needle	Copper Alloy	Nickel Plating
10	Piston R	Aluminum Alloy		23	Cushion plug	Copper Alloy	Nickel Plating
11	Piston Packing	Nitrile Rubber		24	Spacer	Steel	Manganese phosphate
12	Piston Gasket	Nitrile Rubber		25	Head Cover(T)	Aluminum Alloy	Painting
13	Magnet	Plastic		26	Rod Cover(T)	Aluminum Alloy	Painting

For maintenance parts, please visit the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts.

MEMO

General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending

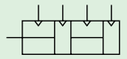


Selex Cylinder
Double Acting, Two-Stage Type

SCA2-W Series

●Bore size: ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol



RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

With Switch (Built-in magnet for switch)

	SCA2-W	LB	40		B	150			B	50		S	I
Without Switch Model No.		❶	❷	❸	❹	❺			❸	❹	❺	❽	❾
With Switch Model No.	SCA2-W	LB	40		B	150	T0H	D		B	50	T0H	R	S	I
		❶	❷	❸	❹	❺	❻	❼	❸	❹	❺	❻	❼	❽	❾

S1: Total stroke
S2: 1st stage stroke

	Mounting type	Bore Size	Piping thread type	Cushion	Stroke	Switch Model No.	Number of Switches	Piping thread type	Cushion	Stroke	Switch Model No.	Number of Switches	Option	Accessories
				Cylinder 1					Cylinder 2					

❶Mounting type

Mounting brackets are attached to the product and shipped. (However, trunnion types are shipped assembled.)

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
FC	Head side special flange type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and retaining ring included)	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TD	Rod side tapped trunnion type (ø50 to ø100)	
TE	Head side tapped trunnion type (ø50 to ø100)	

❷Bore Size (mm)

Code	Content
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom order)
G	G thread (Custom order)

❹Cushion

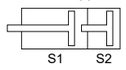
Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

❺Stroke (mm)

Bore Size	Total stroke S1	1st stage stroke S2	Intermediate Stroke
ø40	2 to 600	1 to 200	Every 1 mm
ø50	2 to 600		
ø63	2 to 600		
ø80	2 to 700		
ø100	2 to 800		

*1: For minimum stroke with switch, please refer to P. 750 and 751.
*2: Stroke display example

1st Stage Stroke	50 mm Indicated by S2
+ 2nd stage stroke	100 mm
Total stroke	150 mm Indicated by S1



❻Switch Model No.

For switch details, please refer to P. 971. Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	*3
	2-Color for AC Magnetic Field		—		—		T2YD□	–	
			—		—	5 to 20	T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*5

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+) 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH3
5 m TOH5

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model No.s listed above are also available. (Custom Product) For details, see P. 971.

❼Number of Switches

Code	Content	
R	With 1 pc on rod side	*1
H	With 1 pc on head side	*1
D	With 2 pcs	
T	With 3 pcs	

*1: When "TA", "TD", "TB", or "TE" is selected as the ❶ mounting method, the number of switches is limited to "H" (1 on the head side) for "TA" and "TD", and "R" (1 on the rod side) for "TB" and "TE".

❽Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
J	Bellows	100°C	200°C	
L		250°C	400°C	
M	Piston Rod Material (Stainless Steel)			
Blank	Cushion needle position R (Standard)			T Standard S
S	Cushion needle position S			
T	Cushion needle position T			

*2

*1: Instantaneous maximum temperature is the temperature when sparks, chips, etc. instantaneously hit the bellows.
*2: When ❶ mounting type "TA", "TD", "TB", "TE" is selected, the cushion needle position is fixed to "S" (Blank) and cannot be selected.

❾Accessories

Code	Content	
I	Single Knuckle *1	
Y	Double Knuckle (Pin and retaining ring included) *1	
B1	Single Bracket	
B2	Double Yoke Bracket (Pin and retaining ring included)	
B3	Single Bracket	
B4	Trunnion type 2nd bracket (2 pieces/set)	

*1: "I" and "Y" cannot be selected at the same time.

*For combinations of variations and options, see P. 625.

Regarding specifications of custom products

Details: refer to P. 854 to 861.

Code	Content	Code	Content	Code	Content
-XR◇◇◇◇	Port/Cushion needle position specification	-XP7	Knuckle fixed by pin driving	-XT9	Scraper/Rod packing only Fluororubber
-XK◇	Mounting Bracket Rotational Assembly	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	-T2	Fluorine Packing Type
-XAQ◇◇	Trunnion Position Specification	-XM1	Tie rod material SUS	-A2	With 2 Rod Nuts
-XP5	Knuckle Pin/Clevis Pin Split Pin	-XJ9	Without Bellows	Rod end Shape change	Refer to Ending P. 11.

Model No. Example) SCA2-W-.....-XP5

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

● Uses food-grade lubricant usable in food manufacturing processes

SCA2-W-.....-FP1

Switch Single Unit Model No. Notation Method

[T type switch]

●Switch body + Mounting bracket set

SCA2-T0H-40
❻ Switch Model No. ❷ Bore Size

●Switch body only

SW-T0H
❻ Switch Model No.

●Switch mounting bracket set

SCA2-TS-40
Mounting bracket ❷ Bore Size

*Please consult us separately if using environmentally compatible T-type switches.

[T2YD type switch]

●Switch body + Mounting bracket set

SCA2-T2YD-40
❻ Switch Model No. ❷ Bore Size

●Switch body only

SW-T2YD
❻ Switch Model No.

●Mounting bracket set

SCA2-T-40
❷ Bore Size

Specifications

Item		SCA2-W (Two-stage type)				
Bore Size mm		ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type				
Operating Fluid		Compressed Air				
Max. Working Pressure MPa		1.0 *1				
Min. Operating Pressure MPa		0.1				
Proof Pressure MPa		1.6				
Ambient Temperature °C		–10 to 60 (Provided that freezing does not occur)				
Port Size		Rc 1/4	Rc 3/8		Rc 1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Operating Piston Speed mm/s		50 to 1000 (Use within allowable absorbed energy.)				
Cushion		Air Cushion				
Effective air cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)				
Allowable absorbed energy J	With Cushion	4.29	8.37	15.8	27.9	49.8
	Without Cushion	0.067	0.079	0.079	0.201	0.301
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.				

*1: If S1 and S2 are the same, please use with a maximum operating pressure of 0.5 MPa.

Stroke

Bore Size (mm)	Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
ø40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	2 (Total stroke)
ø50			
ø63			
ø80		700	
ø100		800	

Note: About Intermediate Stroke: Manufacturable every 1 mm.

Min. Stroke with Switch

●Minimum stroke with T0/T5 type switch

	Different Surface Mounting	Same Surface Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	1
ø40	20 (20)	20 (10)	60 (45)	50 (50)	50 (50)
ø50	20 (20)	15 (10)	20 (20)	60 (60)	60 (60)
ø63	20 (20)	15 (10)	20 (20)	50 (45)	50 (45)
ø80	25 (25)	15 (15)	25 (25)	55 (40)	55 (40)
ø100	25 (25)	15 (15)	25 (25)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T8 type switch

	Different Surface Mounting	Same Surface Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	1
ø40	20 (20)	15 (10)	50 (35)	45 (40)	45 (40)
ø50	20 (20)	10 (10)	20 (20)	50 (50)	50 (50)
ø63	20 (20)	10 (10)	20 (20)	45 (35)	45 (35)
ø80	25 (25)	15 (15)	25 (25)	50 (35)	50 (35)
ø100	25 (25)	15 (15)	25 (25)	55 (40)	55 (40)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Min. Stroke with Switch

●Minimum stroke with T2/T3 type switch

	Different Surface Mounting	Same Surface Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T1/T2YD type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	100 (70)	100 (70)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	105 (75)	105 (75)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	110 (80)	110 (80)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	120 (90)	120 (90)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type). However, T2YD does not have an L-shaped lead wire type (V).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T2W/T3W/T2WL type switch

	Different Surface Mounting	Same Surface Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	1
ø40	20 (10)	20 (5)	65 (50)	50 (35)	50 (35)
ø50	20 (10)	20 (5)	20 (10)	50 (35)	50 (35)
ø63	20 (10)	20 (5)	20 (10)	55 (40)	55 (40)
ø80	15 (10)	15 (5)	15 (10)	55 (40)	55 (40)
ø100	10 (10)	10 (5)	10 (10)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Cylinder Weight

(Unit: kg)

Bore Size (mm)	Product Weight when stroke (S) = 0 mm						Switch weight	Switch Mounting Bracket Weight	S = Added weight per 10 mm
	Basic type 00	Foot Type (LB)	Flange Type (FA, FB)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion Type (TA, TB, TC)		T type	
ø40	1.34	1.51	1.75	1.66	1.70	1.72	Refer to the mass described in the switch specifications on P. 971	0.024	0.78
ø50	1.97	2.22	2.46	2.35	2.38	2.51		0.022	0.92
ø63	2.74	3.11	3.83	3.31	3.36	3.59		0.020	1.00
ø80	4.14	4.88	6.00	5.41	5.62	5.48		0.026	1.80
ø100	6.90	7.81	9.64	8.54	8.72	9.47		0.024	2.24

(Example) Product Weight of SCA2-W-LB-50-B200-T0H-D-B100-TOH-R

- Product Weight at 0 mm stroke ..... 2.22 kg
- Added weight at S1 stroke 200 mm ..... 0.46 × $\frac{200}{100}$ [value missing] = 0.92 kg
- Added weight at S2 stroke 100 mm ..... 0.46 × $\frac{100}{100}$ [value missing] = 0.46 kg
- Weight of 3 TOH switches ..... 0.018 × 3 = 0.054 kg
- Weight of 3 mounting brackets ..... 0.022 × 3 = 0.066 kg
- Product Weight ..... 2.22 + 0.92 + 0.46 + 0.054 + 0.066 = 3.720 kg

Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket	ø40	ø50	ø63	ø80	ø100
Foot (LB) *2	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Single Clevis (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Double Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

***1: For the material of the mounting brackets, please refer to P. 646.**

*2: Foot type mounting brackets come in sets of 2.

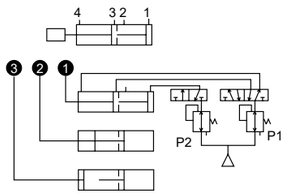
*3: Mounting bolts are included to each mounting bracket.

Usage Example

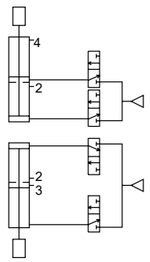
Set pressure P2 > P1.

●First stage push
With port 4 pressurized, pressurize port 1.

●Second stage push
With port 1 pressurized, pressurize port 3.



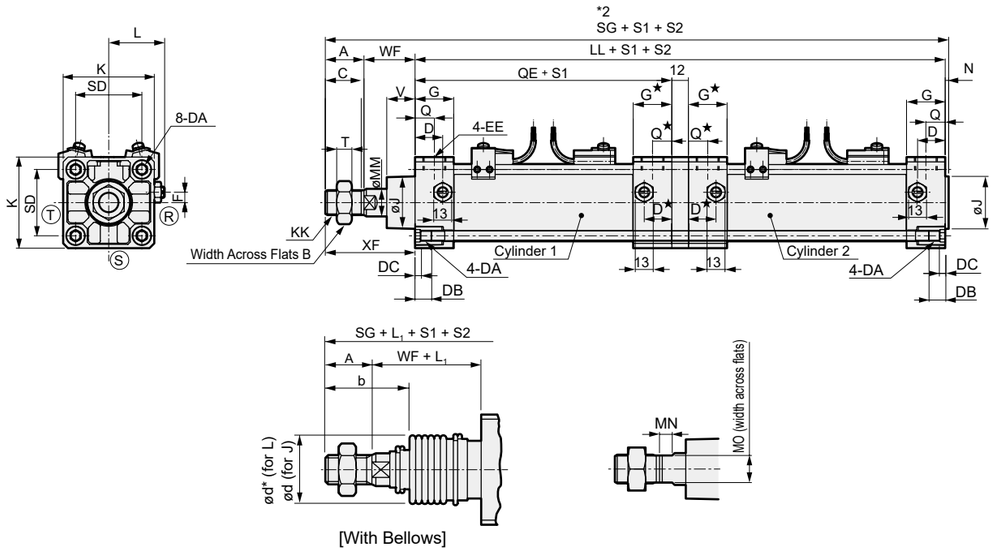
Depending on the load direction, P2 = P1 may be acceptable.
In case of single acting use due to natural drop of load, ports 2 and 4 in the upper diagram, and ports 2 and 3 in the lower diagram become breather ports. Basically, piping the port that does not require piping (port 2) will improve the cushion effect.



MEMO

Outline Dimension Drawing

● Basic type (OO)



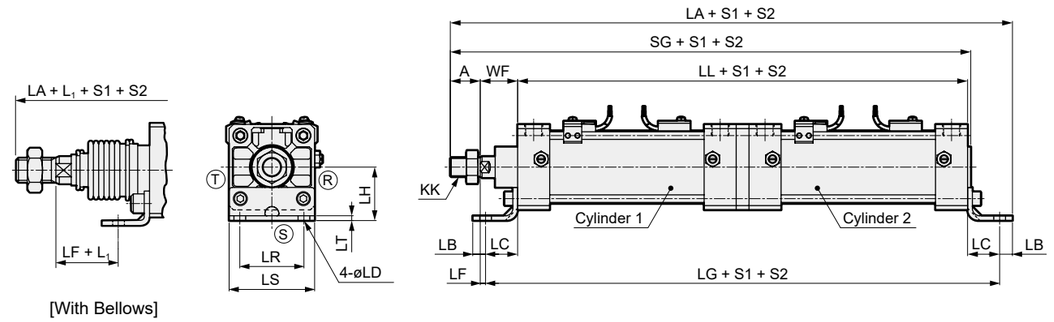
Code	Basic type (00)																						
Bore Size (mm)	A	B	C	D	D*	DA	DB	DC	EE	F	G	G*	J	K	KK	L	LL	MM	N	Q	QE	Q*	SD	SG	T
ø40	22	22	20	18	17.5	M8	12	4	Rc 1/4	7.5	26	25.5	31	57	M14 × 1.5	38 to 39.5	197	16	2	13	92.5	12.5	40.5	254.5	8
ø50	28	27	26	20	19.5	M8	12	4	Rc 3/8	0	28	27.5	38	66	M18 × 1.5	41 to 43.5	213	20	2.5	14	100.5	13.5	48	280.5	11
ø63	28	27	26	22	21.5	M8	12	4	Rc 3/8	0	30	29.5	38	80	M18 × 1.5	47.5 to 50.0	221	20	3	15	104.5	14.5	59	287	11
ø80	36	32	34	26	25.5	M12	16	5	Rc 1/2	0	34	33.5	43	98	M22 × 1.5	56 to 59	243	25	3.5	17	115.5	16.5	74	330.5	13
ø100	45	41	43	28	27.5	M12	16	5	Rc 1/2	0	36	35.5	51	118	M26 × 1.5	66 to 69	267	30	4	18	127.5	17.5	90	369	16

Code	With Bellows												
							L1						
Bore Size (mm)	V	WF	XF	b	d	d*	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	18.5	33.5	55.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	20.5	37	65	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	21	35	63	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	23.5	48	84	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	32	53	98	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: S1: Stroke of cylinder 1 (becomes total stroke), S2: Stroke of cylinder 2 (becomes 1st stage stroke)
*3: Round up the L_1 dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

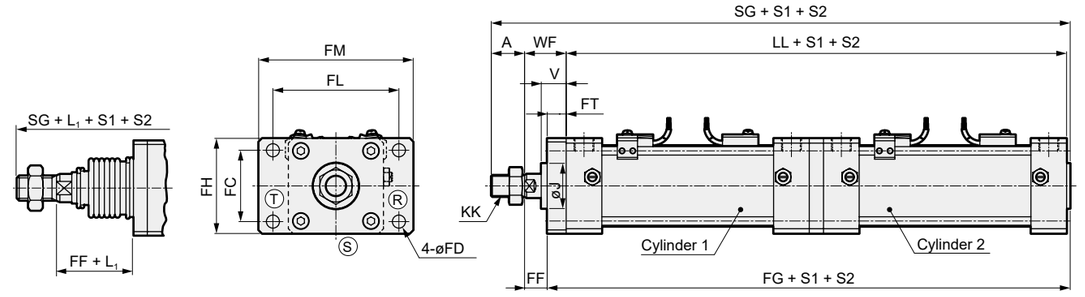
●Axial Foot Type (LB)



Code	Axial Foot Type (LB) Mounting Dimensions															With Bellows							
																L1							
Bore Size (mm)	A	KK	LL	SG	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	M14 × 1.5	197	254.5	33.5	272	10	19.5	9	14	236	40	40	57	3.2	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	213	280.5	37	300	12	22	9	15	257	40	46	66	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	221	287	35	314	12	30	11	5	281	50	60	80	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	243	330.5	48	364	14	37	14	11	317	60	74	98	6	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	267	369	53	396	21	31	14	22	329	67	80	118	6	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: S1: Stroke of cylinder 1 (becomes total stroke), S2: Stroke of cylinder 2 (becomes 1st stage stroke)
*3: Round up the L_1 dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**

●Rod Side Flange Type (FA)

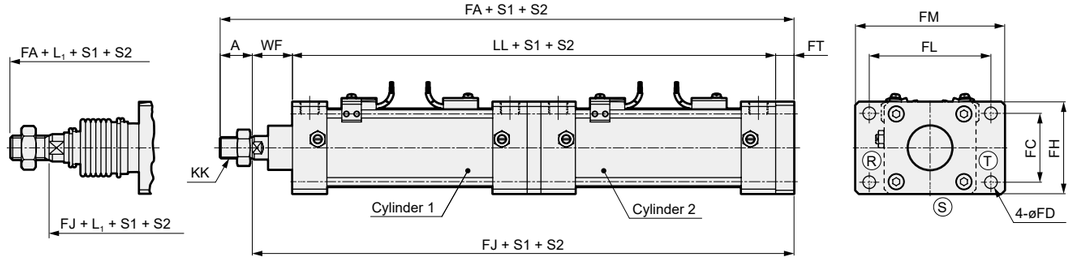


Code	Rod Side Flange Type (FA) Mounting Dimensions														With Bellows							
															L1							
Bore Size (mm)	A	J	KK	LL	V	SG	WF	FC	FD	FF	FG	FH	FL	FM	FT	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Exceeding 400 and 500 or less	*3 When exceeding 500
ø40	22	31	M14 × 1.5	197	18.5	254.5	33.5	40	9	21.5	211	57	80	100	12	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	38	M18 × 1.5	213	20.5	280.5	37	47	9	25	227.5	65	85	108	12	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	38	M18 × 1.5	221	21	287	35	60	11	19	240	80	106	130	16	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	43	M22 × 1.5	243	23.5	330.5	48	74	14	29	265.5	98	125	153	19	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	51	M26 × 1.5	267	32	369	53	88	14	34	290	118	144	180	19	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: S1: Stroke of cylinder 1 (becomes total stroke), S2: Stroke of cylinder 2 (becomes 1st stage stroke)
*3: Round up the L_1 dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Head Side Flange Type (FB)

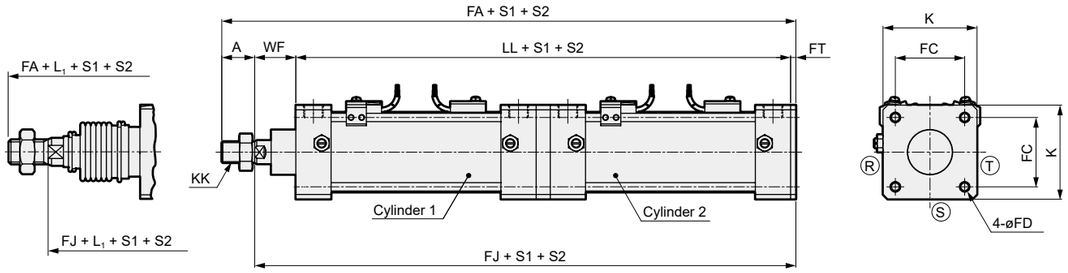


[With Bellows]

Code / Bore Size (mm)	Head Side Flange Type (FB) Mounting Dimensions												With Bellows L1							
	A	KK	LL	WF	FA	FC	FD	FH	FJ	FL	FM	FT	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	M14 × 1.5	197	33.5	264.5	40	9	57	242.5	80	100	12	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	213	37	290	47	9	65	262	85	108	12	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	221	35	300	60	11	80	272	106	130	16	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	243	48	346	74	14	98	310	125	153	19	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	267	53	384	88	14	118	339	144	180	19	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: S1: Stroke of cylinder 1 (becomes total stroke), S2: Stroke of cylinder 2 (becomes 1st stage stroke)
*3: Round up the L_1 dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**

●Head side special flange type (FC)



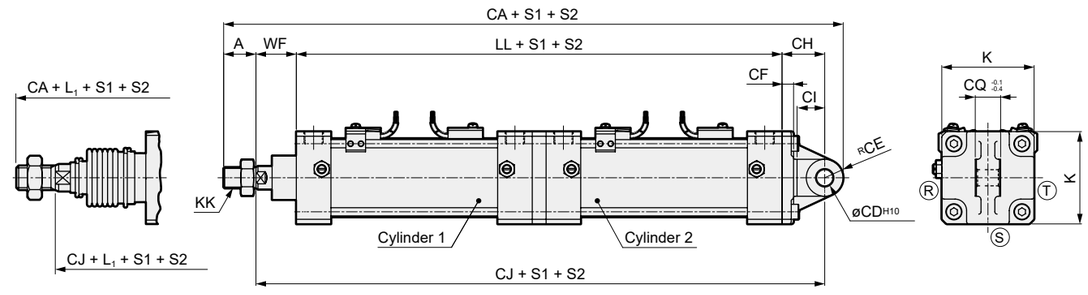
[With Bellows]

Code / Bore Size (mm)	Head side special flange type (FC) Mounting dimensions										With Bellows L1							
	A	KK	LL	WF	FA	FC	FD	FJ	FT	K	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	M14 × 1.5	197	33.5	257	40.5	9	235	4.5	57	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	213	37	282.5	4	9	254.5	4.5	66	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	221	35	288.5	59	9	260.5	4.5	80	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	243	48	333	74	14	297	6	98	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	267	53	371	90	14	326	6	118	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: S1: Stroke of cylinder 1 (becomes total stroke), S2: Stroke of cylinder 2 (becomes 1st stage stroke)
*3: Round up the L_1 dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Single Clevis Type (CA)

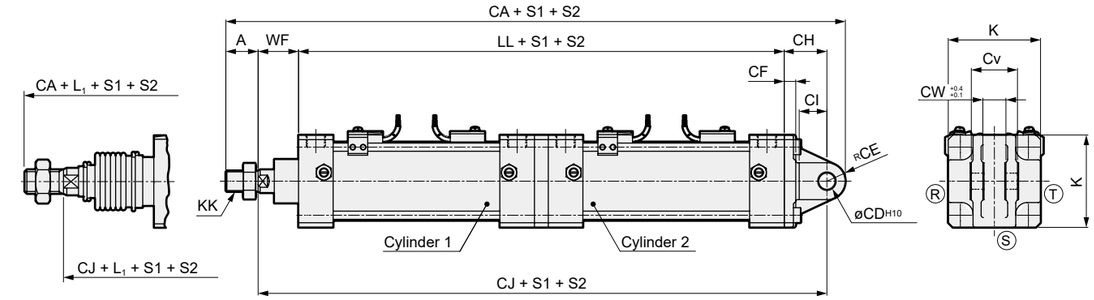


[With Bellows]

Code / Bore Size (mm)	Single Clevis Type (CA) Mounting Dimensions													With Bellows L1							
	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	CQ	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	57	M14 × 1.5	197	33.5	296.5	12	12	10	32	18	262.5	18	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	66	M18 × 1.5	213	37	322	12	12	10	32	18	282	18	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	80	M18 × 1.5	221	35	337	14	16	10	37	24	293	20	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	98	M22 × 1.5	243	48	399	20	20	14	52	30	343	28	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	118	M26 × 1.5	267	53	437	20	20	16	52	30	372	28	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: S1: Stroke of cylinder 1 (becomes total stroke), S2: Stroke of cylinder 2 (becomes 1st stage stroke)
*3: Round up the L_1 dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**

●Double clevis type (CB)



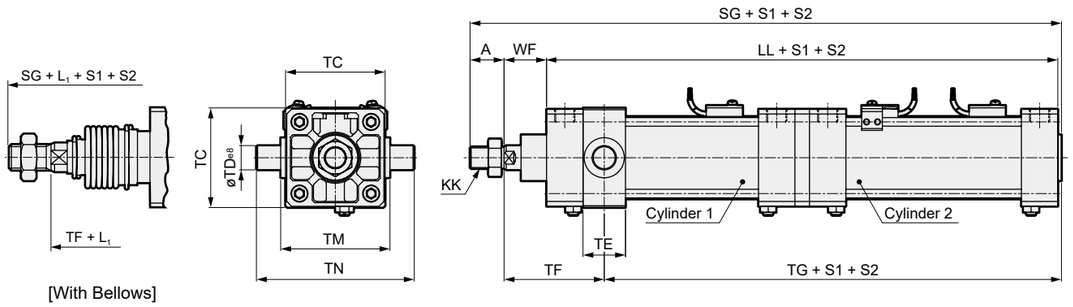
[With Bellows]

Code / Bore Size (mm)	Double Clevis Type (CB) Mounting Dimensions														With Bellows L1							
	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	Cv	CW	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	57	M14 × 1.5	197	33.5	296.5	12	12	10	32	18	262.5	36	18	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	66	M18 × 1.5	213	37	322	12	12	10	32	18	282	36	18	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	80	M18 × 1.5	221	35	337	14	16	10	37	24	293	40	20	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	98	M22 × 1.5	243	48	399	20	20	14	52	30	343	56	28	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	118	M26 × 1.5	267	53	437	20	20	16	52	30	372	56	28	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: S1: Stroke of cylinder 1 (becomes total stroke), S2: Stroke of cylinder 2 (becomes 1st stage stroke)
*3: Round up the L_1 dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Rod side trunnion type (TA)

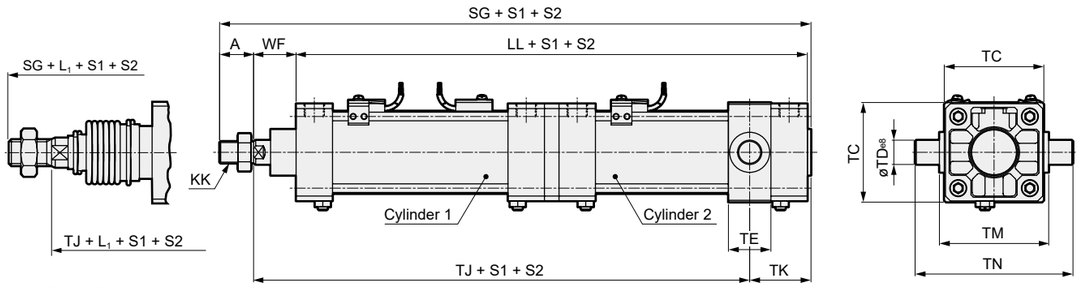


[With Bellows]

Code / Bore Size (mm)	Rod Side Trunnion Type (TA) Mounting Dimensions A	KK	LL	SG	WF	TC	TD	TE	TF	TG	TM	TN	With Bellows L1 50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	M14 × 1.5	197	254.5	33.5	57	16	30	74.5	158	63	95	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	213	280.5	37	67	18	30	80	172.5	80	116	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	221	287	35	82	20	35	82.5	176.5	90	130	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	243	330.5	48	100	25	40	102	192.5	115	165	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	267	369	53	121	35	50	114	210	135	205	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: S1: Stroke of cylinder 1 (becomes total stroke), S2: Stroke of cylinder 2 (becomes 1st stage stroke)
*3: Round up the L_1 dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**

●Head Side Trunnion Type (TB)



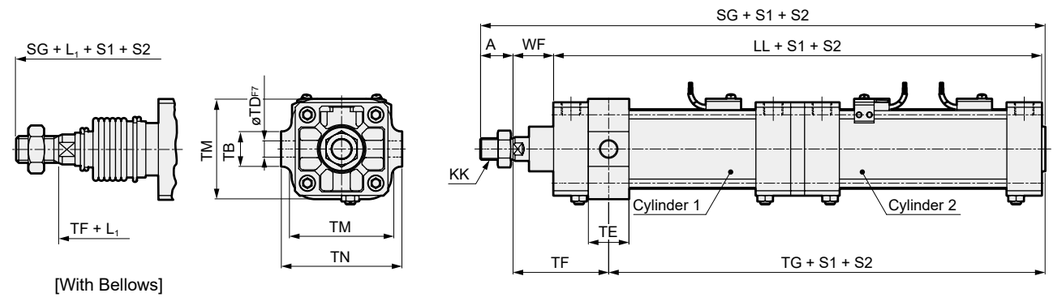
[With Bellows]

Code / Bore Size (mm)	Head Side Trunnion Type (TB) Mounting Dimensions A	KK	LL	SG	WF	TC	TD	TE	TJ	TK	TM	TN	With Bellows L1 50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	M14 × 1.5	197	254.5	33.5	57	16	30	189	43.5	63	95	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	213	280.5	37	67	18	30	206.5	46	80	116	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	221	287	35	82	20	35	208	51	90	130	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	243	330.5	48	100	25	40	236.5	58	115	165	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	267	369	53	121	35	50	258.5	65.5	135	205	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: S1: Stroke of cylinder 1 (becomes total stroke), S2: Stroke of cylinder 2 (becomes 1st stage stroke)
*3: Round up the L_1 dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Rod side tapped trunnion type (TD)

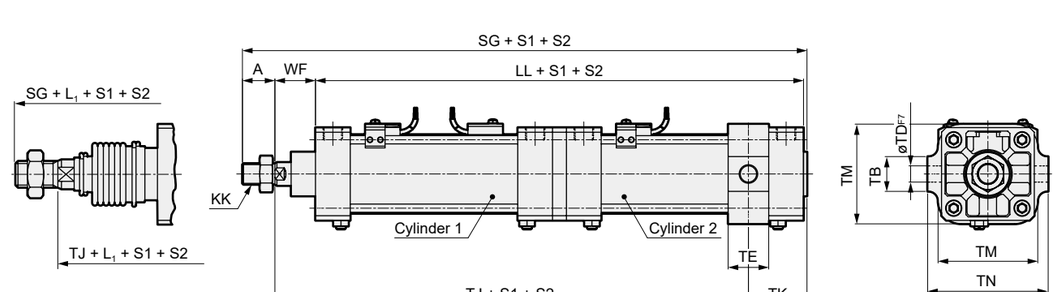


[With Bellows]

Code / Bore Size (mm)	Rod side tapped trunnion type (TD) Mounting dimensions A	KK	LL	SG	WF	TB	TD	TE	TF	TG	TM	TN	With Bellows L1 50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø50	28	M18 × 1.5	213	280.5	37	26	12	30	80	172.5	70	90	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	221	287	35	30	14	35	82.5	176.5	86	104	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	243	330.5	48	35	20	40	102	192.5	105	134	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	267	369	53	40	20	40	109	215	127	150	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: S1: Stroke of cylinder 1 (becomes total stroke), S2: Stroke of cylinder 2 (becomes 1st stage stroke)
*3: Round up the L_1 dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**

●Head side tapped trunnion type (TE)

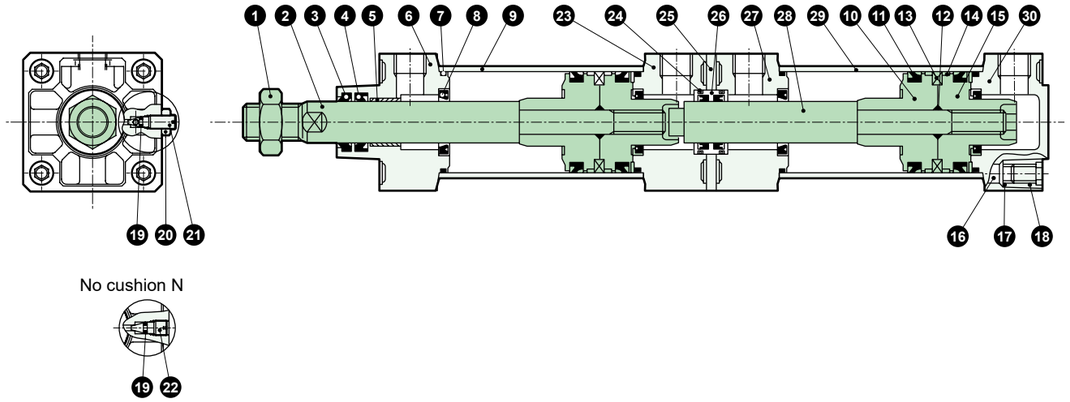


[With Bellows]

Code / Bore Size (mm)	Head side tapped trunnion type (TE) Mounting dimensions A	KK	LL	SG	WF	TB	TD	TE	TJ	TK	TM	TN	With Bellows L1 50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø50	28	M18 × 1.5	213	280.5	37	26	12	30	206.5	46	70	90	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	221	287	35	30	14	35	208	51	86	104	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	243	330.5	48	35	20	40	236.5	58	105	134	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	267	369	53	40	20	40	263.5	60.5	127	150	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: S1: Stroke of cylinder 1 (becomes total stroke), S2: Stroke of cylinder 2 (becomes 1st stage stroke)
*3: Round up the L_1 dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For outer dimensions diagram of accessories, refer to P. 644.**

Internal Structure Diagram/Material



No cushion N

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	16	Tie Rod	Steel	Zinc Chromate
2	Piston Rod	Steel	Industrial Hard Chrome Plating	17	Belleville washer	Steel	Black Oxide
3	Scraper	Nitrile Rubber		18	Round Nut	Steel	Zinc Chromate
4	Rod Packing	Nitrile Rubber		19	Needle Gasket	Nitrile Rubber	With cushion
5	Bushing	Oil-Impregnated Bearing Alloy		20	Needle nut	Copper Alloy	Nickel Plating
6	Rod Cover	Aluminum Alloy	Painting	21	Cushion Needle	Copper Alloy	Nickel Plating
7	Cylinder Gasket	Nitrile Rubber		22	Cushion plug	Copper Alloy	Nickel Plating
8	Cushion Packing	Nitrile Rubber, Steel	Only with cushion	23	Intermediate cover H	Aluminum Alloy	Painting
9	Cylinder Tube	Aluminum Alloy	Hard Anodized	24	Metal gasket	Nitrile Rubber	
10	Piston R	Aluminum Alloy		25	Spacer	Steel	Manganese phosphate
11	Piston Packing	Nitrile Rubber		26	Rod Metal	Cast Iron	Manganese phosphate
12	Piston Gasket	Nitrile Rubber		27	Intermediate cover R	Aluminum Alloy	Painting
13	Magnet	Plastic		28	Piston rod (2)	Steel	Industrial Hard Chrome Plating
14	Wear Ring	Polyacetal Resin		29	Cylinder tube (2)	Aluminum Alloy	Hard Anodized
15	Piston H	Aluminum Alloy		30	Head Cover	Aluminum Alloy	Painting

For Maintenance Parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

MEMO

General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending

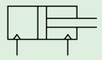


Medium Bore Size Cylinder
Double-acting, Steel tube type

SCA2-K Series

●Bore size: ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol



RoHS

Model No. Notation Method

SCA2-K - LB - 40 [ ] B - 100 - S I

Model No. | ❶ Mounting type | ❷ Bore Size | ❸ Piping thread type | ❹ Cushion | ❺ Stroke | ❻ Option | ❼ Accessories

❶Mounting type

Mounting brackets are included to the product and shipped. (However, trunnion types are shipped assembled.)

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
FC	Head side special flange type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and retaining ring included)	
TC	Intermediate Trunnion Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TF	Intermediate tapped trunnion type (ø50 to ø100)	
TD	Rod side tapped trunnion type (ø50 to ø100)	
TE	Head side tapped trunnion type (ø50 to ø100)	

Note: For ø50 to ø100, the outer dimension of the tube is different from that of the double acting, standard single rod type. Therefore, please note that the trunnion bracket is not compatible with the double-acting, standard single-rod type.

❷Bore Size (mm)

Code	Content
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom product)
G	G thread (Custom product)

❹Cushion

Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø40	1 to 600	Every 1 mm
ø50	1 to 600	
ø63	1 to 600	
ø80	1 to 700	
ø100	1 to 800	

❻ Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
J	Bellows	100°C	200°C	
L	Bellows	250°C	400°C	
M	Piston rod material (Stainless steel)			
Blank	Cushion needle position R (Standard)			T Standard S
S	Cushion needle position S			
T	Cushion needle position T			

*2

*1: Instantaneous maximum temperature is the temperature when sparks, chips, etc. instantaneously hit the bellows.
*2: ❶When mounting type "TA", "TD", "TB", "TE" is selected, the cushion needle position is fixed to "S" (Blank) and cannot be selected.

❼Accessories

Code	Content	
I	Single knuckle *1	
Y	Double Knuckle (Pin and retaining ring included) *1	
B1	Single Bracket	
B2	Double Yoke Bracket (Pin and retaining ring included)	
B3	Single Bracket	
B4	Trunnion type 2nd bracket (2 pieces/set)	

*1: "I" and "Y" cannot be selected at the same time.

*For combinations of variations and options, see P. 625.

Regarding specifications of custom products

Details: refer to P. 854 to 861.

Code	Content	Code	Content	Code	Content
-XR◇◇◇◇	Port/Cushion needle position specification	-XP7	Knuckle fixed by pin driving	-XT9	Scraper/Rod packing only Fluororubber
-XK◇	Mounting Bracket Rotational Assembly	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	-T2	Fluorine Packing Type
-XAQ◇◇	Trunnion Position Specification	-XM1	Tie rod material SUS	-A2	With 2 Rod Nuts
-XP5	Knuckle Pin/Clevis Pin Split Pin	-XJ9	Without Bellows	Rod end Shape change	Refer to Ending P. 11.

Model No. Example) SCA2-K - ..... - XP5

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCA2-K - ..... - FP1

Specifications

Item		SCA2-K (Steel tube type)				
Bore Size	mm	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type				
Operating Fluid		Compressed Air				
Max. Working Pressure	MPa	1.0				
Min. Operating Pressure	MPa	0.05				
Proof Pressure	MPa	1.6				
Ambient Temperature	°C	–10 to 60 (Provided that freezing does not occur)				
Port Size		Rc 1/4	Rc 3/8		Rc 1/2	
Stroke tolerance	mm	$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Operating Piston Speed	mm/s	50 to 1000 (Use within allowable absorbed energy.)				
Cushion		Air Cushion				
Effective air cushion length	mm	14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)				
Allowable absorbed energy J	With Cushion	4.29	8.37	15.8	27.9	49.8
	Without Cushion	0.067	0.079	0.079	0.201	0.301
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.				

Stroke

Bore Size (mm)	Standard Stroke (mm)	Maximum Stroke (mm)	Producible Stroke (mm)	Min. Stroke (mm)
ø40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	1600	1
ø50			1900	
ø63				
ø80		700		
ø100		800		

*1: Intermediate strokes can be manufactured in 1 mm increments.
***2: If the maximum stroke is exceeded, the product specifications may not be met depending on the conditions, so please consult us.**

Cylinder Weight

(Unit: kg)

Bore Size (mm)	Product Weight when stroke (S) = 0 mm						S=100 mm Added weight per
	Basic type 00	Foot Type (LB)	Flange Type (FA, FB)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion Type (TA, TB, TC)	
ø40	1.01	1.18	1.42	1.33	1.37	1.39	0.56
ø50	1.42	1.67	1.91	1.80	1.83	1.96	0.72
ø63	1.85	2.22	2.94	2.42	2.47	2.70	0.82
ø80	2.94	3.68	4.80	4.21	4.42	4.28	1.37
ø100	4.64	5.55	7.38	6.28	6.46	7.21	1.70

(Example) Product Weight of SCA2-K-LB-50B-200
- Product Weight at 0 mm stroke ..... 1.67 kg
- Added weight at 200 mm stroke ..... 0.72 × $\frac{200}{100}$ = 1.44 kg
- Product Weight ..... 1.67 + 1.44 = 3.11 kg

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	62.8	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	52.8	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.2	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	1.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push	2.51×10^2	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	2.27×10^2	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push	3.93×10^2	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3	6.28×10^3	7.07×10^3	7.85×10^3
	Pull	3.57×10^2	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

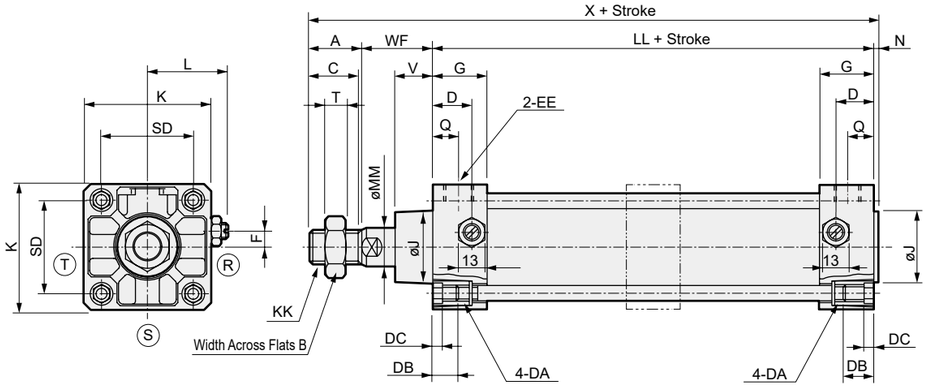
Mounting Bracket Model No. Notation Method

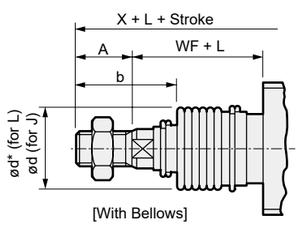
Bore Size (mm) / Mounting bracket		ø40	ø50	ø63	ø80	ø100
Foot (LB)	*2	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)		S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Single Clevis (CA)		S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Double Clevis (CB)		S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

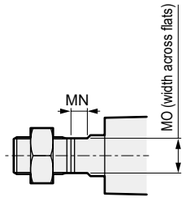
***1: For the material of the mounting brackets, please refer to P. 646.**
*2: Foot type mounting brackets come in sets of 2.
*3: Mounting bolts are included to each mounting bracket.

Outline Dimension Drawing

●Basic Type (OO)







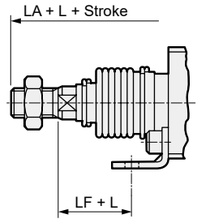
Code	Basic Type (OO) Basic Dimensions																							
Bore Size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL	MM	MN	MO	N	Q	SD	T	V	WF	X
ø40	22	22	20	18	M8	12	4	Rc 1/4	7.5	26	31	57	M14 × 1.5	38 to 39.5	93	16	8	14	2	13	40.5	8	18.5	33.5	150.5
ø50	28	27	26	20	M8	12	4	Rc 3/8	0	28	38	66	M18 × 1.5	41 to 43.5	101	20	8.5	17	2.5	14	48	11	20.5	37	168.5
ø63	28	27	26	22	M8	12	4	Rc 3/8	0	30	38	80	M18 × 1.5	47.5 to 50	105	20	8.5	17	3	15	59	11	21	35	171
ø80	36	32	34	26	M12	16	5	Rc 1/2	0	34	43	98	M22 × 1.5	56 to 59	116	25	11	22	3.5	17	74	13	23.5	48	203.5
ø100	45	41	43	28	M12	16	5	Rc 1/2	0	36	51	118	M26 × 1.5	66 to 69	128	30	13	27	4	18	90	16	32	53	230

Code	With Bellows										
				L							
Bore Size (mm)	b	d	d*	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9

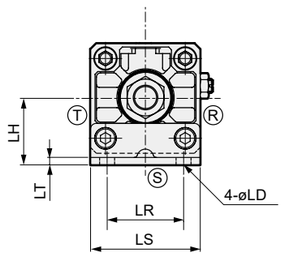
*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**
***4: For the external dimensions diagram of accessories, please refer to P. 644.**

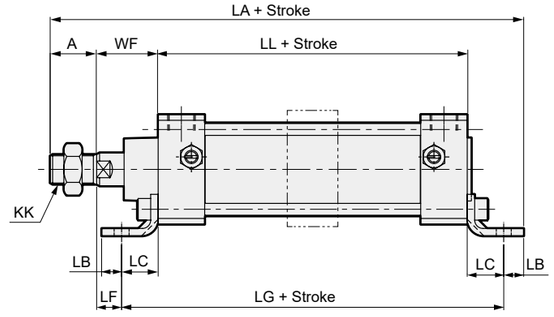
Outline Dimension Drawing

●Axial Foot Type (LB)



[With Bellows

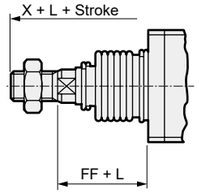


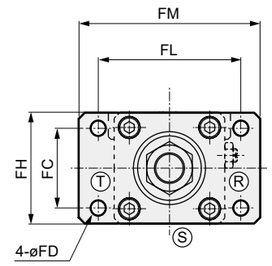


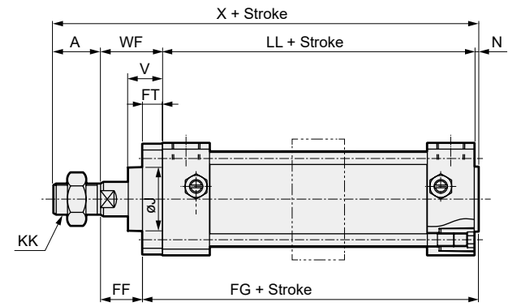
Code	Axial Foot Type (LB) Mounting Dimensions														With Bellows							
															L							
Bore Size (mm)	A	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	33.5	178	10	19.5	9	14	132	40	40	57	3.2	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	37	200	12	22	9	15	145	40	46	66	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	35	210	12	30	11	5	165	50	60	80	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	48	251	14	37	14	11	190	60	74	98	6.0	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	53	278	21	31	14	22	190	67	80	118	6.0	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

●Rod Side Flange Type (FA)







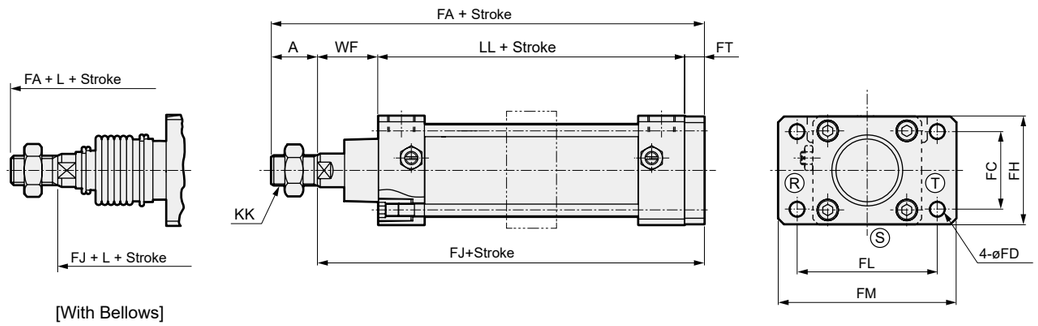
[With Bellows]

Code	Rod Side Flange Type (FA) Mounting Dimensions																With Bellows							
																	L							
Bore Size (mm)	A	J	KK	LL	N	V	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	31	M14 × 1.5	93	2	18.5	33.5	150.5	40	9	21.5	107	57	80	100	12	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	38	M18 × 1.5	101	2.5	20.5	37	168.5	47	9	25	115.5	65	85	108	12	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	38	M18 × 1.5	105	3	21	35	171	60	11	19	124	80	106	130	16	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	43	M22 × 1.5	116	3.5	23.5	48	203.5	74	14	29	138.5	98	125	153	19	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	51	M26 × 1.5	128	4	32	53	230	88	14	34	151	118	144	180	19	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

●Head Side Flange Type (FB)

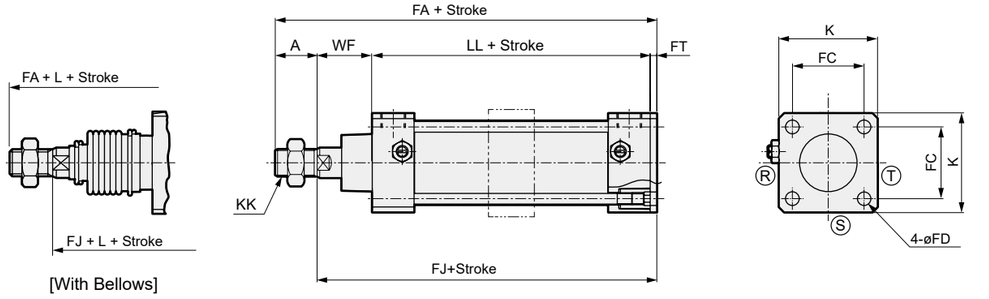


[With Bellows]

Code / Bore Size (mm)	Head Side Flange Type (FB) Mounting Dimensions												With Bellows L							
	A	KK	LL	WF	FA	FC	FD	FH	FJ	FL	FM	FT	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	33.5	160.5	40	9	57	138.5	80	100	12	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	37	178	47	9	65	150	85	108	12	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	35	184	60	11	80	156	106	130	16	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	48	219	74	14	98	183	125	153	19	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	53	245	88	14	118	200	144	180	19	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

●Head side special flange type (FC)



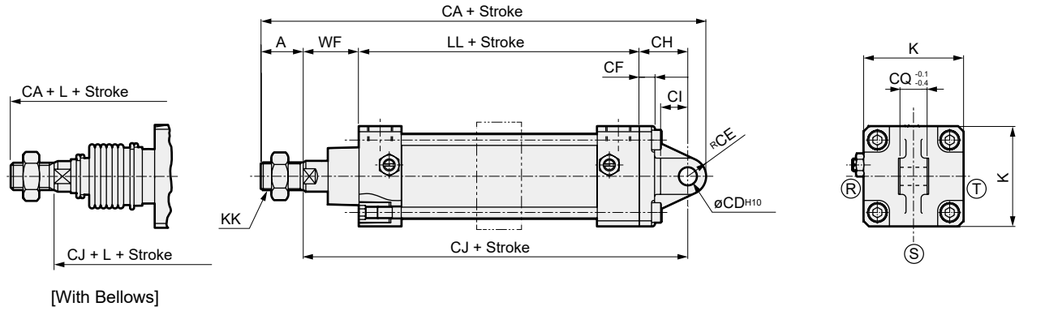
[With Bellows]

Code / Bore Size (mm)	Head side special flange type (FC) Mounting method										With Bellows L							
	A	K	KK	LL	WF	FA	FC	FD	FJ	FT	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	57	M14 × 1.5	93	33.5	153	40.5	9	131	4.5	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	66	M18 × 1.5	101	37	170.5	48	9	142.5	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	80	M18 × 1.5	105	35	172.5	59	9	144.5	4.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	98	M22 × 1.5	116	48	206	74	14	170	6	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	100	M26 × 1.5	128	53	232	90	14	187	6	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

●Single Clevis Type (CA)

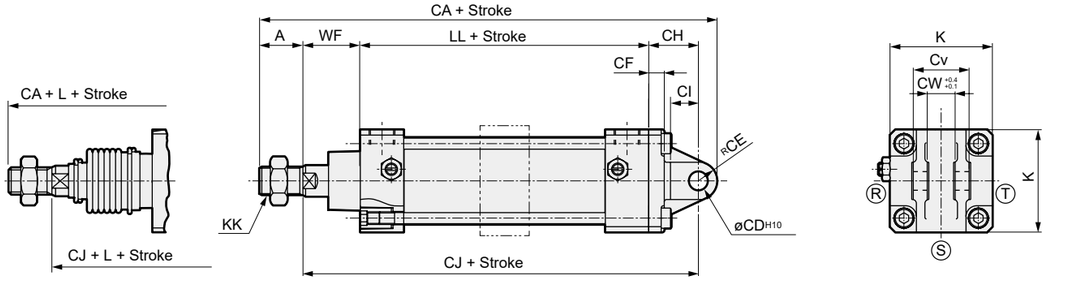


[With Bellows]

Code / Bore Size (mm)	Single Clevis Type (CA) Mounting Dimensions													With Bellows L							
	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	CQ	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	57	M14 × 1.5	93	33.5	192.5	12	12	10	32	18	158.5	18	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	66	M18 × 1.5	101	37	210	12	12	10	32	18	170	18	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	80	M18 × 1.5	105	35	221	14	16	10	37	24	177	20	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	98	M22 × 1.5	116	48	272	20	20	14	52	30	216	28	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	118	M26 × 1.5	128	53	298	20	20	16	52	30	233	28	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**
***5: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

●Double clevis type (CB)



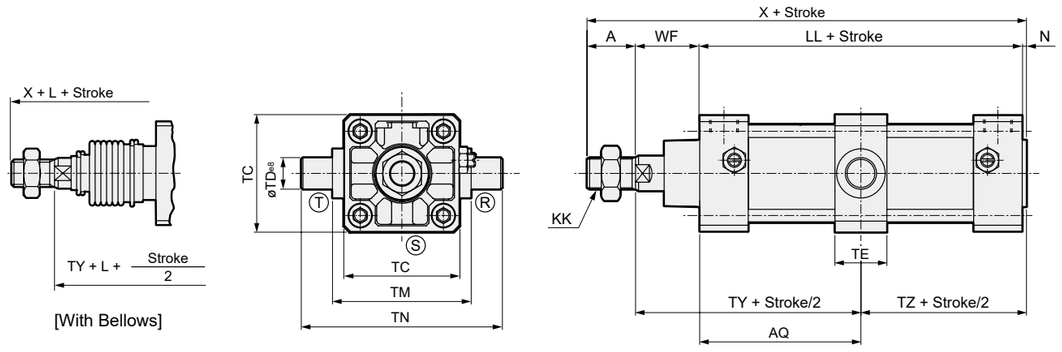
[With Bellows]

Code / Bore Size (mm)	Double Clevis Type (CB) Mounting Dimensions														With Bellows L							
	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	Cv	CW	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	57	M14 × 1.5	93	33.5	192.5	12	12	10	32	18	158.5	36	18	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	66	M18 × 1.5	101	37	210	12	12	10	32	18	170	36	18	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	80	M18 × 1.5	105	35	221	14	16	10	37	24	177	40	20	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	98	M22 × 1.5	116	48	272	20	20	14	52	30	216	56	28	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	118	M26 × 1.5	128	53	298	20	20	16	52	30	233	56	28	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
*3: Pins are attached.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For the external dimensions diagram of accessories, please refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

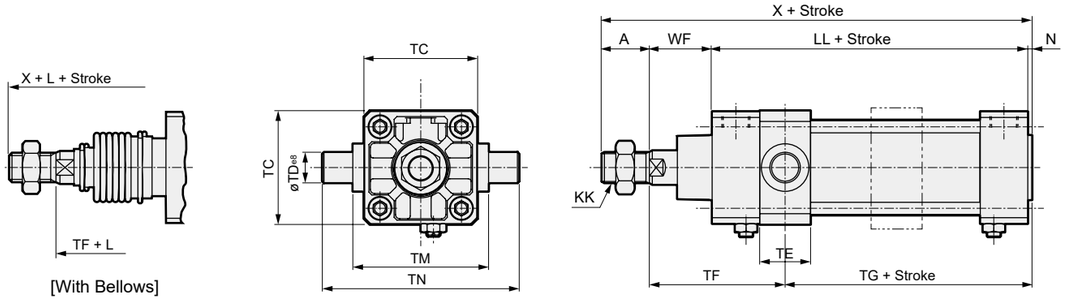
●Intermediate trunnion type (TC)



Code	Intermediate Trunnion Type (TC) Mounting Dimensions														With Bellows							
															L							
Bore Size (mm)	A	KK	LL	N	WF	X	AQ	TC	TD	TE	TM	TN	TY	TZ	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø40	22	M14 × 1.5	93	2	33.5	150.5	46.5 + Stroke/2	57	16	30	63	95	80	48.5	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	2.5	37	168.5	50.5 + Stroke/2	67	18	30	80	116	87.5	53	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	35	171	52.5 + Stroke/2	82	20	35	90	130	87.5	55.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	48	203.5	58 + Stroke/2	100	25	40	115	165	106	61.5	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	53	230	64 + Stroke/2	121	35	50	135	205	117	68	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**

●Rod side trunnion type (TA)

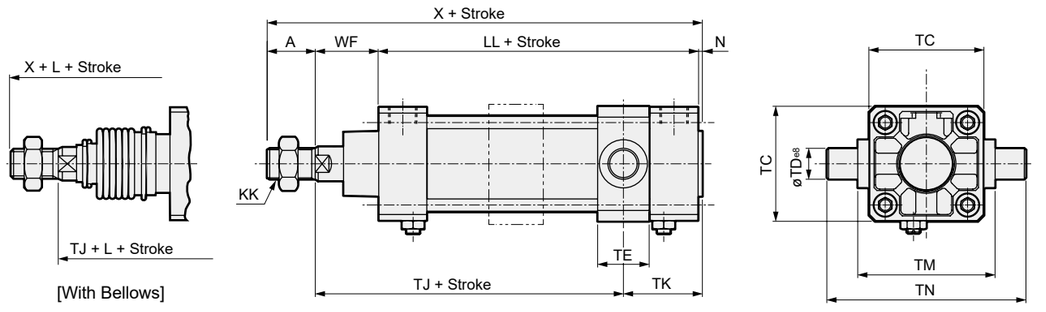


Code	Rod Side Trunnion Type (TA) Mounting Dimensions													With Bellows							
														L							
Bore Size (mm)	A	KK	LL	N	WF	X	TC	TD	TE	TF	TG	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	M14 × 1.5	93	2	33.5	150.5	57	16	30	74.5	54	63	95	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	2.5	37	168.5	67	18	30	80	60.5	80	116	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	35	171	82	20	35	82.5	60.5	90	130	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	48	203.5	100	25	40	102	65.5	115	165	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	53	230	121	35	50	114	71	135	205	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the rod side stroke end is not possible.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For the external dimensions diagram of accessories, please refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Outline Dimension Drawing

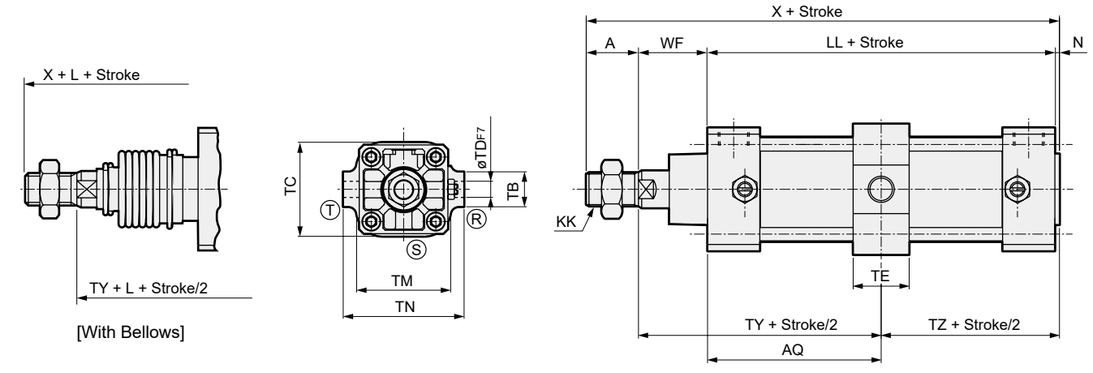
●Head Side Trunnion Type (TB)



Code	Head Side Trunnion Type (TB) Mounting Dimensions													With Bellows							
														L							
Bore Size (mm)	A	KK	LL	N	WF	X	TC	TD	TE	TJ	TM	TN	TK	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø40	22	M14 × 1.5	93	2	33.5	150.5	57	16	30	85	63	95	43.5	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	M18 × 1.5	101	2.5	37	168.5	67	18	30	94.5	80	116	46	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	35	171	82	20	35	92	90	130	51	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	48	203.5	100	25	40	109.5	115	165	58	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	53	230	121	35	50	119.5	135	205	65.5	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the head side stroke end is not possible.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For the external dimensions diagram of accessories, please refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

●Intermediate tapped trunnion type (TF)

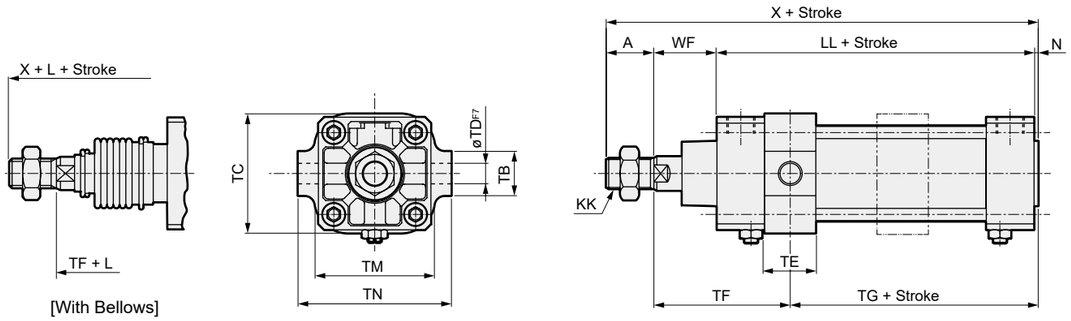


Code	Intermediate tapped trunnion type (TF) Mounting dimensions															With Bellows							
																L							
Bore Size (mm)	A	KK	LL	N	WF	X	AQ	TB	TC	TD	TE	TM	TN	TY	TZ	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*2 When exceeding 500
ø50	28	M18 × 1.5	101	2.5	37	168.5	50.5 + Stroke/2	26	70	12	30	70	90	87.5	53	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	35	171	52.5 + Stroke/2	30	86	14	35	86	104	87.5	55.5	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	48	203.5	58 + Stroke/2	35	105	20	40	105	134	106	61.5	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	53	230	64 + Stroke/2	40	123	20	40	127	150	117	68	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: Round up the L dimension to the nearest whole number.
***3: For dimensions with each switch, please refer to P. 850 to 853.**
***4: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

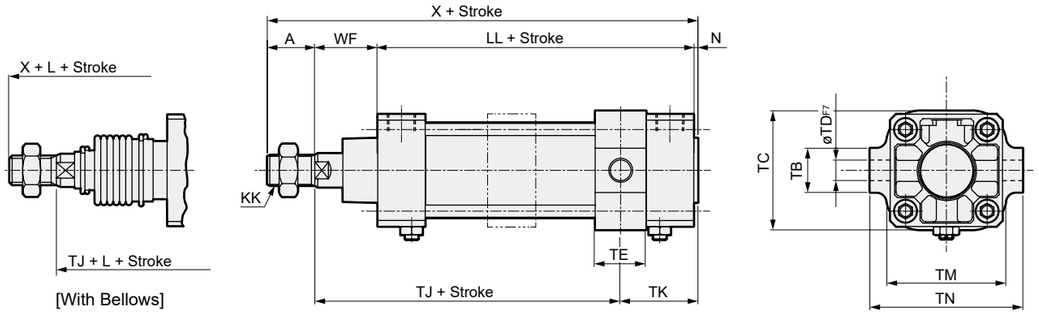
●Rod side tapped trunnion type (TD)



Code	Rod side tapped trunnion type (TD) Mounting dimensions														With Bellows							
															L							
Bore Size (mm)	A	KK	LL	N	WF	X	TB	TC	TD	TE	TF	TG	TM	TN	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø50	28	M18 × 1.5	101	2.5	37	168.5	26	70	12	30	80	60.5	70	90	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	35	171	30	86	14	35	82.5	60.5	86	104	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	48	203.5	35	105	20	40	102	65.5	105	134	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	53	230	40	123	20	40	109	76	127	150	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the rod side stroke end is not possible.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For the external dimensions diagram of accessories, please refer to P. 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

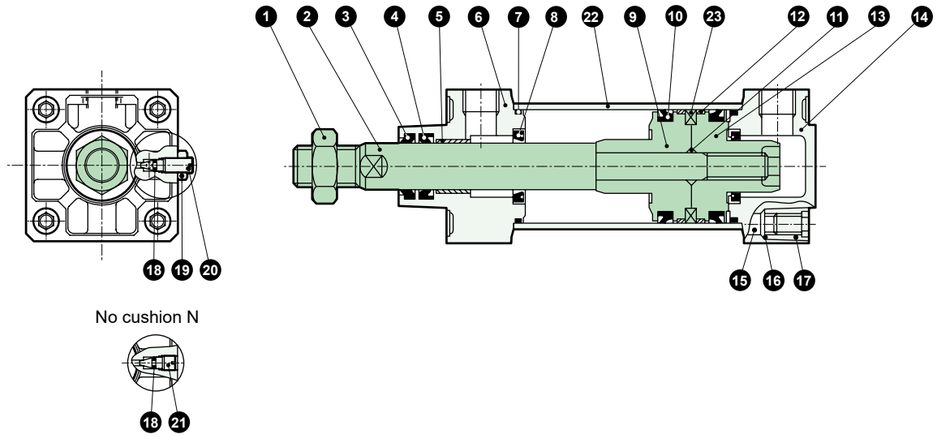
●Head side tapped trunnion type (TE)



Code	Head side tapped trunnion type (TE) Mounting dimensions														With Bellows							
															L							
Bore Size (mm)	A	KK	LL	N	WF	X	TB	TC	TD	TE	TJ	TM	TN	TK	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 When exceeding 500
ø50	28	M18 × 1.5	101	2.5	37	168.5	26	70	12	30	94.5	70	90	46	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	28	M18 × 1.5	105	3	35	171	30	86	14	35	92	86	104	51	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	36	M22 × 1.5	116	3.5	48	203.5	35	105	20	40	109.5	105	134	58	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	45	M26 × 1.5	128	4	53	230	40	123	20	40	124.5	127	150	60.5	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: The position of the cushion needle cannot be changed.
*2: Position detection at the head side stroke end is not possible.
*3: Round up the L dimension to the nearest whole number.
***4: For dimensions with each switch, please refer to P. 850 to 853.**
***5: For the external dimensions diagram of accessories, please refer to page 644.**
***6: An intermediate support head (dashed-dotted line) is added depending on the stroke. For details on dimensions, please refer to P. 848.**

Internal Structure Diagram/Material



Part Number	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	13	Piston H	Aluminum Alloy	
2	Piston Rod	Steel	Industrial Hard Chrome Plating	14	Head Cover	Aluminum Alloy	Painting
3	Scraper	Nitrile Rubber		15	Tie Rod	Steel	Zinc Chromate
4	Rod Packing	Nitrile Rubber		16	Belleville washer	Steel	Black Oxide
5	Bushing	Oil-Impregnated Bearing Alloy		17	Round Nut	Steel	Zinc Chromate
6	Rod Cover	Aluminum Alloy	Painting	18	Needle Gasket	Nitrile Rubber	With cushion
7	Cylinder Gasket	Nitrile Rubber		19	Needle nut	Copper Alloy	Nickel Plating
8	Cushion Packing	Nitrile Rubber, Steel	Only with cushion	20	Cushion Needle	Copper Alloy	Nickel Plating
9	Piston R	Aluminum Alloy		21	Cushion plug	Copper Alloy	Nickel Plating
10	Piston Packing	Nitrile Rubber		22	Cylinder Tube	Steel	Industrial Hard Chrome Plating
11	Piston Gasket	Nitrile Rubber		23	Piston Ring	Steel	Zinc Chromate
12	Wear Ring	Polyacetal Resin					

For maintenance parts, please visit the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts .

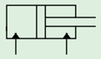


Medium Bore Size Cylinder
Double Acting, Low Hydraulic Pressure Type

SCA2-H Series

●Bore size: ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol



RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

With Switch
(Built-in magnet for switch)

	SCA2-H	–	LB	–	40		B	–	100						S	I
Model No.			❶		❷	❸	❹		❺						❽	❾
	SCA2-H	–	LB	–	40		B	–	100	– T0H	–	R	–		S	I
Model No.			❶		❷	❸	❹		❺	❻		❼			❽	❾

❶ Mounting type · ❷ Bore Size · ❸ Piping thread type · ❹ Cushion · ❺ Stroke · ❻ Switch Model No. · ❼ Number of Switches · ❽ Option · ❾ Accessories

❶Mounting type

Mounting brackets are attached to the product and shipped. (However, trunnion types are shipped assembled.)

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
FC	Head side special flange type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and retaining ring included)	
TC	Intermediate Trunnion Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TF	Intermediate tapped trunnion type (ø50 to ø100)	
TD	Rod side tapped trunnion type (ø50 to ø100)	
TE	Head side tapped trunnion type (ø50 to ø100)	

❷Bore size (mm)

Code	Contents
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom product)
G	G thread (Custom product)

❹Cushion

Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø40	1 to 600	Every 1 mm
ø50	1 to 600	
ø63	1 to 600	
ø80	1 to 700	
ø100	1 to 800	

Note: For minimum stroke with switch, please refer to P. 776 and 777.

❻Switch Model No.

For switch details, please refer to P. 971. Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	*3
	2-Color for AC Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*5

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH3
5 m TOH5

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model No.s listed above are also available. (Custom Product) For details, see P. 971.

❼Number of Switches

	Code	Content
*1	R	With 1 pc on rod side
*1	H	With 1 pc on head side
	D	With 2 pcs
	T	With 3 pcs

*1: ❶When "TA", "TD", "TB", or "TE" is selected as the mounting method, the number of switches is limited to "H" (1 on the head side) for "TA" and "TD", and "R" (1 on the rod side) for "TB" and "TE".

❽Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
	J	Bellows	100°C	200°C	
	L		250°C	400°C	
	M	Piston Rod Material (Stainless Steel)			
*2	Blank	Cushion needle position R (Standard)			T Standard S
	S	Cushion needle position S			
	T	Cushion needle position T			

*1: Instantaneous maximum temperature is the temperature when sparks, cutting chips, etc., instantaneously hit the bellows.
*2: ❶When mounting type "TA", "TD", "TB", "TE" is selected, the cushion needle position is fixed to "S" (Blank) and cannot be selected.

❾Accessories

Code	Content	
I	Single Knuckle *1	
Y	Double Knuckle (Pin and retaining ring included) *1	
B1	Single Bracket	
B2	Double Yoke Bracket (Pin and retaining ring included)	
B3	Single Bracket	
B4	Trunnion type 2nd bracket (2 pieces/set)	

*1: "I" and "Y" cannot be selected at the same time.

*For combinations of variations and options, please refer to P. 625.

Regarding specifications of custom products

Details: refer to P. 854 to 861.

Code	Contents	Code	Contents	Code	Contents
-XR◇◇◇◇	Port/Cushion needle position specification	-XP7	Knuckle fixed by pin driving	-A2	With 2 Rod Nuts
-XK◇	Mounting Bracket Rotational Assembly	-XP8	Knuckle Pin/Clevis Pin Split Pin Specification, Knuckle fixed by pinning	Rod end Shape change	Refer to Ending P. 11.
-XAQ◇◇	Trunnion Position Specification	-XM1	Tie rod material SUS		
-XP5	Knuckle Pin/Clevis Pin Split Pin	-XJ9	Without Bellows		

Model No. Example) SCA2-H –..... – XP5

Switch Single Unit Model No. Notation Method

[T type switch]

●Switch body + Mounting bracket set
SCA2 – T0H – 40
❻ Switch Model No. · ❷ Bore Size

●Switch body only
SW – T0H
❻ Switch Model No.

●Switch mounting bracket set
SCA2 – TS – 40
Mounting bracket · ❷ Bore Size

*Please consult us separately if using environmentally compatible T-type switches.

[T2YD type switch]

● Switch body + Mounting bracket set
SCA2 – T2YD – 40
❻ Switch Model No. · ❷ Bore Size

●Switch body only
SW – T2YD
❻ Switch Model No.

●Mounting bracket set
SCA2 – T – 40
❷ Bore Size

Specifications

Item		SCA2-H (Low hydraulic pressure type)				
Bore Size	mm	ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type				
Operating fluid	*1	Hydraulic Operating Fluid				
Max. Working Pressure	MPa	1.0				
Min. Operating Pressure	MPa	0.2		0.15		
Proof Pressure	MPa	1.6				
Ambient Temperature	°C	5 to 50				
Port Size		Rc 1/4	Rc 3/8		Rc 1/2	
Stroke tolerance	mm	$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Cushion		With Cushion				
Effective air cushion length	mm	14.6	16.6	16.6	20.6	23.6
Allowable surge pressure	MPa	2.9 (with cushion), 4.9 (without cushion)				
Allowable absorbed energy J	With Cushion	The cushioning capacity of low hydraulic pressure cylinders cannot absorb large energy. It is recommended to use an external shock absorber together.				
	Without Cushion	0.067	0.079	0.079	0.201	0.301
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.				

*1: Hydraulic oil with a viscosity of 40 mm²/S at the operating oil temperature is recommended. For oil, please use Fuji Kosan / FOCCOL Hydrol X22 or equivalent oils such as Mitsubishi / Diamond Powerful Fluid 18, Showa Shell / Shell Tellus Oil 22, Esso / Univis J26, Mobil / Mobil DTE22, Cosmo Hydro HV22, Nisseki / Highland Wide 22, Idemitsu / Daphne Super Hydro 22WR.

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ø40	25, 50, 75, 100, 150, 200, 250 300, 350, 400, 450, 500	600	1
ø50			
ø63			
ø80		700	
ø100		800	

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

●Minimum stroke with T0/T5 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (20)	20 (10)	60 (45)	110 (110)	110 (110)	50 (50)	50 (50)
ø50	20 (20)	15 (10)	20 (20)	135 (135)	135 (135)	60 (60)	60 (60)
ø63	20 (20)	15 (10)	20 (20)	110 (95)	110 (95)	50 (45)	50 (45)
ø80	25 (25)	15 (15)	25 (25)	115 (85)	115 (85)	55 (40)	55 (40)
ø100	25 (25)	15 (15)	25 (25)	125 (95)	125 (95)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T8 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (20)	15 (10)	50 (35)	95 (85)	95 (85)	45 (40)	45 (40)
ø50	20 (20)	10 (10)	20 (20)	115 (115)	115 (115)	50 (50)	50 (50)
ø63	20 (20)	10 (10)	20 (20)	95 (75)	95 (75)	45 (35)	45 (35)
ø80	25 (25)	15 (15)	25 (25)	100 (70)	100 (70)	50 (35)	50 (35)
ø100	25 (25)	15 (15)	25 (25)	110 (80)	110 (80)	55 (40)	55 (40)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Min. Stroke with Switch

●Minimum stroke with T2/T3 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	105 (75)	105 (75)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	110 (80)	110 (80)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	115 (85)	115 (85)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	125 (95)	125 (95)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T1/T2YD type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	100 (70)	100 (70)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	105 (75)	105 (75)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	110 (80)	110 (80)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	120 (90)	120 (90)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type). However, T2YD does not have an L-shaped lead wire type (V).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T2W/T3W/T2WL type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (10)	20 (5)	65 (50)	110 (80)	110 (80)	50 (35)	50 (35)
ø50	20 (10)	20 (5)	20 (10)	110 (80)	110 (80)	50 (35)	50 (35)
ø63	20 (10)	20 (5)	20 (10)	115 (85)	115 (85)	55 (40)	55 (40)
ø80	15 (10)	15 (5)	15 (10)	120 (90)	120 (90)	55 (40)	55 (40)
ø100	10 (10)	10 (5)	10 (10)	130 (100)	130 (100)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Cylinder Weight

(Unit: kg)

Bore Size (mm)	Product Weight when stroke (S) = 0 mm							Switch weight	Switch Mounting Bracket Weight	Per S=100 mm Added Weight
	Basic type (OO)	Foot Type (LB)	Flange Type (FA, FB)	Special flange type (FC)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion Type (TA, TB, TC)		T type	
ø40	0.83	1.00	1.24	0.92	1.15	1.19	1.21	Refer to the weight listed in the switch specifications on P. 971.	0.024	0.39
ø50	1.20	1.45	1.69	1.31	1.58	1.61	1.74		0.022	0.46
ø63	1.60	1.97	2.69	1.78	2.17	2.22	2.45		0.020	0.50
ø80	2.60	3.34	4.46	2.96	3.87	4.08	3.94		0.026	0.90
ø100	4.20	5.11	6.94	4.75	5.84	6.02	6.77		0.024	1.12

(Example) Product Weight of SCA2-H-LB-50B-200-TOH-D

- Product Weight at 0 mm stroke ..... 1.45 kg
- Added weight at 200 mm stroke ..... $0.46 \times \frac{200}{100} = 0.92$ kg
- Weight of 2 TOH switches.....0.018 x 2 = 0.036 kg
- Weight of 2 mounting brackets .....0.022 × 2=0.044 kg
- Product Weight ..... 1.45 + 0.92 + 0.036 + 0.044 = 2.450 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	-	2.51 × 10²	3.77 × 10²	5.03 × 10²	6.28 × 10²	7.54 × 10²	8.80 × 10²	1.01 × 10³	1.13 × 10³	1.26 × 10³
	Pull	-	2.11 × 10²	3.17 × 10²	4.22 × 10²	5.28 × 10²	6.33 × 10²	7.39 × 10²	8.44 × 10²	9.50 × 10²	1.06 × 10³
ø50	Push	-	3.93 × 10²	5.89 × 10²	7.85 × 10²	9.82 × 10²	1.18 × 10³	1.37 × 10³	1.57 × 10³	1.77 × 10³	1.96 × 10³
	Pull	-	3.30 × 10²	4.95 × 10²	6.60 × 10²	8.25 × 10²	9.90 × 10²	1.15 × 10³	1.32 × 10³	1.48 × 10³	1.65 × 10³
ø63	Push	4.68 × 10²	6.23 × 10²	9.35 × 10²	1.25 × 10³	1.56 × 10³	1.87 × 10³	2.18 × 10³	2.49 × 10³	2.81 × 10³	3.12 × 10³
	Pull	4.20 × 10²	5.61 × 10²	8.41 × 10²	1.12 × 10³	1.40 × 10³	1.68 × 10³	1.96 × 10³	2.24 × 10³	2.52 × 10³	2.80 × 10³
ø80	Push	7.54 × 10²	1.01 × 10³	1.51 × 10³	2.01 × 10³	2.51 × 10³	3.02 × 10³	3.52 × 10³	4.02 × 10³	4.52 × 10³	5.03 × 10³
	Pull	6.80 × 10²	9.07 × 10²	1.36 × 10³	1.81 × 10³	2.27 × 10³	2.72 × 10³	3.17 × 10³	3.63 × 10³	4.08 × 10³	4.54 × 10³
ø100	Push	1.18 × 10³	1.57 × 10³	2.36 × 10³	3.14 × 10³	3.93 × 10³	4.71 × 10³	5.50 × 10³	6.28 × 10³	7.07 × 10³	7.85 × 10³
	Pull	1.07 × 10³	1.43 × 10³	2.14 × 10³	2.86 × 10³	3.57 × 10³	4.29 × 10³	5.00 × 10³	5.72 × 10³	6.43 × 10³	7.15 × 10³

Mounting Bracket Model No. Notation Method

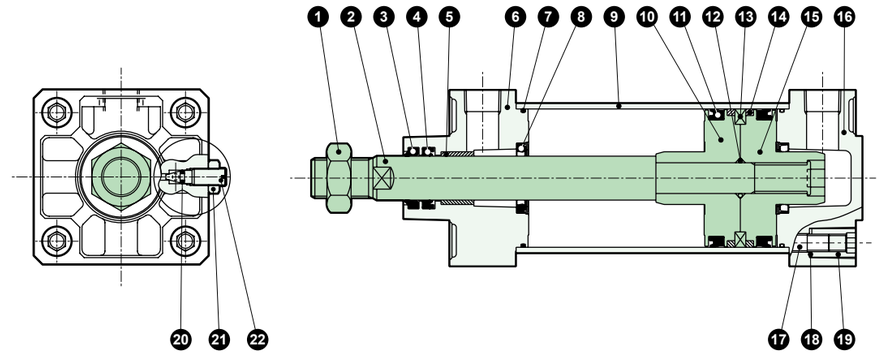
Bore Size (mm) / Mounting bracket	ø40	ø50	ø63	ø80	ø100
Foot (LB) *2	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Single Clevis (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Double Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

***1: For the material of the mounting brackets, please refer to P. 646.**
*2: Foot type mounting brackets come in sets of 2.
*3: Mounting bolts are included to each mounting bracket.

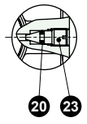
Outline Dimension Drawing

Same dimensions as double-acting, single rod type. Please refer to P. 632 to 642.

Internal Structure Diagram/Material



No cushion N



Part Number	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	13	Magnet	Plastic	
2	Piston Rod	Steel	Industrial Hard Chrome Plating	14	Wear Ring	Polyacetal	
3	Scraper	Nitrile Rubber		15	Piston H	Aluminum Alloy	
4	Rod Packing	Nitrile Rubber		16	Head Cover	Aluminum Alloy	Painting
5	Bushing	Oil-Impregnated Bearing Alloy		17	Tie Rod	Steel	Zinc Chromate
6	Rod Cover	Aluminum Alloy	Painting	18	Belleville washer	Steel	Black Oxide
7	Cylinder Gasket	Nitrile Rubber		19	Round Nut	Steel	Zinc Chromate
8	Cushion Packing	Nitrile Rubber, Steel	Only with cushion	20	Needle Gasket	Nitrile Rubber	
9	Cylinder Tube	Aluminum Alloy	Hard Anodized	21	Needle nut	Copper Alloy	Nickel Plating
10	Piston R	Aluminum Alloy		22	Cushion Needle	Copper Alloy	Nickel Plating
11	Piston Packing	Nitrile Rubber		23	Cushion plug	Copper Alloy	Nickel Plating
12	Piston Gasket	Nitrile Rubber					

For maintenance parts, please visit the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts.

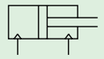


Medium Bore Size Cylinder
Double Acting, Heavy Duty Scraper Type

SCA2-G Series

●Bore size: ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol



RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

With Switch
(Built-in magnet for switch)

		❶ Mounting type	❷ Bore Size	❸ Piping thread type	❹ Cushion	❺ Stroke	❻ Switch Model No.	❼ Number of Switches	❽ Option	❾ Accessories
Without Switch	SCA2-G - LB - 40 - B - 100								S	I
	Model No.	1	2	3	4	5			8	9
With Switch	SCA2-G - LB - 40 - B - 100 - T0H - R - S - I									
	Model No.	1	2	3	4	5	6	7	8	9

❶Mounting type

Mounting brackets are included to the product and shipped. (However, trunnion types are shipped assembled.)

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
FC	Head side special flange type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and retaining ring included)	
TC	Intermediate Trunnion Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TF	Intermediate tapped trunnion type (ø50 to ø100)	
TD	Rod side tapped trunnion type (ø50 to ø100)	
TE	Head side tapped trunnion type (ø50 to ø100)	

❷Bore size (mm)

Code	Contents
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom product)
G	G thread (Custom product)

❹Cushion

Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

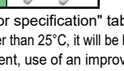
❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø40	1 to 600	Every 1 mm
ø50	1 to 600	
ø63	1 to 600	
ø80	1 to 700	
ø100	1 to 800	

Note: For minimum stroke with switch, please refer to P. 782 and 783.

❻Switch Model No.

For switch details, please refer to P. 971. Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model No.s listed above are also available. (Custom Product) For details, see P. 971.

**Lead wire length, connector specification*

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+) 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH3
5 m TOH5

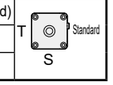
❼Number of Switches

Code	Content	
R	With 1 pc on rod side	*1
H	With 1 pc on head side	*1
D	With 2 pcs	
T	With 3 pcs	

*1: ❶When "TA", "TD", "TB", or "TE" is selected as the mounting method, the number of switches is limited to "H" (1 on the head side) for "TA" and "TD", and "R" (1 on the rod side) for "TB" and "TE".

❽ Option

Code	Content	
M	Piston Rod Material (Stainless Steel)	
Blank	Cushion needle position R (Standard)	*1
S	Cushion needle position S	
T	Cushion needle position T	



*1: ❶When mounting type "TA", "TD", "TB", "TE" is selected, the cushion needle position is fixed to "S" (Blank) and cannot be selected.

❾Accessories

Code	Content	
I	Single Knuckle *1	
Y	Double Knuckle (Pin and retaining ring included) *1	
B1	Single Bracket	
B2	Double Yoke Bracket (Pin and retaining ring included)	
B3	Single Bracket	
B4	Trunnion type 2nd bracket (2 pieces/set)	

*1: "I" and "Y" cannot be selected at the same time.

*For combinations of variations and options, see P. 625.

Regarding specifications of custom products

Details: refer to P. 854 to 861.

Code	Contents	Code	Contents	Code	Contents
-XR◇◇◇◇	Port/Cushion needle position specification	-XP5	Knuckle Pin/Clevis Pin Split Pin	-XM1	Tie rod material SUS
-XK◇	Mounting Bracket Rotational Assembly	-XP7	Knuckle fixed by pin driving	-A2	With 2 Rod Nuts
-XAQ◇◇	Trunnion Position Specification	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	Rod End Shape Modification	Refer to Ending P. 11.

Model No. Example) SCA2-G - ..... - XP5

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCA2-G - ..... - FP1

Switch Single Unit Model No. Notation Method

[T type switch]

●Switch body + Mounting bracket set

SCA2 - T0H - 40
6 Switch Model No. / 2 Bore Size

●Switch body only

SW - T0H
6 Switch Model No.

●Switch mounting bracket set

SCA2 - TS - 40
Mounting bracket / 2 Bore Size

*Please consult us separately if using environmentally compatible T-type switches.

[T2YD type switch]

●Switch body + Mounting bracket set

SCA2 - T2YD - 40
6 Switch Model No. / 2 Bore Size

●Switch body only

SW - T2YD
6 Switch Model No.

●Mounting bracket set

SCA2 - T - 40
2 Bore Size

Specifications

Item		SCA2-G (Heavy-duty scraper type)				
Bore Size mm		ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type				
Operating Fluid		Compressed Air				
Max. Working Pressure MPa		1.0				
Min. Operating Pressure MPa		0.05				
Proof Pressure MPa		1.6				
Ambient Temperature °C		–10 to 60 (Provided that freezing does not occur)				
Port Size		Rc 1/4	Rc 3/8		Rc 1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Operating Piston Speed mm/s		50 to 1000 (Use within allowable absorbed energy.)				
Cushion		Air Cushion				
Effective air cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)				
Allowable absorbed energy J	With Cushion	4.29	8.37	15.8	27.9	49.8
	Without Cushion	0.067	0.079	0.079	0.201	0.301
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.				

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Producible Stroke (mm)	Min. Stroke (mm)
ø40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	1600	1
ø50			2,000	
ø63			2500	
ø80		700		
ø100		800		

*1: Intermediate strokes can be manufactured in 1 mm increments.
***2: If the maximum stroke is exceeded, the product specifications may not be met depending on the conditions, so please consult us.**

Min. Stroke with Switch

●Minimum stroke with T0/T5 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (20)	20 (10)	60 (45)	110 (110)	110 (110)	50 (50)	50 (50)
ø50	20 (20)	15 (10)	20 (20)	135 (135)	135 (135)	60 (60)	60 (60)
ø63	20 (20)	15 (10)	20 (20)	110 (95)	110 (95)	50 (45)	50 (45)
ø80	25 (25)	15 (15)	25 (25)	115 (85)	115 (85)	55 (40)	55 (40)
ø100	25 (25)	15 (15)	25 (25)	125 (95)	125 (95)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

● Minimum stroke with T8 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (20)	15 (10)	50 (35)	95 (85)	95 (85)	45 (40)	45 (40)
ø50	20 (20)	10 (10)	20 (20)	115 (115)	115 (115)	50 (50)	50 (50)
ø63	20 (20)	10 (10)	20 (20)	95 (75)	95 (75)	45 (35)	45 (35)
ø80	25 (25)	15 (15)	25 (25)	100 (70)	100 (70)	50 (35)	50 (35)
ø100	25 (25)	15 (15)	25 (25)	110 (80)	110 (80)	55 (40)	55 (40)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Min. Stroke with Switch

●Minimum stroke with T2/T3 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	105 (75)	105 (75)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	110 (80)	110 (80)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	115 (85)	115 (85)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	125 (95)	125 (95)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

● Minimum stroke with T1/T2YD type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	100 (70)	100 (70)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	105 (75)	105 (75)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	110 (80)	110 (80)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	120 (90)	120 (90)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type). However, T2YD does not have an L-shaped lead wire type (V).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

● Minimum stroke with T2W/T3W/T2WL type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (10)	20 (5)	65 (50)	110 (80)	110 (80)	50 (35)	50 (35)
ø50	20 (10)	20 (5)	20 (10)	110 (80)	110 (80)	50 (35)	50 (35)
ø63	20 (10)	20 (5)	20 (10)	115 (85)	115 (85)	55 (40)	55 (40)
ø80	15 (10)	15 (5)	15 (10)	120 (90)	120 (90)	55 (40)	55 (40)
ø100	10 (10)	10 (5)	10 (10)	130 (100)	130 (100)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Cylinder Weight

(Unit: kg)

Bore Size (mm)	Product Weight when stroke (S) = 0 mm						Of switch Weight	Switch Mounting Bracket Weight	Added mass per S=100 mm
	Basic Type (00)	Foot Type (LB)	Flange Type (FA, FB)	Single Clevis Type (CA)	Double clevis type (CB)	Trunnion type (TA, TB, TC)		T type	
ø40	0.83	1.00	1.24	1.15	1.19	1.21	Refer to the mass described in the switch specifications on P. 971	0.024	0.39
ø50	1.20	1.45	1.69	1.58	1.61	1.74		0.022	0.46
ø63	1.60	1.97	2.69	2.17	2.22	2.45		0.020	0.50
ø80	2.60	3.34	4.46	3.87	4.08	3.94		0.026	0.90
ø100	4.20	5.11	6.94	5.84	6.02	6.77		0.024	1.12

(Example)
Product Weight of SCA2-G-LB-50B-200-TOH-D

- Product Weight at 0 mm stroke ..... 1.45 kg
- Added weight at 200 mm stroke ..... $0.46 \times \frac{200}{100} = 0.92$ kg
- Weight of 2 TOH switches.....0.018 x 2 = 0.036 kg
- Weight of 2 mounting brackets .....0.022 × 2=0.044 kg
- Product Weight ..... 1.45 + 0.92 + 0.036 + 0.044 = 2.450 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	62.8	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	52.8	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.2	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	1.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push	2.51×10^2	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	2.27×10^2	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push	3.93×10^2	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3	6.28×10^3	7.07×10^3	7.85×10^3
	Pull	3.57×10^2	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

Mounting Bracket Model No. Notation Method

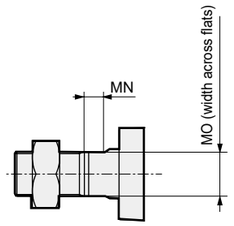
Bore Size (mm) / Mounting bracket	ø40	ø50	ø63	ø80	ø100
Foot (LB) *2	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Single Clevis (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Double Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

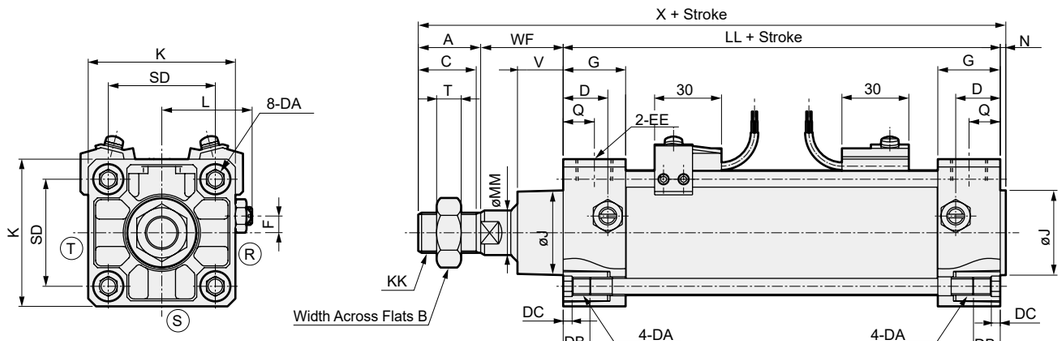
***1: For the material of the mounting brackets, please refer to P. 646.**
*2: Foot type mounting brackets come in sets of 2.
*3: Mounting bolts are included to each mounting bracket.

MEMO

Outline Dimension Drawing

● Basic Type (00)





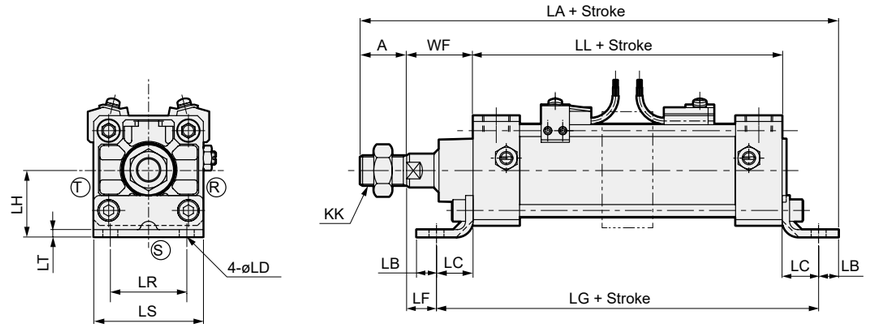
Code	With switch basic type (00)														
Bore Size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL
ø40	22	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14 × 1.5	38 to 39.5	93
ø50	28	27	26	20	M8	12	4	Rc3/8	0	28	38	66	M18 × 1.5	41 to 43.5	101
ø63	28	27	26	22	M8	12	4	Rc3/8	0	30	38	80	M18 × 1.5	47.5 to 50.0	105
ø80	36	32	34	26	M12	16	5	Rc1/2	0	34	43	98	M22 × 1.5	56 to 59	116
ø100	45	41	43	28	M12	16	5	Rc1/2	0	36	51	118	M26 × 1.5	66 to 69	128

Code										
Bore Size (mm)	MM	MN	MO	N	Q	SD	T	V	WF	X
ø40	16	8	14	2	13	40.5	8	17	33.5	150.5
ø50	20	8.5	17	2.5	14	48	11	20	37	168.5
ø63	20	8.5	17	3	15	59	11	20.5	35	171
ø80	25	11	22	3.5	17	74	13	23	48	203.5
ø100	30	13	27	4	18	90	16	30.5	53	230

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

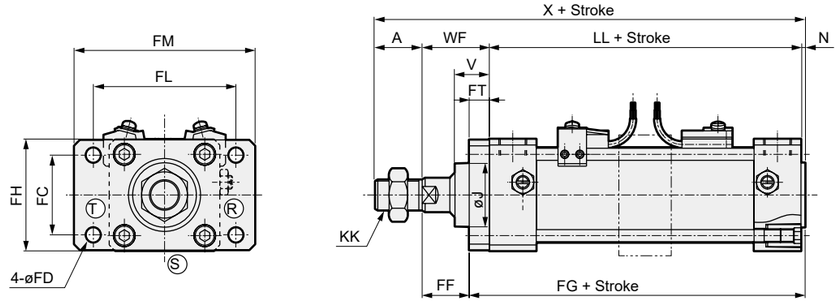
● Axial Foot Type (LB)



Code	Axial Foot Type (LB) Mounting Dimensions													
Bore Size (mm)	A	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT
ø40	22	M14 × 1.5	93	33.5	178	10	19.5	9	14	132	40	40	57	3.2
ø50	28	M18 × 1.5	101	37	200	12	22	9	15	145	40	46	66	4.5
ø63	28	M18 × 1.5	105	35	210	12	30	11	5	165	50	60	80	4.5
ø80	36	M22 × 1.5	116	48	251	14	37	14	11	190	60	74	98	6
ø100	45	M26 × 1.5	128	53	278	21	31	14	22	190	67	80	118	6

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

● Rod Side Flange Type (FA)

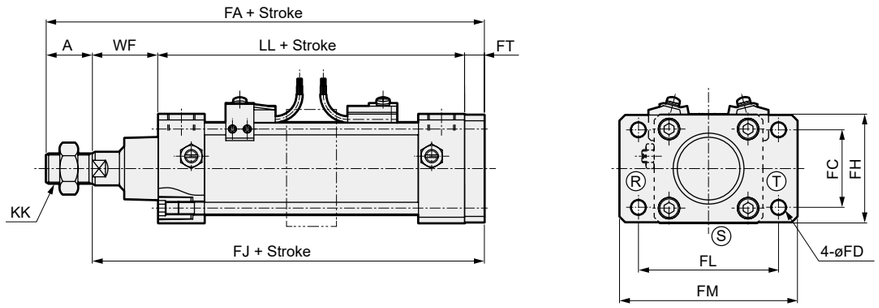


Code	Rod Side Flange Type (FA) Mounting Dimensions															
Bore Size (mm)	A	J	KK	LL	N	V	WF	X	FC	FD	FF	FG	FH	FL	FM	FT
ø40	22	31	M14 × 1.5	93	2	17	33.5	150.5	40	9	21.5	107	57	80	100	12
ø50	28	38	M18 × 1.5	101	2.5	20	37	168.5	47	9	25	115.5	65	85	108	12
ø63	28	38	M18 × 1.5	105	3	20.5	35	171	60	11	19	124	80	106	130	16
ø80	36	43	M22 × 1.5	116	3.5	23	48	203.5	74	14	29	138.5	98	125	153	19
ø100	45	51	M26 × 1.5	128	4	30.5	53	230	88	14	34	151	118	144	180	19

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

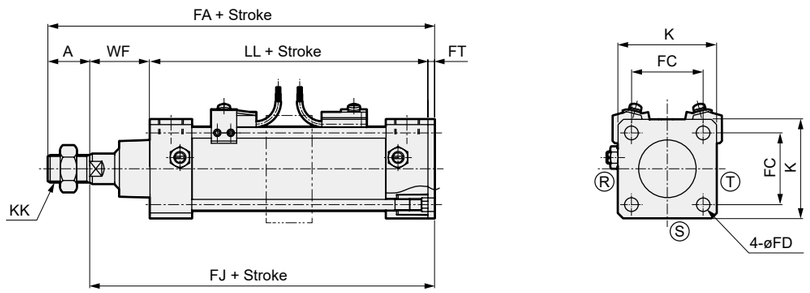
●Head Side Flange Type (FB)



Code	Head Side Flange Type (FB) Mounting Dimensions											
Bore Size (mm)	A	KK	LL	WF	FA	FC	FD	FH	FJ	FL	FM	FT
ø40	22	M14 × 1.5	93	33.5	160.5	40	9	57	138.5	80	100	12
ø50	28	M18 × 1.5	101	37	178	47	9	65	150	85	108	12
ø63	28	M18 × 1.5	105	35	184	60	11	80	156	106	130	16
ø80	36	M22 × 1.5	116	48	219	74	14	98	183	125	153	19
ø100	45	M26 × 1.5	128	53	245	88	14	118	200	144	180	19

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Head side special flange type (FC)

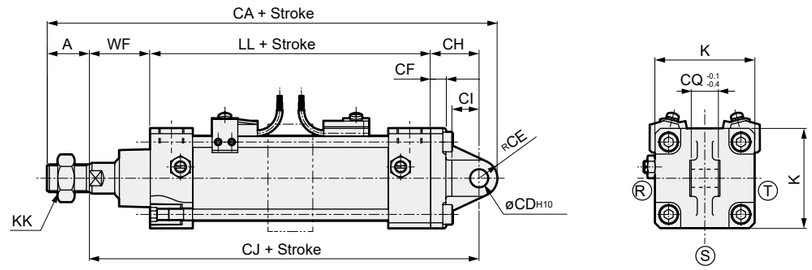


Code	Head side special flange type (FC) Mounting dimensions									
Bore Size (mm)	A	K	KK	LL	WF	FA	FC	FD	FJ	FT
ø40	22	57	M14 × 1.5	93	33.5	153	40.5	9	131	4.5
ø50	28	66	M18 × 1.5	101	37	170.5	4	9	142.5	4.5
ø63	28	80	M18 × 1.5	105	35	172.5	59	9	144.5	4.5
ø80	36	98	M22 × 1.5	116	48	206	74	14	170	6
ø100	45	118	M26 × 1.5	128	53	232	90	14	187	6

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

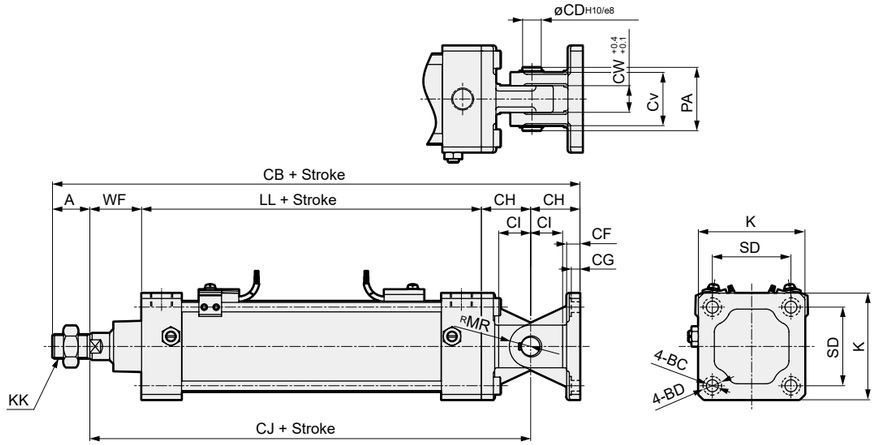
●Single Clevis Type (CA)



Code	Single Clevis Type (CA) Mounting Dimensions												
Bore Size (mm)	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	CQ
ø40	22	57	M14 × 1.5	93	33.5	192.5	12	12	10	32	18	158.5	18
ø50	28	66	M18 × 1.5	101	37	210	12	12	10	32	18	170	18
ø63	28	80	M18 × 1.5	105	35	221	14	16	10	37	24	177	20
ø80	36	98	M22 × 1.5	116	48	272	20	20	14	52	30	216	28
ø100	45	118	M26 × 1.5	128	53	298	20	20	16	52	30	233	28

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Single Clevis Type (CA) with Bracket (Option Code B2)

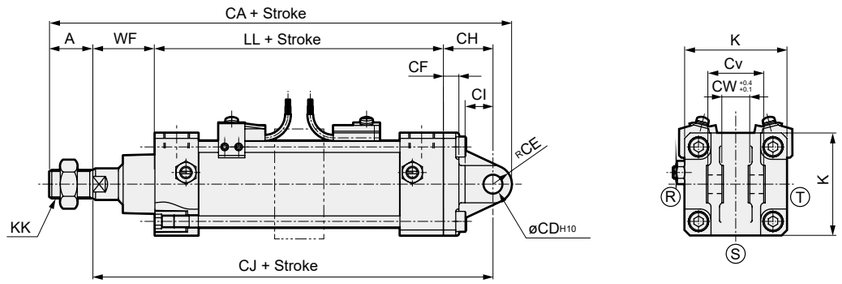


Code	Single Clevis Type (CA) With Bracket (Option Code B2) Mounting Dimensions																	
Bore Size (mm)	A	K	KK	LL	WF	CB	CD	CF	CG	CH	CI	CJ	Cv	CW	BC	BD	MR	PA	SD
ø40	22	57	M14 × 1.5	93	33.5	212.5	12	10	6.5	32	18	158.5	36	18	9	14	12	43.5	40.5
ø50	28	66	M18 × 1.5	101	37	230	12	10	6.5	32	18	170	36	18	9	14	12	43.5	48
ø63	28	80	M18 × 1.5	105	35	242	14	10	6.5	37	24	177	40	20	9	14	16	47.5	59
ø80	36	98	M22 × 1.5	116	48	304	20	14	10.5	52	30	216	56	28	14	20	20	64	74
ø100	45	118	M26 × 1.5	128	53	330	20	16	10.5	52	30	233	56	28	14	20	20	64	90

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

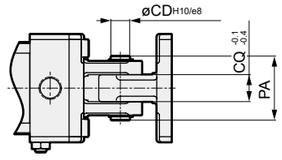
●Double clevis type (CB)

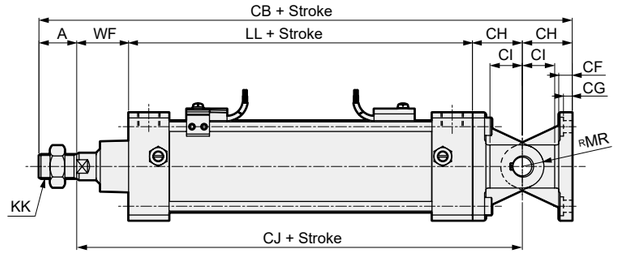


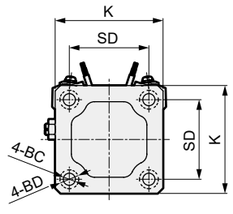
Code / Bore Size (mm)	Double Clevis Type (CB) Mounting Dimensions													
	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	Cv	CW
ø40	22	57	M14 × 1.5	93	33.5	192.5	12	12	10	32	18	158.5	36	18
ø50	28	66	M18 × 1.5	101	37	210	12	12	10	32	18	170	36	18
ø63	28	80	M18 × 1.5	105	35	221	14	16	10	37	24	177	40	20
ø80	36	98	M22 × 1.5	116	48	272	20	20	14	52	30	216	56	28
ø100	45	118	M26 × 1.5	128	53	298	20	20	16	52	30	233	56	28

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Double clevis type (CB) with bracket (Option code B1)





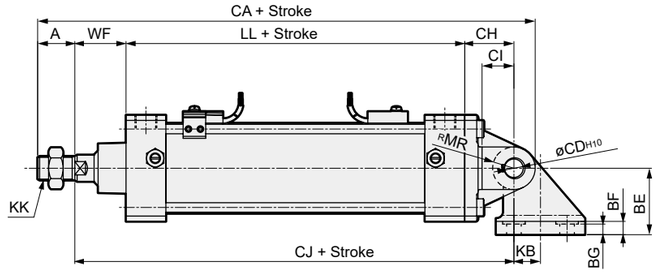


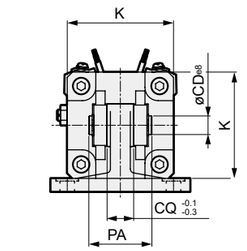
Code / Bore Size (mm)	Double Clevis Type (CB) With Bracket (Option Code B1) Mounting Dimensions																	
	A	K	KK	LL	WF	CB	CD	CF	CG	CH	CI	CJ	CQ	BC	BD	MR	PA	SD
ø40	22	57	M14 × 1.5	93	33.5	232.5	12	10	6.5	32	18	158.5	18	9	14	12	43.5	40.5
ø50	28	66	M18 × 1.5	101	37	250	12	10	6.5	32	18	170	18	9	14	12	43.5	48
ø63	28	80	M18 × 1.5	105	35	263	14	10	6.5	37	24	177	20	9	14	16	47.5	59
ø80	36	98	M22 × 1.5	116	48	336	20	14	10.5	52	30	216	28	14	20	20	64	74
ø100	45	118	M26 × 1.5	128	53	362	20	16	10.5	52	30	233	28	14	20	20	64	90

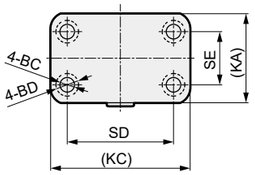
***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Double clevis type (CB) with bracket (Option code B3)





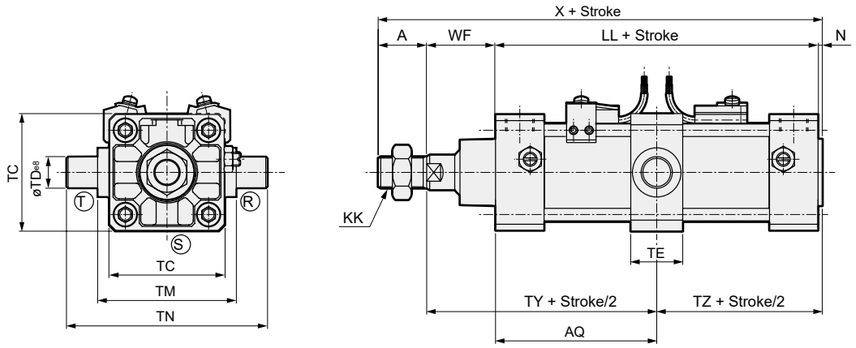


Code / Bore Size (mm)	Double clevis type (CB) with bracket (Option code B3) Mounting dimensions																					
	A	K	KK	LL	WF	CA	CD	CH	CI	CJ	CQ	BC	BD	BE	BF	BG	KA	KB	KC	MR	PA	SD	SE
ø40	22	57	M14 × 1.5	93	33.5	192.5	12	32	18	158.5	18	9	14	40	8	6.5	57	17.5	85	12	43.5	65	35
ø50	28	66	M18 × 1.5	101	37	210	12	32	18	170	18	9	14	40	8	6.5	57	17.5	85	12	43.5	65	35
ø63	28	80	M18 × 1.5	105	35	221	14	37	24	177	20	9	14	50	10	8	67	20	105	16	47.5	80	40
ø80	36	98	M22 × 1.5	116	48	272	20	52	30	216	28	14	20	65	12	10	93	30	130	20	64	100	60
ø100	45	118	M26 × 1.5	128	53	298	20	52	30	233	28	14	20	65	12	10	93	30	130	20	64	100	60

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

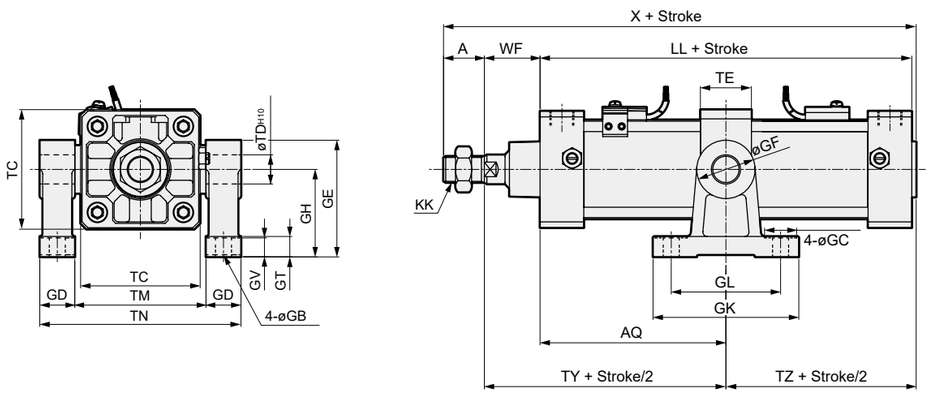
●Intermediate trunnion type (TC)



Code	Intermediate Trunnion Type (TC) Mounting Dimensions													
Bore Size (mm)	A	KK	LL	N	WF	X	AQ	TC	TD	TE	TY	TZ	TM	TN
ø40	22	M14 × 1.5	93	2	33.5	150.5	46.5 + Stroke/2	57	16	30	80	48.5	63	95
ø50	28	M18 × 1.5	101	2.5	37	168.5	50.5 + Stroke/2	67	18	30	87.5	53	80	116
ø63	28	M18 × 1.5	105	3	35	171	52.5 + Stroke/2	82	20	35	87.5	55.5	90	130
ø80	36	M22 × 1.5	116	3.5	48	203.5	58 + Stroke/2	100	25	40	106	61.5	115	165
ø100	45	M26 × 1.5	128	4	53	230	64 + Stroke/2	121	35	50	117	68	135	205

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Intermediate trunnion type (TC) with bracket (Option code B4)

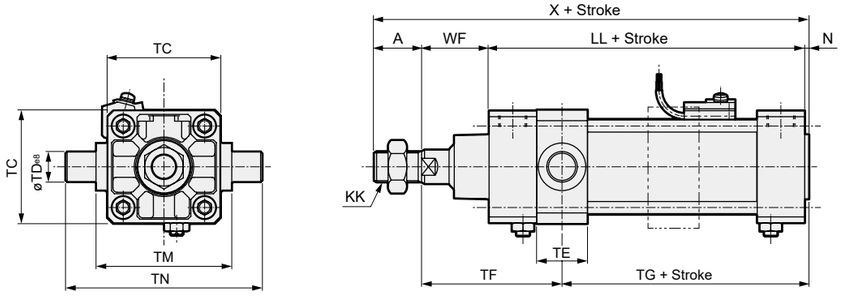


Code	Intermediate Trunnion Type (TC) with Bracket (Option Code B4) Mounting Dimensions																					
Bore Size (mm)	A	KK	LL	WF	X	AQ	TC	TD	TE	TY	TZ	TM	TN	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV
ø40	22	M14 × 1.5	93	33.5	150.5	46.5 + Stroke/2	57	16	30	80	48.5	63	95	9	17	19	61	32	45	80	60	12	11
ø50	28	M18 × 1.5	101	37	168.5	50.5 + Stroke/2	67	18	30	87.5	53	80	116	9	17	19	63	36	45	85	65	12	11
ø63	28	M18 × 1.5	105	35	171	52.5 + Stroke/2	82	20	35	87.5	55.5	90	130	11	22	24	80	40	60	100	75	14	13
ø80	36	M22 × 1.5	116	48	203.5	58 + Stroke/2	100	25	40	106	61.5	115	165	14	24	26	85	50	60	115	85	14	13
ø100	45	M26 × 1.5	128	53	230	64 + Stroke/2	121	35	50	117	68	135	205	14	24	35	107	64	75	130	100	17	16

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

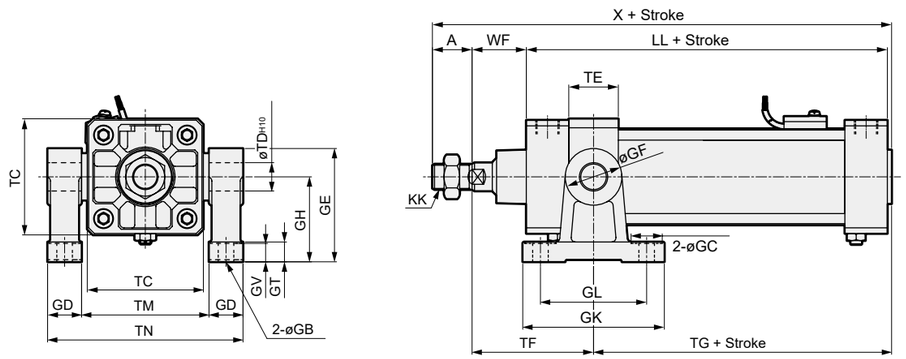
●Rod side trunnion type (TA)



Code	Rod Side Trunnion Type (TA) Mounting Dimensions												
Bore Size (mm)	A	KK	LL	N	WF	X	TC	TD	TE	TF	TG	TM	TN
ø40	22	M14 × 1.5	93	2	33.5	150.5	57	16	30	74.5	54	63	95
ø50	28	M18 × 1.5	101	2.5	37	168.5	67	18	30	80	60.5	80	116
ø63	28	M18 × 1.5	105	3	35	171	82	20	35	82.5	60.5	90	130
ø80	36	M22 × 1.5	116	3.5	48	203.5	100	25	40	102	65.5	115	165
ø100	45	M26 × 1.5	128	4	53	230	121	35	50	114	71	135	205

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Rod side trunnion type (TA) with bracket (Option code B4)

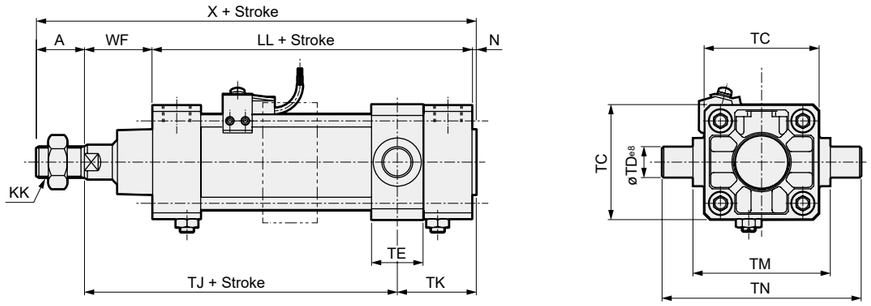


Code	Rod Side Trunnion Type (TA) with Bracket (Option Code B4) Mounting Dimensions																					
Bore Size (mm)	A	KK	LL	WF	X	TC	TD	TE	TF	TG	TM	TN	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV
ø40	22	M14 × 1.5	93	33.5	150.5	57	16	30	74.5	54	63	95	9	17	19	61	32	45	80	60	12	11
ø50	28	M18 × 1.5	101	37	168.5	67	18	30	80	60.5	80	116	9	17	19	63	36	45	85	65	12	11
ø63	28	M18 × 1.5	105	35	171	82	20	35	82.5	60.5	90	130	11	22	24	80	40	60	100	75	14	13
ø80	36	M22 × 1.5	116	48	203.5	100	25	40	102	65.5	115	165	14	24	26	85	50	60	115	85	14	13
ø100	45	M26 × 1.5	128	53	230	121	35	50	114	71	135	205	14	24	35	107	64	75	130	100	17	16

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

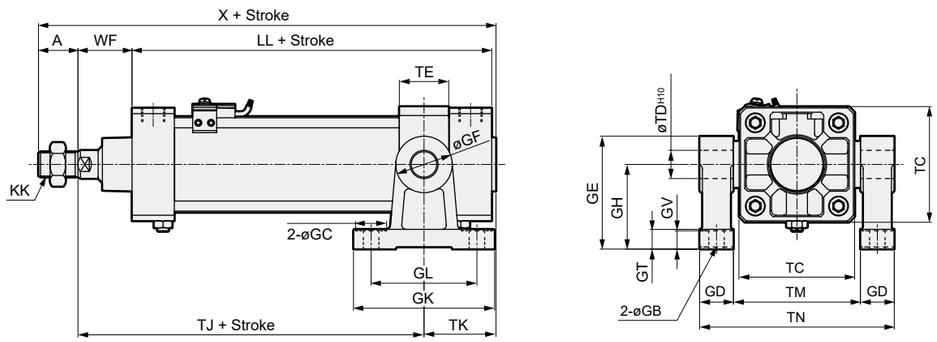
●Head Side Trunnion Type (TB)



Code	Head Side Trunnion Type (TB) Mounting Dimensions												
Bore Size (mm)	A	KK	LL	N	WF	X	TC	TD	TE	TJ	TK	TM	TN
ø40	22	M14 × 1.5	93	2	33.5	150.5	57	16	30	85	43.5	63	95
ø50	28	M18 × 1.5	101	2.5	37	168.5	67	18	30	94.5	46	80	116
ø63	28	M18 × 1.5	105	3	35	171	82	20	35	92	51	90	130
ø80	36	M22 × 1.5	116	3.5	48	203.5	100	25	40	109.5	58	115	165
ø100	45	M26 × 1.5	128	4	53	230	121	35	50	119.5	65.5	135	205

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Head side trunnion type (TB) with bracket (Option code B4)

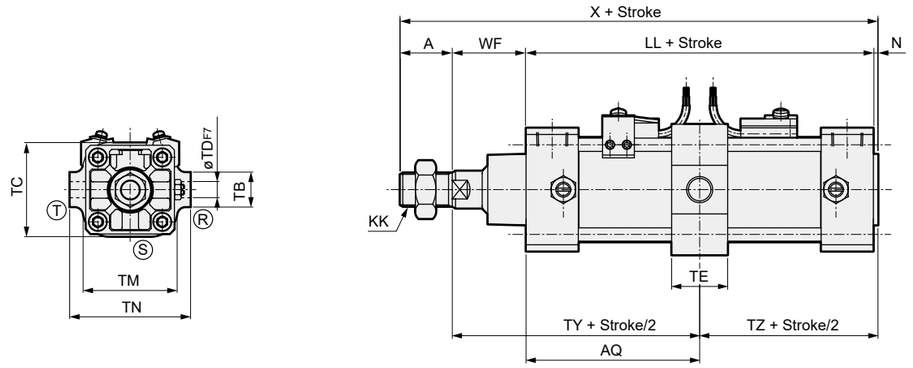


Code	Head Side Trunnion Type (TB) with Bracket (Option Code B4) Mounting Dimensions																				
Bore Size (mm)	A	KK	LL	WF	X	TC	TD	TE	TJ	TK	TM	TN	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV
ø40	22	M14 × 1.5	93	33.5	150.5	57	16	30	85	43.5	63	95	9	17	19	61	32	45	80	60	12	11
ø50	28	M18 × 1.5	101	37	168.5	67	18	30	94.5	46	80	116	9	17	19	63	36	45	85	65	12	11
ø63	28	M18 × 1.5	105	35	171	82	20	35	92	51	90	130	11	22	24	80	40	60	100	75	14	13
ø80	36	M22 × 1.5	116	48	203.5	100	25	40	109.5	58	115	165	14	24	26	85	50	60	115	85	14	13
ø100	45	M26 × 1.5	128	53	230	121	35	50	119.5	65.5	135	205	14	24	35	107	64	75	130	100	17	16

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

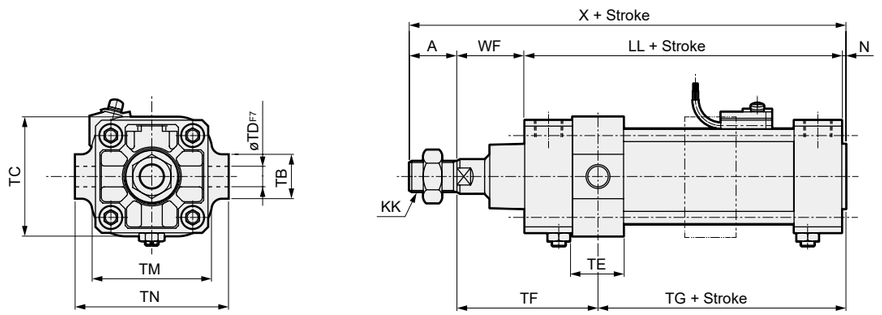
●Intermediate tapped trunnion type (TF)



Code	Intermediate tapped trunnion type (TF) Mounting dimensions													
Bore Size (mm)	A	KK	LL	N	WF	X	AQ	TB	TC	TD	TE	TY	TZ	TM	TN
ø50	28	M18 × 1.5	101	2.5	37	168.5	50.5 + Stroke/2	26	70	12	30	87.5	53	70	90
ø63	28	M18 × 1.5	105	3	35	171	52.5 + Stroke/2	30	86	14	35	87.5	55.5	86	104
ø80	36	M22 × 1.5	116	3.5	48	203.5	58 + Stroke/2	35	105	20	40	106	61.5	105	134
ø100	45	M26 × 1.5	128	4	53	230	64 + Stroke/2	40	123	20	40	117	68	127	150

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Rod side tapped trunnion type (TD)

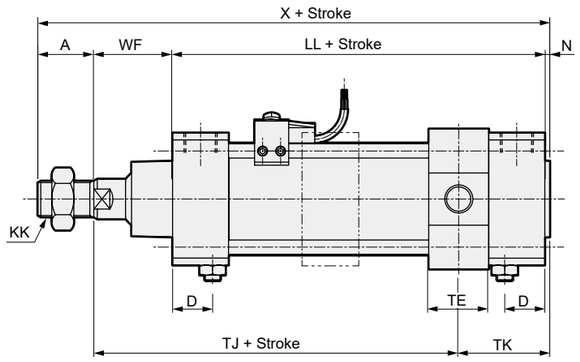


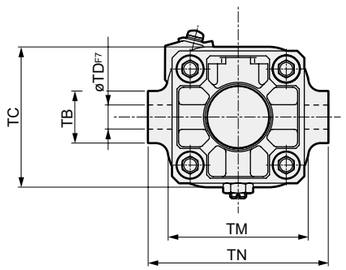
Code	Rod side tapped trunnion type (TD) Mounting dimensions													
Bore Size (mm)	A	KK	LL	N	WF	X	TB	TC	TD	TE	TF	TG	TM	TN
ø50	28	M18 × 1.5	101	2.5	37	168.5	26	70	12	30	80	60.5	70	90
ø63	28	M18 × 1.5	105	3	35	171	30	86	14	35	82.5	60.5	86	104
ø80	36	M22 × 1.5	116	3.5	48	203.5	35	105	20	40	102	65.5	105	134
ø100	45	M26 × 1.5	128	4	53	230	40	123	20	40	109	76	127	150

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Head side tapped trunnion type (TE)

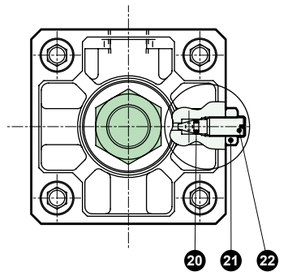


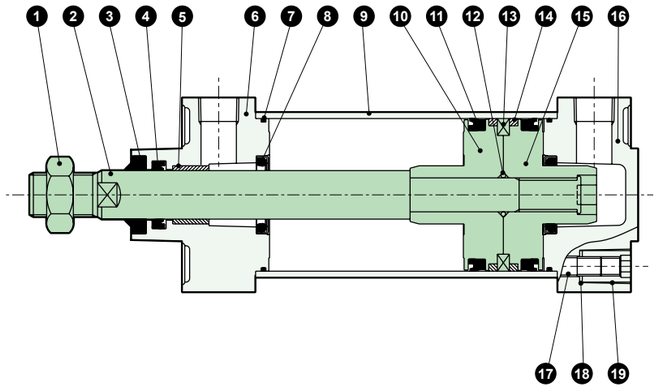


Code	Head side tapped trunnion type (TE) Mounting dimensions													
Bore Size (mm)	A	KK	LL	N	WF	X	TB	TC	TD	TE	TJ	TK	TM	TN
ø50	28	M18 × 1.5	101	2.5	37	168.5	26	70	12	30	94.5	46	70	90
ø63	28	M18 × 1.5	105	3	35	171	30	86	14	35	92	51	86	104
ø80	36	M22 × 1.5	116	3.5	48	203.5	35	105	20	40	109.5	58	105	134
ø100	45	M26 × 1.5	128	4	53	230	40	123	20	40	124.5	60.5	127	150

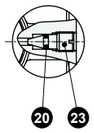
***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Internal Structure Diagram/Material





No cushion N



Part Number	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	13	Magnet	Plastic	
2	Piston Rod	Steel	Industrial Hard Chrome Plating	14	Wear Ring	Polyacetal	
3	Scraper	Nitrile Rubber		15	Piston H	Aluminum Alloy	
4	Rod Packing	Nitrile Rubber		16	Head Cover	Aluminum Alloy	Painting
5	Bushing	Oil-Impregnated Bearing Alloy		17	Tie Rod	Steel	Zinc Chromate
6	Rod Cover	Aluminum Alloy	Painting	18	Belleville washer	Steel	Black Oxide
7	Cylinder Gasket	Nitrile Rubber		19	Round Nut	Steel	Zinc Chromate
8	Cushion Packing	Nitrile Rubber, Steel	Only with cushion	20	Needle Gasket	Nitrile Rubber	
9	Cylinder Tube	Aluminum Alloy	Hard Anodized	21	Needle nut	Copper Alloy	Nickel Plating
10	Piston R	Aluminum Alloy		22	Cushion Needle	Copper Alloy	Nickel Plating
11	Piston Packing	Nitrile Rubber		23	Cushion plug	Copper Alloy	Nickel Plating
12	Piston Gasket	Nitrile Rubber					

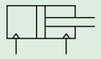
For maintenance parts, please visit the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts.



Medium Bore Size Cylinder
Double Acting, Coolant Proof Type

SCA2- G2/G3 Series

● Bore size: ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

SCA2 - G2 - LB - 50 - B - 75 - S - Y
1 2 3 4 5 6 9 10

With Switch
(Built-in magnet for switch)

SCA2 - G2 - LB - 50 - B - 75 - T2YLH - R - S - Y
1 2 3 4 5 6 7 8 9 10

1 Model No. / 2 Mounting type / 3 Bore Size / 4 Piping thread type / 5 Cushion / 6 Stroke / 7 Switch Model No. / 8 Number of Switches / 9 Option / 10 Accessories

❶ Model No.

Code	Content
G2	Cutting Oil Resistant Scraper + NBR Packing
G3	Cutting Oil Resistant Scraper + FKM Packing

❷ Mounting type

Mounting brackets are included to the product and shipped. (However, trunnion types are shipped assembled.)

Code	Content	
00	Basic type	
LB	Axial Foot Type (Double Side)	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
FC	Head side special flange type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and retaining ring included)	
TC	Intermediate Trunnion Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TF	Intermediate tapped trunnion type (ø50 to ø100)	
TD	Rod side tapped trunnion type (ø50 to ø100)	
TE	Head side tapped trunnion type (ø50 to ø100)	

❸ Bore size (mm)

Code	Contents
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❹ Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G Thread (Custom Order Product)

❺ Cushion

Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

❻ Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø40	1 to 600	Every 1 mm
ø50	1 to 600	
ø63	1 to 600	
ø80	1 to 700	
ø100	1 to 800	

Note: For minimum stroke with switch, refer to P. 800.

❼ Switch Model No.

For switch details, please refer to P. 971.
Switches are included to the product and shipped.

	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *2
Solid State	2-Color For Cutting Oil	2-wire	—	10 to 30	—	5 to 20	T2YLH□	T2YLV□	 *4
Solid State	2-Color For Cutting Oil	3-wire (NPN)	—	30 or less	—	50 or less	T3YLH□	T3YLV□	

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*3: Switches other than the model No.s listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*4: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m T2WLH
3 m T2WLH3
5 m T2YLH5

❽ Number of Switches

Code	Content	
R	With 1 pc on rod side	*1
H	With 1 pc on head side	*1
D	With 2 pcs	
T	With 3 pcs	

*1: ❶When "TA", "TD", "TB", or "TE" is selected as the mounting method, the number of switches is limited to "H" (1 on the head side) for "TA" and "TD", and "R" (1 on the rod side) for "TB" and "TE".

❾ Option

Code	Content	
Blank	Cushion needle position change R (Standard)	*1
S	Cushion needle position change S	
T	Cushion needle position change T	



*1: ❶When mounting type "TA", "TD", "TB", "TE" is selected, the cushion needle position is fixed to "S" (Blank) and cannot be selected.

❿ Accessories

Code	Content		
I	Single Knuckle	*1	
Y	Double Knuckle (Pin and retaining ring included)	*1	
B1	Single Bracket		
B2	Double Yoke Bracket (Pin and retaining ring included)		
B3	Single Bracket		
B4	Trunnion type 2nd bracket (2 pieces/set)		

*1: "I" and "Y" cannot be selected at the same time.

*For combinations of variations and options, please refer to P. 625.

Regarding specifications of custom products Details: refer to P. 854 to 861.

Code	Contents	Code	Contents	Code	Contents
-XR◇◇◇◇	Port/Cushion needle position specification	-XP7	Knuckle fixed by pin driving	-A2	With 2 Rod Nuts
-XK◇	Mounting Bracket Rotational Assembly	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	Rod end Shape change	Refer to Ending P. 11.
-XAQ◇◇	Trunnion Position Specification	-XM1	Tie rod material SUS		
-XP5	Knuckle Pin/Clevis Pin Split Pin	-XT9	Scraper/Rod packing only Fluororubber		

Model No. Example) SCA2-G2/G3 -..... - XP5

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCA2-G2/G3 -..... - FP1

Switch Single Unit Model No. Notation Method

●Switch body + Mounting bracket set

SCA2 - G2 - T2YLH - 40
7 Switch Model No. / 3 Bore Size

●Mounting bracket set

SCA2 - G2 - T - 50
3 Bore Size

●Switch body only

SW - T2YLH
7 Switch Model No.

Specifications

Item		SCA2-G2/G3				
Bore Size mm		ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting, Coolant Proof Type				
Operating Fluid		Compressed Air				
Max. Working Pressure MPa		1.0				
Min. Operating Pressure MPa		0.05				
Proof Pressure MPa		1.6				
Ambient Temperature °C		-10 to 60 (However, no freezing)				
Port Size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Operating piston speed mm/s		50 to 1000 (Please use within the allowable absorbed energy.)				
Cushion		Air Cushion				
Effective air cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)				
Allowable absorbed Energy J	With Cushion	4.29	8.37	15.8	27.9	49.8
	Without Cushion	0.067	0.079	0.079	0.201	0.301
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.				

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Producible stroke (mm)	Min. Stroke (mm)
ø40	25, 50, 75, 100, 150, 200, 250, 300, 350400450500	600	1600	1
ø50			2,000	
ø63			2500	
ø80		700		
ø100		800		

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: In the case of with switch, the minimum stroke changes depending on the mounting method. If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the positions of the two switches so that they are away from each other.
***3: If the maximum stroke is exceeded, the product specifications may not be met depending on the conditions, so please consult us.**

●Minimum stroke with T2YL/T3YL type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (15)	20 (10)	60 (45)	105 (75)	105 (75)	50 (35)	50 (35)
ø50	15 (15)	15 (10)	15 (15)	100 (70)	100 (70)	45 (30)	45 (30)
ø63	15 (15)	15 (10)	15 (15)	105 (75)	105 (75)	50 (35)	50 (35)
ø80	15 (15)	15 (10)	15 (15)	110 (80)	110 (80)	55 (40)	55 (40)
ø100	15 (15)	10 (10)	15 (15)	120 (90)	120 (90)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●Minimum stroke with T2W/T3W/T2WL type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20 (10)	20 (5)	65 (50)	110 (80)	110 (80)	50 (35)	50 (35)
ø50	20 (10)	20 (5)	20 (10)	110 (80)	110 (80)	50 (35)	50 (35)
ø63	20 (10)	20 (5)	20 (10)	115 (85)	115 (85)	55 (40)	55 (40)
ø80	15 (10)	15 (5)	15 (10)	120 (90)	120 (90)	55 (40)	55 (40)
ø100	10 (10)	10 (5)	10 (10)	130 (100)	130 (100)	60 (45)	60 (45)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Cylinder Weight

(Unit: kg)

Bore Size (mm)	Product Weight when stroke (S) = 0 mm							Switch weight	Switch Mounting Bracket Weight	S = Added weight per 10 mm
	Basic type (OO)	Foot Type (LB)	Flange type (FA, FB)	Special flange type (FC)	Single Clevis Type (CA)	Double clevis type (CB)	Trunnion type (TA, TB, TC)		T type	
ø40	0.84	1.01	1.25	0.93	1.16	1.20	1.22	Refer to the mass described in the switch specifications on P. 971	0.024	0.39
ø50	1.23	1.48	1.72	1.34	1.61	1.64	1.77		0.022	0.46
ø63	1.63	2.00	2.72	1.81	2.20	2.25	2.48		0.020	0.50
ø80	2.63	3.37	4.49	2.99	3.90	4.11	3.97		0.026	0.90
ø100	4.24	5.15	6.98	4.79	5.88	6.06	6.81		0.024	1.12

(Example) Product Weight of SCA2-G2-LB-50-200-T2YLH-D
- Product Weight at 0 mm stroke .....1.48 kg
- Added weight at 200 mm stroke .....0.46 × $\frac{200}{100}$ = 0.92 kg
- Weight of 2 T2YLH switches.....0.033×2=0.066kg
- Weight of 2 mounting brackets .....0.022 × 2=0.044 kg
- Product weight.....1.48+0.92+0.066+0.044=2.510 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	62.8	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	52.8	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.2	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	1.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push	2.51×10^2	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	2.27×10^2	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push	3.93×10^2	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3	6.28×10^3	7.07×10^3	7.85×10^3
	Pull	3.57×10^2	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

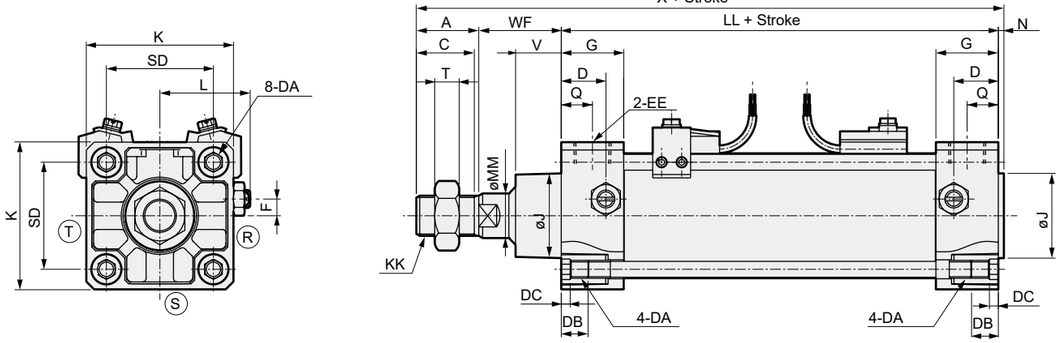
Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket		ø40	ø50	ø63	ø80	ø100
Foot (LB)	*2	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)		S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Single Clevis (CA)		S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Double Clevis (CB)		S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

***1: For the material of the mounting brackets, please refer to P. 646.**
*2: Foot type mounting brackets come in sets of 2.
*3: Mounting bolts are included to each mounting bracket.

Outline Dimension Drawing

● Basic type (00)



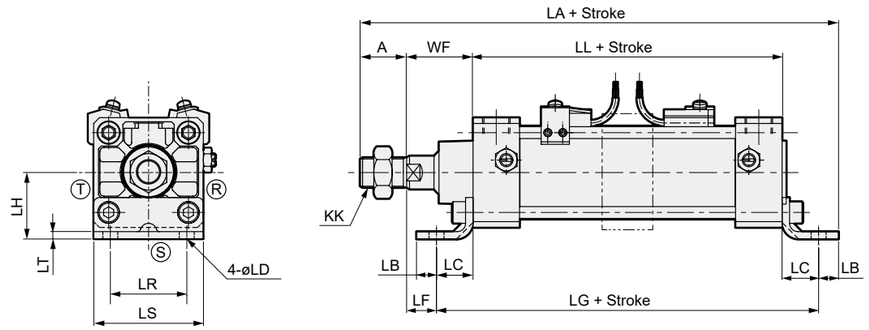
Code	With switch basic type (00)														
Bore Size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL
ø40	22	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14 × 1.5	38 to 39.5	93
ø50	28	27	26	20	M8	12	4	Rc3/8	0	28	38	66	M18 × 1.5	41 to 43.5	101
ø63	28	27	26	22	M8	12	4	Rc3/8	0	30	38	80	M18 × 1.5	47.5 to 50.0	105
ø80	36	32	34	26	M12	16	5	Rc1/2	0	34	43	98	M22 × 1.5	56 to 59	116
ø100	45	41	43	28	M12	16	5	Rc1/2	0	36	51	118	M26 × 1.5	66 to 69	128

Code										
Bore Size (mm)	MM	MN	MO	N	Q	SD	T	V	WF	X
ø40	16	8	14	2	13	40.5	8	17	33.5	150.5
ø50	20	8.5	17	2.5	14	48	11	20	37	168.5
ø63	20	8.5	17	3	15	59	11	20.5	35	171
ø80	25	11	22	3.5	17	74	13	23	48	203.5
ø100	30	13	27	4	18	90	16	30.5	53	230

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

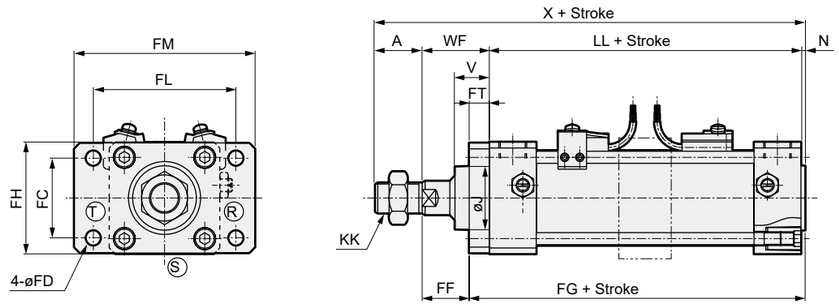
●Axial Foot Type (LB)



Code	Axial Foot Type (LB) Mounting Dimensions													
Bore Size (mm)	A	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT
ø40	22	M14 × 1.5	93	33.5	178	10	19.5	9	14	132	40	40	57	3.2
ø50	28	M18 × 1.5	101	37	200	12	22	9	15	145	40	46	66	4.5
ø63	28	M18 × 1.5	105	35	210	12	30	11	5	165	50	60	80	4.5
ø80	36	M22 × 1.5	116	48	251	14	37	14	11	190	60	74	98	6
ø100	45	M26 × 1.5	128	53	278	21	31	14	22	190	67	80	118	6

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Rod Side Flange Type (FA)

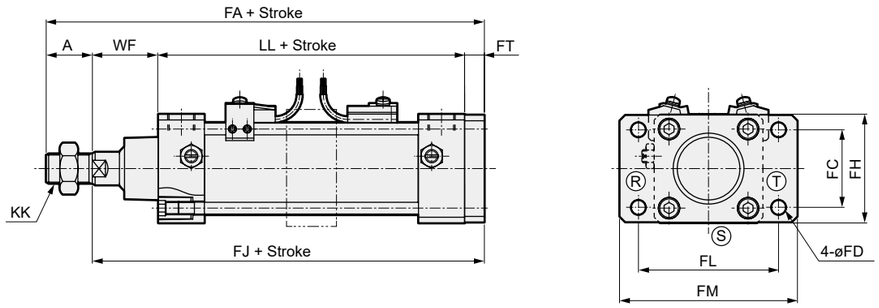


Code	Rod Side Flange Type (FA) Mounting Dimensions															
Bore Size (mm)	A	J	KK	LL	N	V	WF	X	FC	FD	FF	FG	FH	FL	FM	FT
ø40	22	31	M14 × 1.5	93	2	17	33.5	150.5	40	9	21.5	107	57	80	100	12
ø50	28	38	M18 × 1.5	101	2.5	20	37	168.5	47	9	25	115.5	65	85	108	12
ø63	28	38	M18 × 1.5	105	3	20.5	35	171	60	11	19	124	80	106	130	16
ø80	36	43	M22 × 1.5	116	3.5	23	48	203.5	74	14	29	138.5	98	125	153	19
ø100	45	51	M26 × 1.5	128	4	30.5	53	230	88	14	34	151	118	144	180	19

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

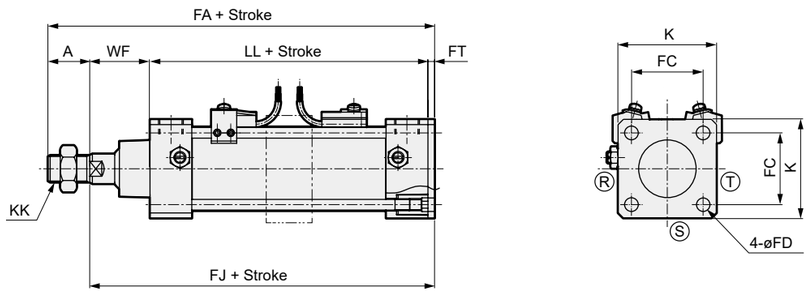
●Head Side Flange Type (FB)



Code / Bore Size (mm)	A	KK	LL	WF	FA	FC	FD	FH	FJ	FL	FM	FT
ø40	22	M14 × 1.5	93	33.5	160.5	40	9	57	138.5	80	100	12
ø50	28	M18 × 1.5	101	37	178	47	9	65	150	85	108	12
ø63	28	M18 × 1.5	105	35	184	60	11	80	156	106	130	16
ø80	36	M22 × 1.5	116	48	219	74	14	98	183	125	153	19
ø100	45	M26 × 1.5	128	53	245	88	14	118	200	144	180	19

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Head side special flange type (FC)

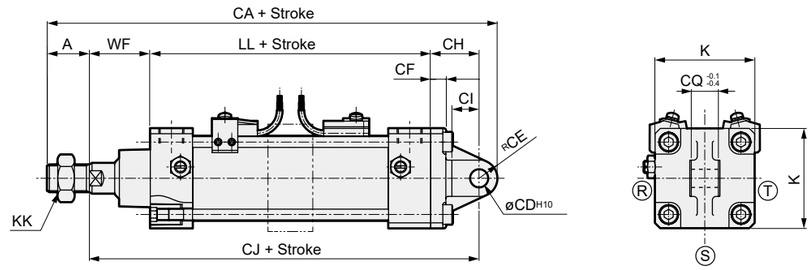


Code / Bore Size (mm)	A	K	KK	LL	WF	FA	FC	FD	FJ	FT
ø40	22	57	M14 × 1.5	93	33.5	153	40.5	9	131	4.5
ø50	28	66	M18 × 1.5	101	37	170.5	4	9	142.5	4.5
ø63	28	80	M18 × 1.5	105	35	172.5	59	9	144.5	4.5
ø80	36	98	M22 × 1.5	116	48	206	74	14	170	6
ø100	45	118	M26 × 1.5	128	53	232	90	14	187	6

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

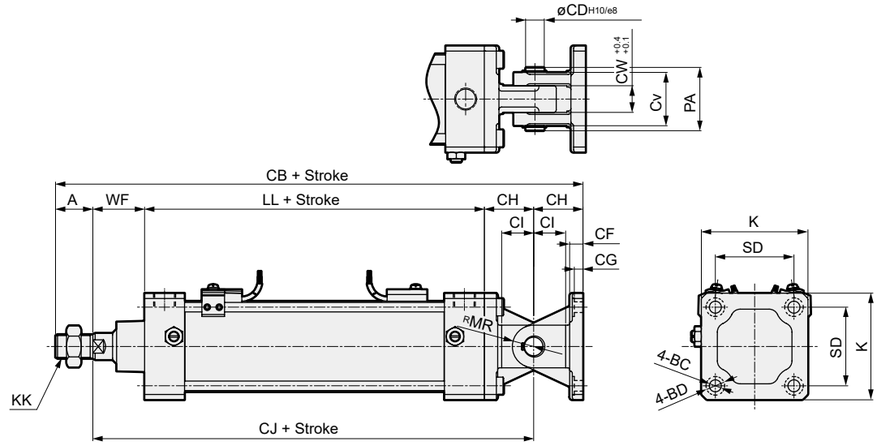
●Single Clevis Type (CA)



Code / Bore Size (mm)	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	CQ
ø40	22	57	M14 × 1.5	93	33.5	192.5	12	12	10	32	18	158.5	18
ø50	28	66	M18 × 1.5	101	37	210	12	12	10	32	18	170	18
ø63	28	80	M18 × 1.5	105	35	221	14	16	10	37	24	177	20
ø80	36	98	M22 × 1.5	116	48	272	20	20	14	52	30	216	28
ø100	45	118	M26 × 1.5	128	53	298	20	20	16	52	30	233	28

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Single Clevis Type (CA) with Bracket (Option Code B2)

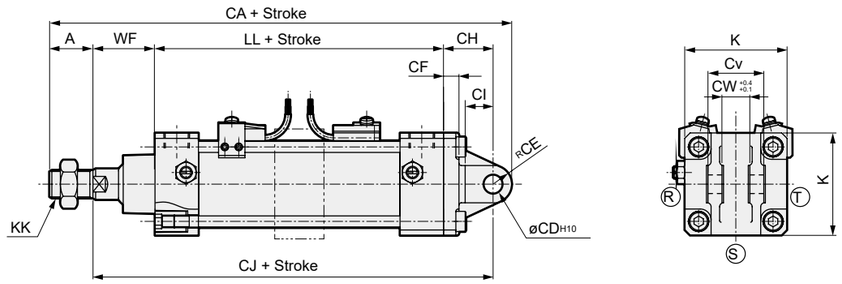


Code / Bore Size (mm)	A	K	KK	LL	WF	CB	CD	CF	CG	CH	CI	CJ	Cv	CW	BC	BD	MR	PA	SD
ø40	22	57	M14 × 1.5	93	33.5	212.5	12	10	6.5	32	18	158.5	36	18	9	14	12	43.5	40.5
ø50	28	66	M18 × 1.5	101	37	230	12	10	6.5	32	18	170	36	18	9	14	12	43.5	48
ø63	28	80	M18 × 1.5	105	35	242	14	10	6.5	37	24	177	40	20	9	14	16	47.5	59
ø80	36	98	M22 × 1.5	116	48	304	20	14	10.5	52	30	216	56	28	14	20	20	64	74
ø100	45	118	M26 × 1.5	128	53	330	20	16	10.5	52	30	233	56	28	14	20	20	64	90

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

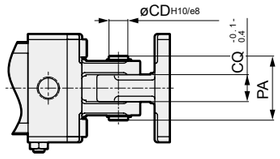
●Double clevis type (CB)

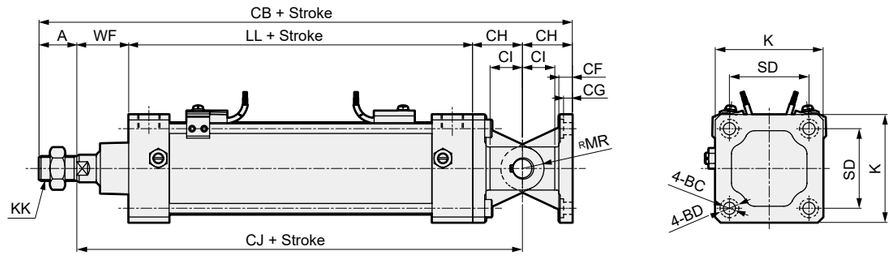


Code / Bore Size (mm)	Double Clevis Type (CB) Mounting Dimensions													
	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	Cv	CW
ø40	22	57	M14 × 1.5	93	33.5	192.5	12	12	10	32	18	158.5	36	18
ø50	28	66	M18 × 1.5	101	37	210	12	12	10	32	18	170	36	18
ø63	28	80	M18 × 1.5	105	35	221	14	16	10	37	24	177	40	20
ø80	36	98	M22 × 1.5	116	48	272	20	20	14	52	30	216	56	28
ø100	45	118	M26 × 1.5	128	53	298	20	20	16	52	30	233	56	28

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Double clevis type (CB) with bracket (Option code B1)



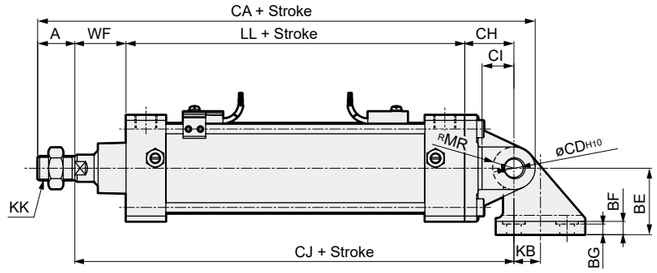


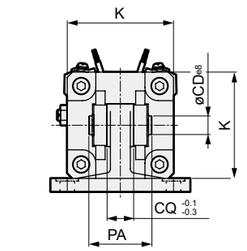
Code / Bore Size (mm)	Double Clevis Type (CB) With Bracket (Option Code B1) Mounting Dimensions																	
	A	K	KK	LL	WF	CB	CD	CF	CG	CH	CI	CJ	CQ	BC	BD	MR	PA	SD
ø40	22	57	M14 × 1.5	93	33.5	232.5	12	10	6.5	32	18	158.5	18	9	14	12	43.5	40.5
ø50	28	66	M18 × 1.5	101	37	250	12	10	6.5	32	18	170	18	9	14	12	43.5	48
ø63	28	80	M18 × 1.5	105	35	263	14	10	6.5	37	24	177	20	9	14	16	47.5	59
ø80	36	98	M22 × 1.5	116	48	336	20	14	10.5	52	30	216	28	14	20	20	64	74
ø100	45	118	M26 × 1.5	128	53	362	20	16	10.5	52	30	233	28	14	20	20	64	90

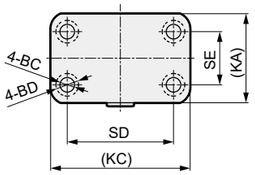
***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Double clevis type (CB) with bracket (Option code B3)





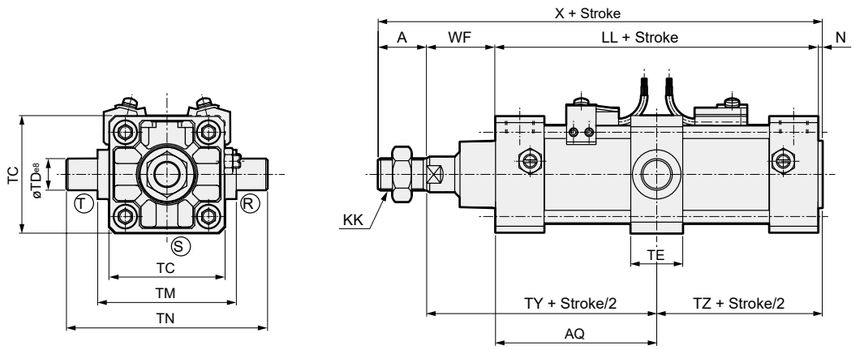


Code / Bore Size (mm)	Double clevis type (CB) with bracket (Option code B3) Mounting dimensions																					
	A	K	KK	LL	WF	CA	CD	CH	CI	CJ	CQ	BC	BD	BE	BF	BG	KA	KB	KC	MR	PA	SD	SE
ø40	22	57	M14 × 1.5	93	33.5	192.5	12	32	18	158.5	18	9	14	40	8	6.5	57	17.5	85	12	43.5	65	35
ø50	28	66	M18 × 1.5	101	37	210	12	32	18	170	18	9	14	40	8	6.5	57	17.5	85	12	43.5	65	35
ø63	28	80	M18 × 1.5	105	35	221	14	37	24	177	20	9	14	50	10	8	67	20	105	16	47.5	80	40
ø80	36	98	M22 × 1.5	116	48	272	20	52	30	216	28	14	20	65	12	10	93	30	130	20	64	100	60
ø100	45	118	M26 × 1.5	128	53	298	20	52	30	233	28	14	20	65	12	10	93	30	130	20	64	100	60

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

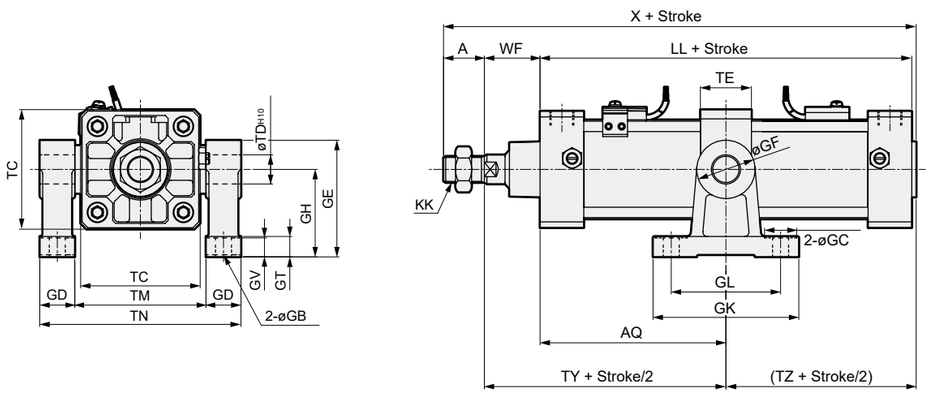
●Intermediate trunnion type (TC)



Code	Intermediate Trunnion Type (TC) Mounting Dimensions														
Bore Size (mm)	A	KK	LL	N	WF	X	AQ	TC	TD	TE	TY	TZ	TM	TN
ø40	22	M14 × 1.5	93	2	33.5	150.5	46.5 + Stroke/2	57	16	30	80	48.5	63	95
ø50	28	M18 × 1.5	101	2.5	37	168.5	50.5 + Stroke/2	67	18	30	87.5	53	80	116
ø63	28	M18 × 1.5	105	3	35	171	52.5 + Stroke/2	82	20	35	87.5	55.5	90	130
ø80	36	M22 × 1.5	116	3.5	48	203.5	58 + Stroke/2	100	25	40	106	61.5	115	165
ø100	45	M26 × 1.5	128	4	53	230	64 + Stroke/2	121	35	50	117	68	135	205

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Intermediate trunnion type (TC) with bracket (Option code B4)

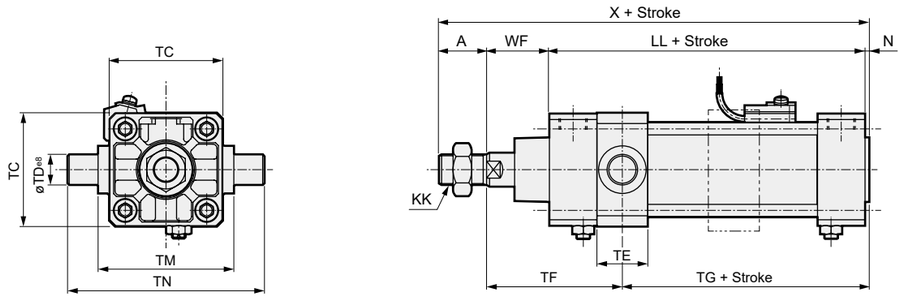


Code	Intermediate Trunnion Type (TC) with Bracket (Option Code B4) Mounting Dimensions																					
Bore Size (mm)	A	KK	LL	WF	X	AQ	TC	TD	TE	TY	TZ	TM	TN	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV
ø40	22	M14 × 1.5	93	33.5	150.5	46.5 + Stroke/2	57	16	30	80	48.5	63	95	9	17	19	61	32	45	80	60	12	11
ø50	28	M18 × 1.5	101	37	168.5	50.5 + Stroke/2	67	18	30	87.5	53	80	116	9	17	19	63	36	45	85	65	12	11
ø63	28	M18 × 1.5	105	35	171	52.5 + Stroke/2	82	20	35	87.5	55.5	90	130	11	22	24	80	40	60	100	75	14	13
ø80	36	M22 × 1.5	116	48	203.5	58 + Stroke/2	100	25	40	106	61.5	115	165	14	24	26	85	50	60	115	85	14	13
ø100	45	M26 × 1.5	128	53	230	64 + Stroke/2	121	35	50	117	68	135	205	14	24	35	107	64	75	130	100	17	16

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

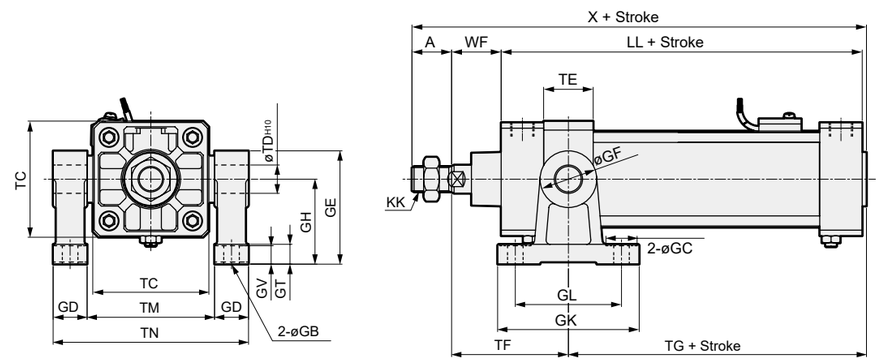
●Rod side trunnion type (TA)



Code	Rod Side Trunnion Type (TA) Mounting Dimensions													
Bore Size (mm)	A	KK	LL	N	WF	X	TC	TD	TE	TF	TG	TM	TN
ø40	22	M14 × 1.5	93	2	33.5	150.5	57	16	30	74.5	54	63	95
ø50	28	M18 × 1.5	101	2.5	37	168.5	67	18	30	80	60.5	80	116
ø63	28	M18 × 1.5	105	3	35	171	82	20	35	82.5	60.5	90	130
ø80	36	M22 × 1.5	116	3.5	48	203.5	100	25	40	102	65.5	115	165
ø100	45	M26 × 1.5	128	4	53	230	121	35	50	114	71	135	205

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Rod side trunnion type (TA) with bracket (Option code B4)

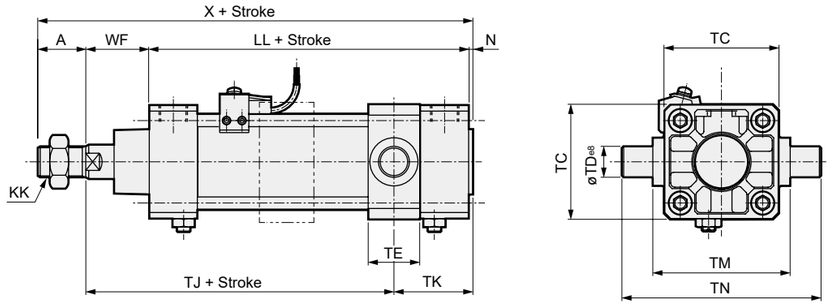


Code	Rod Side Trunnion Type (TA) with Bracket (Option Code B4) Mounting Dimensions																					
Bore Size (mm)	A	KK	LL	WF	X	TC	TD	TE	TF	TG	TM	TN	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV
ø40	22	M14 × 1.5	93	33.5	150.5	57	16	30	74.5	54	63	95	9	17	19	61	32	45	80	60	12	11
ø50	28	M18 × 1.5	101	37	168.5	67	18	30	80	60.5	80	116	9	17	19	63	36	45	85	65	12	11
ø63	28	M18 × 1.5	105	35	171	82	20	35	82.5	60.5	90	130	11	22	24	80	40	60	100	75	14	13
ø80	36	M22 × 1.5	116	48	203.5	100	25	40	102	65.5	115	165	14	24	26	85	50	60	115	85	14	13
ø100	45	M26 × 1.5	128	53	230	121	35	50	114	71	135	205	14	24	35	107	64	75	130	100	17	16

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

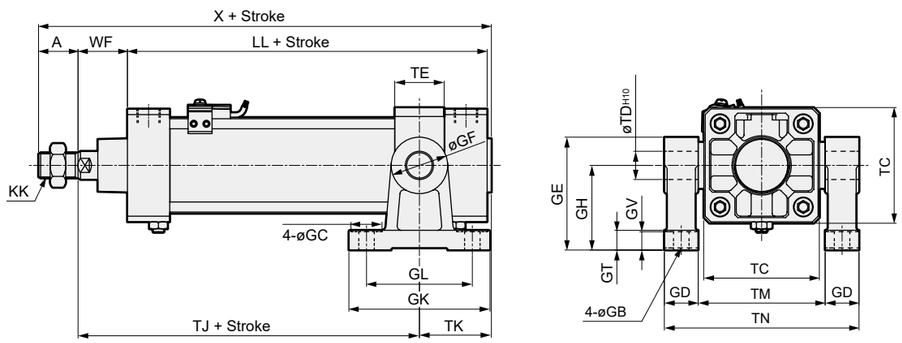
●Head Side Trunnion Type (TB)



Code	Head Side Trunnion Type (TB) Mounting Dimensions												
Bore Size (mm)	A	KK	LL	N	WF	X	TC	TD	TE	TJ	TK	TM	TN
ø40	22	M14 × 1.5	93	2	33.5	150.5	57	16	30	85	43.5	63	95
ø50	28	M18 × 1.5	101	2.5	37	168.5	67	18	30	94.5	46	80	116
ø63	28	M18 × 1.5	105	3	35	171	82	20	35	92	51	90	130
ø80	36	M22 × 1.5	116	3.5	48	203.5	100	25	40	109.5	58	115	165
ø100	45	M26 × 1.5	128	4	53	230	121	35	50	119.5	65.5	135	205

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Head side trunnion type (TB) with bracket (Option code B4)

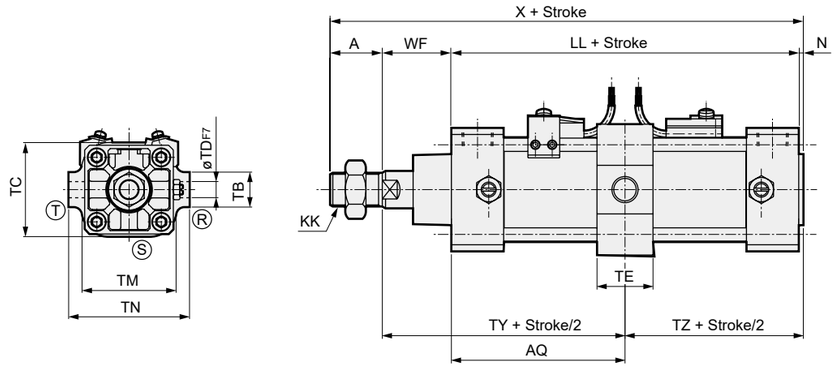


Code	Head Side Trunnion Type (TB) with Bracket (Option Code B4) Mounting Dimensions																				
Bore Size (mm)	A	KK	LL	WF	X	TC	TD	TE	TJ	TK	TM	TN	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV
ø40	22	M14 × 1.5	93	33.5	150.5	57	16	30	85	43.5	63	95	9	17	19	61	32	45	80	60	12	11
ø50	28	M18 × 1.5	101	37	168.5	67	18	30	94.5	46	80	116	9	17	19	63	36	45	85	65	12	11
ø63	28	M18 × 1.5	105	35	171	82	20	35	92	51	90	130	11	22	24	80	40	60	100	75	14	13
ø80	36	M22 × 1.5	116	48	203.5	100	25	40	109.5	58	115	165	14	24	26	85	50	60	115	85	14	13
ø100	45	M26 × 1.5	128	53	230	121	35	50	119.5	65.5	135	205	14	24	35	107	64	75	130	100	17	16

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

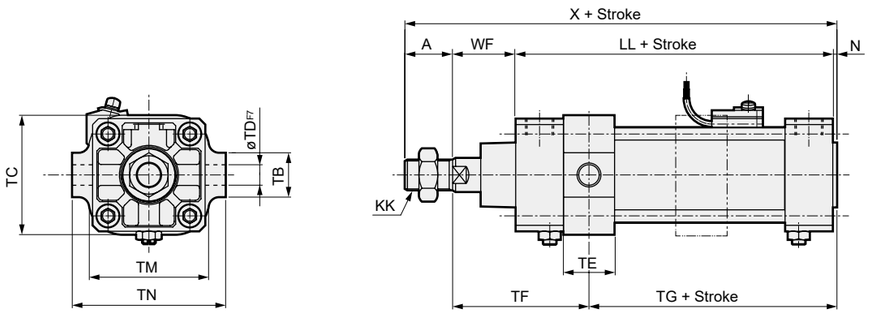
●Intermediate tapped trunnion type (TF)



Code	Intermediate tapped trunnion type (TF) Mounting dimensions														
Bore Size (mm)	A	KK	LL	N	WF	X	AQ	TB	TC	TD	TE	TY	TZ	TM	TN
ø50	28	M18 × 1.5	101	2.5	37	168.5	50.5 + Stroke/2	26	70	12	30	87.5	53	70	90
ø63	28	M18 × 1.5	105	3	35	171	52.5 + Stroke/2	30	86	14	35	87.5	55.5	86	104
ø80	36	M22 × 1.5	116	3.5	48	203.5	58 + Stroke/2	35	105	20	40	106	61.5	105	134
ø100	45	M26 × 1.5	128	4	53	230	64 + Stroke/2	40	123	20	40	117	68	127	150

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

●Rod side tapped trunnion type (TD)

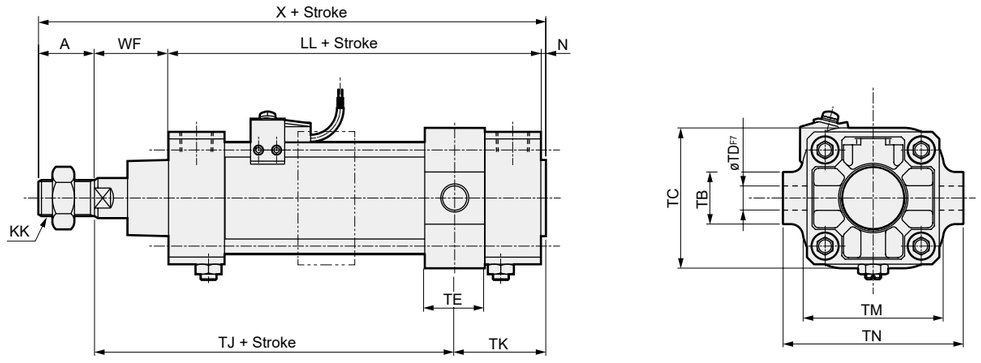


Code	Rod side tapped trunnion type (TD) Mounting dimensions													
Bore Size (mm)	A	KK	LL	N	WF	X	TB	TC	TD	TE	TF	TG	TM	TN
ø50	28	M18 × 1.5	101	2.5	37	168.5	26	70	12	30	80	60.5	70	90
ø63	28	M18 × 1.5	105	3	35	171	30	86	14	35	82.5	60.5	86	104
ø80	36	M22 × 1.5	116	3.5	48	203.5	35	105	20	40	102	65.5	105	134
ø100	45	M26 × 1.5	128	4	53	230	40	123	20	40	109	76	127	150

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Head side tapped trunnion type (TE)



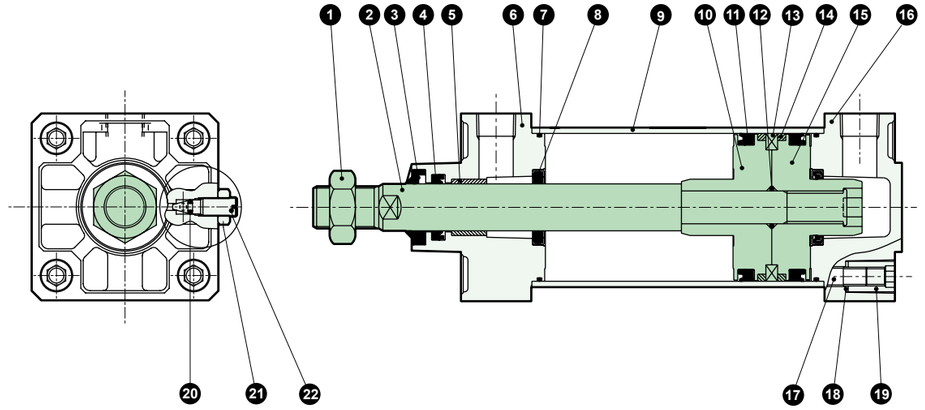
Code	Head side tapped trunnion type (TE) Mounting dimensions													
Bore Size (mm)	A	KK	LL	N	WF	X	TB	TC	TD	TE	TJ	TK	TM	TN
ø50	28	M18 × 1.5	101	2.5	37	168.5	26	70	12	30	94.5	46	70	90
ø63	28	M18 × 1.5	105	3	35	171	30	86	14	35	92	51	86	104
ø80	36	M22 × 1.5	116	3.5	48	203.5	35	105	20	40	109.5	58	105	134
ø100	45	M26 × 1.5	128	4	53	230	40	123	20	40	124.5	60.5	127	150

***1: For dimensions with each switch, please refer to P. 850 to 853.**
***2: For outer dimensions diagram of accessories, refer to P. 644.**

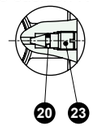
Internal Structure Diagram/Material

● Protection structure level: NBR Packing
SCA2 - G2

● Protection structure level: FKM Packing
SCA2 - G3



No cushion N



Part No.	Part Name		Material	Remarks
1	Rod Nut		Stainless Steel	
2	Piston Rod		Stainless Steel	Industrial Hard Chrome Plating
3	Scraper	G2	Nitrile Rubber	
		G3	Fluoro Rubber	
4	Rod Packing	G2	Nitrile Rubber	
		G3	Fluoro Rubber	
5	Bushing		Oil-Impregnated Bearing Alloy	
6	Rod Cover		Aluminum Alloy	Painting
7	Cylinder Gasket	G2	Nitrile Rubber	
		G3	Fluoro Rubber	
8	Cushion Packing	G2	Nitrile Rubber, Steel	
		G3	Fluororubber, Steel	
9	Cylinder Tube		Aluminum Alloy	Hard Anodized
10	Piston R		Aluminum Alloy	Chromate
11	Piston Packing	G2	Nitrile Rubber	
		G3	Fluoro Rubber	

Part No.	Part Name		Material	Remarks
12	Piston Gasket	G2	Nitrile Rubber	
		G3	Fluoro Rubber	
13	Magnet		Plastic	
14	Wear Ring		Polyacetal	
15	Piston H		Aluminum Alloy	Chromate
16	Head Cover		Aluminum Alloy	Painting
17	Tie Rod		Steel	Zinc Chromate
18	Belleville washer		Steel	Black Oxide
19	Round Nut		Steel	Zinc Chromate
20	Needle Gasket	G2	Nitrile Rubber	
		G3	Fluoro Rubber	
21	Needle nut		Copper Alloy	Nickel Plating
22	Cushion Needle		Copper Alloy	Nickel Plating
23	Cushion plug		Copper Alloy	Nickel Plating

For maintenance parts, please visit the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts.

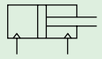


Medium Bore Size Cylinder

Double acting/coil scraper　Double acting/anti-spatter adherence type

SCA2-G1 Series　SCA2-G4 Series

●Bore size: ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Without Switch
(Built-in magnet for switch)

SCA2 - G4 ——— LB - 40 - B - 100 ——— S - I
1 2 3 4 5 8 9

With Switch
(Built-in magnet for switch)

SCA2 - G4 ——— LB - 40 - B - 100 - T2YD - R - S - I
1 2 3 4 5 6 7 8 9

Strong magnetic field resistant
(HO, HOY switch) With switch
(Built-in magnet for switch)

SCA2 - G4 - L2 - LB - 40 - B - 100 - H0Y - R - S - I
1 2 3 4 5 6 7 8 9

1 Model No. / 2 Mounting type / 3 Bore Size / 4 Cushion / 5 Stroke / 6 Switch Model No. / 7 Number of Switches / 8 Option / 9 Accessories

❶ Model No.

Code	Contents
G1	Double-acting, Coil scraper type
G4	Double Acting, Spatter Adhesion Prevention Type

❷ Mounting type

Mounting brackets are included to the product and shipped. (However, trunnion types are shipped assembled.)

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
FC	Head side special flange type	
CA	Single Clevis Type	
CB	Double Clevis Type	
TC	Intermediate Trunnion Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	
TF	Intermediate tapped trunnion type (ø50 to ø100)	
TD	Rod side tapped trunnion type (ø50 to ø100)	
TE	Head side tapped trunnion type (ø50 to ø100)	

❸ Bore Size (mm)

Code	Contents
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❹ Cushion

Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

❺ Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø40	1 to 600	Every 1 mm
ø50	1 to 600	
ø63	1 to 600	
ø80	1 to 700	
ø100	1 to 800	

Note: For minimum stroke with switch, refer to P. 816.

❻ Switch Model No.

For switch details, please refer to P. 971. Switches are included to the product and shipped.

	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State Contact	2-Color for AC Magnetic Field	2-wire	—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
Reed	1-Color For strong magnetic field	2-wire	110	12/24	7 to 20	5 to 50	H0□	-	
	2-Color For strong magnetic field		—	24 ± 10%	—	5 to 20	H0Y□	-	

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length" table.
*2: Switches other than the model No.s listed above are also available. (Custom Product) For details, see P. 971.

***Lead wire length**

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

Example) Lead wire length
1 m T2WLH
3 m T2WLH3
5 m T2YD5

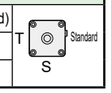
❼ Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

*1: ❶When "TA", "TD", "TB", or "TE" is selected as the mounting method, the number of switches is limited to "H" (1 on the head side) for "TA" and "TD", and "R" (1 on the rod side) for "TB" and "TE".

❽ Option

Code	Content
Blank	Cushion needle position R (Standard)
S	Cushion needle position S
T	Cushion needle position T



*1: ❶When mounting type "TA", "TD", "TB", "TE" is selected, the cushion needle position is fixed to "S" (Blank) and cannot be selected.

❾ Accessories

Code	Content	
I	Single Knuckle *1	
Y	Double Knuckle (Pin and retaining ring included) *1	
B1	Single Bracket	
B2	Double Yoke Bracket (Pin and retaining ring included)	
B3	Single Bracket	
B4	Trunnion type 2nd bracket (2 pieces/set)	

*1: "I" and "Y" cannot be selected at the same time.

*For combinations of variations and options, see P. 625.

Regarding specifications of custom products

Details: refer to P. 854 to 861.

Code	Contents	Code	Contents	Code	Contents
-XR◇◇◇◇	Port/Cushion needle position specification	-XP7	Knuckle fixed by pin driving	-T2	Fluorine Packing Type
-XK◇	Mounting Bracket Rotational Assembly	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	-A2	With 2 Rod Nuts
-XAQ◇◇	Trunnion Position Specification	-XM1	Tie rod material SUS	Rod end Shape change	Refer to Ending P. 11.
-XP5	Knuckle Pin/Clevis Pin Split Pin	-XT9	Scraper/Rod packing only Fluororubber		

Model No. Example) SCA2-G1/G4 -..... -XP5

H type switch single item model No. notation method

●Switch body + Mounting bracket set
SCA2-L2 - H0 - 40
6 Switch Model No. / 3 Bore Size

●Switch body only
SW - H0
6 Switch Model No.

●Mounting bracket set
SCA2-L2 - H - 40
3 Bore Size

T2YD type switch single item model No. notation method

●Switch body + Mounting bracket set
SCA2 - T2YD - 40
6 Switch Model No. / 3 Bore Size

●Switch body only
SW - T2YD
6 Switch Model No.

●Mounting bracket set
SCA2 - T - 40
3 Bore Size

Specifications

Item		SCA2-G1/G4, SCA2-G1L2/G4L2				
Bore Size mm		ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type				
Operating Fluid		Compressed Air				
Max. Working Pressure MPa		1.0				
Min. Operating Pressure MPa		0.05				
Proof Pressure MPa		1.6				
Ambient Temperature °C		–10 to 60 (Provided that freezing does not occur)				
Port Size		Rc 1/4	Rc 3/8		Rc 1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Operating Piston Speed mm/s		50 to 1000 (Use within allowable absorbed energy.)				
Cushion		Air Cushion				
Effective air cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)				
Allowable absorbed energy J	With Cushion	4.29	8.37	15.8	27.9	49.8
	Without Cushion	0.067	0.079	0.079	0.201	0.301
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.				

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Producible Stroke (mm)	Min. Stroke (mm)
ø40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	1600	1
ø50			2,000	
ø63			2500	
ø80		700		
ø100		800		

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: In the case of with switch, the minimum stroke changes depending on the mounting method. Please refer to the table below.
***3: If the maximum stroke is exceeded, the product specifications may not be met depending on the conditions, so please consult us.**

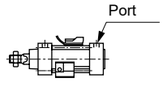
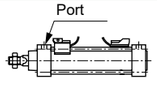
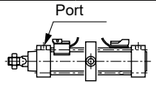
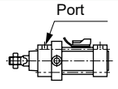
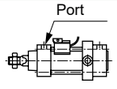
Minimum stroke with switch (T2YD type switch)

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.	Position detection at the head side stroke end with head side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1	1
ø40	20	20	60	105	105	50	50
ø50	15	15	15	100	100	45	45
ø63	15	15	15	105	105	50	50
ø80	15	15	15	110	110	55	55
ø100	15	10	15	120	120	60	60

Note: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Minimum stroke with switch (H type switch)

(Unit: mm)

Diagram	When mounting on different surfaces	When mounting on the same surface		Intermediate (tapped) trunnion mounting		Rod side (tapped) trunnion mounting	Head side (tapped) trunnion mounting
						 Position detection at the rod side stroke end is not possible.	 Position detection at the head side stroke end is not possible.
Number of Switches / Bore size (mm)	2	1	2	1	2	1	1
ø40	20	10	50	86	86	38	38
ø50	20	10	50	86	86	36	36
ø63	20	10	35	91	91	41	41
ø80	20	10	20	96	96	44	44
ø100	20	10	20	106	106	50	50

Note: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Cylinder Weight

(Unit: kg)

Bore Size (mm)	Product Weight when stroke (S) = 0 mm							Switch weight	Switch Mounting Bracket Weight		S=100 mm Added weight per
	Basic Type (00)	Foot Type (LB)	Flange type (FA, FB)	Special flange type (FC)	Single Clevis Type (CA)	Double clevis type (CB)	Trunnion type (TA, TB, TC)		T type	H type	
ø40	0.84	1.01	1.25	0.93	1.16	1.20	1.22	Refer to the mass described in the switch specifications on P. 971	0.024	0.028	0.39
ø50	1.23	1.48	1.72	1.34	1.61	1.64	1.77		0.022	0.026	0.46
ø63	1.63	2.00	2.72	1.81	2.20	2.25	2.48		0.020	0.024	0.50
ø80	2.63	3.37	4.49	2.99	3.90	4.11	3.97		0.026	0.029	0.90
ø100	4.24	5.15	6.98	4.79	5.88	6.06	6.81		0.024	0.028	1.12

(Example) Product weight of SCA2-G4-LB-50B-200-HO-D
- Product Weight at 0 mm stroke .....1.48 kg
- Added weight at 200 mm stroke .....0.46 × $\frac{200}{100}$ = 0.92 kg
- Weight of 2 HO switches.....0.076×2=0.152 kg
- Weight of 2 mounting brackets.....0.026×2=0.052 kg
- Product weight.....1.48+0.92+0.152+0.052=2.604 kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	62.8	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	52.8	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.2	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	1.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push	2.51×10^2	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	2.27×10^2	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push	3.93×10^2	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3	6.28×10^3	7.07×10^3	7.85×10^3
	Pull	3.57×10^2	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

Mounting Bracket Model No. Notation Method

Bore Size (mm) / Mounting bracket	ø40	ø50	ø63	ø80	ø100
Foot (LB) *2	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Single Clevis (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Double Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

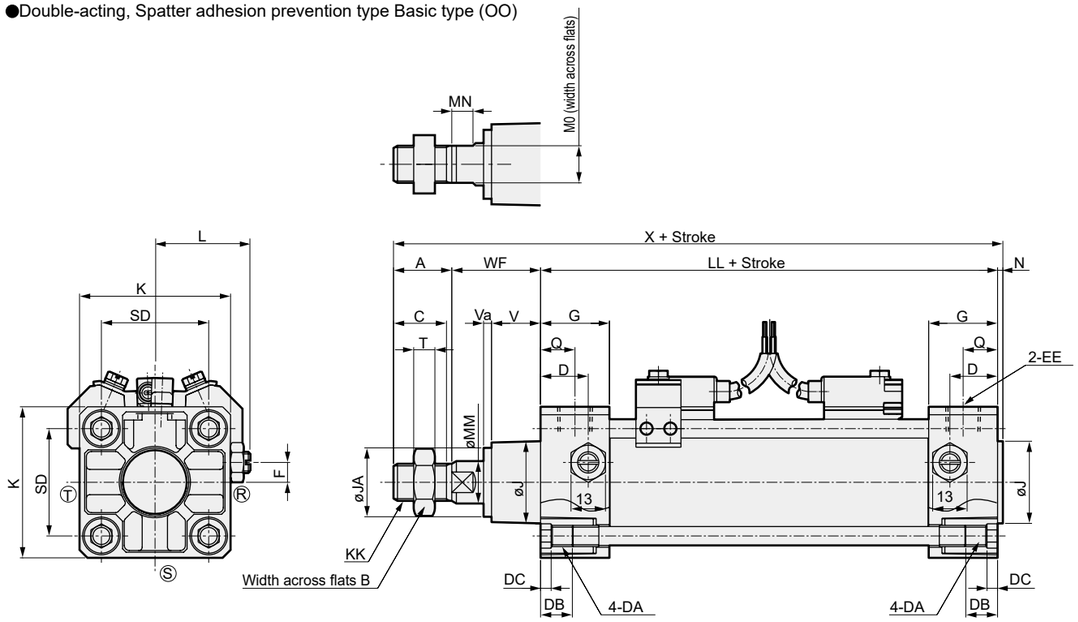
***1: For the material of the mounting brackets, please refer to P. 646.**
*2: Foot type mounting brackets come in sets of 2.
*3: Mounting bolts are included to each mounting bracket.

G1 External dimension diagram

Same dimensions as double-acting, single rod type. Please refer to P. 632 to 642.

Outline Dimension Drawing

●Double-acting, Spatter adhesion prevention type Basic type (OO)



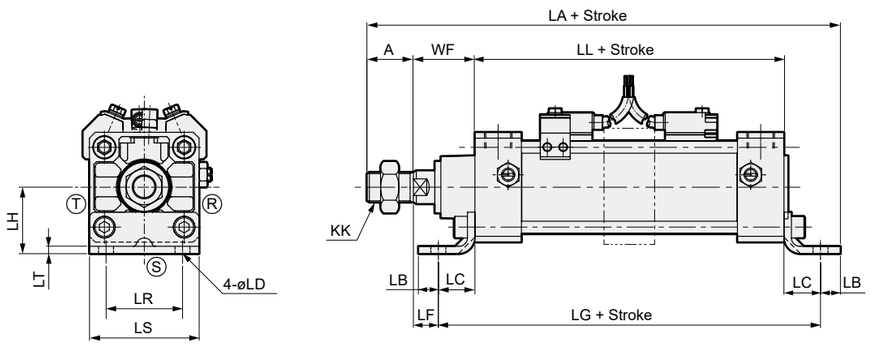
Code	Basic Type (OO) Basic Dimensions													
Bore Size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	JA	K	KK
ø40	22	22	20	18	M8	12	4	Rc 1/4	7.5	26	31	26	57	M14 × 1.5
ø50	28	27	26	20	M8	12	4	Rc 3/8	0	28	38	32	66	M18 × 1.5
ø63	28	27	26	22	M8	12	4	Rc 3/8	0	30	38	32	80	M18 × 1.5
ø80	36	32	34	26	M12	16	5	Rc 1/2	0	34	43	37	98	M22 × 1.5
ø100	45	41	43	28	M12	16	5	Rc 1/2	0	36	51	42	118	M26 × 1.5

Code	Basic Type (OO) Basic Dimensions												
Bore Size (mm)	L	LL	MM	MN	MO	N	Q	SD	T	V	Va		WF	X
											G1	G4		
ø40	38 to 39.5	93	16	8	14	2	13	40.5	8	18.5	0	3	33.5	150.5
ø50	41 to 43.5	101	20	8.5	17	2.5	14	48	11	20.5	0	3	37	168.5
ø63	47.5 to 50.0	105	20	8.5	17	3	15	59	11	21	0	3	35	171
ø80	56 to 59	116	25	11	22	3.5	17	74	13	23.5	0	3	48	203.5
ø100	66 to 69	128	30	13	27	4	18	90	16	32	0	2	53	230

*1: ⓇⓈⓉindicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

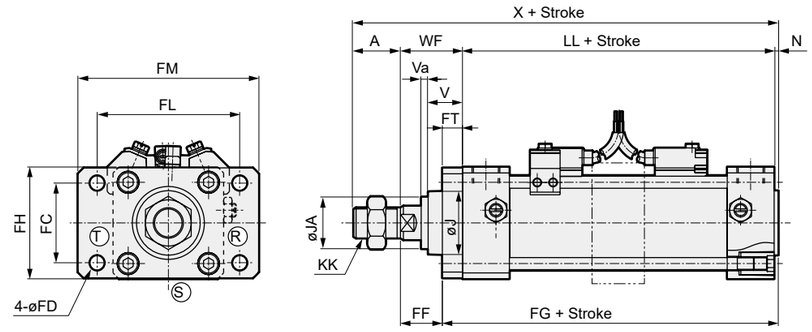
●Axial Foot Type (LB)



Code	Axial Foot Type (LB) Mounting Dimensions													
Bore Size (mm)	A	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT
ø40	22	M14 × 1.5	93	33.5	178	10	19.5	9	14	132	40	40	57	3.2
ø50	28	M18 × 1.5	101	37	200	12	22	9	15	145	40	46	66	4.5
ø63	28	M18 × 1.5	105	35	210	12	30	11	5	165	50	60	80	4.5
ø80	36	M22 × 1.5	116	48	251	14	37	14	11	190	60	74	98	6
ø100	45	M26 × 1.5	128	53	278	21	31	14	22	190	67	80	118	6

*1:ⓇⓈⓉindicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

●Rod Side Flange Type (FA)

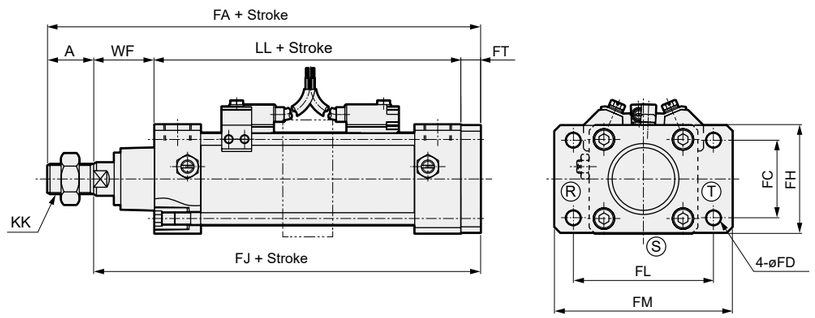


Code	Rod Side Flange Type (FA) Mounting Dimensions																	
Bore Size (mm)	A	J	JA	KK	LL	N	V	Va		WF	X	FC	FD	FF	FG	FH	FL	FM	FT
								G1	G4										
ø40	22	31	26	M14 × 1.5	93	2	18.5	0	3	33.5	150.5	40	9	21.5	107	57	80	100	12
ø50	28	38	32	M18 × 1.5	101	2.5	20.5	0	3	37	168.5	47	9	25	115.5	65	85	108	12
ø63	28	38	32	M18 × 1.5	105	3	21	0	3	35	171	60	11	19	124	80	106	130	16
ø80	36	43	37	M22 × 1.5	116	3.5	23.5	0	3	48	203.5	74	14	29	138.5	98	125	153	19
ø100	45	51	42	M26 × 1.5	128	4	32	0	2	53	230	88	14	34	151	118	144	180	19

*1:ⓇⓈⓉindicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

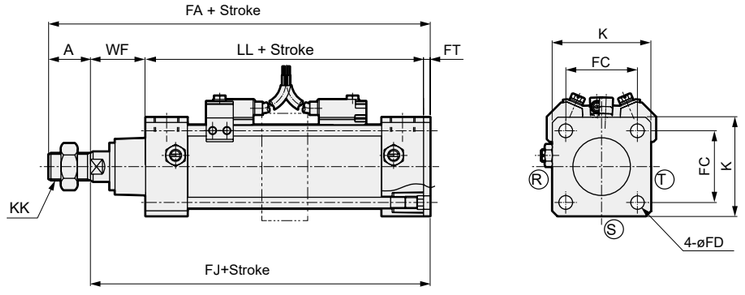
●Head Side Flange Type (FB)



Code	Head Side Flange Type (FB) Mounting Dimensions											
Bore Size (mm)	A	KK	LL	WF	FA	FC	FD	FH	FJ	FL	FM	FT
ø40	22	M14 × 1.5	93	33.5	160.5	40	9	57	138.5	80	100	12
ø50	28	M18 × 1.5	101	37	178	47	9	65	150	85	108	12
ø63	28	M18 × 1.5	105	35	184	60	11	80	156	106	130	16
ø80	36	M22 × 1.5	116	48	219	74	14	98	183	125	153	19
ø100	45	M26 × 1.5	128	53	245	88	14	118	200	144	180	19

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

●Head side special flange type (FC)

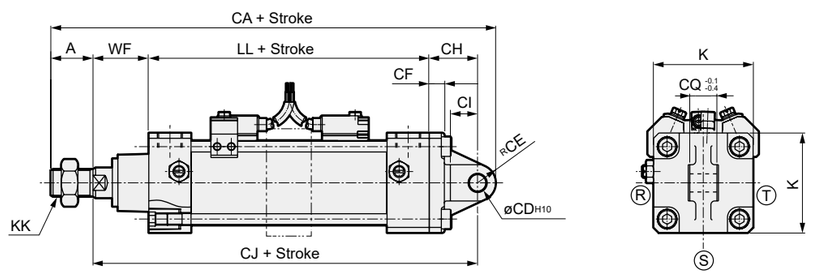


Code	Head side special flange type (FC) Mounting dimensions									
Bore Size (mm)	A	K	KK	LL	WF	FA	FC	FD	FJ	FT
ø40	22	57	M14 × 1.5	93	33.5	153	40.5	9	131	4.5
ø50	28	66	M18 × 1.5	101	37	170.5	4	9	142.5	4.5
ø63	28	80	M18 × 1.5	105	35	172.5	59	9	144.5	4.5
ø80	36	98	M22 × 1.5	116	48	206	74	14	170	6
ø100	45	118	M26 × 1.5	128	53	232	90	14	187	6

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

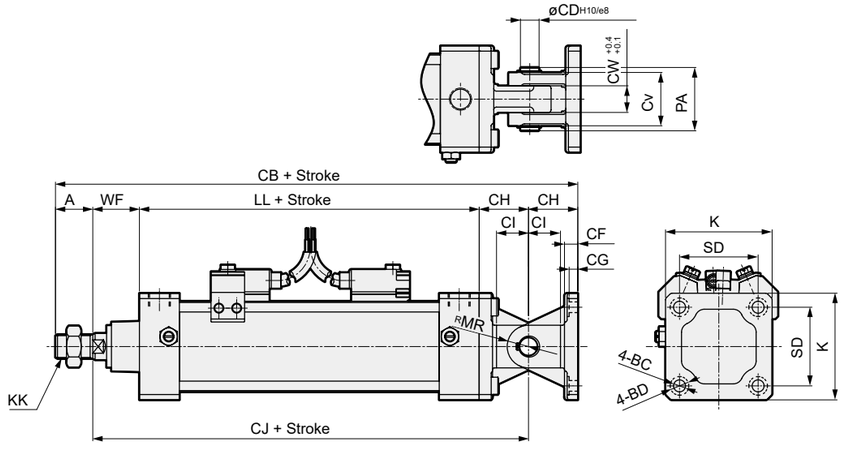
●Single Clevis Type (CA)



Code	Single Clevis Type (CA) Mounting Dimensions												
Bore Size (mm)	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	CQ
ø40	22	57	M14 × 1.5	93	33.5	192.5	12	12	10	32	18	158.5	18
ø50	28	66	M18 × 1.5	101	37	210	12	12	10	32	18	170	18
ø63	28	80	M18 × 1.5	105	35	221	14	16	10	37	24	177	20
ø80	36	98	M22 × 1.5	116	48	272	20	20	14	52	30	216	28
ø100	45	118	M26 × 1.5	128	53	298	20	20	16	52	30	233	28

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

●Single Clevis Type (CA) with Bracket (Option Code B2)

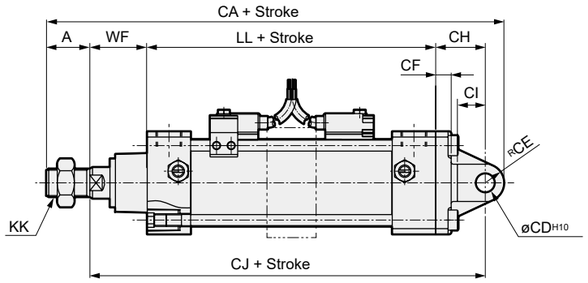


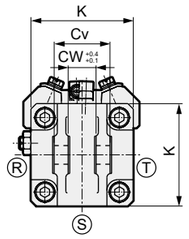
Code	Single Clevis Type (CA) With Bracket (Option Code B2) Mounting Dimensions																		
Bore Size (mm)	A	K	KK	LL	WF	CB	CD	CF	CG	CH	CI	CJ	Cv	CW	BC	BD	MR	PA	SD
ø40	22	57	M14 × 1.5	93	33.5	212.5	12	10	6.5	32	18	158.5	36	18	9	14	12	43.5	40.5
ø50	28	66	M18 × 1.5	101	37	230	12	10	6.5	32	18	170	36	18	9	14	12	43.5	48
ø63	28	80	M18 × 1.5	105	35	242	14	10	6.5	37	24	177	40	20	9	14	16	47.5	59
ø80	36	98	M22 × 1.5	116	48	304	20	14	10.5	52	30	216	56	28	14	20	20	64	74
ø100	45	118	M26 × 1.5	128	53	330	20	16	10.5	52	30	233	56	28	14	20	20	64	90

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Double clevis type (CB)

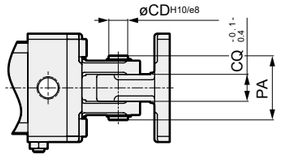


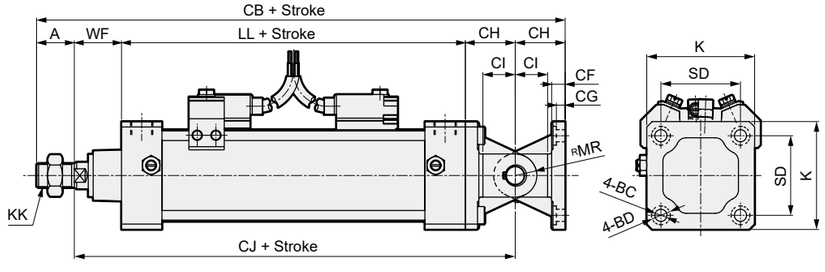


Code	Double Clevis Type (CB) Mounting Dimensions													
Bore Size (mm)	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	Cv	CW
ø40	22	57	M14 × 1.5	93	33.5	192.5	12	12	10	32	18	158.5	36	18
ø50	28	66	M18 × 1.5	101	37	210	12	12	10	32	18	170	36	18
ø63	28	80	M18 × 1.5	105	35	221	14	16	10	37	24	177	40	20
ø80	36	98	M22 × 1.5	116	48	272	20	20	14	52	30	216	56	28
ø100	45	118	M26 × 1.5	128	53	298	20	20	16	52	30	233	56	28

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

●Double clevis type (CB) with bracket (Option code B1)



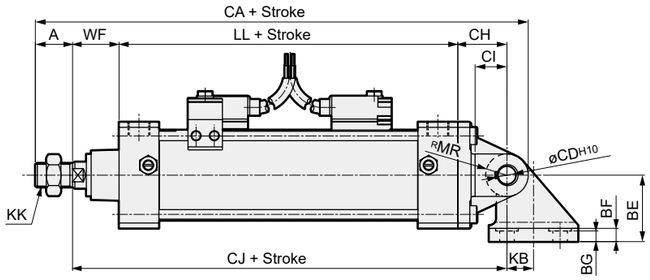


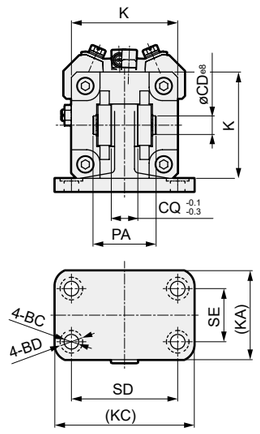
Code	Double Clevis Type (CB) With Bracket (Option Code B1) Mounting Dimensions																	
Bore Size (mm)	A	K	KK	LL	WF	CB	CD	CF	CG	CH	CI	CJ	CQ	BC	BD	MR	PA	SD
ø40	22	57	M14 × 1.5	93	33.5	232.5	12	10	6.5	32	18	158.5	18	9	14	12	43.5	40.5
ø50	28	66	M18 × 1.5	101	37	250	12	10	6.5	32	18	170	18	9	14	12	43.5	48
ø63	28	80	M18 × 1.5	105	35	263	14	10	6.5	37	24	177	20	9	14	16	47.5	59
ø80	36	98	M22 × 1.5	116	48	336	20	14	10.5	52	30	216	28	14	20	20	64	74
ø100	45	118	M26 × 1.5	128	53	362	20	16	10.5	52	30	233	28	14	20	20	64	90

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Double clevis type (CB) with bracket (Option code B3)



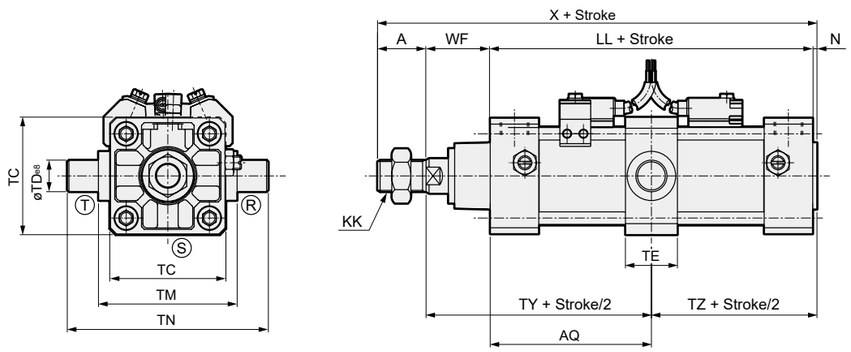


Code	Double clevis type (CB) with bracket (Option code B3) Mounting dimensions																					
Bore Size (mm)	A	K	KK	LL	WF	CA	CD	CH	CI	CJ	CQ	BC	BD	BE	BF	BG	KA	KB	KC	MR	PA	SD	SE
ø40	22	57	M14 × 1.5	93	33.5	192.5	12	32	18	158.5	18	9	14	40	8	6.5	57	17.5	85	12	43.5	65	35
ø50	28	66	M18 × 1.5	101	37	210	12	32	18	170	18	9	14	40	8	6.5	57	17.5	85	12	43.5	65	35
ø63	28	80	M18 × 1.5	105	35	221	14	37	24	177	20	9	14	50	10	8	67	20	105	16	47.5	80	40
ø80	36	98	M22 × 1.5	116	48	272	20	52	30	216	28	14	20	65	12	10	93	30	130	20	64	100	60
ø100	45	118	M26 × 1.5	128	53	298	20	52	30	233	28	14	20	65	12	10	93	30	130	20	64	100	60

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

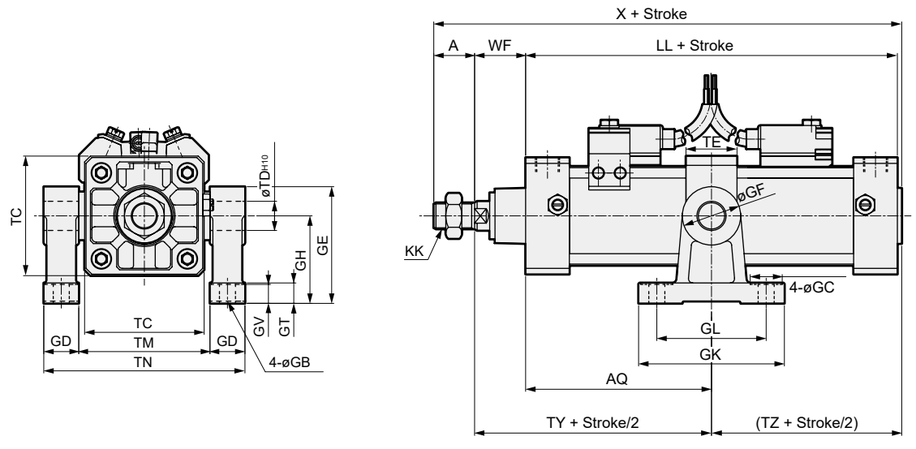
● Intermediate Trunnion Type (TC)



Code	Intermediate Trunnion Type (TC) Mounting Dimensions														
Bore Size (mm)	A	KK	LL	N	WF	X	AQ	TC	TD	TE	TY	TZ	TM	TN
ø40	22	M14 × 1.5	93	2	33.5	150.5	46.5 + Stroke/2	57	16	30	80	48.5	63	95
ø50	28	M18 × 1.5	101	2.5	37	168.5	50.5 + Stroke/2	67	18	30	87.5	53	80	116
ø63	28	M18 × 1.5	105	3	35	171	52.5 + Stroke/2	82	20	35	87.5	55.5	90	130
ø80	36	M22 × 1.5	116	3.5	48	203.5	58 + Stroke/2	100	25	40	106	61.5	115	165
ø100	45	M26 × 1.5	128	4	53	230	64 + Stroke/2	121	35	50	117	68	135	205

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

● Intermediate Trunnion Type (TC) with Bracket (Option Code B4)

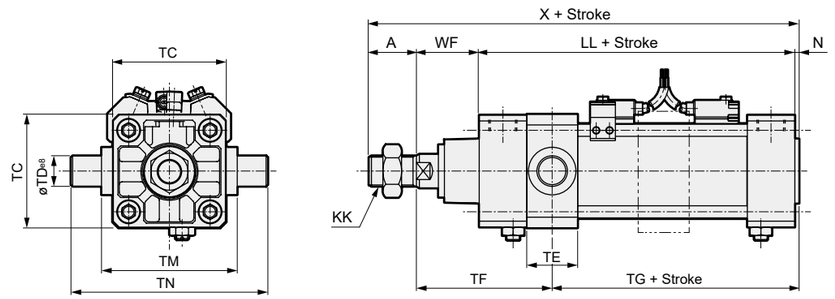


Code	Intermediate Trunnion Type (TC) with Bracket (Option Code B4) Mounting Dimensions																					
Bore Size (mm)	A	KK	LL	WF	X	AQ	TC	TD	TE	TY	TZ	TM	TN	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV
ø40	22	M14 × 1.5	93	33.5	150.5	46.5 + Stroke/2	57	16	30	80	48.5	63	95	9	17	19	61	32	45	80	60	12	11
ø50	28	M18 × 1.5	101	37	168.5	50.5 + Stroke/2	67	18	30	87.5	53	80	116	9	17	19	63	36	45	85	65	12	11
ø63	28	M18 × 1.5	105	35	171	52.5 + Stroke/2	82	20	35	87.5	55.5	90	130	11	22	24	80	40	60	100	75	14	13
ø80	36	M22 × 1.5	116	48	203.5	58 + Stroke/2	100	25	40	106	61.5	115	165	14	24	26	85	50	60	115	85	14	13
ø100	45	M26 × 1.5	128	53	230	64 + Stroke/2	121	35	50	117	68	135	205	14	24	35	107	64	75	130	100	17	16

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

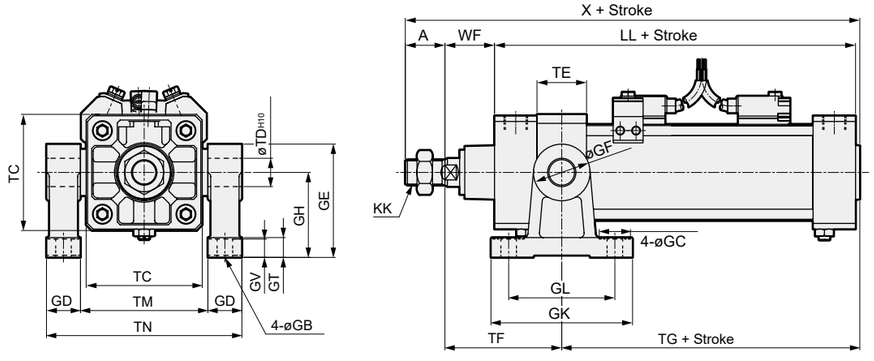
● Rod Side Trunnion Type (TA)



Code	Rod Side Trunnion Type (TA) Mounting Dimensions													
Bore Size (mm)	A	KK	LL	N	WF	X	TC	TD	TE	TF	TG	TM	TN
ø40	22	M14 × 1.5	93	2	33.5	150.5	57	16	30	74.5	54	63	95
ø50	28	M18 × 1.5	101	2.5	37	168.5	67	18	30	80	60.5	80	116
ø63	28	M18 × 1.5	105	3	35	171	82	20	35	82.5	60.5	90	130
ø80	36	M22 × 1.5	116	3.5	48	203.5	100	25	40	102	65.5	115	165
ø100	45	M26 × 1.5	128	4	53	230	121	35	50	114	71	135	205

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

● Rod Side Trunnion Type (TA) with Bracket (Option Code B4)

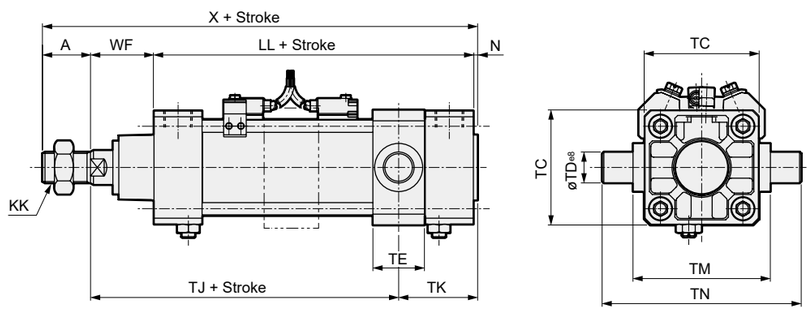


Code	Rod Side Trunnion Type (TA) with Bracket (Option Code B4) Mounting Dimensions																					
Bore Size (mm)	A	KK	LL	WF	X	TC	TD	TE	TF	TG	TM	TN	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV
ø40	22	M14 × 1.5	93	33.5	150.5	57	16	30	74.5	54	63	95	9	17	19	61	32	45	80	60	12	11
ø50	28	M18 × 1.5	101	37	168.5	67	18	30	80	60.5	80	116	9	17	19	63	36	45	85	65	12	11
ø63	28	M18 × 1.5	105	35	171	82	20	35	82.5	60.5	90	130	11	22	24	80	40	60	100	75	14	13
ø80	36	M22 × 1.5	116	48	203.5	100	25	40	102	65.5	115	165	14	24	26	85	50	60	115	85	14	13
ø100	45	M26 × 1.5	128	53	230	121	35	50	114	71	135	205	14	24	35	107	64	75	130	100	17	16

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

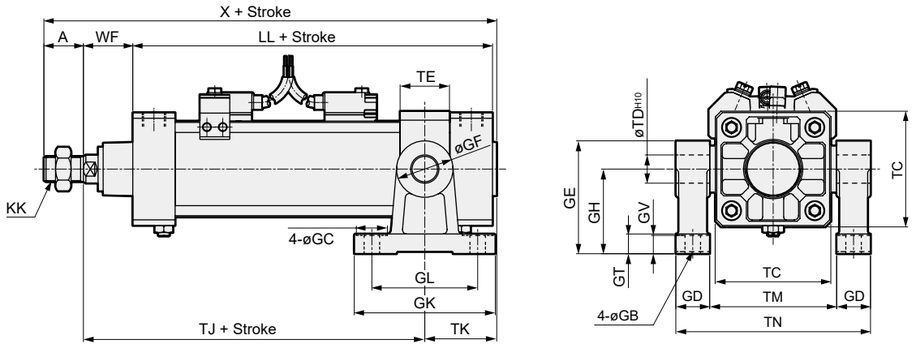
●Head Side Trunnion Type (TB)



Code	Head Side Trunnion Type (TB) Mounting Dimensions												
Bore Size (mm)	A	KK	LL	N	WF	X	TC	TD	TE	TJ	TK	TM	TN
ø40	22	M14 × 1.5	93	2	33.5	150.5	57	16	30	85	43.5	63	95
ø50	28	M18 × 1.5	101	2.5	37	168.5	67	18	30	94.5	46	80	116
ø63	28	M18 × 1.5	105	3	35	171	82	20	35	92	51	90	130
ø80	36	M22 × 1.5	116	3.5	48	203.5	100	25	40	109.5	58	115	165
ø100	45	M26 × 1.5	128	4	53	230	121	35	50	119.5	65.5	135	205

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

●Head side trunnion type (TB) with bracket (Option code B4)

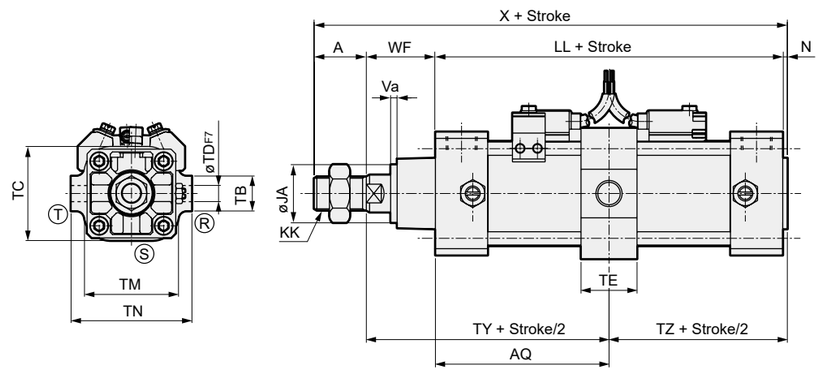


Code	Head Side Trunnion Type (TB) with Bracket (Option Code B4) Mounting Dimensions																				
Bore Size (mm)	A	KK	LL	WF	X	TC	TD	TE	TJ	TK	TM	TN	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV
ø40	22	M14 × 1.5	93	33.5	150.5	57	16	30	85	43.5	63	95	9	17	19	61	32	45	80	60	12	11
ø50	28	M18 × 1.5	101	37	168.5	67	18	30	94.5	46	80	116	9	17	19	63	36	45	85	65	12	11
ø63	28	M18 × 1.5	105	35	171	82	20	35	92	51	90	130	11	22	24	80	40	60	100	75	14	13
ø80	36	M22 × 1.5	116	48	203.5	100	25	40	109.5	58	115	165	14	24	26	85	50	60	115	85	14	13
ø100	45	M26 × 1.5	128	53	230	121	35	50	119.5	65.5	135	205	14	24	35	107	64	75	130	100	17	16

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

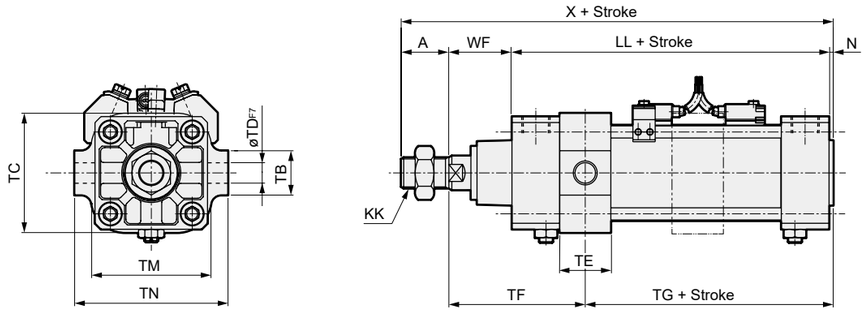
● Intermediate tapped trunnion type (TF)



Code	Intermediate tapped trunnion type (TF) Mounting dimensions													
Bore Size (mm)	A	KK	LL	N	WF	X	AQ	TB	TC	TD	TE	TY	TZ	TM	TN
ø50	28	M18 × 1.5	101	2.5	37	168.5	50.5 + Stroke/2	26	70	12	30	87.5	53	70	90
ø63	28	M18 × 1.5	105	3	35	171	52.5 + Stroke/2	30	86	14	35	87.5	55.5	86	104
ø80	36	M22 × 1.5	116	3.5	48	203.5	58 + Stroke/2	35	105	20	40	106	61.5	105	134
ø100	45	M26 × 1.5	128	4	53	230	64 + Stroke/2	40	123	20	40	117	68	127	150

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

●Rod side tapped trunnion type (TD)

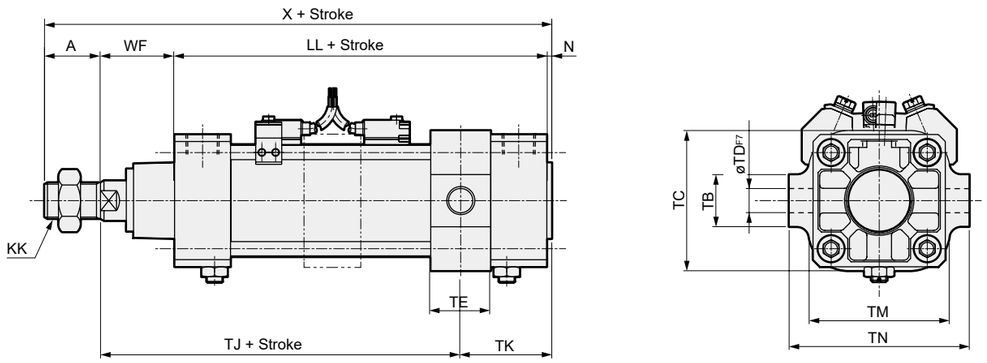


Code	Rod side tapped trunnion type (TD) Mounting dimensions													
Bore Size (mm)	A	KK	LL	N	WF	X	TB	TC	TD	TE	TF	TG	TM	TN
ø50	28	M18 × 1.5	101	2.5	37	168.5	26	70	12	30	80	60.5	70	90
ø63	28	M18 × 1.5	105	3	35	171	30	86	14	35	82.5	60.5	86	104
ø80	36	M22 × 1.5	116	3.5	48	203.5	35	105	20	40	102	65.5	105	134
ø100	45	M26 × 1.5	128	4	53	230	40	123	20	40	109	76	127	150

*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

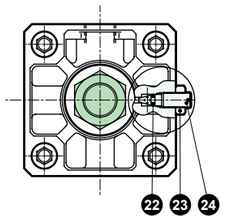
●Head side tapped trunnion type (TE)



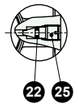
Code	Head side tapped trunnion type (TE) Mounting dimensions													
Bore Size (mm)	A	KK	LL	N	WF	X	TB	TC	TD	TE	TJ	TK	TM	TN
ø50	28	M18 × 1.5	101	2.5	37	168.5	26	70	12	30	94.5	46	70	90
ø63	28	M18 × 1.5	105	3	35	171	30	86	14	35	92	51	86	104
ø80	36	M22 × 1.5	116	3.5	48	203.5	35	105	20	40	109.5	58	105	134
ø100	45	M26 × 1.5	128	4	53	230	40	123	20	40	124.5	60.5	127	150

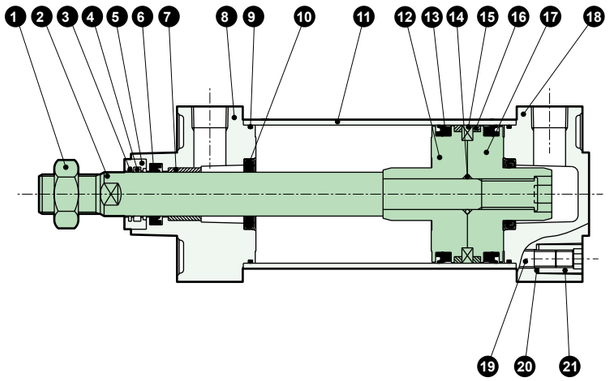
*1: ⓇⓈⓉ indicates the position of the cushion needle.
*2: For dimensions with each switch, please refer to P. 850 to P. 853.
***3: For outer dimensions diagram of accessories, refer to P. 644.**

Internal Structure Diagram/Material



No cushion N





Part Number	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Rod Nut	Steel	Zinc Chromate	14	Piston Gasket	Nitrile Rubber	
2	Piston Rod	Steel	Industrial Hard Chrome Plating	15	Magnet	Plastic	
3	Coil scraper	Phosphor bronze		16	Wear Ring	Polyacetal	
4	Lube keeper	Special rubber	G4 only	17	Piston H	Aluminum Alloy	
5	Adapter	Stainless Steel		18	Head Cover	Aluminum Alloy	Painting
6	Rod Packing	Nitrile Rubber		19	Tie Rod	Steel	Zinc Chromate
7	Bushing	Oil-Impregnated Bearing Alloy		20	Belleville washer	Steel	Black Oxide
8	Rod Cover	Aluminum Alloy	Painting	21	Round Nut	Steel	Zinc Chromate
9	Cylinder Gasket	Nitrile Rubber		22	Needle Gasket	Nitrile Rubber	
10	Cushion Packing	Nitrile Rubber, Steel	Only with cushion	23	Needle nut	Copper Alloy	Nickel Plating
11	Cylinder Tube	Aluminum Alloy	Hard Anodized	24	Cushion Needle	Copper Alloy	Nickel Plating
12	Piston R	Aluminum Alloy		25	Cushion plug	Copper Alloy	Nickel Plating
13	Piston Packing	Nitrile Rubber					

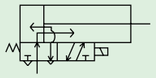
For maintenance parts, please visit the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts.



Medium Bore Size Cylinder
Double Acting, with Valve

SCA2-V Series

● Bore size: ø40, ø50, ø63, ø80, ø100

Circuit Diagram Symbol  (Single solenoid / Push when energized)

RoHS

Model No. Notation Method

Without Switch (Built-in magnet for switch)

With Switch (Built-in magnet for switch)

	Model No.	❶ Operating method	❷ Mounting type	❸ Bore Size	❹ Piping thread type	❺ Cushion	❻ Stroke	❼ Valve voltage	❽ Switch Model No.	❾ Number of Switches	❿ Option	⓫ Accessories
Without Switch	SCA2 - V1 - LB - 40 -		B - 100 - 1								S	I
With Switch	SCA2 - V1 - LB - 40 -		B - 100 - 1 - T0H - R - S									I

❶ Operating method

Code	Contents
V1	Energized push / Single solenoid
V2	Energized pull / Single solenoid
V	Double solenoid

❷ Mounting type

Mounting brackets are included to the product and shipped. (However, trunnion types are shipped assembled.)

Code	Contents	Code	Content
00	Basic type	CB	Double Clevis Type (Pin and retaining ring included)
LB	Axial Foot Type	TC	Intermediate Trunnion Type
FA	Rod Side Flange Type	TA	Rod Side Trunnion Type
FB	Head Side Flange Type	TF	Intermediate tapped trunnion type (ø50 to ø100)
CA	Single Clevis Type	TD	Rod side tapped trunnion type (ø50 to ø100)

❸ Bore Size (mm)

Code	Contents
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

❹ Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom order)
G	G thread (Custom order)

❺ Cushion

Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

❻ Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø40	50 to 600	Every 1 mm
ø50	50 to 600	
ø63	50 to 600	
ø80	50 to 700	
ø100	50 to 800	

Note: For minimum stroke with switch, refer to P. 833.

❼ Valve voltage

Code	Content
1	100 VAC
2	200 VAC
3	24 VDC

❽ Switch Model No.

For switch details, please refer to P. 971. Switches are included to the product and shipped.

Contact	Indicator Lamp / Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire Straight	Lead Wire L-shape
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□
		3-wire (PNP)	—		—		T3PH□	T3PV□
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□
	2-Color for AC Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	–
			—		—		T2YDT□	–
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□

*3 *5

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+) 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m T0H
3 m T0H3
5 m T0H5

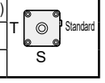
*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder. When using in a water-resistant environment, use of an improved water resistance cylinder is recommended.
*4: Switches other than the model No.s listed above are also available. (Custom Product) For details, see P. 971.

❾ Number of Switches

	Code	Content
*1	R	With 1 pc on rod side
*1	H	With 1 pc on head side
	D	With 2 pcs
	T	With 3 pcs

*1: ❶When "TA", "TD", "TB", or "TE" is selected as the mounting method, the number of switches is limited to "H" (1 on the head side) for "TA" and "TD", and "R" (1 on the rod side) for "TB" and "TE".

❿ Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
	J	Bellows	100°C	200°C	
	L		250°C	400°C	
	M	Piston Rod Material (Stainless Steel)			
*2	Blank	Cushion needle position R (Standard)			
*2	S	Cushion needle position S			
*2	T	Cushion needle position T			

*1: Instantaneous maximum temperature is the temperature when sparks, cutting chips, etc., instantaneously hit the bellows.
*2: ❶When mounting type "TA", "TD", "TB", "TE" is selected, the cushion needle position is fixed to "S" (Blank) and cannot be selected.

⓫ Accessories

Code	Content	
I	Single Knuckle *1	
Y	Double Knuckle (Pin and retaining ring included) *1	
B1	Single Bracket	
B2	Double Yoke Bracket (Pin and retaining ring included)	
B3	Single Bracket	
B4	Trunnion type 2nd bracket (2 pieces/set)	

*1: "I" and "Y" cannot be selected at the same time.

*For combinations of variations and options, please refer to P. 625.

Regarding specifications of custom products

Details: refer to P. 854 to 861.

Code	Contents	Code	Contents	Code	Contents
-XR◇◇◇◇	Port/Cushion needle position specification	-XP7	Knuckle fixed by pin driving	-XT9	Scraper/Rod packing only Fluoro Rubber
-XK◇	Mounting Bracket Rotational Assembly	-XP8	Knuckle Pin/Clevis Pin Split Pin Specification, Knuckle fixed by pinning	-T2	Cylinder part packing Fluorine type
-XAQ◇◇	Trunnion Position Specification	-XM1	Tie rod material SUS	-A2	With 2 Rod Nuts
-XP5	Knuckle Pin/Clevis Pin Split Pin	-XJ9	Without Bellows	Rod end Shape change	Refer to Ending P. 11.

Model No. Example) SCA2-V - ..... - XP5

Switch Single Unit Model No. Notation Method

[T type switch]

For rod side

●Switch body + Mounting bracket set: SCA2 - T0H - 40 (8 Switch Model No., 3 Bore Size)

●Switch body only: SW - T0H (8 Switch Model No.)

●Switch mounting bracket set: SCA2 - TS - 40 (Mounting bracket, 3 Bore Size)

*Please consult us separately if using environmentally compatible T-type switches.

For head side

●Switch body + Mounting bracket set: SCA2 - V - T0H - 40 (8 Switch Model No., 3 Bore Size)

●Switch body only: SW - T0H (8 Switch Model No.)

●Switch mounting bracket set: SCA2 - V - TS - 40 (Mounting bracket, 3 Bore Size)

*Please consult us separately if using environmentally compatible T-type switches.

[T2YD type switch]

●Switch body + Mounting bracket set: SCA2 - T2YD - 40 (8 Switch Model No., 3 Bore Size)

●Switch body only: SW - T2YD (8 Switch Model No.)

●Mounting bracket set: SCA2 - T - 40 (3 Bore Size)

Specifications

Item		SCA2-V1, V2, V (With valve)				
Bore Size mm		ø40	ø50	ø63	ø80	ø100
Actuation method		Double Acting Type				
Operating Fluid		Compressed Air				
Max. Working Pressure MPa		0.7				
Min. Operating Pressure MPa		0.15				
Proof Pressure MPa		1.05				
Ambient Temperature °C		-5 to 50 (However, no freezing)				
Port Size		Rc 1/4	Rc 3/8		Rc 1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (Up to 360) $^{+1.4}_{0}$ (Up to 800)				
Operating piston speed *1 mm/s		50 to 500				50 to 450
Cushion		Air Cushion				
Effective air cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)				
Allowable absorbed energy J	With Cushion	4.29	8.37	15.8	27.9	49.8
	Without Cushion	0.067	0.079	0.079	0.201	0.301
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.				

*1: Please use within the absorbed energy.
For ø100, a piston speed of 500 mm/s is possible by using a silencer (SLW-10A) as an alternative to the metering valve (SMW-10A).

Valve specifications

Model No. / Item	V1 SCA2-V2-40/50 V			V1 SCA2-V2-63 V			V1 SCA2-V2-80/100 V		
Model No. (*2)	4KB2□9-00-Voltage			4KB3□9-00-Voltage			4KB4□9-00-Voltage		
Rated voltage	100 VAC (50/60Hz)	200 VAC (50/60Hz)	24 VDC	100 VAC (50/60Hz)	200 VAC (50/60Hz)	24 VDC	100 VAC (50/60Hz)	200 VAC (50/60Hz)	24 VDC
Starting current (A)	0.056/0.044	0.028/0.022	0.075	0.046/0.042	0.023/0.021	0.075	0.046/0.042	0.023/0.021	0.075
Holding current (A)	0.028/0.022	0.014/0.011		0.028/0.021	0.014/0.011		0.028/0.022	0.014/0.011	
Power consumption (W)	1.8/1.4	1.8/1.4	1.8	1.6/1.3	1.6/1.3	1.8	1.6/1.3	1.6/1.3	1.8
Rated voltage fluctuation range	±10%	±10%	±10%	±10%	±10%	±10%	±10%	±10%	±10%
Heat Resistance Class	Class B molded coil	Class B molded coil	Class B molded coil	Class B molded coil	Class B molded coil	Class B molded coil	Class B molded coil	Class B molded coil	Class B molded coil
Lead Wire Lead wire outlet method	Grommet lead wire (300 mm)								

*1: For details on the valve, please refer to "Directional Control Valve ②" (No. RJ-012AA).
*2: For operating method V, □ = 2; for operating methods V1, V2, □ = 1.

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ø40	50, 75, 100, 150, 200, 250 300, 350, 400, 450, 500	600	50
ø50			
ø63			
ø80		700	
ø100		800	

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: Regardless of the presence of a switch, strokes of less than 50 mm cannot be manufactured.

Min. Stroke with Switch

●Minimum stroke with T0/T5 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1
ø40	50 (50)	50 (50)	60 (50)	110 (110)	110 (110)	50 (50)
ø50	50 (50)	50 (50)	50 (50)	135 (135)	135 (135)	60 (60)
ø63	50 (50)	50 (50)	50 (50)	110 (95)	110 (95)	50 (50)
ø80	50 (50)	50 (50)	50 (50)	115 (85)	115 (85)	55 (50)
ø100	50 (50)	50 (50)	50 (50)	125 (95)	125 (95)	60 (50)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: Strokes of less than 50 mm cannot be manufactured.
*3: T8 type switch cannot be installed.

●Minimum stroke with T2/T3 type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1
ø40	50 (50)	50 (50)	60 (50)	105 (75)	105 (75)	50 (50)
ø50	50 (50)	50 (50)	50 (50)	105 (75)	105 (75)	50 (50)
ø63	50 (50)	50 (50)	50 (50)	110 (80)	110 (80)	50 (50)
ø80	50 (50)	50 (50)	50 (50)	115 (85)	115 (85)	55 (50)
ø100	50 (50)	50 (50)	50 (50)	125 (95)	125 (95)	60 (50)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: Strokes of less than 50 mm cannot be manufactured.

● Minimum stroke with T1/T2YD type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1
ø40	50 (50)	50 (50)	60 (50)	105 (75)	105 (75)	50 (50)
ø50	50 (50)	50 (50)	50 (50)	100 (70)	100 (70)	50 (50)
ø63	50 (50)	50 (50)	50 (50)	105 (75)	105 (75)	50 (50)
ø80	50 (50)	50 (50)	50 (50)	110 (80)	110 (80)	50 (50)
ø100	50 (50)	50 (50)	50 (50)	120 (90)	120 (90)	60 (50)

*1: ( ) indicates T□V (L-shaped lead wire type). However, T2YD does not have an L-shaped lead wire type (V).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

● Minimum stroke with T2W/T3W/T2WL type switch

	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting		Position detection at the rod side stroke end with rod side trunnion mounting is not possible.
Number of Switches	2	1	2	1	2	1
ø40	50 (50)	50 (50)	65 (50)	110 (80)	110 (80)	50 (50)
ø50	50 (50)	50 (50)	50 (50)	110 (80)	110 (80)	50 (50)
ø63	50 (50)	50 (50)	50 (50)	115 (85)	115 (85)	55 (50)
ø80	50 (50)	50 (50)	50 (50)	120 (90)	120 (90)	55 (50)
ø100	50 (50)	50 (50)	50 (50)	130 (100)	130 (100)	60 (50)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Cylinder Weight

●SCA2-V

(Unit: kg)

Bore Size (mm)	Product Weight when stroke (S) = 0 mm						Switch weight	Switch Mounting Bracket Weight	Added mass per S=100 mm
	Basic Type (00)	Foot Type (LB)	Flange type (FA, FB)	Single Clevis Type (CA)	Double clevis type (CB)	Trunnion type (TA, TB, TC)		T type	
ø40	1.27	1.45	1.69	1.59	1.63	1.66	Refer to the mass described in the switch specifications on P. 971	0.030	0.39
ø50	1.64	1.89	2.14	2.02	2.05	2.18		0.027	0.46
ø63	2.39	2.76	3.48	2.96	3.01	3.24		0.027	0.50
ø80	4.17	4.91	6.03	5.44	5.65	5.51		0.040	0.90
ø100	5.77	6.67	8.51	7.40	7.59	8.33		0.035	1.12

●SCA2-V1, V2

(Unit: kg)

Bore Size (mm)	Product Weight when stroke (S) = 0 mm						Switch weight	Switch Mounting Bracket Weight	Added mass per S=100 mm
	Basic Type (00)	Foot Type (LB)	Flange type (FA, FB)	Single Clevis Type (CA)	Double clevis type (CB)	Trunnion type (TA, TB, TC)		T type	
ø40	1.23	1.40	1.64	1.55	1.59	1.61	Refer to the mass described in the switch specifications on P. 971	0.030	0.39
ø50	1.60	1.84	2.09	1.97	2.01	2.13		0.027	0.46
ø63	2.28	2.65	3.38	2.85	2.91	3.13		0.027	0.50
ø80	4.07	4.81	5.93	5.34	5.55	5.41		0.040	0.90
ø100	5.67	6.57	8.41	7.30	7.49	8.23		0.035	1.12

(Example) Product Weight of SCA2-V1-LB-50B-200-TOH-D

- Product Weight at 0 mm stroke ..... 1.84 kg
- Added weight at 200 mm stroke ..... $0.46 \times \frac{200}{100} = 0.92$ kg
- Weight of 2 TOH switches ..... $0.018 \times 2 = 0.036$ kg
- Weight of 2 mounting brackets.....$0.027 \times 2 = 0.054$ kg
- Product Weight ..... $1.45+0.92+0.036+0.054=2.460$ kg

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa						
		0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø40	Push	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2
	Pull	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2
ø50	Push	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3
	Pull	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3
ø63	Push	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3
	Pull	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3
ø80	Push	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3
	Pull	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3
ø100	Push	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3
	Pull	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3

Mounting Bracket Model No. Notation Method

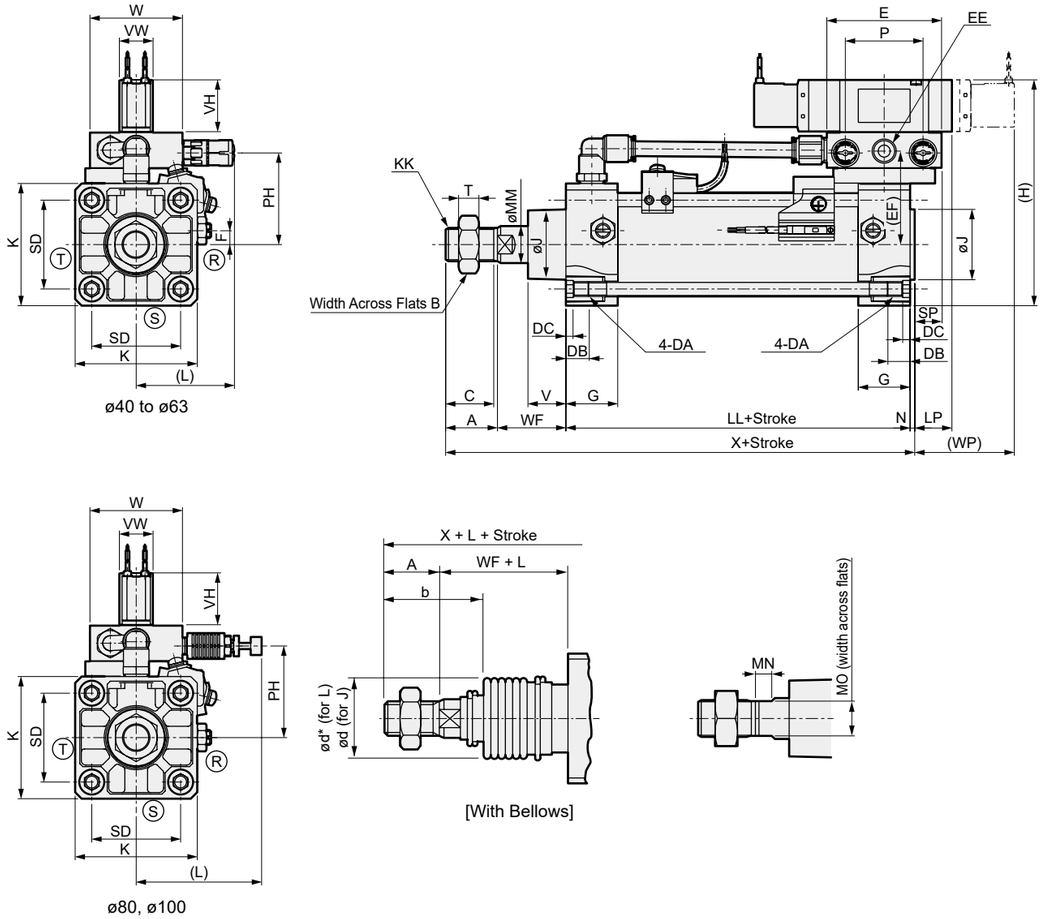
Bore Size (mm) / Mounting bracket	ø40	ø50	ø63	ø80	ø100
Foot (LB) *2	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Single Clevis (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Double Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

***1: For the material of the mounting brackets, please refer to P. 646.**
*2: Foot type mounting brackets come in sets of 2.
*3: Mounting bolts are included to each mounting bracket.

MEMO

Outline Dimension Drawing

●Basic Type (OO)



Code	Basic Type (OO) Basic Dimensions																									
Bore Size	A	B	C	E	EE	EF	F	DA	DB	DC	G	H	J	K	KK	L	LL	LP	MM	MN	MO	N	P	PH	SD	SP	T	V
ø40	22	22	20	62	Rc 1/4	46	7.5	M8	12	4	26	113	31	57	M14 × 1.5	60	93	22	16	8	14	2	42	45	40.5	16	8	18.5
ø50	28	27	26	62	Rc 1/4	50.5	0	M8	12	4	28	122	38	66	M18 × 1.5	60	101	20.5	20	8.5	17	2.5	42	49.5	48	14.5	11	20.5
ø63	28	27	26	76	Rc 3/8	60	0	M8	12	4	30	149	38	80	M18 × 1.5	64	105	20	20	8.5	17	3	51	60.5	59	20	11	21
ø80	36	32	34	94	Rc 1/2	78.5	-	M12	16	5	34	188	43	98	M22 × 1.5	122	116	26.5	25	11	22	3.5	64	78.5	74	26.5	13	23.5
ø100	45	41	43	94	Rc 1/2	88.5	-	M12	16	5	36	208	51	118	M26 × 1.5	122	128	25	30	13	27	4	64	88.5	90	25	16	32

Code							With Bellows									
Bore Size	VH	VW	W	WF	WP	X	b	d	d*	L							*1
										50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	When exceeding 500
ø40	28	18	50	33.5	55	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	28	18	50	37	54	168.5	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	36	23	60	35	62	171	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	43	29	90	48	72.5	203.5	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	43	29	90	53	71	230	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9

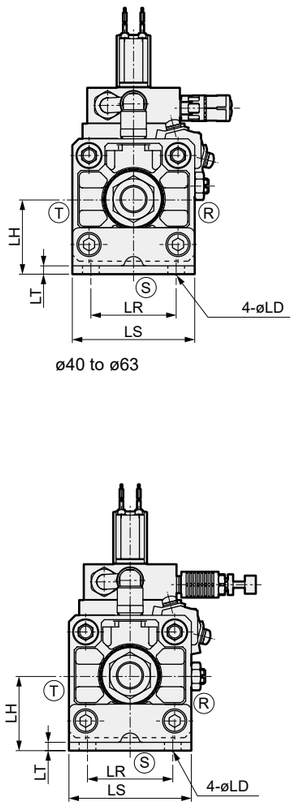
*1: Round up the L dimension to the nearest whole number.

***2: For dimensions with each switch, please refer to P. 850 to P. 853.**

***3: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Axial Foot Type (LB)



Code	Axial Foot Type (LB) Mounting Dimensions																		
Bore Size	A	FH	KK	LL	LP	N	SP	WF	WP	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT
ø40	22	124.5	M14 × 1.5	93	22	2	16	33.5	55	178	10	19.5	9	14	132	40	40	57	3.2
ø50	28	129	M18 × 1.5	101	20.5	2.5	14.5	37	54	200	12	22	9	15	145	40	46	66	4.5
ø63	28	159	M18 × 1.5	105	20	3	20	35	62	210	12	30	11	5	165	50	60	80	4.5
ø80	36	199	M22 × 1.5	116	26.5	3.5	26.5	48	72.5	251	14	37	14	11	190	60	74	98	6.0
ø100	45	216	M26 × 1.5	128	25	4	25	53	71	278	21	31	14	22	190	67	80	118	6.0

Code	With Bellows							
Bore Size	L							*1
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	When exceeding 500
ø40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

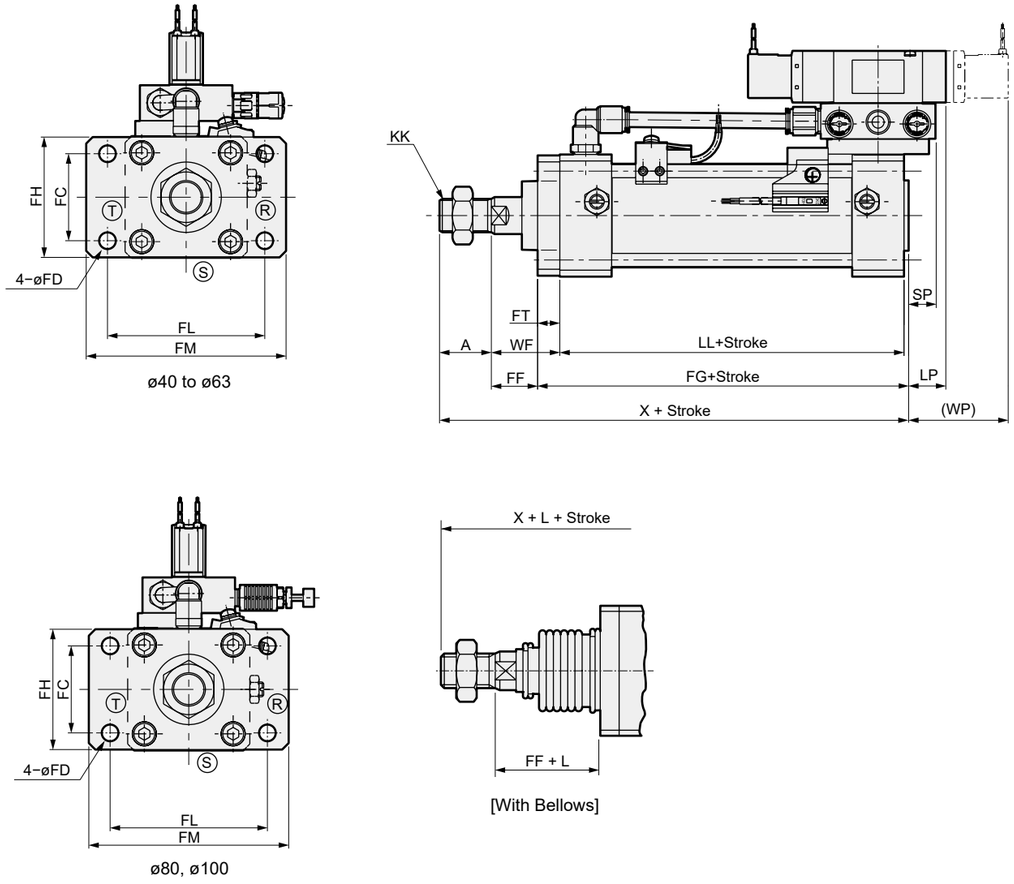
*1: Round up the L dimension to the nearest whole number.

***2: For dimensions with each switch, please refer to P. 850 to P. 853.**

***3: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Rod Side Flange Type (FA)



ø40 to ø63

[With Bellows]

ø80, ø100

Code	Rod Side Flange Type (FA) Mounting Dimensions															
Bore Size	A	KK	LL	LP	SP	WF	WP	FC	FD	FF	FG	FH	FL	FM	FT	X
ø40	22	M14 × 1.5	93	22	16	33.5	55	40	9	21.5	107	57	80	100	12	150.5
ø50	28	M18 × 1.5	101	20.5	14.5	37	54	47	9	25	115.5	65	85	108	12	168.5
ø63	28	M18 × 1.5	105	20	20	35	62	60	11	19	124	80	106	130	16	171
ø80	36	M22 × 1.5	116	26.5	26.5	48	72.5	74	14	29	138.5	98	125	153	19	203.5
ø100	45	M26 × 1.5	128	25	25	53	71	88	14	34	151	118	144	180	19	230

Code	With Bellows							
	L							
Bore Size	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*1 When exceeding 500
ø40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

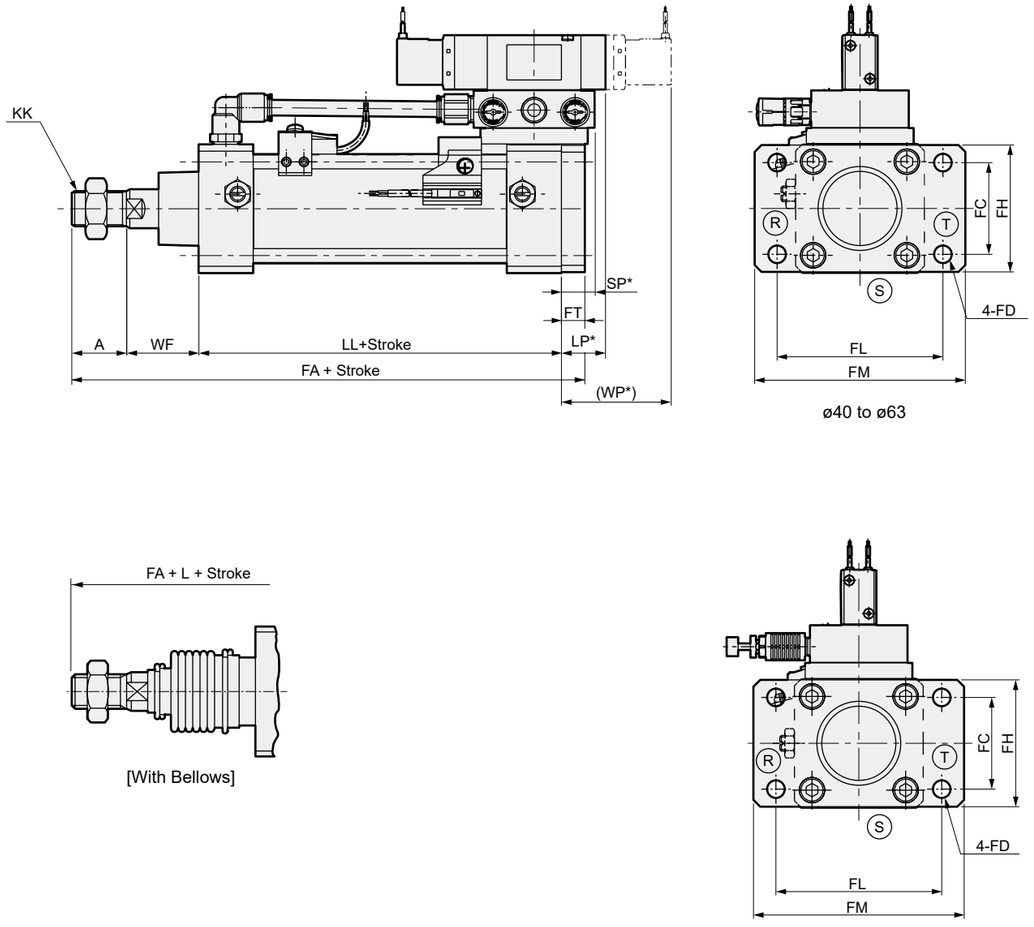
*1: Round up the L dimension to the nearest whole number.

***2: For dimensions with each switch, please refer to P. 850 to P. 853.**

***3: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Head Side Flange Type (FB)



ø40 to ø63

[With Bellows]

ø80, ø100

Code	Head Side Flange Type (FB) Mounting Dimensions													
Bore Size	A	KK	LL	LP*	SP*	WF	WP*	FA	FC	FD	FH	FL	FM	FT
ø40	22	M14 × 1.5	93	24	18	33.5	57	160.5	40	9	57	80	100	12
ø50	28	M18 × 1.5	101	23	17	37	56.5	178	47	9	65	85	108	12
ø63	28	M18 × 1.5	105	23	23	35	65	184	60	11	80	106	130	16
ø80	36	M22 × 1.5	116	28.5	30	48	76	219	74	14	98	125	153	19
ø100	45	M26 × 1.5	128	34	29	53	75	245	88	14	118	144	180	19

Code	With Bellows							
	L							
Bore Size	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	When exceeding 500
ø40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

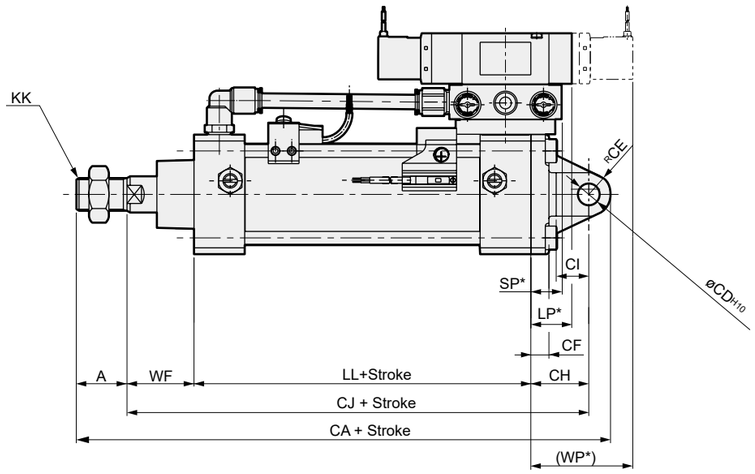
*1: Round up the L dimension to the nearest whole number.

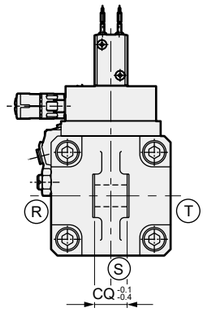
***2: For dimensions with each switch, please refer to P. 850 to P. 853.**

***3: For outer dimensions diagram of accessories, refer to P. 644.**

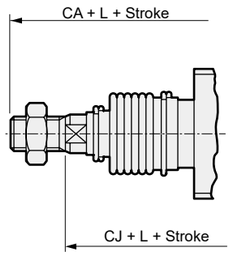
Outline Dimension Drawing

●Single Clevis Type (CA)

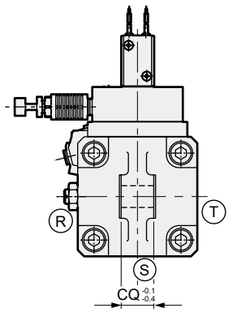




ø40 to ø63



[With Bellows]



ø80, ø100

Code	Single Clevis Type (CA) Mounting Dimensions														
Bore Size	A	KK	LL	LP*	SP*	WF	WP*	CA	CD	CE	CF	CH	CI	CJ	CQ
ø40	22	M14 × 1.5	93	24	18	33.5	57	192.5	12	12	10	32	18	158.5	18
ø50	28	M18 × 1.5	101	23	17	37	56.5	210	12	12	10	32	18	170	18
ø63	28	M18 × 1.5	105	23	23	35	65	221	14	16	10	37	24	177	20
ø80	36	M22 × 1.5	116	28.5	30	48	76	272	20	20	14	52	30	216	28
ø100	45	M26 × 1.5	128	34	29	53	75	298	20	20	16	52	30	233	28

Code	With Bellows							
Bore Size	L							
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*1 When exceeding 500
ø40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

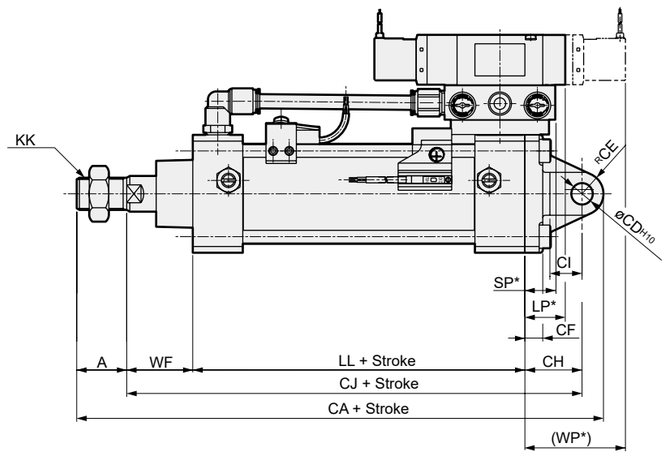
*1: Round up the L dimension to the nearest whole number.

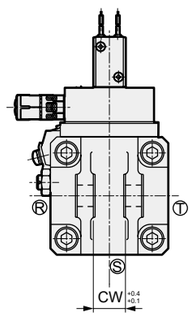
***2: For dimensions with each switch, please refer to P. 850 to P. 853.**

***3: For outer dimensions diagram of accessories, refer to P. 644.**

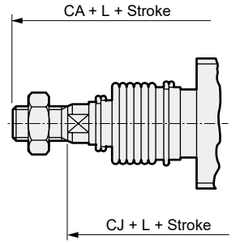
Outline Dimension Drawing

●Double clevis type (CB)

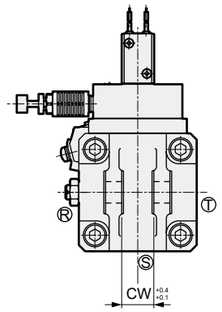




ø40 to ø63



[With Bellows]



ø80, ø100

Code	Double Clevis Type (CB) Mounting Dimensions														
Bore Size	A	KK	LL	LP*	SP*	WF	WP*	CA	CD	CE	CF	CH	CI	CJ	CW
ø40	22	M14 × 1.5	93	24	18	33.5	57	192.5	12	12	10	32	18	158.5	18
ø50	28	M18 × 1.5	101	23	17	37	56.5	210	12	12	10	32	18	170	18
ø63	28	M18 × 1.5	105	23	23	35	65	221	14	16	10	37	24	177	20
ø80	36	M22 × 1.5	116	28.5	30	48	76	272	20	20	14	52	30	216	28
ø100	45	M26 × 1.5	128	34	29	53	75	298	20	20	16	52	30	233	28

Code	With Bellows							
Bore Size	L							
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*1 When exceeding 500
ø40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

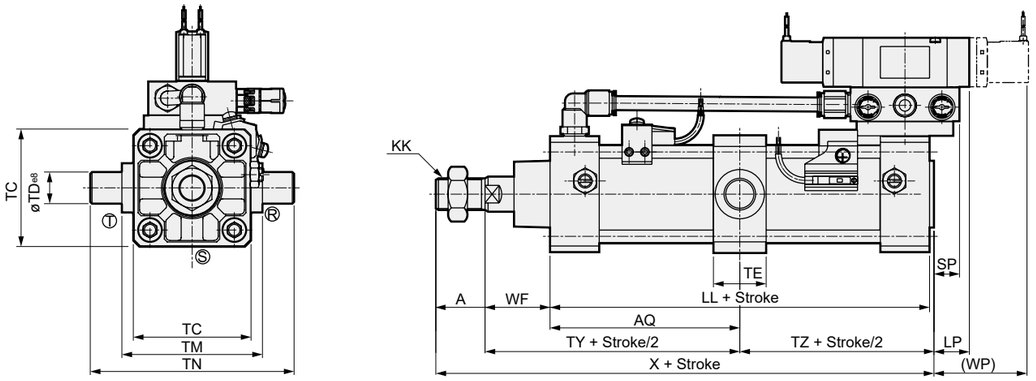
*1: Round up the L dimension to the nearest whole number.

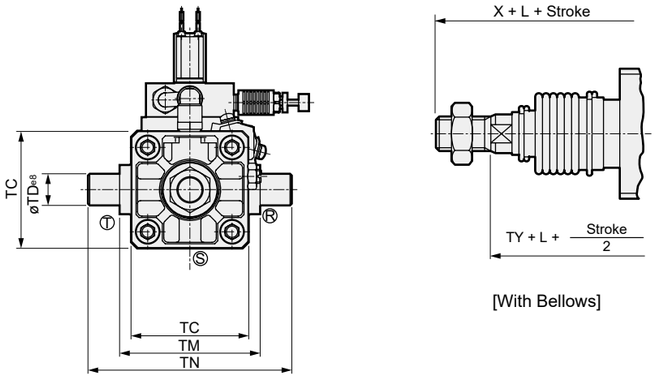
***2: For dimensions with each switch, please refer to P. 850 to P. 853.**

***3: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Intermediate trunnion type (TC)





Code	Intermediate Trunnion Type (TC) Mounting Dimensions															
Bore Size	A	KK	LL	LP	SP	WF	WP	X	AQ	TC	TD	TE	TM	TN	TY	TZ
ø40	22	M14 × 1.5	93	22	16	33.5	55	150.5	46.5 + Stroke/2	57	16	30	63	95	80	48.5
ø50	28	M18 × 1.5	101	20.5	14.5	37	54	168.5	50.5 + Stroke/2	67	18	30	80	116	87.5	53
ø63	28	M18 × 1.5	105	20	20	35	62	171	52.5 + Stroke/2	82	20	35	90	130	87.5	55.5
ø80	36	M22 × 1.5	116	26.5	26.5	48	72.5	203.5	58 + Stroke/2	100	25	40	115	165	106	61.5
ø100	45	M26 × 1.5	128	25	25	53	71	230	64 + Stroke/2	121	35	50	135	205	117	68

Code	With Bellows							
Bore Size	L							
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*1 When exceeding 500
ø40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

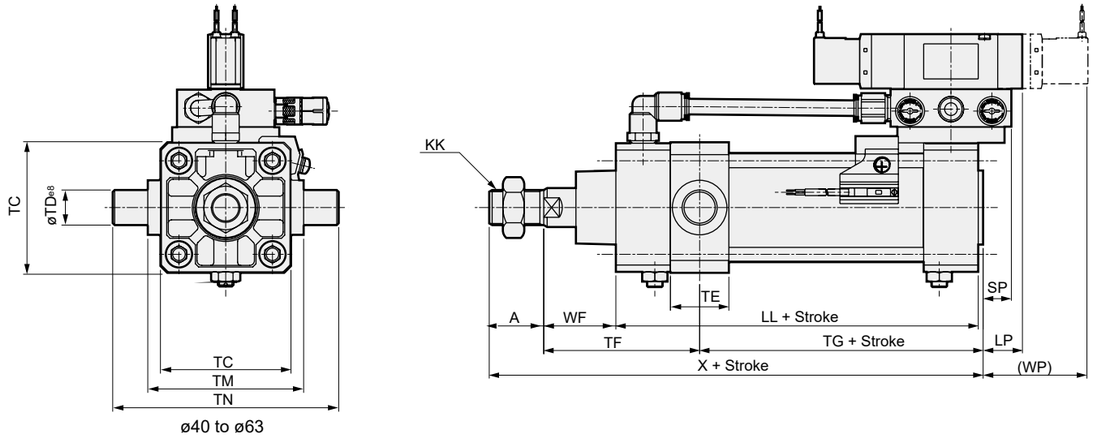
*1: Round up the L dimension to the nearest whole number.

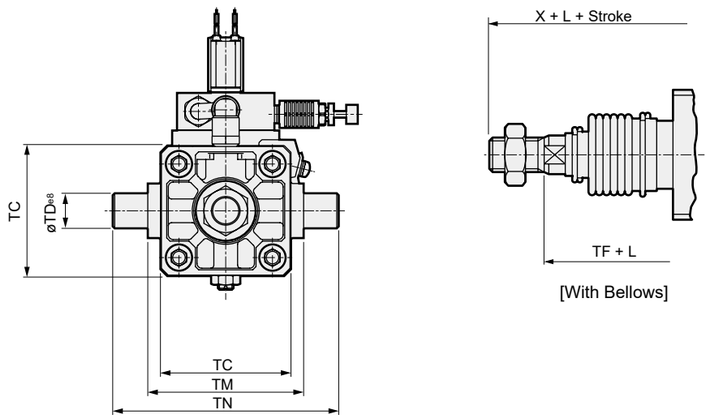
***2: For dimensions with each switch, please refer to P. 850 to P. 853.**

***3: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Rod side trunnion type (TA)





Code	Rod Side Trunnion Type (TA) Mounting Dimensions														
Bore Size	A	KK	LL	LP	SP	WF	WP	X	TC	TD	TE	TF	TG	TM	TN
ø40	22	M14 × 1.5	93	22	16	33.5	55	150.5	57	16	30	74.5	54	63	95
ø50	28	M18 × 1.5	101	20.5	14.5	37	54	168.5	67	18	30	80	60.5	80	116
ø63	28	M18 × 1.5	105	20	20	35	62	171	82	20	35	82.5	60.5	90	130
ø80	36	M22 × 1.5	116	26.5	26.5	48	72.5	203.5	100	25	40	102	65.5	115	165
ø100	45	M26 × 1.5	128	25	25	53	71	230	121	35	50	114	71	135	205

Code	With Bellows							
Bore Size	L							
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*1 When exceeding 500
ø40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

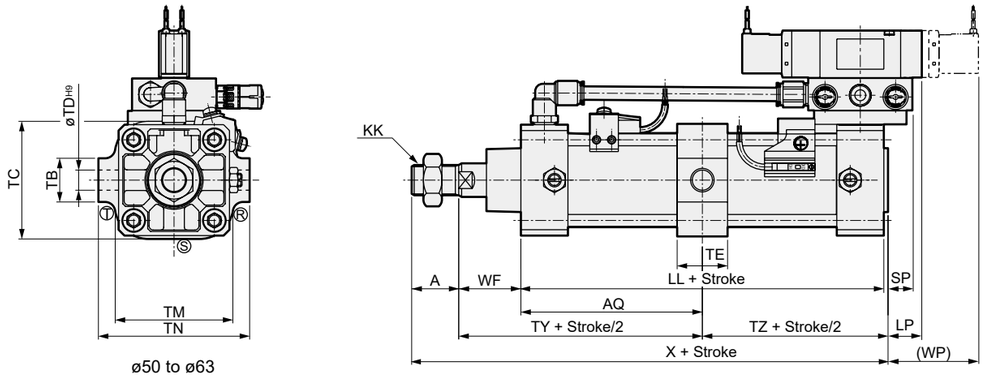
*1: Round up the L dimension to the nearest whole number.

***2: For dimensions with each switch, please refer to P. 850 to P. 853.**

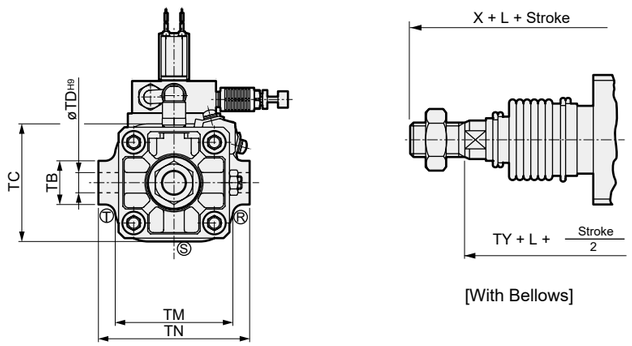
***3: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Intermediate tapped trunnion type (TF)



ø50 to ø63



ø80, ø100

[With Bellows]

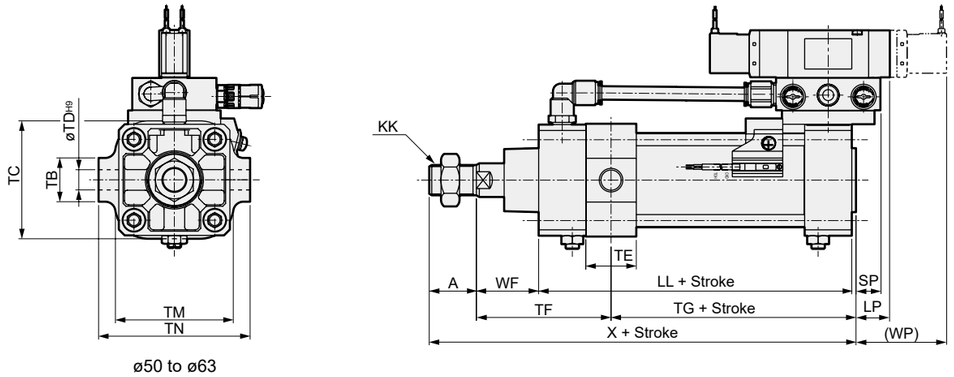
Code / Bore Size	A	KK	LL	LP	SP	WF	WP	X	AQ	TB	TC	TD	TE	TM	TN	TY	TZ
ø50	28	M18 × 1.5	101	20.5	14.5	37	54	168.5	50.5 + Stroke/2	26	70	12	30	70	90	87.5	53
ø63	28	M18 × 1.5	105	20	20	35	62	171	52.5 + Stroke/2	30	86	14	35	86	104	87.5	55.5
ø80	36	M22 × 1.5	116	26.5	26.5	48	72.5	203.5	58 + Stroke/2	35	105	20	40	105	134	106	61.5
ø100	45	M26 × 1.5	128	25	25	53	71	230	64 + Stroke/2	40	123	20	40	127	150	117	68

Code / Bore Size	With Bellows L							
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	When exceeding 500
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

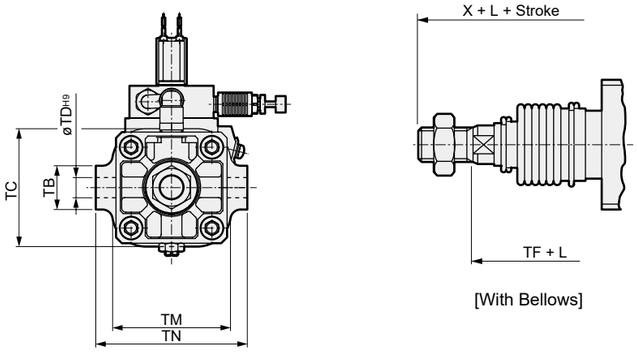
*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, please refer to P. 850 to P. 853.**
***3: For outer dimensions diagram of accessories, refer to P. 644.**

Outline Dimension Drawing

●Rod side tapped trunnion type (TD)



ø50 to ø63



ø80, ø100

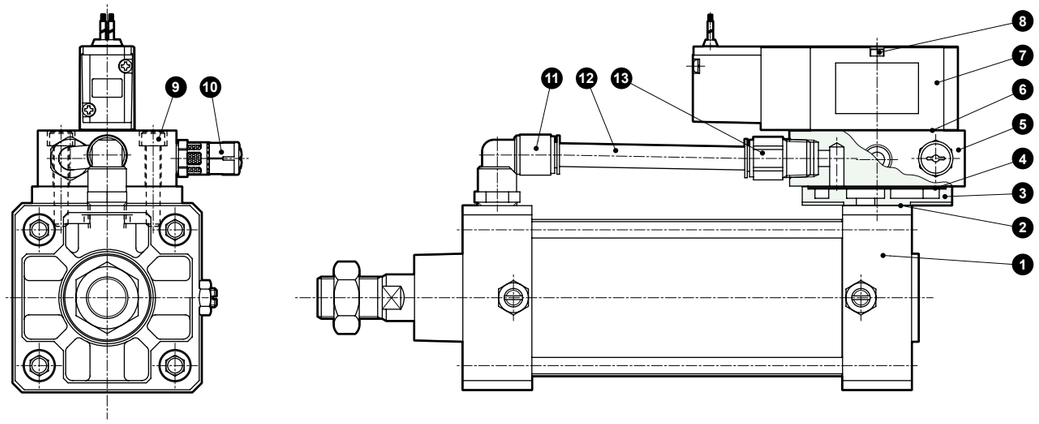
[With Bellows]

Code / Bore Size	A	KK	LL	LP	SP	WF	WP	X	TB	TC	TD	TE	TF	TG	TM	TN
ø50	28	M18 × 1.5	101	20.5	14.5	37	54	168.5	26	70	12	30	80	60.5	70	90
ø63	28	M18 × 1.5	105	20	20	35	62	171	30	86	14	35	82.5	60.5	86	104
ø80	36	M22 × 1.5	116	26.5	26.5	48	72.5	203.5	35	105	20	40	102	65.5	105	134
ø100	45	M26 × 1.5	128	25	25	53	71	230	40	123	20	40	109	76	127	150

Code / Bore Size	With Bellows L							
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*1 When exceeding 500
ø50	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	20	32	42	53	76	98	120	(Stroke/4.5) + 9

*1: Round up the L dimension to the nearest whole number.
***2: For dimensions with each switch, please refer to P. 850 to P. 853.**
***3: For outer dimensions diagram of accessories, refer to P. 644.**

Internal Structure Diagram/Material



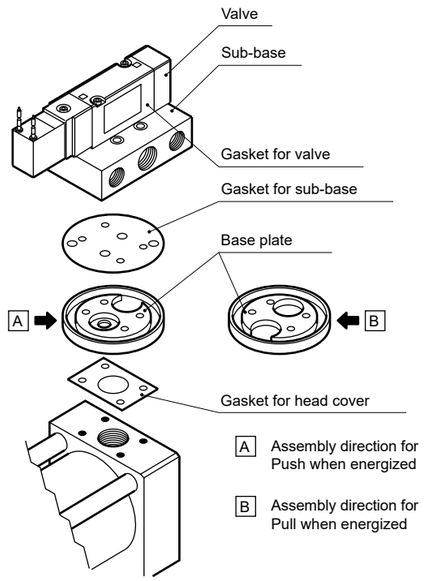
Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Medium Bore Size Cylinder		SCA2 (CKD)	8	Hexagon socket bolt	Alloy Steel	Black Oxide
2	Gasket for head cover	Nitrile Rubber		9	Hexagon socket bolt	Alloy Steel	Black Oxide
3	Base plate	Aluminum Alloy		10	Metering Valve with Silencer		SMW (CKD)
4	Gasket for sub-base	Nitrile Rubber		11	New joint, Single-ended elbow		GWL (CKD)
5	Sub-base	Aluminum Alloy		12	Soft nylon tube		
6	Gasket for valve	Nitrile Rubber		13	New joint, Single-ended straight		GWS (CKD)
7	Selex valve		4KB (CKD)				

Mounting Bracket Material

Mounting type	Material	Remarks
Foot (LB)	Steel	Painting
Flange (FA, FB, FC)	Steel	Painting
Single clevis (CA), Double clevis (CB)	Cast Iron	Painting
Trunnion (TC, TA, TB)	Cast Iron	Painting

For maintenance parts, please visit the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts.

Method for changing Push/Pull when energized

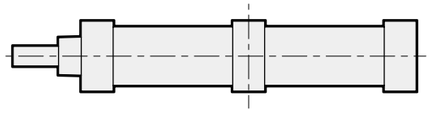


About intermediate support head

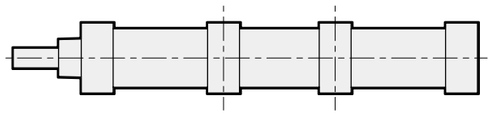
An intermediate support head is added to the center of the cylinder depending on the stroke.
The quantity of intermediate support heads varies depending on the Bore size and stroke as shown in the table below.
Please also refer to Technical Document 8 (Intro 30).

Quantity of intermediate support heads by stroke

Bore size (mm)	Stroke (mm)	Intermediate support head quantity
ø40	1200 to 1600	1
ø50	1200 to 1800	1
	1801 to 2000	2
ø63	1200 to 1800	1
	1801 to 2500	2
ø80	1500 to 2000	1
	2001 to 2500	2
ø100	1500 to 2000	1
	2001 to 2500	2

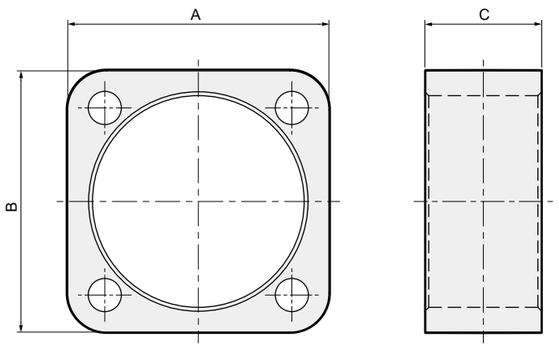


One non-sag block: Assembled in the center between the covers



Two non-sag blocks: Assembled to divide the space between covers into three equal parts

Also, the dimensions of the intermediate support head are as shown in the figure below, so please consider the dimensions of the intermediate support head when installing the cylinder.



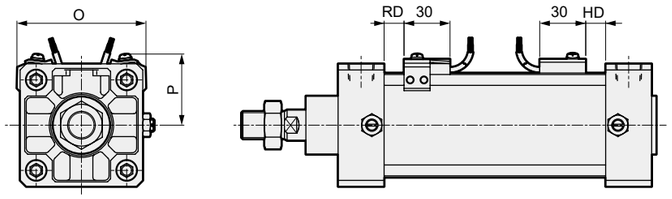
Bore size (mm)	Intermediate support head dimensions		
	A	B	C
ø40	56	57	30
ø50	66	67	30
ø63	81	82	35
ø80	99	100	40
ø100	120	121	50

MEMO

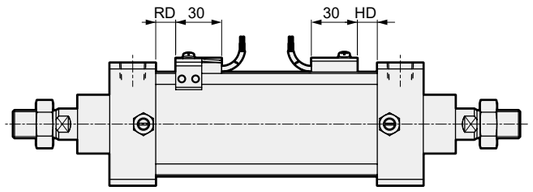
SCA2 Series Switch-equipped External Dimension Diagram

●T0H/V, T5H/V, T2H/V, T3H/V, T3PH/V, T2[H/V]R3, T2WH/V, T3WH/V, T2WLH/V, T8H/V, T2JH/V

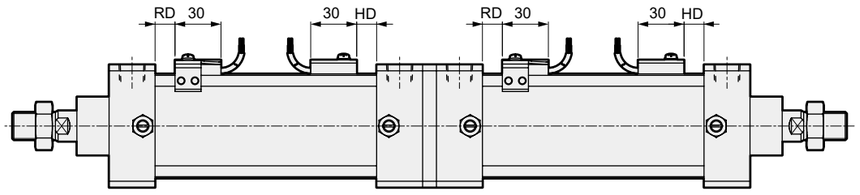
• SCA2, SCA2-P, SCA2-R, SCA2-O, SCA2-U, SCA2-H, SCA2-G, SCA2-V



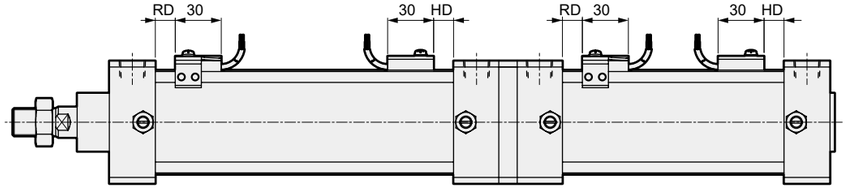
• SCA2-D



• SCA2-B



• SCA2-W



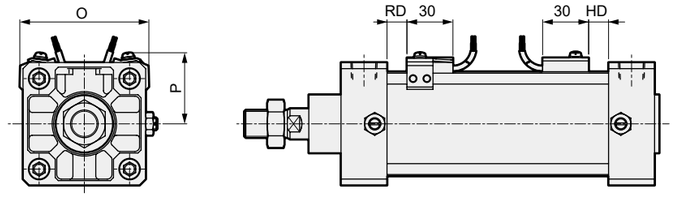
Code / Bore Size (mm)	SCA2, SCA2-P, SCA2-R, SCA2-O, SCA2-U, SCA2-H, SCA2-G, SCA2-V, SCA2-D, SCA2-B, SCA2-W									
	O	P	T0, T5, T2, T3, T3P, T2□R3		T2W, T3W, T2WL		T8		T2J	
			RD	HD	RD	HD	RD	HD	RD	HD
ø40	66	41.5	11	11	13	13	5	5	10	10
ø50	73	43	13	13	15	15	7	7	12	12
ø63	85	47	13	13	15	15	7	7	12	12
ø80	105	57	14.5	14.5	16.5	16.5	8.5	8.5	13.5	13.5
ø100	121	63	18.5	18.5	20.5	20.5	12.5	12.5	17.5	17.5

Note: For switch mountability, refer to the model No. notation method for each variation.

SCA2 Series Switch-equipped External Dimension Diagram

●T0H/V, T5H/V, T2H/V, T3H/V, T3PH/V, T2[H/V]R3, T2WH/V, T3WH/V, T2WLH/V, T8H/V, T2JH/V

• SCA2-Q2



Code / Bore Size (mm)	SCA2-Q2-H									
	O	P	T0, T5, T2, T3, T3P, T2□R3		T2W, T3W, T2WL		T8		T2J	
			RD	HD	RD	HD	RD	HD	RD	HD
ø40	66	41.5	11	15.5	13	17.5	5	9.5	10	14.5
ø50	73	43	13	18	15	20	7	12	12	17
ø63	85	47	13	19	15	21	7	13	12	18
ø80	105	57	14.5	23.5	16.5	25.5	8.5	17.5	13.5	22.5
ø100	121	63	18.5	23.5	20.5	31.5	12.5	23.5	17.5	28.5

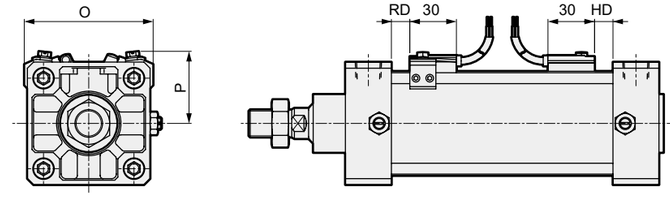
Note: For switch mountability, refer to the model No. notation method for each variation.

Code / Bore Size (mm)	SCA2-Q2-R									
	O	P	T0, T5, T2, T3, T3P, T2□R3		T2W, T3W, T2WL		T8		T2J	
			RD	HD	RD	HD	RD	HD	RD	HD
ø40	66	41.5	15.5	11	17.5	13	9.5	5	14.5	10
ø50	73	43	18	13	20	15	12	7	17	12
ø63	85	47	19	13	21	15	13	7	18	12
ø80	105	57	23.5	14.5	25.5	16.5	17.5	8.5	22.5	13.5
ø100	121	63	23.5	18.5	31.5	20.5	23.5	12.5	28.5	17.5

Note: For switch mountability, refer to the model No. notation method for each variation.

●T2YLH/V, T3YLH/V

• SCA2-G2/G3



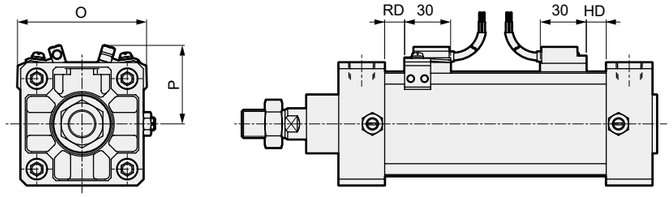
Code / Bore Size (mm)	SCA2-G2/G3			
	O	P	T2YL, T3YL	
			RD	HD
ø40	66	42	10	10
ø50	73	44	12	12
ø63	85	47	12	12
ø80	105	58	13.5	13.5
ø100	121	64	17.5	17.5

Note: For switch mountability, refer to the model No. notation method for each variation.

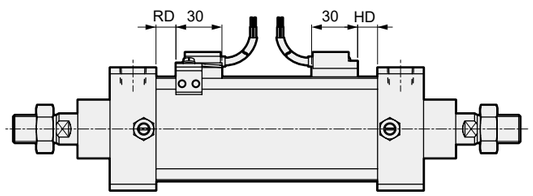
SCA2 Series Switch-equipped External Dimension Diagram

●T1H/V, T2YD, T2YDT

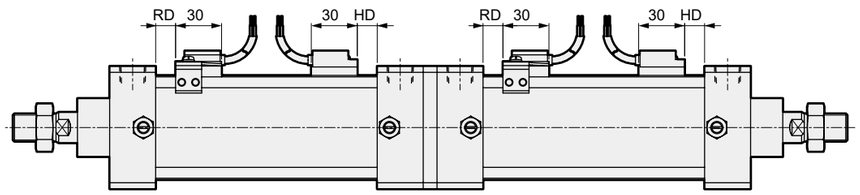
• SCA2, SCA2-P, SCA2-R, SCA2-Q2, SCA2-O, SCA2-U, SCA2-H, SCA2-G, SCA2-V



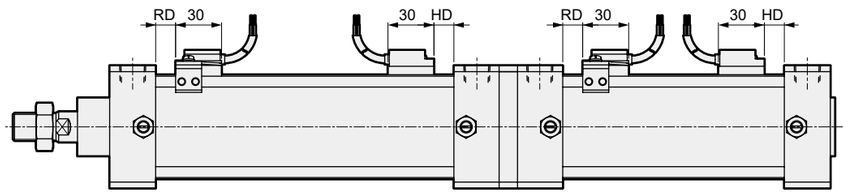
• SCA2-D



• SCA2-B



• SCA2-W



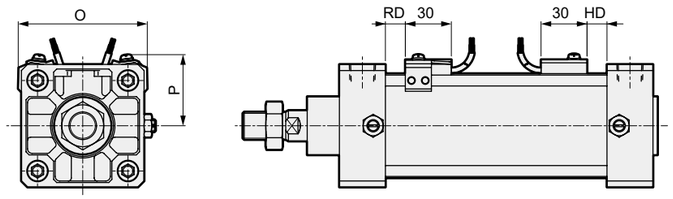
Code / Bore Size (mm)	SCA2, SCA2-P, SCA2-R, SCA2-Q2, SCA2-O, SCA2-U, SCA2-H, SCA2-G, SCA2-G1/G4, SCA2-V, SCA2-D, SCA2-B, SCA2-W			
	O	P	T1, T2YD, T2YDT	
			RD	HD
ø40	66	40	10	10
ø50	73	44.5	12	12
ø63	85	50	12	12
ø80	105	60	13.5	13.5
ø100	121	68	17.5	17.5

Note: For switch mountability, refer to the model No. notation method for each variation.

SCA2 Series Switch-equipped External Dimension Diagram

●T1H/V, T2YD, T2YDT

• SCA2-Q2



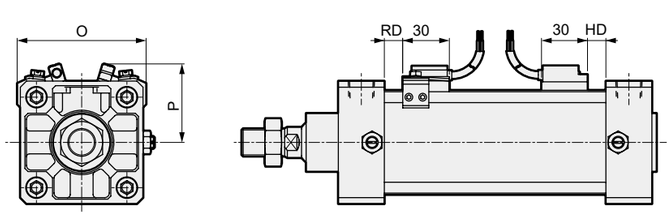
Code / Bore Size (mm)	SCA2-Q2-H			
	O	P	T1, T2YD, T2YDT	
			RD	HD
ø40	66	40	10	14.5
ø50	73	44.5	12	17
ø63	85	50	12	18
ø80	105	60	13.5	22.5
ø100	121	68	17.5	28.5

Note: For switch mountability, refer to the model No. notation method for each variation.

Code / Bore Size (mm)	SCA2-Q2-R			
	O	P	T1, T2YD, T2YDT	
			RD	HD
ø40	66	40	14.5	10
ø50	73	44.5	17	12
ø63	85	50	18	12
ø80	105	60	22.5	13.5
ø100	121	68	28.5	17.5

Note: For switch mountability, refer to the model No. notation method for each variation.

• SCA2-G1/G4

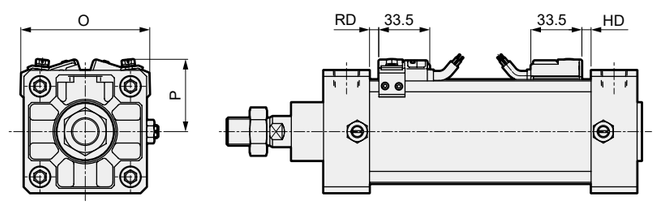


Code / Bore Size (mm)	SCA2, SCA2-P, SCA2-R, SCA2-Q2, SCA2-O, SCA2-U, SCA2-H, SCA2-G, SCA2-G1/G4, SCA2-V, SCA2-D, SCA2-B, SCA2-W			
	O	P	T1, T2YD, T2YDT	
			RD	HD
ø40	66	40	10	10
ø50	73	44.5	12	12
ø63	85	50	12	12
ø80	105	60	13.5	13.5
ø100	121	68	17.5	17.5

Note: For switch mountability, refer to the model No. notation method for each variation.

●H0, H0Y

• SCA2-L2, SCA2-G1L2/G4L2



Code / Bore Size (mm)	SCA2-L2, G1L2/G4L2			
	O	P	RD	HD
ø40	66	42	4	4
ø50	73	44	6	6
ø63	84	47	6	6
ø80	104	58	7.5	7.5
ø100	120	64	11.5	11.5

Note: For switch mountability, refer to the model No. notation method for each variation.

Port/Cushion needle position specification (-XR◇◇◇◇)

Content: Specify the port and cushion needle positions.

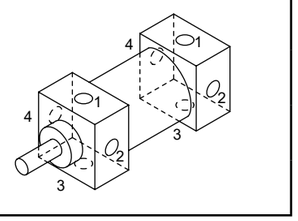
Model No. Notation Method

SCA2 - 00 - 40 B - 100 - XR 1334

Model No.
Please see the SCA2 model No. notation method.

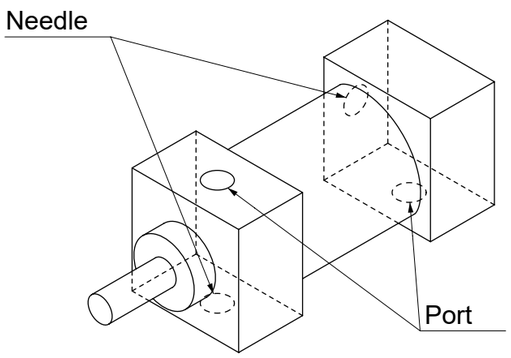
❶ Port/Cushion needle position

❶Port/Cushion needle position

Code	Content
1	
2	
3	
4	

*1: The numbers indicate, in order, the port position on rod side, the needle position on rod side, the port position on head side and the needle position on head side. The numbers are as viewed from the piston rod side.
*2: Combination in which port and needle position are on the same surface is not available for SCA2.

Outline Dimension Drawing



Mounting bracket rotation assembly (-XK◇)

Content: Specifies the mounting position of the mounting bracket.

Model No. Notation Method

SCA2 - 00 - 40 B - 100 - XK1

Model No.
❶Mounting bracket mounting position
Please see the SCA2 model No. notation method.

❶ Mounting bracket mounting position

*1

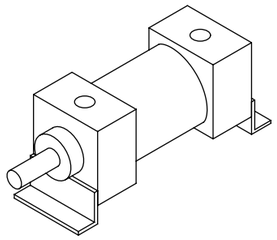
Code	Content
XK1	Rotate mounting bracket 90° clockwise
XK2	Rotate mounting bracket 180° clockwise
XK3	Rotate mounting bracket 270° clockwise

*1: For flanges and trunnions, only XK1 (90° rotation) is applicable.

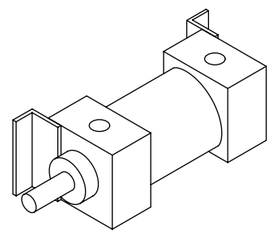
External dimension diagram

*Port and cushion needle positions do not change.

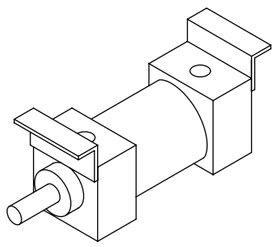
● Basic



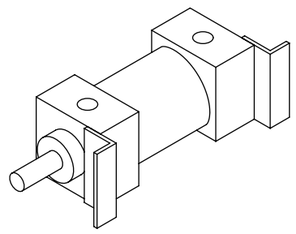
● K1



● K2



● K3



Trunnion position specification (-XAQ□□)

Content: Specify the dimension from the rod cover end face to the center of the trunnion axis.

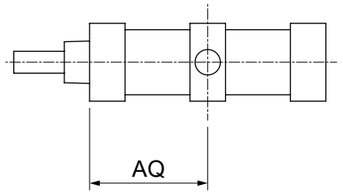
Model No. Notation Method

SCA2 - TC - 40 B - 100 - XAQ 130

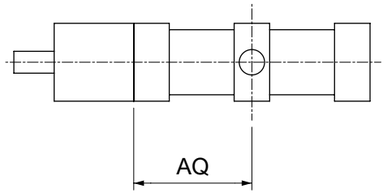
Model No.	Custom-made dimension
Please see the SCA2 model No. notation method.	Refer to the external dimensions list.

Note: For two-stage type and back-to-back type, please consult us separately.

Outline Dimension Drawing



Basic type



With brake

Knuckle Pin/Clevis Pin Split Pin (-XP5)

Content: The retaining rings for knuckle pins and clevis pins will be split pins.

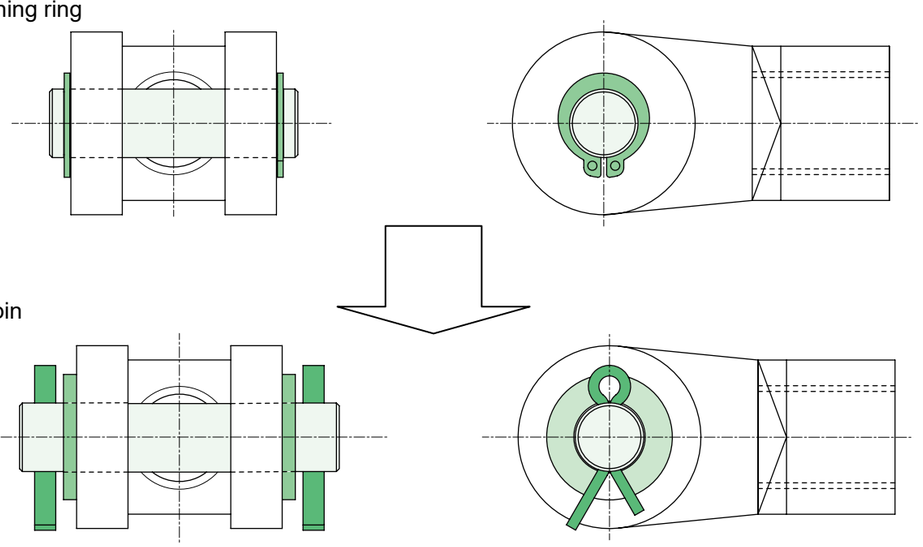
Model No. Notation Method

SCA2 - 00 - 40 B - 100 - Y - XP5

Model No.
Please see the SCA2 model No. notation method.

Outline Dimension Drawing

●Retaining ring



●Split pin

Pin Diameter	Split Pin Size
12	ø4 × 20
14	ø4 × 20
20	ø4 × 25
25	ø4 × 30
28	ø5 × 35
32	ø5 × 40
40	ø5 × 50
50	ø5 × 60

Knuckle Fixed by Pinning (-XP7)

Content: Also, drive a spring pin into the knuckle to prevent loosening.

Model No. Notation Method

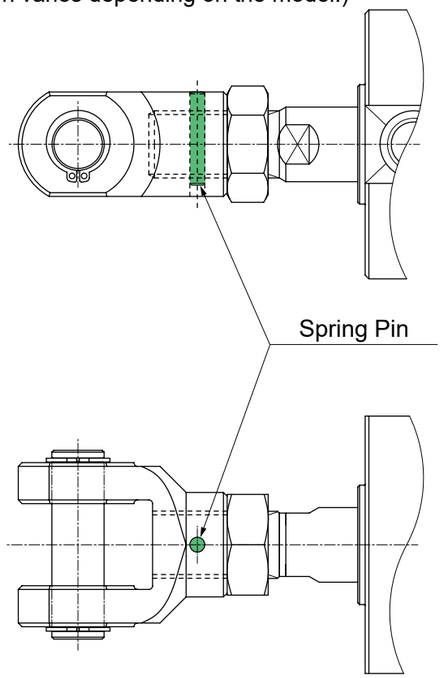
SCA2 - TC - 40 B - 100 - Y - XP7

Model No.

Please see the SCA2 model No. notation method.

Outline Dimension Drawing

Same as with Knuckle specification.
(Spring pin driving direction varies depending on the model.)



Knuckle Pin/Clevis Pin Split Pin Specification, Knuckle Fixed by Pinning (-XP8)

Content: The retaining rings for knuckle pins and clevis pins will be split pins. Also, drive a spring pin into the knuckle to prevent loosening. (XP5 + XP7)

Model No. Notation Method

SCA2 - 00 - 40 B - 100 - Y - XP8

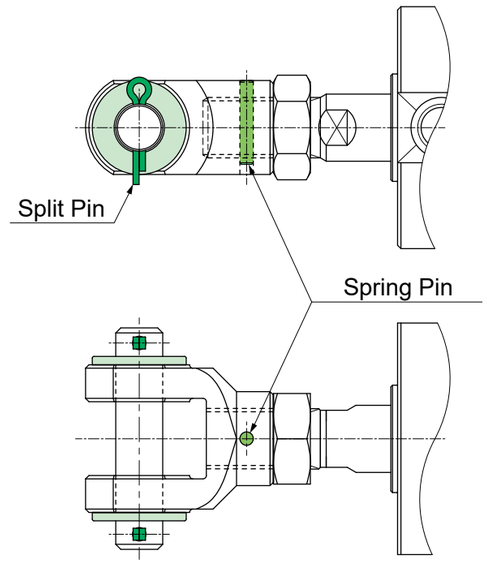
Model No.

Please see the SCA2 model No. notation method.

Outline Dimension Drawing

Mounting dimensions are the same as with Knuckle specification.

It is a combination of XP5 (P. 857) and XP7 (P. 858).



Tie rod material SUS (-XM1)

Content: Change the tie rod material to stainless steel. (Washers and nuts are not changed)

Model No. Notation Method

SCA2 - 00 - 40 B - 100 - XM1

Model No.

Please see the SCA2 model No. notation method.

Outline Dimension Drawing

Same as standard type.

Without Bellows (-XJ9)

Content: Piston rod with dimensions for bellows, but bellows not assembled

Model No. Notation Method

SCA2 - 00 - 40 B - 100 - XJ9

Model No.

Please see the SCA2 model No. notation method.

Outline Dimension Drawing

Same dimensions as with bellows, but bellows are not included.

Scraper/Rod packing only Fluororubber (-XT9)

Content: Change only the rod side packing (rod packing, scraper) to FKM.

Model No. Notation Method

SCA2 - 00 - 40 B - 100 - XT9

Model No.

Please see the SCA2 model No. notation method.

Outline Dimension Drawing

Same as standard type.

Fluorine Packing Type (-T2)

Content: Change the rod packing, piston packing and O-rings to FKM. (Cushion packing is not changed)

Model No. Notation Method

SCA2 - T2 - 00 - 40 B - 100

Model No.

Please see the SCA2 model No. notation method.

Outline Dimension Drawing

Same as standard type.

With 2 Rod Nuts (-A2)

Content: Shipped with 2 rod nuts, same as standard.

Model No. Notation Method

SCA2 - 00 - 40 B - 100 - A2

Model No.

Please see the SCA2 model No. notation method.

Outline Dimension Drawing

Same as standard type except that 2 rod nuts are included.

Pneumatic Equipment

To Use This Product Safely

Be sure to read this before use.

For general cylinder information, see Intro 41, and for cylinder switches, see P. 1026.

Individual Precautions: Medium Bore Size Cylinder SCA2 Series

During Design / Selection

1. Common

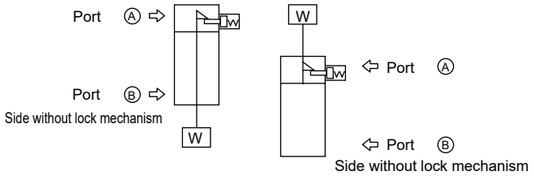
Caution

■Install a speed controller on the cylinder.
Install a speed controller on the cylinder. Please use within the operating piston speed range of each series.

2. Drop prevention type SCA2-Q2

Warning

■In a locked state, if pressure is supplied to port A from a state where both ports are unpressurized, the lock may not release, or the lock may suddenly release and the piston rod may fly out, which is very dangerous. When releasing the lock mechanism, always supply pressure to port B and release it from a state where no load is applied to the lock mechanism.



■When using a quick exhaust valve to increase the lowering speed, the cylinder body may start moving before the lock pin operates, and normal release may not be possible. Do not use a quick exhaust valve with a drop prevention type cylinder.

■Do not use 3-position valves.
Do not use in combination with 3-position valves (especially closed-center metal seal type). If pressure is sealed in the port on the side with the lock mechanism, the lock will not engage. Also, even if locked once, air leaking from the valve may enter the cylinder, and the lock may be released over time.

Caution

■Keep the cylinder load factor at 50% or less.
If the load factor is high, the lock may not be released, or it may lead to damage to the lock part.

■If back pressure is applied to the lock mechanism side, the lock may be released, so use a single solenoid valve or a manifold with individual exhaust.

■Do not use multiple cylinders synchronized.
Do not use a method where two or more fall prevention type cylinders are synchronized to move one workpiece. The lock of one of the cylinders may become unremovable.

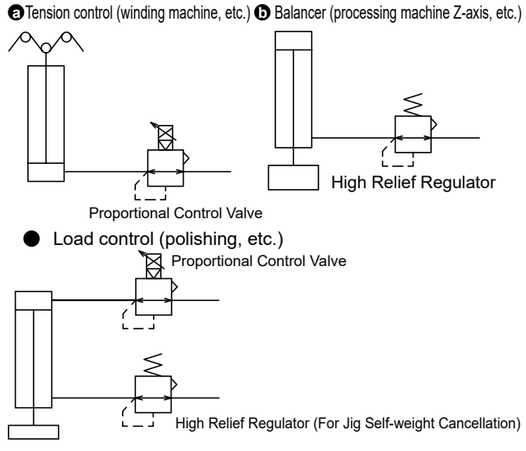
3. Low-friction type SCA2-U

Warning

■Durability varies depending on usage conditions and model characteristics.
This cylinder is a cylinder with internal leakage.
For leakage volume, check the specifications (P. 714).

Caution

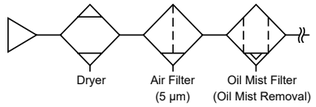
■When used with a balancer, etc., it may be better not to install a speed controller to improve supply/exhaust efficiency. The following circuits ⓐ to ⓒ are recommended depending on the application.



*To improve supply/exhaust characteristics, maximize piping volume as much as possible.

■Do not lubricate. It will cause characteristics to fluctuate.

■Poor quality air will adversely affect characteristics and durability, so please use clean air with the piping below.



■Install the speed controller near the cylinder.
If installed far from the cylinder, the speed will become unstable.

■Generally, the higher the air pressure and the lower the load factor, the more stable the speed.
Use with a load factor of 50% or less.

4. Low hydraulic pressure type SCA2-H

Caution

■This product can use hydraulic operating oil as the operating fluid.
It is a pneumatic cylinder.
It does not comply with JIS standards for hydraulic cylinders regarding operation and leakage tests.

■Select the low hydraulic pressure cylinder in combination with a converter unit.
Good operation can be obtained with the low hydraulic pressure cylinder in combination with a converter unit, so please select and use an appropriate converter unit.

■Keep the load on the low hydraulic pressure cylinder at 50% or less of the theoretical output.
In order for a low hydraulic pressure cylinder to obtain performance close to that of a hydraulic cylinder, such as constant speed operation and stopping accuracy, it is necessary to keep the load at 50% or less.

■For hydraulic oil, use petroleum-based hydraulic turbine oil. Using non-flammable hydraulic fluid may cause trouble.
The appropriate viscosity is up to about 40 to 100 mm²/S at the operating temperature. With ISO VG32, the temperature range is 15 to 35°C. If used in a range exceeding ISO VG32, please use ISO VG46 (25 to 45°C).

ISO VG32 turbine oil
(Example) [Additive-free]
Output: Turbine Oil P32
Nippon Oil Corporation: Turbine Oil 32
Maruzen: Turbine Oil 32
Mitsubishi: Mitsubishi Turbine Oil 32
[With additives]
Output: Daphne Turbine Oil 32
Nippon Oil Corporation: FBK Turbine 32
Maruzen: Turbine Super 32
Mitsubishi: Diamond Turbine Oil 32

5. Cutting oil resistant type SCA2-G2/G3

Caution

■Do not apply an eccentric load to the piston rod. This may reduce the life of scrapers and bearings.

■Please note that if there is no scattering of cutting oil or water with G2 and G3 series, the lubrication of the piston rod will be cut off and the service life will be reduced. In such cases, please use the G or G1 series.

6. Spatter adhesion prevention type SCA2-G4

Warning

■This cylinder series has improved durability in a spatter scattering atmosphere compared to general-purpose cylinders. However, please note that durability may be inferior to general type cylinders when used in other atmospheres.

During Use

1. Common

⚠ Caution

■ Assemble the included mounting brackets with the following torque.

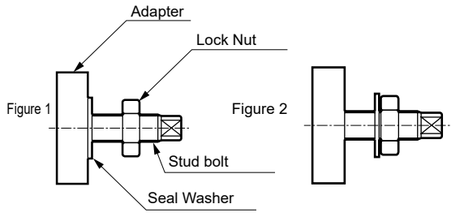
Bore Size	Tightening torque
ø40, ø50, ø63	9.8 N·m
ø80, ø100	34.8 N·m

2. Stroke adjustment type SCA2-R

⚠ Caution

■ Securely lock the stud bolt with a lock nut.

■ When adjusting the stroke, please do so after releasing the air. Do not tighten the stud bolt in the state shown in Figure 1. When tightening the stud bolt, please do so in the state shown in Figure 2. Do not tighten the lock nut in the state shown in Figure 2. When tightening the lock nut, please do so in the state shown in Figure 1. If the above adjustment method is not followed, the seal washer will break after 1 or 2 uses.



■ The stud bolt seal uses a seal washer, so it cannot withstand frequent adjustments.

■ If stroke adjustment is performed, the cushion will no longer be effective.

3. Heat resistant type SCA2-T

⚠ Caution

■ Magnets are not incorporated.

4. Drop prevention type SCA2-Q2

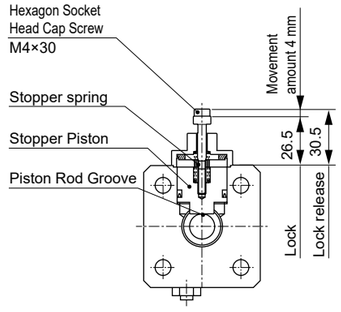
⚠ Caution

■ Since the lock mechanism works at the stroke end, if an external stopper is applied mid-stroke, the lock mechanism will not work, and there is a risk of falling. When setting the load, be sure to confirm that the lock mechanism is working before installing.

■ If the piping on the side with the lock mechanism is thin and long, or if the speed controller is far from the cylinder port, the exhaust speed may be slow and it may take time for the lock to engage, so please be careful.

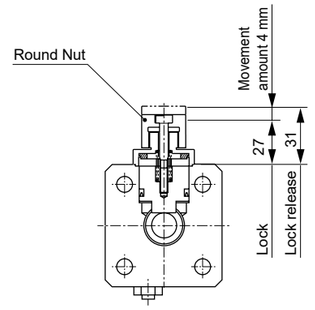
■ Manual operation non-locking type release method

Screw the hexagon socket head cap bolt into the stopper piston, and if you pull the bolt with a force of 20N or more for 4 mm, the stopper piston will move and the lock will be released. (When mounted horizontally with no load or when the opposite port is pressurized) Also, when you release your hand, the built-in spring returns the stopper piston to its original position, and if it enters the piston rod groove, the piston will be locked.



■ Manual operation locking type release method

Turning the round nut to the left (counterclockwise) moves the stopper piston and releases the lock. Also, if you turn it to the right (clockwise) to the lock position, the stopper piston will return, and if it enters the piston rod groove, the piston will be locked.



5. Low-friction type SCA2-U

⚠ Caution

■ Do not apply lateral load to the cylinder. Also, install the sliding guide so that it does not get twisted.

- Operation will become unstable if there are fluctuations in load or resistance.
- In the case of a long stroke, the speed becomes unstable due to the self-weight of the piston rod. Please install and use a guide.
- Guides with a large difference between static friction and dynamic friction will result in unstable operation.

■ Avoid use in places with vibration.

- Operation becomes unstable due to the influence of vibration.

■ Avoid use in steam, humid environments, or alkaline atmospheres.

6. Low hydraulic pressure type SCA2-H

⚠ Caution

■ Do not use one-touch fittings for piping of low hydraulic pressure cylinders.

Using one-touch fittings for piping of low hydraulic pressure cylinders will cause oil leakage, so do not use them.

■ For piping of low hydraulic pressure cylinders, please use steel pipes or copper pipes, etc.

For piping of low hydraulic pressure cylinders, as with hydraulic circuits, surge pressure higher than the operating pressure may occur, so please use safer piping materials.

■ Avoid use with air on one side and hydraulic pressure on the other.

Air may mix with oil and cause malfunction.

For precautions regarding mounting, installation, adjustment, use, and maintenance, please see "Precautions for Use" in this catalog and the CKD Components Product website (https://www.ckd.co.jp/kiki/en/) -> "Model No." -> Instruction Manual .

General Type

SCS2

Large Bore Size Cylinder

ø125, ø140, ø160, ø180, ø200, ø250



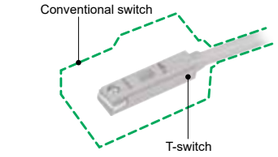
Overview

This is a series of large bore (ø125 to ø250) general-purpose cylinders. It features a wide range of variations and high rigidity. A cylinder with further enhanced reliability.

Features

Significant Weight Reduction!
The use of aluminum for the covers and tube has reduced the product weight by half.

Compact Switches Equipped
Equipped with T-type switches that are more compact than conventional types. This eliminates switch protrusion during installation and contributes to space saving.



Magnet equipped as standard
[SCS2-LN, LH]
Switches can now also be mounted on the ø250 bore size. Additional switches can be mounted on all models (LN, LH).

Ports and Needles on the Same Surface
The supply/exhaust ports and the cushion needles are located on the same surface. This simplifies cylinder mounting and adjustment.



Mounting Dimensional Compatibility [Excluding LH]
There is mounting dimensional compatibility with the conventional product (SCS), providing peace of mind during maintenance.
*The piping port positions have been changed.

Standardized Aluminum Color
The surface color has been standardized to silver (aluminum color, paintless), which easily matches various types of equipment.

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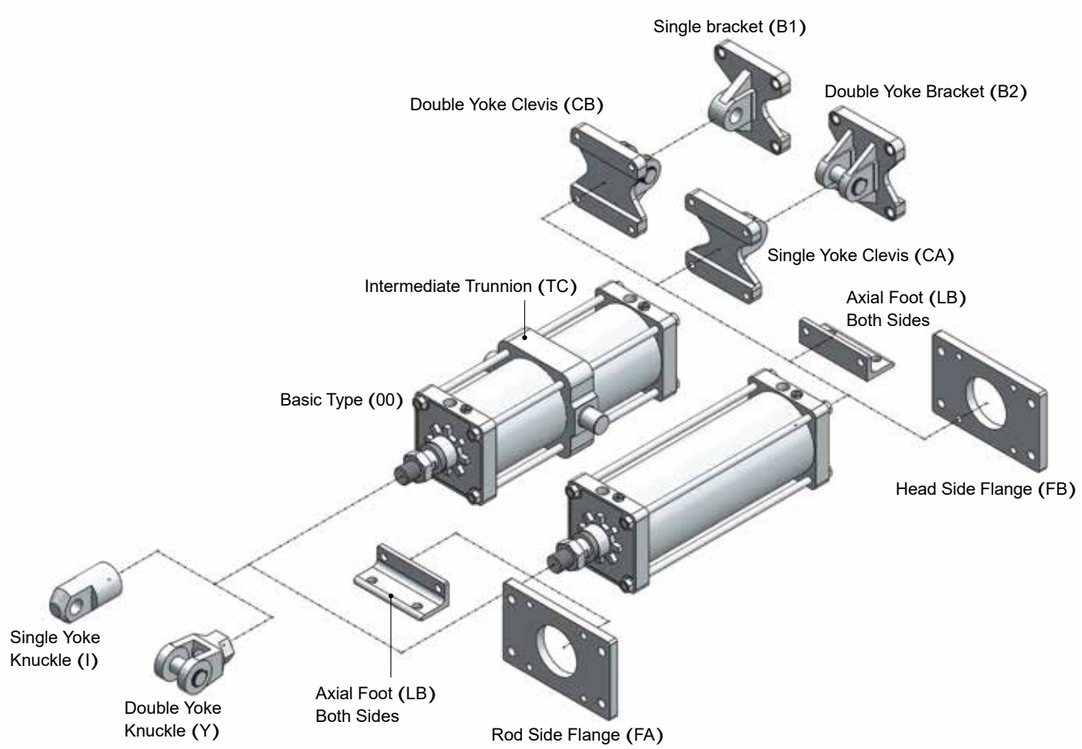
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Large Bore Size Cylinder SCS2 Series

● : Standard, ◎: Option, ○: Custom Products, : Not manufacturable

Variation	Model No. / Circuit Diagram Symbol	Bore Size (mm)	Standard Stroke (mm)							Min. Stroke (mm)	Max. Stroke (mm)	Producible Stroke (mm)	Intermediate stroke (mm) increments	Mounting type						Mounting type							Cushion				Option						Accessories				Switch	Page
			50	75	100	150	200	250	300					Basic type 00	Axial Foot Type LB	Rod Side Flange Type FA	Head Side Flange Type FB	Single Clevis Type CA		Double Clevis Type CB	Intermediate Trunnion Type TC	Rod Side Trunnion Type TA	Head Side Trunnion Type TB	Intermediate tapped trunnion type TF	Rod side tapped trunnion type TD	Head side tapped trunnion type TE	Without Cushion N	Both sides cushion B	Rod side cushion R	Head side cushion H	With check valve in cushion part C2	Bellows (100°C) J	Bellows (250°C) L	Piston rod material change (Stainless steel) M	Cushion needle position S	Cushion needle position T	Single Knuckle I	Double Knuckle Y	Single Bracket B1	Double Yoke Bracket B2		
Double-acting type, Lubricated type	SCS2	ø125, ø140, ø160	●	●	●	●	●	●	●	1	800	2,000	1	●	●	●	●	●		●	●	●	●	○	○	○	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		872
		ø180	●	●	●	●	●	●	●		900			●	●	●	●	●		●	●	●	●				●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
		ø200	●	●	●	●	●	●	●		1,000			●	●	●	●	●		●	●	●	●				●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
		ø250	●	●	●	●	●	●	●		1200			●	●	●	●	●		●	●	●	●				●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
Double-acting type, Non-lube type, With switch	SCS2-N	ø125, ø140, ø160	●	●	●	●	●	●	●	1	800	2,000	1	●	●	●	●	●		●	●	●	●	○	○	○	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	SCS2-LN◎	872
		ø180	●	●	●	●	●	●	●		900			●	●	●	●	●		●	●	●	●				●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
		ø200	●	●	●	●	●	●	●		1,000			●	●	●	●	●		●	●	●	●				●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
		ø250	●	●	●	●	●	●	●		1200			●	●	●	●	●		●	●	●	●				●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
Double-acting, Stroke adjustment type (Push)	SCS2-P	ø125, ø140, ø160	○	○	○	○	○	○	○	25	800	800	1	○	○	○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	SCS2-LNP○	886
		ø180	○	○	○	○	○	○	○		900	900		○	○	○	○				○	○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○		
		ø200	○	○	○	○	○	○	○		1,000	1,000		○	○	○	○				○	○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○		
		ø250	○	○	○	○	○	○	○		1200	1200		○	○	○	○				○	○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○		
Double Acting/ Heat Resistant Type	SCS2-T	ø125, ø140, ø160	●	●	●	●	●	●	●	1	800	800	1	●	●	●	●	●		●	●	●	●	○	○	○	●	●	●	●	◎		◎	◎	◎	◎	◎	◎	◎	◎		896
		ø180	●	●	●	●	●	●	●		900	900		●	●	●	●	●		●	●	●	●				●	●	●	●	◎		◎	◎	◎	◎	◎	◎	◎	◎		
		ø200	●	●	●	●	●	●	●		1,000	1,000		●	●	●	●	●		●	●	●	●				●	●	●	●	◎		◎	◎	◎	◎	◎	◎	◎	◎		
		ø250	●	●	●	●	●	●	●		1200	1200		●	●	●	●	●		●	●	●	●				●	●	●	●	◎		◎	◎	◎	◎	◎	◎	◎	◎		
Double-acting, Double rod type, With switch	SCS2-D	ø125, ø140, ø160	○	○	○	○	○	○	○	1	800	800	1	○	○	○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	SCS2-LND◎	906
		ø180	○	○	○	○	○	○	○		900	900		○	○	○	○				○	○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○		
		ø200	○	○	○	○	○	○	○		1,000	1,000		○	○	○	○				○	○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○		
		ø250	○	○	○	○	○	○	○		1200	1200		○	○	○	○				○	○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○		
Double Acting, Back-to-Back Type	SCS2-B	ø125, ø140, ø160	○	○	○	○	○	○	○	1	800	800	1	○	○	○						○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	SCS2-LNB○	916
		ø180	○	○	○	○	○	○	○		900	900		○	○	○						○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○		
		ø200	○	○	○	○	○	○	○		1,000	1,000		○	○	○						○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○		
		ø250	○	○	○	○	○	○	○		1200	1200		○	○	○						○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○		
Double Acting, Two-Stage Type	SCS2-W (Indication Symbol)	ø125, ø140, ø160	○	○	○	○	○	○	○	2	800	800	1	○	○	○	○	○		○		○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	SCS2-LNW○	924
		ø180	○	○	○	○	○	○	○		900	900		○	○	○	○	○		○		○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○		
		ø200	○	○	○	○	○	○	○		1,000	1,000		○	○	○	○	○		○		○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○		
		ø250	○	○	○	○	○	○	○		1200	1200		○	○	○	○	○		○		○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○		
Double Acting, Low Hydraulic Pressure Type	SCS2-H	ø125, ø140, ø160	○	○	○	○	○	○	○	20	800	800	1	○	○	○	○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	SCS2-LH○	934
		ø180	○	○	○	○	○	○	○		900	900		○	○	○	○	○		○	○	○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○		
		ø200	○	○	○	○	○	○	○		1,000	1,000		○	○	○	○	○		○	○	○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○		
		ø250	○	○	○	○	○	○	○		1200	1200		○	○	○	○	○		○	○	○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○		
Double Acting, Heavy Duty Scraper Type	SCS2-G	ø125, ø140, ø160	○	○	○	○	○	○	○	1	800	800	1	○	○	○	○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	SCS2-LNG○	946
		ø180	○	○	○	○	○	○	○		900	900		○	○	○	○	○		○	○	○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○		
		ø200	○	○	○	○	○	○	○		1,000	1,000		○	○	○	○	○		○	○	○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○		
		ø250	○	○	○	○	○	○	○		1200	1200		○	○	○	○	○		○	○	○	○				○	○	○	○	○	○	○	○	○	○	○	○	○	○		

Combination of Mounting Brackets and Accessories



Combination Availability Table for Variations and Option Items

● Mark: Standard
◎ Mark: Option
○ Mark: Custom Products
△ Mark: Manufacturable depending on conditions (Please consult)
× Mark: Not manufacturable

*1: Heat resistant type T cannot be lubricated (for non-lube only).
△1: Support is possible if only on the S2 side.
△2: Support is possible if the operating temperature is 100°C or less.

		Category	Variation										Piping thread			Option				
			Double-acting type, Lubricated type	Double-acting type, Non-lube type	Double-acting type, With switch	Double Acting Double Rod Type	Back-to-Back Type	Two-stage stroke type	Stroke adjustment Push type	Low Hydraulic Pressure Type	Heat resistant type (120°C)	Heavy-Duty Scraper Type	NPT	G		With check valve in cushion part	With bellows, Neoprene	With Bellows, Silicone Rubber	Piston rod material (Stainless steel)	Cushion needle position specification
		Code	None	N	LN	D	B	W	P	H	T	G	N	G		C2	J	L	M	R, S,T
Category	Variation	Double-acting type, Lubricated type	Blank										○	○		◎	◎	◎	◎	◎
		Double-acting type, Non-lube type	N			○	○	○	○	×	*1	○	○	○		◎	◎	◎	◎	◎
		Double-acting type, With switch	LN			○	○	○	○	○	×	○	○	○		◎	◎	◎	◎	◎
		Double Acting Double Rod Type	D				×	×	×	○	○	○	○	○		◎	◎	◎	◎	◎
		Back-to-Back Type	B					×	×	○	○	○	○	○		◎	◎	◎	◎	◎
		Two-stage stroke type	W						△1	○	○	○	○	○		◎	◎	◎	◎	◎
		Stroke adjustment Push type	P							○	○	△	○	○		◎	◎	◎	◎	◎
		Low Hydraulic Pressure Type	H								×	○	○	○		◎	◎	◎	◎	◎
		Heat resistant type (120°C)	T									×	○	○		◎	△2	◎	◎	◎
		Heavy-Duty Scraper Type	G										○	○		◎	◎	◎	◎	◎
Piping thread		NPT	N											×		○	○	○	○	○
		G	G													○	○	○	○	○
Option		With check valve in cushion part	C2														◎	◎	◎	◎
		With bellows, Neoprene	J															×	◎	◎
		With Bellows, Silicone Rubber	L																◎	◎
		Piston Rod Material (Stainless Steel)	M																	◎
		Cushion needle position specification	R.S.T																	
Accessories		Cylinder Switch	Separately Shown	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	◎	◎	◎
		Single Knuckle	I	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	◎	◎	◎
		Double Knuckle	Y	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	◎	◎	◎
		Single Bracket	B1	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	◎	◎	◎
		Double Yoke Bracket	B2	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	◎	◎	◎

[Model No. Notation Method]

SCA2 – LN G – LB – 125 – (blank) – B – 100 – T0H – D – J – I

- SCA2: Model No.
- LN G: Variation (Non-lube type with switch, Heavy-duty scraper type) * Enter codes in order from left to right in the table above.
- ❶ LB: Mounting Style: Axial Foot Type
- ❷ 125: Bore Size: ø125 mm
- ❸ (blank): Port Thread Type: Rc Thread
- ❹ B: Cushion: With Cushion on Both Sides
- ❺ 100: Stroke: 100 mm
- ❻ T0H: Switch Model No.: Solid State T0H Switch, Lead Wire 1 m
- ❼ D: Number of Switches: With 2 pcs
- ❽ J: Option: Option: Bellows material, for maximum ambient temperature 100°C
- ❾ I: Accessories: Single Knuckle

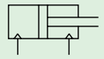
*1: Back-to-back type has two cylinders. When indicating each variation, use the following method.
- If only S1 has a variation, enter the variation code before the S1 stroke. (Example) SCS2-B-125-H50-75: Only S1 is low hydraulic pressure type.
- If only S2 has a variation, enter the variation code before the S2 stroke. (Example) SCS2-B-125-50-H75: Only S2 is low hydraulic pressure type.
- If S1 and S2 have the same variation, enter the variation code before the Bore Size (Example) SCS2-BH-125-50-75: Both S1 and S2 are low hydraulic pressure type.



Large Bore Size Cylinder
Double-acting, Single rod, Lubricated type, Non-lube type

SCS2 Series

●Bore Size: ø125, ø140, ø160, ø180, ø200, ø250

Circuit Diagram Symbol 

RoHS

Model No. Notation Method

Lubricated type without switch

SCS2 - LB - 125 [ ] B - 50 ——— J Y
Model No. ❶ ❷ ❸ ❹ ❺ ❽ ❾

Non-lube type without switch

SCS2-N - LB - 125 [ ] B - 50 ——— J Y
Model No. ❶ ❷ ❸ ❹ ❺ ❽ ❾

Non-lube type with switch

SCS2-LN - LB - 125 [ ] B - 50 - T0H - R - J Y
Model No. ❶ Mounting type ❷ Bore Size ❸ Piping thread type ❹ Cushion ❺ Stroke ❻ Switch Model No. ❼ Number of Switches ❽ Option ❾ Accessories

❶Mounting type Brackets are attached and shipped.

Code	Content	
00	Basic type	
LB	Axial Foot Type (Double Side)	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and Washer Split Pin Attached)	
TC	Intermediate Trunnion Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

Note: Tapped trunnion is supported as a custom product only for ø125 to ø160. Please consult us each time regarding external dimensions, etc.

❷Bore Size (mm)

Code	Contents
125	ø125
140	ø140
160	ø160
180	ø180
200	ø200
250	ø250

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom product)
G	G thread (Custom product)

❹Cushion

Code	Contents
B	Both Sides Air Cushion
R	With rod side cushion
H	With head side cushion
N	Without Cushion

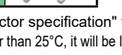
❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø125 to ø160	1 to 800	Every 1 mm
ø180	1 to 900	
ø200	1 to 1000	
ø250	1 to 1200	

Note: For minimum stroke with switch, refer to P. 875.

❻Switch Model No.

For switch details, please refer to P. 971. Switches are assembled into the product before shipment. Also, T2WL switches are attached to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*5

**Lead wire length, connector specification*

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+) 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH3
5 m TOH5

*1: For □ in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

❼Number of Switches

	Code	Content
*1	R	With 1 pc on rod side
*1	H	With 1 pc on head side
	D	With 2 pcs
	T	With 3 pcs
	4	With 4 pieces

*1: ❶When "TA" or "TB" is selected as the mounting method, the number of switches is limited to "H" (1 on the head side) for "TA" and "R" (1 on the rod side) for "TB".

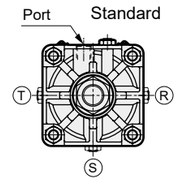
❽Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
	C2	With check valve in cushion part			
	J	Bellows	100°C	200°C	
	L	Bellows	250°C	400°C	
	M	Piston rod, Rod nut material (Stainless steel)			
*2	Blank	Cushion needle position Standard			
*2	R	Cushion needle position R			
*2	S	Cushion needle position S			
*2	T	Cushion needle position T			

*1: Instantaneous maximum temperature is the temperature when sparks, chips, etc. instantaneously hit the bellows.
*2: Please check the cushion needle position in the diagram below.

About cushion needle position (*2)

(Needle position with port facing upward from rod direction)



❾Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and retaining ring included)	
	B1	Single Bracket	
	B2	Double Yoke Bracket (Pin and retaining ring included)	

*1: "I" and "Y" cannot be selected at the same time.

*For combinations of variations and options, see P. 871.

Specifications of custom products Details Please refer to P. 958 to 967.

Code	Contents	Code	Contents	Code	Contents
-XR□□□□	Port/Cushion needle position specification	-XP7	Knuckle fixed by pin driving	-XT9	Scraper/Rod packing only Fluororubber
-XF	Port 1 size down	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	-T2	Fluorine Packing Type
-XK□	Mounting Bracket Rotational Assembly	-XMX□	Tie rod extension	-A2	With 2 Rod Nuts
-XAQ□□	Trunnion Position Specification	-XM1	Tie rod material SUS	Rod End Shape Modification	Refer to Ending P. 11.
-XP5	Knuckle Pin/Clevis Pin Split Pin	-XJ9	Without Bellows		

Model No. Example) SCS2 - ..... - XP5

Food Manufacturing Specification (Catalog No. CC-1271AA)
●Uses food grade grease that can be used in food manufacturing processes
SCS2 - ..... - FP1

Outdoor series (Catalog No. CC-1276AA)
●Outdoor equipment products that support outdoor facilities in harsh environments
SCS2 - ..... - W

Rechargeable Battery Compatible Specification (Catalog No. CC-1226AA)
●Design compatible with rechargeable battery manufacturing process
SCS2 - ..... - P4□
*Please contact us for details.

Switch part single item model No. notation method

●Switch body + Mounting bracket set
SCS2-LN - T0H - 125
❻ Switch Model No. ❷ Bore Size

●Switch body only
SW - T0H
❻ Switch Model No.

●Mounting bracket set
SCS2-LN - TS - 125
❷ Bore Size

Code	Switch
TS	Other than T2YD, T2YDT
T	T2YD, T2YDT

Specifications

Item		SCS2, SCS2-N, SCS2-LN					
Bore Size mm		ø125	ø140	ø160	ø180	ø200	ø250
Actuation method		Double Acting Type					
Operating Fluid		Compressed Air					
Max. Working Pressure MPa		1.0					
Min. Operating Pressure MPa		0.05					
Proof Pressure MPa		1.6					
Ambient Temperature °C		-5 to 60 (However, no freezing)					
Port Size		Rc 1/2	Rc 3/4				Rc1
Stroke tolerance mm		$^{+1.0}_{0}$ (Up to 300), $^{+1.4}_{0}$ (Up to 1000), $^{+1.8}_{0}$ (Up to 1200)					
Operating Piston Speed mm/s		20 to 1000 (Please use within the absorbed energy.)					
Cushion		Air Cushion					
Effective air cushion length mm		21.6	21.6	21.6	21.6	26.6	26.6
Lubrication		Required (When lubricating, use turbine oil Class 1 ISO VG32), Not required for SCS2-N/LN					
Allowable absorbed energy J	With Cushion	63.5	91.5	116	152	233	362
	Without Cushion	0.371	0.386	0.386	0.958	1.08	2.32
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.					

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Producible stroke (mm)	Min. Stroke (mm)	Trunnion type minimum stroke (mm)
ø125	50, 75, 100, 150, 200, 250, 300	800	2,000	1	23
ø140					25
ø160					27
ø180		900			28
ø200		1,000			28
ø250		1, 200			28

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: If the maximum stroke is exceeded, product specifications may not be met depending on the conditions, so please consult us.

Stroke subject to Type 2 pressure vessel inspection

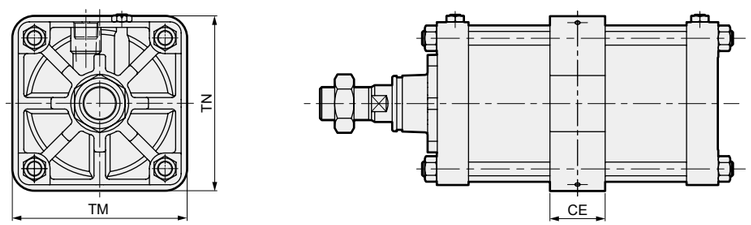
Bore Size	Stroke
ø160	1948 or more
ø180	1526 or more
ø200	946 or more
ø250	752 or more

●Intermediate support head

In the case of the strokes in the table below, an intermediate support head is added to the center of the cylinder.

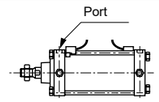
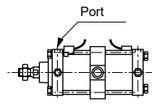
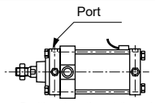
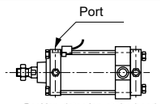
Intermediate support head additional stroke

Bore Size (mm)	Stroke
ø125	1801 to 2000
ø140	



Code / Bore Size (mm)	TM	TN	CE
ø125	150	150	50
ø140	190	170	55

Min. Stroke with Switch

Item / Bore Size (mm)		Stroke when mounting on the same surface	Stroke of intermediate (tapped) trunnion type	Stroke of rod side (tapped) trunnion type	Stroke of head side (tapped) trunnion type
Switch type	Diagram / Bore			 Position detection at the rod side stroke end is not possible.	 Position detection at the head side stroke end is not possible.
Reed switch (T◇)	ø125	20 or more	120 or more	70 or more	
	ø140		125 or more	75 or more	
	ø160		130 or more	80 or more	
	ø180		135 or more	85 or more	
	ø200		140 or more	90 or more	
	ø250		150 or more	100 or more	

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore size (mm)	Product Weight at Stroke (S) = 0 mm: Basic type (00)	Axial Foot Type (LB)	Flange Type (FA, FB)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion Type (TA, TB, TC)	Switch Weight: Switch	Mounting bracket	S=100 mm Per Added Weight
ø125	7.22	8.72	10.52	10.22	10.32	10.62	Refer to the weight listed in the switch specifications on P. 971.	0.028	1.54
ø140	9.35	11.35	14.75	13.15	13.35	12.55		0.030	1.78
ø160	12.35	15.45	19.25	17.35	17.65	18.75		0.034	2.22
ø180	16.75	21.25	28.75	24.15	24.65	24.85		0.038	2.96
ø200	22.78	28.48	36.48	32.28	32.48	34.58		0.040	3.54
ø250	40.51	48.91	66.41	64.51	59.01	69.21		0.045	5.38

(Example) Product Weight of SCS2-LN-LB-125B-300-T0H-D
- ●Product Weight at S=0 mm ..... 8.72 kg
- ●S=300 mm added weight ..... $1.54 \times \frac{300}{100} = 4.62$ kg
- ●Weight of 2 switches (T0H-D) ... 0.018 × 2 = 0.036 kg
- ●Product Weight of 2 switch brackets ..... 0.028 × 2 = 0.056 kg
- ●Product Weight ..... 8.72 + 4.62 + 0.036 + 0.056 = 13.432 kg

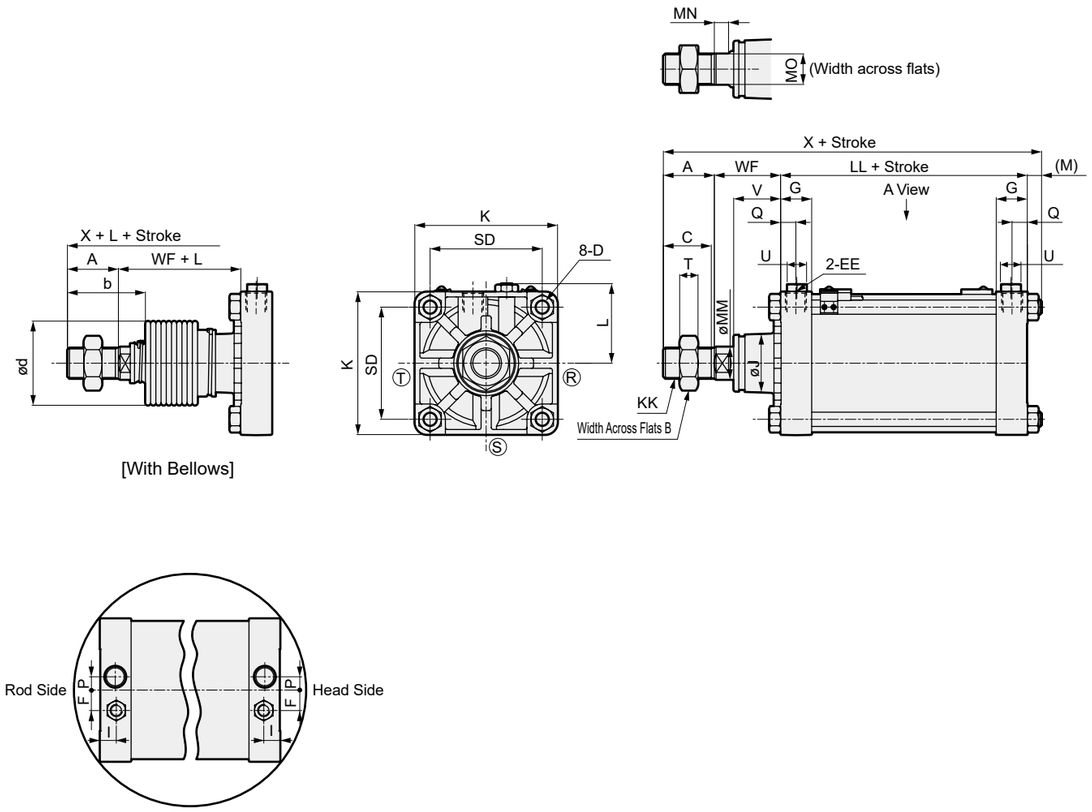
Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa: 0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø125	Push	6.14 × 10²	1.23 × 10³	1.84 × 10³	2.45 × 10³	3.68 × 10³	4.91 × 10³	6.14 × 10³	7.36 × 10³	8.59 × 10³	9.82 × 10³	1.10 × 10⁴	1.23 × 10⁴
	Pull	5.73 × 10²	1.15 × 10³	1.72 × 10³	2.29 × 10³	3.44 × 10³	4.59 × 10³	5.73 × 10³	6.88 × 10³	8.03 × 10³	9.17 × 10³	1.03 × 10⁴	1.15 × 10⁴
ø140	Push	7.70 × 10²	1.54 × 10³	2.31 × 10³	3.08 × 10³	4.62 × 10³	6.16 × 10³	7.70 × 10³	9.24 × 10³	1.08 × 10⁴	1.23 × 10⁴	1.39 × 10⁴	1.54 × 10⁴
	Pull	7.29 × 10²	1.46 × 10³	2.19 × 10³	2.92 × 10³	4.38 × 10³	5.84 × 10³	7.29 × 10³	8.75 × 10³	1.02 × 10⁴	1.17 × 10⁴	1.31 × 10⁴	1.46 × 10⁴
ø160	Push	1.01 × 10³	2.01 × 10³	3.02 × 10³	4.02 × 10³	6.03 × 10³	8.04 × 10³	1.01 × 10⁴	1.21 × 10⁴	1.41 × 10⁴	1.61 × 10⁴	1.81 × 10⁴	2.01 × 10⁴
	Pull	9.42 × 10²	1.88 × 10³	2.83 × 10³	3.77 × 10³	5.65 × 10³	7.54 × 10³	9.42 × 10³	1.13 × 10⁴	1.32 × 10⁴	1.51 × 10⁴	1.70 × 10⁴	1.88 × 10⁴
ø180	Push	1.27 × 10³	2.54 × 10³	3.82 × 10³	5.09 × 10³	7.63 × 10³	1.02 × 10⁴	1.27 × 10⁴	1.53 × 10⁴	1.78 × 10⁴	2.04 × 10⁴	2.29 × 10⁴	2.54 × 10⁴
	Pull	1.19 × 10³	2.39 × 10³	3.58 × 10³	4.77 × 10³	7.16 × 10³	9.54 × 10³	1.19 × 10⁴	1.43 × 10⁴	1.67 × 10⁴	1.91 × 10⁴	2.15 × 10⁴	2.39 × 10⁴
ø200	Push	1.57 × 10³	3.14 × 10³	4.71 × 10³	6.28 × 10³	9.42 × 10³	1.26 × 10⁴	1.57 × 10⁴	1.88 × 10⁴	2.20 × 10⁴	2.51 × 10⁴	2.83 × 10⁴	3.14 × 10⁴
	Pull	1.47 × 10³	2.95 × 10³	4.42 × 10³	5.89 × 10³	8.84 × 10³	1.18 × 10⁴	1.47 × 10⁴	1.77 × 10⁴	2.06 × 10⁴	2.36 × 10⁴	2.65 × 10⁴	2.95 × 10⁴
ø250	Push	2.45 × 10³	4.91 × 10³	7.36 × 10³	9.82 × 10³	1.47 × 10⁴	1.96 × 10⁴	2.45 × 10⁴	2.95 × 10⁴	3.44 × 10⁴	3.93 × 10⁴	4.42 × 10⁴	4.91 × 10⁴
	Pull	2.31 × 10³	4.63 × 10³	6.94 × 10³	9.25 × 10³	1.39 × 10⁴	1.85 × 10⁴	2.31 × 10⁴	2.78 × 10⁴	3.24 × 10⁴	3.70 × 10⁴	4.16 × 10⁴	4.63 × 10⁴

Outline Dimension Drawing

● Basic type (00)



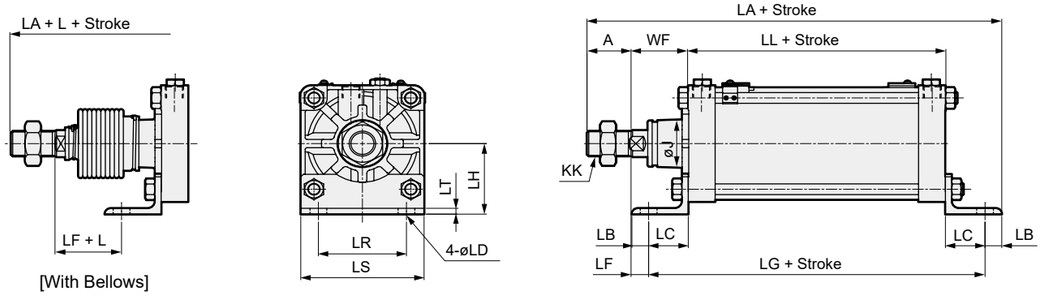
Code	Basic Type (00) Basic Dimensions													
Bore Size (mm)	A	B	C	D	EE	F	G	I	J	K	KK	L	LL	M
ø125	50	46	47	M14 × 1.5	Rc1/2	20	30.5	16	57	140	M30 × 1.5	78 to 82	92	13.5
ø140	50	46	47	M14 × 1.5	Rc3/4	20	34.5	20	57	157	M30 × 1.5	86.5 to 91	103	13.5
ø160	56	55	53	M16 × 1.5	Rc3/4	24	34.5	20	62	177	M36 × 1.5	96.5 to 101	106	15.5
ø180	63	60	60	M18 × 1.5	Rc3/4	24	34.5	20	68	200	M40 × 1.5	108 to 112	110	17.5
ø200	72	70	69	M20 × 1.5	Rc3/4	24	37.5	20.5	75	220	M45 × 1.5	120.5 to 129	123	18.5
ø250	88	85	84	M24 × 1.5	Rc1	24	42.5	25.5	93	274	M56 × 2	147.5 to 156	141	21.5

Code												With Bellows		
Bore Size (mm)	MM	MN	MO	P	Q	SD	T	U	V	WF	X	b	d	L
ø125	32	15	27	13	15	110	18	19	45.5	65	220.5	74	75	(Stroke/4.55) + 11
ø140	32	15	27	15	17	124	18	19	45.5	67	233.5	74	75	(Stroke/4.55) + 9
ø160	40	15	36	15	17	142	21	19	48	71	248.5	82	80	(Stroke/5.15) + 9
ø180	45	17	41	15	17	160	24	19	53	78	268.5	91	91	(Stroke/5.15) + 9
ø200	50	20	46	20	18	175	27	24	60	88	301.5	102	95	(Stroke/5.30) + 9
ø250	60	22	55	22	21	216	34	24	64	94	344.5	120	120	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

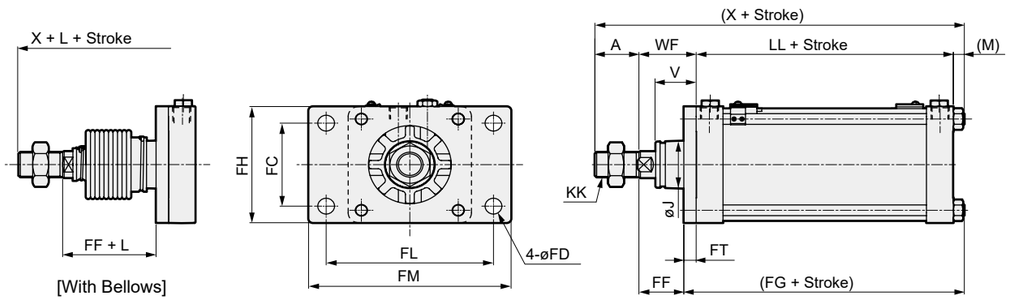
●Axial foot type (LB)



Code	Axial Foot Type (LB) Mounting Dimensions														With Bellows
Bore Size (mm)	A	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT	L
ø125	50	M30 × 1.5	92	65	271	19	45	19	20	182	85	100	140	7	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	67	290	20	50	19	17	203	100	112	157	8	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	71	306	20	53	19	18	212	106	118	177	10	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	78	338	27	60	24	18	230	125	132	200	10	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	88	372	27	62	24	26	247	132	150	220	12	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	94	421	28	70	29	24	281	160	180	274	12	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

●Rod Side Flange Type (FA)

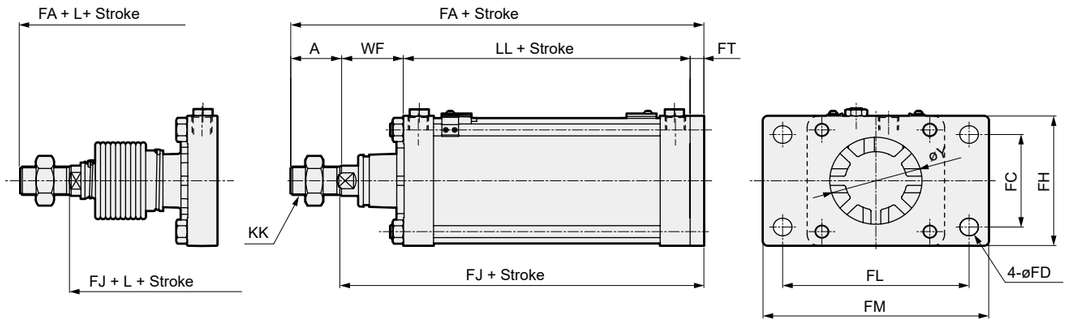


Code	Rod Side Flange Type (FA) Mounting Dimensions															With Bellows
Bore Size (mm)	A	J	KK	LL	M	V	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	L
ø125	50	57	M30 × 1.5	92	11	45.5	65	218	100	19	51	117	140	190	230	14	(Stroke/4.55) + 11
ø140	50	57	M30 × 1.5	103	11	45.5	67	231	112	19	48	133	157	212	250	19	(Stroke/4.55) + 9
ø160	56	62	M36 × 1.5	106	13	48	71	246	118	19	52	138	177	236	280	19	(Stroke/5.15) + 9
ø180	63	68	M40 × 1.5	110	15	53	78	266	132	24	53	150	200	265	310	25	(Stroke/5.15) + 9
ø200	72	75	M45 × 1.5	123	16	60	88	299	150	24	63	164	220	280	330	25	(Stroke/5.30) + 9
ø250	88	93	M56 × 2	141	19	64	94	342	180	29	64	190	274	355	415	30	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

●Head Side Flange Type (FB)



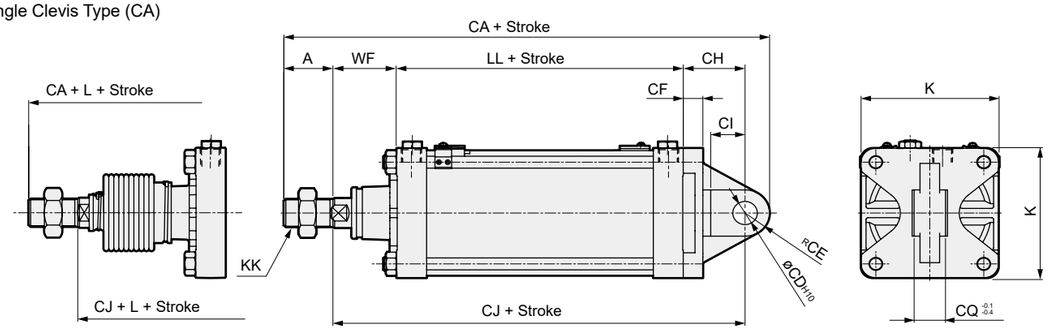
[With Bellows]

Code	Head Side Flange Type (FB) Mounting Dimensions													With Bellows
Bore Size (mm)	A	KK	LL	WF	FA	FC	FD	FH	FJ	FL	FM	FT	Y	L
ø125	50	M30 × 1.5	92	65	221	100	19	140	171	190	230	14	94	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	67	239	112	19	157	189	212	250	19	94	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	71	252	118	19	177	196	236	280	19	107	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	78	276	132	24	200	213	265	310	25	113	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	88	308	150	24	220	236	280	330	25	131	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	94	353	180	29	274	265	355	415	30	153	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

●Single Clevis Type (CA)

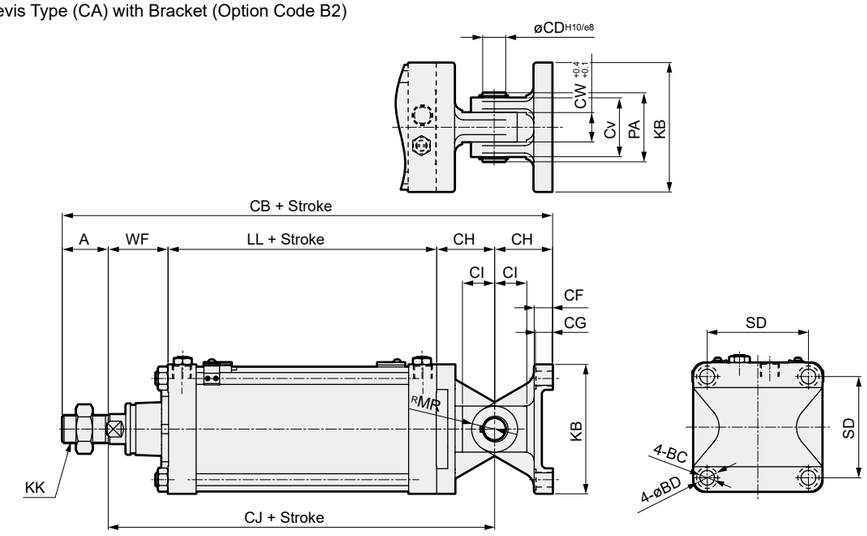


[With Bellows]

Code	Single Clevis Type (CA) Mounting Dimensions													With Bellows
Bore Size (mm)	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	CQ	L
ø125	50	140	M30 × 1.5	92	65	295	25	25	20	63	35	220	32	(Stroke/4.55) + 11
ø140	50	157	M30 × 1.5	103	67	323	28	28	22	75	40	245	36	(Stroke/4.55) + 9
ø160	56	177	M36 × 1.5	106	71	340	32	32	24	75	40	252	40	(Stroke/5.15) + 9
ø180	63	200	M40 × 1.5	110	78	381	40	40	25	90	55	278	50	(Stroke/5.15) + 9
ø200	72	220	M45 × 1.5	123	88	413	40	40	30	90	55	301	50	(Stroke/5.30) + 9
ø250	88	274	M56 × 2	141	94	483	50	50	35	110	65	345	63	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

●Single Clevis Type (CA) with Bracket (Option Code B2)

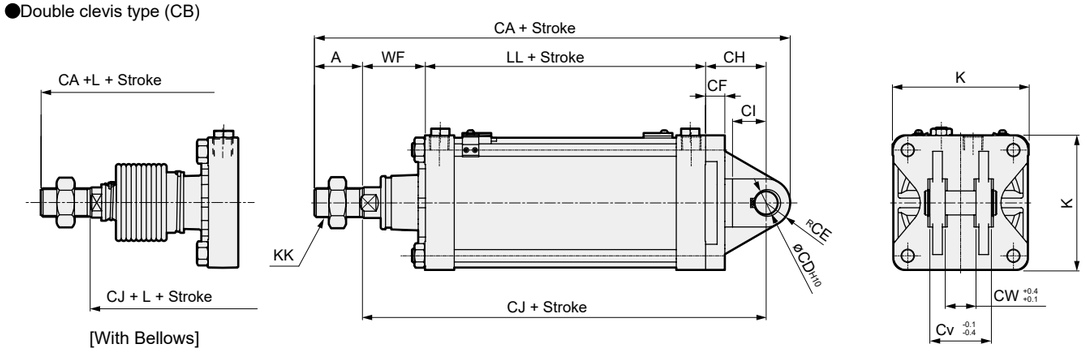


Code	Single Clevis Type (CA) With Bracket (Option Code B2) Mounting Dimensions																		
Bore Size (mm)	A	KK	LL	WF	CB	CD	CF	CG	CH	CI	CJ	Cv	CW	BC	BD	KB	MR	PA	SD
ø125	50	M30 × 1.5	92	65	333	25	20	18	63	35	220	64	32	16	23	140	25	75	110
ø140	50	M30 × 1.5	103	67	370	28	22	20	75	40	245	72	36	16	23	154	28	84	124
ø160	56	M36 × 1.5	106	71	383	32	24	22	75	40	252	80	40	18	26	174	32	92	142
ø180	63	M40 × 1.5	110	78	431	40	25	23	90	55	278	100	50	20	29	196	40	115	160
ø200	72	M45 × 1.5	123	88	463	40	30	28	90	55	301	100	50	22	32	220	40	115	175
ø250	88	M56 × 2	141	94	543	50	35	33	110	65	345	126	63	26	39	274	50	144	216

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: Pin and retaining ring are attached.
***4: For dimensions of models with switches, see P. 956.**
***5: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

●Double clevis type (CB)

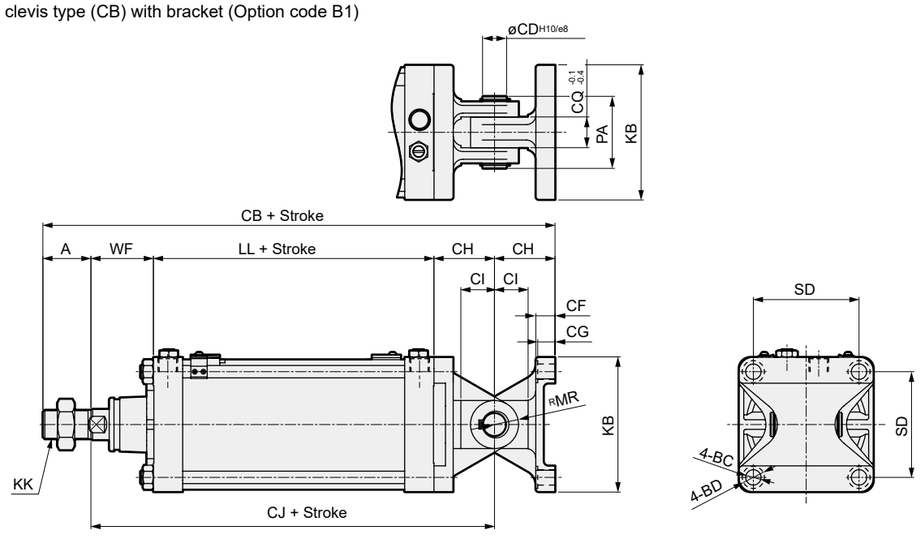


[With Bellows]

Code	Double Clevis Type (CB) Mounting Dimensions														With Bellows
Bore Size (mm)	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	Cv	CW	L
ø125	50	140	M30 × 1.5	92	65	295	25	25	20	63	35	220	64	32	(Stroke/4.55) + 11
ø140	50	157	M30 × 1.5	103	67	323	28	28	22	75	40	245	72	36	(Stroke/4.55) + 9
ø160	56	177	M36 × 1.5	106	71	340	32	32	24	75	40	252	80	40	(Stroke/5.15) + 9
ø180	63	200	M40 × 1.5	110	78	381	40	40	25	90	55	278	100	50	(Stroke/5.15) + 9
ø200	72	220	M45 × 1.5	123	88	413	40	40	30	90	55	301	100	50	(Stroke/5.30) + 9
ø250	88	274	M56 × 2	141	94	483	50	50	35	110	65	345	126	63	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: Pin and retaining ring are attached.
***4: For dimensions of models with switches, see P. 956.**
***5: For outer dimensions diagram of accessories, refer to P. 883.**

●Double clevis type (CB) with bracket (Option code B1)

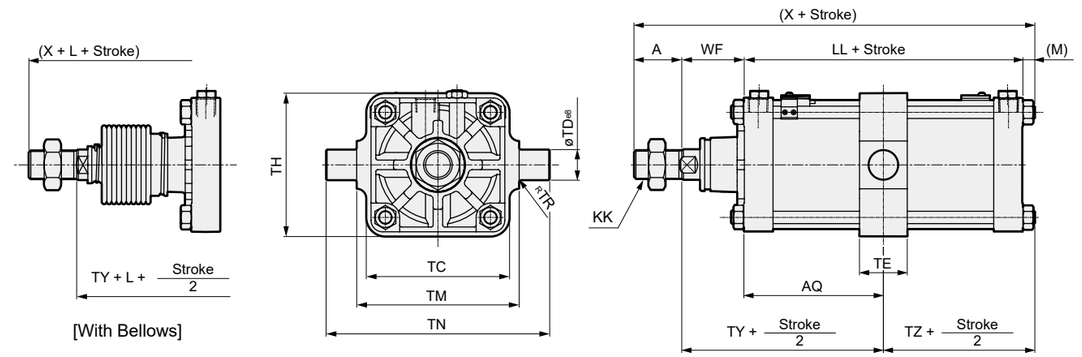


Code	Double Clevis Type (CB) With Bracket (Option Code B1) Mounting Dimensions																
Bore Size (mm)	A	KK	LL	WF	CB	CD	CF	CG	CH	CI	CJ	CQ	BC	BD	KB	MR	PA	SD
ø125	50	M30 × 1.5	92	65	333	25	20	18	63	35	220	32	16	23	140	25	75	110
ø140	50	M30 × 1.5	103	67	370	28	22	20	75	40	245	36	16	23	154	28	84	124
ø160	56	M36 × 1.5	106	71	383	32	24	22	75	40	252	40	18	26	174	32	92	142
ø180	63	M40 × 1.5	110	78	431	40	25	23	90	55	278	50	20	29	196	40	115	160
ø200	72	M45 × 1.5	123	88	463	40	30	28	90	55	301	50	22	32	220	40	115	175
ø250	88	M56 × 2	141	94	543	50	35	33	110	65	345	63	26	39	274	50	144	216

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: Pin and retaining ring are attached.
***4: For dimensions of models with switches, see P. 956.**
***5: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

●Intermediate trunnion type (TC)

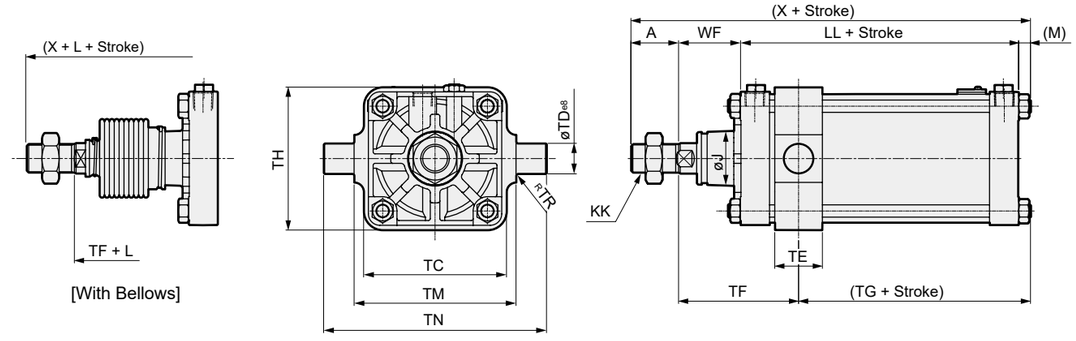


[With Bellows]

Code	Intermediate Trunnion Type (TC) Mounting Dimensions															With Bellows
Bore Size (mm)	A	KK	LL	M	WF	X	AQ	TC	TD	TE	TH	TY	TZ	TM	TN	TR	L
ø125	50	M30 × 1.5	92	11	65	218	46 + Stroke/2	150	32	50	150	111	57	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	11	67	231	51.5 + Stroke/2	154	36	55	170	118.5	62.5	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	13	71	246	53 + Stroke/2	190	40	60	190	124	66	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	15	78	266	55 + Stroke/2	210	45	65	210	133	70	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	16	88	299	61.5 + Stroke/2	242	45	70	242	149.5	77.5	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	19	94	342	70.5 + Stroke/2	300	56	80	300	164.5	89.5	335	447	2	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**
***5: For the minimum producible stroke, please refer to P. 874.**

●Rod side trunnion type (TA)



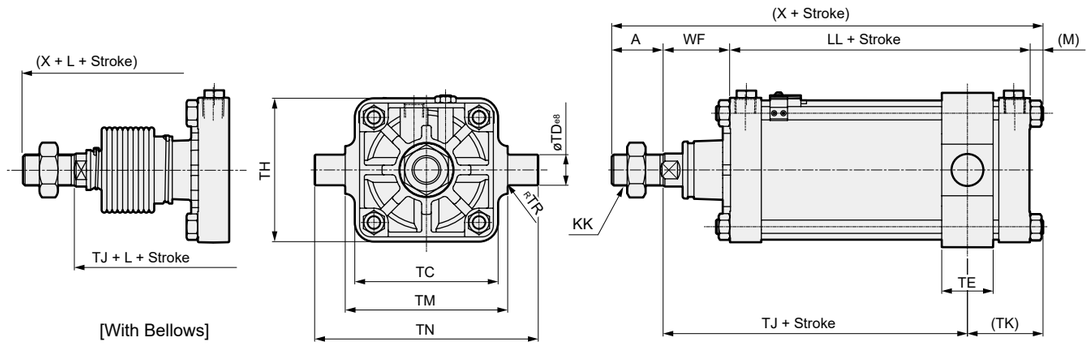
[With Bellows]

Code	Rod Side Trunnion Type (TA) Mounting Dimensions															With Bellows
Bore Size (mm)	A	KK	LL	M	WF	X	TC	TD	TE	TF	TG	TH	TM	TN	TR	L
ø125	50	M30 × 1.5	92	11	65	218	150	32	50	126	42	150	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	11	67	231	154	36	55	134.5	46.5	170	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	13	71	246	190	40	60	141	49	190	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	15	78	266	210	45	65	150.5	52.5	210	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	16	88	299	242	45	70	168	59	242	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	19	94	342	300	56	80	184	70	300	335	447	2	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: Position detection at the rod side stroke end is not possible.
***4: For dimensions of models with switches, see P. 956.**
***5: For outer dimensions diagram of accessories, refer to P. 883.**
***6: For the minimum producible stroke, please refer to P. 874.**

Outline Dimension Drawing

●Head Side Trunnion Type (TB)

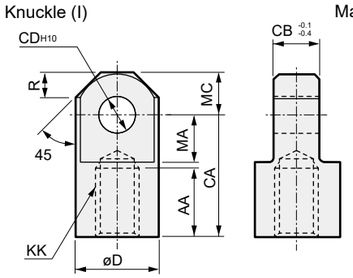


Code / Bore Size (mm)	Head Side Trunnion Type (TB) Mounting Dimensions															With Bellows
	A	KK	LL	M	WF	X	TC	TD	TE	TH	TJ	TK	TM	TN	TR	L
ø125	50	M30 × 1.5	92	11	65	218	150	32	50	150	96	72	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	11	67	231	154	36	55	170	102.5	78.5	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	13	71	246	190	40	60	190	107	83	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	15	78	266	210	45	65	210	115.5	87.5	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	16	88	299	242	45	70	242	131	96	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	19	94	342	300	56	80	300	145	109	335	447	2	(Stroke/6.40) + 9

*1: Ⓡ Ⓢ Ⓣ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: Position detection at the head side stroke end is not possible.
***4: For dimensions of models with switches, see P. 956.**
***5: For outer dimensions diagram of accessories, refer to P. 883.**
***6: For the minimum producible stroke, please refer to P. 874.**

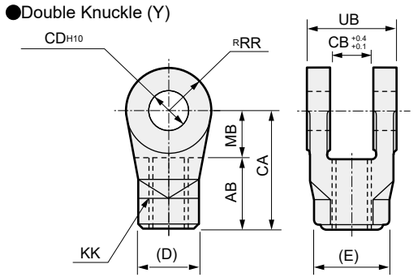
Accessories Outline Dimension Drawing

●Single Knuckle (I) Material: Steel, Painted



Code / Model No.	AA	CA	CB	CD	D	KK	MA	MC	R	Weight (kg)
SCS2-125-I	50	85	32	25	55	M30 × 1.5	32	27.5	15.5	1.25
SCS2-140-I	50	90	36	28	60	M30 × 1.5	35	30	18	1.65
SCS2-160-I	60	105	40	32	70	M36 × 1.5	40	35	21	2.55
SCS2-180-I	65	115	50	40	85	M40 × 1.5	47.5	42.5	29	4.20
SCS2-200-I	75	125	50	40	85	M45 × 1.5	47.5	42.5	29	4.35
SCS2-250-I	88	150	63	50	105	M56 × 2	57.5	52.5	36.5	8.05

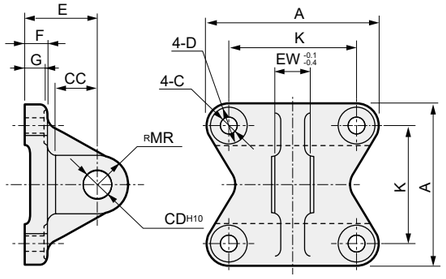
●Double Knuckle (Y) Material: Cast Iron, Painted



Code / Model No.	AB	CA	CB	CD	D	E	KK	MB	RR	UB	Weight (kg)
SCS2-125-Y	50	85	32	25	46	53.1	M30 × 1.5	35	27.5	64	1.30
SCS2-140-Y	50	90	36	28	46	53.1	M30 × 1.5	40	30	72	1.65
SCS2-160-Y	60	105	40	32	55	63.5	M36 × 1.5	45	35	80	2.55
SCS2-180-Y	65	115	50	40	60	69.3	M40 × 1.5	50	42.5	100	4.40
SCS2-200-Y	75	125	50	40	70	80.8	M45 × 1.5	50	42.5	100	4.85
SCS2-250-Y	88	150	63	50	85	98.1	M56 × 2	62	52.5	126	7.05

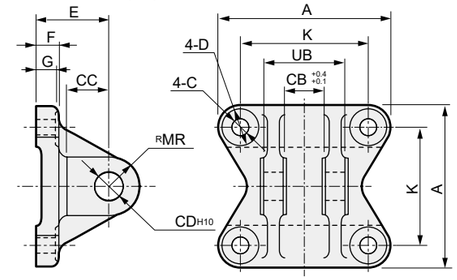
Note: Pin and retaining ring are included.

●Single Bracket (B1) Material: Cast Iron, Painted



Code / Model No.	A	C	CC	CD	D	E	EW	F	G	K	MR	Weight (kg)
SCS2-125-B1	140	16	35	25	23	63	32	20	18	110	25	2.35
SCS2-140-B1	154	16	40	28	23	75	36	22	20	124	28	3.30
SCS2-160-B1	174	18	40	32	26	75	40	24	22	142	32	4.65
SCS2-180-B1	196	20	55	40	29	90	50	25	23	160	40	6.75
SCS2-200-B1	220	22	55	40	32	90	50	30	28	175	40	9.40
SCS2-250-B1	274	26	65	50	39	110	63	35	33	216	50	16.85

●Double Bracket (B2) Material: Cast Iron, Painted



Code / Model No.	A	C	CB	CC	CD	D	E	F	G	K	MR	UB	Weight (kg)
SCS2-125-B2	140	16	32	35	25	23	63	20	18	110	25	64	2.65
SCS2-140-B2	154	16	36	40	28	23	75	22	20	124	28	72	3.85
SCS2-160-B2	174	18	40	40	32	26	75	24	22	142	32	80	5.45
SCS2-180-B2	196	20	50	55	40	29	90	25	23	160	40	100	8.70
SCS2-200-B2	220	22	50	55	40	32	90	30	28	175	40	100	10.55
SCS2-250-B2	274	26	63	65	50	39	110	35	33	216	50	126	19.55

Note: Pin and retaining ring are included.

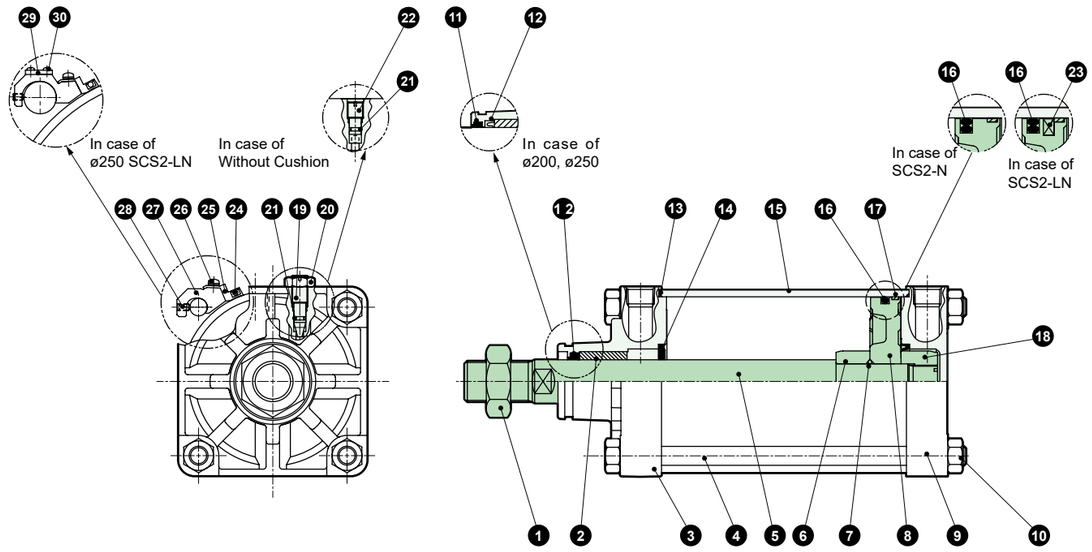
●Pin (P) Material: Steel, Zinc Chromate

Code / Model No.	A	B	C	CD	D	Retaining Ring to Use	Weight (kg)	Applicable Model
SCS2-125-P	75	66.3	1.35	25	23.9	C-type for shaft 25	0.25	SCS2-125
SCS2-140-P	84	74.7	1.65	28	26.6	C-type for shaft 28	0.40	SCS2-140
SCS2-160-P	92	82.7	1.65	32	30.3	C-type for shaft 32	0.50	SCS2-160
SCS2-180-P	115	103.2	1.9	40	38	C-type for shaft 40	1.15	SCS2$^{180}_{200}$
SCS2-250-P	144	129.6	2.2	50	47	C-type for shaft 50	2.25	SCS2-250

Note: When double clevis type, double bracket, or double knuckle is selected, pin and retaining ring are included. A retaining ring is included with the pin.

Internal Structure Diagram/Material

●SCS2-(L)(N)



Part No.	Part Name	Material	Remarks
1	Hexagon Nut	Steel	Zinc Chromate
2	Bushing	Oil-Impregnated Bearing Alloy	
3	Rod Cover	Aluminum Alloy	Chromate
4	Tie Rod	Steel	Zinc Chromate
5	Piston Rod	Steel	Industrial Hard Chrome Plating
6	Cushion Ring A	Steel	Zinc Chromate
7	Piston Gasket	Nitrile Rubber	
8	Piston	Aluminum Alloy	
9	Head Cover	Aluminum Alloy	Chromate
10	Hexagon Nut	Steel	Zinc Chromate
11	Scraper	Nitrile Rubber	
12	Rod Packing	Nitrile Rubber	
13	Cylinder Gasket	Nitrile Rubber	
14	Cushion Packing	Nitrile Rubber, Steel	Only with cushion
15	Cylinder Tube	Aluminum Alloy	Hard Anodized
16	Piston Packing	Nitrile Rubber	
17	Wear Ring	ø125 to ø200: Polyacetal ø250: Fabric-reinforced phenolic resin	
18	Cushion Ring B	Steel	Zinc Chromate
19	Cushion Needle	ø125 to ø180: Copper alloy ø200, ø250: Steel	ø200, ø250: Zinc chromate
20	Hexagon Nut	Steel	Zinc Chromate
21	Needle Gasket	Nitrile Rubber	
22	Cushion needle stop plug	ø125 to ø180: Copper alloy ø200, ø250: Steel	
23	Magnet	Rubber	With Switch Only
With Switch			
24	Switch		
25	Switch holder	Aluminum Alloy	
26	S2R1 set Phillips pan head screw: For switches other than T2YD(T)	Steel	Zinc Chromate
	S2R2 set slotted hexagon head bolt: For switch T2YD(T)	Stainless Steel	
27	Switch mounting base	Aluminum Alloy	
28	Hexagon socket set screw H	Steel alloy	Black Oxide
29	Reinforcing plate	Steel	Zinc Chromate
30	Phillips Pan Head Screw	Steel	Zinc Chromate

Mounting Bracket Material

Mounting type	Material	Remarks
Foot (LB)	Steel	Painted
Flange (FA, FB)	Steel	Painted
Clevis (CA, CB)	Cast Iron	Painted
Trunnion (TA, TB, TC)	Cast Iron	Painted

For Maintenance Parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

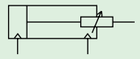
MEMO



Large Bore Size Cylinder
Double-acting, Push side stroke adjustment type

SCS2-P Series

●Bore Size: ø125, ø140, ø160, ø180, ø200, ø250

Circuit Diagram Symbol 

Custom Products RoHS

Model No. Notation Method

Without Switch
(Without magnet for switch)

SCS2-P	-	LB	-	125		B	-	50	-	25	-	J	Y
Model No.		❶ Mounting type		❷ Bore Size	❸ Piping thread type	❹ Cushion		❺ Stroke		❻ Stroke adjustment range		❼ Option	❽ Accessories

❶Mounting type Brackets are included and shipped.

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
TC	Intermediate Trunnion Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

Note: Tapped trunnion is supported as a custom product only for ø125 to ø160. Please consult us each time regarding external dimensions, etc.

❷Bore Size (mm)

Code	Contents
125	ø125
140	ø140
160	ø160
180	ø180
200	ø200
250	ø250

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom product)
G	G thread (Custom product)

❹Cushion

Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø125 to ø160	25 to 800	Every 1 mm
ø180	25 to 900	
ø200	25 to 1000	
ø250	25 to 1200	

❻Stroke adjustment range (mm)

Code	Content
25	25
50	50
75	75
100	100

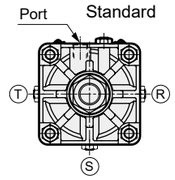
❼Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
C2	With check valve in cushion part			
J	Bellows	100°C	200°C	
L	Bellows	250°C	400°C	
M	Piston Rod Material (Stainless Steel)			
*2 Blank	Cushion needle position Standard			
*2 R	Cushion needle position R			
*2 S	Cushion needle position S			
*2 T	Cushion needle position T			

*1: Instantaneous maximum temperature is the temperature when sparks, chips, etc. instantaneously hit the bellows.
*2: Please check the cushion needle position in the diagram below.

About cushion needle position (*2)

(Needle position with port facing upward from rod direction)



❽Accessories

Code	Content	
I	Single Knuckle	
Y	Double Knuckle (Pin and retaining ring included)	

Note: "I" and "Y" cannot be selected at the same time.

*For combinations of variations and options, see P. 871.

Specifications of custom products Details Please refer to P. 958 to 967.

Code	Contents	Code	Contents	Code	Contents
-XR□□□□	Port/Cushion needle position specification	-XP7	Knuckle fixed by pin driving	-XT9	Scraper/Rod packing only Fluoro Rubber
-XF	Port 1 size down	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	-T2	Fluorine Packing Type
-XK□	Mounting Bracket Rotational Assembly	-XMX◇	Tie rod extension	-A2	With 2 Rod Nuts
-XAQ□□	Trunnion Position Specification	-XM1	Tie rod material SUS	Rod end Shape change	Refer to Ending P. 11.
-XP5	Knuckle Pin/Clevis Pin Split Pin	-XJ9	Without Bellows		

Model No. Example) SCS2-P - ..... - XP5

Specifications

Item		SCS2-P (Stroke adjustment type)					
Bore Size mm		ø125	ø140	ø160	ø180	ø200	ø250
Actuation method		Double Acting Type					
Operating Fluid		Compressed Air					
Max. Working Pressure MPa		1.0					
Min. Operating Pressure MPa		0.1					
Proof Pressure MPa		1.6					
Ambient Temperature °C		-5 to 60 (However, no freezing)					
Port Size		Rc 1/2	Rc 3/4				Rc1
Stroke tolerance mm		$^{+1.0}_{0}$ (Up to 300), $^{+1.4}_{0}$ (Up to 1000), $^{+1.8}_{0}$ (Up to 1200)					
Operating Piston Speed mm/s		20 to 1000 (Please use within the absorbed energy.)					
Cushion		Air cushion (However, the rod side cushion is not effective during stroke adjustment.)					
Effective air cushion length mm		21.6	21.6	21.6	21.6	26.6	26.6
Stroke adjustment range mm		25, 50, 75, 100					
Lubrication		Required (When lubricating, use turbine oil Class 1 ISO VG32)					
Allowable absorbed energy J	With Cushion	63.5	91.5	116	152	233	362
	Without Cushion	0.371	0.386	0.386	0.958	1.08	2.32
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.					

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)	Trunnion Min. stroke (mm)
ø125	50, 75, 100, 150, 200, 250, 300	800	25	25
ø140				25
ø160				27
ø180		900		28
ø200		1,000		28
ø250		1,200		28

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: If the maximum stroke is exceeded, product specifications may not be met depending on the conditions, so please consult us.

Type 2 pressure vessel inspection
Target stroke

Bore Size	Stroke
ø200	946 or more
ø250	752 or more

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Basic type (00)	Axial Foot Type (LB)	Flange type (FA, FB)	Single Clevis Type (CA)	Double clevis type (CB)	Trunnion type (TA, TB, TC)	Weight per 25 mm stroke (S) adjustment	S=100 mm Added weight per
ø125	11.42	12.92	14.72	14.42	14.52	14.82	0.51	2.17
ø140	13.35	15.35	18.75	17.15	17.35	16.55	0.51	2.41
ø160	18.45	21.55	25.35	23.45	23.75	24.85	0.72	3.21
ø180	24.65	29.15	36.65	32.05	32.55	32.75	0.93	4.21
ø200	33.98	39.68	47.68	43.48	43.68	45.78	1.09	5.08
ø250	57.81	66.21	83.71	81.81	76.31	86.51	1.53	7.60

(Example) Product Weight of SCS2-P-LB-125B-300-25

- Product Weight at S=0 mm ..... 12.92 kg
- S=300 mm added weight .....$1.54\times\frac{300}{100}$=4.62 kg
- Weight for 25 mm stroke adjustment ... 0.51 kg
- Product Weight .....12.92+4.62+0.51=18.05 kg

Theoretical Thrust Table

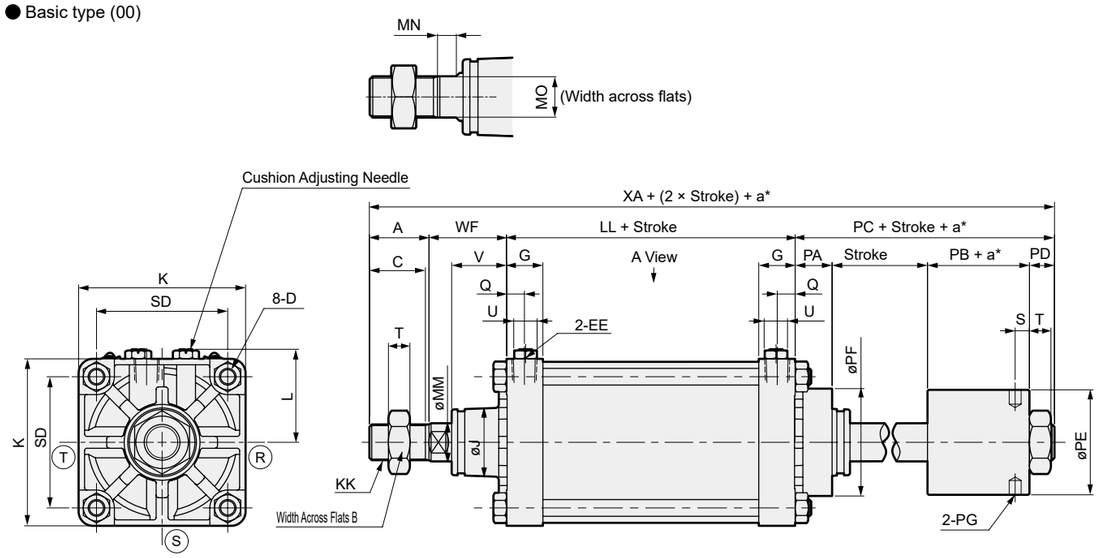
(Unit: N)

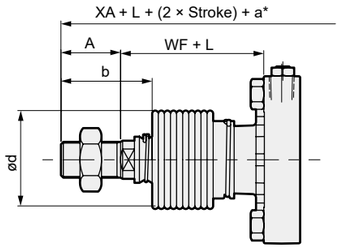
Bore Size (mm)	Operating Direction	Operating Pressure MPa 0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø125	Push/Pull	1.15×10^{3}	1.72×10^{3}	2.29×10^{3}	3.44×10^{3}	4.59×10^{3}	5.73×10^{3}	6.88×10^{3}	8.03×10^{3}	9.17×10^{3}	1.03×10^{4}	1.15×10^{4}
ø140	Push/Pull	1.46×10^{3}	2.19×10^{3}	2.92×10^{3}	4.38×10^{3}	5.84×10^{3}	7.29×10^{3}	8.75×10^{3}	1.02×10^{4}	1.17×10^{4}	1.31×10^{4}	1.46×10^{4}
ø160	Push/Pull	1.88×10^{3}	2.83×10^{3}	3.77×10^{3}	5.65×10^{3}	7.54×10^{3}	9.42×10^{3}	1.13×10^{4}	1.32×10^{4}	1.51×10^{4}	1.70×10^{4}	1.88×10^{4}
ø180	Push/Pull	2.39×10^{3}	3.58×10^{3}	4.77×10^{3}	7.16×10^{3}	9.54×10^{3}	1.19×10^{4}	1.43×10^{4}	1.67×10^{4}	1.91×10^{4}	2.15×10^{4}	2.39×10^{4}
ø200	Push/Pull	2.95×10^{3}	4.42×10^{3}	5.89×10^{3}	8.84×10^{3}	1.18×10^{4}	1.47×10^{4}	1.77×10^{4}	2.06×10^{4}	2.36×10^{4}	2.65×10^{4}	2.95×10^{4}
ø250	Push/Pull	4.63×10^{3}	6.94×10^{3}	9.25×10^{3}	1.39×10^{4}	1.85×10^{4}	2.31×10^{4}	2.78×10^{4}	3.24×10^{4}	3.70×10^{4}	4.16×10^{4}	4.63×10^{4}

MEMO

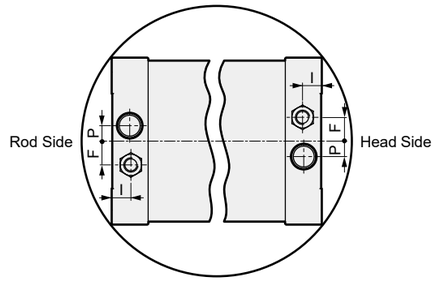
Outline Dimension Drawing

● Basic type (00)





[With Bellows



Port position diagram (A View)

* "a" is the adjustment stroke.

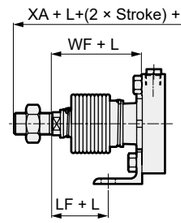
Code	Basic Type (00) Basic Dimensions																	
Bore Size (mm)	A	B	C	D	EE	F	G	I	J	K	KK	L	LL	MM	MN	MO	P	PA
ø125	50	46	47	M14 × 1.5	Rc1/2	20	30.5	16	57	140	M30 × 1.5	78 to 82	92	32	15	27	13	31
ø140	50	46	47	M14 × 1.5	Rc3/4	20	34.5	20	57	157	M30 × 1.5	86.5 to 91	103	32	15	27	15	31
ø160	56	55	53	M16 × 1.5	Rc3/4	24	34.5	20	62	177	M36 × 1.5	96.5 to 101	106	40	15	36	15	34
ø180	63	60	60	M18 × 1.5	Rc3/4	24	34.5	20	68	200	M40 × 1.5	108 to 112	110	45	17	41	15	34
ø200	72	70	69	M20 × 1.5	Rc3/4	24	37.5	20.5	75	220	M45 × 1.5	120.5 to 129	123	50	20	46	20	57
ø250	88	85	84	M24 × 1.5	Rc1	24	42.5	25.5	93	274	M56 × 2	147.5 to 156	141	60	22	55	22	60

Code															With Bellows		
Bore Size (mm)	PB	PC	PD	PE	PF	PG	Q	S	SD	T	U	V	WF	XA	b	d	L
ø125	40.5	92.5	21	88	90	ø10 depth 10	15	12	110	18	19	45.5	65	299.5	74	75	(Stroke/4.55) + 11
ø140	40.5	92.5	21	88	90	ø10 depth 10	17	12	124	18	19	45.5	67	312.5	74	75	(Stroke/4.55) + 9
ø160	46	106	26	98	104	ø14 depth 15	17	14.5	142	21	19	48	71	339	82	80	(Stroke/5.15) + 9
ø180	52	115	29	108	110	ø14 depth 15	17	16	160	24	19	53	78	366	91	91	(Stroke/5.15) + 9
ø200	48	137	32	120	128	ø14 depth 15	18	18	175	27	24	60	88	420	102	95	(Stroke/5.30) + 9
ø250	58	157	39	141	150	ø14 depth 15	21	22.5	216	34	24	64	94	480	120	120	(Stroke/6.40) + 9

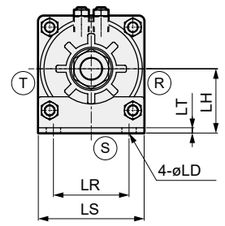
*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

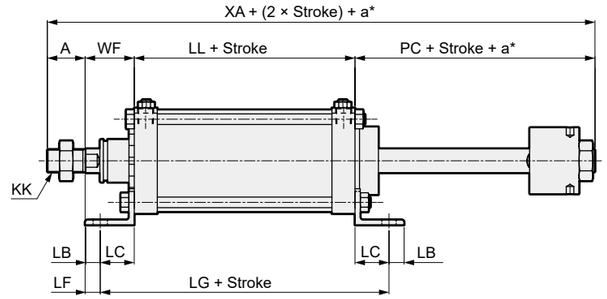
Outline Dimension Drawing

●Axial Foot Type (LB)



[With Bellows]



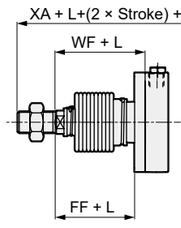


* "a" is the adjustment stroke.

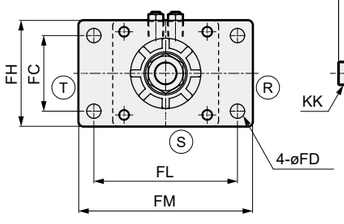
Code	Axial Foot Type (LB) Mounting Dimensions														With Bellows
Bore Size (mm)	A	KK	LL	PC	WF	XA	LB	LC	LD	LF	LG	LH	LR	LS	LT	L
ø125	50	M30 × 1.5	92	92.5	65	299.5	19	45	19	20	182	85	100	140	7	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	92.5	67	312.5	20	50	19	17	203	100	112	157	8	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	106	71	339	20	53	19	18	212	106	118	177	10	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	115	78	366	27	60	24	18	230	125	132	200	10	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	137	88	420	27	62	24	26	247	132	150	220	12	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	157	94	480	28	70	29	24	281	160	180	274	12	(Stroke/6.40) + 9

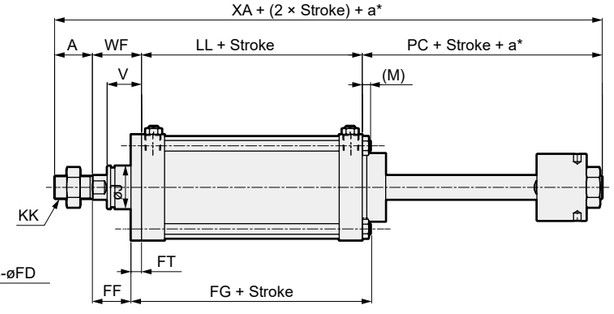
*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

●Rod Side Flange Type (FA)



[With Bellows]





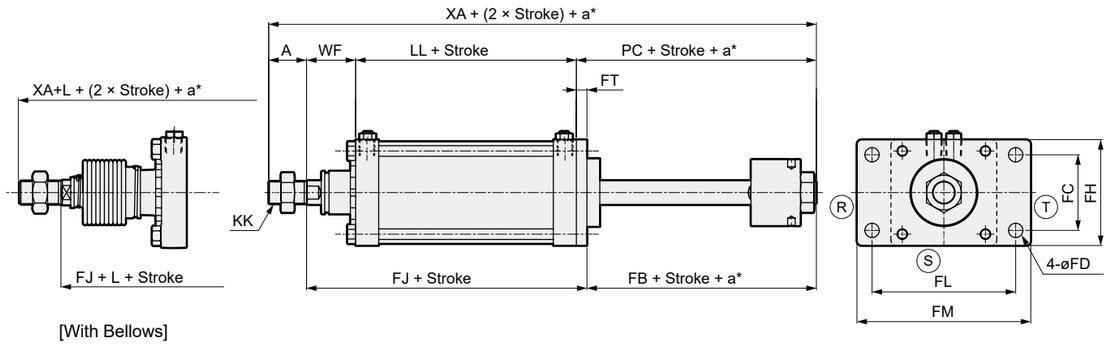
* "a" is the adjustment stroke.

Code	Rod Side Flange Type (FA) Mounting Dimensions																With Bellows
Bore Size (mm)	A	J	KK	LL	M	PC	V	WF	XA	FC	FD	FF	FG	FH	FL	FM	FT	L
ø125	50	57	M30 × 1.5	92	11	92.5	45.5	65	299.5	100	19	51	117	140	190	230	14	(Stroke/4.55) + 11
ø140	50	57	M30 × 1.5	103	11	92.5	45.5	67	312.5	112	19	48	133	157	212	250	19	(Stroke/4.55) + 9
ø160	56	62	M36 × 1.5	106	13	106	48	71	339	118	19	52	138	177	236	280	19	(Stroke/5.15) + 9
ø180	63	68	M40 × 1.5	110	15	115	53	78	366	132	24	53	150	200	265	310	25	(Stroke/5.15) + 9
ø200	72	75	M45 × 1.5	123	16	137	60	88	420	150	24	63	164	220	280	330	25	(Stroke/5.30) + 9
ø250	88	93	M56 × 2	141	19	157	64	94	480	180	29	64	190	274	355	415	30	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

●Head Side Flange Type (FB)



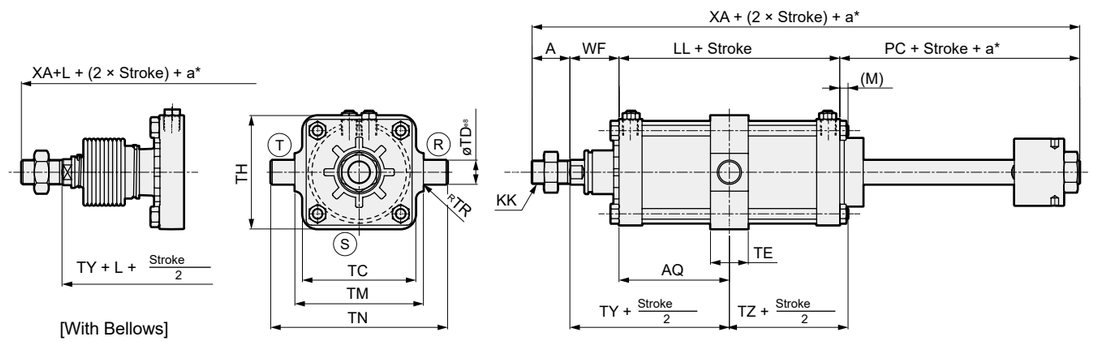
[With Bellows]

* "a" is the adjustment stroke.

Code	Head Side Flange Type (FB) Mounting Dimensions														With Bellows
Bore Size (mm)	A	KK	LL	PC	WF	XA	FB	FC	FD	FH	FJ	FL	FM	FT	L
ø125	50	M30 × 1.5	92	92.5	65	299.5	78.5	100	19	140	171	190	230	14	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	92.5	67	312.5	73.5	112	19	157	189	212	250	19	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	106	71	339	87	118	19	177	196	236	280	19	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	115	78	366	90	132	24	200	213	265	310	25	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	137	88	420	112	150	24	220	236	280	330	25	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	157	94	480	127	180	29	274	265	355	415	30	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

●Intermediate trunnion type (TC)



[With Bellows]

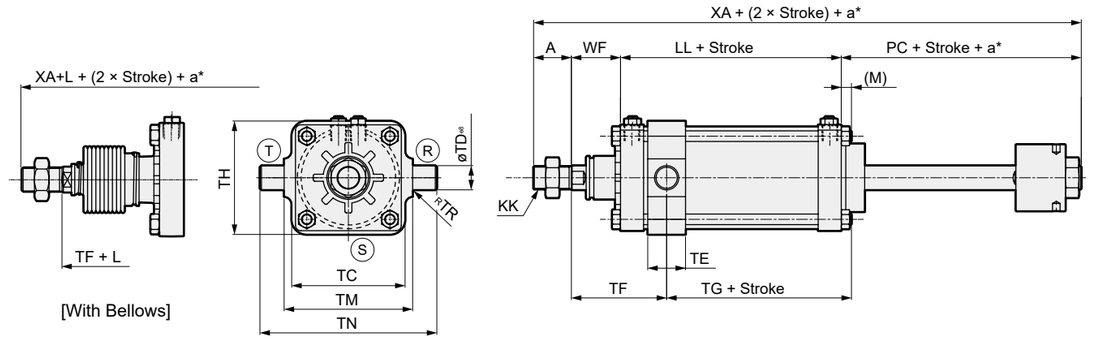
* "a" is the adjustment stroke.

Code	Intermediate Trunnion Type (TC) Mounting Dimensions																	With Bellows
Bore Size (mm)	A	KK	LL	M	PC	WF	XA	AQ	TC	TD	TE	TH	TY	TZ	TM	TN	TR	L
ø125	50	M30 × 1.5	92	11	92.5	65	299.5	46 + Stroke/2	150	32	50	150	111	57	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	11	92.5	67	312.5	51.5 + Stroke/2	154	36	55	170	118.5	62.5	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	13	106	71	339	53 + Stroke/2	190	40	60	190	124	66	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	15	115	78	366	55 + Stroke/2	210	45	65	210	133	70	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	16	137	88	420	61.5 + Stroke/2	242	45	70	242	149.5	77.5	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	19	157	94	480	70.5 + Stroke/2	300	56	80	300	164.5	89.5	335	447	2	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**
***5: For the minimum producible stroke, please refer to P. 888.**

Outline Dimension Drawing

●Rod side trunnion type (TA)



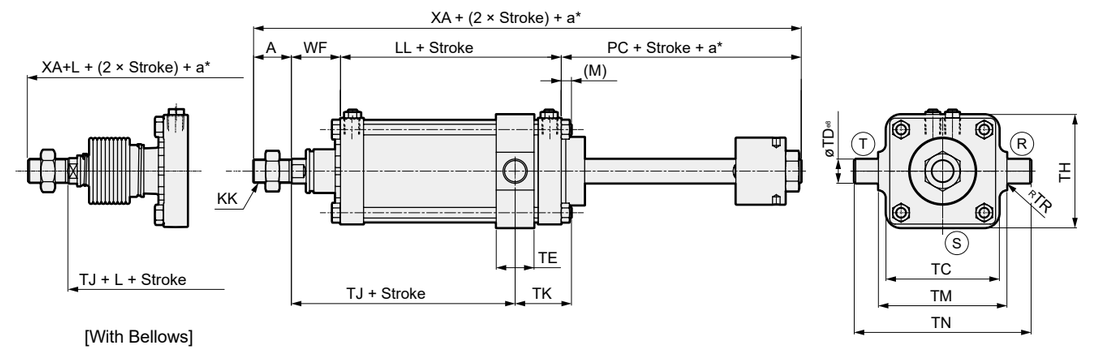
[With Bellows]

* "a" is the adjustment stroke.

Code	Rod Side Trunnion Type (TA) Mounting Dimensions															With Bellows
Bore Size (mm)	A	KK	LL	M	PC	WF	XA	TC	TD	TE	TF	TG	TH	TM	TN	TR	L
ø125	50	M30 × 1.5	92	11	92.5	65	299.5	150	32	50	126	42	150	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	11	92.5	67	312.5	154	36	55	134.5	46.5	170	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	13	106	71	339	190	40	60	141	49	190	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	15	115	78	366	210	45	65	150.5	52.5	210	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	16	137	88	420	242	45	70	168	59	242	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	19	157	94	480	300	56	80	184	70	300	335	447	2	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: Position detection at the rod side stroke end is not possible.
***4: For dimensions of models with switches, see P. 956.**
***5: For outer dimensions diagram of accessories, refer to P. 883.**
***6: For the minimum producible stroke, please refer to P. 888.**

●Head Side Trunnion Type (TB)



[With Bellows]

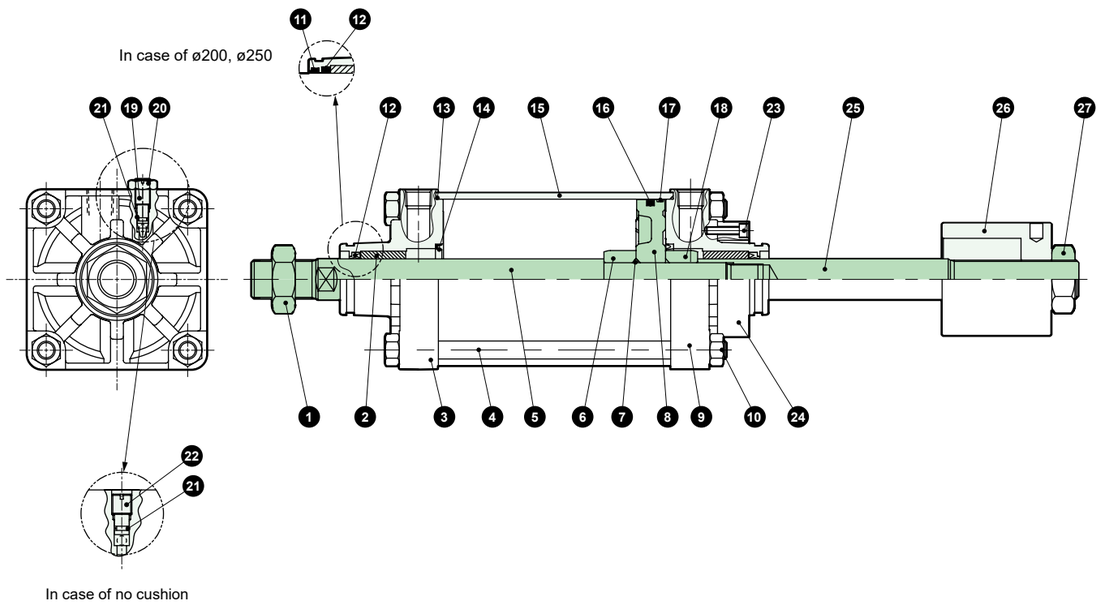
* "a" is the adjustment stroke.

Code	Head Side Trunnion Type (TB) Mounting Dimensions																With Bellows
Bore Size (mm)	A	KK	LL	M	PC	WF	XA	TC	TD	TE	TH	TJ	TK	TM	TN	TR	L
ø125	50	M30 × 1.5	92	11	92.5	65	299.5	150	32	50	150	96	72	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	11	92.5	67	312.5	154	36	55	170	102.5	78.5	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	13	106	71	339	190	40	60	190	107	83	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	15	115	78	366	210	45	65	210	115.5	87.5	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	16	137	88	420	242	45	70	242	131	96	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	19	157	94	480	300	56	80	300	145	109	335	447	2	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: Position detection at the head side stroke end is not possible.
***4: For dimensions of models with switches, see P. 956.**
***5: For outer dimensions diagram of accessories, refer to P. 883.**
***6: For the minimum producible stroke, please refer to P. 888.**

Internal Structure Diagram/Material

●SCS2-P



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Hexagon Nut	Steel	Zinc Chromate	16	Piston Packing	Nitrile Rubber	
2	Bushing	Oil-Impregnated Bearing Alloy		17	Wear Ring	ø125 to ø200: Polyacetal ø250: Fabric-reinforced phenol	
3	Rod Cover	Aluminum Alloy	Chromate				
4	Tie Rod	Steel	Zinc Chromate	18	Cushion Ring B	Steel	Zinc Chromate
5	Piston Rod A	Steel	Industrial Hard Chrome Plating	19	Cushion Needle	ø125 to ø180: Copper alloy ø200, ø250: Steel	ø200, ø250: Zinc Chromate
6	Cushion Ring A	Steel	Zinc Chromate				
7	Piston Gasket	Nitrile Rubber		20	Hexagon Nut	Steel	Zinc Chromate
8	Piston	Aluminum Alloy		21	Needle Gasket	Nitrile Rubber	
9	Head Cover	Aluminum Alloy	Chromate	22	Cushion needle stop plug	ø125 to ø180: Copper alloy ø200, ø250: Steel	
10	Hexagon Nut	Steel	Zinc Chromate				
11	Scraper	Nitrile Rubber		23	Hexagon socket bolt	Steel	Black Oxide
12	Rod Packing	Nitrile Rubber		24	Stopper ring	Steel	Zinc phosphate
13	Cylinder Gasket	Nitrile Rubber		25	Piston Rod B	Steel	Industrial Hard Chrome Plating
14	Cushion Packing	Nitrile Rubber, Steel	Only with cushion	26	Stopper	Steel	Zinc phosphate
15	Cylinder Tube	Aluminum Alloy	Hard Anodized	27	Hexagon Nut	Steel	Zinc Chromate

For Maintenance Parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

MEMO

General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending

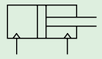


Large Bore Size Cylinder
Double Acting/Heat Resistant Type

SCS2-T Series

●Bore Size: ø125, ø140, ø160, ø180, ø200, ø250

Circuit Diagram Symbol



RoHS

Model No. Notation Method

SCS2-T - LB - 125 [ ] B - 50 - M Y

Model No. | ❶ Mounting type | ❷ Bore Size | ❸ Piping thread type | ❹ Cushion | ❺ Stroke | ❻ Option | ❼ Accessories

❶Mounting type Brackets are included and shipped.

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and retaining ring included)	
TC	Intermediate Trunnion Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

Note: Tapped trunnion is supported as a custom product only for ø125 to ø160. Please consult us each time regarding external dimensions, etc.

❷Bore Size (mm)

Code	Content
125	ø125
140	ø140
160	ø160
180	ø180
200	ø200
250	ø250

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom product)
G	G thread (Custom product)

❹Cushion

Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø125 to ø160	1 to 800	Every 1 mm
ø180	1 to 900	
ø200	1 to 1000	
ø250	1 to 1200	

❻Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
C2	With check valve in cushion part			
L	Bellows	250°C	400°C	
M	Piston Rod Material (Stainless Steel)			
*2 Blank	Cushion needle position Standard			
*2 R	Cushion needle position R			
*2 S	Cushion needle position S			
*2 T	Cushion needle position T			

*1: Instantaneous maximum temperature is the temperature when sparks, cutting chips, etc., instantaneously hit the bellows.
*2: Please check the cushion needle position display in the diagram below.

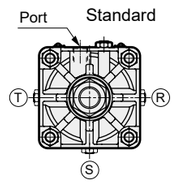
❼Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and retaining ring included)	
	B1	Single Bracket	
	B2	Double Yoke Bracket (Pin and retaining ring included)	

*1: "I" and "Y" cannot be selected at the same time.

About cushion needle position (*2)

(Needle position with port facing upward from rod direction)



*For combinations of variations and options, see P. 871.

Specifications of custom products Details Please refer to P. 958 to 967.

Code	Content	Code	Content	Code	Content
-XR□□□□	Port/Cushion needle position specification	-XP5	Knuckle Pin/Clevis Pin Split Pin	-XM1	Tie rod material SUS
-XF	Port 1 size down	-XP7	Knuckle fixed by pin driving	-XJ9	Without Bellows
-XK□	Mounting Bracket Rotational Assembly	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	-A2	With 2 Rod Nuts
-XAQ□□	Trunnion Position Specification	-XMX◇	Tie rod extension	Rod end Shape change	Refer to Ending P. 11.

Model No. Example) SCS2-T - ..... - XP5

Specifications

Item		SCS2-T (Heat resistant type)					
Bore Size mm		ø125	ø140	ø160	ø180	ø200	ø250
Actuation method		Double Acting Type					
Operating Fluid		Compressed Air					
Max. Working Pressure MPa		1.0					
Min. Operating Pressure MPa		0.05					
Proof Pressure MPa		1.6					
Ambient Temperature °C		5 to 120 (*1)					
Port Size		Rc 1/2	Rc 3/4				Rc1
Stroke tolerance mm		$^{+1.0}_{0}$ (Up to 300), $^{+1.4}_{0}$ (Up to 1000), $^{+1.8}_{0}$ (Up to 1200)					
Operating Piston Speed mm/s		20 to 1000 (Please use within the absorbed energy.)					
Cushion		Air Cushion					
Effective air cushion length mm		21.6	21.6	21.6	21.6	26.6	26.6
Lubrication		Not possible (*2)					
Allowable absorbed energy J	With Cushion	63.5	91.5	116	152	233	362
	Without Cushion	0.371	0.386	0.386	0.958	1.08	2.32
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.					

*1: The ambient temperature for the following products is 5 to 100°C.

Bore Size	Stroke
ø200	946 or more
ø250	752 or more

If used at an ambient temperature of 100 to 120°C, please consult us separately.

*2: Please grease up regularly with heat-resistant grease.

*3: If it becomes locally hot, please consult us separately.

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)	Trunnion type minimum stroke (mm)
ø125	50, 75, 100, 150, 200, 250, 300	800	1	23
ø140				25
ø160				27
ø180		900		28
ø200		1,000		28
ø250		1200		28

*1: Intermediate strokes can be manufactured in 1 mm increments.

*2: If the maximum stroke is exceeded, product specifications may not be met depending on the conditions, so please consult us.

Type 2 pressure vessel inspection
Target stroke

Bore Size	Stroke
ø160	1948 or more
ø180	1526 or more
ø200	946 or more
ø250	752 or more

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm						Per S=100 mm Added Weight
	Basic type (00)	Axial Foot Type (LB)	Flange type (FA, FB)	Single Clevis Type (CA)	Double clevis type (CB)	Trunnion Type (TA, TB, TC)	
ø125	7.22	8.72	10.52	10.22	10.32	10.62	1.54
ø140	9.35	11.35	14.75	13.15	13.35	12.55	1.78
ø160	12.35	15.45	19.25	17.35	17.65	18.75	2.22
ø180	16.75	21.25	28.75	24.15	24.65	24.85	2.96
ø200	22.78	28.48	36.48	32.28	32.48	34.58	3.54
ø250	40.51	48.91	66.41	64.51	59.01	69.21	5.38

(Example) Product Weight of SCS2-T-LB-125B-300

- ●Product Weight at S=0 mm ..... 8.72 kg
- ●S=300 mm added weight ..... $1.54 \times \frac{300}{100} = 4.62$ kg
- ●Product Weight .....8.72+4.62=13.34 kg

Theoretical Thrust Table

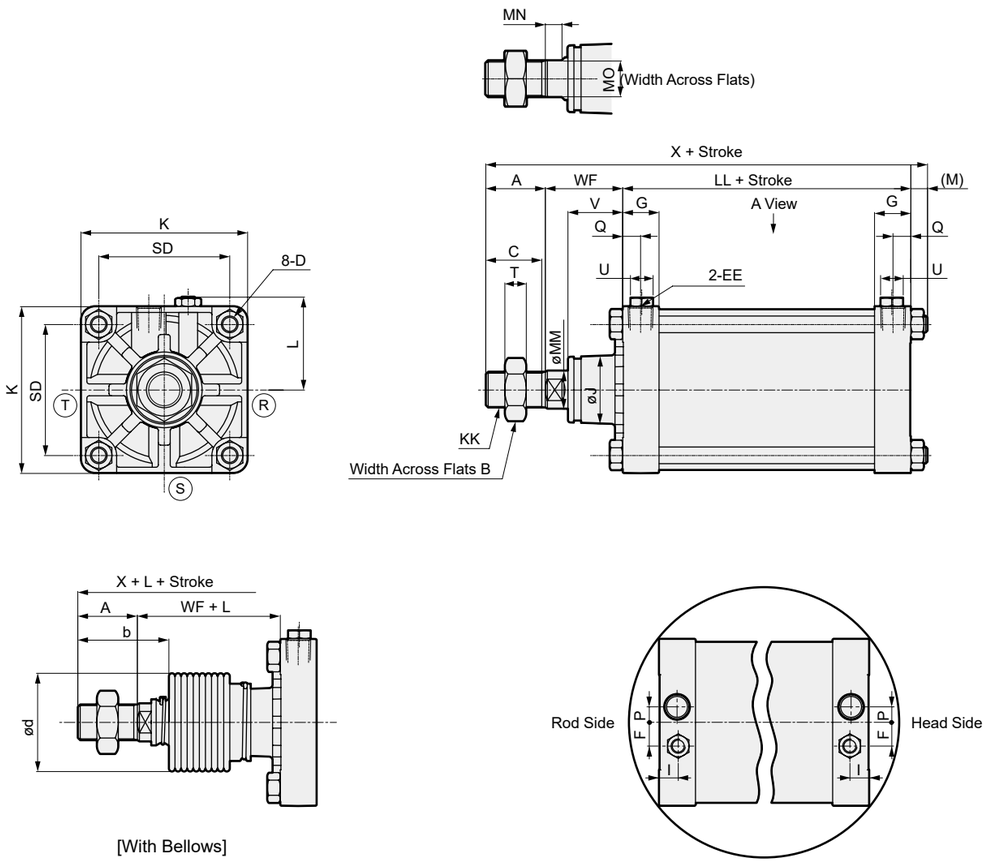
(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø125	Push	6.14×10^2	1.23×10^3	1.84×10^3	2.45×10^3	3.68×10^3	4.91×10^3	6.14×10^3	7.36×10^3	8.59×10^3	9.82×10^3	1.10×10^4	1.23×10^4
	Pull	5.73×10^2	1.15×10^3	1.72×10^3	2.29×10^3	3.44×10^3	4.59×10^3	5.73×10^3	6.88×10^3	8.03×10^3	9.17×10^3	1.03×10^4	1.15×10^4
ø140	Push	7.70×10^2	1.54×10^3	2.31×10^3	3.08×10^3	4.62×10^3	6.16×10^3	7.70×10^3	9.24×10^3	1.08×10^4	1.23×10^4	1.39×10^4	1.54×10^4
	Pull	7.29×10^2	1.46×10^3	2.19×10^3	2.92×10^3	4.38×10^3	5.84×10^3	7.29×10^3	8.75×10^3	1.02×10^4	1.17×10^4	1.31×10^4	1.46×10^4
ø160	Push	1.01×10^3	2.01×10^3	3.02×10^3	4.02×10^3	6.03×10^3	8.04×10^3	1.01×10^4	1.21×10^4	1.41×10^4	1.61×10^4	1.81×10^4	2.01×10^4
	Pull	9.42×10^2	1.88×10^3	2.83×10^3	3.77×10^3	5.65×10^3	7.54×10^3	9.42×10^3	1.13×10^4	1.32×10^4	1.51×10^4	1.70×10^4	1.88×10^4
ø180	Push	1.27×10^3	2.54×10^3	3.82×10^3	5.09×10^3	7.63×10^3	1.02×10^4	1.27×10^4	1.53×10^4	1.78×10^4	2.04×10^4	2.29×10^4	2.54×10^4
	Pull	1.19×10^3	2.39×10^3	3.58×10^3	4.77×10^3	7.16×10^3	9.54×10^3	1.19×10^4	1.43×10^4	1.67×10^4	1.91×10^4	2.15×10^4	2.39×10^4
ø200	Push	1.57×10^3	3.14×10^3	4.71×10^3	6.28×10^3	9.42×10^3	1.26×10^4	1.57×10^4	1.88×10^4	2.20×10^4	2.51×10^4	2.83×10^4	3.14×10^4
	Pull	1.47×10^3	2.95×10^3	4.42×10^3	5.89×10^3	8.84×10^3	1.18×10^4	1.47×10^4	1.77×10^4	2.06×10^4	2.36×10^4	2.65×10^4	2.95×10^4
ø250	Push	2.45×10^3	4.91×10^3	7.36×10^3	9.82×10^3	1.47×10^4	1.96×10^4	2.45×10^4	2.95×10^4	3.44×10^4	3.93×10^4	4.42×10^4	4.91×10^4
	Pull	2.31×10^3	4.63×10^3	6.94×10^3	9.25×10^3	1.39×10^4	1.85×10^4	2.31×10^4	2.78×10^4	3.24×10^4	3.70×10^4	4.16×10^4	4.63×10^4

MEMO

Outline Dimension Drawing

● Basic type (00)



[With Bellows]

Port position diagram (A View)

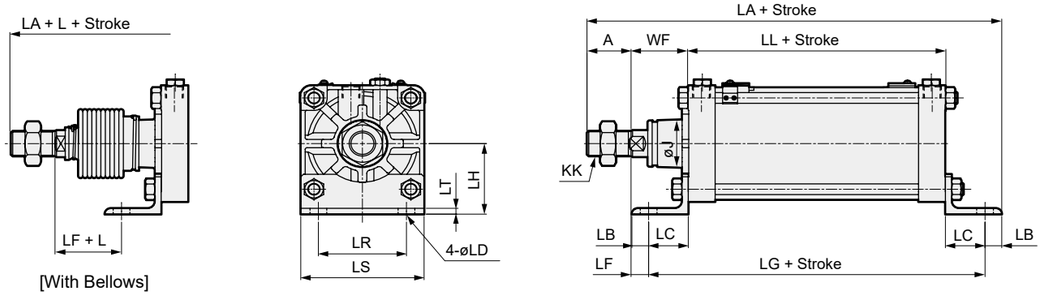
Code	Basic Type (00) Basic Dimensions													
Bore Size (mm)	A	B	C	D	EE	F	G	I	J	K	KK	L	LL	M
ø125	50	46	47	M14 × 1.5	Rc1/2	20	30.5	16	57	140	M30 × 1.5	78 to 82	92	13.5
ø140	50	46	47	M14 × 1.5	Rc3/4	20	34.5	20	57	157	M30 × 1.5	86.5 to 91	103	13.5
ø160	56	55	53	M16 × 1.5	Rc3/4	24	34.5	20	62	177	M36 × 1.5	96.5 to 101	106	15.5
ø180	63	60	60	M18 × 1.5	Rc3/4	24	34.5	20	68	200	M40 × 1.5	108 to 112	110	17.5
ø200	72	70	69	M20 × 1.5	Rc3/4	24	37.5	20.5	75	220	M45 × 1.5	120.5 to 129	123	18.5
ø250	88	85	84	M24 × 1.5	Rc1	24	42.5	25.5	93	274	M56 × 2	147.5 to 156	141	21.5

Code												With Bellows		
Bore Size (mm)	MM	MN	MO	P	Q	SD	T	U	V	WF	X	b	d	L
ø125	32	15	27	13	15	110	18	19	45.5	65	220.5	74	75	(Stroke/4.55) + 11
ø140	32	15	27	15	17	124	18	19	45.5	67	233.5	74	75	(Stroke/4.55) + 9
ø160	40	15	36	15	17	142	21	19	48	71	248.5	82	80	(Stroke/5.15) + 9
ø180	45	17	41	15	17	160	24	19	53	78	268.5	91	91	(Stroke/5.15) + 9
ø200	50	20	46	20	18	175	27	24	60	88	301.5	102	95	(Stroke/5.30) + 9
ø250	60	22	55	22	21	216	34	24	64	94	344.5	120	120	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

●Axial foot type (LB)

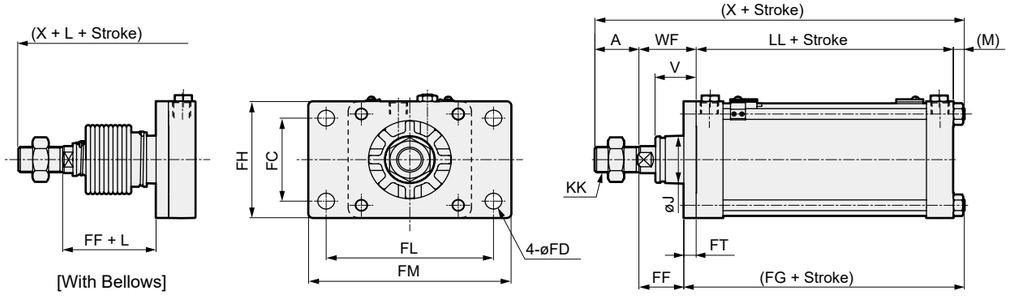


[With Bellows]

Code	Axial Foot Type (LB) Mounting Dimensions														With Bellows
Bore Size (mm)	A	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT	L
ø125	50	M30 × 1.5	92	65	271	19	45	19	20	182	85	100	140	7	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	67	290	20	50	19	17	203	100	112	157	8	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	71	306	20	53	19	18	212	106	118	177	10	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	78	338	27	60	24	18	230	125	132	200	10	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	88	372	27	62	24	26	247	132	150	220	12	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	94	421	28	70	29	24	281	160	180	274	12	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For outer dimensions diagram of accessories, refer to P. 883.**

●Rod Side Flange Type (FA)



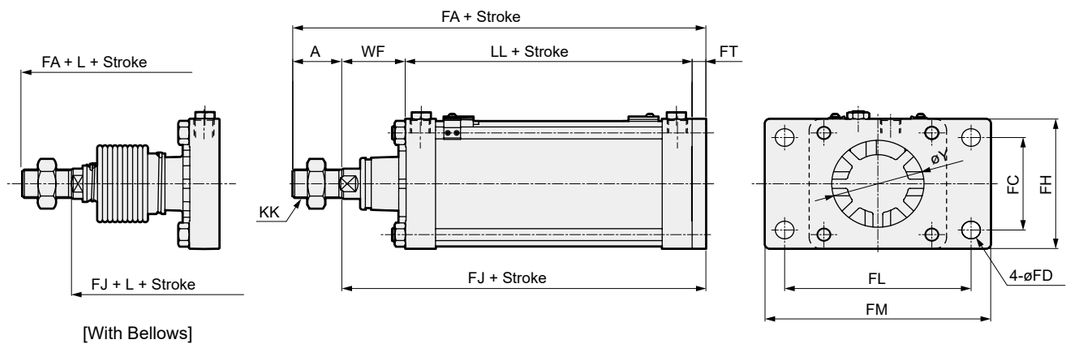
[With Bellows]

Code	Rod Side Flange Type (FA) Mounting Dimensions																With Bellows
Bore Size (mm)	A	J	KK	LL	M	V	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	L
ø125	50	57	M30 × 1.5	92	11	45.5	65	218	100	19	51	117	140	190	230	14	(Stroke/4.55) + 11
ø140	50	57	M30 × 1.5	103	11	45.5	67	231	112	19	48	133	157	212	250	19	(Stroke/4.55) + 9
ø160	56	62	M36 × 1.5	106	13	48	71	246	118	19	52	138	177	236	280	19	(Stroke/5.15) + 9
ø180	63	68	M40 × 1.5	110	15	53	78	266	132	24	53	150	200	265	310	25	(Stroke/5.15) + 9
ø200	72	75	M45 × 1.5	123	16	60	88	299	150	24	63	164	220	280	330	25	(Stroke/5.30) + 9
ø250	88	93	M56 × 2	141	19	64	94	342	180	29	64	190	274	355	415	30	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

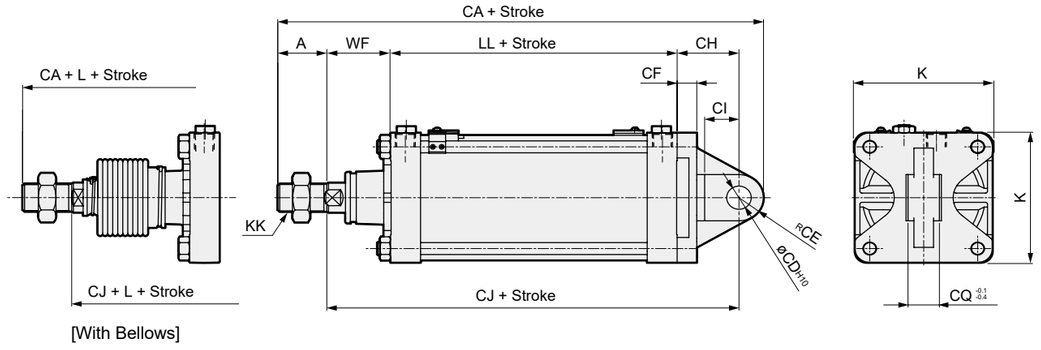
●Head Side Flange Type (FB)



Code	Head Side Flange Type (FB) Mounting Dimensions													With Bellows
Bore Size (mm)	A	KK	LL	WF	FA	FC	FD	FH	FJ	FL	FM	FT	Y	L
ø125	50	M30 × 1.5	92	65	221	100	19	140	171	190	230	14	94	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	67	239	112	19	157	189	212	250	19	94	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	71	252	118	19	177	196	236	280	19	107	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	78	276	132	24	200	213	265	310	25	113	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	88	308	150	24	220	236	280	330	25	131	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	94	353	180	29	274	265	355	415	30	153	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For outer dimensions diagram of accessories, refer to P. 883.**

●Single Clevis Type (CA)

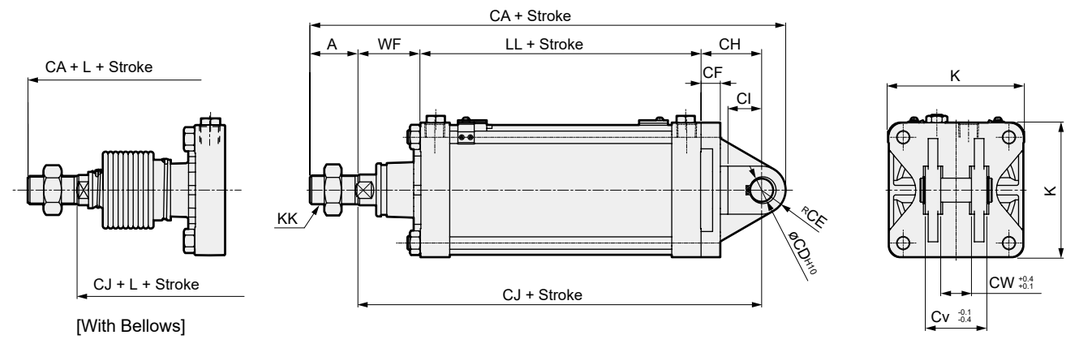


Code	Single Clevis Type (CA) Mounting Dimensions													With Bellows
Bore Size (mm)	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	CQ	L
ø125	50	140	M30 × 1.5	92	65	295	25	25	20	63	35	220	32	(Stroke/4.55) + 11
ø140	50	157	M30 × 1.5	103	67	323	28	28	22	75	40	245	36	(Stroke/4.55) + 9
ø160	56	177	M36 × 1.5	106	71	340	32	32	24	75	40	252	40	(Stroke/5.15) + 9
ø180	63	200	M40 × 1.5	110	78	381	40	40	25	90	55	278	50	(Stroke/5.15) + 9
ø200	72	220	M45 × 1.5	123	88	413	40	40	30	90	55	301	50	(Stroke/5.30) + 9
ø250	88	274	M56 × 2	141	94	483	50	50	35	110	65	345	63	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

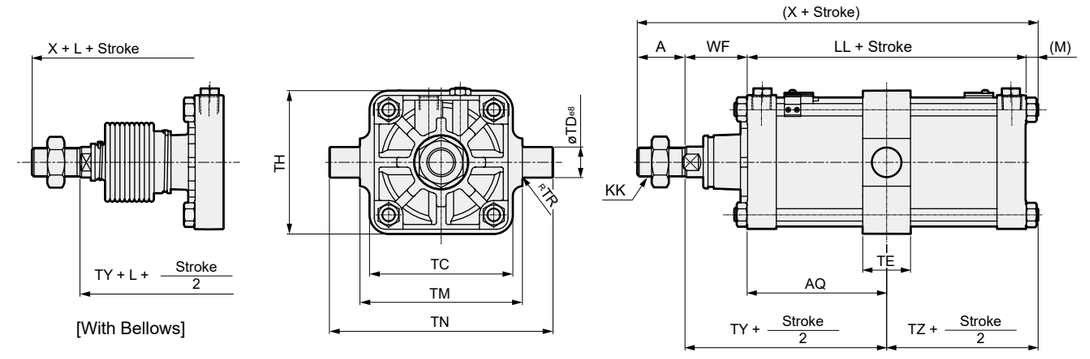
●Double clevis type (CB)



Code	Double Clevis Type (CB) Mounting Dimensions													With Bellows
Bore Size (mm)	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	Cv	CW	L
ø125	50	140	M30 × 1.5	92	65	295	25	25	20	63	35	220	64	32	(Stroke/4.55) + 11
ø140	50	157	M30 × 1.5	103	67	323	28	28	22	75	40	245	72	36	(Stroke/4.55) + 9
ø160	56	177	M36 × 1.5	106	71	340	32	32	24	75	40	252	80	40	(Stroke/5.15) + 9
ø180	63	200	M40 × 1.5	110	78	381	40	40	25	90	55	278	100	50	(Stroke/5.15) + 9
ø200	72	220	M45 × 1.5	123	88	413	40	40	30	90	55	301	100	50	(Stroke/5.30) + 9
ø250	88	274	M56 × 2	141	94	483	50	50	35	110	65	345	126	63	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: Pin and retaining ring are attached.
***4: For outer dimensions diagram of accessories, refer to P. 883.**

●Intermediate trunnion type (TC)

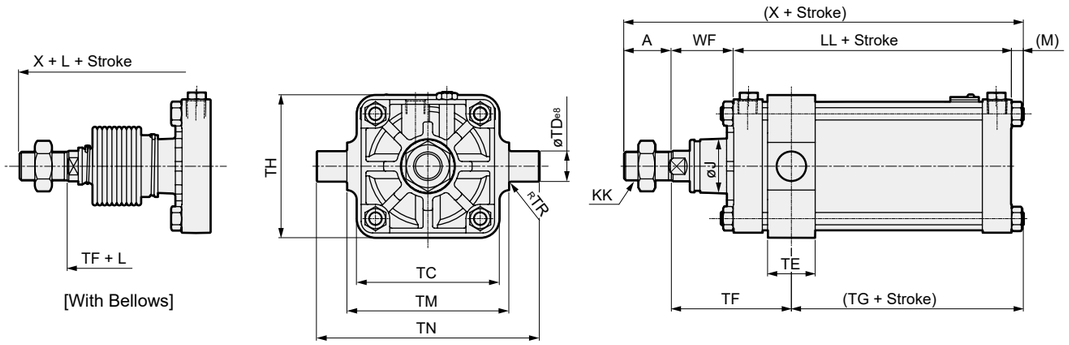


Code	Intermediate Trunnion Type (TC) Mounting Dimensions															With Bellows
Bore Size (mm)	A	KK	LL	M	WF	X	AQ	TC	TD	TE	TH	TY	TZ	TM	TN	TR	L
ø125	50	M30 × 1.5	92	11	65	218	46 + Stroke/2	150	32	50	150	111	57	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	11	67	231	51.5 + Stroke/2	154	36	55	170	118.5	62.5	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	13	71	246	53 + Stroke/2	190	40	60	190	124	66	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	15	78	266	55 + Stroke/2	210	45	65	210	133	70	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	16	88	299	61.5 + Stroke/2	242	45	70	242	149.5	77.5	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	19	94	342	70.5 + Stroke/2	300	56	80	300	164.5	89.5	335	447	2	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For outer dimensions diagram of accessories, refer to P. 883.**
***4: For the minimum producible stroke, please refer to P. 898.**

Outline Dimension Drawing

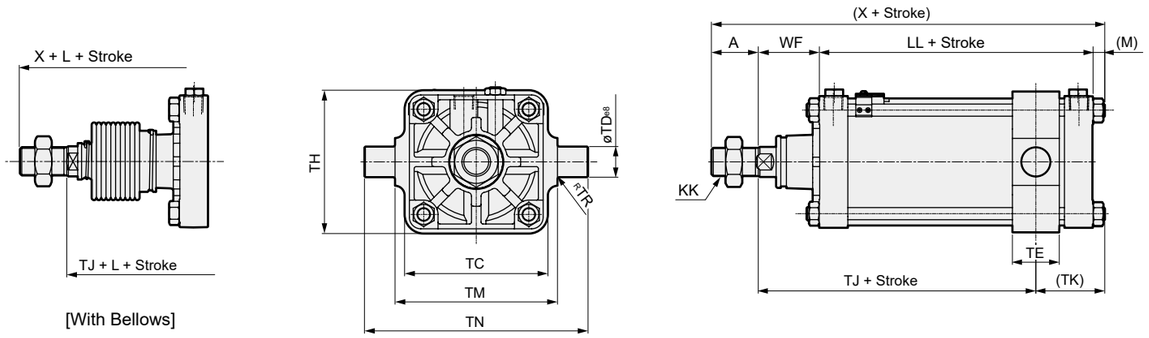
●Rod side trunnion type (TA)



Code	Rod Side Trunnion Type (TA) Mounting Dimensions															With Bellows
Bore Size (mm)	A	KK	LL	M	WF	X	TC	TD	TE	TF	TG	TH	TM	TN	TR	L
ø125	50	M30 × 1.5	92	11	65	218	150	32	50	126	42	150	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	11	67	231	154	36	55	134.5	46.5	170	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	13	71	246	190	40	60	141	49	190	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	15	78	266	210	45	65	150.5	52.5	210	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	16	88	299	242	45	70	168	59	242	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	19	94	342	300	56	80	184	70	300	335	447	2	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: Position detection at the rod side stroke end is not possible.
***4: For outer dimensions diagram of accessories, refer to P. 883.**
***5: For the minimum producible stroke, please refer to P. 898.**

●Head Side Trunnion Type (TB)

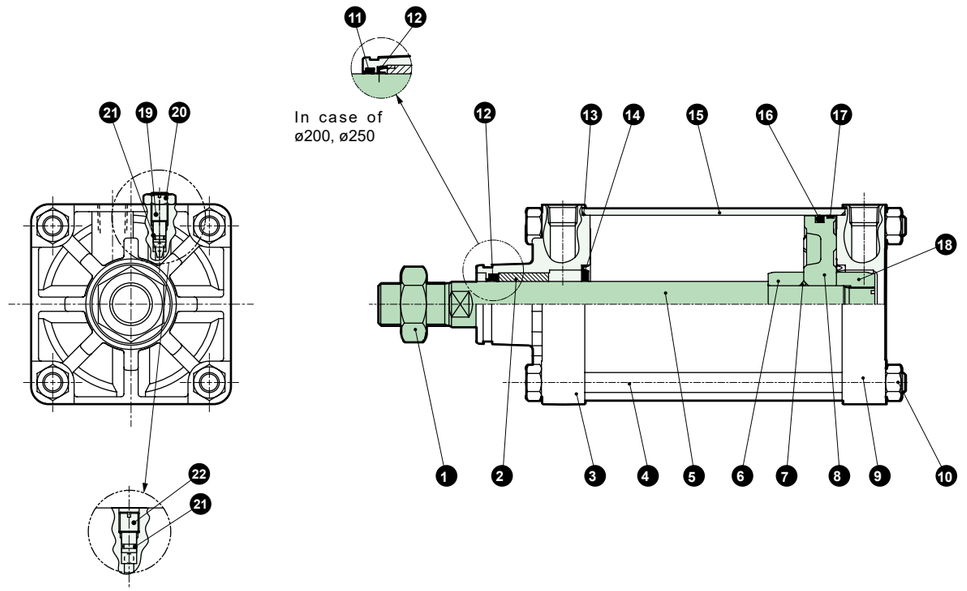


Code	Head Side Trunnion Type (TB) Mounting Dimensions															With Bellows
Bore Size (mm)	A	KK	LL	M	WF	X	TC	TD	TE	TH	TJ	TK	TM	TN	TR	L
ø125	50	M30 × 1.5	92	11	65	218	150	32	50	150	96	72	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	11	67	231	154	36	55	170	102.5	78.5	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	13	71	246	190	40	60	190	107	83	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	15	78	266	210	45	65	210	115.5	87.5	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	16	88	299	242	45	70	242	131	96	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	19	94	342	300	56	80	300	145	109	335	447	2	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: Position detection at the head side stroke end is not possible.
***4: For outer dimensions diagram of accessories, refer to P. 883.**
***5: For the minimum producible stroke, please refer to P. 898.**

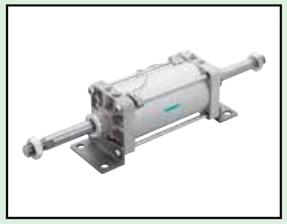
Internal Structure Diagram/Material

● SCS2-T



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Hexagon Nut	Steel	Zinc Chromate	14	Cushion Packing	Fluororubber, Steel	Only with cushion
2	Bushing	Oil-Impregnated Bearing Alloy		15	Cylinder Tube	Aluminum Alloy	Hard Anodized
3	Rod Cover	Aluminum Alloy	Chromate	16	Piston Packing	Fluoro Rubber	
4	Tie Rod	Steel	Zinc Chromate	17	Wear Ring	Fabric-reinforced phenolic resin	
5	Piston Rod	Steel	Industrial Hard Chrome Plating	18	Cushion Ring B	Steel	Zinc Chromate
6	Cushion Ring A	Steel	Zinc Chromate	19	Cushion Needle	ø125 to ø180: Copper alloy ø200, ø250: Steel	ø200, ø250: Zinc Chromate
7	Piston Gasket	Fluoro Rubber					
8	Piston	Aluminum Alloy		20	Hexagon Nut	Steel	Zinc Chromate
9	Head Cover	Aluminum Alloy	Chromate	21	Needle Gasket	Fluoro Rubber	
10	Hexagon Nut	Steel	Zinc Chromate	22	Cushion needle stop plug	ø125 to ø180: Copper alloy ø200, ø250: Steel	Only without cushion
11	Scraper	Fluoro Rubber					
12	Rod Packing	Fluoro Rubber					
13	Cylinder Gasket	Fluoro Rubber					

For Maintenance Parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts



Large Bore Size Cylinder
Double-acting, Double rod, Lubricated type, Non-lube type

SCS2-D Series

● Bore Size: ø125, ø140, ø160, ø180, ø200, ø250

Circuit Diagram Symbol 

Custom Products RoHS

Model No. Notation Method

Without Switch
(Lubricated type)
(Without magnet for switch)

SCS2-D - LB - 125 - [ ] - B - 50 ——— J I

Model No. ❶ ❷ ❸ ❹ ❺ ❽ ❾

With Switch
(Non-lube type)
(Built-in magnet for switch)

SCS2-LND - LB - 125 - [ ] - B - 50 - T0H - R - J I

Model No. ❶ Mounting Model ❷ Bore Size ❸ Piping thread Type ❹ Cushion ❺ Stroke ❻ Switch Model No. ❼ Switch Number ❽ Option ❾ Accessories

❶Mounting type Brackets are attached and shipped.

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
TC	Intermediate Trunnion Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

Note: Tapped trunnion is supported as a custom product only for ø125 to ø160. Please consult us each time regarding external dimensions, etc.

❷Bore Size (mm)

Code	Content
125	ø125
140	ø140
160	ø160
180	ø180
200	ø200
250	ø250

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom product)
G	G thread (Custom product)

❹Cushion

Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

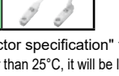
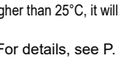
❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø125 to ø160	1 to 800	Every 1 mm
ø180	1 to 900	
ø200	1 to 1000	
ø250	1 to 1200	

Note: For minimum stroke with switch, refer to P. 908.

❻Switch Model No.

For switch details, please refer to P. 971. Switches are assembled into the product before shipment. Also, T2WL switches are attached to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T1V□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color for AC Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH3
5 m TOH5

*1: For □ in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

❼Number of Switches

	Code	Content
*1	R	With 1 pc on rod side
*1	H	With 1 pc on head side
	D	With 2 pcs
	T	With 3 pcs
	4	With 4 pieces

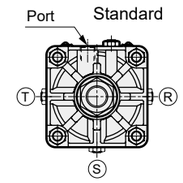
*1: ❶When "TA" or "TB" is selected as the mounting method, the number of switches is limited to "H" (1 on the head side) for "TA" and "R" (1 on the rod side) for "TB".

❽Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
	C2	With check valve in cushion part			
*2	J	Bellows	100°C	200°C	
*2	L		250°C	400°C	
	M	Piston Rod Material (Stainless Steel)			
*3	Blank	Cushion needle position Standard			
*3	R	Cushion needle position R			
*3	S	Cushion needle position S			
*3	T	Cushion needle position T			

*1: Instantaneous maximum temperature is the temperature when sparks, cutting chips, etc., instantaneously hit the bellows.
*2: If option "J" or "L" is selected, bellows are included to both rods.
*3: Please check the cushion needle position display in the diagram below.

About cushion needle position (*2)
(Needle position with port facing upward from rod direction)



❾Accessories

Code	Content	
I	Single Knuckle	
Y	Double Knuckle (Pin and retaining ring included)	

*1: "I" and "Y" cannot be selected at the same time.
*2: The quantity of accessories "I" and "Y" is 2 pieces.

*For combinations of variations and options, see P. 871.

Specifications of custom products Details Please refer to P. 958 to 967.

Code	Content	Code	Content	Code	Content
-XR□□□□	Port/Cushion needle position specification	-XP7	Knuckle fixed by pin driving	-XT9	Scraper/Rod packing only Fluoro Rubber
-XF	Port 1 size down	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	-T2	Fluorine Packing Type
-XK□	Mounting Bracket Rotational Assembly	-XMX◇	Tie rod extension	-A2	With 2 Rod Nuts
-XAQ□□	Trunnion Position Specification	-XM1	Tie rod material SUS	Rod end Shape change	Refer to Ending P. 11.
-XP5	Knuckle Pin/Clevis Pin Split Pin	-XJ9	Without Bellows		

Model No. Example) SCS2-D - ..... - XP5

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCS2-D - ..... - FP1

Switch part single item model No. notation method

●Switch body + Mounting bracket set

SCS2-LN - T0H - 125

❻ Switch Model No. ❷ Bore Size

●Switch body only

SW - T0H

❻ Switch Model No.

●Mounting bracket set

SCS2-LN - TS - 125

❷ Bore Size

Code	Switch
TS	Other than T2YD, T2YDT
T	T2YD, T2YDT

Specifications

Item		SCS2-D, SCS2-LND (Double rod type)					
Bore Size	mm	ø125	ø140	ø160	ø180	ø200	ø250
Actuation method		Double Acting Type					
Operating Fluid		Compressed Air					
Max. Working Pressure	MPa	1.0					
Min. Operating Pressure	MPa	0.1					
Proof Pressure	MPa	1.6					
Ambient Temperature	°C	-5 to 60 (However, no freezing)					
Port Size		Rc 1/2	Rc 3/4				Rc1
Stroke tolerance	mm	$^{+1.0}_{0}$ (Up to 300), $^{+1.4}_{0}$ (Up to 1000), $^{+1.8}_{0}$ (Up to 1200)					
Operating Piston Speed	mm/s	20 to 1000 (Please use within the absorbed energy.)					
Cushion		Air Cushion					
Effective air cushion length	mm	21.6	21.6	21.6	21.6	26.6	26.6
Lubrication		SCS-D: Required (When lubricating, use turbine oil Class 1 ISO VG32), SCS-LND: Not Required					
Allowable absorbed energy J	With Cushion	63.5	91.5	116	152	233	362
	Without Cushion	0.371	0.386	0.386	0.958	1.08	2.32
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.					

Stroke

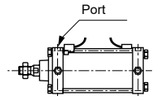
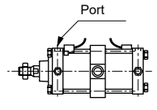
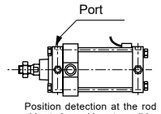
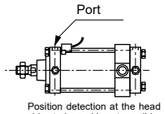
Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)	Trunnion type minimum stroke (mm)
ø125	50, 75, 100, 150, 200, 250, 300	800	1	23
ø140				25
ø160				27
ø180		900		28
ø200		1,000		28
ø250		1,200		28

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: If the maximum stroke is exceeded, product specifications may not be met depending on the conditions, so please consult us.

Type 2 pressure vessel inspection
Target stroke

Bore Size	Stroke
ø200	946 or more
ø250	752 or more

Min. Stroke with Switch

Item / Bore Size (mm)		Stroke when mounting on the same surface	Stroke of intermediate (tapped) trunnion type	Stroke of rod side (tapped) trunnion type	Stroke of head side (tapped) trunnion type
Switch type	Diagram / Bore			 Position detection at the rod side stroke end is not possible.	 Position detection at the head side stroke end is not possible.
Reed switch (T◇)	ø125	20 or more	120 or more	70 or more	
	ø140		125 or more	75 or more	
	ø160		130 or more	80 or more	
	ø180		135 or more	85 or more	
	ø200		140 or more	90 or more	
	ø250		150 or more	100 or more	

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm: Basic type (00)	Axial Foot Type (LB)	Flange Type (FA, FB)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion Type (TA, TB, TC)	Switch weight: Switch	Switch weight: Mounting bracket	S = Added weight per 100 mm
ø125	9.02	10.52	12.32	12.02	12.12	12.42	Refer to the weight listed in the switch specifications on P. 971.	0.028	2.17
ø140	10.95	12.95	16.35	14.75	14.95	14.15		0.030	2.41
ø160	15.05	18.15	21.95	20.05	20.35	21.45		0.034	3.21
ø180	20.15	24.65	32.15	27.55	28.05	28.25		0.038	4.21
ø200	27.68	33.38	41.38	37.18	37.38	39.48		0.040	5.08
ø250	48.51	56.91	74.41	72.51	67.01	77.21		0.045	7.60

(Example) Product Weight of SCS2-LND-LB-125B-300-TOH-D
- ●Product Weight at S=0 mm ..... 10.52 kg
- ●S=300 mm added weight ..... 2.17 × $\frac{300}{100}$ = 6.51 kg
- ●Weight of 2 switches (T0H-D) ... 0.018 × 2 = 0.036 kg
- ●Product Weight of 2 switch brackets ..... 0.028 × 2 = 0.056 kg
- ●Product Weight ..... 10.52 + 6.51 + 0.036 + 0.056 = 17.122 kg

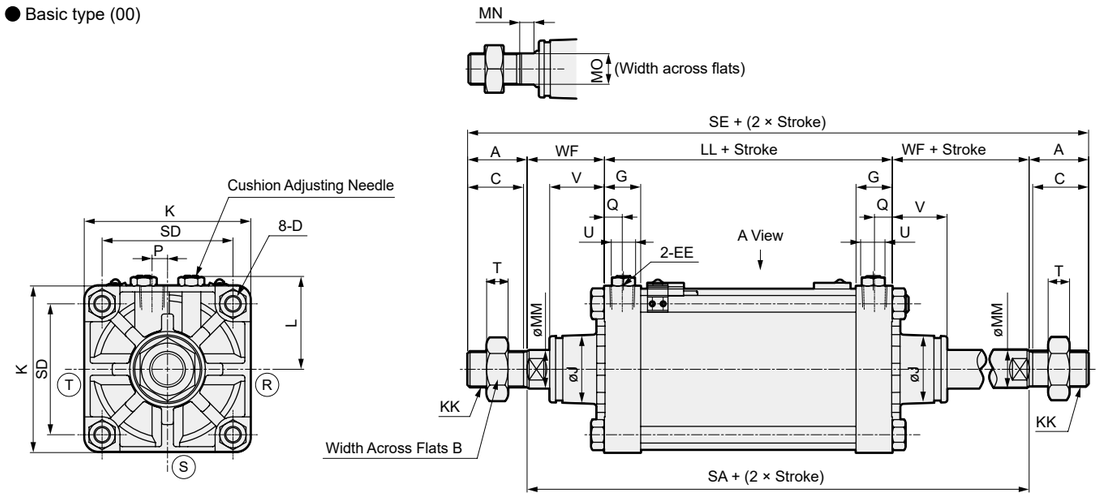
Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa: 0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø125	Push/Pull	1.15 × 10³	1.72 × 10³	2.29 × 10³	3.44 × 10³	4.59 × 10³	5.73 × 10³	6.88 × 10³	8.03 × 10³	9.17 × 10³	1.03 × 10⁴	1.15 × 10⁴
ø140	Push/Pull	1.46 × 10³	2.19 × 10³	2.92 × 10³	4.38 × 10³	5.84 × 10³	7.29 × 10³	8.75 × 10³	1.02 × 10⁴	1.17 × 10⁴	1.31 × 10⁴	1.46 × 10⁴
ø160	Push/Pull	1.88 × 10³	2.83 × 10³	3.77 × 10³	5.65 × 10³	7.54 × 10³	9.42 × 10³	1.13 × 10⁴	1.32 × 10⁴	1.51 × 10⁴	1.70 × 10⁴	1.88 × 10⁴
ø180	Push/Pull	2.39 × 10³	3.58 × 10³	4.77 × 10³	7.16 × 10³	9.54 × 10³	1.19 × 10⁴	1.43 × 10⁴	1.67 × 10⁴	1.91 × 10⁴	2.15 × 10⁴	2.39 × 10⁴
ø200	Push/Pull	2.95 × 10³	4.42 × 10³	5.89 × 10³	8.84 × 10³	1.18 × 10⁴	1.47 × 10⁴	1.77 × 10⁴	2.06 × 10⁴	2.36 × 10⁴	2.65 × 10⁴	2.95 × 10⁴
ø250	Push/Pull	4.63 × 10³	6.94 × 10³	9.25 × 10³	1.39 × 10⁴	1.85 × 10⁴	2.31 × 10⁴	2.78 × 10⁴	3.24 × 10⁴	3.70 × 10⁴	4.16 × 10⁴	4.63 × 10⁴

Outline Dimension Drawing

● Basic type (00)



Port position diagram (A View)

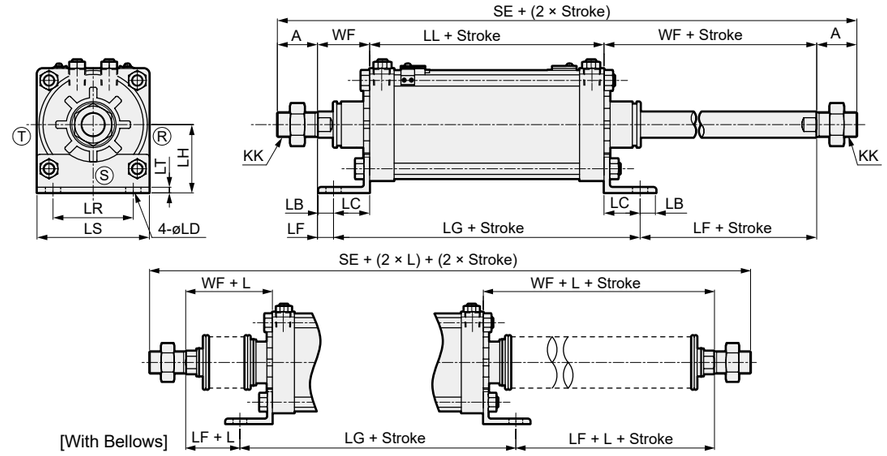
Code	Basic Type (00) Basic Dimensions												
Bore Size (mm)	A	B	C	D	EE	F	G	I	J	K	KK	L	LL
ø125	50	46	47	M14 × 1.5	Rc1/2	20	30.5	16	57	140	M30 × 1.5	78 to 82	92
ø140	50	46	47	M14 × 1.5	Rc3/4	20	34.5	20	57	157	M30 × 1.5	86.5 to 91	103
ø160	56	55	53	M16 × 1.5	Rc3/4	24	34.5	20	62	177	M36 × 1.5	96.5 to 101	106
ø180	63	60	60	M18 × 1.5	Rc3/4	24	34.5	20	68	200	M40 × 1.5	108 to 112	110
ø200	72	70	69	M20 × 1.5	Rc3/4	24	37.5	20.5	75	220	M45 × 1.5	120.5 to 129	123
ø250	88	85	84	M24 × 1.5	Rc1	24	42.5	25.5	93	274	M56 × 2	147.5 to 156	141

Code												With Bellows		
Bore Size (mm)	MM	MN	MO	P	Q	SD	SE	T	U	V	WF	b	d	L
ø125	32	15	27	13	15	110	322	18	19	45.5	65	74	75	(Stroke/4.55) + 11
ø140	32	15	27	15	17	124	337	18	19	45.5	67	74	75	(Stroke/4.55) + 9
ø160	40	15	36	15	17	142	360	21	19	48	71	82	80	(Stroke/5.15) + 9
ø180	45	17	41	15	17	160	392	24	19	53	78	91	91	(Stroke/5.15) + 9
ø200	50	20	46	20	18	175	443	27	24	60	88	102	95	(Stroke/5.30) + 9
ø250	60	22	55	22	21	216	505	34	24	64	94	120	120	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: The position of the width across flats for spanners on the left and right is not fixed.
***4: For dimensions of models with switches, see P. 956.**
***5: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

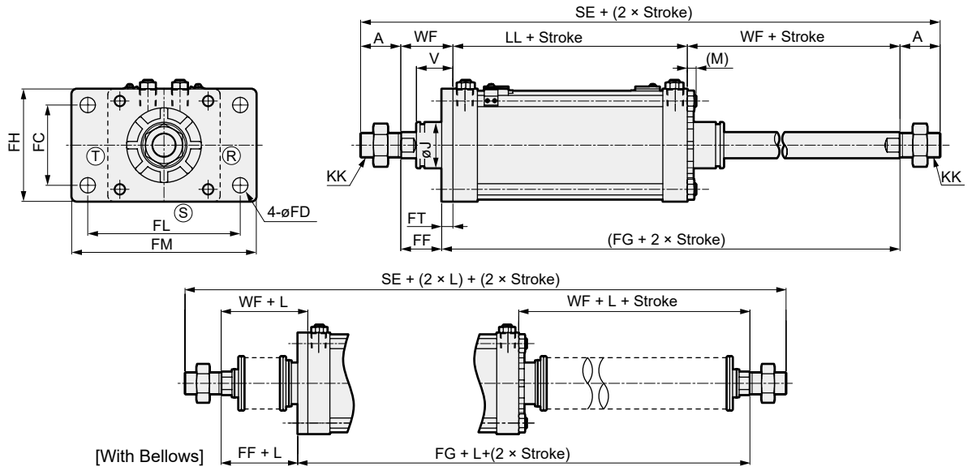
●Axial Foot Type (LB)



Code	Axial Foot Type (LB) Mounting Dimensions														With Bellows
Bore Size (mm)	A	KK	LL	SE	WF	LB	LC	LD	LF	LG	LH	LR	LS	LT	L
ø125	50	M30 × 1.5	92	322	65	19	45	19	20	182	85	100	140	7	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	337	67	20	50	19	17	203	100	112	157	8	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	360	71	20	53	19	18	212	106	118	177	10	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	392	78	27	60	24	18	230	125	132	200	10	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	443	88	27	62	24	26	247	132	150	220	12	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	505	94	28	70	29	24	281	160	180	274	12	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle. ***3: For dimensions of models with switches, see P. 956.**
*2: The L dimension is rounded up to the nearest whole number. ***4: For outer dimensions diagram of accessories, refer to P. 883.**

●Rod Side Flange Type (FA)

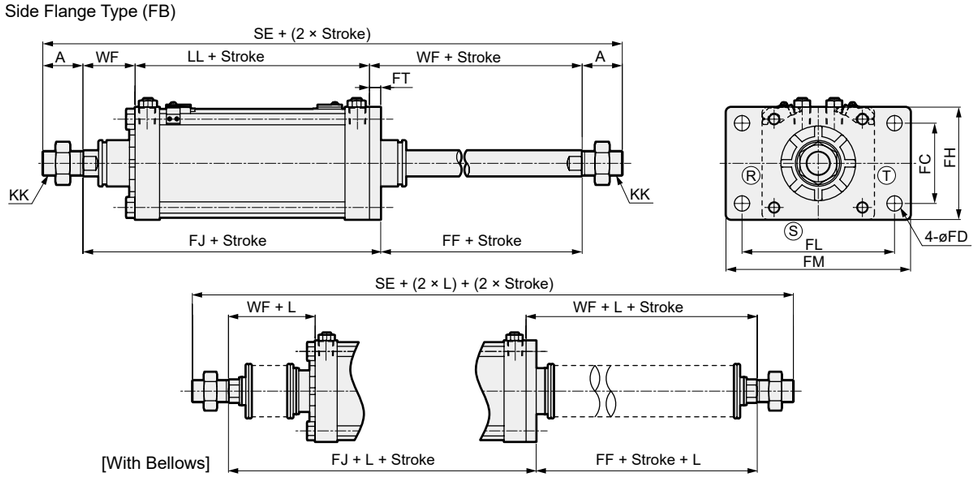


Code	Rod Side Flange Type (FA) Mounting Dimensions																With Bellows
Bore Size (mm)	A	J	KK	LL	M	SE	V	WF	FC	FD	FF	FG	FH	FL	FM	FT	L
ø125	50	57	M30 × 1.5	92	11	322	45.5	65	100	19	51	221	140	190	230	14	(Stroke/4.55) + 11
ø140	50	57	M30 × 1.5	103	11	337	45.5	67	112	19	48	239	157	212	250	19	(Stroke/4.55) + 9
ø160	56	62	M36 × 1.5	106	13	360	48	71	118	19	52	252	177	236	280	19	(Stroke/5.15) + 9
ø180	63	68	M40 × 1.5	110	15	392	53	78	132	24	53	276	200	265	310	25	(Stroke/5.15) + 9
ø200	72	75	M45 × 1.5	123	16	443	60	88	150	24	63	308	220	280	330	25	(Stroke/5.30) + 9
ø250	88	93	M56 × 2	141	19	505	64	94	180	29	64	353	274	355	415	30	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle ***3: For dimensions of models with switches, see P. 956.**
*2: The L dimension is rounded up to the nearest whole number. ***4: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

●Head Side Flange Type (FB)

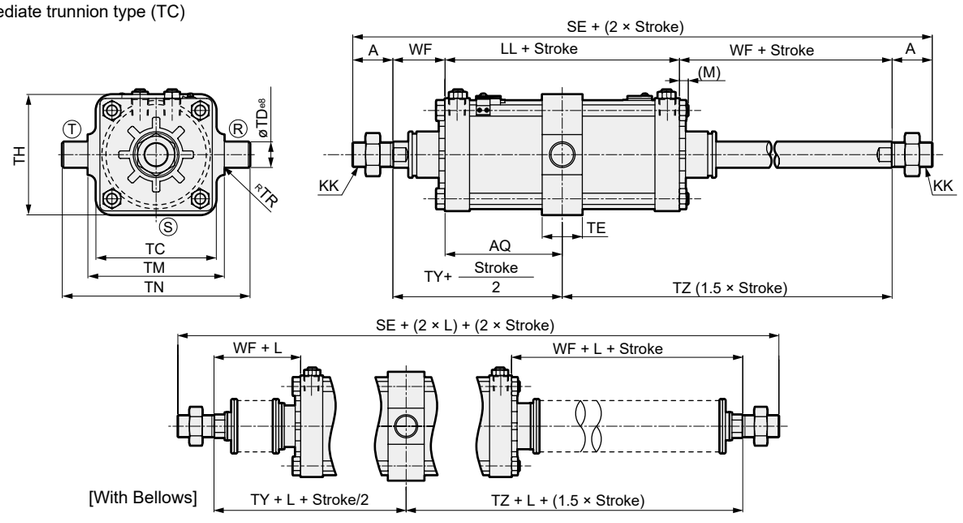


Code	Head Side Flange Type (FB) Mounting Dimensions													With Bellows
Bore Size (mm)	A	KK	LL	SE	WF	FC	FD	FF	FH	FJ	FL	FM	FT	L
ø125	50	M30 × 1.5	92	322	65	100	19	51	140	171	190	230	14	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	337	67	112	19	48	157	189	212	250	19	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	360	71	118	19	52	177	196	236	280	19	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	392	78	132	24	53	200	213	265	310	25	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	443	88	150	24	63	220	236	280	330	25	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	505	94	180	29	64	274	265	355	415	30	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle. ***3: For dimensions of models with switches, see P. 956.**

*2: The L dimension is rounded up to the nearest whole number. ***4: For outer dimensions diagram of accessories, refer to P. 883.**

●Intermediate trunnion type (TC)



Code	Intermediate Trunnion Type (TC) Mounting Dimensions															With Bellows
Bore Size (mm)	A	KK	LL	M	SE	WF	AQ	TC	TD	TE	TH	TY	TZ	TM	TN	L
ø125	50	M30 × 1.5	92	11	322	65	46 + Stroke/2	150	32	50	150	111	111	170	234	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	11	337	67	51.5 + Stroke/2	154	36	55	170	118.5	118.5	190	262	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	13	360	71	53 + Stroke/2	190	40	60	190	124	124	212	292	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	15	392	78	55 + Stroke/2	210	45	65	210	133	133	236	326	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	16	443	88	61.5 + Stroke/2	242	45	70	242	149.5	149.5	265	355	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	19	505	94	70.5 + Stroke/2	300	56	80	300	164.5	164.5	335	447	(Stroke/6.40) + 9

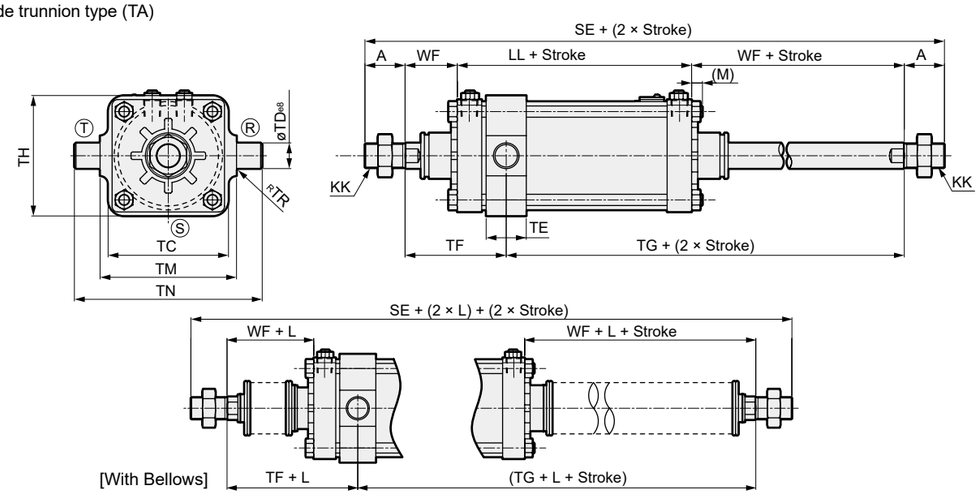
*1: ⓇⓈⓉ indicate the position of the cushion needle. ***4: For outer dimensions diagram of accessories, refer to P. 883.**

*2: The L dimension is rounded up to the nearest whole number. ***5: For the minimum producible stroke, please refer to P. 908.**

***3: For dimensions of models with switches, see P. 956.**

Outline Dimension Drawing

●Rod side trunnion type (TA)



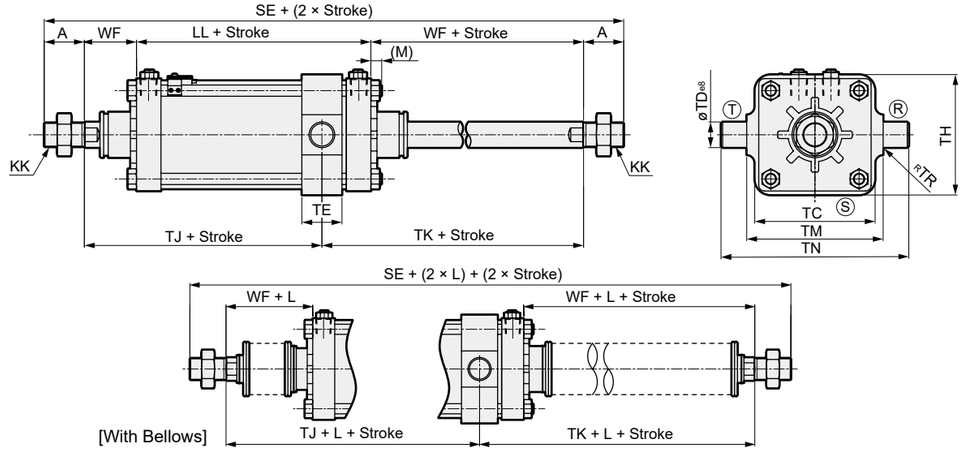
Code	Rod Side Trunnion Type (TA) Mounting Dimensions															With Bellows
Bore Size (mm)	A	KK	LL	M	SE	WF	TC	TD	TE	TF	TG	TH	TM	TN	TR	L
ø125	50	M30 × 1.5	92	11	322	65	150	32	50	126	96	150	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	11	337	67	154	36	55	134.5	102.5	170	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	13	360	71	190	40	60	141	107	190	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	15	392	78	210	45	65	150.5	115.5	210	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	16	443	88	242	45	70	168	131	242	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	19	505	94	300	56	80	184	145	300	335	447	2	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle. ***4: For dimensions of models with switches, see P. 956.**

*2: The L dimension is rounded up to the nearest whole number. ***5: For outer dimensions diagram of accessories, refer to P. 883.**

*3: Position detection at the rod side stroke end is not possible. ***6: For the minimum producible stroke, please refer to P. 908.**

●Head Side Trunnion Type (TB)



Code	Head Side Trunnion Type (TB) Mounting Dimensions															With Bellows
Bore Size (mm)	A	KK	LL	M	SE	WF	TC	TD	TE	TH	TJ	TK	TM	TN	TR	L
ø125	50	M30 × 1.5	92	11	322	65	150	32	50	150	96	126	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	11	337	67	154	36	55	170	102.5	134.5	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	13	360	71	190	40	60	190	107	141	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	15	392	78	210	45	65	210	115.5	150.5	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	16	443	88	242	45	70	242	131	168	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	19	505	94	300	56	80	300	145	184	335	447	2	(Stroke/6.40) + 9

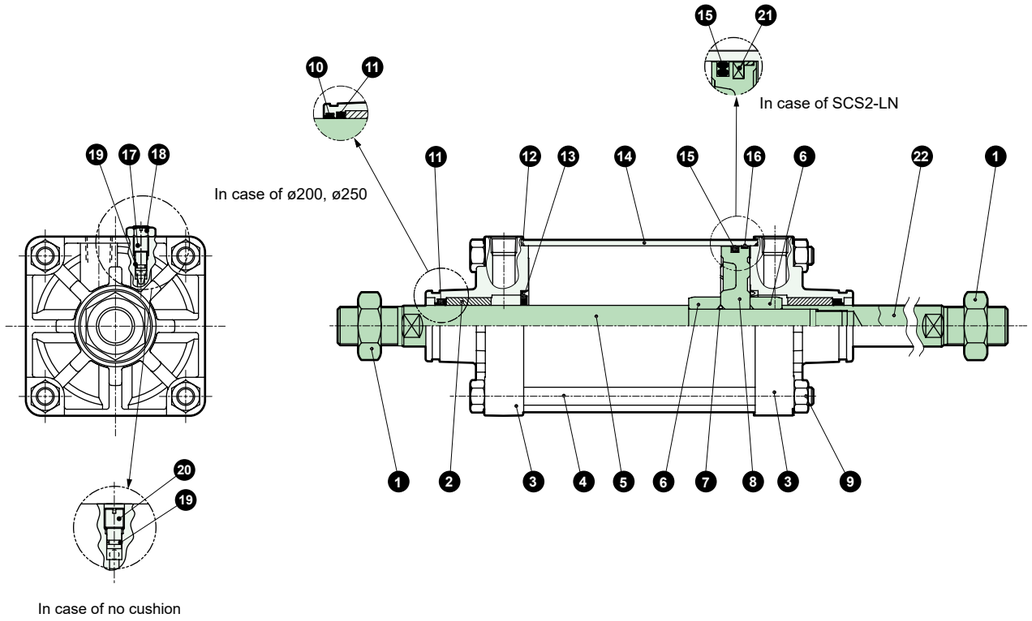
*1: ⓇⓈⓉ indicate the position of the cushion needle. ***4: For dimensions of models with switches, see P. 956.**

*2: The L dimension is rounded up to the nearest whole number. ***5: For outer dimensions diagram of accessories, refer to P. 883.**

*3: Position detection at the head side stroke end is not possible. ***6: For the minimum producible stroke, please refer to P. 908.**

Internal Structure Diagram/Material

●SCS2-(LN)D



Part No.	Part Name	Material	Remarks
1	Hexagon Nut	Steel	Zinc Chromate
2	Bushing	Oil-Impregnated Bearing Alloy	
3	Rod Cover	Aluminum Alloy	Chromate
4	Tie Rod	Steel	Zinc Chromate
5	Piston Rod A	Steel	Industrial Hard Chrome Plating
6	Cushion Ring A	Steel	Zinc Chromate
7	Piston Gasket	Nitrile Rubber	
8	Piston	Aluminum Alloy	
9	Hexagon Nut	Steel	Zinc Chromate
10	Scraper	Nitrile Rubber	
11	Rod Packing	Nitrile Rubber	
12	Cylinder Gasket	Nitrile Rubber	
13	Cushion Packing	Nitrile Rubber, Steel	Only with cushion
14	Cylinder Tube	Aluminum Alloy	Hard Anodized
15	Piston Packing	Nitrile Rubber	
16	Wear Ring	ø125 to ø200: Polyacetal ø250: Fabric-reinforced phenol	
17	Cushion Needle	ø125 to ø180: Copper alloy ø200, ø250: Steel	ø200, ø250: Zinc Chromate
18	Hexagon Nut	Steel	Zinc Chromate
19	Needle Gasket	Nitrile Rubber	
20	Cushion needle stop plug	ø125 to ø180: Copper alloy ø200, ø250: Steel	
21	Magnet	Rubber	
22	Piston Rod B	Steel	Industrial Hard Chrome Plating

For Maintenance Parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

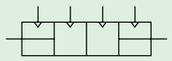
MEMO



Large Bore Size Cylinder
Double Acting, Back-to-Back Type

SCS2-B Series

● Bore Size: ø125, ø140, ø160, ø180, ø200, ø250

Circuit Diagram Symbol 

Custom Products RoHS

Model No. Notation Method

Without Switch
(Without magnet for switch)

SCS2-B	LB	125		B	50 (S1: Of cylinder 1 Stroke)		B	50 (S2: Of cylinder 2 Stroke)	J	Y
Model No.	❶ Mounting type	❷ Bore Size	❸ Piping thread type	❹ Cushion	❺ Stroke	❸ Piping thread type	❹ Cushion	❺ Stroke	❻ Option	❼ Accessories

❶Mounting type Brackets are attached and shipped.

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

Note: Tapped trunnion is supported as a custom product only for ø125 to ø160.
Please consult us each time regarding external dimensions, etc.

❷Bore Size (mm)

Code	Content
125	ø125
140	ø140
160	ø160
180	ø180
200	ø200
250	ø250

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom product)
G	G thread (Custom product)

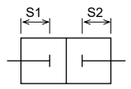
❹Cushion

Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø125 to ø160	1 to 800	Every 1 mm
ø180	1 to 900	
ø200	1 to 1000	
ø250	1 to 1200	

Stroke of cylinder 1: 50 mm Indicated by S1
+ Stroke of cylinder 2: 50 mm Indicated by S2
Total stroke: 100 mm S1 + S2



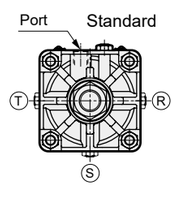
❻Option

Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
C2	With check valve in cushion part			
*2 J	Bellows	100°C	200°C	
*2 L	Bellows	250°C	400°C	
M	Piston Rod Material (Stainless Steel)			
*3 Blank	Cushion needle position Standard			
*3 R	Cushion needle position R			
*3 S	Cushion needle position S			
*3 T	Cushion needle position T			

*1: Instantaneous maximum temperature is the temperature when sparks, cutting chips, etc., instantaneously hit the bellows.
*2: If option "J" or "L" is selected, bellows are included to both rods.
*3: Please check the cushion needle position display in the diagram below.

About cushion needle position (*2)

(Needle position with port facing upward from rod direction)



❼Accessories

Code	Content	
I	Single Knuckle	
Y	Double Knuckle (Pin and retaining ring included)	

Note: The quantity of accessories "I" and "Y" is 2 pieces.

*For combinations of variations and options, see P. 871.

Specifications of custom products Details Please refer to P. 958 to 967.

Code	Content	Code	Content	Code	Content
-XR□□□□	Port/Cushion needle position specification	-XP7	Knuckle fixed by pin driving	-XT9	Scraper/Rod packing only Fluoro Rubber
-XF	Port 1 size down	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	-T2	Fluorine Packing Type
-XK□	Mounting Bracket Rotational Assembly	-XMX◇	Tie rod extension	-A2	With 2 Rod Nuts
-XAQ□□	Trunnion Position Specification	-XM1	Tie rod material SUS	Rod end Shape change	Refer to Ending P. 11.
-XP5	Knuckle Pin/Clevis Pin Split Pin	-XJ9	Without Bellows		

Model No. Example) SCS2-B - ..... - XP5

Specifications

Item		SCS2-B (Back-to-back type)					
Bore Size mm		ø125	ø140	ø160	ø180	ø200	ø250
Actuation method		Double Acting Type					
Operating Fluid		Compressed Air					
Max. Working Pressure MPa		1.0					
Min. Operating Pressure MPa		0.05					
Proof Pressure MPa		1.6					
Ambient Temperature °C		-5 to 60 (However, no freezing)					
Port Size		Rc 1/2	Rc 3/4				Rc1
Stroke tolerance mm		$^{+1.0}_{0}$ (Up to 300), $^{+1.4}_{0}$ (Up to 1000), $^{+1.8}_{0}$ (Up to 1200)					
Operating Piston Speed mm/s		20 to 1000 (Please use within the absorbed energy.)					
Cushion		Air Cushion					
Effective air cushion length mm		21.6	21.6	21.6	21.6	26.6	26.6
Lubrication		Required (When lubricating, use turbine oil Class 1 ISO VG32)					
Allowable absorbed energy J	With Cushion	63.5	91.5	116	152	233	362
	Without Cushion	0.371	0.386	0.386	0.958	1.08	2.32
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.					

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)	Trunnion type minimum stroke (mm)
ø125	50, 75, 100, 150, 200, 250, 300	800	1	23
ø140				25
ø160				27
ø180		900		28
ø200		1,000		28
ø250		1,200		28

Note: Intermediate strokes can be produced in 1 mm increments.

Type 2 pressure vessel inspection Target stroke

Bore Size	S1 + S2 stroke
ø180	1481 or more
ø200	892 or more
ø250	690 or more

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm						S=100 mm Per Added Weight
	Basic type (00)	Axial Foot Type (LB)	Flange Type (FA, FB)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion Type (TA, TB, TC)	
ø125	14.44	15.94	17.74	17.44	17.54	17.84	1.54
ø140	18.70	20.70	24.10	22.50	22.70	21.90	1.78
ø160	24.70	27.80	31.60	29.70	30.00	31.10	2.22
ø180	33.50	38.00	45.50	40.90	41.40	41.60	2.96
ø200	45.56	51.26	59.26	55.06	55.26	57.36	3.54
ø250	81.02	89.42	106.92	105.02	99.52	109.72	5.38

(Example) Product Weight of SCS2-B-LB-125B-300-300

- ●Product Weight at S=0 mm ..... 15.94 kg
- ●S=300 mm added weight ..... $2 \times 1.54 \times \frac{300}{100} = 9.24$ kg
- ●Product Weight ..... 15.94+9.24=25.18 kg

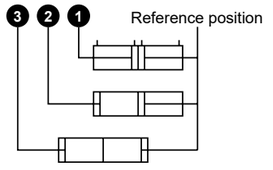
Theoretical Thrust Table

(Unit: N)

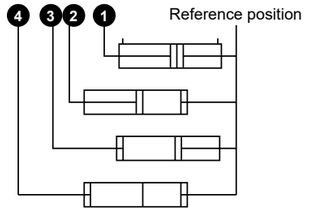
Bore Size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø125	Push	6.14×10^2	1.23×10^3	1.84×10^3	2.45×10^3	3.68×10^3	4.91×10^3	6.14×10^3	7.36×10^3	8.59×10^3	9.82×10^3	1.10×10^4	1.23×10^4
	Pull	5.73×10^2	1.15×10^3	1.72×10^3	2.29×10^3	3.44×10^3	4.59×10^3	5.73×10^3	6.88×10^3	8.03×10^3	9.17×10^3	1.03×10^4	1.15×10^4
ø140	Push	7.70×10^2	1.54×10^3	2.31×10^3	3.08×10^3	4.62×10^3	6.16×10^3	7.70×10^3	9.24×10^3	1.08×10^4	1.23×10^4	1.39×10^4	1.54×10^4
	Pull	7.29×10^2	1.46×10^3	2.19×10^3	2.92×10^3	4.38×10^3	5.84×10^3	7.29×10^3	8.75×10^3	1.02×10^4	1.17×10^4	1.31×10^4	1.46×10^4
ø160	Push	1.01×10^3	2.01×10^3	3.02×10^3	4.02×10^3	6.03×10^3	8.04×10^3	1.01×10^4	1.21×10^4	1.41×10^4	1.61×10^4	1.81×10^4	2.01×10^4
	Pull	9.42×10^2	1.88×10^3	2.83×10^3	3.77×10^3	5.65×10^3	7.54×10^3	9.42×10^3	1.13×10^4	1.32×10^4	1.51×10^4	1.70×10^4	1.88×10^4
ø180	Push	1.27×10^3	2.54×10^3	3.82×10^3	5.09×10^3	7.63×10^3	1.02×10^4	1.27×10^4	1.53×10^4	1.78×10^4	2.04×10^4	2.29×10^4	2.54×10^4
	Pull	1.19×10^3	2.39×10^3	3.58×10^3	4.77×10^3	7.16×10^3	9.54×10^3	1.19×10^4	1.43×10^4	1.67×10^4	1.91×10^4	2.15×10^4	2.39×10^4
ø200	Push	1.57×10^3	3.14×10^3	4.71×10^3	6.28×10^3	9.42×10^3	1.26×10^4	1.57×10^4	1.88×10^4	2.20×10^4	2.51×10^4	2.83×10^4	3.14×10^4
	Pull	1.47×10^3	2.95×10^3	4.42×10^3	5.89×10^3	8.84×10^3	1.18×10^4	1.47×10^4	1.77×10^4	2.06×10^4	2.36×10^4	2.65×10^4	2.95×10^4
ø250	Push	2.45×10^3	4.91×10^3	7.36×10^3	9.82×10^3	1.47×10^4	1.96×10^4	2.45×10^4	2.95×10^4	3.44×10^4	3.93×10^4	4.42×10^4	4.91×10^4
	Pull	2.31×10^3	4.63×10^3	6.94×10^3	9.25×10^3	1.39×10^4	1.85×10^4	2.31×10^4	2.78×10^4	3.24×10^4	3.70×10^4	4.16×10^4	4.63×10^4

Usage Example

When combined with the same stroke. 3 positions can be taken.

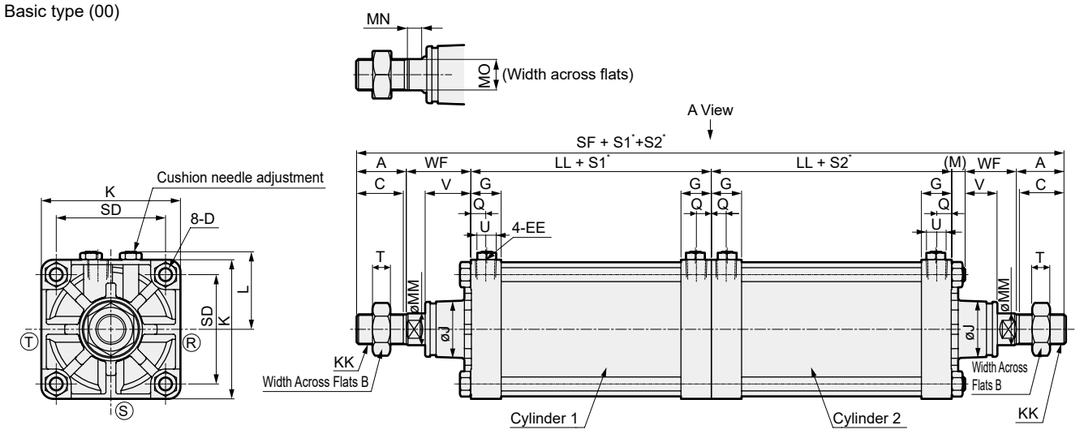


When combining different strokes. 4 positions can be taken.

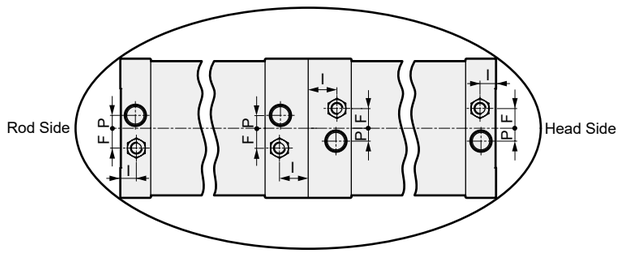


Outline Dimension Drawing

● Basic type (00)



[With Bellows]



Port position diagram (A View)

*S1: Stroke of cylinder 1, S2: Stroke of cylinder 2
***L1: Value obtained by calculating L dimension with stroke of cylinder 1**
L_2: Value obtained by calculating L dimension with stroke of cylinder 2

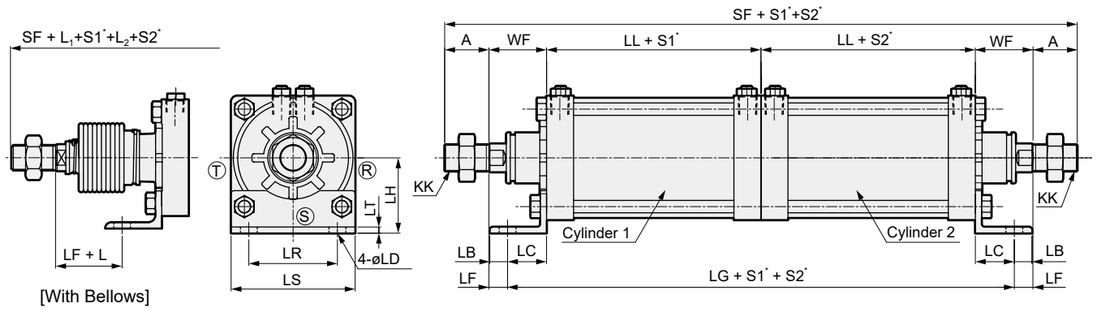
Code	Basic Type (00) Basic Dimensions												
Bore Size (mm)	A	B	C	D	EE	F	G	I	J	K	KK	L	LL
ø125	50	46	47	M14 × 1.5	Rc1/2	20	30.5	16	57	140	M30 × 1.5	78 to 82	92
ø140	50	46	47	M14 × 1.5	Rc3/4	20	34.5	20	57	157	M30 × 1.5	86.5 to 91	103
ø160	56	55	53	M16 × 1.5	Rc3/4	24	34.5	20	62	177	M36 × 1.5	96.5 to 101	106
ø180	63	60	60	M18 × 1.5	Rc3/4	24	34.5	20	68	200	M40 × 1.5	108 to 112	110
ø200	72	70	69	M20 × 1.5	Rc3/4	24	37.5	20.5	75	220	M45 × 1.5	120.5 to 129	123
ø250	88	85	84	M24 × 1.5	Rc1	24	42.5	25.5	93	274	M56 × 2	147.5 to 156	141

Code													With Bellows		
Bore Size (mm)	M	MM	MN	MO	P	Q	SD	SF	T	U	V	WF	b	d	L_1, L_2
ø125	13.5	32	15	27	13	15	110	414	18	19	45.5	65	74	75	(Stroke/4.55) + 11
ø140	13.5	32	15	27	15	17	124	440	18	19	45.5	67	74	75	(Stroke/4.55) + 9
ø160	15.5	40	15	36	15	17	142	466	21	19	48	71	82	80	(Stroke/5.15) + 9
ø180	17.5	45	17	41	15	17	160	502	24	19	53	78	91	91	(Stroke/5.15) + 9
ø200	18.5	50	20	46	20	18	175	566	27	24	60	88	102	95	(Stroke/5.30) + 9
ø250	21.5	60	22	55	22	21	216	646	34	24	64	94	120	120	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

●Axial Foot Type (LB)

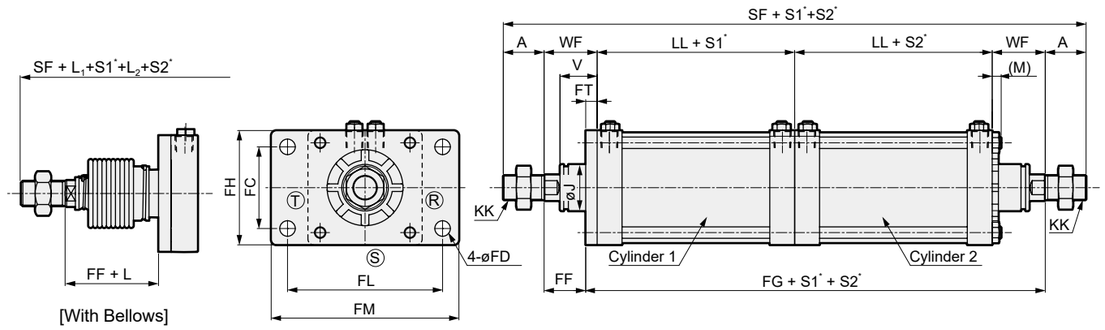


*S1: Stroke of cylinder 1, S2: Stroke of cylinder 2

Code	Axial Foot Type (LB) Mounting Dimensions														With Bellows
	A	KK	LL	SF	WF	LB	LC	LD	LF	LG	LH	LR	LS	LT	L_1, L_2
ø125	50	M30 × 1.5	92	414	65	19	45	19	20	274	85	100	140	7	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	440	67	20	50	19	17	306	100	112	157	8	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	466	71	20	53	19	18	318	106	118	177	10	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	502	78	27	60	24	18	340	125	132	200	10	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	566	88	27	62	24	26	370	132	150	220	12	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	646	94	28	70	29	24	422	160	180	274	12	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

●Rod Side Flange Type (FA)



[With Bellows]

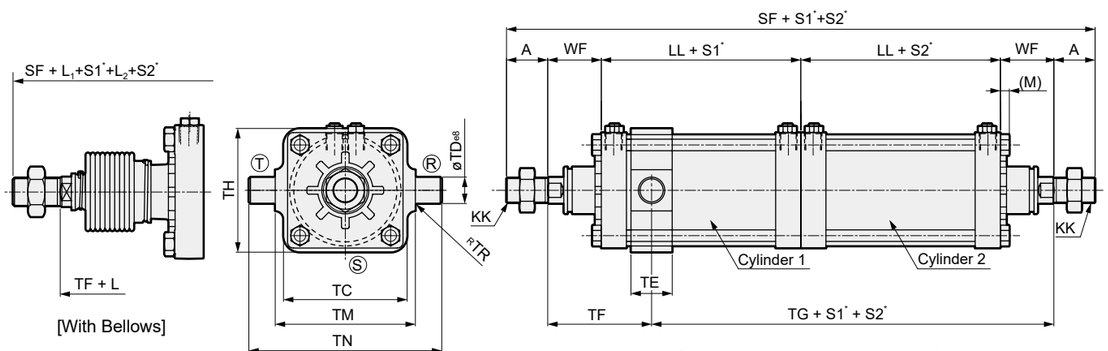
*S1: Stroke of cylinder 1, S2: Stroke of cylinder 2

Code	Rod Side Flange Type (FA) Mounting Dimensions																With Bellows
	A	J	KK	LL	M	SF	V	WF	FC	FD	FF	FG	FH	FL	FM	FT	L_1, L_2
ø125	50	57	M30 × 1.5	92	11	414	45.5	65	100	19	51	263	140	190	230	14	(Stroke/4.55) + 11
ø140	50	57	M30 × 1.5	103	11	440	45.5	67	112	19	48	292	157	212	250	19	(Stroke/4.55) + 9
ø160	56	62	M36 × 1.5	106	13	466	48	71	118	19	52	302	177	236	280	19	(Stroke/5.15) + 9
ø180	63	68	M40 × 1.5	110	15	502	53	78	132	24	53	323	200	265	310	25	(Stroke/5.15) + 9
ø200	72	75	M45 × 1.5	123	16	566	60	88	150	24	63	359	220	280	330	25	(Stroke/5.30) + 9
ø250	88	93	M56 × 2	141	19	646	64	94	180	29	64	406	274	355	415	30	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

●Rod side trunnion type (TA)

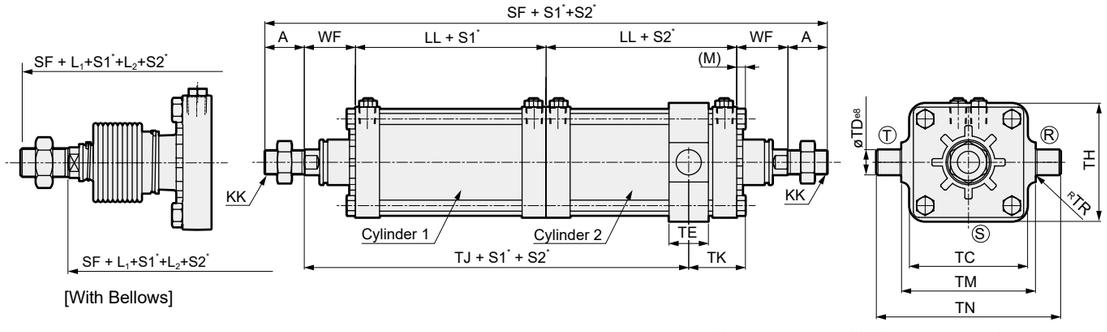


*S1: Stroke of cylinder 1, S2: Stroke of cylinder 2

Code	Rod Side Trunnion Type (TA) Mounting Dimensions															With Bellows
	A	KK	LL	M	SF	WF	TC	TD	TE	TF	TG	TH	TM	TN	TR	L_1, L_2
ø125	50	M30 × 1.5	92	11	414	65	150	32	50	126	188	150	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	11	440	67	154	36	55	134.5	205.5	170	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	13	466	71	190	40	60	141	213	190	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	15	502	78	210	45	65	150.5	225.5	210	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	16	566	88	242	45	70	168	254	242	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	19	646	94	300	56	80	184	286	300	335	447	2	(Stroke/6.40) + 9

*1: Ⓡ Ⓢ Ⓣ Ⓡ Ⓢ Ⓣ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: Position detection at the rod side stroke end of cylinder 1 is not possible.
***4: For dimensions of models with switches, see P. 956.**
***5: For outer dimensions diagram of accessories, refer to P. 883.**
***6: For the minimum producible stroke, please refer to P. 918.**

●Head Side Trunnion Type (TB)



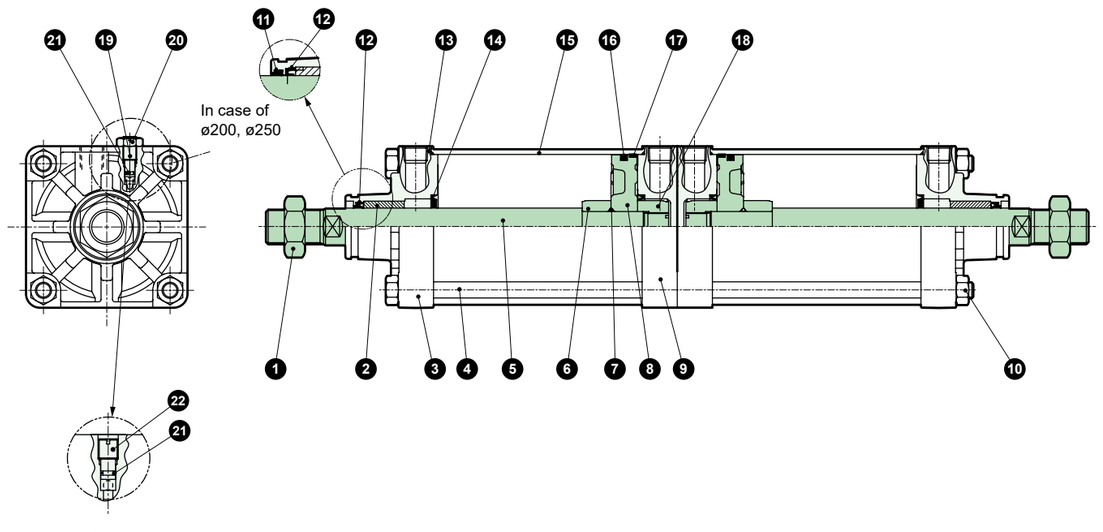
*S1: Stroke of cylinder 1, S2: Stroke of cylinder 2

Code	Head Side Trunnion Type (TB) Mounting Dimensions															With Bellows
	A	KK	LL	M	SF	WF	TC	TD	TE	TH	TJ	TK	TM	TN	TR	L_1, L_2
ø125	50	M30 × 1.5	92	11	414	65	150	32	50	150	96	72	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	11	440	67	154	36	55	170	102.5	78.5	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	13	466	71	190	40	60	190	107	83	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	15	502	78	210	45	65	210	115.5	87.5	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	16	566	88	242	45	70	242	131	96	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	19	646	94	300	56	80	300	145	109	335	447	2	(Stroke/6.40) + 9

*1: Ⓡ Ⓢ Ⓣ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: Position detection at the rod side stroke end of cylinder 2 is not possible.
***4: For dimensions of models with switches, see P. 956.**
***5: For outer dimensions diagram of accessories, refer to P. 883.**
***6: For the minimum producible stroke, please refer to P. 918.**

Internal Structure Diagram/Material

●SCS2-B



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Hexagon Nut	Steel	Zinc Chromate	14	Cushion Packing	Nitrile Rubber, Steel	Only with cushion
2	Bushing	Oil-Impregnated Bearing Alloy		15	Cylinder Tube	Aluminum Alloy	Hard Anodized
3	Rod Cover	Aluminum Alloy	Chromate	16	Piston Packing	Nitrile Rubber	
4	Tie Rod	Steel	Zinc Chromate	17	Wear Ring	ø125 to ø200: Polyacetal ø250: Fabric-reinforced phenol	
5	Piston Rod	Steel	Industrial Hard Chrome Plating				
6	Cushion Ring A	Steel	Zinc Chromate	18	Cushion Ring B	Steel	Zinc Chromate
7	Piston Gasket	Nitrile Rubber		19	Cushion Needle	ø125 to ø180: Copper alloy ø200, ø250: Steel	ø200, ø250: Zinc chromate
8	Piston	Aluminum Alloy					
9	Head Cover	Aluminum Alloy	Chromate	20	Hexagon Nut	Steel	Zinc Chromate
10	Hexagon Nut	Steel	Zinc Chromate	21	Needle Gasket	Nitrile Rubber	
11	Scraper	Nitrile Rubber		22	Cushion needle stop plug	ø125 to ø180: Copper alloy ø200, ø250: Steel	
12	Rod Packing	Nitrile Rubber					
13	Cylinder Gasket	Nitrile Rubber					

For Maintenance Parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts



Large Bore Size Cylinder
Double Acting, Two-Stage Type

SCS2-W Series

●Bore Size: ø125, ø140, ø160, ø180, ø200, ø250

Custom Products RoHS

Model No. Notation Method

Without Switch
(Without magnet for switch)

SCS2-W	-	LB	-	125	-		B	200 (S1 Total Stroke)	-		B	50 (S2 1st Stage Stroke)	-	J	Y
Model No.		❶ Mounting type		❷ Bore Size		❸ Piping thread type	❹ Cushion	❺ Stroke		❸ Piping thread type	❹ Cushion	❺ Stroke		❻ Option	❼ Accessories

❶Mounting type Brackets are attached and shipped.

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and retaining ring included)	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

Note: Tapped trunnion is supported as a custom product only for ø125 to ø160. Please consult us each time regarding external dimensions, etc.

❷Bore Size (mm)

Code	Content
125	ø125
140	ø140
160	ø160
180	ø180
200	ø200
250	ø250

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom product)
G	G thread (Custom product)

❹Cushion

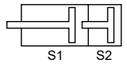
Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

❺Stroke (mm)

Bore Size	Total stroke S1	1st stage stroke S2	Intermediate Stroke
ø125 to ø160	2 to 800	1 to 200	Every 1 mm
ø180	2 to 900		
ø200	2 to 1000		
ø250	2 to 1200		

Note: Please make S1 longer than S2.

1st Stage Stroke50 mm Indicated by S2
+ 2nd stage stroke 150 mm
Total stroke 200 mm Indicated by S1



❻Option

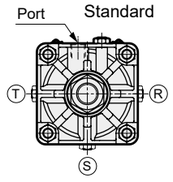
Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
C2	With check valve in cushion part			
J	Bellows	100°C	200°C	
L	Bellows	250°C	400°C	
M	Piston Rod Material (Stainless Steel)			
*2 Blank	Cushion needle position Standard			
*2 R	Cushion needle position R			
*2 S	Cushion needle position S			
*2 T	Cushion needle position T			

*1: Instantaneous maximum temperature is the temperature when sparks, cutting chips, etc., instantaneously hit the bellows.
*2: Please check the cushion needle position display in the diagram below.

❼Accessories

Code	Content	
I	Single Knuckle	
Y	Double Knuckle (Pin and retaining ring included)	
B1	Single Bracket	
B2	Double Yoke Bracket (Pin and retaining ring included)	

About cushion needle position (*2)
(Needle position with port facing upward from rod direction)



*For combinations of variations and options, see P. 871.

Specifications of custom products Details Please refer to P. 958 to 967.

Code	Content	Code	Content	Code	Content
-XR□□□□	Port/Cushion needle position specification	-XP7	Knuckle fixed by pin driving	-XT9	Scraper/Rod packing only Fluoro Rubber
-XF	Port 1 size down	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	-T2	Fluorine Packing Type
-XK□	Mounting Bracket Rotational Assembly	-XMX◇	Tie rod extension	-A2	With 2 Rod Nuts
-XAQ□□	Trunnion Position Specification	-XM1	Tie rod material SUS	Rod end Shape change	Refer to Ending P. 11.
-XP5	Knuckle Pin/Clevis Pin Split Pin	-XJ9	Without Bellows		

Model No. Example) SCS2-W - ..... - XP5

Specifications

Item		SCS2-W (Two-stage type)					
Bore Size mm		ø125	ø140	ø160	ø180	ø200	ø250
Actuation method		Double Acting Type					
Operating Fluid		Compressed Air					
Max. Working Pressure MPa		1.0 *1					
Min. Operating Pressure MPa		0.1					
Proof Pressure MPa		1.6					
Ambient Temperature °C		-5 to 60 (However, no freezing)					
Port Size		Rc 1/2	Rc 3/4				Rc1
Stroke tolerance mm		$^{+1.0}_{0}$ (Up to 300), $^{+1.4}_{0}$ (Up to 1000), $^{+1.8}_{0}$ (Up to 1200)					
Operating Piston Speed mm/s		20 to 1000 (Please use within the absorbed energy.)					
Cushion		Air Cushion					
Effective air cushion length mm		21.6	21.6	21.6	21.6	26.6	26.6
Lubrication		Required (When lubricating, use turbine oil Class 1 ISO VG32)					
Allowable absorbed energy J	With Cushion	63.5	91.5	116	152	233	362
	Without Cushion	0.371	0.386	0.386	0.958	1.08	2.32
		Without cushion, large energy generated by external load cannot be absorbed. 00 It is recommended to use an external shock absorber together.					

*1: If S1 and S2 are the same, the maximum operating pressure is 0.5 MPa.

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)	Trunnion type minimum stroke (mm)
ø125	50, 75, 100, 150, 200, 250, 300	800	2 (Total stroke)	23
ø140				25
ø160				27
ø180		900		28
ø200		1,000		28
ø250		1,200		28

Note: Intermediate strokes can be produced in 1 mm increments.

Subject to Type 2 pressure vessel inspection
Stroke

Bore Size	S1 + S2 stroke
ø200	892 or more
ø250	690 or more

Cylinder Weight

(Unit: kg)

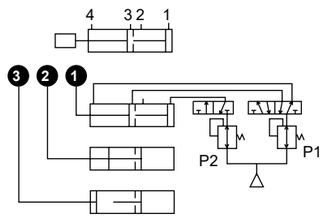
Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm						S=100 mm Per Added Weight
	Basic type (00)	Axial Foot Type (LB)	Flange Type (FA, FB)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion type (TA, TB, TC)	
ø125	18.62	20.12	21.92	21.62	21.72	22.02	1.54
ø140	23.99	25.99	29.39	27.79	27.99	27.19	1.78
ø160	31.38	34.48	38.28	36.38	36.68	37.78	2.22
ø180	43.50	48.00	55.50	50.90	51.40	51.60	2.96
ø200	58.38	64.08	72.08	67.88	68.08	70.18	3.54
ø250	103.53	111.93	129.43	127.53	122.03	132.23	5.38

(Example) Product Weight of SCS2-W-LB-125B-300-300

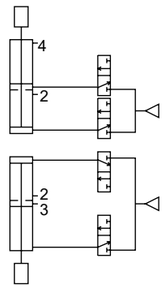
- ●Product mass at S=0 mm ..... 20.12 kg
- ●Added mass at S=300 mm ..... $2 \times 1.54 \times \frac{300}{100} = 9.24$ kg
- ●Product Weight .....20.12+9.24=29.36 kg

Usage Example

Set pressure P2 > P1.
●First stage push
With port 4 pressurized, pressurize port 1.
●Second stage push
With port 1 pressurized, pressurize port 3.



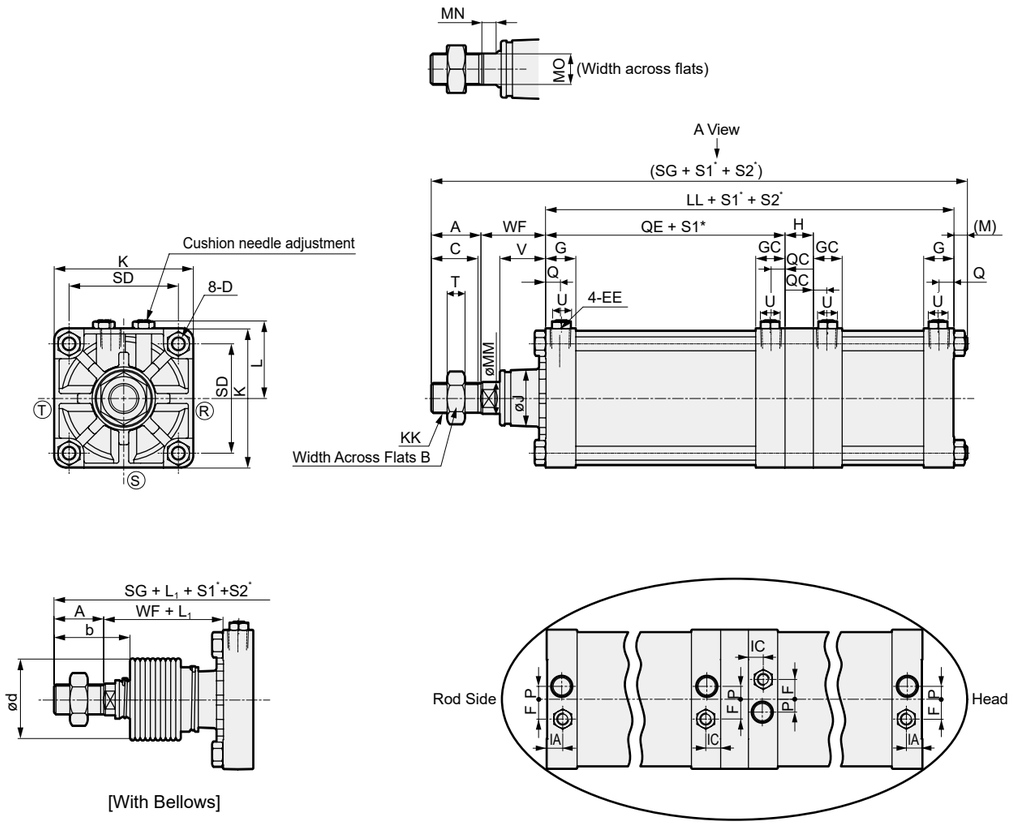
Depending on the load direction, P2 = P1 may be acceptable.
In case of single acting use due to natural drop of load, ports 2 and 4 in the upper diagram, and ports 2 and 3 in the lower diagram become breather ports.
Basically, piping to the port that does not require piping (port 2) will also improve the cushion effect.



MEMO

Outline Dimension Drawing

● Basic type (00)



*S1: Stroke of cylinder 1, S2: Stroke of cylinder 2

***L1: Value obtained by calculating L dimension with stroke of cylinder 1**

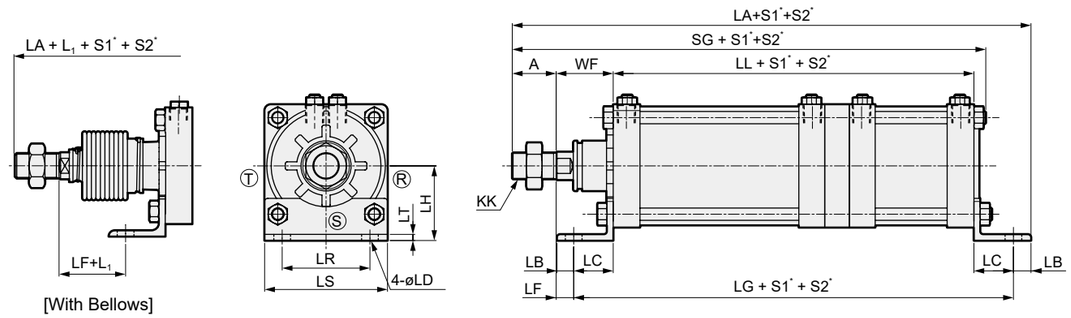
Code	Basic Type (00) Basic Dimensions														
Bore Size (mm)	A	B	C	D	EE	F	G	GC	H	IA	IC	J	K	KK	L
ø125	50	46	47	M14 × 1.5	Rc1/2	20	30.5	29.5	28	16	15	57	140	M30 × 1.5	78 to 82
ø140	50	46	47	M14 × 1.5	Rc3/4	20	34.5	33.5	28	20	19	57	157	M30 × 1.5	86.5 to 91
ø160	56	55	53	M16 × 1.5	Rc3/4	24	34.5	33.5	28	20	19	62	177	M36 × 1.5	96.5 to 101
ø180	63	60	60	M18 × 1.5	Rc3/4	24	34.5	33.5	33	20	19	68	200	M40 × 1.5	108 to 112
ø200	72	70	69	M20 × 1.5	Rc3/4	24	37.5	36.5	35	20.5	19.5	75	220	M45 × 1.5	120.5 to 129
ø250	88	85	84	M24 × 1.5	Rc1	24	42.5	41.5	39	25.5	24.5	93	274	M56 × 2	147.5 to 156

Code	With Bellows																
Bore Size (mm)	QE	LL	M	MM	MN	MO	P	Q	QC	SD	SG	T	U	V	WF	b	d	L_1
ø125	91	211	13.5	32	15	27	13	15	14	110	339.5	18	19	45.5	65	74	75	(Stroke/4.55) + 11
ø140	102	233	13.5	32	15	27	15	17	16	124	363.5	18	19	45.5	67	74	75	(Stroke/4.55) + 9
ø160	105	239	15.5	40	15	36	15	17	16	142	381.5	21	19	48	71	82	80	(Stroke/5.15) + 9
ø180	109	252	17.5	45	17	41	15	17	16	160	410.5	24	19	53	78	91	91	(Stroke/5.15) + 9
ø200	122	280	18.5	50	20	46	20	18	17	175	458.5	27	24	60	88	102	95	(Stroke/5.30) + 9
ø250	140	320	21.5	60	22	55	22	21	20	216	523.5	34	24	64	94	120	120	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L_1 dimension is rounded up to the nearest whole number.
***3: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

●Axial Foot Type (LB)

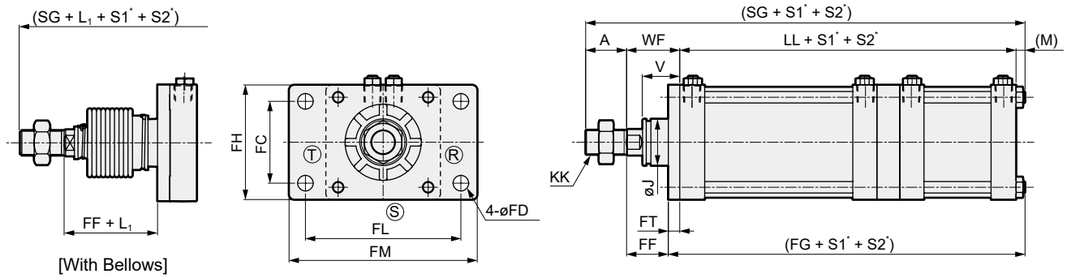


*S1: Stroke of cylinder 1, S2: Stroke of cylinder 2

Code	Axial Foot Type (LB) Mounting Dimensions															With Bellows
	A	KK	LL	SG	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT	L_1
ø125	50	M30 × 1.5	211	339.5	65	390	19	45	19	20	301	85	100	140	7	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	233	363.5	67	420	20	50	19	17	333	100	112	157	8	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	239	381.5	71	439	20	53	19	18	345	106	118	177	10	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	252	410.5	78	480	27	60	24	18	372	125	132	200	10	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	280	458.5	88	529	27	62	24	26	404	132	150	220	12	(Stroke/5.30) + 9
ø250	88	M56 × 2	320	523.5	94	600	28	70	29	24	460	160	180	274	12	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L_1 dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

●Rod Side Flange Type (FA)



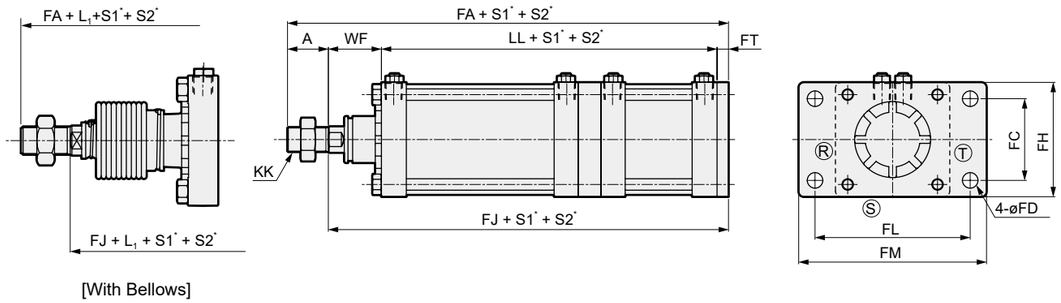
*S1: Stroke of cylinder 1, S2: Stroke of cylinder 2

Code	Rod Side Flange Type (FA) Mounting Dimensions															With Bellows
	A	J	KK	LL	M	SG	V	WF	FC	FD	FF	FG	FH	FL	FM	FT	L_1
ø125	50	57	M30 × 1.5	211	11	337	45.5	65	100	19	51	236	140	190	230	14	(Stroke/4.55) + 11
ø140	50	57	M30 × 1.5	233	11	361	45.5	67	112	19	48	263	157	212	250	19	(Stroke/4.55) + 9
ø160	56	62	M36 × 1.5	239	13	379	48	71	118	19	52	271	177	236	280	19	(Stroke/5.15) + 9
ø180	63	68	M40 × 1.5	252	15	408	53	78	132	24	53	292	200	265	310	25	(Stroke/5.15) + 9
ø200	72	75	M45 × 1.5	280	16	456	60	88	150	24	63	321	220	280	330	25	(Stroke/5.30) + 9
ø250	88	93	M56 × 2	320	19	521	64	94	180	29	64	369	274	355	415	30	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L_1 dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

●Head side flange type (FB)

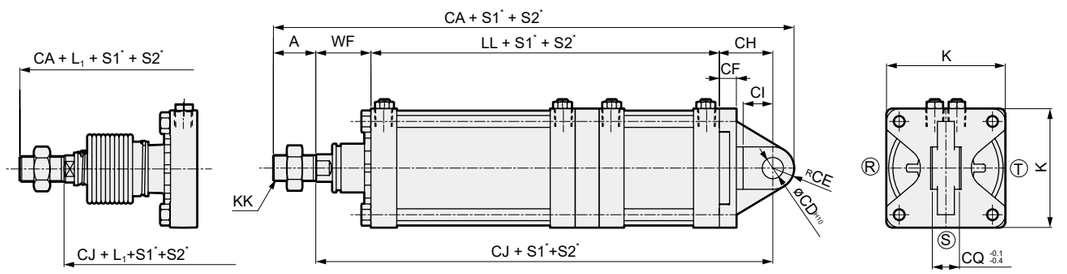


*S1: Stroke of cylinder 1, S2: Stroke of cylinder 2

Code	Head side flange type (FB) Mounting dimensions												With Bellows
	A	KK	LL	WF	FA	FC	FD	FH	FJ	FL	FM	FT	L_1
ø125	50	M30 × 1.5	211	65	340	100	19	140	290	190	230	14	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	233	67	369	112	19	157	319	212	250	19	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	239	71	385	118	19	177	329	236	280	19	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	252	78	418	132	24	200	355	265	310	25	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	280	88	465	150	24	220	393	280	330	25	(Stroke/5.30) + 9
ø250	88	M56 × 2	320	94	532	180	29	274	444	355	415	30	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L_1 dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

● Single Clevis Type (CA)



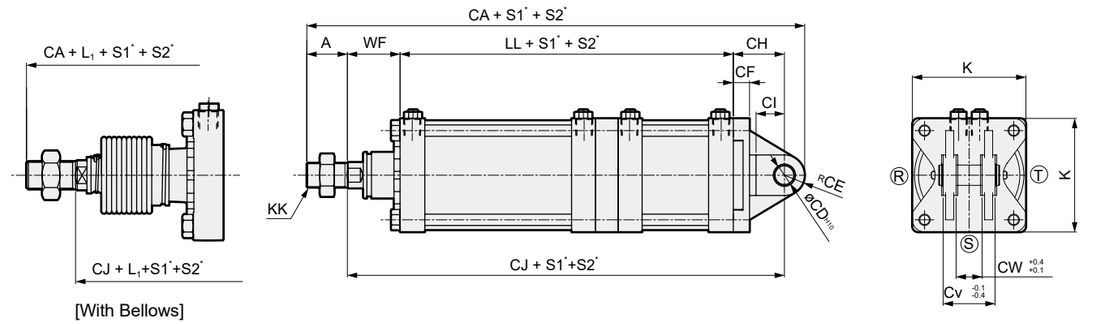
*S1: Stroke of cylinder 1, S2: Stroke of cylinder 2

Code	Single Clevis Type (CA) Mounting Dimensions													With Bellows
	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	CQ	L_1
ø125	50	140	M30 × 1.5	211	65	414	25	25	20	63	35	339	32	(Stroke/4.55) + 11
ø140	50	157	M30 × 1.5	233	67	453	28	28	22	75	40	375	36	(Stroke/4.55) + 9
ø160	56	177	M36 × 1.5	239	71	473	32	32	24	75	40	385	40	(Stroke/5.15) + 9
ø180	63	200	M40 × 1.5	252	78	523	40	40	25	90	55	420	50	(Stroke/5.15) + 9
ø200	72	220	M45 × 1.5	280	88	570	40	40	30	90	55	458	50	(Stroke/5.30) + 9
ø250	88	274	M56 × 2	320	94	662	50	50	35	110	65	524	63	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L_1 dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

●Double clevis type (CB)

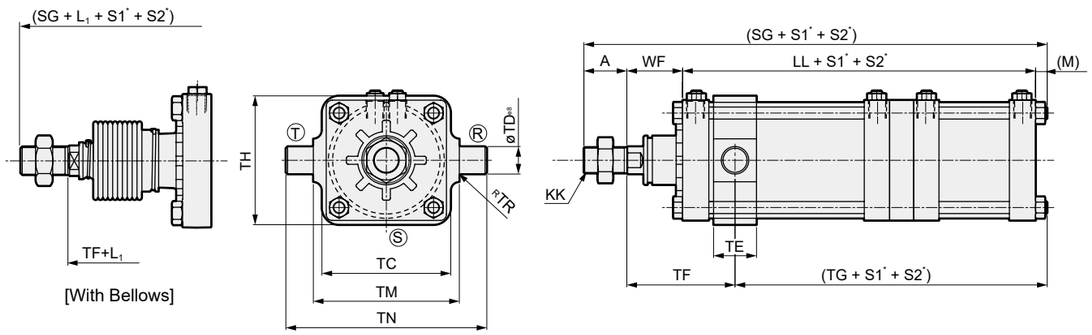


*S1: Stroke of cylinder 1, S2: Stroke of cylinder 2

Code	Double Clevis Type (CB) Mounting Dimensions													With Bellows
	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	Cv	CW	L_1
ø125	50	140	M30 × 1.5	211	65	414	25	25	20	63	35	339	64	32	(Stroke/4.55) + 11
ø140	50	157	M30 × 1.5	233	67	453	28	28	22	75	40	375	72	36	(Stroke/4.55) + 9
ø160	56	177	M36 × 1.5	239	71	473	32	32	24	75	40	385	80	40	(Stroke/5.15) + 9
ø180	63	200	M40 × 1.5	252	78	523	40	40	25	90	55	420	100	50	(Stroke/5.15) + 9
ø200	72	220	M45 × 1.5	280	88	570	40	40	30	90	55	458	100	50	(Stroke/5.30) + 9
ø250	88	274	M56 × 2	320	94	662	50	50	35	110	65	524	126	63	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L_1 dimension is rounded up to the nearest whole number.
*3: Pin and retaining ring are attached.
***4: For dimensions of models with switches, see P. 956.**
***5: For outer dimensions diagram of accessories, refer to P. 883.**

●Rod side trunnion type (TA)



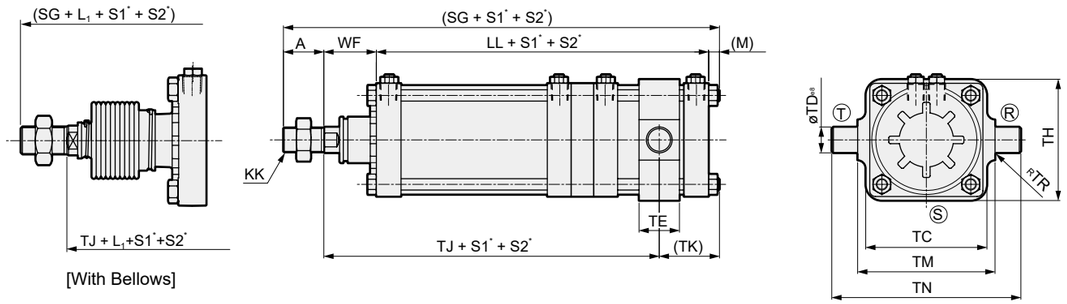
*S1: Stroke of cylinder 1, S2: Stroke of cylinder 2

Code	Rod Side Trunnion Type (TA) Mounting Dimensions															With Bellows
	A	KK	LL	M	SG	WF	TC	TD	TE	TF	TG	TH	TM	TN	TR	L_1
ø125	50	M30 × 1.5	211	11	337	65	150	32	50	126	161	150	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	233	11	361	67	154	36	55	134.5	176.5	170	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	239	13	379	71	190	40	60	141	182	190	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	252	15	408	78	210	45	65	150.5	194.5	210	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	280	16	456	88	242	45	70	168	216	242	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	320	19	521	94	300	56	80	184	249	300	335	447	2	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L_1 dimension is rounded up to the nearest whole number.
*3: Position detection at the rod side stroke end is not possible.
***4: For dimensions of models with switches, see P. 956.**
***5: For outer dimensions diagram of accessories, refer to P. 883.**
***6: For the minimum producible stroke, please refer to P. 926.**

Outline Dimension Drawing

●Head Side Trunnion Type (TB)



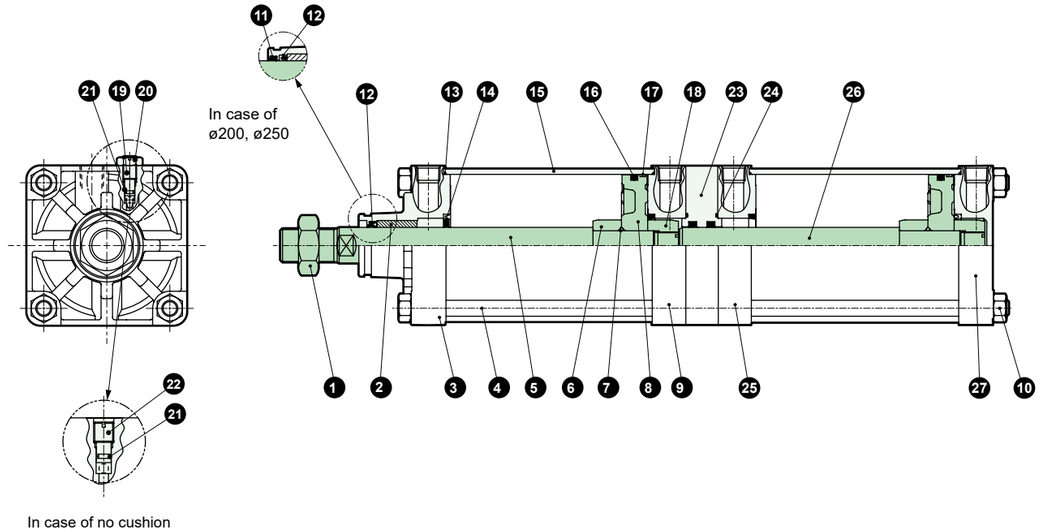
*S1: Stroke of cylinder 1, S2: Stroke of cylinder 2

Code	Head Side Trunnion Type (TB) Mounting Dimensions															With Bellows
	A	KK	LL	M	SG	WF	TC	TD	TE	TH	TJ	TK	TM	TN	TR	L_1
ø125	50	M30 × 1.5	211	11	337	65	150	32	50	150	215	72	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	233	11	361	67	154	36	55	170	232.5	78.5	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	239	13	379	71	190	40	60	190	240	83	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	252	15	408	78	210	45	65	210	257.5	87.5	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	280	16	456	88	242	45	70	242	288	96	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	320	19	521	94	300	56	80	300	324	109	335	447	2	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L_1 dimension is rounded up to the nearest whole number.
*3: Position detection at the head side stroke end is not possible.
***4: For dimensions of models with switches, see P. 956**
***5: For outer dimensions diagram of accessories, refer to P. 883.**
***6: For the minimum producible stroke, please refer to P. 926.**

Internal Structure Diagram/Material

●SCS2-W



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Hexagon Nut	Steel	Zinc Chromate	16	Piston Packing	Nitrile Rubber	
2	Bushing	Oil-Impregnated Bearing Alloy		17	Wear Ring	ø125 to ø200: Polyacetal ø250: Fabric-reinforced phenol	
3	Rod Cover	Aluminum Alloy	Chromate				
4	Tie Rod	Steel	Zinc Chromate	18	Cushion Ring B	Steel	Zinc Chromate
5	Piston Rod A	Steel	Industrial Hard Chrome Plating	19	Cushion Needle	ø125 to ø180: Copper alloy ø200, ø250: Steel	ø200, ø250: Zinc Chromate
6	Cushion Ring A	Steel	Zinc Chromate				
7	Piston Gasket	Nitrile Rubber		20	Hexagon Nut	Steel	Zinc Chromate
8	Piston	Aluminum Alloy		21	Needle Gasket	Nitrile Rubber	
9	Intermediate cover (1)	Aluminum Alloy	Chromate	22	Cushion needle stop plug	ø125 to ø180: Copper alloy ø200, ø250: Steel	
10	Hexagon Nut	Steel	Zinc Chromate				
11	Scraper	Nitrile Rubber		23	Intermediate plate	Cast Iron	Painting
12	Rod Packing	Nitrile Rubber		24	Metal gasket	Nitrile Rubber	
13	Cylinder Gasket	Nitrile Rubber		25	Intermediate cover (2)	Aluminum Alloy	Chromate
14	Cushion Packing	Nitrile Rubber, Steel	Only with cushion	26	Piston Rod B	Steel	Industrial Hard Chrome Plating
15	Cylinder Tube	Aluminum Alloy	Hard Anodized	27	Head Cover	Aluminum Alloy	Chromate

For Maintenance Parts, please visit the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

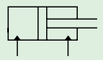


Large Bore Size Cylinder
Double Acting, Low Hydraulic Pressure Type

SCS2-H Series

●Bore Size: ø125, ø140, ø160, ø180, ø200, ø250

Circuit Diagram
Symbol



Custom Products RoHS

Model No. Notation Method

Without Switch
(Without magnet for switch)

SCS2-H	LB	125		B	50			J	Y
Model No.	❶	❷	❸	❹	❺			❽	❾

With Switch
(Built-in magnet for switch)

SCS2-LH	LB	125		B	50	T0H	R	J	Y
Model No.	❶ Mounting type	❷ Bore Size	❸ Piping thread type	❹ Cushion	❺ Stroke	❻ Switch Model No.	❼ Number of Switches	❽ Option	❾ Accessories

❶Mounting type Brackets are attached and shipped.

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and retaining ring included)	
TC	Intermediate Trunnion Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

Note: Tapped trunnion is supported as a custom product only for ø125 to ø160. Please consult us each time regarding external dimensions, etc.

❷Bore Size (mm)

Code	Content
125	ø125
140	ø140
160	ø160
180	ø180
200	ø200
250	ø250

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom product)
G	G thread (Custom product)

❹Cushion

Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

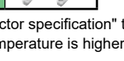
❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø125 to ø160	20 to 800	Every 1 mm
ø180	20 to 900	
ø200	20 to 1000	
ø250	20 to 1200	

Note: For minimum stroke with switch, refer to P. 936.

❻Switch Model No.

For switch details, please refer to P. 971. Switches are assembled into the product before shipment. Also, T2WL switches are attached to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	—	T1H□	T2JH□	
			—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		—		T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	2-Color AC For Magnetic Field		—	24 ± 10%	—	5 to 20	T2YD□	–	
			—		—		T2YDT□	–	
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-Color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*5

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH3
5 m TOH5

*1: For □ in the switch model number, enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

❼Number of Switches

	Code	Content
*1	R	With 1 pc on rod side
*1	H	With 1 pc on head side
	D	With 2 pcs
	T	With 3 pcs
	4	With 4 pieces

*1: ❶When "TA" or "TB" is selected as the mounting method, the number of switches is limited to "H" (1 on the head side) for "TA" and "R" (1 on the rod side) for "TB".

❾Accessories

	Code	Content	
*1	I	Single Knuckle	
*1	Y	Double Knuckle (Pin and retaining ring included)	
	B1	Single Bracket	
	B2	Double Yoke Bracket (Pin and retaining ring included)	

*1: "I" and "Y" cannot be selected at the same time.

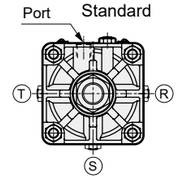
❽Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
	C2	With check valve in cushion part			
	J	Bellows	100°C	200°C	
	L	Bellows	250°C	400°C	
	M	Piston Rod Material (Stainless Steel)			
*2	Blank	Cushion needle position Standard			
*2	R	Cushion needle position R			
*2	S	Cushion needle position S			
*2	T	Cushion needle position T			

*1: Instantaneous maximum temperature is the temperature when sparks, cutting chips, etc., instantaneously hit the bellows.
*2: Please check the cushion needle position display in the diagram below.

About cushion needle position (*2)

(Needle position with port facing upward from rod direction)



*For combinations of variations and options, see P. 871.

Specifications of custom products Details Please refer to P. 958 to 967.

Code	Content	Code	Content	Code	Content
-XR□□□□	Port/Cushion needle position specification	-XP5	Knuckle Pin/Clevis Pin Split Pin	-XM1	Tie rod material SUS
-XF	Port 1 size down	-XP7	Knuckle fixed by pin driving	-XJ9	Without Bellows
-XK□	Mounting Bracket Rotational Assembly	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	-A2	With 2 Rod Nuts
-XAQ□□	Trunnion Position Specification	-XMX□	Tie rod extension	Rod end Shape change	Refer to Ending P. 11.

Model No. Example) SCS2-H-..... -XP5

Switch part single item model No. notation method

●Switch body + Mounting bracket set

SCS2-LN - T0H - 125
❻ Switch Model No. ❷ Bore Size

●Switch body only

SW - T0H
❻ Switch Model No.

●Mounting bracket set

SCS2-LN - TS - 125
❷ Bore Size

Code	Switch
TS	Other than T2YD, T2YDT
T	T2YD, T2YDT

Specifications

Item		SCS2-H, SCS2-LH (Low hydraulic pressure type)					
Bore Size	mm	ø125	ø140	ø160	ø180	ø200	ø250
Actuation method		Double Acting Type					
Operating Fluid		Hydraulic Operating Fluid					
Max. Working Pressure	MPa	1.0					
Min. Operating Pressure	MPa	0.1					
Proof Pressure	MPa	1.6					
Ambient Temperature	°C	5 to 50					
Port Size		Rc 1/2	Rc 3/4				Rc1
Stroke tolerance	mm	$^{+1.0}_{0}$(Up to 300), $^{+1.4}_{0}$ (Up to 1000), $^{+1.8}_{0}$ (Up to 1200)					
Cushion		Cushion					
Effective air cushion length	mm	21.6	21.6	21.6	21.6	26.6	26.6
Allowable absorbed energy J	With Cushion	The cushioning capacity of low hydraulic pressure cylinders cannot absorb large energy. It is recommended to use an external shock absorber together.					
	Without Cushion	0.371	0.386	0.386	0.958	1.08	2.32
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.					

Stroke

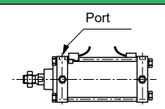
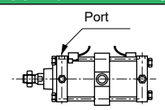
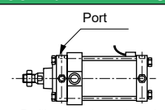
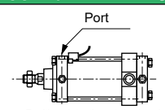
Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)	Trunnion type Min. stroke (mm)
ø125	50, 75, 100, 150, 200, 250, 300	800	20	23
ø140				25
ø160				27
ø180		900		28
ø200		1,000		28
ø250		1,200		28

Note: Intermediate strokes can be produced in 1 mm increments.

Type 2 pressure vessel inspection
Target stroke

Bore Size	Stroke
ø200	946 or more
ø250	752 or more

Min. Stroke with Switch

Item		Stroke when mounting on the same surface	Stroke of intermediate (tapped) trunnion type	Stroke of rod side (tapped) trunnion type	Stroke of head side (tapped) trunnion type
Switch type	Diagram			 Position detection at the rod side stroke end is not possible.	 Position detection at the head side stroke end is not possible.
Bore					
Reed switch (T□)	ø125	20 or more	120 or more	70 or more	
	ø140		125 or more	75 or more	
	ø160		130 or more	80 or more	
	ø180		135 or more	85 or more	
	ø200		140 or more	90 or more	
	ø250		150 or more	100 or more	

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm: Basic type (00)	Axial Foot Type (LB)	Flange Type (FA, FB)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion Type (TA, TB, TC)	Switch Weight: Switch	Switch Weight: Mounting bracket	S=Per 100 mm Added Weight
ø125	7.22	8.72	10.52	10.22	10.32	10.62	Refer to the weight listed in the switch specifications on P. 971.	0.028	1.54
ø140	9.35	11.35	14.75	13.15	13.35	12.55		0.030	1.78
ø160	12.35	15.45	19.25	17.35	17.65	18.75		0.034	2.22
ø180	16.75	21.25	28.75	24.15	24.65	24.85		0.038	2.96
ø200	22.78	28.48	36.48	32.28	32.48	34.58		0.040	3.54
ø250	40.51	48.91	66.41	64.51	59.01	69.21		0.045	5.38

(Example) Product mass of SCS2-LH-LB-125B-300-TOH-D

- ●Product mass at S=0 mm ..... 8.72 kg
- ●Added mass at S=300 mm ..... $1.54 \times \frac{300}{100} = 4.62$ kg
- ●Weight of 2 switches (TOH-D) ... 0.018 × 2 = 0.036 kg
- ●Product Weight of 2 switch brackets ..... 0.028 × 2 = 0.056 kg
- ●Product Weight ..... 8.72 + 4.62 + 0.036 + 0.056 = 13.432 kg

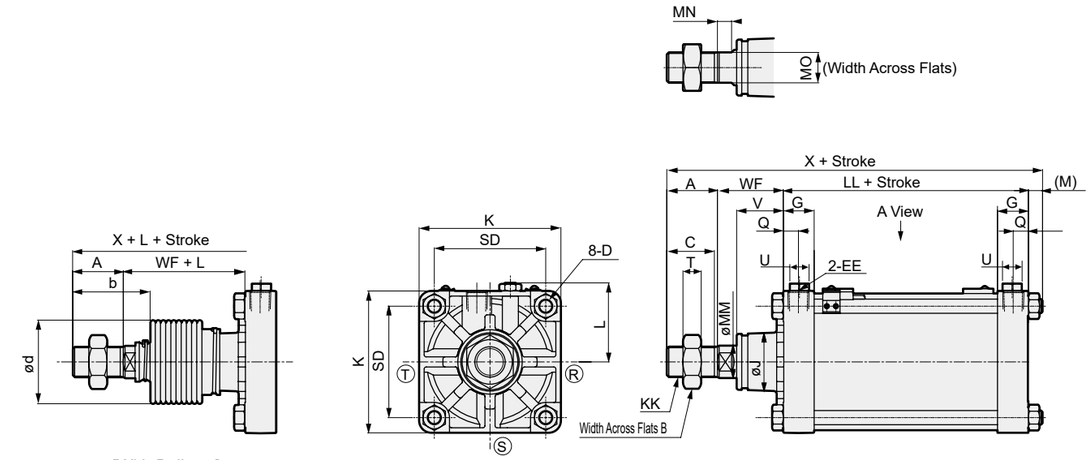
Theoretical Thrust Table

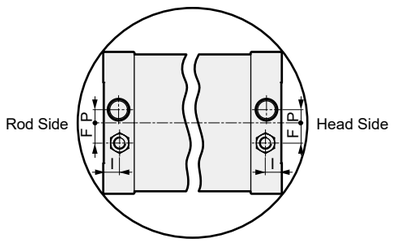
(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa: 0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø125	Push	1.23×10^3	1.84×10^3	2.45×10^2	3.68×10^3	4.91×10^2	6.14×10^3	7.36×10^3	8.59×10^3	9.82×10^3	1.10×10^4	1.23×10^4
	Pull	1.15×10^3	1.72×10^3	2.29×10^3	3.44×10^2	4.59×10^3	5.73×10^3	6.88×10^3	8.03×10^3	9.17×10^3	1.03×10^4	1.15×10^4
ø140	Push	1.54×10^3	2.31×10^3	3.08×10^3	4.62×10^3	6.16×10^3	7.70×10^3	9.24×10^3	1.08×10^4	1.23×10^4	1.39×10^4	1.54×10^4
	Pull	1.46×10^3	2.19×10^3	2.92×10^3	4.38×10^3	5.84×10^3	7.29×10^3	8.75×10^3	1.02×10^4	1.17×10^4	1.31×10^4	1.46×10^4
ø160	Push	2.01×10^3	3.02×10^3	4.02×10^3	6.03×10^3	8.04×10^4	1.01×10^4	1.21×10^4	1.41×10^4	1.61×10^4	1.81×10^4	2.01×10^4
	Pull	1.88×10^3	2.83×10^3	3.77×10^3	5.65×10^3	7.54×10^3	9.42×10^3	1.13×10^4	1.32×10^4	1.51×10^4	1.70×10^4	1.88×10^4
ø180	Push	2.54×10^3	3.82×10^3	5.09×10^3	7.63×10^3	1.02×10^4	1.27×10^4	1.53×10^4	1.78×10^4	2.04×10^4	2.29×10^4	2.54×10^4
	Pull	2.39×10^3	3.58×10^3	4.77×10^3	7.16×10^3	9.54×10^3	1.19×10^4	1.43×10^4	1.67×10^4	1.91×10^4	2.15×10^4	2.39×10^4
ø200	Push	3.14×10^3	4.71×10^3	6.28×10^3	9.42×10^3	1.26×10^4	1.57×10^4	1.88×10^4	2.20×10^4	2.51×10^4	2.83×10^4	3.14×10^4
	Pull	2.95×10^3	4.42×10^3	5.89×10^3	8.84×10^3	1.18×10^4	1.47×10^4	1.77×10^4	2.06×10^4	2.36×10^4	2.65×10^4	2.95×10^4
ø250	Push	4.91×10^3	7.36×10^3	9.82×10^3	1.47×10^4	1.96×10^4	2.45×10^4	2.95×10^4	3.44×10^4	3.93×10^4	4.42×10^4	4.91×10^4
	Pull	4.63×10^3	6.94×10^3	9.25×10^3	1.39×10^4	1.85×10^4	2.31×10^4	2.78×10^4	3.24×10^4	3.70×10^4	4.16×10^4	4.63×10^4

Outline Dimension Drawing

● Basic type (00)





Port position diagram (A View)

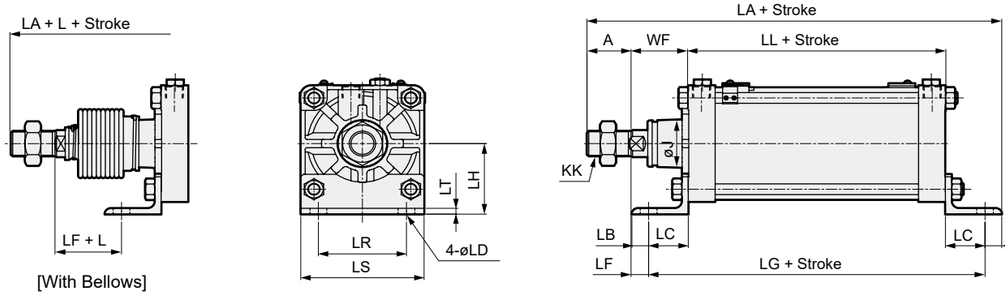
Code	Basic Type (00) Basic Dimensions													
	A	B	C	D	EE	F	G	I	J	K	KK	L	LL	M
ø125	50	46	47	M14 × 1.5	Rc1/2	20	30.5	16	57	140	M30 × 1.5	78 to 82	92	13.5
ø140	50	46	47	M14 × 1.5	Rc3/4	20	34.5	20	57	157	M30 × 1.5	86.5 to 91	103	13.5
ø160	56	55	53	M16 × 1.5	Rc3/4	24	34.5	20	62	177	M36 × 1.5	96.5 to 101	106	15.5
ø180	63	60	60	M18 × 1.5	Rc3/4	24	34.5	20	68	200	M40 × 1.5	108 to 112	110	17.5
ø200	72	70	69	M20 × 1.5	Rc3/4	24	37.5	20.5	75	220	M45 × 1.5	120.5 to 129	123	18.5
ø250	88	85	84	M24 × 1.5	Rc1	24	42.5	25.5	93	274	M56 × 2	147.5 to 156	141	21.5

Code												With Bellows		
	MM	MN	MO	P	Q	SD	T	U	V	WF	X	b	d	L
ø125	32	15	27	13	15	110	18	19	45.5	65	220.5	74	75	(Stroke/4.55) + 11
ø140	32	15	27	15	17	124	18	19	45.5	67	233.5	74	75	(Stroke/4.55) + 9
ø160	40	15	36	15	17	142	21	19	48	71	248.5	82	80	(Stroke/5.15) + 9
ø180	45	17	41	15	17	160	24	19	53	78	268.5	91	91	(Stroke/5.15) + 9
ø200	50	20	46	20	18	175	27	24	60	88	301.5	102	95	(Stroke/5.30) + 9
ø250	60	22	55	22	21	216	34	24	67	94	344.5	120	120	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

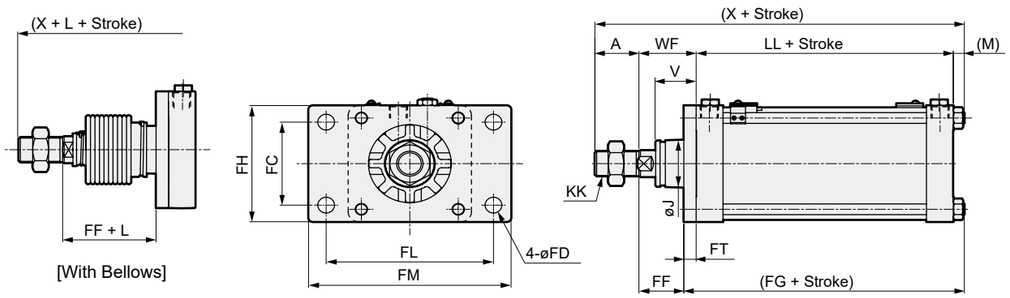
●Axial foot type (LB)



Code	Axial Foot Type (LB) Mounting Dimensions														With Bellows
	A	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT	L
ø125	50	M30 × 1.5	92	65	271	19	45	19	20	182	85	100	140	7	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	67	290	20	50	19	17	203	100	112	157	8	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	71	306	20	53	19	18	212	106	118	177	10	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	78	338	27	60	24	18	230	125	132	200	10	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	88	372	27	62	24	26	247	132	150	220	12	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	94	421	28	70	29	24	281	160	180	274	12	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

●Rod Side Flange Type (FA)

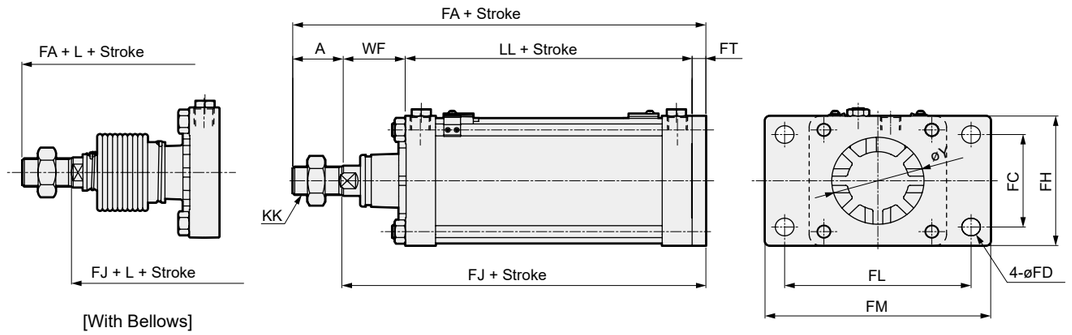


Code	Rod Side Flange Type (FA) Mounting Dimensions															With Bellows
	A	J	KK	LL	M	V	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	L
ø125	50	57	M30 × 1.5	92	11	45.5	65	218	100	19	51	117	140	190	230	14	(Stroke/4.55) + 11
ø140	50	57	M30 × 1.5	103	11	45.5	67	231	112	19	48	133	157	212	250	19	(Stroke/4.55) + 9
ø160	56	62	M36 × 1.5	106	13	48	71	246	118	19	52	138	177	236	280	19	(Stroke/5.15) + 9
ø180	63	68	M40 × 1.5	110	15	53	78	266	132	24	53	150	200	265	310	25	(Stroke/5.15) + 9
ø200	72	75	M45 × 1.5	123	16	60	88	299	150	24	63	164	220	280	330	25	(Stroke/5.30) + 9
ø250	88	93	M56 × 2	141	19	67	94	342	180	29	64	190	274	355	415	30	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

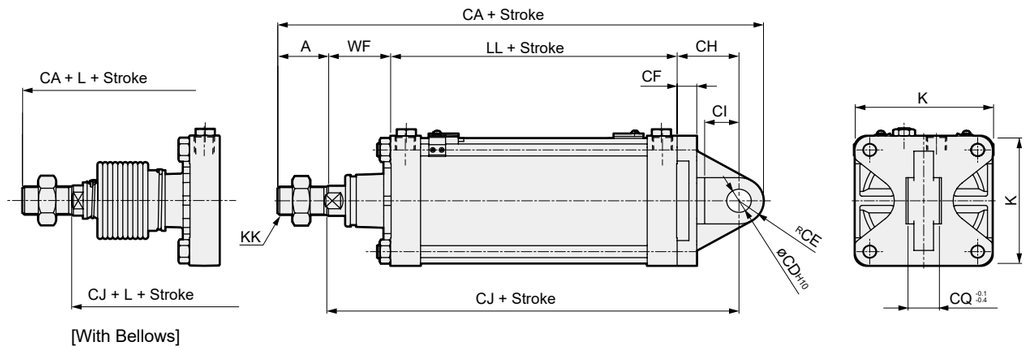
●Head Side Flange Type (FB)



Code	Head Side Flange Type (FB) Mounting Dimensions												With Bellows
	A	KK	LL	WF	FC	FD	FH	FJ	FL	FM	FT	Y	L
ø125	50	M30 × 1.5	92	65	100	19	140	171	190	230	14	94	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	67	112	19	157	189	212	250	19	94	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	71	118	19	177	196	236	280	19	107	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	78	132	24	200	213	265	310	25	113	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	88	150	24	220	236	280	330	25	131	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	94	180	29	274	265	355	415	30	153	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

●Single Clevis Type (CA)

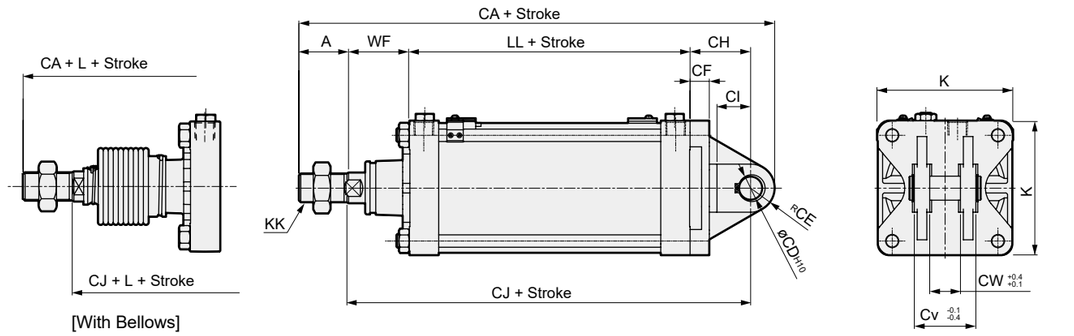


Code	Single Clevis Type (CA) Mounting Dimensions												With Bellows
	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	CQ	L
ø125	50	140	M30 × 1.5	92	65	295	25	25	20	63	35	220	32	(Stroke/4.55) + 11
ø140	50	157	M30 × 1.5	103	67	323	28	28	22	75	40	245	36	(Stroke/4.55) + 9
ø160	56	177	M36 × 1.5	106	71	340	32	32	24	75	40	252	40	(Stroke/5.15) + 9
ø180	63	200	M40 × 1.5	110	78	381	40	40	25	90	55	278	50	(Stroke/5.15) + 9
ø200	72	220	M45 × 1.5	123	88	413	40	40	30	90	55	301	50	(Stroke/5.30) + 9
ø250	88	274	M56 × 2	141	94	483	50	50	35	110	65	345	63	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

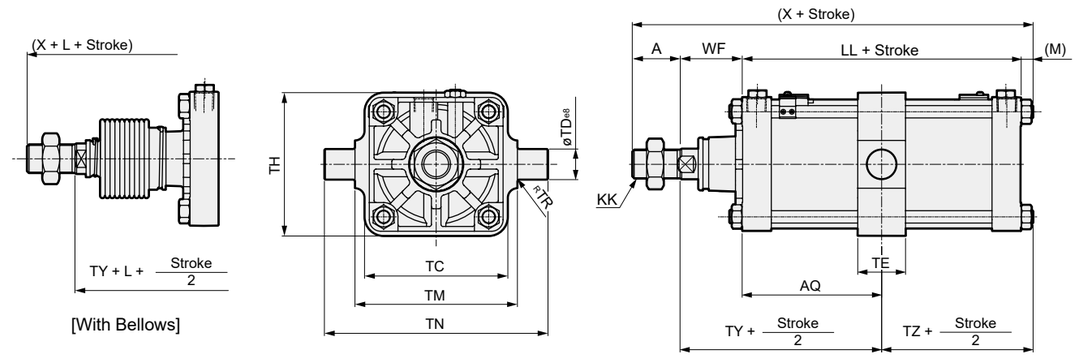
●Double clevis type (CB)



Code	Double Clevis Type (CB) Mounting Dimensions														With Bellows
	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	Cv	CW	L
ø125	50	140	M30 × 1.5	92	65	295	25	25	20	63	35	220	64	32	(Stroke/4.55) + 11
ø140	50	157	M30 × 1.5	103	67	323	28	28	22	75	40	245	72	36	(Stroke/4.55) + 9
ø160	56	177	M36 × 1.5	106	71	340	32	32	24	75	40	252	80	40	(Stroke/5.15) + 9
ø180	63	200	M40 × 1.5	110	78	381	40	40	25	90	55	278	100	50	(Stroke/5.15) + 9
ø200	72	220	M45 × 1.5	123	88	413	40	40	30	90	55	301	100	50	(Stroke/5.30) + 9
ø250	88	274	M56 × 2	141	94	483	50	50	35	110	65	345	126	63	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: Pin and retaining ring are attached.
***4: For dimensions of models with switches, see P. 956.**
***5: For outer dimensions diagram of accessories, refer to P. 883.**

●Intermediate trunnion type (TC)

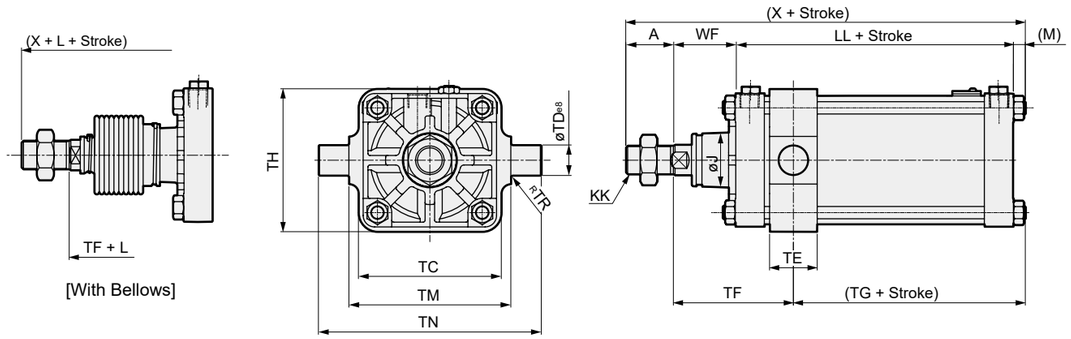


Code	Intermediate Trunnion Type (TC) Mounting Dimensions															With Bellows
	A	KK	LL	M	WF	X	AQ	TC	TD	TE	TH	TY	TZ	TM	TN	TR	L
ø125	50	M30 × 1.5	92	11	65	218	46 + Stroke/2	150	32	50	150	111	57	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	11	67	231	51.5 + Stroke/2	154	36	55	170	118.5	62.5	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	13	71	246	53 + Stroke/2	190	40	60	190	124	66	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	15	78	266	55 + Stroke/2	210	45	65	210	133	70	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	16	88	299	61.5 + Stroke/2	242	45	70	242	149.5	77.5	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	19	94	342	70.5 + Stroke/2	300	56	80	300	164.5	89.5	335	447	2	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**
***5: For the minimum producible stroke, please refer to P. 936.**

Outline Dimension Drawing

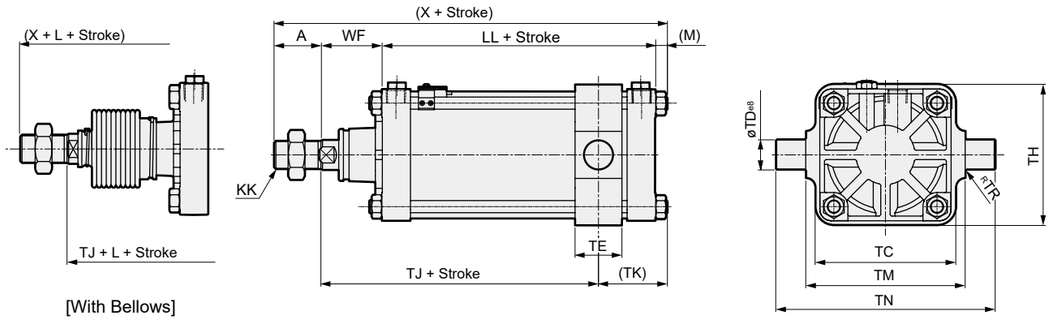
●Rod side trunnion type (TA)



Code	Rod Side Trunnion Type (TA) Mounting Dimensions															With Bellows
	A	KK	LL	M	WF	X	TC	TD	TE	TF	TG	TH	TM	TN	TR	L
ø125	50	M30 × 1.5	92	11	65	218	150	32	50	126	42	150	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	11	67	231	154	36	55	134.5	46.5	170	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	13	71	246	190	40	60	141	49	190	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	15	78	266	210	45	65	150.5	52.5	210	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	16	88	299	242	45	70	168	59	242	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	19	94	342	300	56	80	184	70	300	335	447	2	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: Position detection at the rod side stroke end is not possible.
***4: For dimensions of models with switches, see P. 956.**
***5: For outer dimensions diagram of accessories, refer to P. 883.**
***6: For the minimum producible stroke, please refer to P. 936.**

●Head Side Trunnion Type (TB)

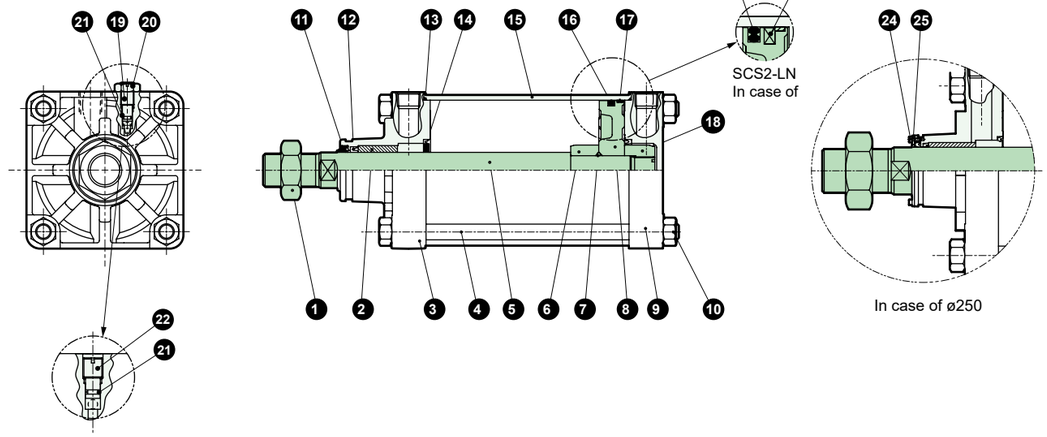


Code	Head Side Trunnion Type (TB) Mounting Dimensions															With Bellows
	A	KK	LL	M	WF	X	TC	TD	TE	TH	TJ	TK	TM	TN	TR	L
ø125	50	M30 × 1.5	92	11	65	218	150	32	50	150	96	72	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	11	67	231	154	36	55	170	102.5	78.5	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	13	71	246	190	40	60	190	107	83	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	15	78	266	210	45	65	210	115.5	87.5	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	16	88	299	242	45	70	242	131	96	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	19	94	342	300	56	80	300	145	109	335	447	2	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: Position detection at the head side stroke end is not possible.
***4: For dimensions of models with switches, see P. 956**
***5: For outer dimensions diagram of accessories, refer to P. 883.**
***6: For the minimum producible stroke, please refer to P. 936.**

Internal Structure Diagram/Material

●SCS2-(L)H



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Hexagon Nut	Steel	Zinc Chromate	15	Cylinder Tube	Aluminum Alloy	Hard Anodized
2	Bushing	Oil-Impregnated Bearing Alloy		16	Piston Packing	Nitrile Rubber	
3	Rod Cover	Aluminum Alloy	Chromate	17	Wear Ring	ø125 to ø200: Polyacetal ø250: Fabric-reinforced phenol	
4	Tie Rod	Steel	Zinc Chromate				
5	Piston Rod	Steel	Industrial Hard Chrome Plating	18	Cushion Ring B	Steel	Zinc Chromate
6	Cushion Ring A	Steel	Zinc Chromate	19	Cushion Needle	ø125 to ø180: Copper alloy ø200, ø250: Steel	ø200, ø250: Zinc chromate
7	Piston Gasket	Nitrile Rubber					
8	Piston	Aluminum Alloy		20	Hexagon Nut	Steel	Zinc Chromate
9	Head Cover	Aluminum Alloy	Chromate	21	Needle Gasket	Nitrile Rubber	
10	Hexagon Nut	Steel	Zinc Chromate	22	Cushion needle stop plug	ø125 to ø180: Copper alloy ø200, ø250: Steel	
11	Scraper	Nitrile Rubber					
12	Rod Packing	Nitrile Rubber		23	Magnet	Rubber	With switch only
13	Cylinder Gasket	Nitrile Rubber		24	Scraper retaining plate	Steel	Manganese phosphate
14	Cushion Packing	Nitrile Rubber, Steel	Only with cushion	25	Hexagon Socket Head Cap Screw	Steel	Black Oxide

For Maintenance Parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

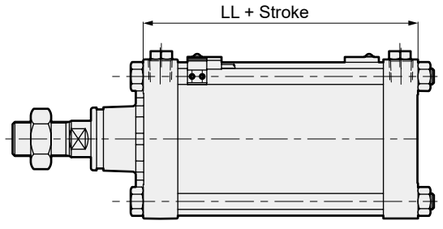
Introduction of custom-made products

■ SCS-LH Mounting dimension compatible type

Model No. Notation Method

Please add "-SO92" to the end of the model number when ordering.

Outline Dimension Drawing



Code	Dimension table
Bore Size (mm)	LL
ø125	111.5
ø140	122.5
ø160	122.5
ø180	124.5
ø200	143.5
ø250	

*1: In the case of intermediate trunnion mounting, the mounting position is the center between the covers.
*2: The LL dimension described in the dimension table above is as shown on the right.

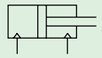
MEMO



Large Bore Size Cylinder
Double Acting, Heavy Duty Scraper Type

SCS2-G Series

●Bore Size: ø125, ø140, ø160, ø180, ø200, ø250

Circuit Diagram Symbol 

Custom Products RoHS

Model No. Notation Method

Without Switch
(Without magnet for switch)

SCS2-G - LB - 125 [ ] B - 50 - M Y

Model No. | ❶ Mounting type | ❷ Bore Size | ❸ Piping thread type | ❹ Cushion | ❺ Stroke | ❻ Option | ❼ Accessories

❶Mounting type Brackets are attached and shipped.

Code	Content	
00	Basic type	
LB	Axial Foot Type	
FA	Rod Side Flange Type	
FB	Head Side Flange Type	
CA	Single Clevis Type	
CB	Double Clevis Type (Pin and retaining ring included)	
TC	Intermediate Trunnion Type	
TA	Rod Side Trunnion Type	
TB	Head Side Trunnion Type	

Note: Tapped trunnion is supported as a custom product only for ø125 to ø160. Please consult us each time regarding external dimensions, etc.

❷Bore Size (mm)

Code	Content
125	ø125
140	ø140
160	ø160
180	ø180
200	ø200
250	ø250

❸Piping thread type

Code	Content
Blank	Rc Thread
N	NPT thread (Custom product)
G	G thread (Custom product)

❹Cushion

Code	Content
B	With Cushion on Both Sides
R	With rod side cushion
H	With head side cushion
N	Without Cushion

❺Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø125 to ø160	1 to 800	Every 1 mm
ø180	1 to 900	
ø200	1 to 1000	
ø250	1 to 1200	

❻Option

	Code	Content	Max. Ambient Temperature	Instantaneous Max. Temperature	
	C2	With check valve in cushion part			
	J	Bellows	100°C	200°C	
	L	Bellows	250°C	400°C	
	M	Piston Rod Material (Stainless Steel)			
*2	Blank	Cushion needle position Standard			
*2	R	Cushion needle position R			
*2	S	Cushion needle position S			
*2	T	Cushion needle position T			

*1: Instantaneous maximum temperature is the temperature when sparks, cutting chips, etc., instantaneously hit the bellows.
*2: Please refer to the diagram below for the cushion needle position.

About cushion needle position (*2)

(Needle position with port facing upward from rod direction)

❼Accessories

Code	Content	
I	Single Knuckle	
Y	Double Knuckle (Pin and retaining ring included)	
B1	Single Bracket	
B2	Double Yoke Bracket (Pin and retaining ring included)	

*For combinations of variations and options, see P. 871.

Specifications of custom products Details Please refer to P. 958 to 967.

Code	Content	Code	Content	Code	Content
-XR□□□□	Port/Cushion needle position specification	-XP5	Knuckle Pin/Clevis Pin Split Pin	-XM1	Tie rod material SUS
-XF	Port 1 size down	-XP7	Knuckle fixed by pin driving	-XJ9	Without Bellows
-XK□	Mounting Bracket Rotational Assembly	-XP8	Knuckle pin/clevis pin split pin specification, knuckle fixed by pin driving	-A2	With 2 Rod Nuts
-XAQ□□	Trunnion Position Specification	-XMX◇	Tie rod extension	Rod end Shape change	Refer to Ending P. 11.

Model No. Example) SCS2-G-..... -XP5

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

●Uses food grade grease that can be used in food manufacturing processes

SCS2-G-..... -FP1

Specifications

Item		SCS2-G (Heavy-duty scraper type)					
Bore Size mm		ø125	ø140	ø160	ø180	ø200	ø250
Actuation method		Double Acting Type					
Operating Fluid		Compressed Air					
Max. Working Pressure MPa		1.0					
Min. Operating Pressure MPa		0.05					
Proof Pressure MPa		1.6					
Ambient Temperature °C		-5 to 60 (However, no freezing)					
Port Size		Rc 1/2	Rc 3/4				Rc1
Stroke tolerance mm		$^{+1.0}_{0}$ (Up to 300), $^{+1.4}_{0}$ (Up to 1000), $^{+1.8}_{0}$ (Up to 1200)					
Operating Piston Speed mm/s		20 to 1000 (Please use within the absorbed energy.)					
Cushion		Air Cushion					
Effective air cushion length mm		21.6	21.6	21.6	21.6	26.6	26.6
Lubrication		Required (When lubricating, use turbine oil Class 1 ISO VG32)					
Allowable absorbed energy J	With Cushion	63.5	91.5	116	152	233	362
	Without Cushion	0.371	0.386	0.386	0.958	1.08	2.32
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.					

Stroke

Bore Size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)	Trunnion type Min. stroke (mm)
ø125	50, 75, 100, 150, 200, 250, 300	800	1	23
ø140				25
ø160				27
ø180		900		28
ø200		1,000		28
ø250		1200		28

*1: Intermediate strokes can be manufactured in 1 mm increments.
*2: If the maximum stroke is exceeded, product specifications may not be met depending on the conditions, so please consult us.

Type 2 pressure vessel inspection
Target stroke

Bore Size	Stroke
ø200	946 or more
ø250	752 or more

Cylinder Weight

(Unit: kg)

Item/Mounting Style / Bore Size (mm)	Product Weight at Stroke (S) = 0 mm						S=100 mm Per Added Weight
	Basic type (00)	Axial Foot Type (LB)	Flange Type (FA, FB)	Single Clevis Type (CA)	Double Clevis Type (CB)	Trunnion Type (TA, TB, TC)	
ø125	7.22	8.72	10.52	10.22	10.32	10.62	1.54
ø140	9.35	11.35	14.75	13.15	13.35	12.55	1.78
ø160	12.35	15.45	19.25	17.35	17.65	18.75	2.22
ø180	16.75	21.25	28.75	24.15	24.65	24.85	2.96
ø200	22.78	28.48	36.48	32.28	32.48	34.58	3.54
ø250	40.51	48.91	66.41	64.51	59.01	69.21	5.38

(Example) Product Weight of SCS2-G-LB-125B-300

- ●Product Weight at S=0 mm ..... 8.72 kg
- ●S=300 mm added weight ..... $1.54 \times \frac{300}{100}$ = 4.62 kg
- ●Product Weight .....8.72+4.62=13.34 kg

Theoretical Thrust Table

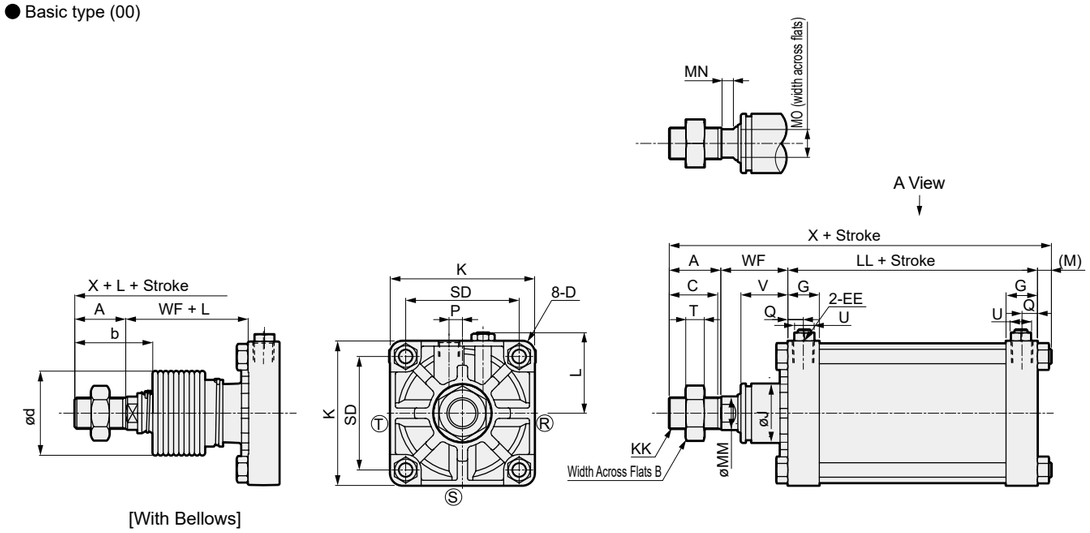
(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø125	Push	6.14×10^2	1.23×10^3	1.84×10^3	2.45×10^3	3.68×10^3	4.91×10^3	6.14×10^3	7.36×10^3	8.59×10^3	9.82×10^3	1.10×10^4	1.23×10^4
	Pull	5.73×10^2	1.15×10^3	1.72×10^3	2.29×10^3	3.44×10^2	4.59×10^3	5.73×10^3	6.88×10^3	8.03×10^3	9.17×10^3	1.03×10^4	1.15×10^4
ø140	Push	7.70×10^2	1.54×10^3	2.31×10^3	3.08×10^3	4.62×10^3	6.16×10^3	7.70×10^3	9.24×10^3	1.08×10^4	1.23×10^4	1.39×10^4	1.54×10^4
	Pull	7.29×10^2	1.46×10^3	2.19×10^3	2.92×10^3	4.38×10^3	5.84×10^3	7.29×10^3	8.75×10^3	1.02×10^4	1.17×10^4	1.31×10^4	1.46×10^4
ø160	Push	1.01×10^3	2.01×10^3	3.02×10^3	4.02×10^3	6.03×10^3	8.04×10^4	1.01×10^4	1.21×10^4	1.41×10^4	1.61×10^4	1.81×10^4	2.01×10^4
	Pull	9.42×10^2	1.88×10^3	2.83×10^3	3.77×10^3	5.65×10^3	7.54×10^3	9.42×10^3	1.13×10^4	1.32×10^4	1.51×10^4	1.70×10^4	1.88×10^4
ø180	Push	1.27×10^3	2.54×10^3	3.82×10^3	5.09×10^3	7.63×10^3	1.02×10^4	1.27×10^4	1.53×10^4	1.78×10^4	2.04×10^4	2.29×10^4	2.54×10^4
	Pull	1.19×10^3	2.39×10^3	3.58×10^3	4.77×10^3	7.16×10^3	9.54×10^3	1.19×10^4	1.43×10^4	1.67×10^4	1.91×10^4	2.15×10^4	2.39×10^4
ø200	Push	1.57×10^3	3.14×10^3	4.71×10^3	6.28×10^3	9.42×10^3	1.26×10^4	1.57×10^4	1.88×10^4	2.20×10^4	2.51×10^4	2.83×10^4	3.14×10^4
	Pull	1.47×10^3	2.95×10^3	4.42×10^3	5.89×10^3	8.84×10^3	1.18×10^4	1.47×10^4	1.77×10^4	2.06×10^4	2.36×10^4	2.65×10^4	2.95×10^4
ø250	Push	2.45×10^3	4.91×10^3	7.36×10^3	9.82×10^3	1.47×10^4	1.96×10^4	2.45×10^4	2.95×10^4	3.44×10^4	3.93×10^4	4.42×10^4	4.91×10^4
	Pull	2.31×10^3	4.63×10^3	6.94×10^3	9.25×10^3	1.39×10^4	1.85×10^4	2.31×10^4	2.78×10^4	3.24×10^4	3.70×10^4	4.16×10^4	4.63×10^4

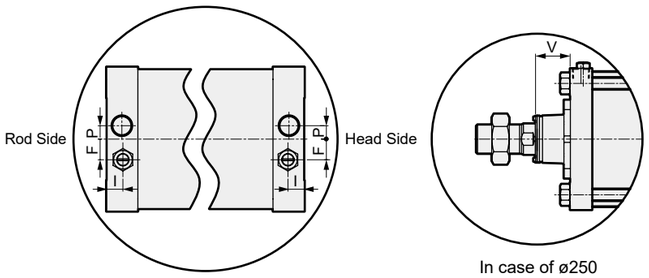
MEMO

Outline Dimension Drawing

● Basic type (00)



[With Bellows]



In case of ø250

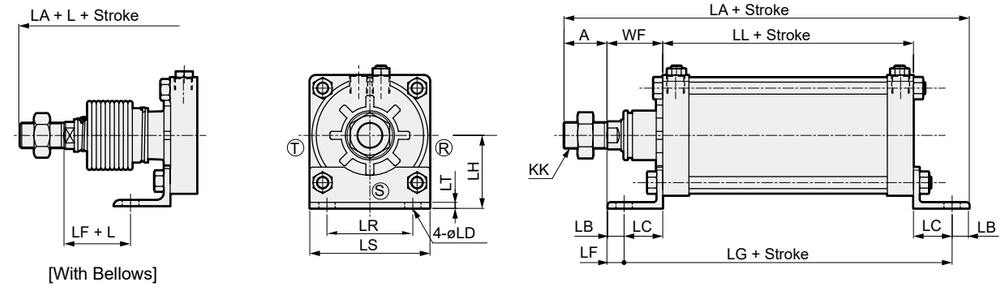
Code	Basic Type (00) Basic Dimensions													
	A	B	C	D	EE	F	G	I	J	K	KK	L	LL	M
ø125	50	46	47	M14 × 1.5	Rc1/2	20	30.5	16	57	140	M30 × 1.5	78 to 82	92	13.5
ø140	50	46	47	M14 × 1.5	Rc3/4	20	34.5	20	57	157	M30 × 1.5	86.5 to 91	103	13.5
ø160	56	55	53	M16 × 1.5	Rc3/4	24	34.5	20	62	177	M36 × 1.5	96.5 to 101	106	15.5
ø180	63	60	60	M18 × 1.5	Rc3/4	24	34.5	20	68	200	M40 × 1.5	108 to 112	110	17.5
ø200	72	70	69	M20 × 1.5	Rc3/4	24	37.5	20.5	75	220	M45 × 1.5	120.5 to 129	123	18.5
ø250	88	85	84	M24 × 1.5	Rc1	24	42.5	25.5	93	274	M56 × 2	147.5 to 156	141	21.5

Code												With Bellows		
	MM	MN	MO	P	Q	SD	T	U	V	WF	X	b	d	L
ø125	32	13	27	13	15	110	18	19	45.5	65	220.5	74	75	(Stroke/4.55) + 11
ø140	32	13	27	15	17	124	18	19	45.5	67	233.5	74	75	(Stroke/4.55) + 9
ø160	40	15	36	15	17	142	21	19	48	71	248.5	82	80	(Stroke/5.15) + 9
ø180	45	17	41	15	17	160	24	19	53	78	268.5	91	91	(Stroke/5.15) + 9
ø200	50	20	46	20	18	175	27	24	60	88	301.5	102	95	(Stroke/5.30) + 9
ø250	60	22	55	22	21	216	34	24	67	94	344.5	120	120	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

●Axial foot type (LB)

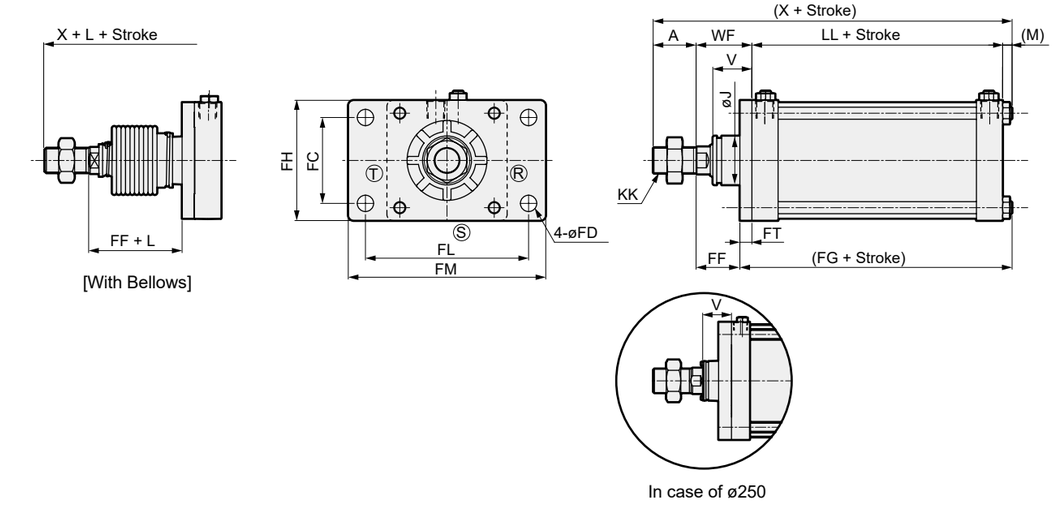


[With Bellows]

Code	Axial Foot Type (LB) Mounting Dimensions														With Bellows
	A	KK	LL	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT	L
ø125	50	M30 × 1.5	92	65	271	19	45	19	20	182	85	100	140	7	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	67	290	20	50	19	17	203	100	112	157	8	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	71	306	20	53	19	18	212	106	118	177	10	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	78	338	27	60	24	18	230	125	132	200	10	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	88	372	27	62	24	26	247	132	150	220	12	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	94	421	28	70	29	24	281	160	180	274	12	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

●Rod Side Flange Type (FA)



[With Bellows]

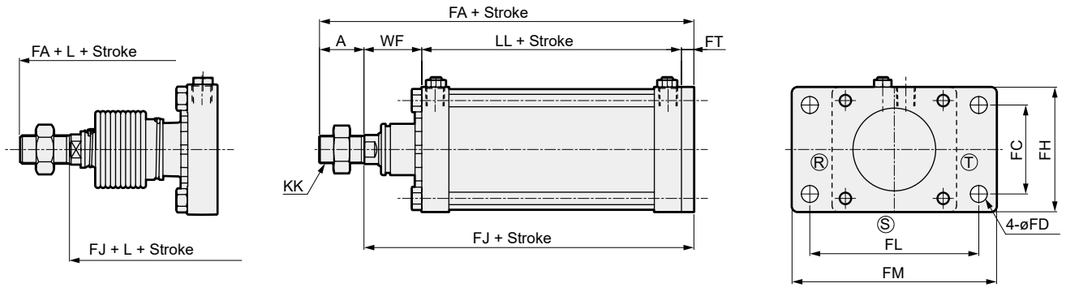
In case of ø250

Code	Rod Side Flange Type (FA) Mounting Dimensions																With Bellows
	A	J	KK	LL	M	V	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	L
ø125	50	57	M30 × 1.5	92	11	45.5	65	218	100	19	51	117	140	190	230	14	(Stroke/4.55) + 11
ø140	50	57	M30 × 1.5	103	11	45.5	67	231	112	19	48	133	157	212	250	19	(Stroke/4.55) + 9
ø160	56	62	M36 × 1.5	106	13	48	71	246	118	19	52	138	177	236	280	19	(Stroke/5.15) + 9
ø180	63	68	M40 × 1.5	110	15	53	78	266	132	24	53	150	200	265	310	25	(Stroke/5.15) + 9
ø200	72	75	M45 × 1.5	123	16	60	88	299	150	24	63	164	220	280	330	25	(Stroke/5.30) + 9
ø250	88	93	M56 × 2	141	19	67	94	342	180	29	64	190	274	355	415	30	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

●Head Side Flange Type (FB)

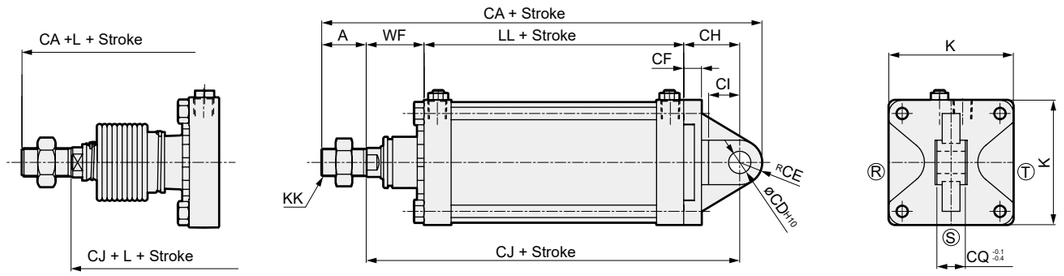


[With Bellows]

Code	Head Side Flange Type (FB) Mounting Dimensions												With Bellows
	A	KK	LL	WF	FA	FC	FD	FH	FJ	FL	FM	FT	L
ø125	50	M30 × 1.5	92	65	221	100	19	140	171	190	230	14	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	67	239	112	19	157	189	212	250	19	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	71	252	118	19	177	196	236	280	19	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	78	276	132	24	200	213	265	310	25	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	88	308	150	24	220	236	280	330	25	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	94	353	180	29	274	265	355	415	30	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

●Single Clevis Type (CA)



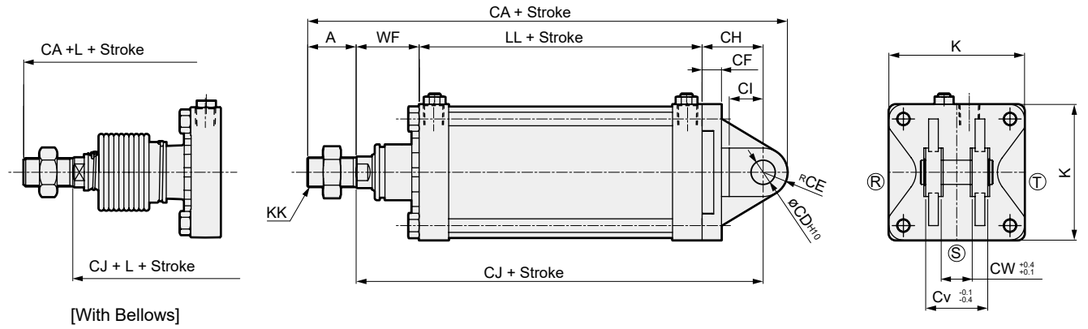
[With Bellows]

Code	Single Clevis Type (CA) Mounting Dimensions												With Bellows
	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	CQ	L
ø125	50	140	M30 × 1.5	92	65	295	25	25	20	63	35	220	32	(Stroke/4.55) + 11
ø140	50	157	M30 × 1.5	103	67	323	28	28	22	75	40	245	36	(Stroke/4.55) + 9
ø160	56	177	M36 × 1.5	106	71	340	32	32	24	75	40	252	40	(Stroke/5.15) + 9
ø180	63	200	M40 × 1.5	110	78	381	40	40	25	90	55	278	50	(Stroke/5.15) + 9
ø200	72	220	M45 × 1.5	123	88	413	40	40	30	90	55	301	50	(Stroke/5.30) + 9
ø250	88	274	M56 × 2	141	94	483	50	50	35	110	65	345	63	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**

Outline Dimension Drawing

●Double clevis type (CB)

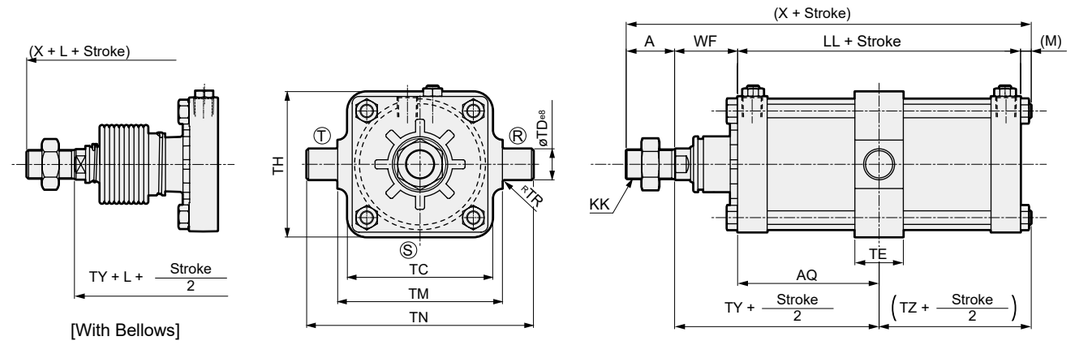


[With Bellows]

Code	Double Clevis Type (CB) Mounting Dimensions														With Bellows
	A	K	KK	LL	WF	CA	CD	CE	CF	CH	CI	CJ	Cv	CW	L
ø125	50	140	M30 × 1.5	92	65	295	25	25	20	63	35	220	64	32	(Stroke/4.55) + 11
ø140	50	157	M30 × 1.5	103	67	323	28	28	22	75	40	245	72	36	(Stroke/4.55) + 9
ø160	56	177	M36 × 1.5	106	71	340	32	32	24	75	40	252	80	40	(Stroke/5.15) + 9
ø180	63	200	M40 × 1.5	110	78	381	40	40	25	90	55	278	100	50	(Stroke/5.15) + 9
ø200	72	220	M45 × 1.5	123	88	413	40	40	30	90	55	301	100	50	(Stroke/5.30) + 9
ø250	88	274	M56 × 2	141	94	483	50	50	35	110	65	345	126	63	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: Pin and retaining ring are attached.
***4: For dimensions of models with switches, see P. 956.**
***5: For outer dimensions diagram of accessories, refer to P. 883.**

●Intermediate trunnion type (TC)



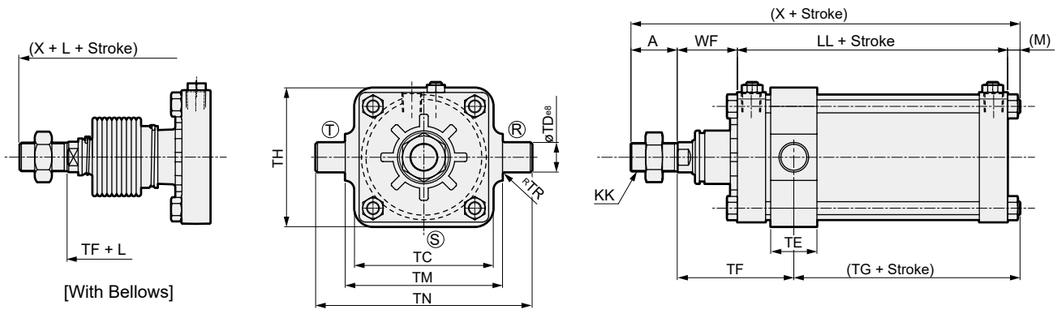
[With Bellows]

Code	Intermediate Trunnion Type (TC) Mounting Dimensions															With Bellows
	A	KK	LL	M	WF	X	AQ	TC	TD	TE	TH	TY	TZ	TM	TN	TR	L
ø125	50	M30 × 1.5	92	11	65	218	46 + Stroke/2	150	32	50	150	111	57	170	234	2	(Stroke/4.55) + 11
ø140	50	M30 × 1.5	103	11	67	231	51.5 + Stroke/2	154	36	55	170	118.5	62.5	190	262	2	(Stroke/4.55) + 9
ø160	56	M36 × 1.5	106	13	71	246	53 + Stroke/2	190	40	60	190	124	66	212	292	2	(Stroke/5.15) + 9
ø180	63	M40 × 1.5	110	15	78	266	55 + Stroke/2	210	45	65	210	133	70	236	326	2	(Stroke/5.15) + 9
ø200	72	M45 × 1.5	123	16	88	299	61.5 + Stroke/2	242	45	70	242	149.5	77.5	265	355	2	(Stroke/5.30) + 9
ø250	88	M56 × 2	141	19	94	342	70.5 + Stroke/2	300	56	80	300	164.5	89.5	335	447	2	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
***3: For dimensions of models with switches, see P. 956.**
***4: For outer dimensions diagram of accessories, refer to P. 883.**
***5: For the minimum producible stroke, please refer to P. 948.**

Outline Dimension Drawing

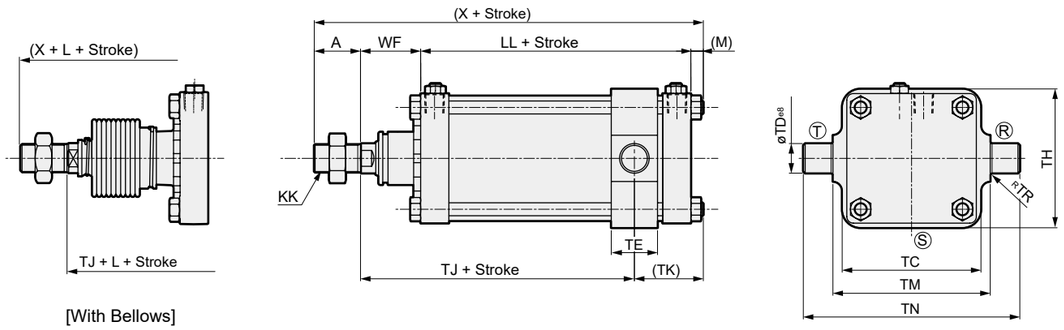
●Rod side trunnion type (TA)



Code	Rod Side Trunnion Type (TA) Mounting Dimensions															With Bellows
	A	KK	LL	M	WF	X	TC	TD	TE	TF	TG	TH	TM	TN	TR	L
125	50	M30 × 1.5	92	11	65	218	150	32	50	126	42	150	170	234	2	(Stroke/4.55) + 11
140	50	M30 × 1.5	103	11	67	231	154	36	55	134.5	46.5	170	190	262	2	(Stroke/4.55) + 9
160	56	M36 × 1.5	106	13	71	246	190	40	60	141	49	190	212	292	2	(Stroke/5.15) + 9
180	63	M40 × 1.5	110	15	78	266	210	45	65	150.5	52.5	210	236	326	2	(Stroke/5.15) + 9
200	72	M45 × 1.5	123	16	88	299	242	45	70	168	59	242	265	355	2	(Stroke/5.30) + 9
250	88	M56 × 2	141	19	94	342	300	56	80	184	70	300	335	447	2	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: Position detection at the rod side stroke end is not possible.
***4: For dimensions of models with switches, see P. 956.**
***5: For outer dimensions diagram of accessories, refer to P. 883.**
***6: For the minimum producible stroke, please refer to P. 948.**

●Head Side Trunnion Type (TB)

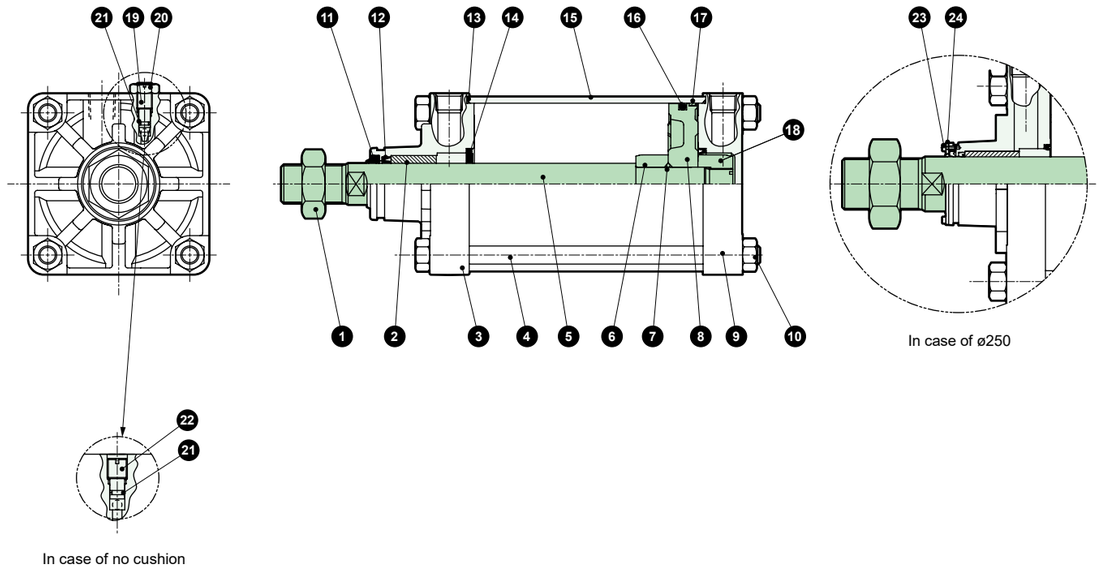


Code	Head Side Trunnion Type (TB) Mounting Dimensions															With Bellows
	A	KK	LL	M	WF	X	TC	TD	TE	TH	TJ	TK	TM	TN	TR	L
125	50	M30 × 1.5	92	11	65	218	150	32	50	150	96	72	170	234	2	(Stroke/4.55) + 11
140	50	M30 × 1.5	103	11	67	231	154	36	55	170	102.5	78.5	190	262	2	(Stroke/4.55) + 9
160	56	M36 × 1.5	106	13	71	246	190	40	60	190	107	83	212	292	2	(Stroke/5.15) + 9
180	63	M40 × 1.5	110	15	78	266	210	45	65	210	115.5	87.5	236	326	2	(Stroke/5.15) + 9
200	72	M45 × 1.5	123	16	88	299	242	45	70	242	131	96	265	355	2	(Stroke/5.30) + 9
250	88	M56 × 2	141	19	94	342	300	56	80	300	145	109	335	447	2	(Stroke/6.40) + 9

*1: ⓇⓈⓉ indicate the position of the cushion needle.
*2: The L dimension is rounded up to the nearest whole number.
*3: Position detection at the head side stroke end is not possible.
***4: For dimensions of models with switches, see P. 956.**
***5: For outer dimensions diagram of accessories, refer to P. 883.**
***6: For the minimum producible stroke, please refer to P. 948.**

Internal Structure Diagram/Material

●SCS2-G



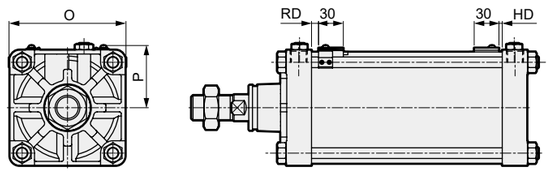
Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Hexagon Nut	Steel	Zinc Chromate	15	Cylinder Tube	Aluminum Alloy	Hard Anodized
2	Bushing	Oil-Impregnated Bearing Alloy		16	Piston Packing	Nitrile Rubber	Only with cushion
3	Rod Cover	Aluminum Alloy	Chromate	17	Wear Ring	ø125 to ø200: Polyacetal ø250: Fabric-reinforced phenol	
4	Tie Rod	Steel	Zinc Chromate				
5	Piston Rod	Steel	Industrial Hard Chrome Plating	18	Cushion Ring B	Steel	Zinc Chromate
6	Cushion Ring A	Steel	Zinc Chromate	19	Cushion Needle	ø125 to ø180: Copper alloy ø200, ø250: Steel	ø200, ø250: Zinc Chromate
7	Piston Gasket	Nitrile Rubber					
8	Piston	Aluminum Alloy		20	Hexagon Nut	Steel	Zinc Chromate
9	Head Cover	Aluminum Alloy	Chromate	21	Needle Gasket	Nitrile Rubber	
10	Hexagon Nut	Steel	Zinc Chromate	22	Cushion needle stop plug	ø125 to ø180: Copper alloy ø200, ø250: Steel	
11	Scraper	Nitrile Rubber, Steel					
12	Rod Packing	Nitrile Rubber		23	Hexagon socket bolt	Steel	Black Oxide
13	Cylinder Gasket	Nitrile Rubber		24	Retaining plate	Steel	Manganese phosphate
14	Cushion Packing	Nitrile Rubber, Steel					

For Maintenance Parts, please visit the CKD Equipment Product Site
(https: //www.ckd.co.jp/kiki/en/) → "model No." → Maintenance Parts

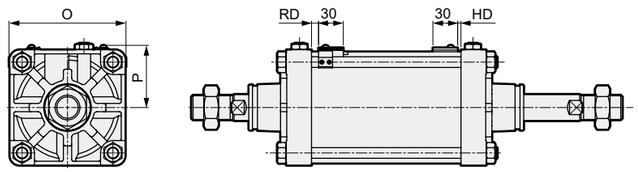
SCS2 Series Switch-equipped External Dimension Diagram

● T0H/V, T5H/V, T2H/V, T3H/V, T3PH/V, T2[H/V]R3,T2WH/V, T3WH/V, T2WLH/V, T8H/V, T2JH/V

• SCS2-LN, SCS2-LH



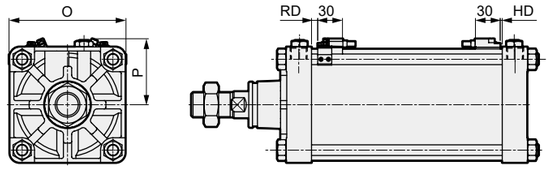
• SCS2-LND



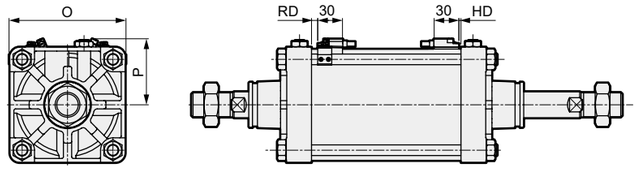
Code / Bore Size (mm)	SCS2-LN, SCS2-LND, SCS2-LH									
	O	P	T0,T5,T2,T3,T3P		T2W, T3W		T2J		T8	
			RD	HD	RD	HD	RD	HD	RD	HD
ø125	142	76	8.5	4	10.5	5.5	7.5	2.5	2.5	0
ø140	156	82	8.5	7	10.5	8.5	7.5	5.5	2.5	0.5
ø160	175	90	10.5	8	12.5	10	9.5	7	4.5	1.5
ø180	196	98	13	9.5	14.5	11.5	11.5	8.5	6.5	3.5
ø200	213	106	17.5	13	19	15	16	12	11	7
ø250	252	126	18.5	19	20.5	20.5	17.5	17.5	12.5	12.5

●T1H/V, T2YD, T2YDT

• SCS2-LN, SCS2-LH



• SCS2-LND



Code / Bore Size (mm)	SCS2-LN, SCS2-LND, SCS2-LH			
	O	P	T2YD, T1	
			RD	HD
ø125	142	80	7.5	2.5
ø140	156	86	7.5	5.5
ø160	175	95	9.5	7
ø180	196	103	11.5	8.5
ø200	213	111	16	12
ø250	252	130	17.5	17.5

MEMO

Port/Cushion needle position specification (-XR◇◇◇◇)

Content: Specify the port and cushion needle positions.

Model No. Notation Method

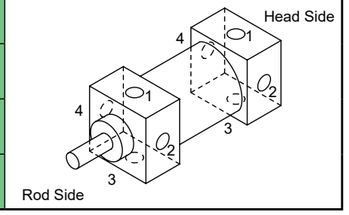
SCS2 - 00 - 125 B - 100 - XR 1 3 3 4

Model No.

Please see the SCS2 model No. notation method.

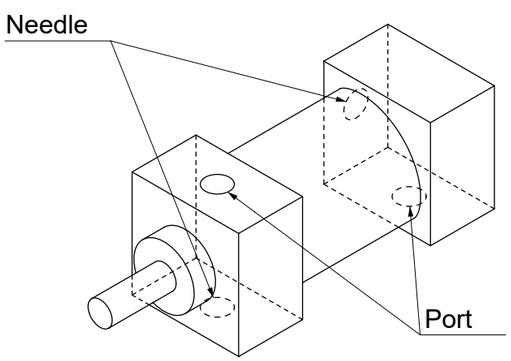
1 Rod side port position
1 Head side port position
1 Rod side needle position
1 Head side needle position

1 Port/Cushion needle position

Code	Content
1	
2	
3	
4	

Note: Combinations where the port position and needle position are on the same surface can also be selected.

Outer Dimensions Diagram



Port 1 size down (-XF)

Content: Reduce the port size by one size from the standard. (Using bushing)

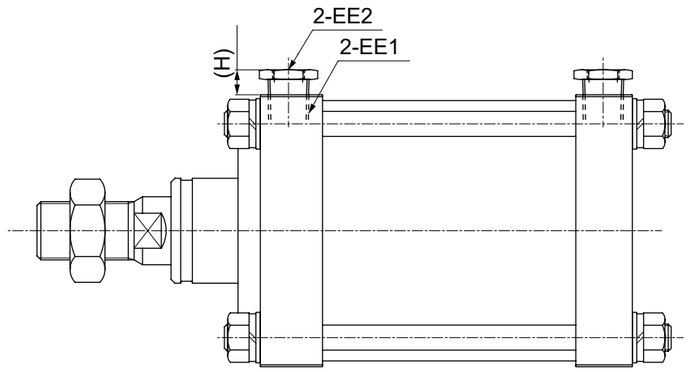
Model No. Notation Method

SCS2 - 00 - 125 B - 100 - XF

Model No.

Please see the SCS2 model No. notation method.

Outline Dimension Drawing



Bore Size	EE1	EE2	H
ø125	Rc1/2	Rc3/8	13
ø140	Rc3/4	Rc1/2	15
ø160			
ø180			
ø200			
ø250	Rc1	Rc3/4	14

■ Mounting bracket rotation assembly (-XK□)

Content: Specifies the mounting position of the mounting bracket.

Model No. Notation Method

SCS2 - 00 - 125 B - 100 - XK1

Model No.
Please see the SCS2 model No. notation method.

❶Mounting bracket mounting position

❶ Mounting bracket mounting position

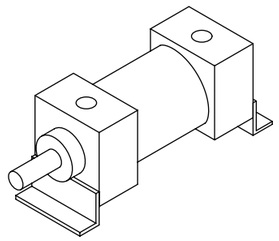
	Code	Content
*1	XK1	Rotate mounting bracket 90° clockwise
	XK2	Rotate mounting bracket 180° clockwise
	XK3	Rotate mounting bracket 270° clockwise

*1: For flanges and trunnions, only XK1 (90° rotation) is applicable.

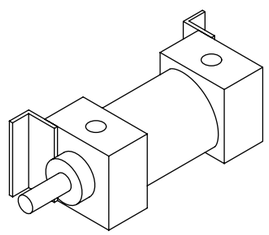
External view

*Port and cushion needle positions do not change.

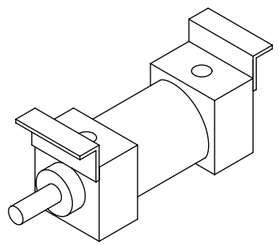
●Basic



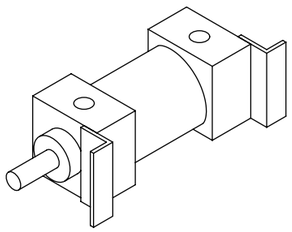
● K1



● K2



● K3



■ Trunnion position specification (-XAQ□□)

Content: Specify the dimension from the rod cover end face to the center of the trunnion axis.

Model No. Notation Method

SCS2 - TC - 125 40 B - 100 - XAQ 130

Model No.
Please see the SCS2 model No. notation method.

Custom dimension
Refer to the external dimensions list.

Note: For two-stage type and back-to-back type, please consult us separately.

Outer Dimensions Diagram

Basic type

With brake

Knuckle Pin/Clevis Pin Split Pin (-XP5)

Content: The retaining rings for knuckle pins and clevis pins will be split pins.

Model No. Notation Method

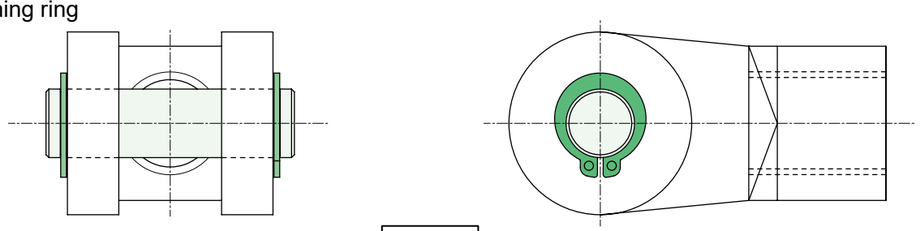
SCS2 - 00 - 125 B - 100 - Y - XP5

Model No.

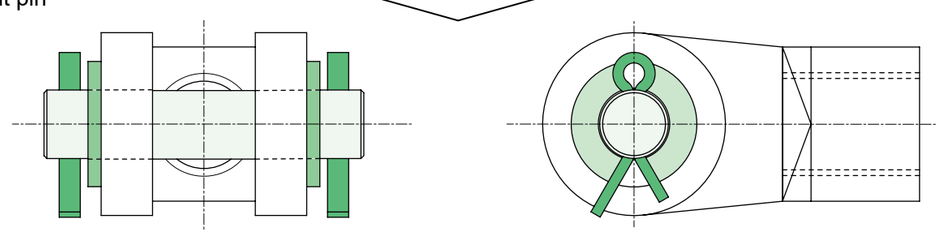
Please see the SCS2 model No. notation method.

Outer Dimensions Diagram

●Retaining ring



●Split pin



Pin Diameter	Split Pin Size
12	ø4 × 20
14	ø4 × 20
20	ø4 × 25
25	ø4 × 30
28	ø5 × 35
32	ø5 × 40
40	ø5 × 50
50	ø5 × 60

Knuckle Fixed by Pinning (-XP7)

Content: Also, drive a spring pin into the knuckle to prevent loosening.

Model No. Notation Method

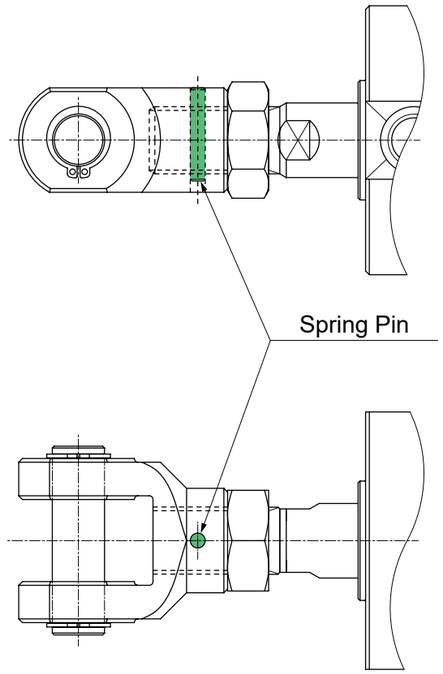
SCS2 - TC - 125 B - 100 - Y - XP7

Model No.

Please see the SCS2 model No. notation method.

Outer Dimensions Diagram

Same as with Knuckle specification.
(Spring pin driving direction varies depending on the model.)



Knuckle Pin/Clevis Pin Split Pin Specification, Knuckle Fixed by Pinning (-XP8)

Content: The retaining rings for knuckle pins and clevis pins will be split pins. Also, drive a spring pin into the knuckle to prevent loosening. (XP5 + XP7)

Model No. Notation Method

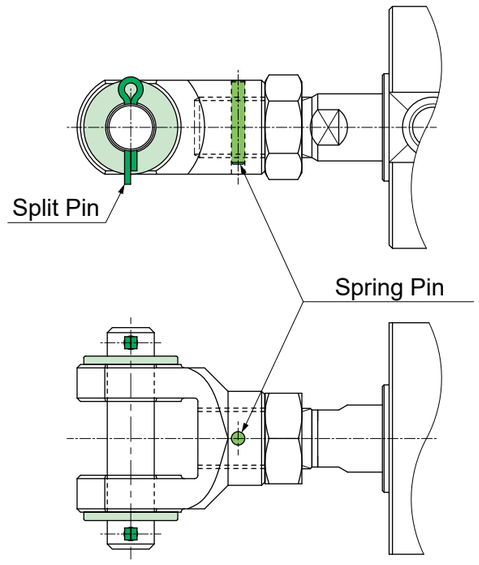
SCS2 - 00 - 125 B - 100 - Y - XP8

Model No.
Please see the SCS2 model No. notation method.

Outer Dimensions Diagram

Mounting dimensions are the same as with Knuckle specification.

It is a combination of XP5 (P. 962) and XP7 (P. 963).



Tie rod extension (-XMX◇)

Content: Specify the protrusion dimension of the tie rod threaded part.

Model No. Notation Method

SCS2 - LB - 125 B - 100 - XMX 55 □

Model No.
Please see the SCS2 model No. notation method.

Custom dimension
Refer to the external dimensions list.

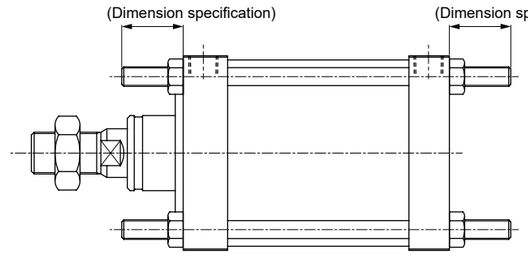
❶ Rod side/Head side specification

❶ Rod side/Head side specification

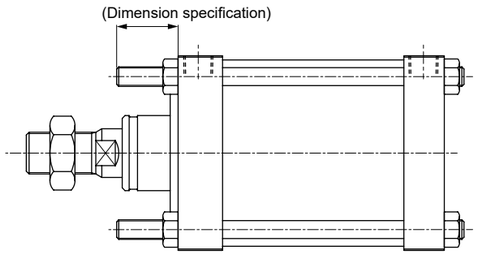
Code	Content
Blank	Rod side/Head side 8 tie rod extension
R	Rod side 4 tie rod extension
H	Head side 4 tie rod extension

Outer Dimensions Diagram

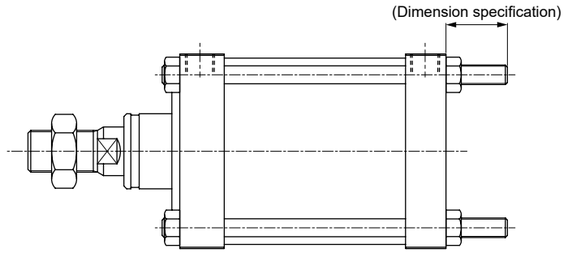
●Rod side/Head side 8 tie rod extension (XMX□)



●Rod side 4 tie rod extension (XMX□R)



●Head side 4 tie rod extension (XMX□H)



Tie rod material SUS (-XM1)

Content: Change the tie rod material to stainless steel. (Washers and nuts are not changed)

Model No. Notation Method

SCS2 - 00 - 125 B - 100 - XM1

Model No.

Please see the SCS2 model No. notation method.

Outline Dimension Drawing

Same as standard type.

Without Bellows (-XJ9)

Content: Piston rod with dimensions for bellows, but bellows not assembled

Model No. Notation Method

SCS2 - 00 - 125 B - 100 - XJ9

Model No.

Please see the SCS2 model No. notation method.

Outline Dimension Drawing

Same dimensions as with bellows, but bellows are not included.

Scraper/Rod packing only Fluororubber (-XT9)

Content: Change only the rod side packing (rod packing, scraper) to FKM.

Model No. Notation Method

SCS2 - 00 - 125 B - 100 - XT9

Model No.

Please see the SCS2 model No. notation method.

Outline Dimension Drawing

Same as standard type.

Fluorine Packing Type (-T2)

Content: Change the rod packing, piston packing and O-rings to FKM.

Model No. Notation Method

SCS2 - T2 - 00 - 125 B - 100

Model No.

Please see the SCS2 model No. notation method.

Outer Dimensions Diagram

Same as standard type.

With 2 Rod Nuts (-A2)

Content: Shipped with 2 rod nuts, same as standard.

Model No. Notation Method

SCS2 - 00 - 125 B - 100 - A2

Model No.

Please see the SCS2 model No. notation method.

Outer Dimensions Diagram

Same as standard type except that 2 rod nuts are included.

To Use This Product Safely

Be sure to read this before use.

For general cylinder information, see Intro P. 41, and for cylinder switches, see P. 1026.

Individual Precautions: Large Bore Size Cylinder SCS2 Series

During Design / Selection

1. Common

Caution

■ Inspection of Type 2 pressure vessels

Based on the Ordinance of the Ministry of Health, Labour and Welfare, cylinders falling under the following categories must undergo inspection by the Japan Boiler Association.

① Cylinders with a rated pressure exceeding 0.2 MPa and an internal volume exceeding 0.04 m³

② Cylinders with a rated pressure exceeding 0.2 MPa, a cylinder Bore Size of 200 mm or more, and a body length (cylinder tube length) of 1000 mm or more

$$V = \frac{D^2 \times S \times 3.14}{4 \times 10^9}$$

V: Cylinder capacity (m³)
D: Bore size (mm)
S: Body length (cylinder tube length) (mm)

Stroke subject to Type 2 pressure vessel inspection

Bore Size	Stroke
ø160	1948 or more
ø180	1526 or more
ø200	946 or more
ø250	752 or more

■ With check valve in cushion part (C2)

If the load is large, the delay in cylinder starting time will increase. If you want to reduce the starting time, please use the model with a check valve in the cushion part (C2).

■ Heat resistant type (SCS2-T)

Please consult us if the ambient temperature differs extremely depending on the part, such as when only the piston rod enters a high-temperature furnace.

2. Stroke adjustment type SCS2-P

■ If stroke adjustment is performed, the cushion will no longer be effective.

3. Heat resistant type SCS2-T

■ Magnets are not incorporated.

4. Low hydraulic pressure type SCS2-H

■ This product is a pneumatic cylinder that can use hydraulic operating oil as the operating fluid. It does not comply with JIS standards for hydraulic cylinders regarding operation and leakage tests.

For precautions during mounting, installation, adjustment, use, and maintenance, please refer to "Precautions for Use" described in this catalog and CKD Components Product Site (https://www.ckd.co.jp/kiki/en/) → "Model No." → Instruction Manual.

MEMO

General Type
SCP□3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
Cylinder Switch
Ending

Cylinder Switch



About switch single item model number

The single item model number of the switch is as follows.

SW – Switch Model No.

For the lead wire outlet direction, straight type (H) and L-shaped type (V) are available.

CONTENTS

Cylinder Switch System Table 972
Cylinder with Switch System Table 974
2-Color Indicator Solid State Cylinder Switch 978
Cylinder Switch for Strong Magnetic Fields 979

● M Series 982
● R Series 984
● T Series 986
● Improved Water Resistance Cylinder Switch 990
● Magnetic Environment Cylinder Switch 992
● K Series 994
● F Series 996
● H Series 998
● V Series 999
● E Series 1000

● Contact Protection Circuit Box 1001
● Cylinder Switch with Connector 1002
Series Options 1003
Operating Principle / Switch Mounting Position 1005
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Selection Chart 1016
Failures and Countermeasures 1018
⚠ Precautions for Use 1026
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Cylinder Switch

Solid state switch

Main item	Sub-item	M Series				R Series					T Series (Improved Water Resistance / For Cutting Oil / For Cutting Oil / For AC Magnetic Field)																	K Series					F Series						
		M2	M2WV	M3	M3WV	R1	R2	R2Y	R3	R3Y	T1	T2	T2J	T2W	T2WL	T2YL	T3	T3P	T3W	T3YL	T2YD	K2	K2Y	K3	K3P	K3Y	F2	F2Y	F2S	F3	F3Y	F3P	F3S
Wiring method	Grommet	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Terminal box					●	●	●	●	●																								
	Connector											○		○	○	○	○	○	○		○		○					○						
Number of wires	2-wire	●	●			●	●	●			●	●	●	●	●	●					●	●	●				●	●	●				
	3-wire			●	●				●	●							●	●	●	●				●	●	●				●	●	●	●
With indicator lamp	LED	Red	Red/Green	Red	Red/Green	Red	Red	Red/Green	Red	Red/Green	Red	Red	Red	Red/Green	Red/Green	Red/Green	Red	Yellow	Red/Green	Red/Green	Red/Green	Red	Red/Green	Red	Yellow	Red/Green	Yellow	Red/Green	Red	Yellow	Red/Green	Yellow	Red
	Neon lamp (Lights up when OFF)																																
	No indicator etc.																																
	2-color indicator type		●		●			●		●				●	●	●							●			●		●			●		
Operating voltage *1	DC5 V			●					●	●																							
	10 to 30 VDC (28 V)	●	●		●		●	●				●	●				●	●	●	●	●			●	●	●			●				●
	24 VDC													●	●						●							●						
	30 VDC or less			●	●				●	●							●	●	●	●				●	●	●				●	●	●	●
	100 VAC/110 V					●					●																						
	200 VAC/220 V					●					●																						
Applications	Programmable controller	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	IC circuit			●	●				●	●																							
	Relay			●	●	●			●	●	●						●	●	●	●				●	●	●				●	●	●	●
	Large capacity relay																																

Reed switch

Main item	Sub-item	M Series		R Series				T Series (For magnetized environment)				K Series		F Series	H Series (For strong magnetic field)		E Series (Heat resistant)		V Series (For small magnetic field)
		M0	M5	R0	R4	R5	R6	T0	T5	T8	TOY	K0	K5	F0	H0	H0Y	E0	ET0	V0
Wiring method	Grommet	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
	Terminal box			●	●	●	●										●		
	Connector							○			○				○	○			○
Number of wires	2-wire	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	3-wire																		
With indicator lamp	LED	Red		Red			Red	Red		Red	Red/Green	Red		Yellow	Green	Red/Green	Red	Yellow	Red
	Neon lamp (Lights up when OFF)				●														
	No indicator etc.		●			●			●				●						
	2-color indicator type										●					●			
Operating voltage *1	5 VDC		●			●			●				●						
	10 to 30 VDC (28 V)																		
	24 VDC	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●
	30 VDC or less																		
	100 VAC/110 V	●	●	●	●	●		●	●	●		●	●		●		●	●	●
	200 VAC/220 V			●	●	●				●							●		
Applications	Programmable controller	●	●	●		●	●	●	●	●	●	●	●	●	●		●	●	●
	IC circuit		●			●			●				●						
	Relay	●	●	●		●		●	●	●		●	●		●		●	●	●
	Large capacity relay				●														

● : Standard equipment ○: Custom specification product (Selectable connector types vary depending on the model, so check the catalog for details.)

About switch single item model number

Model number indication Notation Example: SW-T2H5

SW - T2 H 5

①Switch Model No. ③Lead wire length

②Lead Wire Extraction Direction

①Switch Model No.

M2	M2WV	M3	M3WV	R1	R2	R2Y	R3	R3Y	T1	T2	T2J	T2W	T2WL	T2YL	T3	T3P	T3W	T3YL	T2YD	K2	K2Y
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Note: Please refer to the table above.

②Lead Wire Extraction Direction

Code	H	V	V, S
Outlet direction	Straight	L-shape	L-shape
Appearance			 *F□S, T2WLV only

③Lead wire length

Blank (1 m), **3** (3 m), **5** (5 m)

* The selectable length varies depending on the model, so please check the catalog specifications for details.

Cylinder switch (Cylinder system with switch)

Solid state switch

Cylinder model	Bore size	Mounting method: Band	Mounting method: Tie Rod	Mounting method: Rail	Presence/absence of magnet in main body: Standard equipment	Presence/absence of magnet in main body: Option	M Series: M2	M Series: M2WV	M Series: M3	M Series: M3WV	R Series: R1	R Series: R2	R Series: R2Y	R Series: R3	R Series: R3Y	T Series: T1	T Series: T2	T Series: T2J	T Series: T2W	T Series: T2WL (Improved Water Resistance)	T Series: T2YL (For Cutting Oil)	T Series: T3	T Series: T3P	T Series: T3W	T Series: T3YL (For Cutting Oil)	T Series: T2YD (For AC Magnetic Field)	K Series: K2	K Series: K2Y	K Series: K3	K Series: K3P	K Series: K3Y	F Series: F2	F Series: F2Y	F Series: F2S	F Series: F3	F Series: F3Y	F Series: F3P	F Series: F3S
SCP□3	ø6 to ø16	●				●											●		●	●		●	●	●														
CMK2	ø20 to ø40	●			●											●	●	●	●	●	▲	●	●	●	▲													
CMA2	ø20 to ø40	●			●											●	●	●	●	●		●	●	●	▲													
SCM	ø20 to ø100	●		●	●											●	●	●	●	●		●	●	●	▲	●												
SCG	ø40 to ø100		●		●											●	●	●	●	●	▲	●	●	●	▲	●												
SCA2	ø40 to ø100		●		●											●	●	●	●	●	▲	●	●	●	▲	●												
SCA2-V	ø40 to ø100		●		●											●	●		●	●		●	●	●		●												
SCS2	ø125 to ø250		●			●										●	●	●	●	●		●	●	●	▲													
SSD2	ø12 to ø200			●		●										●	●	●	●	●	▲	●	●	●	▲							●	●	●	●	●	●	●
SSG	ø12 to ø100			●		●										●	●	●	●	●		●	●	●	▲							●	●	●	●	●	●	●
SSD	ø12 to ø160			●		●										●	●	●	●	●	▲	●	●	●	▲							●	●	●	●	●	●	●
MDC2	ø4 to ø10			●		●																										●	●	●	●	●	●	●
SMG	ø6 to ø32			●		●																					●	●	●	●	●							
MSD	ø6 to ø16			●		●																										●	●	●	●	●	●	●
FC□	ø25 to ø63			●		●	●	●	●	●																												
LCM	ø4.5 to ø8			●		●																										●	●	●	●	●	●	●
LCR	ø6 to ø25			●	●												●		●	●		●	●	●								●	●	●	●	●	●	●
LCG	ø6 to ø25			●	●												●		●	●		●	●	●								●	●	●	●	●	●	●
LCW	ø12 to ø20			●	●												●		●			●	●	●								●	●	●	●	●	●	●
LCX	ø25 to ø32			●	●												●		●	●		●	●	●								●	●	●	●	●	●	●
MSDG-L	ø6 to ø16			●	●																											●	●	●	●	●	●	●
STM	ø6 to ø10			●	●																											●	●	●	●	●	●	●
STG	ø12 to ø100			●	●											●	●	●	●	●	▲	●	●	●	▲													
STS/L	ø8 to ø100			●	●											●	●	●	●	●	▲	●	●	●	▲													
STR2	ø6 to ø32			●	●																						●	●	●	●	●							
UCA2	ø10 to ø32			●	●												●		●			●										●	●					
SRL3	ø10 to ø100			●	●														●	●		●		●													
SRG3	ø12 to ø25			●	●														●	●		●		●													
SRM3	ø25 to ø63			●	●														●	●		●		●													
SRT3	ø32 to ø63			●	●														●	●		●		●													
MRL2	ø6 to ø20			●		●																															
MRG2	ø10 to ø25			●		●																															

Reed switch

Cylinder model	Bore size	Mounting method: Band	Mounting method: Tie Rod	Mounting method: Rail	Presence/absence of magnet in main body: Standard equipment	Presence/absence of magnet in main body: Option	M Series: M0	M Series: M5	R Series: R0	R Series: R4	R Series: R5	R Series: R6	T Series: T0	T Series: T5	T Series: T8	T Series: T0Y (For magnetized environment)	K Series: K0	K Series: K5	F Series: F0	H Series: H0 (For strong magnetic field)	H Series: H0Y (For strong magnetic field)	E Series: E0 (Heat resistant)	E Series: ET0 (Heat resistant)
SCP□3	ø6 to ø16	●				●							●	●									
CMK2	ø20 to ø40	●			●								●	●	●	▲							
CMA2	ø20 to ø40	●			●								●	●	●								
SCM	ø20 to ø100	●		●	●								●	●	●	▲							
SCG	ø40 to ø100		●		●								●	●	●	▲							
SCA2	ø40 to ø100		●		●								●	●	●	▲				▲	▲	▲	
SCA2-V	ø40 to ø100		●		●								●	●									
SCS2	ø125 to ø250		●			●							●	●	●	▲							
SSD2	ø12 to ø200			●		●							●	●	●	▲							▲
SSG	ø12 to ø100			●		●							●	●	●	▲							
SSD	ø12 to ø160			●		●							●	●	●	▲							▲
MDC2	ø4 to ø10			●		●													●				
SMG	ø6 to ø32			●		●											●	●					
MSD	ø6 to ø16			●		●													●				
FC□	ø25 to ø63			●		●	●	●															
LCM	ø4.5 to ø8			●		●																	
LCR	ø6 to ø25			●	●								●	●									
LCG	ø6 to ø25			●	●								●	●									
LCW	ø12 to ø20			●	●								●	●									
LCX	ø25 to ø32			●	●								●	●									
MSDG-L	ø6 to ø16			●	●														●				
STM	ø6 to ø10			●	●																		
STG	ø12 to ø100			●	●								●	●	●	▲							
STS/L	ø8 to ø100			●	●								●	●	●	▲							
STR2	ø6 to ø32			●	●												●	●					
UCA2	ø10 to ø32			●		●							●	●									
SRL3	ø10 to ø100			●	●		●	●															
SRG3	ø12 to ø25			●		●	●	●															
SRM3	ø25 to ø63			●		●							●	●	●								
SRT3	ø32 to ø63			●	●		●	●															
MRL2	ø6 to ø20			●		●																	
MRG2	ø10 to ø25			●	●								●	●									

●: Standard Product ▲: Mountable depending on conditions
Varies depending on conditions such as variation and tube inner diameter. Please check the product specifications for details.

Cylinder switch (Cylinder system with switch)

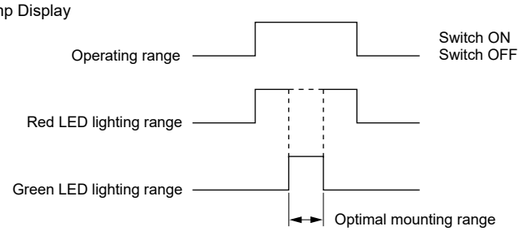
Solid state switch

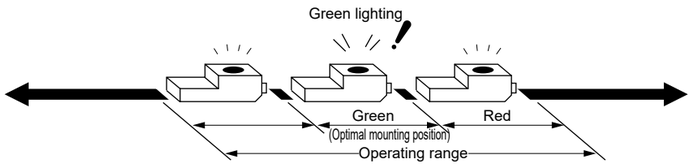
| | | |

2-Color Indicator Solid State Cylinder Switch



● Lamp Display





Overview

Conventionally, position detection switches for pneumatic cylinders required troublesome mounting and adjustment work due to their operating range and hysteresis. The 2-color indicator type solid state cylinder switch lights up green at the optimal mounting position and red in the normal operating range, instantly displaying the optimal mounting position. Therefore, it not only eliminates the time and hassle involved in switch adjustment, but also reduces setting errors to zero, allowing for the construction of highly reliable equipment.

Main features

● Easy to mount and adjust

Since the green display position is the optimal mounting position, mounting and adjusting the switch is extremely easy.

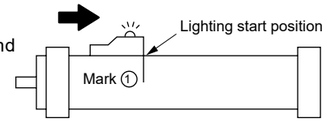
● Highly reliable

This is an extremely reliable switch due to the adoption of a unique hybrid IC equipped with a magnetoresistive element.

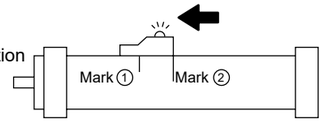
●Cylinder/Switch Setting Comparison

[Conventional] ⟶ [2-color indicator type switch]

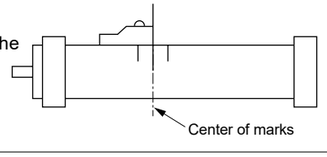
① Move the switch from one direction and mark the lighting start position.



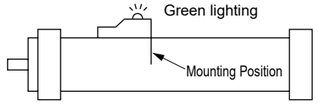
② Similarly move from the opposite direction and mark the lighting start position.



③ Align the end face of the switch with the center of the two marks and fix it.

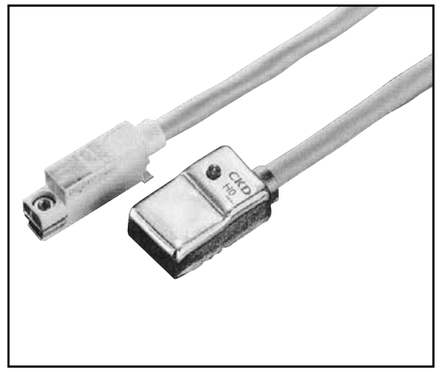


① Move the switch in one direction only and fix it at the position where it lights up green.



2-color indicator type switch is
① Quick mounting
② Easy mounting
③ No setting errors

Strong magnetic field resistant cylinder switch



Overview

This is a cylinder switch that can be used in environments where strong magnetic fields are generated, such as around spot welding machines and magnetizing equipment in automobile factories.

Main features

●Easy to mount/position (V0, T2YD)

Adopts rail mounting method. Can be mounted with a single screw, and position adjustment is also easy.

●Uses heat-resistant material

The main body is made of metal (H0, H0Y) and self-extinguishing resin UL94-V0 (V0, T2YD), and flame-retardant lead wires are used (optional for T2YD). Prevents combustion and melting of the main body and lead wires due to spatter.

●No polarity (H0, T2YD, H0Y)

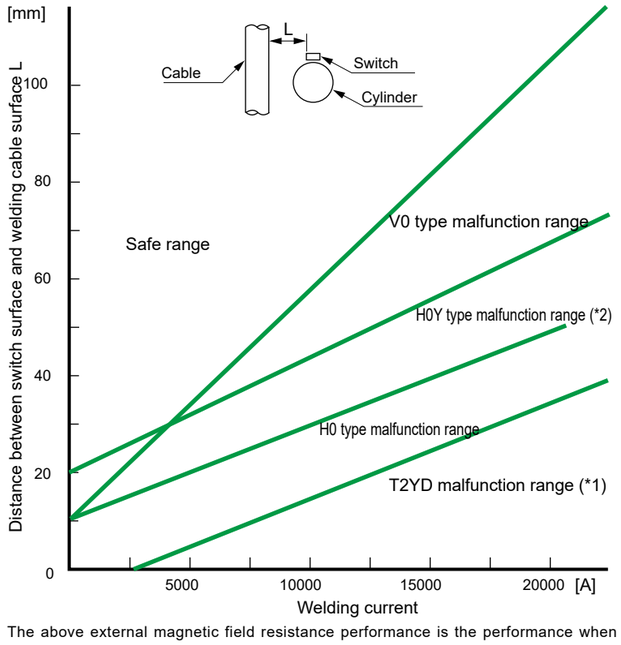
Non-polarity achieved with built-in diode bridge. Eliminates the hassle of checking positive and negative polarity, preventing connection errors.

●Easy to adjust with 2-color indicator (T2YD, H0Y)

Since the green display is the optimal mounting position, mounting and adjusting the switch is extremely easy.

⚠Caution

① Spot welding current - Malfunction distance characteristics
(For V0 switch with detection stroke of 30 mm or more)



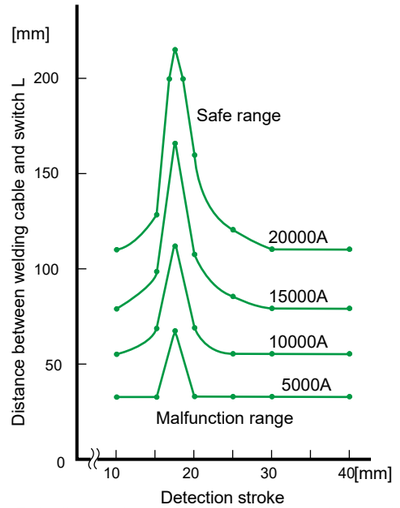
The above external magnetic field resistance performance is the performance when the switch is mounted within the range of "maximum sensitivity position ±1 mm" for H0, "maximum sensitivity position ±1.5 mm" for V0, and "optimal mounting range" for H0Y, so be sure to mount the switch within this range. Do not pass welding current while the cylinder piston is moving. If there are two or more welding cables and they are energized simultaneously, the magnetic flux will increase due to the synergistic effect of the cables, so please consult us. Also, it cannot be used if the switch enters the loop of the cable.

*1: Indicates malfunctions caused by demagnetization of the cylinder's piston magnet due to the welding magnetic field.

*2: Malfunction of H0Y refers to output malfunction.

*3: T2YD is a switch exclusively for AC magnetic fields.

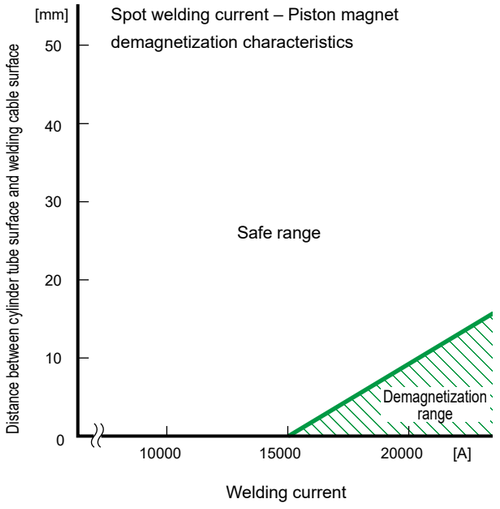
② SSD detection stroke - Malfunction distance characteristics
(V0 Switch)



Detection stroke - Malfunction distance characteristics

If used with a detection stroke of less than 30 mm, please maintain the distance shown in the figure above between the welding cable and the switch.

③ H type cylinder switch
Magnet performance near spot welding



Demagnetization occurs when an AC magnetic field is applied to the magnet. The magnet of the H-type switch equipped cylinder has countermeasures and will not demagnetize up to 15,000A, but if it exceeds 15,000A, please maintain the distance shown in the figure above between the cylinder tube surface and the welding cable surface.

MEMO

M Series	Applicable Cylinder	FC◇, RV3◇, SRL3, SRG3, SRT3, UFCD



M◇V



M◇H

Specifications

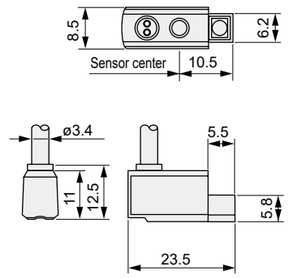
Item	Solid state 2-wire type		Solid state 3-wire type		
	M2V, M2H	M2WV (2-color indicator type)	M3H/V (NPN output type)	M3PH/V (PNP output type)	M3WV (2-color indicator type)
Applications	For programmable controller only		For programmable controller, relay, IC circuit, small solenoid valve		
Output method	–		NPN output	PNP output	NPN output
Power supply voltage	–		4.5 to 28 VDC		10 to 28 VDC
Load voltage	10 to 30 VDC		30 VDC or less		
Load current	5 to 30 mA		100 mA or less		
Current consumption	–		10 mA or less at 24 VDC	10 mA or less at 24 VDC	15 mA or less at 24 VDC
Internal voltage drop	4 V or less		0.5 V or less		
Indicator Lamp	Red LED (Lights up when ON)	Red/Green LED (Lights up when ON)	Red LED (Lights up when ON)	Yellow LED (Lights up when ON)	Red/Green LED (Lights up when ON)
Leakage current	1 mA or less		10 μA or less	0.05 mA or less	10 μA or less
Lead wire length	1 m (Oil-resistant vinyl cabtyre cord 2-core 0.2 mm²)		1 m (Oil-resistant vinyl cabtyre cord 3-core 0.15 mm²)		
Shock resistance	980 m/s²				
Insulation resistance	100 MΩ or more with 500 VDC megger				
Dielectric strength	No abnormality when 1000 VAC is applied for 1 minute				
Ambient Temperature	-10 to +60°C				
Protection structure	IEC standard IP67, JIS C0920 (Immersible type)				
Weight	1 m: 22 g 3 m: 57 g 5 m: 93 g		1 m: 22 g 3 m: 57 g 5 m: 93 g		

Item	Reed 2-wire type			
	M0V, M0H		M5V, M5H	
Applications	For programmable controller, relay		For programmable controller, relay, IC circuit (no indicator light), series connection	
Power supply voltage	–			
Load voltage	12/24 VDC	110 VAC	5/12/24 VDC	110 VAC
Load current	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less
Current consumption	–			
Internal voltage drop	3 V or less (In case of DC, when load current is 30 mA)		0.1 V or less (*4)	
Indicator Lamp	Red LED (Lights up when ON)		No Indicator Lamp	
Leakage current	0 mA			
Lead wire length	1 m (Oil-resistant vinyl cabtyre cord 2-core 0.2 mm²)			
Shock resistance	294 m/s²			
Insulation resistance	100 MΩ or more with 500 VDC megger			
Dielectric strength	No abnormality when 1000 VAC is applied for 1 minute			
Ambient Temperature	-10 to +60°C			
Protection structure	IEC standard IP67, JIS C0920 (Immersible type)			
Contact protection circuit *5	None			
Weight	1 m: 22 g 3 m: 57 g 5 m: 93 g			

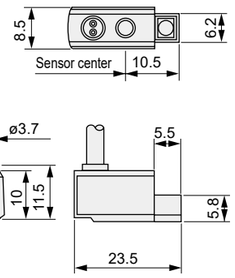
*1: M□H can be used for SRL3, SRG3, SRT3.
*2: For switch model numbers that can be mounted on the cylinder, please refer to the P. for each cylinder model.
*3: Please consult us separately for cylinder switches with connectors.
*4: Internal resistance 0.5 Ω or less
***5: For contact protection measures, see P. 1026.**

Outline Dimension Drawing

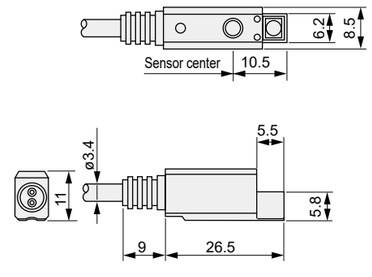
●M□V Series (L-shaped lead wire type)



●M□W series (2-color indicator type, L-shaped lead wire type)

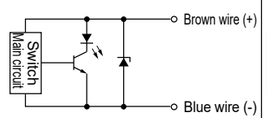


●M□H Series (Straight lead wire type)

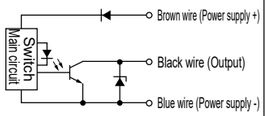


Switch internal circuit diagram

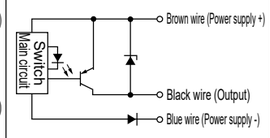
●M2V, M2H, M2WV



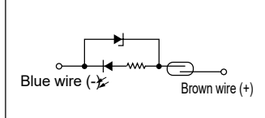
●M3V, M3H, M3WV



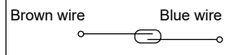
●M3PV, M3PH



●M0V, M0H



●M5V, M5H



R Series	Applicable Cylinder	GLC, HCA, MFC, SHC

(Excluding R1, R4)



R◇, R◇Y



R◇B

Specifications

Item	Solid state 2-wire type			Solid state 3-wire type	
	R1, R1K	R2, R2K	R2Y, R2YK (2-color indicator type)	R3, R3K	R3Y, R3YK (2-color indicator type)
Applications	Programmable controller, Relay, Small solenoid valve	For programmable controller only		For programmable controller, relay, IC circuit, solenoid valve	
Output method	–			NPN output	
Power supply voltage	–	–		4.5 to 28 VDC	
Load voltage	85 to 265 VAC	10 to 30 VDC		30 VDC or less	30 VDC or less
Load current	5 to 100 mA	5 to 30 mA		200 mA or less	100 mA or less
Current consumption	–	–		At 24 VDC (When ON)	
				10 mA or less	16 mA or less
Internal voltage drop	10% or less of load voltage	4 V or less		0.5 V or less at 150 mA	0.5 V or less
Indicator Lamp	Red LED (Lights up when ON)		Red/Green LED (Lights up when ON)	Red LED (Lights up when ON)	Red/Green LED (Lights up when ON)
Leakage current	1 mA or less at 100 VAC, 2 mA or less at 200 VAC	1 mA or less		10 μA or less	
Lead wire length	1 m (Oil-resistant vinyl cabtyre cord 2-core 0.3 mm²)			1 m (Oil-resistant vinyl cabtyre cord 3-core 0.2 mm²)	
Shock resistance	980 m/s²				
Insulation resistance	20 MΩ or more with 500 VDC megger				
Dielectric strength	No abnormality when 1500 VAC is applied for 1 minute	No abnormality when 1000 VAC is applied for 1 minute			
Ambient Temperature	-10 to +60°C				
Protection structure	Grommet type is IEC standard IP67, JIS C0920 (Immersible type)				
Option	With terminal box R*B (Not waterproof)				
Weight	1 m: 42 g 3 m: 100 g 5 m: 158 g		1 m: 56 g 3 m: 114 g 5 m: 172 g	1 m: 42 g 3 m: 100 g 5 m: 158 g	1 m: 56 g 3 m: 114 g 5 m: 172 g

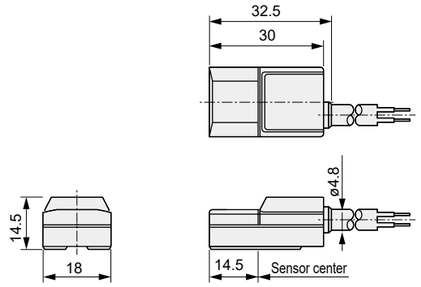
Item	Reed 2-wire type										
	R0			R4		R5			R6		
Applications	For relay, programmable controller			For high capacity relay, solenoid valve		For programmable controller, relay, IC circuit (no indicator light), series connection			For programmable controller only (With DC self-holding function)		
Power supply voltage	–			–		–			–		
Load voltage	12/24 VDC	110 VAC	220 VAC	110 VAC	220 VAC	5/12/24 VDC	110 VAC	220 VAC	24 VDC ±10%		
Load current	5 to 50 mA	7 to 20 mA	7 to 10 mA	20 to 200 mA	10 to 200 mA	50 mA or less	20 mA or less	10 mA or less	5 to 50 mA		
Current consumption	–			–		–			–		
Internal voltage drop	3.0 V or less			2 V or less		0.5 V or less (*1)			5 V or less		
Indicator Lamp	Red LED (Lights up when ON)			Neon lamp OFF (Lights up when OFF)		None			Red LED (Lights up when ON)		
Leakage current	0 mA			1 mA or less		0 mA			0.1 mA or less		
Lead wire length	1 m (Oil-resistant vinyl cabtyre cord 2-core 0.3 mm²)										
Shock resistance	294 m/s²										
Insulation resistance	20 MΩ or more with 500 VDC megger										
Dielectric strength	No abnormality when 1500 VAC is applied for 1 minute										
Ambient Temperature	-10 to +60°C										
Protection structure	Grommet type is IEC standard IP67, JIS C0920 (Immersible type)										
Contact protection circuit *2	Yes								None		
Option	With terminal box R□B (Not waterproof)										
Weight	1 m: 42 g 3 m: 100 g 5 m: 158 g										

*1: Internal resistance 10Ω or less
*2: For contact protection measures, see P. 1026.

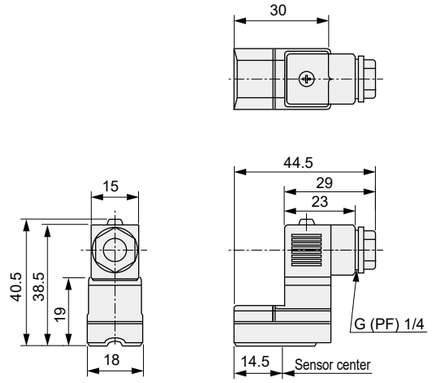
External dimension diagram / Switch internal circuit diagram

Outline Dimension Drawing

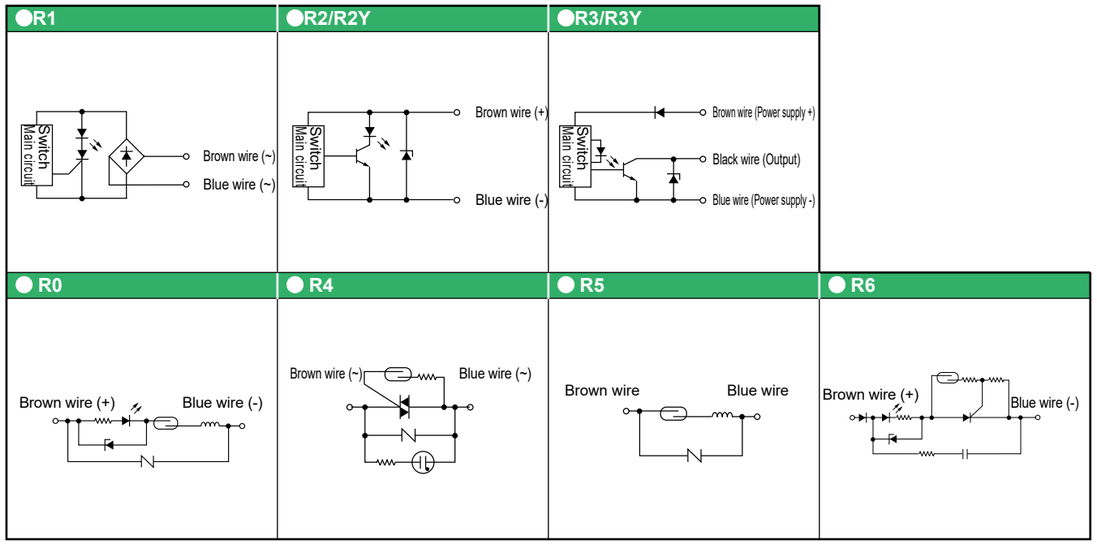
●R Series (Grommet Type)



●R Series (Terminal box R◇B type)



Switch internal circuit diagram



T Series	Applicable Cylinder	CAC4 CKV2 CMA2 CMK2 HCM JSC3 JSC4 JSG JSK2 JSM2 LCG LCR LCW LCX MRG2 MRL2 RCS2 RCC2 RRC SCA2 SCG SCM SCP□3 SCS2 SRM3 SSD SSD2 SSG STG STS/STL STK UCA2 UCAC2 ULK GripperChuck

(Excluding T1, T8)


T□H/T□WH


T□V/T□WV


T1H


T1 V


T8H/T2JH


T8V/T2JV

Specifications

Item	Solid state 2-wire type					Solid state 3-wire type		
	T1H, T1 V	T2H, T2V	T2HR3, T2VR3 (Flexible lead wire type)	T2JH, T2JV (Off-delay type)	T2WH, T2WV (2-color indicator type)	T3H, T3V	T3PH, T3PV (PNP output type)	T3WH, T3WV (2-color indicator type)
Applications	For programmable controller, relay, small solenoid valve	For programmable controller only				For programmable controller, relay		
Output method	–					NPN output	PNP output	NPN output
Power supply voltage	–					10 to 28 VDC		
Load voltage	85 to 265 VAC	10 to 30 VDC			24 VDC ±10%	30 VDC or less		
Load current	5 to 100 mA	5 to 20 mA (*1)				100 mA or less		50 mA or less
Current consumption	–	–				10 mA or less at 24 VDC	10 mA or less at 24 VDC	10 mA or less at 24 VDC
Internal voltage drop	10% or less of load voltage	4 V or less				0.5 V or less		
Off-delay time	–			200 ±50 ms	–	–		
Indicator Lamp	Red LED (Lights up when ON)				Red/Green LED (Lights up when ON)	Red LED (Lights up when ON)	Yellow LED (Lights up when ON)	Red/Green LED (Lights up when ON)
Leakage current	1 mA or less at 100 VAC, 2 mA or less at 200 VAC	1 mA or less				10 μA or less		
Lead wire length *6	1 m (Oil-resistant vinyl cabtyre cord 2-core 0.3 mm²)	1 m (Oil-resistant vinyl cabtyre cord 2-core 0.2 mm²)	3 m (Flexible, oil-resistant vinyl cabtyre cord 2-core 0.2 mm²)	1 m (Oil-resistant vinyl cabtyre cord 2-core 0.3 mm²)	1 m (Oil-resistant vinyl cabtyre cord 2-core 0.2 mm²)	1 m (Oil-resistant vinyl cabtyre cord 3-core 0.2 mm²)		1 m (Oil-resistant vinyl cabtyre cord 3-core 0.2 mm²)
Shock resistance	980 m/s²							
Insulation resistance	100 MΩ or more with 500 VDC megger	20 MΩ or more with 500 VDC megger		100 MΩ or more with 500 VDC megger	20 MΩ or more with 500 VDC megger	20 MΩ or more with 500 VDC megger		20 MΩ or more with 500 VDC megger
Dielectric strength	No abnormality when 1500 VAC is applied for 1 minute	No abnormality when 1000 VAC is applied for 1 minute						
Ambient Temperature	-10 to +60°C							
Protection structure	IEC standard IP67, JIS C0920 (Immersible type)							
Weight	1 m: 33 g 3 m: 87 g 5 m: 142 g	1 m: 18 g 3 m: 49 g 5 m: 80 g		1 m: 33 g 3 m: 87 g 5 m: 142 g	1 m: 18 g 3 m: 49 g 5 m: 80 g	1 m: 18 g 3 m: 49 g 5 m: 80 g		1 m: 18 g 3 m: 49 g 5 m: 80 g

Item	Reed 2-wire type						
	T0H, T0V		T5H, T5V		T8H, T8V		
Applications	For programmable controller, relay		For programmable controller, relay, IC circuit (no indicator light), series connection		For programmable controller, relay		
Power supply voltage	–						
Load voltage	12/24 VDC	110 VAC	5/12/24 VDC	110 VAC	12/24 VDC	110 VAC	220 VAC
Load current	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA
Current consumption	–						
Internal voltage drop	3 V or less (In case of DC, when load current is 30 mA)		0.1 V or less (*4)		4 V or less		
Indicator Lamp	Red LED (Lights up when ON)		No Indicator Lamp		Red LED (Lights up when ON)		
Leakage current	0 mA						
Lead wire length	1 m (Oil-resistant vinyl cabtyre cord 2-core 0.2 mm²)				1 m (Oil-resistant vinyl cabtyre cord 2-core 0.3 mm²)		
Shock resistance	294 m/s²						
Insulation resistance	20 MΩ or more with 500 VDC megger				100 MΩ or more with 500 VDC megger		
Dielectric strength	No abnormality when 1000 VAC is applied for 1 minute				No abnormality when AC1500 V is applied for 1 minute		
Ambient Temperature	-10 to +60°C						
Protection structure	IEC standard IP67, JIS C0920 (Immersible type)						
Contact protection circuit *5	None				Yes		
Weight	1 m: 18 g 3 m: 49 g 5 m: 80 g				1 m: 33 g 3 m: 87 g 5 m: 142 g		

*1: Maximum load current for T2H, T2V, T2HR3, T2VR3: 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (It will be 5 to 10 mA at 60°C.)
*2: For T2JH and T2JV switches, when mounting on SRL3 (ø32 to ø100), MRL2, LCR, UCAC2, or gripper/chuck, it will be handled as a custom product.
*3: Some cylinders have limited mountable switches. Please refer to the P. for each cylinder for details.
*4: Internal resistance 0.5Ω or less. *5: For contact protection measures, see P. 1026.

T Series	For AC Magnetic Field	Applicable Cylinder	CAC4 JSC3 JSC4 JSG RCC2 RCS2 SCA2 SCG SCM SCS2 SRG3 SRL3 SRM3 SRT3 SSD SSD2 SSG STG STS/STL UCAC2 USC USSD


T2YD

Specifications

Item	Solid state 2-wire type		
	T2YD	T2YDT	T2YDU (Custom Products)
Applications	For programmable controller only		
Indicator Lamp	Red/Green LED (Lights up when ON)		
Load voltage	24 VDC ±10%		
Load current	5 to 20 mA		
Internal voltage drop	6 V or less		
Leakage current	1.0 mA or less		
Output delay time *1 (ON-delay, OFF-delay)	60 ms or less		
Lead wire length	1 m (Oil-resistant vinyl cabtyre cord ø6, 0.5 mm² x 2 cores) *2	1 m (Flame-retardant cabtyre cord ø6, 0.5 mm² x 2 cores) *2	0.3 m (Flame-retardant vinyl cabtyre cord with M12 cable connector, AWG20, 2-core)
Insulation resistance	100 MΩ or more with 500 VDC megger		
Dielectric strength	No abnormality when AC1000 V is applied for 1 minute		
Shock resistance	980 m/s²		
Ambient Temperature	-10 to +60°C		
Protection structure	JIS C0920 (Immersible type), IEC standard IP67		
Weight	1 m: 61 g 3 m: 166 g 5 m: 272 g		35

*1: Indicates the time from when the magnetic sensor detects the piston magnet until the switch output occurs.
*2: 3 m and 5 m lead wire lengths are available as options.
3: Since AC magnetic field switches (T2YD) are for AC welding machines, the strong magnetic field resistance performance cannot be obtained with DC welding machines.

T Series	For Cutting Oil	Applicable Cylinder	CMK2-G2/3 HRL-G2/3 SCA2-G2/3 SCG-G2/3 SSD-G2/3 SSD2-G2/3 STG-G2/3 STS/STL-G2/3

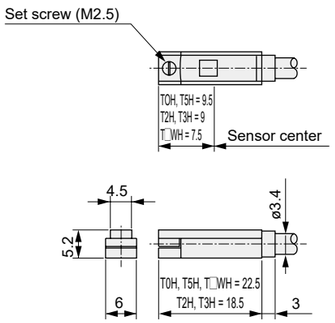

T□YLH

Specifications

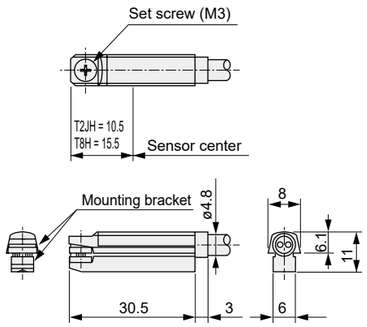
Item	Solid state 2-wire type	Solid state 3-wire type
	T2YLH, T2YLV	T3YLH, T3YLV
Applications	For programmable controller only	Programmable controller, Relay
Output method	–	NPN output
Power supply voltage	–	10 to 28 VDC
Load voltage	10 to 30 VDC	30 VDC or less
Load current	5 to 20 mA	50 mA or less
Current consumption	–	10 mA or less at 24 VDC (When ON)
Internal voltage drop	4 V or less	0.5 V or less
Leakage current	1 mA or less	10 μA or less
Indicator Lamp	Red/Green LED (Lights up when ON)	
Lead Wire	Oil-resistant vinyl cabtyre cord 0.3 mm², 2-core 1 m	Oil-resistant vinyl cabtyre cord 0.2 mm², 3-core 1 m
Insulation resistance	100 MΩ or more with 500 VDC megger	
Dielectric strength	No abnormality when AC1000 V is applied for 1 minute	
Shock resistance	980 m/s²	
Hysteresis	1.5 mm or less	
Ambient Temperature	-10 to +60°C	
Protection structure	IEC standard IP67, JIS C0920 (Immersible type), Oil resistant (PCB coating)	
Weight	1 m: 33 g 3 m: 87 g 5 m: 142 g	

Outline Dimension Drawing

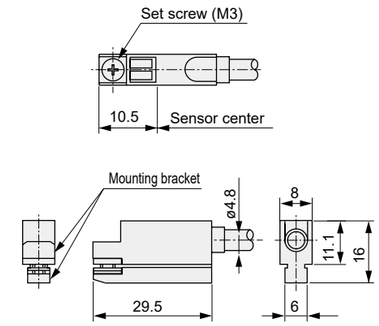
●T□H, T□WH Series
(Straight lead wire type)



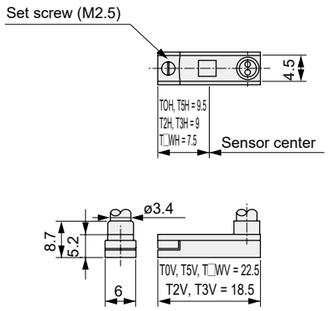
●T2JH, T8H Series
(Straight lead wire type)



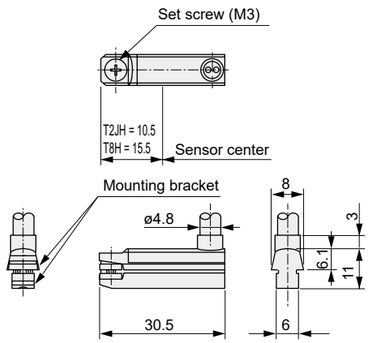
●T1H Series
(Straight lead wire type)



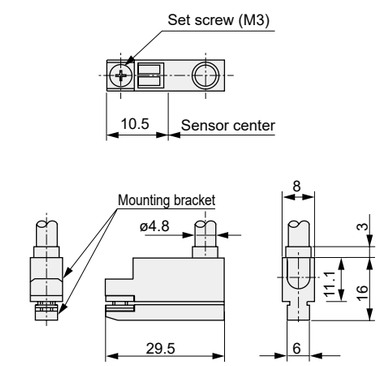
●T□V, T□WV Series
(L-shaped lead wire type)



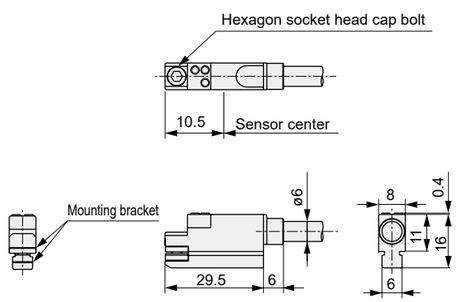
●T2JV, T8V Series
(L-shaped lead wire type)



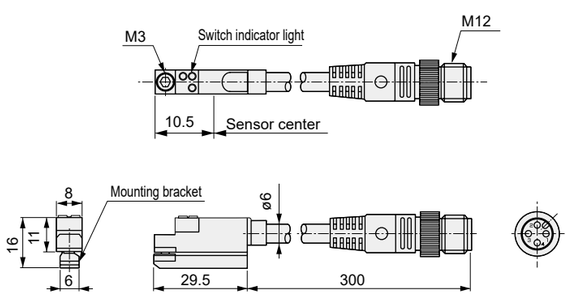
●T1 V Series
(L-shaped lead wire type)



●T2YD (AC magnetic field switch)

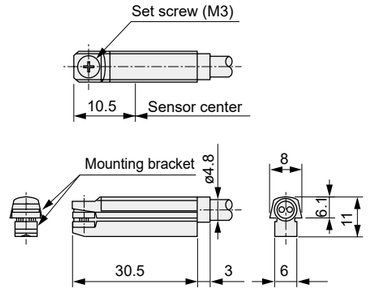


●T2YDU (Switch for AC magnetic field with M12 cable connector)

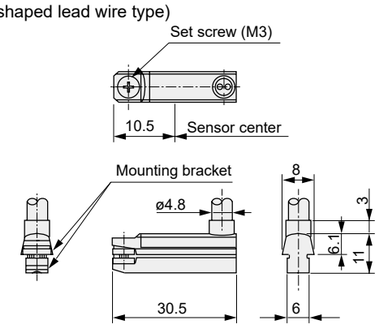


Outline Dimension Drawing

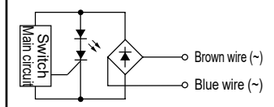
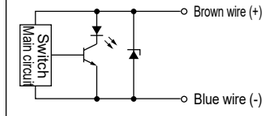
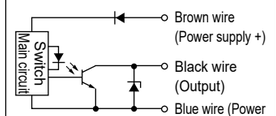
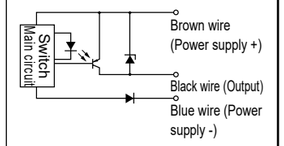
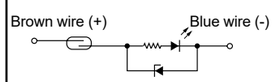
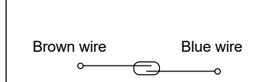
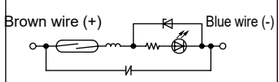
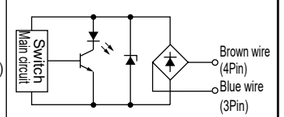
●T□YLH Series
(Straight lead wire type)



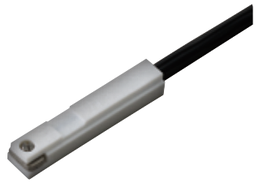
●T□YLV Series
(L-shaped lead wire type)



Switch internal circuit diagram

●T1H, T1V	●T2H, T2V, T2WH, T2WV, T2JH, T2JV, T2YLH, T2YLV	●T3H, T3V, T3WH, T3WV, T3YLH, T3YLV	●T3PH, T3PV
			
●T0H, T0V	●T5H, T5V	●T8H, T8V	●T2YD, T2YDT, T2YDU
			 This switch has no polarity. Values in ( ) are pin assignments for T2YDU. However, Pin 1 and Pin 2 are N.C. (Not Connected).

T Series	Improved Water Resistance	Applicable Cylinder									
			SCP□3	CMK2	CMA2	SCM	SCG	SCA2	SCS2	CKV2	COV□2	CAV2	SSD2
			SSG	SSD	STK	SRL3	SRG3	SRM3	SRT3	MRL2	MRG2	LCR	LCG
			LCX	STG	STS/L	HCM	CAC4	CAC-N	RCS2	RCC2	MCP	RRC	GRC



T2WLH



T2WLV

Specifications

Item	Solid state 2-wire type	
	T2WLH, T2WLV	T2WLHW, T2WLVW
Applications	For programmable controller only	
Load voltage	24 VDC ±10%	
Load current	5 to 20 mA	
Internal voltage drop	4 V or less	
Leakage current	1 mA or less	
Indicator Lamp	Red/Green LED (Lights up when ON)	
Lead wire length	1 m (PUR cord 2-core 0.2 mm²)	0.3 m (PUR cord with M8 connector)
Insulation resistance	20 MΩ or more with 500 VDC megger	
Dielectric strength	No abnormality when 1000 VAC is applied for 1 minute	
Shock resistance	980 m/s²	
Ambient Temperature	-10 to +60°C	
Protection structure	IEC standard IP67 JIS C0920 (Immersible type)	
Weight	1 m: 18 g 3 m: 49 g 5 m: 80 g	11 g

*1: Cannot be mounted on drop prevention type.
*2: For switch mountability, refer to the next page.

Model No. Notation Method

●Water-resistant Cylinder Switch

SW - T2WL H W

❶ Lead Wire Extraction Direction

❷ Lead wire length, connector specification

❶ Lead Wire Extraction Direction

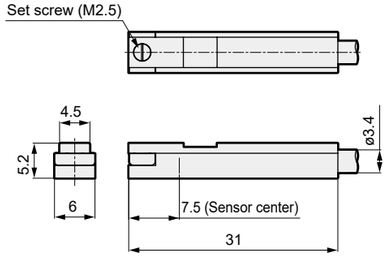
Code	Content
H	Straight lead wire type
V	L-shaped lead wire type

❷ Lead wire length, connector specification

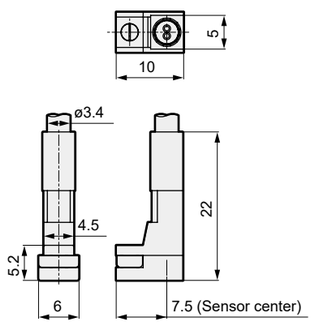
Code	Content
Blank	1 m lead wire
3	3 m lead wire
5	5 m lead wire
W	M8 connector, 1PIN (+) 4PIN (-)

Outline Dimension Drawing

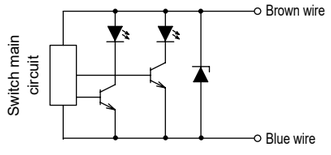
●T2WLH Series (Straight lead wire type)



●T2WLV Series (L-shaped lead wire type)



Switch internal circuit diagram



Switch applicable model list

Applicable Model		Bore size
Pencil Shaped Cylinder	SCP□3	ø6 to 16
Tight Cylinder	CMK2	ø20 to 40
Small Bore Size Cylinder	CMA2	ø20 to 40
Round shaped cylinder	SCM	ø20 to 100
Tie Rod Cylinder	SCG	ø32 to 100
Medium Bore Size Cylinder	SCA2	ø40 to 100
Large Bore Size Cylinder	SCS2	ø125 to 250
Compact cylinder with valve	CKV2	ø20 to 40
Cell Cylinder	COV◇2	ø50 to 100
Cell Cylinder	CAV2	ø50 to 100
Compact Cylinder	SSD2	ø12 to 100
Guided Compact Cylinder	SSG	ø12 to 100
Compact Cylinder	SSD	ø12 to 160
Stopper Cylinder	STK	ø20 to 50
Rodless Cylinder	SRL3	ø12 to 100
Rodless Cylinder with High-Precision Guide	SRG3	ø12 to 25
Rodless Cylinder with High-Precision Guide	SRM3	ø25 to 63
Rodless Cylinder with Brake	SRT3	ø12 to 63
Super rodless cylinder with magnet	MRL2	ø6 to 32
Super rodless cylinder with magnet, high precision guide type	MRG2	ø50 to 700
Linear Slide Cylinder	LCR	ø16 to 25
Linear Slide Cylinder	LCG	ø16
Thin Linear Slide Cylinder	LCX	ø25, 32
Guided Cylinder	STG	ø12 to 100
Guided Cylinder	STS/L	ø8 to 100
High Energy Absorption Cylinder	HCM	ø20 to 63
Clamp Cylinder	CAC4	ø40 to 80
Lightweight Clamp Cylinder	CAC-N	N32, N40
Rotary Clamp Cylinder	RCS2	ø12 to 63
Rotary Clamp Cylinder	RCC2	ø16 to 63
Mechanical Power Cylinder	MCP	Size 2t, 5t
Selex Rotary	RRC	Size 8 to 63
Table Type Rotary Actuator	GRC	Size 5 to 80

T Series	Magnetized environment	Applicable Cylinder							
			CMK2	SCM	SCG	SCA2	SCS2	SSD2	SSG	SSD
			STK	STG	STS/L	JSG	JSC3	JSC4	USSD	HCM
			CAC4	UCAC2	CAC-N	UCAC-N32		RCS2	RCC2	PCC



TOY

Specifications

Item	Reed 2-wire type		
	T0Y	T0YL	T0YT
Applications	For programmable controller only		
Switch polarity	No polarity		
Load voltage	24 VDC ±10%		
Load current	5 to 20 mA		
Internal voltage drop	4.5 V or less		
Leakage current	0.5 mA or less		
Indicator Lamp	Red/Green LED (Lights up when ON)		
Lead wire length	1 m (Oil-resistant vinyl cabtyre cord 2-core 0.2 mm²)	1 m (Flame-retardant cabtyre cord 2-core 0.2 mm²) UL certified wire	1 m (Flame-retardant vinyl cabtyre cord 2-core 0.2 mm²)
Insulation resistance	20 MΩ or more with 500 VDC megger		
Dielectric strength	No abnormality when AC1000 V is applied for 1 minute		
Shock resistance	294 m/s²		
Ambient Temperature	-10 to +60°C		
Protection structure	IEC standard IP67 JIS C0920 (Immersible type)		
Contact protection circuit	None		
Weight	1 m: 18 g 3 m: 49 g 5 m: 80 g		
Weight of connector only	M12: Connector code B/M: 10 g M8: Connector code F: 4 g		

Note: For switch mountability, please refer to the next page.

Model No. Notation Method

● Magnetized environment cylinder switch

SW- T0Y L M K

❶ Lead wire type ❸ Option

❷ Lead wire length, connector specification

❶ Lead wire type

Code	Content
Blank	Oil-resistant vinyl cabtyre cord
L	UL wire
T	Spatter-resistant wire

❸ Option

Code	Content
Blank	No option
K	With spatter adhesion prevention cover

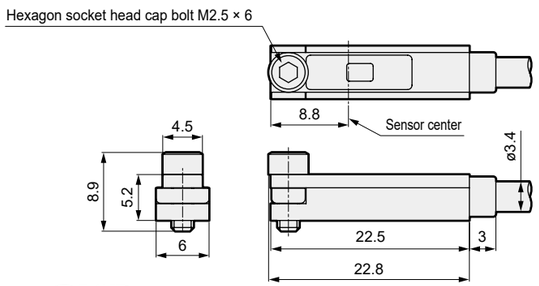
❷ Lead wire length, connector specification

Code	Content
Blank	1 m lead wire
3	3 m lead wire
5	5 m lead wire
B	M12 connector (4PIN specification), 3-4PIN no polarity, 0.3 m lead wire
M	M12 connector (4PIN specification), 1-4PIN no polarity, 0.3 m lead wire
F	M8 connector (3PIN specification), 1-4PIN no polarity, 0.3 m lead wire

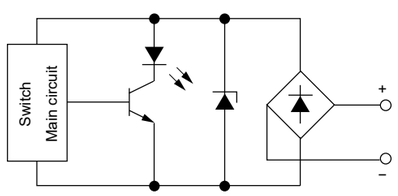
Note

Note: For connector specification "F", only lead wire type "L" can be selected.

Outline Dimension Drawing



Switch internal circuit diagram



Switch applicable model list

Applicable Model		Bore size
Small bore size cylinder	CMK2	ø32, ø40
Round shaped cylinder	SCM	ø32 to 100
Tie Rod Cylinder	SCG	ø40 to 100
Medium Bore Size Cylinder	SCA2	ø40 to 100
Large Bore Size Cylinder	SCS2	ø125 to 250
Compact Cylinder	SSD2	ø32 to 200
Guided Compact Cylinder	SSG	ø32 to 100
Compact Cylinder	SSD	ø32 to 160
Stopper Cylinder	STK	ø32 to 50
Guided Cylinder	STG	ø32 to 80
Guided Cylinder	STS/L	ø32 to 100
Tie Rod Cylinder with Brake	JSG	ø40 to 100
Cell top cylinder (Medium bore)	JSC3	ø40 to 100
Cell top cylinder (Large bore)	JSC4	ø125 to 180
Compact Cylinder with Drop Prevention	USSD	ø40 to 63
High Energy Absorption Cylinder	HCM	ø32 to 63
Clamp Cylinder	CAC4	ø40 to 80
Clamp Cylinder with Fall Prevention	UCAC2	ø50, ø63
Lightweight Clamp Cylinder	CAC-N	ø32, ø40
Lightweight Clamp Cylinder	UCAC-N32	ø32, ø40
Rotary Clamp Cylinder	RCS2	ø32 to 63
Rotary Clamp Cylinder	RCC2	ø32 to 63
Pin Clamp Cylinder	PCC	(ø50)

K Series	Applicable Cylinder	SMG STR2



K□H
K3PH



K□V
K3PV



K□YH



K□YV

Specifications

Item	Solid state 2-wire type		Solid state 3-wire type		
	K2H, K2 V	K2YH, K2YV	K3H/V (NPN output type)	K3PH/V (PNP output type)	K3YH/V (2-color indicator type)
Applications	For programmable controller only		For programmable controller, relay		
Output method	–		NPN output	PNP output	NPN output
Power supply voltage	–		10 to 28 VDC		
Load voltage	10 to 30 VDC		30 VDC or less		
Load current	5 to 20 mA (*1)		50 mA or less		
Current consumption	–		10 mA or less at 24 VDC	10 mA or less at 24 VDC	10 mA or less at 24 VDC
Internal voltage drop	4 V or less		0.5 V or less		
Indicator Lamp	Red LED (Lights up when ON)	Red/Green LED (Lights up when ON)	Red LED (Lights up when ON)	Yellow LED (Lights up when ON)	Red/Green LED (Lights up when ON)
Leakage current	1 mA or less		10 μA or less		
Lead wire length	1 m (Oil-resistant vinyl cabtyre cord 2-core 0.2 mm²)	1 m (Oil-resistant vinyl cabtyre cord 2-core 0.3 mm²)	1 m (Oil-resistant vinyl cabtyre cord 3-core 0.2 mm²)		1 m (Oil-resistant vinyl cabtyre cord 3-core 0.2 mm²)
Shock resistance	980 m/s²				
Insulation resistance	20 MΩ or more with 500 VDC megger	100 MΩ or more with 500 VDC megger	20 MΩ or more with 500 VDC megger		100 MΩ or more with 500 VDC megger
Dielectric strength	No abnormality when 1000 VAC is applied for 1 minute				
Ambient Temperature	-10 to +60°C				
Protection structure	IEC standard IP67, JIS C0920 (Immersible type)				
Weight	1 m: 18 g 3 m: 49 g 5 m: 80 g	1 m: 31 g 3 m: 85 g 5 m: 139 g	1 m: 18 g 3 m: 49 g 5 m: 80 g		1 m: 31 g 3 m: 85 g 5 m: 142 g

Item	Reed 2-wire type			
	K0H, K0 V		K5H, K5 V	
Applications	For programmable controller, relay		For programmable controller, relay, IC circuit (no indicator light), series connection	
Power supply voltage	–			
Load voltage	12/24 VDC	110 VAC	5/12/24 VDC	110 VAC
Load current	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less
Current consumption	–			
Internal voltage drop	3 V or less (In case of DC, when load current is 30 mA)		0.1 V or less (*2)	
Indicator Lamp	Red LED (Lights up when ON)		–	
Leakage current	0 mA			
Lead wire length	1 m (Oil-resistant vinyl cabtyre cord 2-core 0.2 mm²)			
Shock resistance	294 m/s²			
Insulation resistance	20 MΩ or more with 500 VDC megger			
Dielectric strength	No abnormality when 1000 VAC is applied for 1 minute			
Ambient Temperature	-10 to +60°C			
Protection structure	IEC standard IP67, JIS C0920 (Immersible type)			
Contact protection circuit *3	None			
Weight	1 m: 18 g 3 m: 49 g 5 m: 80 g			

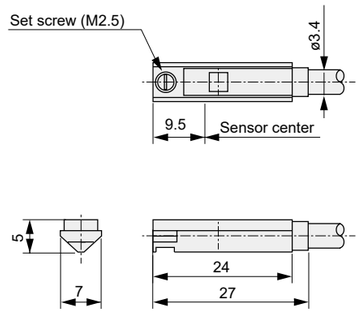
*1: Max. load current of K2H, K2V: 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (It will be 5 to 10 mA at 60°C.)
*2: Internal resistance 0.5Ω or less
*3: For contact protection measures, see P. 1026.

Cylinder Switch

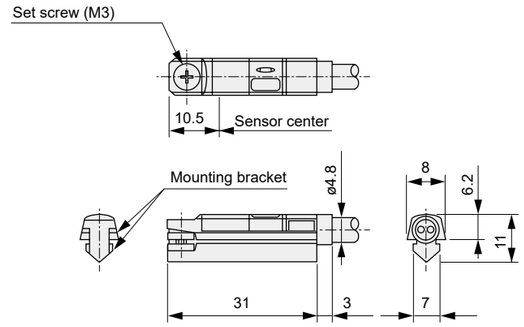
External dimension diagram / Switch internal circuit diagram

Outline Dimension Drawing

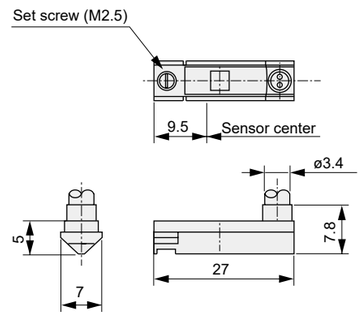
●K□H Series (Straight lead wire type)



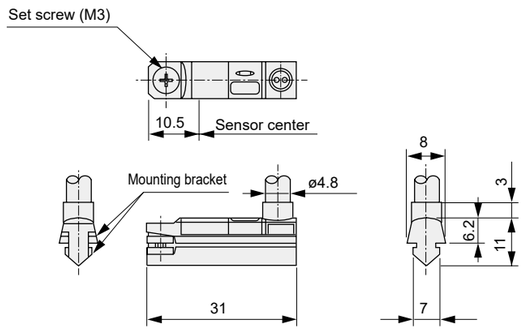
●K□YH Series
(2-color indicator type, Straight lead wire type)



●K□V Series (L-shaped lead wire type)

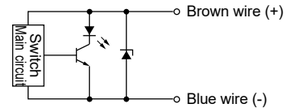


●K□YV Series
(2-color indicator type, L-shaped lead wire type)

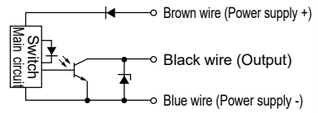


Switch internal circuit diagram

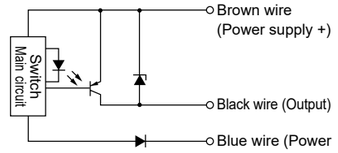
●K2H, K2V, K2YH, K2YV



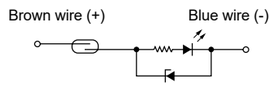
●K3H, K3V, K3YH, K3YV



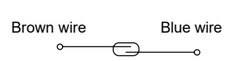
●K3PH, K3PV



●K0H, K0V



●K5H, K5V



Cylinder Switch

F Series	Applicable Cylinder	CKL2, LCG, LCM, LCR, MDC2, MSD, MSDG-L, MVC, RCS2, SSD2, STM, Gripper (LSH, BSA2, LHA)

Flexible lead wires are used as standard.

*Some bore sizes cannot be combined.



F□S



F□V



F□H

F□YV
F3PV



F□YH
F3PH

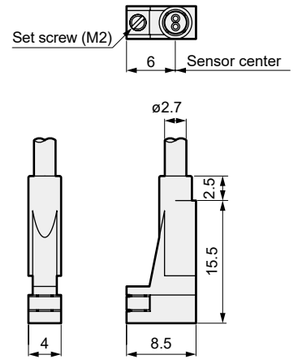
Specifications

Item	Reed 2-wire type	Solid state 2-wire type		Solid state 3-wire type		
	F0H/V	F2H/V, F2S	F2YH, F2YV	F3H/V, F3S	F3PH/V	F3YH, F3YV
Applications	For programmable controller only			For programmable controller, relay		
Output method	–			NPN output	PNP output	NPN output
Power supply voltage	–			10 to 28 VDC	4.5 to 28 VDC	10 to 28 VDC
Load voltage	24 VDC ±10%	10 to 30 VDC	24 VDC ±10%	30 VDC or less		
Load current	5 to 20 mA (*1)			50 mA or less		
Current consumption	–			10 mA or less at 24 VDC		
Internal voltage drop	4 V or less			0.5 V or less	0.5 V or less at 30 mA	0.5 V or less
Indicator Lamp	Yellow LED (Lights up when ON) *3		Red/Green LED (Lights up when ON)	Yellow LED *3 (Lights up when ON)	Yellow LED (Lights up when ON)	Red/Green LED (Lights up when ON)
Leakage current	1 mA or less			10 μA or less		
Lead wire length	1 m (Flexible, oil-resistant vinyl cabtyre cord 2-core 0.15 mm²)			1 m (Flexible, oil-resistant vinyl cabtyre cord 3-core 0.15 mm²)		
Shock resistance	294 m/s²	980 m/s²				
Insulation resistance	20 MΩ or more with 500 VDC megger					
Dielectric strength	No abnormality when AC1000 V is applied for 1 minute					
Ambient Temperature	-10 to +60°C					
Protection structure	IEC standard IP67, JIS C0920 (Immersible type)					
Contact protection circuit *4	None	–				
Weight	1 m: 10 g 3 m: 29 g			1 m: 10 g 3 m: 29 g		

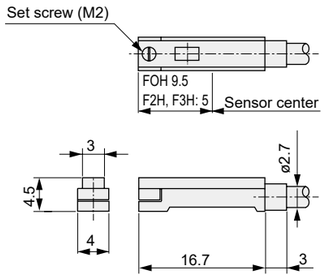
*1: The maximum load current for F2H and F2 V is 20 mA at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (It will be 5 to 10 mA at 60°C.)
*2: For F2S and F3S, when mounting two switches in one groove for both-end detection, please mount them so that the set screw parts of each switch face outward.
*3: The indicator light for F2S and F3S is red.
*4: For contact protection measures, see P. 1026.
*5: Flexible lead wires are used.

Outline Dimension Drawing

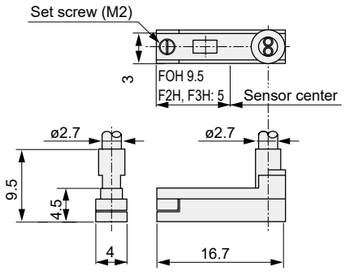
●F□S series (Lead wire vertical extraction short stroke detection type)



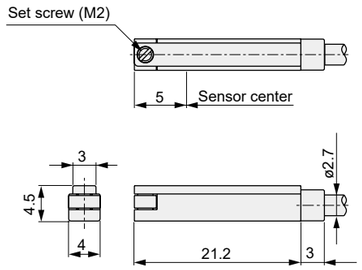
●F□H series (Straight lead wire type)



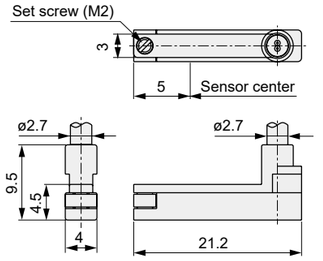
●F□V series (L-shaped lead wire type)



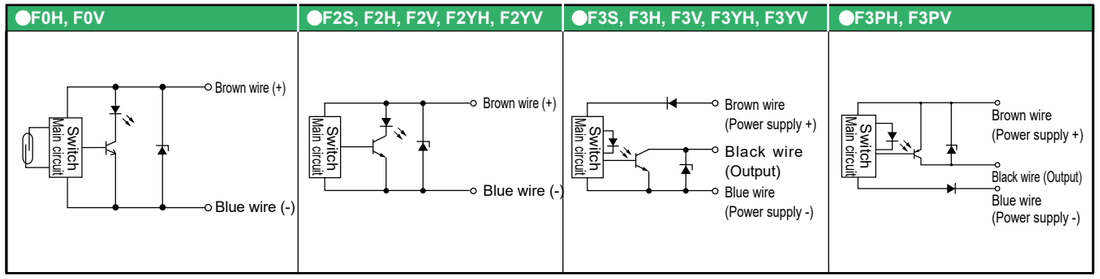
●F□YH / F3PH series (Straight lead wire type)



●F□YV / F3PV series (L-shaped lead wire type)



Switch internal circuit diagram



H Series	For strong magnetic field	Applicable Cylinder	CAC4-L2, GLC-L2, JSC3-L2, SCA2-L2, SHC-L2, UCAC2-L2, USC-L2



H0



H0Y

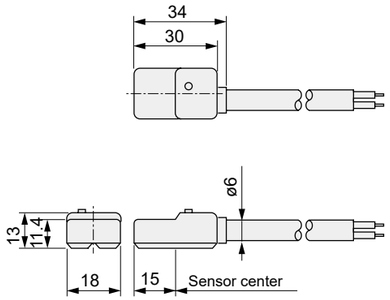
Specifications

Item	Reed 2-wire type		
	H0		H0Y (2-color indicator type)
Applications	For programmable controller, relay		For programmable controller only
Load voltage	12/24 VDC	110 VAC	24 VDC ±10%
Load current	5 to 50 mA	7 to 20 mA	5 to 20 mA
Internal voltage drop	5 V or less		6 V or less
Indicator Lamp	Green LED (Lights up when ON)		Red/Green LED (Lights up when ON)
Leakage current	0 mA		10 μA or less
Lead wire length	1 m (Flame-retardant cabtyre cord 2-core 0.5 mm²)		
Insulation resistance	100 MΩ or more with 500 VDC megger		
Dielectric strength	No abnormality when 1000 VAC is applied for 1 minute		
Shock resistance	294 m/s²		
Ambient temperature range	-10 to +60°C		
Protection structure	IEC standard IP67, JIS C0920 (Immersible type), Oil resistant		
Contact protection circuit *1	None		
Weight	1 m: 76 g 3 m: 181 g 5 m: 289 g		

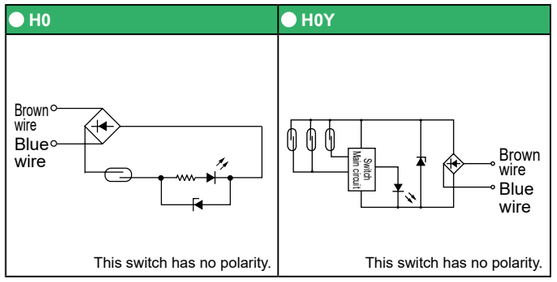
*1: For contact protection measures, see P. 1026.

Outline Dimension Drawing

●H series (For strong magnetic field resistance)



Switch internal circuit diagram



V Series	For small strong magnetic field resistance	Applicable Cylinder	SSD-L4, SSD2-L4, USSD-L4



VO

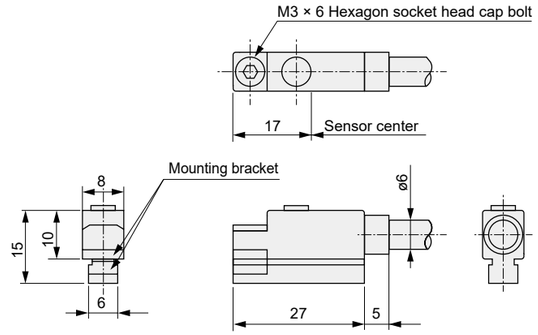
Specifications

Item	Reed 2-wire type	
	V0	
Applications	For relay, programmable controller	
Load voltage	24 VDC	110 VAC
Load current	5 to 50 mA	7 to 20 mA
Internal voltage drop	3.0 V or less (When load current is 40 mA)	
Indicator Lamp	LED (Lights up when ON)	
Leakage current	0 mA	
Lead wire length	1 m (Flame-retardant cabtyre cord 2-core 0.5 mm²)	
Insulation resistance	100 MΩ or more with 500 VDC megger	
Dielectric strength	No abnormality when 1000 VAC is applied for 1 minute	
Shock resistance	294 m/s²	
Ambient Temperature	-10 to +60°C	
Protection structure	IEC standard IP67, JIS C0920 (Immersible type), Oil resistant	
Contact protection circuit *1	None	
Weight	1 m: 63 g 3 m: 170 g 5 m: 277 m	

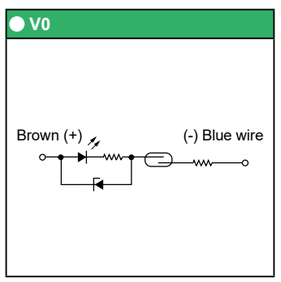
*1: For contact protection measures, see P. 1026.

Outline Dimension Drawing

● V series (For strong magnetic field resistance)



Switch internal circuit diagram



E Series	Heat resistant	Applicable Cylinder	SCA2-L2T (E0) SSD-T1L (ET0) SSD2-T1L (ET0)



EO



ETO

(EO is not subject to CE, UKCA)

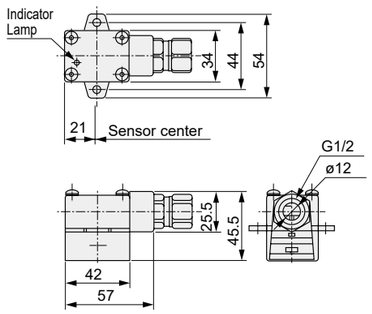
Specifications

Item	Reed 2-wire type				
	E0			ET0	
Applications	For relay, programmable controller				
Load voltage	12/24 VDC	110 VAC	220 VAC	12/24 VDC	110 VAC
Load current	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 50 mA	7 to 20 mA
Internal voltage drop	4 V or less			3.0 V or less	
Leakage current	0 mA				
Indicator Lamp	Red LED (Lights up when ON)			Yellow LED (Lights up when ON)	
Conduit thread	G1/2			–	
Lead wire length	–			1 m (Heat-resistant fluorine insulated cabtyre cord 2-core 0.5 mm²)	
Insulation resistance	100 MΩ or more with 500 VDC megger				
Dielectric strength	No abnormality when AC1500 V is applied for 1 minute			No abnormality when 1000 VAC is applied for 1 minute	
Shock resistance	294 m/s²				
Ambient Temperature	-10 to +120°C			-10 to +150°C	
Protection structure	IEC standard IP67, JIS C0920 (Immersible type), Oil resistant				
Contact protection circuit Note	None				
Weight	164 g			44 g	

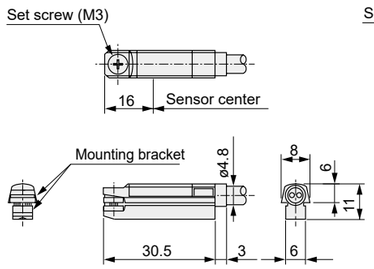
Note: For contact protection measures, refer to P. 1026.

Outline Dimension Drawing

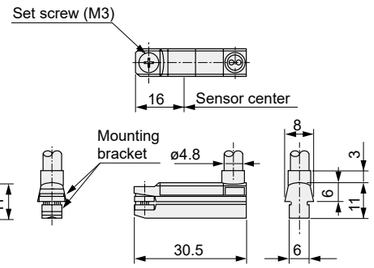
● E Series



●ET0H series (Straight lead wire type)

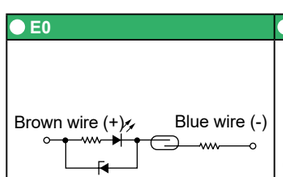


●ET0V series (L-shaped lead wire type)

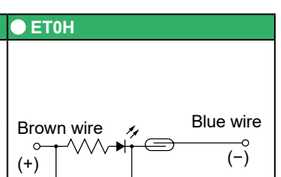


Switch internal circuit diagram

● E0



● ET0H



Cylinder Switch

Contact Protection Circuit Box	SKAC, SKDC



Specifications

Item	For AC circuit		For DC circuit
	SKAC		SKDC
Load voltage	100/110 VAC	200/220 VAC	24 VDC
Load current	20 mA or less	10 mA or less	50 mA or less
Lead wire length	1 m (Oil-resistant vinyl cabtyre cord 2-core, 0.2 mm²)		
Shock resistance	980 m/s²		
Insulation resistance	100MΩ or more with 500 VDC megger		
Dielectric strength	No abnormality when AC1500 V is applied for 1 minute		
Ambient Temperature	-10 to +60°C		
Protection structure	IEC standard IP67, JIS C0920 (Immersible type), Oil resistant		

Model No. Notation Method

SW-SKAC

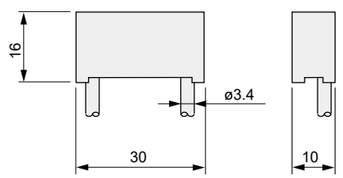
❶ Contact protection circuit

❶ Contact protection circuit

Code	Content
SKAC	For AC circuit
SKDC	For DC circuit

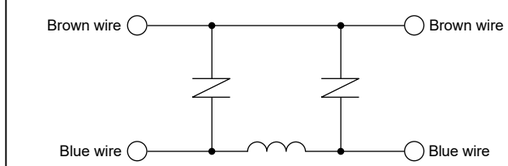
Outline Dimension Drawing

●SKAC/SKDC series



Internal circuit diagram

● SKAC/SKDC

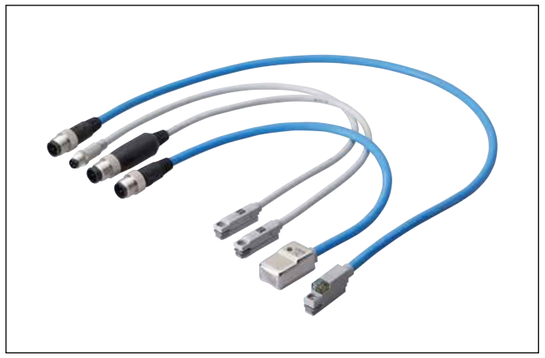


*: There is no polarity on the input or output side, and either can be connected to the switch side.

Note: SKAC is exclusively for AC circuits, and SKDC is exclusively for DC circuits.

Cylinder Switch

Cylinder Switch with Connector



Adopts highly versatile M8 and M12 connectors

- Compliant with Standard No. NECA4202, IEC947-5-2
- Reduction of wiring man-hours, Easy maintenance
- Protection structure is IP67
- Spatter adhesion prevention protective cover available

●For T0H



●For T2YD



Model No. Notation Method

*This is a custom order product.

● 2-wire cylinder switch

SW - T0 (1) H (2) F (3) K (4)

❶ Model	❷ Lead Wire Exit Direction		❸ 3 Connector Type, PIN Arrangement		Lead wire length		● Options *3	
T0	H	Straight type	F	M8 connector 4PIN (+) 3PIN (-) *1	Blank	0.3 m	K	Spatter adhesion prevention protective cover
T2	V	L-shaped type	M	M12 connector 1PIN (+) 4PIN (-)				
T2W			U	M12 connector 3,4PIN no polarity *2				
T2YL								
K2Y								
F2Y								

*1: Compatible only with T0, T2, T2W
*2: T2YL is not compatible. Please note that the "internal voltage drop" will be 1 V higher than the specification value described in the catalog.

*3: Applicable only to T0H□□

● 3-wire cylinder switch

SW - T3 (1) H (2) F (3)

❶ Model	❷ Lead Wire Exit Direction		❸ 3 Connector Type		Lead wire length	
T3	H	Straight type	F	M8 1PIN(+) 3PIN(-) 4PIN: (OUT)	Blank	0.3 m
T3P	V	L-shaped type				
T3W						

● Cylinder switch for strong magnetic fields

SW - H0 (1) M (2)

❶ Model	❷ Connector Types		Lead wire length	
H0	M	M12 connector 1,4PIN no polarity *4	Blank	0.3 m
H0Y	U	M12 connector 3,4PIN no polarity *5		
V0				

*4: Compatible only with H0, H0Y
*5: V0 only 4PIN (+) 3PIN (-)

● Cylinder switch exclusively for AC magnetic fields

SW - T2YD (1) G (2) K (3)

❶ Model	❷ Connector Types		Lead wire length		● Options	
T2YD	G	Spatter-resistant lead wire M12 connector 1,4PIN no polarity	Blank	0.3 m	K	Spatter adhesion prevention protective cover
	B	Spatter-resistant lead wire M12 connector 3,4PIN no polarity				
	U	Flame-retardant lead wire UL wire M12 connector 3,4PIN non-polar				
	W	Flame-retardant lead wire UL wire M12 connector 1,4PIN non-polar				

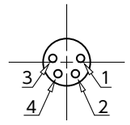
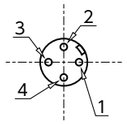
*6: The switch specifications for the cylinder are the same as the lead wire type. For details, please refer to P. 986 to 1000.

Connector pin assignment

Series	Connector pin assignment					
	Code	Connector type	1PIN	2PIN	3PIN	4PIN
2-wire type	F	M8	-	-	(−)	(+)
	M	M12	(+)	-	-	(−)
	U		-	-	(±)	(±)
Exclusively for strong magnetic field AC magnetic field	M, G, W		(±)	-	-	(±)
	U, B *1		-	-	(±)	(±)
3-wire type	F	M8	(+)	-	(−)	(OUT)

*1: Only SW-V0U has polarity (4PIN (+), 3PIN (-)).

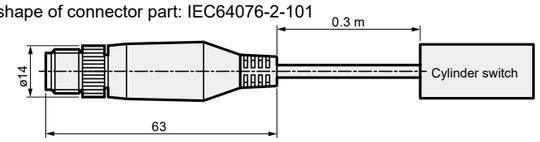
Connector specifications

Item	M8	M12
Pin assignment		
Shock resistance	294 m/s²	
Protection structure	IP67	
Insulation resistance	100MΩ with 500 VDC megger	
Dielectric strength	1000 VAC for 1 minute (Between contacts and between contact housing) Leakage current 1 mA or less	

Outline Dimension Drawing

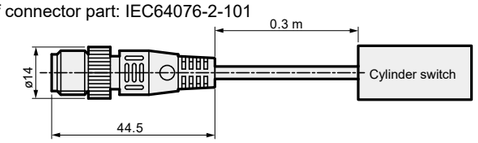
① M12 connector (Only for 2-wire cylinder switch connector type, PIN assignment symbol "U")

Standard for external shape of connector part: IEC64076-2-101



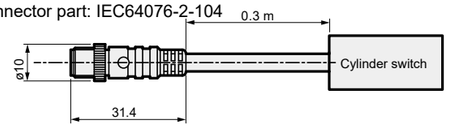
② M12 connector (M12 connectors other than ①)

Standard for external shape of connector part: IEC64076-2-101



③ M8 connector (Applicable to all models)

Standard for external shape of connector part: IEC64076-2-104



* For the external dimensions diagram of the cylinder switch, please refer to P. 986 to 1000.

T-type cylinder switch with off-delay timer
T2JH/T2JV



Overview

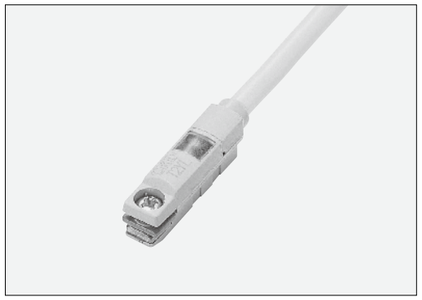
Optimal for high-speed intermediate detection of cylinders.
Ensures reliable PC input by providing an off-delay timer.

Features

· Eliminates PC input problems that tend to occur during high-speed intermediate detection of cylinders.
· Off-delay timer is 200 ±50 ms
· Can be mounted on Rodless Cylinder SRL3.
· Wide variety of mountable cylinders.

*If ordered with cylinder mounting, it will be a custom order product.
*Some cylinders have limited mountable switches. Please refer to the P. for each cylinder for details.

T-type cylinder switch for cutting oil resistance
T2YLH/V, T3YLH/V



Overview

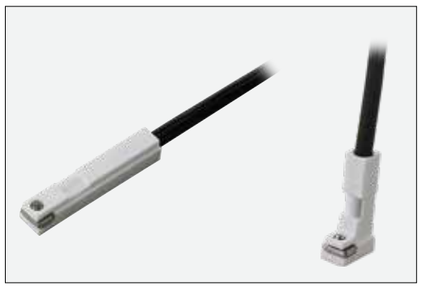
This is a cylinder switch designed to prevent cutting oil used for machine tools in machining sites, etc., from entering the inside of the switch.

Features

· Oil resistance improved by applying a coating agent to the board. Can be used even in environments where cutting oil splashes.
· Wide variety of mountable cylinders

*If ordered with cylinder mounting, it will be a custom order product.

Water-resistant Cylinder Switch
T2WLH/V



Features

Product with improved water (coolant) resistance
· Water (coolant) resistance performance: 6 times or more compared to conventional products
· Space saving (70% down compared to conventional), Lightweight (46% down compared to conventional)
· Compatible with existing switch SW-T2YL
· Reduction of wiring space (Can be stored in T-slot)
· Protection structure IP67

Magnetic Field Resistant Cylinder Switch
TOY

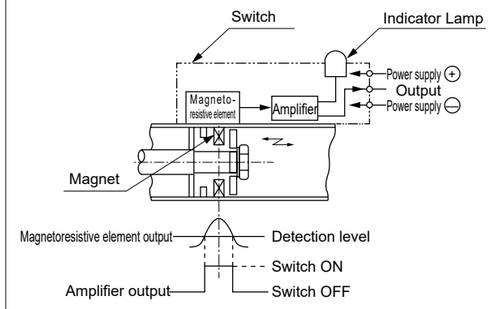


Features

Product with improved reliability in magnetized environments (Optimal for DC welding processes)
· Space saving (70% down compared to conventional products)
· Power saving (50% down compared to conventional products)
· Compatible with existing switch SW-T2YD (excluding some models and bores)
· Wide range of variations (cable material, connectors, spatter adhesion prevention cover)
· Protection structure IP67

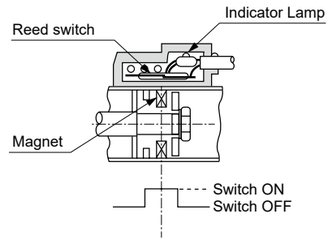
Operating Principle

Solid state switch



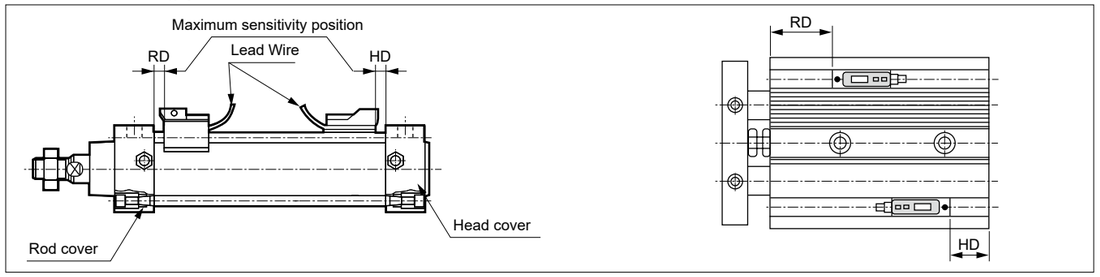
When the piston magnet approaches, a change occurs in the magnetic field, and the output voltage of the magnetoresistive element changes as shown in the figure. By amplifying this signal, a switching output as shown in the figure can be obtained.

Reed switch



When the piston magnet approaches, a magnetic field is generated, the opposing contacts of the reed switch are magnetized, an attractive force is generated, and the contacts close.

Switch mounting position



● When mounting at stroke end

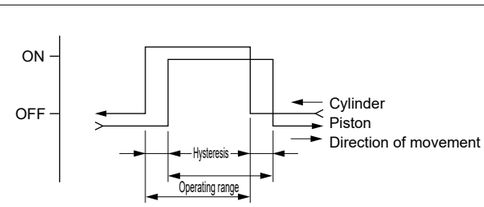
To operate the switch at the maximum sensitivity position, please mount it at the RD dimension on the rod side and the HD dimension on the head side, respectively.
Note that the HD and RD dimensions vary depending on the cylinder. Please refer to the external dimension diagram for each cylinder. Also, please mount the switch with the lead wire facing inward as shown in the figure above.

● When mounting at intermediate stroke position

When detecting in the middle of the stroke, fix the piston at the stopping position and move the switch back and forth over the piston to find the position where the switch first turns ON. The midpoint between those two positions is the maximum sensitivity position at that piston position, and becomes the mounting position.

● About circumferential direction mounting

Varies depending on the mounting bracket. The band method has no restrictions in the circumferential direction. For the tie-rod method, rotation in 90° increments is possible. For rail type, circumferential rotation is not possible.



Hysteresis

●This is the distance from the position where the piston moves and the switch turns ON, to when it moves in the reverse direction and turns OFF. If the piston stops during this time, the switch operation becomes unstable and susceptible to external influences. Please be careful.

Operating range

●This refers to the range from when the piston moves and the switch turns ON, to when it moves further in the same direction and turns OFF. The center of the operating range is the maximum sensitivity position. If this position is set as the piston stop position, it will be less susceptible to disturbances and the switch operation will also be stable.

Operating range and hysteresis of each cylinder model with switch

(Unit: mm)

Model No.	Bore Size (mm)	Solid state switch				Reed switch	
		Operating range		Hysteresis		Operating range	Hysteresis
		1-color type	2-color type	1-color type	2-color type		
Pencil Shaped Cylinder	●Applicable switches: Solid state switches (T2□,T3□,T2W□,T3W□,T2WL□), Reed switches (T0□,T5□)						
SCP□3	ø6	1.5 to 4	2.5 to 5	1.5 or less	1.0 or less	4 to 6	3 or less
	ø10	1.5 to 5.5	2.5 to 6			3.5 to 7	
	ø16	2 to 6	2.5 to 6			3.5 to 7.5	
Small bore size cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T1□), Reed switches (T0□, T5□, T8□)						
CMK2	ø20	2.5 to 5.5	3.5 to 7.5	1.5 or less	1.0 or less	6.5 to 11	3 or less
	ø25	2.5 to 5.5	3.5 to 7.5			7.5 to 12	
	ø32	2.5 to 6	3.5 to 8			6.5 to 11.5	
	ø40	3 to 7	4 to 9			7.5 to 13.5	
Small Bore Size Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T1□), Reed switches (T0□, T5□, T8□)						
CMA2	ø20	3 to 6	5 to 6.5	1.5 or less	1.0 or less	8.5 to 12	3 or less
	ø30	3 to 5.5	6 to 7			8 to 13	
	ø40	2.5 to 5.5	5.5 to 7.5			8.5 to 12.5	
Round shaped cylinder	●Applicable Switch: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
SCM	ø20	3 to 8	4.5 to 9	1.5 or less	1.0 or less	6 to 14	3 or less
	ø25	3 to 9	5 to 9			5 to 14	
	ø32	3 to 8	5 to 9			5 to 12	
	ø40	3 to 9	5.5 to 9.5			6 to 14	
	ø50	3 to 9	6 to 10			6 to 14	
	ø63	3 to 9	6 to 10.5			7 to 15	
	ø80	4 to 10	6.5 to 11			7 to 15	
	ø100	4 to 10	7 to 11.5			9 to 15	
Tie Rod Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
SCG	ø32	2 to 7	6 to 9	1.5 or less	1.0 or less	6 to 11	3 or less
	ø40	2 to 7	6.5 to 9			7 to 12	
	ø50	2 to 7	7 to 10			7.5 to 12	
	ø63	2 to 7.5	7 to 10			8.5 to 13	
	ø80	2.5 to 8	7.5 to 10.5			9 to 13.5	
	ø100	2.5 to 8	8 to 11			9 to 14	
Medium Bore Size Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
SCA2	ø40	2 to 7	3 to 10	1.5 or less	1.0 or less	5 to 12.5	3 or less
	ø50	2 to 7.5	3 to 10			5.5 to 13.5	
	ø63	2.5 to 7.5	3.5 to 10.5			5.5 to 14	
	ø80	3 to 8	4 to 11.5			6.5 to 14.5	
	ø100	3 to 8.5	4 to 11.5			6.5 to 15.5	
Medium Bore Size Cylinder	●Applicable Switch: Reed switch for strong magnetic field (H0□) *( ) indicates HOY value.						
SCA2-L2	ø40	-		-	-	4 to 7.5 (10.5 to 13.5)	3 or less
	ø50					4 to 7.5 (11 to 14)	
	ø63					5 to 8 (11.5 to 14.5)	
	ø80					5 to 8 (10.5 to 14.5)	
	ø100					5 to 8 (10.5 to 14.5)	
Large Bore Size Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
SCS2	ø125	7.5 to 14	14 to 21	1.5 or less	1.0 or less	11 to 16	3 or less
	ø140	7.5 to 14	18 to 26				
	ø160	7.5 to 14	18 to 26				
	ø180	7.5 to 14	18 to 26				
	ø200	7.5 to 14	18 to 26				

Operating range and hysteresis of each cylinder model with switch

(Unit: mm)

Model No.	Bore Size (mm)	Solid state switch				Reed switch	
		Operating range		Hysteresis		Operating range	Hysteresis
		1-color type	2-color type	1-color type	2-color type		
Tie Rod Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T1□), Reed switches (T0□, T5□, T8□)						
CKV2	ø20	2.5 to 5.5	3.5 to 7.5	1.5 or less	1.0 or less	6.5 to 11	3 or less
	ø25	2.5 to 5.5	3.5 to 7.5			7.5 to 12	
	ø32	2.5 to 6	3.5 to 8			6.5 to 11.5	
	ø40	3 to 7	4 to 9			7.5 to 13.5	
Tie Rod Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
CAV2-L COVP2-L COVN2-L	ø50	3.8 to 6.7	4 to 6	0.8 or less	0.7 or less	7.7 to 8.3	1 or less
	ø75	3.8 to 6.7	4 to 6			7.7 to 8.3	
	ø100	3.8 to 6.7	4 to 6			7.7 to 8.3	
Compact Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
SSD2	ø12	1.5 to 5.5	3 to 6	1.5 or less	1.0 or less	5 to 8	3 or less
	ø16	1.5 to 4.5	3 to 7			4 to 9	
	ø20	3 to 8	4.5 to 8			6 to 14	
	ø25	3 to 9	4.5 to 8			5 to 14	
	ø32	3 to 8	4.5 to 8			5 to 12	
	ø40	3 to 9	5 to 8.5			6 to 14	
	ø50	3 to 9	5.5 to 9.5			6 to 14	
	ø63	3 to 9	5.5 to 9.5			7 to 15	
	ø80	4 to 10	6 to 10			7 to 15	
	ø100	4 to 10	6 to 10			9 to 15	
	ø125	4 to 10	8 to 10			9 to 15	
	ø140	4 to 10	8 to 10			9 to 15	
	ø160	4 to 10	8 to 10			9 to 15	
Compact Cylinder	●Applicable switches: Reed switch (ET0□)						
SSD2-T1L	ø16	-		-	-	8 to 11.5	3 or less
	ø20					9 to 13.5	
	ø25					9.5 to 14	
	ø32					9 to 13	
	ø40					9 to 14	
	ø50					11 to 16	
	ø63					13 to 18	
Compact Cylinder	• Applicable Switch: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
SSG	ø12	1.5 to 5.5	3 to 6	1.5 or less	1.0 or less	5 to 8	3 or less
	ø16	1.5 to 4.5	3 to 7			4 to 9	
	ø20	3 to 8	4.5 to 8			6 to 14	
	ø25	3 to 9	4.5 to 8			5 to 14	
	ø32	3 to 8	4.5 to 8			5 to 12	
	ø40	3 to 9	5 to 8.5			6 to 14	
	ø50	3 to 9	5.5 to 9.5			7 to 15	
	ø63	3 to 9	5.5 to 9.5			7 to 15	
	ø80	4 to 10	6 to 10			9 to 15	
	ø100	4 to 10	6 to 10			9 to 15	

Operating range and hysteresis of each cylinder model with switch

(Unit: mm)

Model No.	Bore Size (mm)	Solid state switch				Reed switch	
		Operating range		Hysteresis		Operating range	Hysteresis
		1-color type	2-color type	1-color type	2-color type		
Compact Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
SSD	ø12	1.5 to 5.5	3 to 6	1.5 or less	1.0 or less	5 to 8	3 or less
	ø16	1.5 to 4.5	3 to 7			4 to 9	
	ø20	3 to 8	4.5 to 8			6 to 14	
	ø25	3 to 9	4.5 to 8			5 to 14	
	ø32	3 to 8	4.5 to 8			5 to 12	
	ø40	3 to 9	5 to 8.5			6 to 14	
	ø50	3 to 9	5.5 to 9.5			6 to 14	
	ø63	3 to 9	5.5 to 9.5			7 to 15	
	ø80	4 to 10	6 to 10			7 to 15	
	ø100	4 to 10	6 to 10			9 to 15	
	ø125	4 to 10	8 to 10			9 to 15	
	ø140	4 to 10	8 to 10			9 to 15	
	ø160	4 to 10	8 to 10			9 to 15	
Compact Cylinder	●Applicable switches: Reed switch (ET0□)						
SSD-T1L	ø16	-		-	-	8 to 11.5	3 or less
	ø20					9 to 13.5	
	ø25					9.5 to 14	
	ø32					9 to 13	
	ø40					9 to 14	
	ø50					11 to 16	
	ø63					13 to 18	
Small Direct Cylinder	●Applicable switches: Solid state switches (F2□, F3□), Reed switch (F0□)						
MDC2	ø6	1.5 to 3.5	-	1.0 or less	-	3.5 to 6.0	1.0 or less
	ø8						
	ø10						
MDC2-X	ø6	2.0 to 3.5	-	1.0 or less	-	5.5 to 7.5	1.0 or less
	ø8						
	ø10						
MDC2-Y	ø6	1.5 to 3.5	-	1.0 or less	-	4.5 to 6.0	1.0 or less
	ø8						
	ø10						
Compact direct cylinder with vacuum pad	●Applicable switches: Solid state switches (F2□, F3□), Reed switch (F0□)						
MVC	ø6	1.5 to 3.5	-	1.0 or less	-	3.5 to 6.0	1.0 or less
	ø10					4.5 to 6.0	
Compact cylinder	●Applicable switches: Solid state switches (K2□, K3□, K3P□, K2Y□, K3Y□), Reed switches (K0□, K5□)						
SMG	ø6	1.5 to 7	3.5 to 7.5	2 or less	1.5 or less	3 to 9.5	3 or less
	ø10	1.5 to 7	3.5 to 7.5			3.5 to 9.5	
	ø16	1.5 to 7	4.5 to 8.5			4 to 11	
	ø20	2.5 to 9	5 to 9			5 to 12.5	
	ø25	3.5 to 11	5.5 to 9.5			6.5 to 14	
	ø32	3.5 to 11.5	1.5 to 10.5			5.5 to 14	
Compact Cylinder	●Applicable switches: Solid state switches (F2□, F3□), Reed switch (F0□)						
MSD-*L **MSDG-L**	ø6	1.5 to 3.0	-	1.0 or less	-	5 to 6	1.0 or less
	ø8	1.5 to 3.5	-			5.5 to 6.5	
	ø12	1.5 to 3.5	-			5.5 to 7.5	
	ø16	1.5 to 3.5	-			4.5 to 7	

Operating range and hysteresis of each cylinder model with switch

(Unit: mm)

Model No.	Bore Size (mm)	Solid state switch				Reed switch	
		Operating range		Hysteresis		Operating range	Hysteresis
		1-color type	2-color type	1-color type	2-color type		
Flat Cylinder Compact Demi	●Applicable switches: Applicable switches: Solid state switches (M2V,M3V,M3PV,M2WV,M3WV), Reed switches (M0V,M5V)						
FCS-L	ø25	9 to 12	6 to 11	1.5 or less	1.0 or less	7 to 8.5	3 or less
	ø32	9 to 12	6 to 11			7 to 8.5	
	ø40	8.5 to 12	6 to 11			7 to 8.5	
	ø50	8 to 12	6 to 11			6.5 to 8.5	
	ø63	8 to 12	6 to 11			6.5 to 8.5	
FCH-L **FCD-L** **FCD-DL** **FCD-KL**	ø25	6 to 12	5 to 11	1.5 or less	1.0 or less	7 to 12	3 or less
	ø32	6 to 12	5 to 11			7 to 12	
	ø40	6 to 12	5 to 11			7 to 12	
	ø50	6 to 12	5 to 11			7 to 12	
	ø63	6 to 12	5 to 11			7 to 12	
Stopper Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T1□), Reed switches (T0□, T5□, T8□)						
STK	ø20	3 to 8	4.5 to 8	1.5 or less	1.5 or less	6 to 14	3 or less
	ø32	3 to 8	4.5 to 8			5 to 12	
	ø40	3 to 9	5 to 8.5			6 to 14	
	ø50	3 to 9	5.5 to 9.5			6 to 14	
Brake Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
ULK	ø20	2.5 to 5.5	3.5 to 7.5	1.5 or less	1.0 or less	6.5 to 11	3 or less
	ø25	2.5 to 5.5	3.5 to 7.5			7.5 to 12	
	ø32	2.5 to 6	3.5 to 8			6.5 to 11.5	
	ø40	3 to 7	4 to 9			7.5 to 13.5	
Brake Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
JSK2	ø20	2.5 to 5.5	3.5 to 7.5	1.5 or less	1.0 or less	6.5 to 11	3 or less
	ø25	2.5 to 5.5	3.5 to 7.5			7.5 to 12	
	ø32	2.5 to 6	3.5 to 8			6.5 to 11.5	
	ø40	3 to 7	4 to 9			7.5 to 13.5	
Brake Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
JSM2	ø20	3 to 6	5 to 6.5	1.5 or less	1.0 or less	8.5 to 12	3 or less
	ø30	3 to 5.5	6 to 7			8 to 13	
	ø40	2.5 to 5.5	5.5 to 7.5			8.5 to 12.5	
Tie Rod Cylinder with Brake	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
JSG	ø32	2 to 7	6 to 9	1.5 or less	1.0 or less	6 to 11	3 or less
	ø40	2 to 7	6.5 to 9			7 to 12	
	ø50	2 to 7	7 to 10			7.5 to 12	
	ø63	2 to 7.5	7 to 10			8.5 to 13	
	ø80	2.5 to 8	7.5 to 10.5			9 to 13.5	
	ø100	2.5 to 8	8 to 11			9 to 14	

Operating range and hysteresis of each cylinder model with switch

(Unit: mm)

Model No.	Bore Size (mm)	Solid state switch				Reed switch	
		Operating range		Hysteresis		Operating range	Hysteresis
		1-color type	2-color type	1-color type	2-color type		
Brake Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
JSC3 (Medium bore)	ø40	2 to 7	3 to 10	1.5 or less	1.0 or less	5 to 12.5	3 or less
	ø50	2 to 7.5	3 to 10			5.5 to 13.5	
	ø63	2.5 to 7.5	3.5 to 10.5			5.5 to 14	
	ø80	3 to 8	4 to 11.5			6.5 to 14.5	
	ø100	3 to 8.5	4 to 11.5			6.5 to 15.5	
Brake Cylinder	●Applicable switches: Reed switch for strong magnetic field (H0□)					Note: ( ) indicates H0Y value.	
JSC3-L2 (Medium bore)	ø40	-		-		4 to 7.5 (10.5 to 13.5)	3 or less
	ø50					4 to 7.5 (11 to 14)	
	ø63					5 to 8 (11.5 to 14.5)	
	ø80					5 to 8 (10.5 to 14.5)	
	ø100					5 to 8 (10.5 to 14.5)	
Brake Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
JSC4 (Large bore)	ø125	7.5 to 14	14 to 21	1.5 or less	1.0 or less	11 to 16	3 or less
	ø140	7.5 to 14	18 to 26			11 to 16	
	ø160	7.5 to 14	18 to 26			11 to 16	
	ø200	7.5 to 14	18 to 26			11 to 16	
Compact Cylinder with Drop Prevention	● Applicable Switch: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
USSD	ø20	3 to 8	4.5 to 8	1.5 or less	1.0 or less	6 to 14	3 or less
	ø25	3 to 9	4.5 to 8			5 to 14	
	ø32	3 to 8	4.5 to 8			5 to 12	
	ø40	3 to 9	5 to 8.5			6 to 14	
	ø50	3 to 9	5.5 to 9.5			6 to 14	
	ø63	3 to 9	5.5 to 9.5			7 to 15	
Flat Cylinder with Free Position Drop Prevention	● Applicable Switch: Solid state switches (M2□, M3□, M3P□, M2W□, M3W□), Reed switches (M0□, M5□)						
UFCD	ø25	6 to 12	5 to 11	1.5 or less	1.0 or less	7 to 12	3 or less
	ø32	6 to 12	5 to 11			7 to 12	
	ø40	6 to 12	5 to 11			7 to 12	
	ø50	6 to 12	5 to 11			7 to 12	
	ø63	6 to 12	5 to 11			7 to 12	
Medium Bore Size Cylinder with Free Position Fall Prevention	● Applicable Switch: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
USC	ø40	2 to 7	3 to 10	1.5 or less	1.0 or less	5 to 12.5	3 or less
	ø50	2 to 7.5	3 to 10			5.5 to 13.5	
	ø63	2.5 to 7.5	3.5 to 10.5			5.5 to 14	
	ø80	3 to 8	4 to 11.5			6.5 to 14.5	
	ø100	3 to 8.5	4 to 11.5			6.5 to 15.5	
Medium Bore Size Cylinder with Free Position Fall Prevention	● Applicable Switch: Reed switch for strong magnetic field (H0□)					Note: ( ) indicates H0Y value.	
USC-L2	ø40	-		-	-	4 to 7.5 (10.5 to 13.5)	3 or less
	ø50					4 to 7.5 (11 to 14)	
	ø63					5 to 8 (11.5 to 14.5)	
	ø80					5 to 8 (10.5 to 14.5)	
	ø100					5 to 8 (10.5 to 14.5)	
Guided Cylinder	●Applicable switches: Proximity switch (F2□, F3□, F2Y□, F3Y□)						
STM	ø10	2.5 to 4.5	2.5 to 5.5	1.5 or less	1.5 or less	-	-
	ø16	2.5 to 4.5	2.5 to 5.5				

Operating range and hysteresis of each cylinder model with switch

(Unit: mm)

Model No.	Bore Size (mm)	Solid state switch				Reed switch	
		Operating range		Hysteresis		Operating range	Hysteresis
		1-color type	2-color type	1-color type	2-color type		
Guided Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
STG	ø12	1.5 to 4.5	4 to 6	1.5 or less	1.5 or less	6 to 10	3 or less
	ø16	1.5 to 4.5	4 to 6			4 to 9	
	ø20	3 to 8	5 to 8.5			6 to 14	
	ø25	3 to 9	5 to 8.5			5 to 14	
	ø32	3 to 9	5 to 9			5 to 12	
	ø40	3 to 9	6 to 10			6 to 14	
	ø50	3 to 9	6 to 10			6 to 14	
	ø63	3 to 9	6 to 10			7 to 15	
	ø80	4 to 10	7 to 10			7 to 15	
Guided Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
STS/L	ø8	1.5 to 3.5	4 to 6	1.5 or less	1.5 or less	5 to 9	3 or less
	ø12	1.5 to 4.5	4 to 6			6 to 10	
	ø16	1.5 to 4.5	4 to 6			4 to 9	
	ø20	3 to 8	5 to 8.5			6 to 14	
	ø25	3 to 9	5 to 8.5			5 to 14	
	ø32	3 to 8	5 to 9			5 to 12	
	ø40	3 to 9	6 to 10			6 to 14	
	ø50	3 to 9	6 to 10			6 to 14	
	ø63	3 to 9	6 to 10			7 to 15	
	ø80	4 to 10	7 to 10			7 to 15	
	ø100	2 to 9	7 to 10			7 to 15	
Linear Slide Cylinder	●Applicable switches: Proximity switch (F2□, F3□, F2Y□, F3Y□)						
LCW	ø12	3.5 to 6.5	4.5 to 6.5	1.0 or less	1.0 or less	-	-
Linear Slide Cylinder	●Applicable switches: Solid state switches (T2□,T3□,T2W□,T3W□), Reed switches (T0□,T5□)						
LCW	ø16	3 to 5	4 to 5.5	1.0 or less	1.0 or less	6.5 to 9.5	3.0 or less
	ø20	4.5 to 6.5	5.5 to 6.5			8 to 12	
Linear Slide Cylinder	●Applicable switches: Proximity switch (F2□, F3□, F2Y□, F3Y□)						
LCR	ø6	2 to 4	2.5 to 5.5	1.0 or less	1.0 or less	-	-
	ø8		3.5 to 6				
	ø12		3 to 4.5				
Linear Slide Cylinder	●Applicable switches: Solid state switches (T2□,T3□,T3P□,T2W□,T3W□,T2WL□,T1□), Reed switches (T0□,T5□)						
LCR	ø16	2 to 4	3 to 4.5	1.0 or less	1.0 or less	5 to 9	1.0 or less
	ø20	2 to 5.5	4 to 5.5			6.5 to 11	
	ø25	2.5 to 6	3.5 to 6			8 to 12	
Linear Slide Cylinder	●Applicable switches: Proximity switch (F2□, F3□, F2Y□, F3Y□)						
LCG	ø6	2 to 4	2.5 to 5.5	1.0 or less	1.0 or less	-	-
	ø8		3.5 to 6				
	ø12		3 to 4.5				
Linear Slide Cylinder	●Applicable switches: Solid state switches (T2□,T3□,T3P□,T2W□,T3W□,T2WL□,T1□), Reed switches (T0□,T5□)						
LCG	ø16	2 to 4	3 to 4.5	1.0 or less	1.0 or less	5 to 9	1.0 or less
	ø20	2 to 5.5	4 to 5.5			6.5 to 11	
	ø25	2.5 to 6	3.5 to 6			8 to 12	
Linear Slide Cylinder	●Applicable switches: Solid state switches (T2□,T3□,T3P□,T2W□,T3W□,T2WL□,T1□), Reed switches (T0□,T5□)						
LCX	ø25	0.5 to 6	1.0 to 5.5	2 or less	2 or less	2 to 10.5	3.5 or less
	ø32	1.0 to 5.5	0.5 to 5.0			1 to 11	

Operating range and hysteresis of each cylinder model with switch

(Unit: mm)

Model No.	Bore Size (mm)	Solid state switch				Reed switch	
		Operating range		Hysteresis		Operating range	Hysteresis
		1-color type	2-color type	1-color type	2-color type		
Linear Slide Cylinder	●Applicable switches: Proximity switch (F2□, F3□, F2Y□, F3Y□)						
LCM	ø4.5	1 to 3	2 to 4	1.0 or less	1.0 or less	-	-
	ø6						
	ø8						
Twin Rod Cylinder	●Applicable switches: Solid state switches (K2□, K3□, K3P□, K2Y□, K3Y□), Reed switches (K0□, K5□)						
STR2	ø6	1 to 6	4 to 7.5	2.0 or less	1.5 or less	4 to 9 (STR2-M)	3.0 or less
	ø10	1 to 5.5	4 to 7.5			4 to 9 (STR2-M)	
	ø16	1.5 to 7.5	4.5 to 9			5 to 12.5	
	ø20	3 to 9	5.5 to 10			6.5 to 14.5	
	ø25	3.5 to 10.5	6.5 to 10.5			8 to 14.5	
	ø32	-	-			-	
Unit Cylinder	●Applicable switches: Solid state switches (T2□,T3□), Reed switches (T0□,T5□)						
UCA2-□L	ø10	1.5 to 4	-	1.5 or less	-	4.5 to 8	3.0 or less
	ø16						
	ø25						
	ø32						
High Energy Absorption Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
HCM	ø20	3 to 8	4.5 to 9	1.5 or less	1.0 or less	6 to 14	3 or less
	ø25	3 to 9	5 to 9			5 to 14	
	ø32	3 to 8	5 to 9			5 to 12	
	ø40	3 to 9	5.5 to 9.5			6 to 14	
	ø50	3 to 9	6 to 10			6 to 14	
	ø63	3 to 9	6 to 10.5			7 to 15	
High Speed Cylinder	●Applicable switches: Solid state switches (R1, R2, R3, R2Y, R3Y), Reed switches (R0, R4, R5, R6)						
HCA	ø20	6 to 14	11 to 18	1.5 or less	1.0 or less	7 to 14	3.0 or less
	ø25	6 to 14	11 to 18			8 to 13	
	ø32	6 to 14	11 to 18			9 to 14	
	ø50	6 to 14	11 to 18			9 to 14	
Rodless Cylinder	●Applicable switches: Solid state switches (M2□, M3□, M3P□, M2WV, M3WV), Reed switches (M0□, M5□)						
SRL3	ø12	4 to 13	4 to 12	1.5 or less	1.0 or less	3 to 11	3.0 or less
	ø16	4 to 13	4 to 12	1.5 or less	1.0 or less	3 to 11	
	ø20	4 to 13	4 to 12	1.5 or less	1.0 or less	3 to 11	
	ø25	9.5 to 15.5	9 to 14	2.0 or less	1.5 or less	8.5 to 13.5	3.5 or less
	ø32	7.5 to 15	8 to 14	2.0 or less	1.5 or less	7 to 13.5	
	ø40	11.5 to 17.5	10 to 16.5	2.0 or less	1.5 or less	10 to 16	
	ø50	11 to 24	17 to 27	2.5 or less	1.5 or less	17 to 27	3.0 or less
	ø63	11 to 24	17 to 27	2.5 or less	1.5 or less	17 to 27	
	ø80	26.5 to 45.5	16.5 to 40	5.0 or less	3.0 or less	20.5 to 41	
	ø100	25.5 to 40.5	21.5 to 36	3.0 or less	2.5 or less	24 to 37	
Rodless Cylinder	●Applicable switches: Proximity switch (T2W□, T3W□, T2WL□, T2YD)						
SRL3	ø12	-	2 to 7	-	1.0 or less	-	-
	ø16	-	2 to 7				
	ø20	-	3 to 8	-	1.5 or less		
	ø25	-	3 to 10				
	ø32	-	3 to 10				
	ø40	-	4 to 11				
	ø50	-	9 to 16				
	ø63	-	9 to 16				
	ø80	-	10 to 24	-	2.0 or less		
	ø100	-	10 to 24				

Operating range and hysteresis of each cylinder model with switch

(Unit: mm)

Model No.	Bore Size (mm)	Solid state switch				Reed switch	
		Operating range		Hysteresis		Operating range	Hysteresis
		1-color type	2-color type	1-color type	2-color type		
Rodless Cylinder with High-Precision Guide	● Applicable Switch: Solid state switches (M2□, M3□, M3P□, M2WV, M3WV), Reed switches (M0□, M5□)						
SRG3	ø12	4 to 13	4 to 12	1.5 or less	1.0 or less	3 to 11	3.0 or less
	ø16	4 to 13	4 to 12			3 to 11	
	ø20	9.5 to 15.5	9 to 14	2.0 or less	1.5 or less	3 to 11	
	ø25	9.5 to 15.5	9 to 14			8.5 to 13.5	3.5 or less
Rodless Cylinder with High-Precision Guide	●Applicable switches: Proximity switch (T2W□, T3W□, T2WL□, T2YD)						
SRG3	ø12	-	2 to 7	-	1.0 or less	-	-
	ø16	-	2 to 7				
	ø20	-	3 to 8	-	1.5 or less		
	ø25	-	3 to 10				
Rodless Cylinder with High-Precision Guide	● Applicable Switch: Solid state switches (T2WL□,T2W□,T3W□,T2YD), Reed switches (T0□, T5□, T8□)						
SRM3	ø25	-	6 to 9	-	1.0 or less	5.5 to 11	2.0 or less
	ø32	-	6.5 to 9			5.5 to 10	
	ø40	-	7.5 to 10.5			5.5 to 9	
	ø63	-	8 to 11			5.5 to 10	
Rodless Cylinder with Brake	●Applicable switches: Solid state switches (M2□, M3□, M3P□, M2WV, M3WV), Reed switches (M0□, M5□)						
SRT3	ø12	4 to 13	4 to 12	1.5 or less	1.0 or less	3 to 11	3.0 or less
	ø16	4 to 13	4 to 12			3 to 11	
	ø20	4 to 13	4 to 12			3 to 11	
	ø25	9.5 to 15.5	9 to 14	2.0 or less	1.5 or less	8.5 to 13.5	3.5 or less
	ø32	7.5 to 15	8 to 14			7 to 13.5	
	ø40	11.5 to 17.5	10 to 16.5			10 to 16	
	ø50	16.5 to 24	14 to 21			14.5 to 21.5	
	ø63	16 to 24	14 to 21			14.5 to 21.5	
Rodless Cylinder	●Applicable switches: Proximity switch (T2W□, T3W□, T2WL□, T2YD)						
SRT3	ø12	-	2 to 7	-	1.0 or less	-	-
	ø16	-	2 to 7				
	ø20	-	3 to 8	-	1.5 or less		
	ø25	-	3 to 10				
	ø32	-	3 to 10				
	ø40	-	4 to 11				
	ø50	-	9 to 16				
	ø63	-	9 to 16				
Magnet Type Rodless Cylinder	●Applicable switches: Solid State Switch (T2□, T3□, T3P□, T2W□, T3W□, T2WL□, T1□)						
MRL2	ø6	2 to 5	5.5 to 6.5	1.0 or less	1.0 or less	-	-
	ø10	2.5 to 5.5	6 to 7.5				
	ø16	2 to 5	5.5 to 7				
	ø20	2 to 5	6 to 5.5				
	ø25	2 to 5	6 to 5.5				
	ø32	2 to 4.5	5.5 to 6.5				
Magnet type super rodless cylinder high precision guide	●Applicable switches: Solid state switches (T2□,T3□,T3P□,T2W□,T3W□,T2WL□,T1□), Reed switches (T0□,T5□)						
MRG2	ø10	2 to 4.5	5.5 to 7	0.5 or less	0.5 or less	6.5 to 7.5	1 or less
	ø16	2 to 5	6 to 7.5			7 to 8	2 or less
	ø25	2 to 5	6 to 7			7.5 to 8	2 or less

Operating range and hysteresis of each cylinder model with switch

(Unit: mm)

Model No.	Bore Size (mm)	Solid state switch				Reed switch	
		Operating range		Hysteresis		Operating range	Hysteresis
		1-color type	2-color type	1-color type	2-color type		
Clamp Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
CAC4	ø40	2 to 6.5	5.7 to 6.5	1.5 or less	1.0 or less	6.7 to 10.8	3 or less
	ø50	2.5 to 6.0	5.9 to 6.8			7.8 to 11.3	
	ø63	2.5 to 6	6.1 to 6.8			8.2 to 11.4	
	ø80	3 to 7	7.7 to 8.5			9 to 10.9	
Clamp Cylinder	●Applicable switches: Reed switch for strong magnetic field (H0□)						
CAC4-L2	ø40	-		-	-	6.7 to 10.8	3 or less
	ø50					7.8 to 11.3	
	ø63					8.2 to 11.4	
	ø80					6.6 to 7.5	
Clamp Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
UCAC2	ø50	2.5 to 6.0	5.9 to 6.8	1.5 or less	1.0 or less	7.8 to 11.3	3 or less
	ø63	2.5 to 6.5	6.1 to 6.8			8.2 to 11.4	
Clamp Cylinder	●Applicable switches: Reed switch for strong magnetic field (H0□)						
UCAC2-L2	ø50	-		-	-	7.8 to 11.3	3 or less
	ø63					8.2 to 11.4	
Lightweight Clamp Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
CAC	ø32	2.5 to 6	3.5 to 8	1.5 or less	1.0 or less	6.5 to 11.5	3 or less
	ø40	3 to 7	4 to 9			7.5 to 13.5	
Lightweight clamp cylinder with fall prevention	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
UCAC	ø32	2.5 to 6	3.5 to 8	1.5 or less	1.0 or less	6.5 to 11.5	3 or less
	ø40	3 to 7	4 to 9			7.5 to 13.5	
Rotary Clamp Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T2YD, T1□), Reed switches (T0□, T5□, T8□)						
RCS2	ø12	1.5 to 5.5	3 to 6	1.5 or less	1.0 or less	5 to 8	3 or less
	ø16	1.5 to 4.5	3 to 7			4 to 9	
	ø20	3 to 8	4.5 to 8			6 to 14	
	ø25	3 to 9	4.5 to 8			5 to 14	
	ø32	3 to 8	4.5 to 8			5 to 12	
	ø40	3 to 9	5 to 8.5			6 to 14	
	ø50	3 to 9	5.5 to 9.5			6 to 14	
	ø63	3 to 9	5.5 to 9.5			7 to 15	
Rotary Clamp Cylinder	●Applicable switches: Solid state switches (T2□,T3□,T3P□,T2W□,T3W□,T2WL□,T2YD), Reed switches (T0□,T5□)						
RCC2	ø16	2 to 5	3 to 7	1.5 or less	1.0 or less	4 to 9	3 or less
	ø20	3 to 8	4.5 to 8			6 to 14	
	ø25	3 to 9	4.5 to 8			5 to 14	
	ø32	3 to 8	4.5 to 8			5 to 12	
	ø40	3 to 9	5 to 8.5			6 to 14	
	ø50	3 to 9	5.5 to 9.5			6 to 14	
	ø63	3 to 9	5.5 to 9.5			7 to 15	
Rotary Clamp Cylinder	●Applicable switches: Solid state switches (T2□,T3□,T2W□,T3W□), Reed switches (T0□,T5□)						
RCS	ø16	2 to 5	3 to 7	1.5 or less	1.0 or less	4 to 9	3 or less

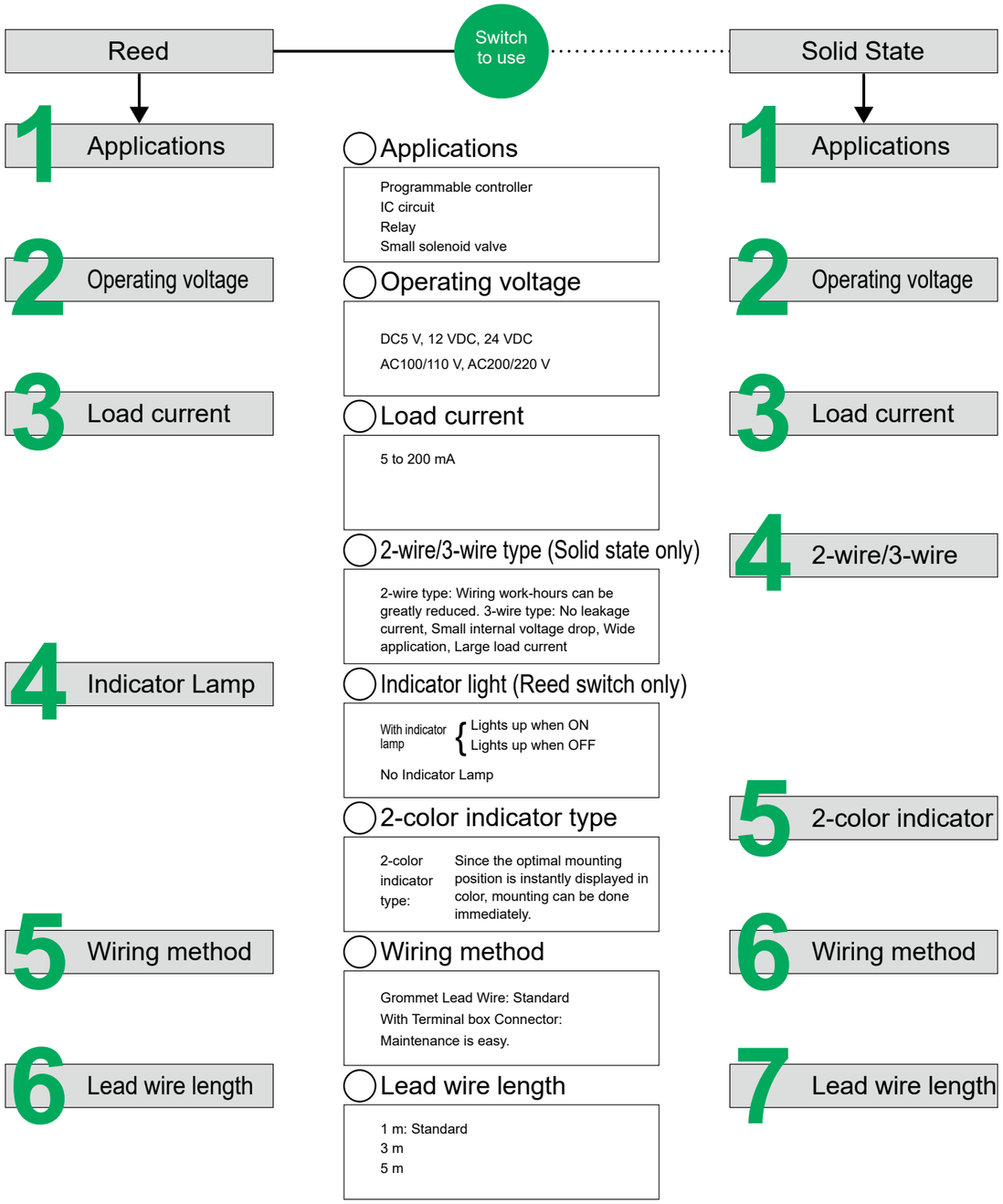
Operating range and hysteresis of each cylinder model with switch

Model No.	Bore Size (mm)	Solid state switch				Reed switch	
		Operating range		Hysteresis		Operating range	Hysteresis
		1-color type	2-color type	1-color type	2-color type		
Mechanical Power Cylinder	●Applicable switches: Solid state switches (T2□, T3□, T3P□, T2J□, T2W□, T3W□, T2WL□, T1□), Reed switches (T0□, T5□, T8□)						
MCP-S	2t	4 to 10	6 to 10	1.5 or less	1.0 or less	7 to 15	3 or less
	5t	4 to 10	8 to 10			9 to 15	
MCP-W (Fast feed part)	2t	3.5 to 6.0	4.6 to 9.2	1.5 or less	1.0 or less	7.6 to 12.8	3 or less
	5t	4.0 to 8	5.5 to 11.9			8.9 to 14.1	
Guideless Cylinder	●Applicable switches: Solid state switches (R1, R2, R3, R2Y, R3Y), Reed switches (R0, R4, R5, R6)						
GLC	ø40	7 to 17		1.5 or less		11.5 to 16.5	3.0 or less
	ø50	9 to 17				13 to 18	
	ø63	10 to 18				15 to 20	
	ø80	8 to 19				15 to 20	
	ø100	11 to 20.5				13.5 to 19	
Guideless Cylinder	●Applicable switches: Reed switch (H0)						
GLC-L2	ø40	-		-		4 to 9	3.0 or less
	ø50					4 to 9	
	ø63					4 to 10	
	ø80					5 to 11	
	ø100					5 to 11	
Selex Rotary	●Applicable switches: Solid state switches (T2□,T3□,T2W□,T3W□,T2WL□,T1□), Reed switches (T0□, T5□, T8□)						
RRC	8	15° to 60°	20° to 70°	-	-	70° to 90°	-
	32	10° to 30°	10° to 30°			30° to 40°	
	63	10° to 30°	10° to 30°			30° to 40°	
Table Type Rotary Actuator	●Applicable switches: Proximity switch (T2□,T3□,T2W□,T3W□,T2WL□,T1□)						
GRC	5	10° to 35°	30° to 40°	-	-	-	-
	10	5° to 30°	20° to 30°				
	20	10° to 35°	25° to 35°				
	30	5° to 25°	15° to 25°				
	50	5° to 25°	15° to 25°				
	80	5° to 25°	15° to 25°				
Compact Selex Rotary	●Applicable switches: Proximity switch (SR-□)						
RV3□	3	15° ±7°	-	3° or less	-	-	-
	10	15° ±7°	-				
	20	15° ±7°	-				
	30	15° ±7°	-				
Compact Selex Rotary	●Applicable switches: Proximity switch (FR-□)						
RV3□	3	23° ±7°	-	2° or less	-	-	-
	10	23° ±7°	-				
	20	23° ±7°	-				
	30	23° ±7°	-				
Large Selex Rotary	●Applicable switches: Applicable switches: Solid state switches (M2V,M3V,M3PV), Reed switches (M0V,M5V)						
RV3□	50	Approx. 40°	-		-	Approx. 25°	-
	150	Approx. 25°	-			Approx. 15°	
	300	Approx. 25°	-			Approx. 15°	
	800	Approx. 25°	-			Approx. 15°	

Selection method

When selecting a cylinder switch, first check whether it is a reed type or solid state type, and then select the appropriate switch according to the order of the selection chart below.

Cylinder switch selection chart



MEMO

Troubleshooting and countermeasures in case of failure [Cylinder switch] ①

Malfunction phenomenon	Cause	Factor	Countermeasure
Remains ON, remains outputting *Load · Programmable controller · Relay · Other	Load was short-circuited	Internal circuit damage of the switch	① Replace the cylinder switch and reselect one where the maximum rating of the cylinder switch matches the rating of the load
	Load current exceeding the catalog value was applied		
	Load voltage or power supply voltage exceeding the catalog value was applied		
	Wiring is incorrect	Malfunction due to incorrect wiring	① Correct the wiring
		Internal circuit damage due to incorrect wiring (AC, DC, polarity, etc.)	① Replace the cylinder switch and correct the wiring
	Wiring length is long (Refer to catalog page 1026)	Internal circuit damage of the switch	① Replace the cylinder switch and wire the protection circuit (Refer to catalog pages 1026, 1028)
	Surge voltage is generated due to connection of inductive load (relay, solenoid valve)	Internal circuit damage of the switch	① Replace the cylinder switch and wire the protection circuit (Refer to catalog pages 1026, 1028)
	In solid state switches, there are noise sources such as servo motors or robots in the same facility	Noise is being applied	① Add a noise filter or replace with a reed switch
	Power lines and signal lines are wired together		② Separate power lines and signal lines
	Using the same power supply as the noise source		③ Separate power supplies
	The mounting position of the cylinder switch does not match the piston stop position	Position adjustment is incorrect	① Readjust the position
		Mounting position is misaligned due to loose screws	① Tighten within the specified tightening torque range
		Cylinder switch mounting direction is reversed	① Correct to the normal orientation
	Ambient temperature is -10°C or less	The magnetic force of the piston magnet built into the cylinder has become stronger	① Raise the ambient temperature to -10°C or higher
	Water, oil, etc. splashed on the cylinder switch	Water or oil infiltrated the cylinder switch, causing internal circuit destruction	① Replace the standard cylinder switch with a cutting oil resistant specification T□YL (T-type switch only) ② Replace the cylinder switch and install a shielding plate, etc. to prevent excessive splashing of water or oil
	Water or oil infiltrated the lead wire junction box; water or oil splashed on the load terminal part.	Malfunction due to infiltration of water/oil	① Install a shielding plate to prevent water or oil from splashing on the junction box, or place it inside a waterproof box
	There are objects that generate magnetic fields in the vicinity · Spot welder · Magnetizing equipment, etc.	Cylinder switch is reacting to external magnetic field	① Change to a strong magnetic field cylinder switch (Cylinder body also needs to be changed for strong magnetic field) ② Prevent magnetic field from being applied a Move the source of the magnetic field away b Install a shielding plate made of magnetic material between the source of the magnetic field ③ Apply magnetic shielding
	There are magnetic materials in the vicinity	There are iron bolts in the vicinity	① Replace with stainless steel bolts ② Move the cylinder switch to a mounting surface away from iron bolts
		There are magnetic materials around the cylinder switch	① Move the cylinder switch away from the magnetic material to the catalog recommended distance ② Move the cylinder switch to a mounting surface away from magnetic materials ③ Change the material of the magnetic body to a non-magnetic material such as stainless steel, aluminum, or copper
		Iron powder has accumulated around the cylinder switch	① Remove iron powder
	External force was applied to the cylinder switch	Internal circuit damage of the switch	① Replace the cylinder switch and prevent external force from being applied to the cylinder switch

Troubleshooting and countermeasures in case of failure [Cylinder switch] ②

Malfunction phenomenon	Cause	Factor	Countermeasure
Cylinder switch turns ON-OFF, but the load remains ON	The leakage current of the cylinder switch and the input specification of the load is Leakage current > OFF current. in someone's relationship	Load is reacting to leakage current	① Change the cylinder switch from □2 type to □0 type or □ type 3 ② Change to a load with a larger OFF current value ③ Wire a bleeder resistor
		Leakage current is increasing due to parallel connection (Refer to catalog page 1027)	
Output turns ON-OFF normally, but the indicator light does not turn ON	Wiring polarity (plus, minus) is reversed (Only when using reed switch □0 with DC)	Malfunction due to incorrect wiring	① Correct to normal wiring

* Please select a programmable controller or relay that will not malfunction due to the leakage current from the solid-state switch.
* For the load's input specifications, please check the model number and contact the respective manufacturer or CKD.

Troubleshooting and countermeasures in case of failure [Cylinder switch] ③

Malfunction phenomenon	Cause	Factor	Countermeasure
Cylinder switch does not turn ON Non-outputting load does not react *Load · Programmable controller · Relay · Other	Applied voltage is incorrect	Internal circuit damage of the switch	① Replace the cylinder switch and change to the regular voltage ② Replace with a cylinder switch of the regular voltage
	Load was short-circuited	Internal circuit damage of the switch	① Replace the cylinder switch and reselect one where the maximum rating of the cylinder switch matches the rating of the load
	Load current exceeding the catalog value was applied		
	Load voltage or power supply voltage exceeding the catalog value was applied		
	Wiring is incorrect	Switch is not operating due to incorrect wiring	① Correct the wiring
		Internal circuit damage due to incorrect wiring (AC, DC, polarity, etc.)	① Replace the cylinder switch and correct the wiring
	Excessive bending was applied to the lead wire	Lead wire breakage	① Replace the cylinder switch and ensure a sufficient bending radius (9 mm or more) for the lead wire to prevent excessive bending at one point ② Change the cylinder switch to T2□R with flexible cable specification (T-type switch only)
	Excessive pulling force was applied to the lead wire	Lead wire breakage	① Replace the cylinder switch and take measures to prevent excessive pulling force
	Wiring length is long (Refer to catalog page 1026)	Internal circuit damage of the switch	① Replace the cylinder switch and wire the protection circuit (Refer to catalog pages 1026, 1028)
	Surge voltage is generated due to connection of inductive load (relay, valve)	Internal circuit damage of the switch	① Replace the cylinder switch and wire the protection circuit (Refer to catalog pages 1026, 1028)
	In solid state switches, there are noise sources such as servo motors or robots in the same facility	Noise is being applied	① Add a noise filter or replace with a reed switch
	Power lines and signal lines are wired together		② Separate power lines and signal lines
	Using the same power supply as the noise source		③ Separate power supplies
	The mounting position of the cylinder switch does not match the piston stop position	Position adjustment is incorrect	① Readjust the position
		Mounting position is misaligned due to loose screws	① Tighten within the specified tightening torque range
		Cylinder switch mounting direction is reversed	① Correct to the normal orientation
	Ambient temperature exceeds 60°C	The magnetic force of the piston magnet built into the cylinder has weakened	① Lower the ambient temperature to 60°C or less ② Replace with a heat-resistant cylinder switch (Limited models: Refer to catalog)
	Water, oil, etc. splashed on the cylinder switch	Water or oil infiltrated the cylinder switch, causing internal circuit destruction	① Replace the standard cylinder switch with a cutting oil resistant specification T□YL (T-type switch only) ② Replace the cylinder switch and install a shielding plate, etc. to prevent excessive splashing of water or oil
	Water or oil infiltrated the lead wire junction box; water or oil splashed on the load terminal part.	Internal circuit abnormality due to infiltration of water/oil	① Install a shielding plate to prevent water or oil from splashing on the junction box, or place it inside a waterproof box
	There are objects that generate magnetic fields in the vicinity · Spot welder · Magnetizing equipment, etc.	Cylinder switch does not react due to the influence of the surrounding magnetic field	① Change to a strong magnetic field cylinder switch (Cylinder body also needs to be changed for strong magnetic field) ② Prevent magnetic field from being applied a Move the source of the magnetic field away b Install a shielding plate made of magnetic material between the source of the magnetic field ③ Apply magnetic shielding
	There are magnetic materials in the vicinity	There are iron bolts in the vicinity	① Replace with stainless steel bolts ② Move the cylinder switch to a mounting surface away from iron bolts
		There are magnetic materials around the cylinder switch	① Move the cylinder switch away from the magnetic material to the catalog recommended distance ② Move the cylinder switch to a mounting surface away from magnetic materials ③ Change the material of the magnetic body to a non-magnetic material such as stainless steel, aluminum, or copper
		Iron powder has accumulated around the cylinder switch	① Remove iron powder
	External force was applied to the cylinder switch	Internal circuit damage of the switch	① Replace the cylinder switch and prevent external force from being applied to the cylinder switch

Troubleshooting and countermeasures in case of failure [Cylinder switch] ④

Malfunction phenomenon	Cause	Factor	Countermeasure
The cylinder switch indicator light turns ON, but the load does not operate	The relationship between the voltage drop of the cylinder SW and the input specification of the load is (Power supply voltage - Internal voltage drop) < Minimum operating voltage in someone's relationship	Load and cylinder switch do not match	① Replace the cylinder switch with a model with a smaller internal voltage drop value □2 type → □0 type → □3 type → □5 type ② Replace the load with one that has a smaller minimum operating voltage
		Generation of internal voltage drop due to series connection (Refer to catalog page 1027)	
	In the case of 3-wire type, the input specifications (source input, sink input) of the programmable controller (PLC) do not match	Does not accept cylinder switch signal	① Source input --- Select NPN output □3 type (NPN output is standard type) ② Sink input --- Select PNP output □3P type (Only for T, K, M, F type switches) ③ Change the cylinder switch to a 2-wire type
	The output of the cylinder switch is used in the middle of the air cylinder stroke	Cylinder speed is fast and load does not react	① Change to T2J with OFF-delay specification (T-type switch only) ② Connect multiple cylinder switches in parallel to widen the operating range. ③ Connect a sensor controller, etc. between the cylinder SW and the load and change to a signal time suitable for the load performance Example: Omron S3D2 ④ Slow down the cylinder speed

To Use This Product Safely

Be sure to read this before use.

Individual Precautions: Cylinder Switch

During Design / Selection

Warning

■Using outside the specified range of application, load current, voltage, temperature, impact, environment, etc. may cause damage or malfunction. Therefore, use correctly within the specified range.

■Never use in an explosive gas atmosphere. The cylinder switch does not have an explosion-proof structure. If used in an explosive gas atmosphere, it may cause an explosion disaster, so never use it.

Caution

■Please be careful when using in an interlock circuit.

When using a cylinder switch for an interlock signal that requires high reliability, please implement a double interlock system, such as providing a mechanical protection function in case of failure, or using another switch (sensor) in addition to the cylinder switch. Also, inspect regularly and confirm that it operates normally.

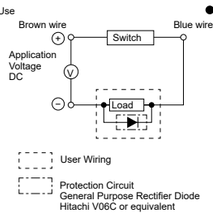
■Please pay attention to the contact capacity.

Do not use a load that exceeds the voltage and current of the switch specifications. This will cause a malfunction.

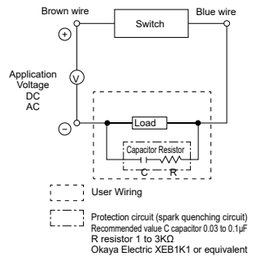
■Please pay attention to the contact protection circuit. (Reed switch)

● When connecting and using inductive loads (relays, solenoid valves, etc.), surge voltage will occur when the switch is OFF, so always install a contact protection circuit.

●Diode Use



●Capacitor, using resistor



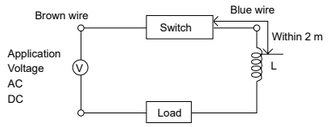
● When connecting and using capacitive loads (capacitors), inrush current will occur when the switch is ON, so always install a contact protection circuit.

● If the wiring becomes long, it becomes a wiring capacitance, and inrush current occurs, causing damage to the switch or reduction in lifespan. Therefore, if the wiring length exceeds Table 1, install a contact protection circuit. When T8 is used with 200 VAC, the usable wiring length will be shorter, so please consult us.

Switch	Voltage	Wiring length
M, T, K, H, V, F, ETO type	DC	50 m
M, T, K, H, V, ETO type	AC	10 m
RO, 5, 6, EO type	DC	100 m
RO, 5, EO type	AC	10 m
R4 type	AC	50 m

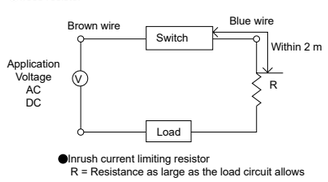
Table 1

● Using choke coil



● Choke Coil
L = Several hundred μH to several mH
With excellent high-frequency characteristics

●Uses resistor



●Inrush current limiting resistor
R = Resistance as large as the load circuit allows

For specifications of the contact protection circuit, see P. 1001.

■Avoid using in environments where water is constantly splashing.

● May cause malfunction due to insulation failure, etc.

■Avoid using in oily or chemical environments.

● Using in environments with various oils, coolants, cleaning solutions, or chemicals may adversely affect the cylinder switch (insulation failure, malfunction due to swelling of potting resin, hardening of lead wire coating, etc.), so please consult us.

● For cutting oil resistant cylinder switches, refer to the "Cutting Oil Resistant Pneumatic Equipment Guide" (No. CC-N-375), which is available separately.

■Do not use in environments with large impacts.

For reed switches, if a large impact (294 m/s² or more) is applied during use, there is a possibility of malfunction where the contact momentarily (1 ms or less) connects or disconnects. It may also be necessary to use a solid state switch depending on the operating environment, so please consult us.

■Do not use in locations where surge sources exist.

If there is equipment that generates large surges (electromagnetic lifters, high-frequency induction furnaces, motors, etc.) around the cylinder with a solid state switch, it may cause deterioration or damage to the switch internal circuit elements, so consider surge countermeasures at the source.

■Be careful about the accumulation of iron powder and close proximity to magnetic materials.

If a large amount of iron powder such as cutting chips or welding spatter accumulates around a cylinder with a cylinder switch, or if a magnetic material (something attracted to a magnet) is in close contact, the magnetic force within the cylinder may be lost, potentially causing the cylinder switch to stop operating. Please be careful.

■Pay attention to the proximity of cylinders, etc.

● When using two or more cylinders with switches in close proximity and parallel, use them at the allowable cylinder tube spacing indicated for each cylinder series. The switches may malfunction due to mutual magnetic interference.

■Pay attention to the magnetic environment.

● In environments with strong magnetic fields or large currents (large magnets, spot welding machines, etc.), use strong magnetic field resistant switches. (HO, HOY, T2YD)
If a magnetic body moves very close to the cylinder, they may interfere with each other and affect detection accuracy.

■At the stroke intermediate position, pay attention to the ON time of the cylinder switch.

● If the cylinder switch is set at the stroke intermediate position and the load is driven when the piston passes, if the speed is too high, the cylinder switch will operate, but the operating time will be short, and the load may not be able to respond completely, so please be careful. The maximum detectable piston speed is

$$V\ (mm/s) = \frac{\text{Cylinder Switch Operating Range (mm)}}{\text{Load Operating Time (s)}} \cdot$$

If the piston speed is high, please use an off-delay output type cylinder switch T2JH/V (limited to compatible models).

■Be careful with series connection methods.

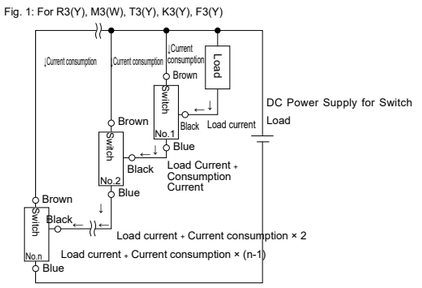
● When connecting multiple 2-wire switches in series, the voltage drop across the switches is the sum of the voltage drops of all connected switches. The voltage applied to the load side will be the power supply voltage minus the voltage drop across the switches. Check the load specifications before deciding on the number of units to connect.

● If 2-wire solid-state switches are connected in series, there is a possibility of malfunction, so please contact us. Use with reed switches is recommended.

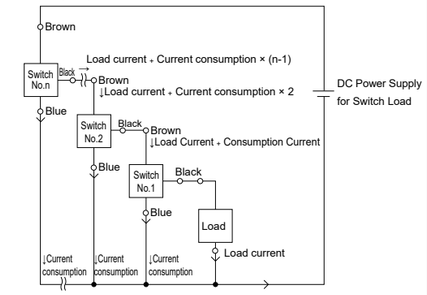
● When connecting multiple 3-wire solid-state switches in series, the voltage drop across the switches is the sum of the voltage drops of all connected switches, similar to the 2-wire type. Also, the current flowing through the switches will be the sum of the current consumption of the connected switches and the load current, as shown in the upper right diagram. Check the load specifications to ensure the maximum load current of the switch is not exceeded before deciding on the number of units to connect.

● The indicator lamp will only light up when all switches are ON.

Fig. 1: For R3(Y), M3(W), T3(Y), K3(Y), F3(Y)



For T3P, K3P, M3P



■Be careful with parallel connection methods.

● When connecting multiple 2-wire switches in parallel, the leakage current increases by the number of connected units. Therefore, confirm the load specifications and decide the number of connected units.

● For 2-wire solid-state switches, from the time one switch turns ON until it turns OFF, the voltage across the terminals of parallel-connected switches drops to the internal voltage drop value when the switch is ON, falling below the load voltage range, so other switches will not turn ON. Therefore, check the input specifications of the connected load, such as a programmable controller, before use.

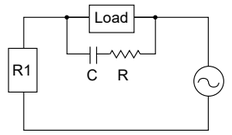
● For 3-wire solid-state switches, the leakage current is very small (10 μA or less), so there is no problem in normal use.

● The indicator lamp of the switch may become dim or not light up.

■ Output Circuit Protection (Solid State Switch)

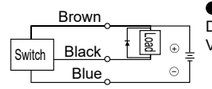
● When connecting and using inductive loads (relays, solenoid valves, etc.), surge voltage will occur when the switch is OFF, so always install a protection circuit as shown in the figure below.

R1



●Capacitor
C = 0.03 to 0.1μF
●Resistor
R = 1 to 3KΩ
Okaya Electric
XEB1K1 or equivalent

R3(Y), M3(W), T3(Y), K3(Y), F3(Y)

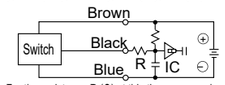


●Diode
D = Hitachi
V06C or equivalent

Example of using a surge absorber with an inductive load.

● When connecting and using capacitive loads (capacitors), inrush current will occur when the switch is ON, so always install a protection circuit as shown in the figure below.

R3(Y), M3(W), T3(Y), K3(Y), F3(Y)



For the resistance R (Ω) at this time, use a value greater than or equal to the following formula.

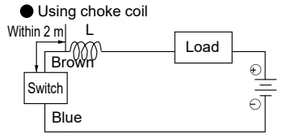
$\frac{V}{0.15}$ =R (Ω) (R3(Y), M3(W))

$\frac{V}{0.05}$ =R (Ω) (T3(Y), K3(Y), F3(Y))

● If the lead wire length exceeds 10 m, always install a protection circuit as shown in the figure below.

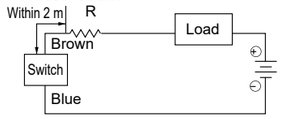
R1, R2(Y), M2(W), T2(Y/J), K2(Y), F2

● Using choke coil



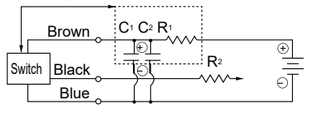
● Choke Coil
L = Several hundred μH to several mH
With excellent high-frequency characteristics

●Uses resistor



●Inrush current limiting resistor
R = Resistance as large as the load circuit allows

●Uses resistor
Within 2 m



Power Supply Noise Absorption Circuit
C¹ = 20 to 50μF
Electrolytic capacitor (withstand voltage 50 V or more)
C² = 0.01 to 0.1μF
Ceramic capacitor
Inrush current limiting resistor
R¹ = 20 to 30Ω
R² = Use a resistor as large as the load side circuit allows.

■ Be careful about the lifespan of reed switches.

● The lifespan of reed switches varies depending on usage conditions, but is generally several million cycles. If the equipment used operates continuously day and night or at high frequency, the contact life region will be reached in a short period, so use solid state switches without contact parts.

■ If special quality and reliability are required, such as when using with a customer-dedicated circuit board, a proximity switch is recommended. In addition, please be sure to thoroughly check the compatibility judgment by yourself.

During Use

⚠ Caution

■ Do not drop or strike.

When handling, do not drop, strike, or apply excessive impact (reed switch 294 m/s² or more, solid state switch 980 m/s² or more). Even if the switch case body is not damaged, the switch internals may be damaged, potentially leading to malfunction.

■ Do not carry the cylinder by the switch's lead wire.

This can not only cause lead wire breakage but also apply stress to the inside of the switch, potentially damaging internal switch elements. Absolutely do not do this.

■ Do not use the same wiring as power lines or high-voltage lines.

Avoid parallel wiring or using the same conduit as power lines/high-voltage lines; use separate wiring. Control circuits including cylinder switches may malfunction due to noise.

■ Do not short-circuit the load.

If turned ON in a load short-circuited state, overcurrent will flow and the switch will be instantaneously damaged.

■ Be careful when connecting lead wires.

Turn off the power to the equipment on the connected electrical circuit side before performing wiring work. Working with the power on can cause electric shock or accidents due to unexpected operation.

●Reed switch

Do not connect the switch lead wires directly to the power supply; always connect a load in series. Also, for RO, MO, TO, KO, EO, FO, ETO, pay attention to ① and ② below.

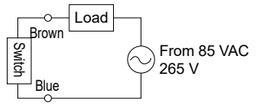
① When using for DC, connect so that the brown wire is the + side and the blue wire is the - side. If connected in reverse, the switch will operate, but the indicator light will not turn on. (HO has no polarity.)

② When connecting to AC relays or programmable controller inputs, if those circuits perform half-wave rectification, the indicator light may not turn on. In that case, reversing the polarity of the switch lead wire connection will turn on the indicator light.

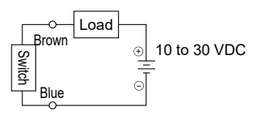
●Solid state switch

Connect correctly according to the lead wire color coding in the diagram on the right. Incorrect wiring may cause damage. Please be careful.

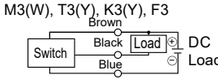
● R1



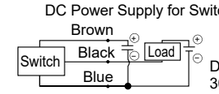
● R2(Y), M2(W), T2(Y), T2J, K2(Y), F2 (T2YD has no polarity)



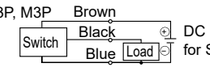
●R3(Y), M3(W), T3(Y), K3(Y), F3



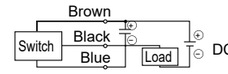
DC Power Supply for Switch



●T3P, K3P, M3P



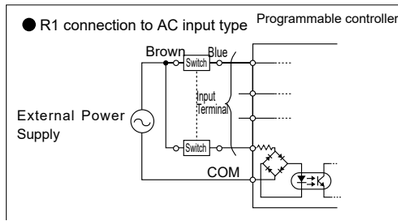
DC Power Supply for Switch



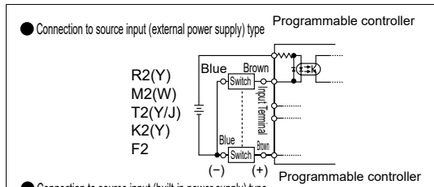
(Connection to Programmable Logic Controller (PLC))

●Connection method varies depending on the type of programmable controller. Connect according to the input specifications.

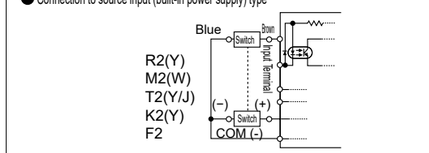
● R1 connection to AC input type



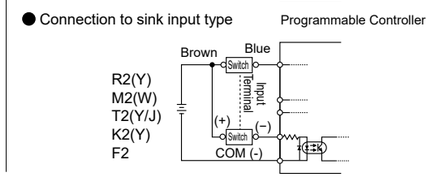
● Connection to source input (external power supply) type



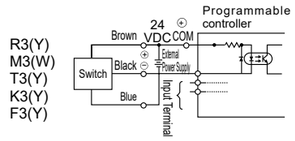
● Connection to source input (built-in power supply) type



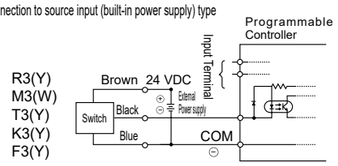
● Connection to sink input type



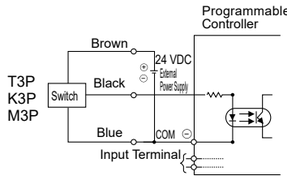
● Connection to source input (external power supply) type



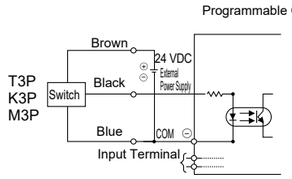
●Connection to source input (built-in power supply) type



●Example of connection to sink input (external power supply) type



●Example of connection to sink input (built-in power supply) type



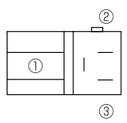
■Set the switch to the center of its operating range.

Adjust the mounting position of the cylinder switch so that the piston stops at the center of the operating range (the range where it is ON). (The mounting position described in the catalog indicates the optimal position at the stroke end.) If set to the end of the operating range (near the ON/OFF boundary line), operation may become unstable.

■Install the switch while adhering to the tightening torque.

If tightened beyond the maximum tightening torque, the set screw, mounting bracket, switch, etc., may be damaged.
Also, if tightened below the minimum tightening torque, the switch mounting position may shift.
(For switch mounting method, moving method, tightening torque, etc., refer to P. 1032-1034.)

■Pay attention to wiring for terminal box types.



Model \ Terminal	①	②	③
R0 (DC), R2, R2Y, R6		+	−
R0 (AC), R1, R4, R5		±	±
R3, R3Y	OUT	+	−

■Lead wire protection

The minimum bending radius of the lead wire should be 9 mm or more (when fixed). Ensure that repeated bending stress and tensile force are not applied to the lead wire during wiring. For moving parts, please connect and use T2H/VR3 cylinder switch with flex-resistant lead wire specification for higher flexibility (limited to compatible models).

■Relay

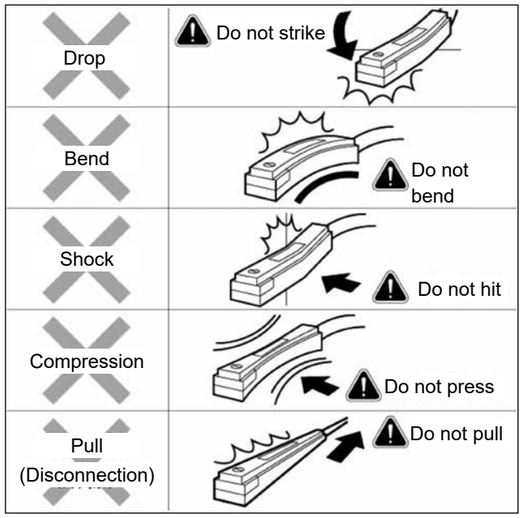
Use the following equivalent relays.

○Omron.....MY type
○Fuji Electric .....HH5 type
○Tokyo Denki .....MPM type
○Panasonic .....HC type

1. Notes on "External Force"

⚠Caution

■Especially for reed switch types, the reed switch (glass tube) may be damaged or its sensitivity may decrease.
Example: T0□ T5□ T8□ type

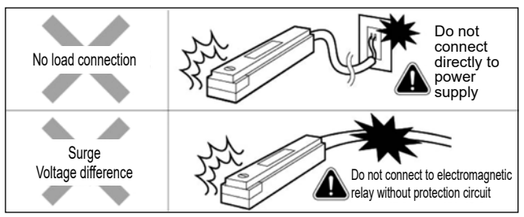


2. Notes on "Overcurrent/Overvoltage"

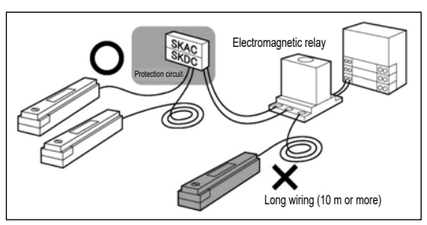
⚠Caution

■Do not connect directly to the power supply.

■Do not connect to an electromagnetic relay without a protection circuit.



■For electromagnetic relays and long wiring, install a "protection circuit."



During Use

⚠Warning

■Do not flow overcurrent.

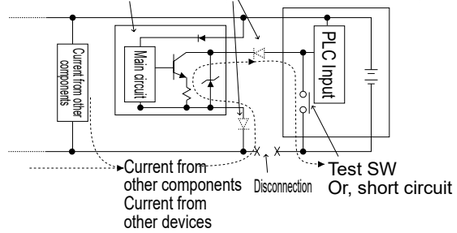
If overcurrent flows through the cylinder switch due to a load short circuit, etc., not only will the cylinder switch be damaged, but there is also a risk of fire. If necessary, install an overcurrent protection circuit such as a fuse on the output and power lines.

⚠Caution

■Be careful about reverse current due to wire breakage or wiring resistance.

● If other devices, including cylinder switches, are connected to the same power supply as the cylinder switch, shorting the output wire and the negative power supply wire, or if the negative power supply wire is disconnected, reverse current may flow into the cylinder switch's output circuit, causing damage. This is done to confirm the operation of the control panel's input device.

Cylinder switch Reverse current prevention diode Control panel



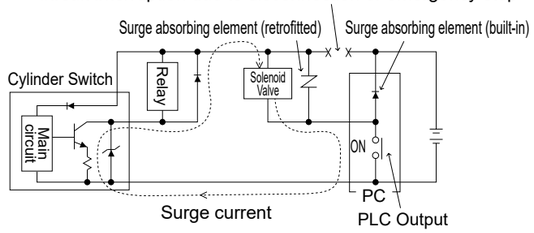
●To prevent damage due to reverse current, take the following measures.

① Avoid concentrating current on the power lines, especially the - side power line, and make the wiring as thick as possible.
② Limit the equipment connected to the same power supply as the cylinder switch.
③ Insert a diode in series with the cylinder switch output line to prevent reverse current flow.
④ Insert a diode in series on the negative side of the cylinder switch's power wire to prevent reverse current.

■Be careful about surge current bypass.

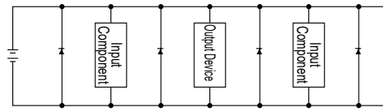
● If the power supply for inductive loads that generate surges, such as cylinder switches and solenoid valves/ relays, is shared, and the circuit is interrupted while the inductive load is operating, surge current may flow into the output circuit and cause damage, depending on the mounting position of the surge absorption element.

Circuit interruption due to disconnection or emergency stop



● To prevent damage from surge current bypass, take the following measures.

① Separate the power supplies for the output system with inductive loads such as solenoid valves and relays, and the input system such as cylinder switches.
② If separate power supplies cannot be used, directly install surge absorbing elements for all inductive loads. Consider surge absorbing elements connected to PLCs, etc., as protecting only that equipment.
③ Furthermore, connect surge absorbing elements at various points in the power supply wiring as shown in the diagram below to prepare for disconnection at unspecified locations.



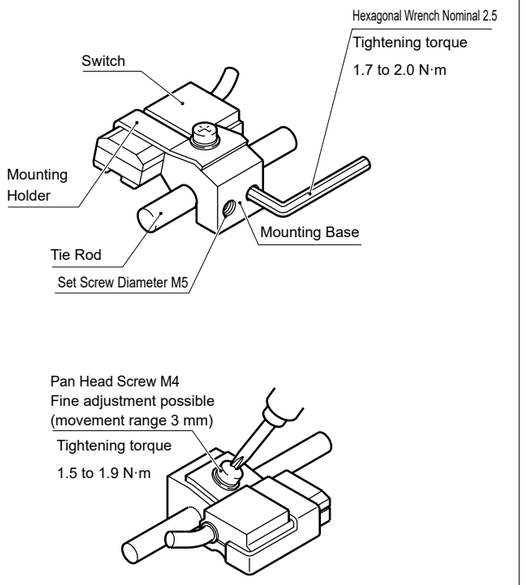
Furthermore, if equipment is connected with connectors, disconnecting the connector while power is on may cause the output circuit to be damaged due to the above phenomenon. Always turn off the power before connecting or disconnecting connectors.

⚠Caution: Switch Mounting Method

Tie Rod Mount Type

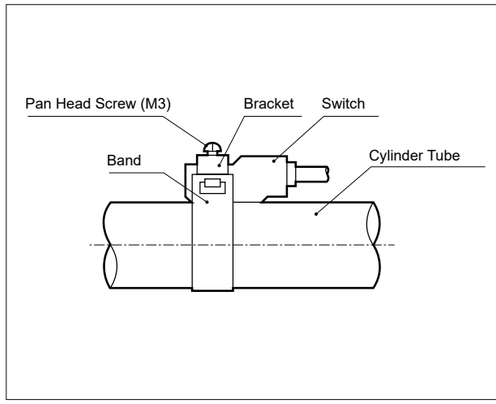
Loosening the set screws (2 screws) for fixing the mounting base by 1/2 to 3/4 turn allows axial movement without detachment.
For fixing after adjustment, lightly press the holder so that the switch is fixed to the tube, and then tighten the set screws.
Tightening torque is 1.7 to 2.0 N·m. As a guide, it is sufficient if the hex wrench begins to deflect.

●Movement and tightening diagram



Band Mount Type

Loosen the tightening screw (pan head screw), move the switch body and band along the cylinder tube, and tighten at the specified position. For fine adjustment, fix the band position and move only the switch body. Tightening torque is 0.5 to 0.7 N·m. The tightening torque for HCA ø80, ø100 is 1.0 to 1.5 N·m.

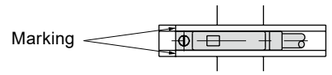


Band Mount Type

① When moving the switch position in the stroke direction

●The 1-color indicator switch can be finely adjusted by about ±3 mm from the mounting position at the time of shipment. If the adjustment range exceeds ±3 mm, or when finely adjusting the position of the 2-color indicator switch, move the band position.

●The switch rail has a marking 4 mm from the end face of the rail. Use this as a guide for the mounting position when replacing the switch. The marking on the switch rail is set to the switch's highest sensitivity position at the time of factory shipment. If the type of switch changes or if the band is moved, the maximum sensitivity position will change, so adjust the position each time.

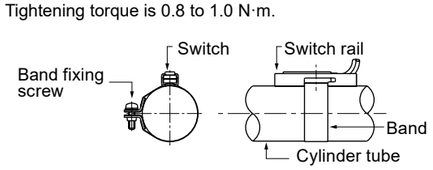


② When moving the switch position in the circumferential direction

●Loosen the band fixing screw, move the switch rail circumferentially, and tighten it at the specified position. Tightening torque is 0.8 to 1.0 N·m.

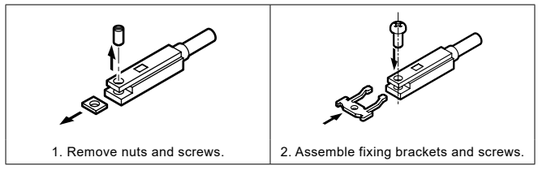
③ When moving the band position

●Loosen the band fixing screw, move the switch rail and band along the cylinder tube, and tighten them at the specified position. Tightening torque is 0.8 to 1.0 N·m.

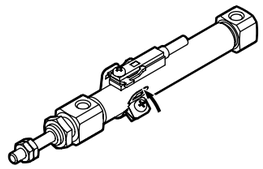


Band Mount Type

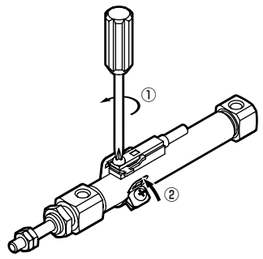
Install T-type switches as shown in the diagram below.
When using standard T-type switch (SW-T□)



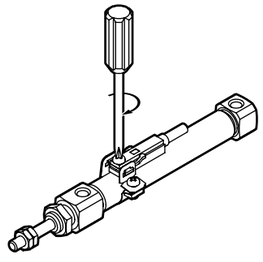
① Insert the square hole of the band into the fixing bracket and attach it to the cylinder.



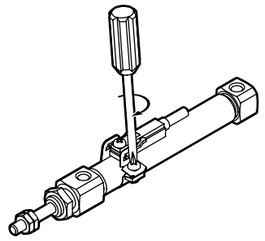
●If it is difficult to install, follow the steps below.
① Loosen the screw on the switch side.
② Insert the square hole of the band into the fixing bracket.



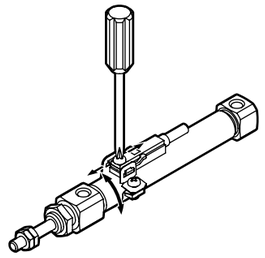
② Tighten the screw on the switch side.
Tightening torque: 0.1 to 0.15 N·m



③ Tighten the screw on the band side.
Tightening torque: 0.1 to 0.15 N·m



④ For switch mounting position adjustment
Loosen the screw on the switch side, adjust the position, and tighten the screw to fix it at the optimal position.
Tightening torque: 0.1 to 0.15 N·m



Switch Groove Mount Type

Loosen the tightening screw (set screw), move the switch body along the switch groove, and tighten at the specified position.
For T2, T2W, T3, T3W, T0, T5, K2, K3, K0, K5, use a flat-blade screwdriver (watchmaker's screwdriver, precision screwdriver, etc.) with a grip diameter of 5 to 6 mm, tip width of 2.4 mm or less, and thickness of 0.3 mm or less to tighten the switch fixing screw with a tightening torque of 0.1 to 0.2 N·m. For T□C, T2J, T2Y, T3Y, K2Y, K3Y, T2YD, T1, T8, T2YL, T3YL, ET0, tighten with a torque of 0.5 to 0.7 N·m. For F2□, F3□, F2Y□, F3Y□, tighten with a torque of 0.03 to 0.08 N·m.

T2YD Tie Rod Mount Type

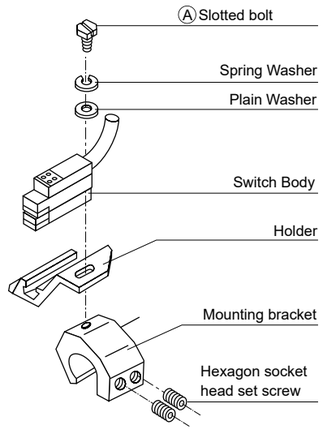
① Fine adjustment

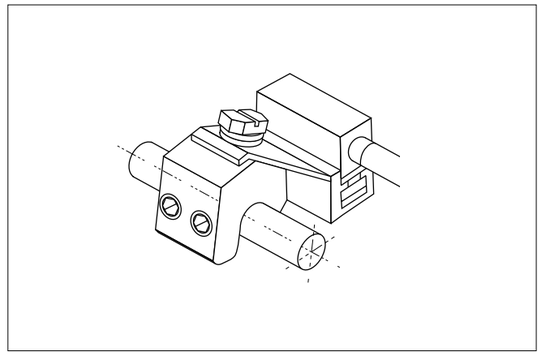
Loosen the slotted hex bolt (A), move only the switch body, and tighten it at the specified position. Tightening torque is 0.5 to 0.7 N·m.

② Coarse adjustment

Loosen all slotted bolts (A) and set screws, move the entire mounting bracket to the specified position, and then tighten the slotted bolt (A). Tightening torque is 0.5 to 0.7 N·m.

Then tighten the set screws. Tightening torque is 1.7 to 2.0 N·m.





⚠ Caution

Contact protection circuit (SKAC, SKDC)

If you are using a reed switch and the circuit configuration with the load falls under the following, the contact life may be reduced (may remain ON). Connect a contact protection circuit within 2 m of the switch.

●When the operating load is an inductive load (relays, valves, etc. (coil-driven loads)) or a capacitive load (programmable controllers, etc. (loads containing capacitors))

●When the lead wire wiring length is as follows

12 VDC : 100 m or more
24 VDC : 50 m or more
100 VAC : 20 m or more
200 VAC : 10 m or more

●When there are other factors that cause overvoltage or overcurrent

For details on the contact protection circuit, refer to P. 1001.

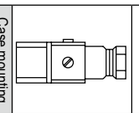
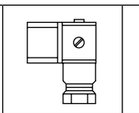
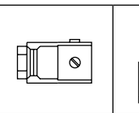
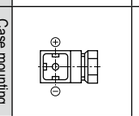
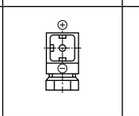
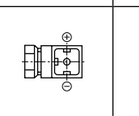
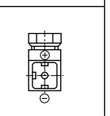
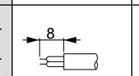
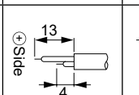
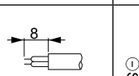
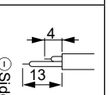
Mounting method to R□B terminal box

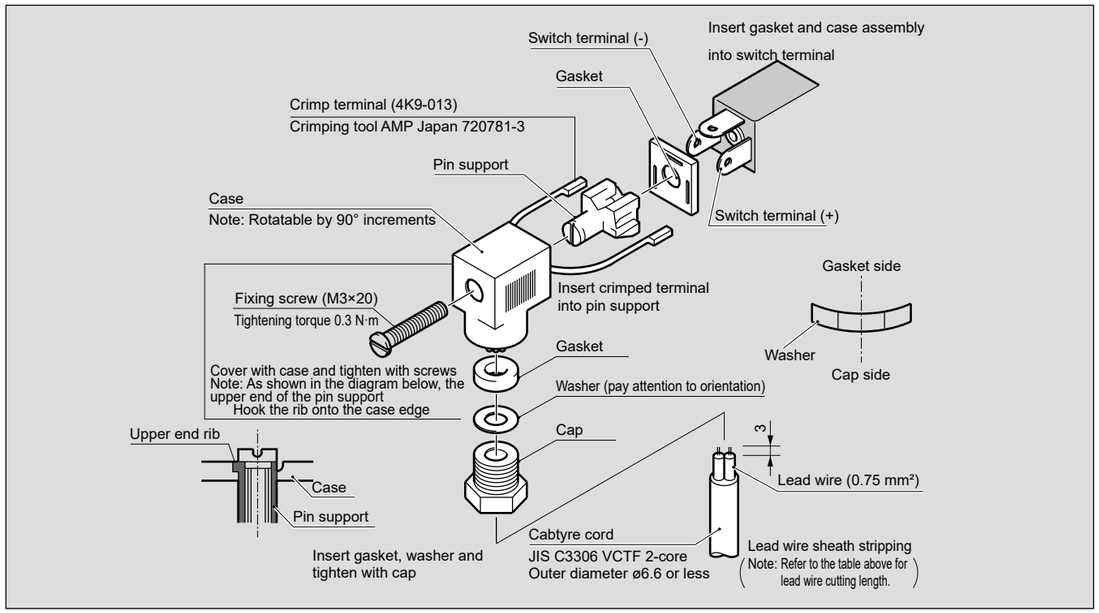
Connection to the R*B terminal box should be done according to the following procedure, referring to the diagram below.

① After completely removing the fixing screws, pull the terminal box out from the switch.
② From the top of the case, push out the pin support to separate the case and pin support.
③ Remove the cap, and take out the washer and gasket.
④ Determine the lead wire exit direction of the terminal box.
⑤ Referring to the top view of the case mounting direction, cut the lead wire to match the exit direction, and strip the seal/sheath.
⑥ Crimp the included terminal.
⑦ Pass the lead wire through the cap, washer, gasket, and case in that order, paying attention to the orientation. Pass the lead wire through the case and pull it out with needle-nose pliers.
⑧ While inserting the terminal into the pin support, push it into the case, paying attention to the orientation. Push until the upper end rib of the pin support comes out to the top surface of the case.
⑨ Insert the fixing screws into the case/pin support.
⑩ Insert the gasket and washer into the case and tighten with the cap.
⑪ Insert the case into the switch terminal and fix it with the fixing screws.

●Lead wire cutting length

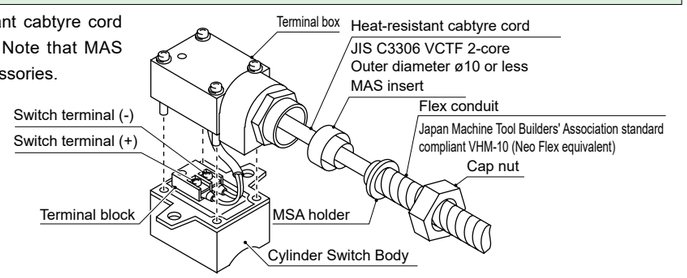
The lead wire cutting length varies depending on the case mounting direction. Please refer to the table below.
For 3-wire type, please consult us.

Case mounting direction Top View				
Case mounting direction Bottom View				
Lead wire length				



Mounting method to E0 terminal box

For wiring to the terminal box, prepare heat-resistant cabtyre cord and flex conduit, and refer to the diagram below. Note that MAS insert, MAS holder, and cap nut are included as accessories.



For precautions regarding mounting, installation, adjustment, use, and maintenance, please see "Precautions for Use" in this catalog and the CKD Components Product website (https://www.ckd.co.jp/kiki/en/) -> "Model No." -> Instruction Manual.

Clevis dimension list

Page

Single Knuckle Dimension List (by Model Type) — Ending 2

Single Knuckle Dimension List (by Thread Diameter) — Ending 4

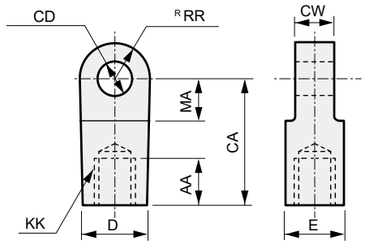
Double Knuckle Dimension List (by Model Type) — Ending 6

Double Knuckle Dimension List (by Thread Diameter) — Ending 8

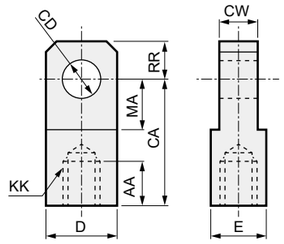
Clevis dimension list

Single Knuckle

Pad Shape Code: A



Pad Shape Code: B



Model	Shape Code	Model No.	Applicable bore size (ø)	AA	CA	CD	CW	D	E	KK	MA	RR
CMK2	B	M1-I-20	20	14	30	10 H10	8 -0.1 -0.2	19	19	M8 × 1.0	13	10
		M1-I-30	25, 32	14	36	12 H10	10 -0.1 -0.2	25	19	M10 × 1.25	16	12
		M1-I-40	40	14	36	12 H10	10 -0.1 -0.2	25	19	M12 × 1.5	16	12
CMA2	B	M1-I-20	20	14	30	10 H10	8 -0.1 -0.2	19	19	M8 × 1.0	13	10
		M1-I-30	30	14	36	12 H10	10 -0.1 -0.2	25	19	M10 × 1.25	16	12
		M1-I-40	40	14	36	12 H10	10 -0.1 -0.2	25	19	M12 × 1.5	16	12
CKV2	B	M1-I-20	20	14	30	10 H10	8 -0.1 -0.2	19	19	M8 × 1.0	13	10
		M1-I-30	25, 32	14	36	12 H10	10 -0.1 -0.2	25	19	M10 × 1.25	16	12
		M1-I-40	40	14	36	12 H10	10 -0.1 -0.2	25	19	M12 × 1.5	16	12
CAV2 COV2	A	CAV2-50-I	50	25	50	14 H10	20 0 -0.3	26	26	M16 × 1.5	20	15
		CAV2-75-I	75.100	30	65	20 H10	28 0 -0.3	38	35	M22 × 1.5	28	22.5
HCA	B	M1-I-20	20	14	30	10 H10	8 -0.1 -0.2	19	19	M8 × 1.0	13	10
		M1-I-30	25, 32	14	36	12 H10	10 -0.1 -0.2	25	19	M10 × 1.25	16	12
	A	S1-I-40	40	20	50	12 H10	18 -0.1 -0.4	(27)	27	M14 × 1.5	21	16
		S1-I-50	50	21	50	12 H10	18 -0.1 -0.4	(27)	27	M18 × 1.5	21	16
		S1-I-63	63	21	50	14 H10	20 -0.1 -0.4	(27)	27	M18 × 1.5	21	16
		S1-I-80	80	30	70	20 H10	28 -0.1 -0.4	(46)	41	M22 × 1.5	30	25
		S1-I-100	100	30	70	20 H10	28 -0.1 -0.4	(46)	41	M26 × 1.5	30	25
JSG	B	SCG-I-40	40	19	40	10 H10	14 -0.1 -0.3	ø22	ø22	M14 × 1.5	19	10
		SCG-I-50	50, 63	24	50	14 H10	20 -0.1 -0.3	ø28	ø28	M18 × 1.5	24	14
		SCG-I-80	80	26	60	22 H10	30 -0.1 -0.3	ø40	ø40	M22 × 1.5	34	20
		SCG-I-100	100	26	60	22 H10	30 -0.1 -0.3	ø40	ø40	M26 × 1.5	34	20
JSM2	B	M1-I-20	20	14	30	10 H10	8 -0.1 -0.2	19	19	M8 × 1.0	13	10
		M1-I-30	30	14	36	12 H10	10 -0.1 -0.2	25	19	M10 × 1.25	16	12
		M1-I-40	40	14	36	12 H10	10 -0.1 -0.2	25	19	M12 × 1.5	16	12
JSK2	B	M1-I-20	20	14	30	10 H10	8 -0.1 -0.2	19	19	M8 × 1.0	13	10
		M1-I-30	25, 32	14	36	12 H10	10 -0.1 -0.2	25	19	M10 × 1.25	16	12
		M1-I-40	40	14	36	12 H10	10 -0.1 -0.2	25	19	M12 × 1.5	16	12
JSC3	A	S1-I-40	40	20	50	12 H10	18 -0.1 -0.4	(27)	27	M14 × 1.5	21	16
		S1-I-50	50	21	50	12 H10	18 -0.1 -0.4	(27)	27	M18 × 1.5	21	16
		S1-I-63	63	21	50	14 H10	20 -0.1 -0.4	(27)	27	M18 × 1.5	21	16
		S1-I-80	80	30	70	20 H10	28 -0.1 -0.4	(46)	41	M22 × 1.5	30	25
		S1-I-100	100	30	70	20 H10	28 -0.1 -0.4	(46)	41	M26 × 1.5	30	25
JSC4	B	SCS2-125-I	125	50	85	25 H10	32 -0.1 -0.4	ø55	ø55	M30 × 1.5	32	27.5
		SCS2-140-I	140	50	90	28 H10	36 -0.1 -0.4	ø60	ø60	M30 × 1.5	35	30
		SCS2-160-I	160	60	105	32 H10	40 -0.1 -0.4	ø70	ø70	M36 × 1.5	40	35
		SCS2-180-I	180	65	115	40 H10	50 -0.1 -0.4	ø85	ø85	M40 × 1.5	47.5	42.5
SCP□3	B	P2-I-10	10	8	21	3.2 H10	3.1 0 -0.1	12	12	M4	9	7
		P2-I-16	16	8	25	5 H10	6.4 0 -0.1	12	12	M5	14	7

Note: The A and B figures are a guide only. For details, refer to the accessories and dimensions diagrams of each model.

Ending

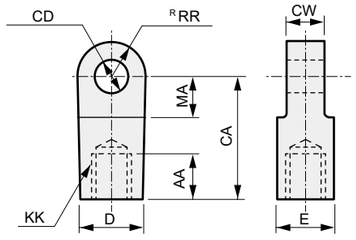
Single Knuckle

Model	Shape Code	Model No.	Applicable bore size (ø)	AA	CA	CD	CW	D	E	KK	MA	RR
SCA2	A	S1-I-40	40	20	50	12 H10	18 -0.1 -0.4	(27)	27	M14 × 1.5	21	16
		S1-I-50	50	21	50	12 H10	18 -0.1 -0.4	(27)	27	M18 × 1.5	21	16
		S1-I-63	63	21	50	14 H10	20 -0.1 -0.4	(27)	27	M18 × 1.5	21	16
		S1-I-80	80	30	70	20 H10	28 -0.1 -0.4	(46)	41	M22 × 1.5	30	25
		S1-I-100	100	30	70	20 H10	28 -0.1 -0.4	(46)	41	M26 × 1.5	30	25
SCG	B	SCG-I-32	32	14	30	10 H10	14 -0.1 -0.3	ø20	ø20	M10 × 1.25	16	10
		SCG-I-40	40	19	40	10 H10	14 -0.1 -0.3	ø22	ø22	M14 × 1.5	19	10
		SCG-I-50	50, 63	24	50	14 H10	20 -0.1 -0.3	ø28	ø28	M18 × 1.5	24	14
		SCG-I-80	80	26	60	22 H10	30 -0.1 -0.3	ø40	ø40	M22 × 1.5	34	20
		SCG-I-100	100	26	60	22 H10	30 -0.1 -0.3	ø40	ø40	M26 × 1.5	34	20
SCS2	B	SCS2-125-I	125	50	85	25 H10	32 -0.1 -0.4	ø55	ø55	M30 × 1.5	32	27.5
		SCS2-140-I	140	50	90	28 H10	36 -0.1 -0.4	ø60	ø60	M30 × 1.5	35	30
		SCS2-160-I	160	60	105	32 H10	40 -0.1 -0.4	ø70	ø70	M36 × 1.5	40	35
		SCS2-180-I	180	65	115	40 H10	50 -0.1 -0.4	ø85	ø85	M40 × 1.5	47.5	42.5
		SCS2-200-I	200	75	125	40 H10	50 -0.1 -0.4	ø85	ø85	M45 × 1.5	47.5	42.5
		SCS2-250-I	250	88	150	50 H10	63 -0.1 -0.4	ø105	ø105	M56 × 2	57.5	52.5
SCM	B	SCM-I-20	20	8.5	25	8 H10	8 -0.2 -0.4	16	16	M8	11.5	9
		SCM-I-25	25, 32	10.5	30	10 H10	10 -0.2 -0.4	20	20	M10 × 1.25	14	11
	A	SCM-I-40	40	14	30	10 H10	18 -0.3 -0.5	22	22	M14 × 1.5	14	12
		SCM-I-50	50, 63	18	40	14 H10	22 -0.3 -0.5	28	28	M18 × 1.5	20	16
		SCM-I-80	80	21	50	18 H10	28 -0.3 -0.5	38	38	M22 × 1.5	27	21
		SCM-I-100	100	21	55	22 H10	32 -0.3 -0.5	44	44	M26 × 1.5	31	24
SSD2	B	SSD2-I-12	12	6	16	5 H10	5 -0.2 -0.4	10	10	M5 × 0.8	7	5.5
		SSD2-I-16	16	8	25	5 H10	6.5 -0.2 -0.4	12	12	M6×1	14	7
		SSD2-I-20	20	8.5	25	8 H10	8 -0.2 -0.4	16	16	M8 × 1.25	11.5	9
		SSD2-I-25	25	10.5	30	10 H10	10 -0.2 -0.4	20	20	M10 × 1.25	14	11
	A	SSD2-I-32	32, 40	14	30	10 H10	18 -0.3 -0.5	ø22	ø22	M14 × 1.5	14	12
		SSD2-I-50	50, 63	18	40	14 H10	22 -0.3 -0.5	ø28	ø28	M18 × 1.5	20	16
		SSD2-I-80	80	21	50	18 H10	28 -0.3 -0.5	ø38	ø38	M22 × 1.5	27	21
		SSD2-I-100	100	21	55	22 H10	32 -0.3 -0.5	ø44	ø44	M26 × 1.5	31	24
SSD	B	P2-I-16	12	8	25	5 H10	6.4 0 -0.1	12	12	M5	14	10
	A	SSD-I-16	16	8	25	5 H10	6.5 -0.1 -0.2	12	12	M6	14	10
	B	SSD-I-20	20	13.5	30	10 H10	8 -0.1 -0.2	19	19	M8	13	10
		M1-I-30	25	14	36	12 H10	10 -0.1 -0.2	25	19	M10 × 1.25	16	12
		SSD-I-32	32	15	36	12 H10	10 -0.1 -0.2	25	19	M14	16	12
	A	SSD-I-40	40	20	50	12 H10	18 -0.1 -0.4	27	27	M14 × 1.5	21	16
		SSD-I-50	50	21	50	12 H10	18 -0.1 -0.4	27	27	M18 × 1.5	21	16
		SSD-I-63	63	21	50	14 H10	20 -0.1 -0.4	(27)	27	M18 × 1.5	21	16
		SSD-I-80	80	30	70	20 H10	28 -0.1 -0.4	46	41	M22 × 1.5	30	25
		SSD-I-100	100	30	70	20 H10	28 -0.1 -0.4	46	41	M26 × 1.5	30	25
	B	SCS-125-I	125, 140	50	85	25 H10	32 -0.1 -0.4	55	55	M30 × 1.5	32	27.5
		SCS-160-I	160	60	105	32 H10	40 -0.1 -0.4	70	70	M36 × 1.5	40	35
ULK	B	M1-I-20	20	14	30	10 H10	8 -0.1 -0.2	19	19	M8 × 1.0	13	10
		M1-I-30	25, 32	14	36	12 H10	10 -0.1 -0.2	25	19	M10 × 1.25	16	12
		M1-I-40	40	14	36	12 H10	10 -0.1 -0.2	25	19	M12 × 1.5	16	12

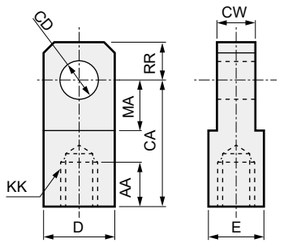
Ending

Single Knuckle (by thread size)

Pad Shape Code: A



Pad Shape Code: B



Thread size KK	Model No.	Pad Shape Code	Applicable Model	Applicable bore size (ø)	AA	CA	CD	CW	D	E	MA	RR
M4	P2-I-10	B	SCP□3	10	8	21	3.2 ^{H10}	3.1 $^{0}_{-0.1}$	12	12	9	7
M5	P2-I-16	B	SCP□3	16	8	25	5 ^{H10}	6.4 $^{0}_{-0.1}$	12	12	14	7
			SSD	12								
	SSD2-I-12	B	SSD2	12	6	16	5 ^{H10}	5 $^{-0.2}_{-0.4}$	10	10	7	5.5
M6	SSD-I-16	A	SSD	16	8	25	5 ^{H10}	6.5 $^{-0.1}_{-0.2}$	12	12	14	10
	SSD2-I-16	B	SSD2	16	8	25	5 ^{H10}	6.5 $^{-0.2}_{-0.4}$	12	12	14	7
M8 × 1.0	M1-I-20	B	CKV2, CMA2, CMK2 HCA, JSK2, JSM2 ULK	20	14	30	10 ^{H10}	8 $^{-0.1}_{-0.2}$	19	19	13	10
M8	SCM-I-20	B	SCM	20	8.5	25	8 ^{H10}	8 $^{-0.2}_{-0.4}$	16	16	11.5	9
	SSD-I-20	B	SSD	20	13.5	30	10 ^{H10}	8 $^{-0.1}_{-0.2}$	19	19	13	10
	SSD2-I-20	B	SSD2	20	8.5	25	8 ^{H10}	8 $^{-0.2}_{-0.4}$	16	16	11.5	9
M10 × 1.25	SCG-I-32	B	SCG	32	14	30	10 ^{H10}	14 $^{-0.1}_{-0.3}$	ø20	ø20	16	10
	M1-I-30	B	CMA2, CMK2, HCA JSK2, JSM2, ULK, SSD	25, 30, 32	14	36	12 ^{H10}	10 $^{-0.1}_{-0.2}$	25	19	16	12
	SCM-I-25	B	SCM	25, 32	10.5	30	10 ^{H10}	10 $^{-0.2}_{-0.4}$	20	20	14	11
	SSD2-I-25	B	SSD2	25	10.5	30	10 ^{H10}	10 $^{-0.2}_{-0.4}$	20	20	14	11
M12 × 1.5	M1-I-40	B	CKV2, CMA2, CMK2 JSK2, JSM2, ULK	40	14	36	12 ^{H10}	10 $^{-0.1}_{-0.2}$	25	19	16	12
M14 × 1.5	SCG-I-40	B	SCG, JSG	40	19	40	10 ^{H10}	14 $^{-0.1}_{-0.3}$	ø22	ø22	19	10
	SSD2-I-32	A	SSD2	32, 40	14	30	10 ^{H10}	18 $^{-0.3}_{-0.5}$	ø22	ø22	14	12
	S1-I-40	A	HCA, JSC3 SCA2, SSD	40	20	50	12 ^{H10}	18 $^{-0.1}_{-0.4}$	(27)	27	21	16
	SCM-I-40	A	SCM	40	14	30	10 ^{H10}	18 $^{-0.3}_{-0.5}$	22	22	14	12
M14	SSD-I-32	B	SSD	32	15	36	12	10 $^{-0.1}_{-0.2}$	25	19	16	12
M16 × 1.5	CAV2-50-I	A	CAV2, COV2	50	25	50	14 ^{H10}	20 $^{0}_{-0.3}$	26	26	20	15
M18 × 1.5	SCG-I-50	B	SCG, JSG	50, 63	24	50	14 ^{H10}	20 $^{-0.1}_{-0.3}$	ø28	ø28	24	14
	SSD2-I-50	A	SSD2	50, 63	18	40	14 ^{H10}	22 $^{-0.3}_{-0.5}$	ø28	ø28	20	16
	S1-I-50	A	HCA, JSC3, SCA2	50	21	50	12 ^{H10}	18 $^{-0.1}_{-0.4}$	(27)	27	21	16
	SSD-I-50		SSD									
	S1-I-63	A	HCA, JSC3, SCA2	63	21	50	14 ^{H10}	20 $^{-0.1}_{-0.4}$	(27)	27	21	16
	SSD-I-63		SSD									
	SCM-I-50	A	SCM	50, 63	18	40	14 ^{H10}	22 $^{-0.3}_{-0.5}$	28	28	20	16
M22 × 1.5	SCG-I-80	B	SCG, JSG	80	26	60	22 ^{H10}	30 $^{-0.1}_{-0.3}$	ø40	ø40	34	20
	CAV2-75-I	A	CAV2, COV2	75.100	30	65	20 ^{H10}	28 $^{0}_{-0.3}$	38	35	28	22.5
	S1-I-80	A	HCA, JSC3, SCA2	80	30	70	20 ^{H10}	28 $^{-0.1}_{-0.4}$	(46)	41	30	25
	SSD-I-80		SSD									
	SCM-I-80	A	SCM	80	21	50	18 ^{H10}	28 $^{-0.3}_{-0.5}$	38	38	27	21
	SSD2-I-80	A	SSD2	80	21	50	18 ^{H10}	28 $^{-0.3}_{-0.5}$	ø38	ø38	27	21
M26 × 1.5	SCG-I-100	B	SCG, JSG	100	26	60	22 ^{H10}	30 $^{-0.1}_{-0.3}$	ø40	ø40	34	20
	S1-I-100	A	HCA, JSC3, SCA2	100	30	70	20 ^{H10}	28 $^{-0.1}_{-0.4}$	(46)	41	30	25
	SSD-I-100		SSD									
	SCM-I-100	A	SCM	100	21	55	22 ^{H10}	32 $^{-0.3}_{-0.5}$	44	44	31	24

Note: The A and B figures are a guide only. For details, refer to the accessories and dimensions diagrams of each model.

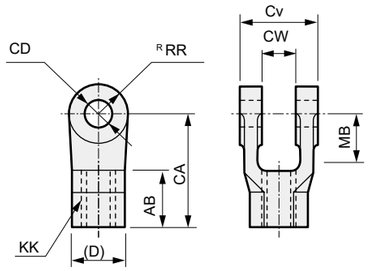
Single Knuckle (by thread size)

Thread size KK	Model No.	Pad Shape Code	Applicable Model	Applicable bore size (ø)	AA	CA	CD	CW	D	E	MA	RR
M26 × 1.5	SSD2-I-100	A	SSD2	100	21	55	22 ^{H10}	32 $^{-0.3}_{-0.5}$	ø44	ø44	31	24
M30 × 1.5	SCS2-125-I	B	JSC4, SCS2	125	50	85	25 ^{H10}	32 $^{-0.1}_{-0.4}$	ø55	ø55	32	27.5
			SSD	125, 140								
	SCS2-140-I	B	JSC4, SCS2	140	50	90	28 ^{H10}	36 $^{-0.1}_{-0.4}$	ø60	ø60	35	30
M36 × 1.5	SCS2-160-I	B	JSC4, SCS2, SSD	160	60	105	32 ^{H10}	40 $^{-0.1}_{-0.4}$	ø70	ø70	40	35
M40 × 1.5	SCS2-180-I	B	JSC4, SCS2	180	65	115	40 ^{H10}	50 $^{-0.1}_{-0.4}$	ø85	ø85	47.5	42.5
M45 × 1.5	SCS2-200-I	B	SCS2	200	75	125	40 ^{H10}	50 $^{-0.1}_{-0.4}$	ø85	ø85	47.5	42.5
M56 × 2	SCS2-250-I	B	SCS2	250	88	150	50 ^{H10}	63 $^{-0.1}_{-0.4}$	ø105	ø105	57.5	52.5

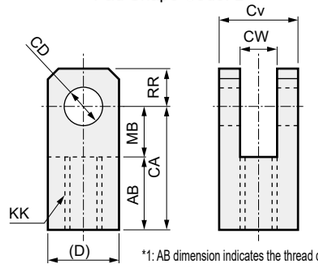
Note: The A and B figures are a guide only. For details, refer to the accessories and dimensions diagrams of each model.

Double Knuckle (by series)

Pad Shape Code: A



Pad Shape Code: B



*1: AB dimension indicates the thread depth.
*2: The MB dimension represents the CW dimension effective length.

Model	Shape Code	Model No.	Applicable bore size (ø)	AB	CA	CW	CD	Cv	D	KK	MB	RR
CMK2	B	M1-Y-20	20	17	30	8 $^{+0.3}_{+0.1}$	10 H10	19	19	M8 × 1.0	13	10
		M1-Y-30	25, 32	20	36	10 $^{+0.3}_{+0.1}$	12 H10	25	25	M10 × 1.25	16	12
		M1-Y-40	40	20	36	10 $^{+0.3}_{+0.1}$	12 H10	25	25	M12 × 1.5	16	12
CMA2	B	M1-Y-20	20	17	30	8 $^{+0.3}_{+0.1}$	10 H10	19	19	M8 × 1.0	13	10
		M1-Y-30	30	20	36	10 $^{+0.3}_{+0.1}$	12 H10	25	25	M10 × 1.25	16	12
		M1-Y-40	40	20	36	10 $^{+0.3}_{+0.1}$	12 H10	25	25	M12 × 1.5	16	12
CKV2	B	M1-Y-20	20	17	30	8 $^{+0.3}_{+0.1}$	10 H10	19	19	M8 × 1.0	13	10
		M1-Y-30	25, 32	20	36	10 $^{+0.3}_{+0.1}$	12 H10	25	25	M10 × 1.25	16	12
		M1-Y-40	40	20	36	10 $^{+0.3}_{+0.1}$	12 H10	25	25	M12 × 1.5	16	12
CAV2 COV2	A	CAV2-50-Y	50	25	50	20 $^{+0.3}_{0}$	14 H10	42	(23)	M16 × 1.5	18	15
		CAV2-75-Y	75.100	30	65	28 $^{+0.3}_{0}$	20 H10	60	(35)	M22 × 1.5	28	22.5
HCA	B	M1-Y-20	20	17	30	8 $^{+0.3}_{+0.1}$	10 H10	19	19	M8 × 1.0	13	10
		M1-Y-30	25, 32	20	36	10 $^{+0.3}_{+0.1}$	12 H10	25	25	M10 × 1.25	16	12
	A	S1-Y-40	40	24	50	18 $^{+0.4}_{+0.1}$	12 H10	36	(27)	M14 × 1.5	19	16
		S1-Y-50	50	24	50	18 $^{+0.4}_{+0.1}$	12 H10	36	(27)	M18 × 1.5	19	16
		S1-Y-63	63	24	50	20 $^{+0.4}_{+0.1}$	14 H10	40	(27)	M18 × 1.5	19	16
		S1-Y-80	80	35	70	28 $^{+0.4}_{+0.1}$	20 H10	56	(41)	M22 × 1.5	30	25
		S1-Y-100	100	35	70	28 $^{+0.4}_{+0.1}$	20 H10	56	(41)	M26 × 1.5	30	25
JSG	A	SCG-Y-40	40	21	40	14 $^{+0.3}_{+0.1}$	10 H10	28	(22)	M14 × 1.5	19	11
		SCG-Y-50	50, 63	26	50	20 $^{+0.3}_{+0.1}$	14 H10	40	(28)	M18 × 1.5	24	14
		SCG-Y-80	80	31	65	30 $^{+0.3}_{+0.1}$	22 H10	60	(40)	M22 × 1.5	34	20
		SCG-Y-100	100	31	65	30 $^{+0.3}_{+0.1}$	22 H10	60	(40)	M26 × 1.5	34	20
JSM2	B	M1-Y-20	20	17	30	8 $^{+0.3}_{+0.1}$	10 H10	19	19	M8 × 1.0	13	10
		M1-Y-30	30	20	36	10 $^{+0.3}_{+0.1}$	12 H10	25	25	M10 × 1.25	16	12
		M1-Y-40	40	20	36	10 $^{+0.3}_{+0.1}$	12 H10	25	25	M12 × 1.5	16	12
JSK2	B	M1-Y-20	20	17	30	8 $^{+0.3}_{+0.1}$	10 H10	19	19	M8 × 1.0	13	10
		M1-Y-30	25, 32	20	36	10 $^{+0.3}_{+0.1}$	12 H10	25	25	M10 × 1.25	16	12
		M1-Y-40	40	20	36	10 $^{+0.3}_{+0.1}$	12 H10	25	25	M12 × 1.5	16	12
JSC3	A	S1-Y-40	40	24	50	18 $^{+0.4}_{+0.1}$	12 H10	36	(27)	M14 × 1.5	19	16
		S1-Y-50	50	24	50	18 $^{+0.4}_{+0.1}$	12 H10	36	(27)	M18 × 1.5	19	16
		S1-Y-63	63	24	50	20 $^{+0.4}_{+0.1}$	14 H10	40	(27)	M18 × 1.5	19	16
		S1-Y-80	80	35	70	28 $^{+0.4}_{+0.1}$	20 H10	56	(41)	M22 × 1.5	30	25
		S1-Y-100	100	35	70	28 $^{+0.4}_{+0.1}$	20 H10	56	(41)	M26 × 1.5	30	25
JSC4	A	SCS2-125-Y	125	50	85	32 $^{+0.4}_{+0.1}$	25 H10	64	(46)	M30 × 1.5	35	27.5
		SCS2-140-Y	140	50	90	36 $^{+0.4}_{+0.1}$	28 H10	72	(46)	M30 × 1.5	40	30
		SCS2-160-Y	160	60	105	40 $^{+0.4}_{+0.1}$	32 H10	80	(55)	M36 × 1.5	45	35
		SCS2-180-Y	180	65	115	50 $^{+0.4}_{+0.1}$	40 H10	100	(60)	M40 × 1.5	50	42.5
SCP□3	B	P2-Y-10	10	8	21	3.2 $^{+0.2}_{+0.1}$	3.2 H10	12	12	M4	10	7
		P2-Y-16	16	11	21	6.5 $^{+0.2}_{+0.1}$	5 H10	12	12	M5	10	7

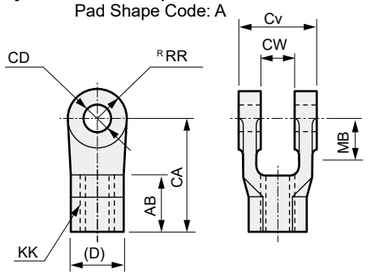
Note: The A and B figures are a guide only. For details, refer to the accessories and dimensions diagrams of each model.

Double Knuckle (by series)

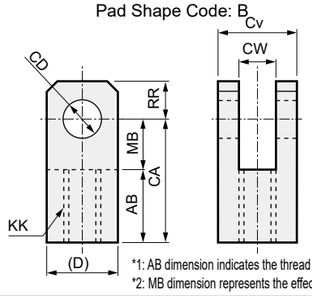
Model	Shape Code	Model No.	Applicable bore size (ø)	AB	CA	CW	CD	Cv	D	KK	MB	RR
SCG	A	SCG-Y-32	32	14	30	14 $^{+0.3}_{+0.1}$	10 H10	28	(20)	M10 × 1.25	16	10
		SCG-Y-40	40	21	40	14 $^{+0.3}_{+0.1}$	10 H10	28	(22)	M14 × 1.5	19	11
		SCG-Y-50	50, 63	26	50	20 $^{+0.3}_{+0.1}$	14 H10	40	(28)	M18 × 1.5	24	14
		SCG-Y-80	80	31	65	30 $^{+0.3}_{+0.1}$	22 H10	60	(40)	M22 × 1.5	34	20
		SCG-Y-100	100	31	65	30 $^{+0.3}_{+0.1}$	22 H10	60	(40)	M26 × 1.5	34	20
SCA2	A	S1-Y-40	40	24	50	18 $^{+0.4}_{+0.1}$	12 H10	36	(27)	M14 × 1.5	19	16
		S1-Y-50	50	24	50	18 $^{+0.4}_{+0.1}$	12 H10	36	(27)	M18 × 1.5	19	16
		S1-Y-63	63	24	50	20 $^{+0.4}_{+0.1}$	14 H10	40	(27)	M18 × 1.5	19	16
		S1-Y-80	80	35	70	28 $^{+0.4}_{+0.1}$	20 H10	56	(41)	M22 × 1.5	30	25
		S1-Y-100	100	35	70	28 $^{+0.4}_{+0.1}$	20 H10	56	(41)	M26 × 1.5	30	25
SCS2	A	SCS2-125-Y	125	50	85	32 $^{+0.4}_{+0.1}$	25 H10	64	(46)	M30 × 1.5	35	27.5
		SCS2-140-Y	140	50	90	36 $^{+0.4}_{+0.1}$	28 H10	72	(46)	M30 × 1.5	40	30
		SCS2-160-Y	160	60	105	40 $^{+0.4}_{+0.1}$	32 H10	80	(55)	M36 × 1.5	45	35
		SCS2-180-Y	180	65	115	50 $^{+0.4}_{+0.1}$	40 H10	100	(60)	M40 × 1.5	50	42.5
		SCS2-200-Y	200	75	125	50 $^{+0.4}_{+0.1}$	40 H10	100	(70)	M45 × 1.5	50	42.5
		SCS2-250-Y	250	88	150	63 $^{+0.4}_{+0.1}$	50 H10	126	(85)	M56 × 2	62	52.5
SCM	B	SCM-Y-20	20	13.5	25	8 $^{+0.4}_{+0.2}$	8 H10	16	16	M8	11.5	9
		SCM-Y-25	25, 32	16	30	10 $^{+0.4}_{+0.2}$	10 H10	20	20	M10 × 1.25	14	11
	A	SCM-Y-40	40	16	30	18 $^{+0.5}_{+0.3}$	10 H10	36	22	M14 × 1.5	14	12
		SCM-Y-50	50, 63	20	40	22 $^{+0.5}_{+0.3}$	14 H10	44	28	M18 × 1.5	20	16
		SCM-Y-80	80	23	50	28 $^{+0.5}_{+0.3}$	18 H10	56	38	M22 × 1.5	27	21
		SCM-Y-100	100	24	55	32 $^{+0.5}_{+0.3}$	22 H10	64	44	M26 × 1.5	31	24
SSD	B	P2-Y-16	12	11	21	6.5 $^{+0.2}_{+0.1}$	5 H10	12	12	M5	10	7
	A	SSD-Y-16	16	11	21	6.5 $^{+0.2}_{+0.1}$	5 H10	12	12	M6	10	10
	B	SSD-Y-20	20	17	30	8 $^{+0.3}_{+0.1}$	10 H10	19	19	M8	13	10
		M1-Y-30	25	20	36	10 $^{+0.3}_{+0.1}$	12 H10	25	25	M10 × 1.25	16	12
		SSD-Y-32	32	15	36	10 $^{+0.3}_{+0.1}$	12 H10	25	25	M14	16	12
	A	SSD-Y-40	40	24	50	18 $^{+0.4}_{+0.1}$	12 H10	36	(27)	M14 × 1.5	19	16
		SSD-Y-50	50	24	50	18 $^{+0.4}_{+0.1}$	12 H10	36	(27)	M18 × 1.5	19	16
		SSD-Y-63	63	24	50	20 $^{+0.4}_{+0.1}$	14 H10	40	(27)	M18 × 1.5	19	16
		SSD-Y-80	80	35	70	28 $^{+0.4}_{+0.1}$	20 H10	56	(41)	M22 × 1.5	30	25
		SSD-Y-100	100	35	70	28 $^{+0.4}_{+0.1}$	20 H10	56	(41)	M26 × 1.5	30	25
	B	SCS2-125-Y	125, 140	50	85	32 $^{+0.4}_{+0.1}$	25 H10	64	(46)	M30 × 1.5	35	27.5
		SCS2-160-Y	160	60	105	40 $^{+0.4}_{+0.1}$	32 H10	80	(55)	M36 × 1.5	45	35
SSD2	B	SSD2-Y-12	12	6	16	5 $^{+0.4}_{+0.2}$	5 H10	10	10	M5 × 0.8	7	5.5
		SSD2-Y-16	16	11	21	6.5 $^{+0.4}_{+0.2}$	5 H10	12	12	M6×1	10	7
		SSD2-Y-20	20	13.5	25	8 $^{+0.4}_{+0.2}$	8 H10	16	16	M8 × 1.25	11.5	9
		SSD2-Y-25	25	16	30	10 $^{+0.4}_{+0.2}$	10 H10	20	20	M10 × 1.25	14	11
	A	SSD2-Y-32	32, 40	16	30	18 $^{+0.5}_{+0.3}$	10 H10	36	ø22	M14 × 1.5	14	12
		SSD2-Y-50	50, 63	20	40	22 $^{+0.5}_{+0.3}$	14 H10	44	ø28	M18 × 1.5	20	16
		SSD2-Y-80	80	23	50	28 $^{+0.5}_{+0.3}$	18 H10	56	ø38	M22 × 1.5	27	21
		SSD2-Y-100	100	24	55	32 $^{+0.5}_{+0.3}$	22 H10	64	ø44	M26 × 1.5	31	24
ULK	B	M1-Y-20	20	17	30	8 $^{+0.3}_{+0.1}$	10 H10	19	19	M8 × 1.0	13	10
		M1-Y-30	25, 32	20	36	10 $^{+0.3}_{+0.1}$	12 H10	25	25	M10 × 1.25	16	12
		M1-Y-40	40	20	36	10 $^{+0.3}_{+0.1}$	12 H10	25	25	M12 × 1.5	16	12

Double-knuckle (by thread size)

Pad Shape Code: A



Pad Shape Code: B



*1: AB dimension indicates the thread depth.
*2: MB dimension represents the effective length of CW dimension.

Thread size KK	Model No.	Shape Code	Compatible model	Applicable Bore (ø)	AB	CA	CW	CD	Cv	D	MB	RR
M4	P2-Y-10	B	SCP□3	10	8	21	3.2 $^{+0.2}_{0}$	3.2 ^{H10}	12	12	10	7
M5	P2-Y-16	B	SCP□3	16	11	21	6.5 $^{+0.2}_{0}$	5 ^{H10}	12	12	10	7
			SSD	12								
	SSD2-Y-12	B	SSD2	12	6	16	5 $^{+0.4}_{+0.2}$	5 ^{H10}	10	10	7	5.5
M6	SSD-Y-16	A	SSD	16	11	21	6.5 $^{+0.2}_{+0.1}$	5	12	12	10	10
	SSD2-Y-16	B	SSD2	16	11	21	6.5 $^{+0.4}_{+0.2}$	5 ^{H10}	12	12	10	7
M8 × 1.0	M1-Y-20	B	CKV2, CMA2, CMK2 HCA, JSK2, JSM2 ULK	20	17	30	8 $^{+0.3}_{+0.1}$	10 ^{H10}	19	19	13	10
M8	SCM-Y-20	B	SCM	20	13.5	25	8 $^{+0.4}_{+0.2}$	8 ^{H10}	16	16	11.5	9
	SSD-Y-20	B	SSD	20	17	30	8 $^{+0.3}_{+0.1}$	10	19	19	13	10
M8 × 1.25	SSD2-Y-20	B	SSD2	20	13.5	25	8 $^{+0.4}_{+0.2}$	8 ^{H10}	16	16	11.5	9
M10 × 1.25	SCG-Y-32	A	SCG	32	14	30	14 $^{+0.3}_{+0.1}$	10 ^{H10}	28	(20)	16	10
	M1-Y-30	B	CKV2, CMA2, CMK2 HCA, JSK2, JSM2 ULK, SSD	25, 30, 32	20	36	10 $^{+0.3}_{+0.1}$	12 ^{H10}	25	25	16	12
	SCM-Y-25	B	SCM	25, 32	16	30	10 $^{+0.4}_{+0.2}$	10 ^{H10}	20	20	14	11
	SSD2-Y-25	B	SSD2	25	16	30	10 $^{+0.4}_{+0.2}$	10 ^{H10}	20	20	14	11
M12 × 1.5	M1-Y-40	B	CKV2, CMA2, CMK2 JSK2, JSM2, ULK	40	20	36	10 $^{+0.3}_{+0.1}$	12 ^{H10}	25	25	16	12
M14 × 1.5	SCG-Y-40	A	SCG, JSG	40	21	40	14 $^{+0.3}_{+0.1}$	10 ^{H10}	28	(22)	19	11
	S1-Y-40	A	HCA, JSC3 SCA2, SSD	40	24	50	18 $^{+0.4}_{+0.1}$	12 ^{H10}	36	(27)	19	16
	SCM-Y-40	A	SCM	40	16	30	18 $^{+0.5}_{+0.3}$	10 ^{H10}	36	22	14	12
M14	SSD-Y-32	B	SSD	32	15	36	10 $^{+0.3}_{+0.1}$	12	25	25	16	12
M14 × 1.5	SSD2-Y-32	A	SSD2	32, 40	16	30	18 $^{+0.5}_{+0.3}$	10 ^{H10}	36	ø22	14	12
M16 × 1.5	CAV2-50-Y	A	CAV2, COV	50	25	50	20 $^{+0.3}_{0}$	14 ^{H10}	42	(23)	18	15
M18 × 1.5	SCG-Y-50	A	SCG, JSG	50, 63	26	50	20 $^{+0.3}_{+0.1}$	14 ^{H10}	40	(28)	24	14
	S1-Y-50	A	HCA, JSC3, SCA2	50	24	50	18 $^{+0.4}_{+0.1}$	12 ^{H10}	36	(27)	19	16
	SSD-Y-50		SSD									
	S1-Y-63	A	HCA, JSC3, SCA2	63	24	50	20 $^{+0.4}_{+0.1}$	14 ^{H10}	40	(27)	19	16
	SSD-Y-63		SSD									
	SCM-Y-50	A	SCM	50, 63	20	40	22 $^{+0.5}_{+0.3}$	14 ^{H10}	44	28	20	16
	SSD2-Y-50	A	SSD2	50, 63	20	40	22 $^{+0.5}_{+0.3}$	14 ^{H10}	44	ø28	20	16
M22 × 1.5	SCG-Y-80	A	SCG, JSG	80	31	65	30 $^{+0.3}_{+0.1}$	22 ^{H10}	60	(40)	34	20
	CAV2-75-Y	A	CAV2, COV2	75.100	30	65	28 $^{+0.3}_{0}$	20 ^{H10}	60	(35)	28	22.5
	S1-Y-80	A	HCA, JSC3, SCA2	80	35	70	28 $^{+0.4}_{+0.1}$	20 ^{H10}	56	(41)	30	25
	SSD-Y-80		SSD									
	SCM-Y-80	A	SCM	80	23	50	28 $^{+0.5}_{+0.3}$	18 ^{H10}	56	38	27	21
	SSD2-Y-80	A	SSD2	80	23	50	28 $^{+0.5}_{+0.3}$	18 ^{H10}	56	ø38	27	21
M26 × 1.5	SCG-Y-100	A	SCG, JSG	100	31	65	30 $^{+0.3}_{+0.1}$	22 ^{H10}	60	(40)	34	20
	S1-Y-100	A	HCA, JSC3, SCA2	100	35	70	28 $^{+0.4}_{+0.1}$	20 ^{H10}	56	(41)	30	25
	SSD-Y-100		SSD									
	SCM-Y-100	A	SCM	100	24	55	32 $^{+0.5}_{+0.3}$	22 ^{H10}	64	44	31	24

Note: The A and B figures are a guide only. For details, refer to the accessories and dimensions diagrams of each model.

Double-knuckle (by thread size)

Thread size KK	Model No.	Shape Code	Compatible model	Applicable Bore (ø)	AB	CA	CW	CD	Cv	D	MB	RR
M26 × 1.5	SSD2-Y-100	A	SSD2	100	24	55	32 $^{+0.5}_{+0.3}$	22 ^{H10}	64	ø44	31	24
M30 × 1.5	SCS2-125-Y	A	JSC4, SCS2	125	50	85	32 $^{+0.4}_{+0.1}$	25 $^{+0.084}_{0}$	64	(46)	35	27.5
			SSD	125, 140								
	SCS2-140-Y	A	JSC4, SCS2	140	50	90	36 $^{+0.4}_{+0.1}$	28 $^{+0.084}_{0}$	72	(46)	40	30
M36 × 1.5	SCS2-160-Y	A	JSC4, SCS2, SSD	160	60	105	40 $^{+0.4}_{+0.1}$	32 $^{+0.100}_{0}$	80	(55)	45	35
M40 × 1.5	SCS2-180-Y	A	JSC4, SCS2	180	65	115	50 $^{+0.4}_{+0.1}$	40 $^{+0.100}_{0}$	100	(60)	50	42.5
M45 × 1.5	SCS2-200-Y	A	SCS2	200	75	125	50 $^{+0.4}_{+0.1}$	40 $^{+0.100}_{0}$	100	(70)	50	42.5
M56 × 2	SCS2-250-Y	A	SCS2	250	88	150	63 $^{+0.4}_{+0.1}$	50 $^{+0.100}_{0}$	126	(85)	62	52.5

Note: The A and B figures are a guide only. For details, refer to the accessories and dimensions diagrams of each model.

Custom Products

	Page
■ Rod End Shape Modification	
Model No. Indication Method	Ending 12
• Rod End Female Thread (with Undercut) "N1"	Ending 13
• Rod End Female Thread "N11"	Ending 14
• Rod End No Thread "N12"	Ending 15
• Rod End Male Thread "N13"	Ending 16
• Rod End Spherical Radius "N14"	Ending 17
• Rod End Male Thread (with Undercut) "N15"	Ending 18
• Rod End Single Knuckle Shape "N2"	Ending 19
• Rod End Double Knuckle Shape "N21"	Ending 20
• Rod End with Groove "N3"	Ending 21
• Rod End with Groove and Spherical Radius "N31"	Ending 22

■Rod End Shape Modification (N**)

For detailed specifications, dimensions, price, and delivery, please contact us.

Model No. Notation Method

SCM - 00 - 40 B - 200 - N13 A23 WF25

Model No.

Applicable Model

Model No.	Name
SCG	Tie Rod Cylinder
JSG	Tie Rod Cylinder with Brake
SCP□3	Pencil Shaped Cylinder
CMK2	Small bore size cylinder
SCA2	Medium Bore Size Cylinder
SCS2	Medium Bore Size Cylinder
SCP□3-V	Ultra Compact Cell Cylinder
MDC2	Small Direct Cylinder
SSD	Compact Cylinder
SCM	Round shaped cylinder
ULK	Brake Cylinder
JSC3/JSC4	Brake Cylinder
FC□	Flat Cylinder Compact Demi

Model No.

Please refer to the model number indication method for each model.

Rod End Patterns

Code	Contents
N1	Rod End Female Thread (with Undercut)
N11	Rod end female thread
N12	Rod end without thread
N14	Rod End Spherical Radius
N13	Rod end male thread
N15	Rod End Male Thread (with Undercut)
N2	Rod End Single Knuckle Shape
N21	Rod End Double Clevis Shape
N3	Rod End with Groove
N31	Rod End with Groove and Spherical Radius

Custom dimension

Refer to the external dimensions list.

* Please enter only when different from the basic dimensions.

⚠ Precautions for Changing Rod End Shape

1. Depending on the specified dimensions, the same strength as the standard product may not be guaranteed.
2. Please leave dimensions, tolerances, and finishes not specified on the drawing to CKD's discretion.

⚠ Notes for model No. Selection

1. When it is necessary to change some dimensions, enter the pattern code followed by the dimension code, then the specified dimension.
2. When specifying multiple items, specify them in order from the left dimension code in the outline dimension table.

(Example) Model No.-N13KKM18×1.5A40WF20

3. If a thread size is specified, the rod end nut is not included.
4. The basic dimensions for N11 are the same as the dimensions for the female thread specification of each model.

The basic dimensions for N13 are the same as the dimensions for the male thread specification of each model.

If specified dimensions are not required for both N11 and N13, follow the model number indication method for each model.

(Incorrect) (Correct)

(Example) SCM-00-40B-200-N13 -> SCM-00-40B-200 (Symbol not required as N13 is standard)

SSD-50-50-N11 -> SSD-50-50 (Symbol not required as N11 is standard)

SSD-50-50-N13 -> SSD-50-50-N (Because "N" exists as the female thread code)

For models that do not have a code for male or female threads in their model number indication method, follow the rod end patterns on this page.

5. Even when there are accessories, etc., enter the codes after the rod end pattern at the very end of the model number.

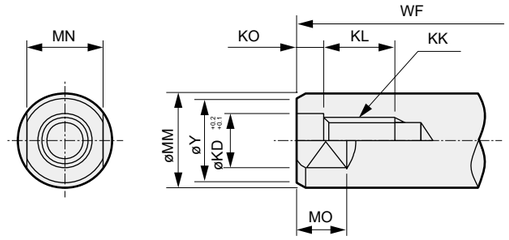
(Incorrect) (Correct)

(Example) SSD-50-50-N13KKM8-CB -> SSD-50-50-CB-N13KKM8

6. This custom model number is for ordering purposes and may differ from the official model number.
7. For double rod types and back-to-back types, please consult with us separately regarding the model number indication.

Rod End Female Thread (with Undercut) (Pattern Code "N1")

Outline Dimension Drawing



When manufacturing with the dimensions in the dimension table, please specify pattern code "N1". When it is necessary to change some dimensions, enter the pattern code followed by the dimension code, then the specified dimension.

(Example) SCM-00-40B-200-N1WF25

WF standard dimension is 20, but this is available at 25.

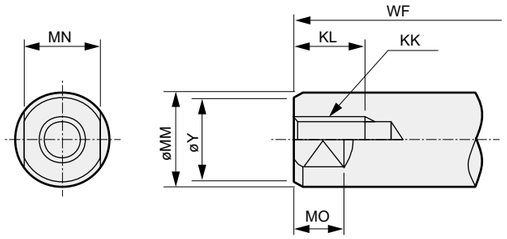
When specifying multiple items, specify them in order from the left code.

*1: CMK2-G2/G3 dimensions are shown in ( ).
*2: For CMA2-E, use the dimensions shown in parentheses.
*3: For SSD-G2, G3, KG2, and KG3, use the dimensions shown in parentheses.
*4: For SSD, the WF dimension is different when LB2 or FA is selected. Please consult us separately.
*5: For SCM-LD, use the dimensions shown in parentheses.

Series	Bore Size	øMM	KK	øKD	KO	KL	øY	MN	MO	WF
CMK2	20	10	M5 × 0.8	5	2.5	10	8	8	5	24
CKV2	25	12	M6×1	6	3	10	10	10	5	23 (28)
ULK	32	12	M6×1	6	3	10	10	10	5	23 (28)
*1	40	14	M8 × 1.25	8	4	14	12	12	6	23 (28)
CMA2	20	10	M5 × 0.8	5	2.5	10	8	8	5	24 (11)
JSM2	30	12	M6×1	6	3	10	10	10	5	23 (7)
*2	40	14	M8 × 1.25	8	4	14	12	12	6	23 (6)
SCG	32	12	M6×1	6	3	10	10	10	5	25
SCG	40	16	M8 × 1.25	8	4	14	14	14	6	21
JSG	50	20	M10×1.5	10	5	16	18	17	8	23
	63	20	M10×1.5	10	5	16	18	17	8	23
	80	25	M12×1.75	12	5.5	18	22	22	11	32
	100	30	M16×2	16	6	24	27	27	13	32
SCA2	40	16	M8 × 1.25	8	4	14	14	14	8	33.5
	50	20	M10×1.5	10	5	16	18	17	8	37
	63	20	M10×1.5	10	5	16	18	17	8	35
	80	25	M12×1.75	12	5.5	18	22	22	11	48
	100	30	M16×2	16	6	24	27	27	13	53
SCS2	125	32	M18×2.5	18	7.5	26	29	27	14	65
	140	32	M18×2.5	18	7.5	26	29	27	14	67
	160	40	M20×2.5	20	7.5	28	36	36	15	71
	180	45	M22×2.5	22	7.5	30	41	41	17	78
	200	50	M24×3	24	9	32	46	46	20	88
	250	60	M30×3.5	30	10.5	36	56	55	22	94
JSC3	40	16	M8 × 1.25	8	4	14	14	14	8	30
	50	20	M10×1.5	10	5	16	18	17	8	34
	63	20	M10×1.5	10	5	16	18	17	8	30
	80	25	M12×1.75	12	5.5	18	22	22	11	43.5
	100	30	M16×2	16	6	24	27	27	13	48
JSC4	125	35	M18×2.5	18	7.5	26	32	30	14	55
	140	35	M18×2.5	18	7.5	26	32	30	14	57
	160	40	M20×2.5	20	7.5	28	36	36	16	71.5
	180	45	M22×2.5	22	7.5	30	41	41	18	78.5
SSD	12	6	M3×0.5	3	2	6	5	5	3.5	3.5
*3	16	8	M4×0.7	4	2.5	8	7	6	3.5	3.5 (8.5)
*4	20	10	M5 × 0.8	5	2.5	7	8	8	4.5	4.5 (9.5)
	25	12	M6×1	6	3	12	10	10	5	5 (10)
	32	16	M8 × 1.25	8	4	13	14	14	7	7 (12)
	40	16	M8 × 1.25	8	4	13	14	14	7	7 (12)
	50	20	M10 × 1.5	10	4.5	15	18	17	8	8 (13)
	63	20	M10 × 1.5	10	4.5	15	18	17	8	8 (13)
	80	25	M16 × 2	16	6	21	22	22	10	10 (15)
	100	30	M20 × 2.5	20	7.5	27	27	27	12	12 (17)
	125	35	M22 x 2.5	22	7.5	30	33	30	11	16
	140	35	M22 x 2.5	22	7.5	30	33	30	11	16
	160	40	M24 x 3	24	9	33	38	36	14	17
FCD	25	12	M5 × 0.8	5	2.5	9	10	10	5	5
	32	16	M6×1	6	3	11	14	14	7	7
	40	16	M8 × 1.25	8	4	13	14	14	7	8
	50	20	M8 × 1.25	8	4	13	18	17	8	9.5
	63	20	M10 × 1.5	10	5	15	18	17	8	9.5
SCM	20	8	M4×0.7	4	2.5	8	7	6	4	17 (9)
*5	25	10	M5 × 0.8	5	2.5	10	8	8	5	18 (10)
	32	12	M6×1	6	3	10	10	10	5.5	18 (10)
	40	16	M8 × 1.25	8	4	14	14	14	6	20 (9)
	50	20	M10 × 1.5	10	5	16	18	17	8	23 (10)
	63	20	M10 × 1.5	10	5	16	18	17	8	23 (10)
	80	25	M12 × 1.75	12	5.5	18	22	22	11	31
	100	30	M16 × 2	16	6	24	27	27	13	31

Rod End Female Thread (Pattern Code "N11")

Outline Dimension Drawing



*1: The Y dimension may change slightly.

When manufacturing with the dimensions in the dimension table, please specify pattern code "N11". When it is necessary to change some dimensions, enter the pattern code followed by the dimension code, then the specified dimension.

(Example) SCM-00-40B-200-N11WF25

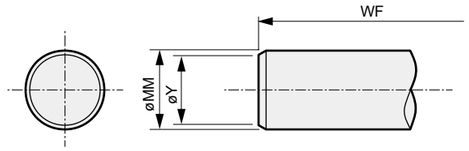
WF standard dimension is 20, but this is available at 25.

*2: CMK2-G2/G3 dimensions are shown in ( ).
*3: For CMA2-E, use the dimensions shown in parentheses.
*4: SSD-G2/G3/KG2/KG3 are the dimensions in ( ).
*5: For SSD, the WF dimension is different when LB2 or FA is selected. Please consult us separately.
*6: For SCM-LD, use the dimensions shown in parentheses.
*7: "WF" is not listed in the MDC2 catalog. The dimension labeled (O) should be taken as "WF".

Series	Bore Size	øMM	KK	KL	øY	MN	MO	WF
CMK2 CKV2 ULK *2	20	10	M5 × 0.8	10	8	8	5	24
	25	12	M6×1	10	10	10	5	23 (28)
	32	12	M6×1	10	10	10	5	23 (28)
	40	14	M8 × 1.25	14	12	12	6	23 (28)
CMA2 JSM2 *3	20	10	M5 × 0.8	10	8	8	5	24 (11)
	30	12	M6×1	10	10	10	5	23 (7)
	40	14	M8 × 1.25	14	12	12	6	23 (6)
SCG	32	12	M6×1	10	10	10	5	25
SCG JSG	40	16	M8 × 1.25	14	14	14	6	21
	50	20	M10 × 1.5	16	18	17	8	23
	63	20	M10 × 1.5	16	18	17	8	23
	80	25	M12 × 1.75	18	22	22	11	32
	100	30	M16 × 2	24	27	27	13	32
SCA2	40	16	M8 × 1.25	14	14	14	8	33.5
	50	20	M10 × 1.5	16	18	17	8	37
	63	20	M10 × 1.5	16	18	17	8	35
	80	25	M12 × 1.75	18	22	22	11	48
	100	30	M16 × 2	24	27	27	13	53
SCS2	125	32	M18 × 2.5	26	29	27	14	65
	140	32	M18 × 2.5	26	29	27	14	67
	160	40	M20 × 2.5	28	36	36	15	71
	180	45	M22 x 2.5	30	41	41	17	78
	200	50	M24 x 3	32	46	46	20	88
	250	60	M30×3.5	36	56	55	22	94
JSC3	40	16	M8 × 1.25	14	14	14	8	30
	50	20	M10 × 1.5	16	18	17	8	34
	63	20	M10 × 1.5	16	18	17	8	30
	80	25	M12 × 1.75	18	22	22	11	43.5
	100	30	M16 × 2	24	27	27	13	48
JSC4	125	35	M18 × 2.5	26	32	30	14	55
	140	35	M18 × 2.5	26	32	30	14	57
	160	40	M20 × 2.5	28	36	36	16	71.5
	180	45	M22 x 2.5	30	41	41	18	78.5
SSD *4 *5	12	6	M3×0.5	6	5	5	3.5	3.5
	16	8	M4×0.7	8	7	6	3.5	3.5 (8.5)
	20	10	M5 × 0.8	7	8	8	4.5	4.5 (9.5)
	25	12	M6×1	12	10	10	5	5 (10)
	32	16	M8 × 1.25	13	14	14	7	7 (12)
	40	16	M8 × 1.25	13	14	14	7	7 (12)
	50	20	M10 × 1.5	15	18	17	8	8 (13)
	63	20	M10 × 1.5	15	18	17	8	8 (13)
	80	25	M16 × 2	21	22	22	10	10 (15)
	100	30	M20 × 2.5	27	27	27	12	12 (17)
	125	35	M22 x 2.5	30	33	30	11	16
	140	35	M22 x 2.5	30	33	30	11	16
	160	40	M24 x 3	33	38	36	14	17
FCD	25	12	M5 × 0.8	9	10	10	5	5
	32	16	M6×1	11	14	14	7	7
	40	16	M8 × 1.25	13	14	14	7	8
	50	20	M8 × 1.25	13	18	17	8	9.5
	63	20	M10 × 1.5	15	18	17	8	9.5
SCM *6	20	8	M4×0.7	8	7	6	4	17 (9)
	25	10	M5 × 0.8	10	8	8	5	18 (10)
	32	12	M6×1	10	10	10	5.5	18 (10)
	40	16	M8 × 1.25	14	14	14	6	20 (9)
	50	20	M10 × 1.5	16	18	17	8	23 (10)
	63	20	M10 × 1.5	16	18	17	8	23 (10)
	80	25	M12 × 1.75	18	22	22	11	31
	100	30	M16 × 2	24	27	27	13	31
MDC2 *7	6	4	M2.5×0.45	4	3.5	3.5	2.5	3
	8	5	M3×0.5	5	4.5	4.5	2.5	3
	10	6	M3×0.5	5	5	5	2.5	3

Rod End No Thread (Pattern Code "N12")

Outline Dimension Drawing



*1: "WF" is not listed in the SCP*3 catalog. The "13 mm" dimension should be taken as "WF".
*2: CMK2-G2/G3 dimensions are shown in ( ).
*3: For CMA2-E, use the dimensions shown in parentheses.
*4: This pattern cannot be specified for SSD-KU, SCM-U, or SCA2-U (low-friction cylinders).
*5: The same applies to SCP*3-V.
*6: For SSD-G2, G3, KG2, and KG3, use the dimensions shown in parentheses.
*7: For SSD, the WF dimension is different when LB2 or FA is selected. Please consult us separately.
*8: For SCM-LD, use the dimensions shown in parentheses.
*9: "WF" is not listed in the MDC2 catalog. The dimension labeled (O) should be taken as "WF".

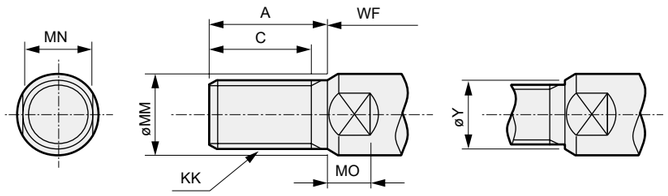
When manufacturing with the dimensions in the dimension table, please specify pattern code "N12". When it is necessary to change some dimensions, enter the pattern code followed by the dimension code, then the specified dimension.

Example
SCM-00-40B-200-N12WF25
WF standard dimension is 20, but this is available at 25.

Series	Bore Size	øMM	øY	WF
SCP□3 *1	6	3	2.5	13
	10	4	3.5	13
	16	5	4.5	13
CMK2 CKV2 ULK *2	20	10	8	24
	25	12	10	23 (28)
	32	12	10	23 (28)
	40	14	12	23 (28)
CMA2 JSM2 *3	20	10	8	24 (11)
	30	12	10	23 (7)
	40	14	12	23 (6)
SCG	32	12	10	25
SSG	40	16	14	21
	50	20	18	23
	63	20	18	23
	80	25	22	32
	100	30	27	32
SCA2 *4	40	16	14	33.5
	50	20	18	37
	63	20	18	35
	80	25	22	48
	100	30	27	53
SCS2	125	32	29	65
	140	32	29	67
	160	40	36	71
	180	45	41	78
	200	50	46	88
	250	60	56	94
JSC3	40	16	14	30
	50	20	18	34
	63	20	18	30
	80	25	22	43.5
	100	30	27	48
JSC4	125	35	32	55
	140	35	32	57
	160	40	36	71.5
	180	45	41	78.5
SCP□3-V *5	10	4	3.5	13
	16	5	4.5	13
SSD *4 *6 *7	12	6	5	3.5
	16	8	7	3.5 (8.5)
	20	10	8	4.5 (9.5)
	25	12	10	5 (10)
	32	16	14	7 (12)
	40	16	14	7 (12)
	50	20	18	8 (13)
	63	20	18	8 (13)
	80	25	22	10 (15)
	100	30	27	12 (17)
	125	35	33	16
	140	35	33	16
	160	40	38	17
FCD	25	12	10	5
	32	16	14	7
	40	16	14	8
	50	20	18	9.5
	63	20	18	9.5
SCM *4 *8	20	8	7	17 (9)
	25	10	8	18 (10)
	32	12	10	18 (10)
	40	16	14	20 (9)
	50	20	18	23 (10)
	63	20	18	23 (10)
	80	25	22	31
	100	30	27	31
MDC2 *9	4	2	1.5	3
	6	4	3.5	3
	8	5	4.5	3
	10	6	5	3

Rod End Male Thread (Pattern Code "N13")

Outline Dimension Drawing



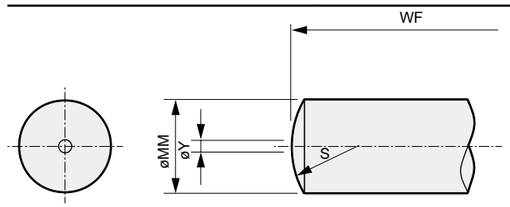
*1: "WF" is not listed in the SCP□3 catalog. The "13 mm" dimension should be taken as "WF".
*2: CMK2-G2/G3 dimensions are shown in ( ).
*3: For CMA2-E, use the dimensions shown in parentheses.
*4: The same applies to SCP□3-V.
*5: For SSD-G2, G3, KG2, and KG3, use the dimensions shown in parentheses.
*6: For SSD, the WF dimension is different when LB2 or FA is selected.Please consult us separately.
*7: For SCM-LD, use the dimensions shown in parentheses.
*8: If a thread size is specified, the rod end nut is not included. Additionally, the Y dimension may change slightly.

When manufacturing with the dimensions in the dimension table, please specify pattern code "N13". When it is necessary to change some dimensions, enter the pattern code “N13” followed by the dimension code, then the specified dimension.
(Example) SCM-00-40B-200-N13A23WF27
The standard WF dimension is 20, but it will be manufactured as 27. The standard A dimension is 30, but it will be manufactured as 23. If the C dimension is not specified, it will be manufactured with the standard (A-C) dimensional difference.

Series	Bore Size	øMM	KK	C	A	øY	MN	MO	WF
SCP□3 *1	6	3	M3×0.5	15	–	–	–	–	13
	10	4	M4×0.7	15	–	–	–	–	13
	16	5	M5 × 0.8	15	–	–	–	–	13
CMK2 CKV2 ULK *2	20	10	M8 x 1	18	20	8	8	5	24
	25	12	M10 × 1.25	20	23	10	10	5	23 (28)
	32	12	M10 × 1.25	20	23	10	10	5	23 (28)
	40	14	M12 × 1.5	22	25	12	12	6	23 (28)
CMA2 JSM2 *3	20	10	M8 x 1	18	20	8	8	5	24 (11)
	30	12	M10 × 1.25	20	23	10	10	5	23 (7)
	40	14	M12 × 1.5	22	25	12	12	6	23 (6)
SCG	32	12	M10 × 1.25	19.5	22	10	10	5.5	25
SCG JSG	40	16	M14 × 1.5	27	30	14	14	6	21
	50	20	M18 × 1.5	32	35	18	17	8	23
	63	20	M18 × 1.5	32	35	18	17	8	23
	80	25	M22 × 1.5	37	40	22	22	11	32
	100	30	M26 × 1.5	37	40	26	27	13	32
SCA2	40	16	M14 × 1.5	20	22	14	14	8	33.5
	50	20	M18 × 1.5	26	28	18	17	8	37
	63	20	M18 × 1.5	26	28	18	17	8	35
	80	25	M22 × 1.5	34	36	22	22	11	48
	100	30	M26 × 1.5	43	45	26	27	13	53
SCS2	125	32	M30 × 1.5	47	50	30	27	14	65
	140	32	M30 × 1.5	47	50	30	27	14	67
	160	40	M36 × 1.5	53	56	36	36	15	71
	180	45	M40 × 1.5	60	63	40	41	17	78
	200	50	M45 × 1.5	69	72	45	46	20	88
	250	60	M56 × 2	84	88	56	55	22	94
JSC3	40	16	M14 × 1.5	20	22	14	14	8	30
	50	20	M18 × 1.5	26	28	18	17	8	34
	63	20	M18 × 1.5	26	28	18	17	8	30
	80	25	M22 × 1.5	34	36	22	22	11	43.5
	100	30	M26 × 1.5	43	45	26	27	13	48
JSC4	125	35	M30 × 1.5	47	50	30	30	14	55
	140	35	M30 × 1.5	47	50	30	30	14	57
	160	40	M36 × 1.5	53	56	36	36	16	71.5
	180	45	M40 × 1.5	60	63	40	41	18	78.5
SCP□3-V *4	10	4	M4×0.7	15	–	–	–	–	13
	16	5	M5 × 0.8	15	–	–	–	–	13
SSD *5 *6	12	6	M5 × 0.8	9	10.5	5	5	3.5	3.5
	16	8	M6×1	10	12	6	6	3.5	3.5 (8.5)
	20	10	M8 × 1.25	12	14	8	8	4.5	4.5 (9.5)
	25	12	M10 × 1.25	15	17.5	10	10	5	5 (10)
	32	16	M14 × 1.5	20.5	23.5	14	14	5	5 (10)
	40	16	M14 × 1.5	20.5	23.5	14	14	5	5 (10)
	50	20	M18 × 1.5	26	28.5	18	17	5	5 (10)
	63	20	M18 × 1.5	26	28.5	18	17	5	5 (10)
	80	25	M22 × 1.5	32.5	35.5	22	22	8	8 (13)
	100	30	M26 × 1.5	32.5	35.5	26	27	8	8 (13)
	125	35	M30 × 1.5	42	45	30	30	11	13
	140	35	M30 × 1.5	42	45	30	30	11	13
	160	40	M36 × 1.5	47	50	36	36	11	14
FCD	25	12	M10 × 1.25	20	22	10	10	4	5
	32	16	M14 × 1.5	20	22	14	14	6	7
	40	16	M14 × 1.5	20	22	14	14	6	7
	50	20	M18 × 1.5	26	28	18	17	8	8
	63	20	M18 × 1.5	26	28	18	17	8	8
SCM *7	20	8	M8 × 1.25	16	18	–	6	4	17 (9)
	25	10	M10 × 1.25	20	22	–	8	5	18 (10)
	32	12	M10 × 1.25	20	22	10	10	5.5	18 (10)
	40	16	M14 × 1.5	27	30	14	14	6	20 (9)
	50	20	M18 × 1.5	32	35	18	17	8	23 (10)
	63	20	M18 × 1.5	32	35	18	17	8	23 (10)
	80	25	M22 × 1.5	37	40	22	22	11	31
	100	30	M26 × 1.5	37	40	26	27	13	31
MDC2 *8	6	4	M3×0.5	6	8	3.5	3.5	2.5	3
	8	5	M4×0.7	7	9	4.5	4.5	2.5	3
	10	6	M5 × 0.8	9	11	5	5	2.5	3

Rod End Spherical Radius (Pattern Code "N14")

Outline Dimension Drawing



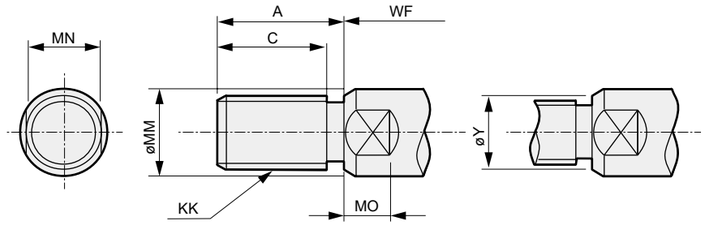
*1: "WF" is not listed in the SCP□3 and SCP□3-V catalogs. The "13 mm" dimension should be taken as "WF".
*2: CMK2-G2/G3 dimensions are shown in ( ).
*3: This pattern cannot be specified for SSD-KU, SCM-U, or SCA2-U (low-friction cylinders).

When manufacturing with the dimensions in the dimension table, please specify pattern code "N14". When it is necessary to change some dimensions, enter the pattern code followed by the dimension code, then the specified dimension.
(Example) SCM-00-40B-200-N14WF25
WF standard dimension is 20, but this is available at 25.
*4: SSD-G2/G3/KG2/KG3 are the dimensions in ( ).
*5: For SSD, the WF dimension is different when LB2 or FA is selected. Please consult us separately.
*6: For SCM-LD, use the dimensions shown in parentheses.

Series	Bore Size	øMM	øY	S	WF
SCP□3 *1	6	3	0.3	3	13
	10	4	0.3	4	13
	16	5	0.3	5	13
CMK2 CKV2 ULK *2	20	10	0.5	10	24
	25	12	0.5	12	23 (28)
	32	12	0.5	12	23 (28)
	40	14	0.5	14	23 (28)
SCG	32	12	0.5	12	25
SCG JSG	40	16	1	16	21
	50	20	1	20	23
	63	20	1	20	23
	80	25	1	25	32
	100	30	1	30	32
SCA2 *3	40	16	1	16	33.5
	50	20	1	20	37
	63	20	1	20	35
	80	25	1	25	48
	100	30	1	30	53
SCS2	125	32	2	32	65
	140	32	2	32	67
	160	40	2	40	71
	180	45	2	45	78
	200	50	2	50	88
	250	60	2	60	94
JSC3	40	16	1	16	30
	50	20	1	20	34
	63	20	1	20	30
	80	25	1	25	43.5
	100	30	1	30	48
JSC4	125	35	2	35	55
	140	35	2	35	57
	160	40	2	40	71.5
	180	45	2	45	78.5
SCP□3-V *1	10	4	0.3	4	13
	16	5	0.3	5	13
SSD *3 *4 *5	12	6	0.5	6	3.5
	16	8	0.5	8	3.5 (8.5)
	20	10	0.5	10	4.5 (9.5)
	25	12	0.5	12	5 (10)
	32	16	1	16	7 (12)
	40	16	1	16	7 (12)
	50	20	1	20	8 (13)
	63	20	1	20	8 (13)
	80	25	1	25	10 (15)
	100	30	1	30	12 (17)
	125	35	2	35	16
	140	35	2	35	16
	160	40	2	40	17
SCM *3 *6	20	8	0.5	8	17 (9)
	25	10	0.5	10	18 (10)
	32	12	0.5	12	18 (10)
	40	16	1	16	20 (9)
	50	20	1	20	23 (10)
	63	20	1	20	23 (10)
	80	25	1	25	31
	100	30	1	30	31

Rod End Male Thread (with Undercut) (Pattern Code "N15")

Outline Dimension Drawing



*1: If a thread size is specified, the rod end nut is not included. Additionally, the Y dimension may change slightly.

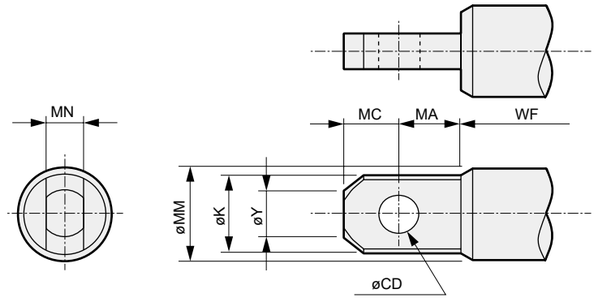
When manufacturing with the dimensions in the dimension table, please specify pattern code "N15".
When it is necessary to change some dimensions, enter the pattern code followed by the dimension code, then the specified dimension.
(Example) SCM-00-40B-200-N15C20A23
The standard C dimension is 27, but it will be manufactured as 20. The standard A dimension is 30, but it will be manufactured as 23. If the C dimension is not specified, it will be manufactured with the standard (A-C) dimensional difference.

*2: CMK2-G2/G3 dimensions are shown in ( ).
*3: For CMA2-E, use the dimensions shown in parentheses.
*4: SSD-G2/G3/KG2/KG3 are the dimensions in ( ).
*5: For SSD, the WF dimension is different when LB2 or FA is selected. Please consult us separately.
*6: For SCM-LD, use the dimensions shown in parentheses.

Series	Bore Size	øMM	KK	C	A	øY	MN	MO	WF
CMK2	20	10	M8 x 1	18	20	8	8	5	24
CKV2	25	12	M10 × 1.25	20	23	10	10	5	23 (28)
ULK	32	12	M10 × 1.25	20	23	10	10	5	23 (28)
*2	40	14	M12 × 1.5	22	25	12	12	6	23 (28)
CMA2	20	10	M8 x 1	18	20	8	8	5	24 (11)
JSM2	30	12	M10 × 1.25	20	23	10	10	5	23 (7)
*3	40	14	M12 × 1.5	22	25	12	12	6	23 (6)
SCG	32	12	M10 × 1.25	19.5	22	10	10	5	25
SCG	40	16	M14 × 1.5	27	30	14	14	6	21
JSG	50	20	M18 × 1.5	32	35	18	17	8	23
	63	20	M18 × 1.5	32	35	18	17	8	23
	80	25	M22 × 1.5	37	40	22	22	11	32
	100	30	M26 × 1.5	37	40	26	27	13	32
SCA2	40	16	M14 × 1.5	20	22	14	14	8	33.5
	50	20	M18 × 1.5	26	28	18	17	8	37
	63	20	M18 × 1.5	26	28	18	17	8	35
	80	25	M22 × 1.5	34	36	22	22	11	48
	100	30	M26 × 1.5	43	45	26	27	13	53
SCS2	125	32	M30 × 1.5	47	50	30	27	14	65
	140	32	M30 × 1.5	47	50	30	27	14	67
	160	40	M36 × 1.5	53	56	36	36	15	71
	180	45	M40 × 1.5	60	63	40	41	17	78
	200	50	M45 × 1.5	69	72	45	46	20	88
	250	60	M56 × 2	84	88	56	55	22	94
JSC3	40	16	M14 × 1.5	20	22	14	14	8	30
	50	20	M18 × 1.5	26	28	18	17	8	34
	63	20	M18 × 1.5	26	28	18	17	8	30
	80	25	M22 × 1.5	34	36	22	22	11	43.5
	100	30	M26 × 1.5	43	45	26	27	13	48
JSC4	125	35	M30 × 1.5	47	50	30	30	14	55
	140	35	M30 × 1.5	47	50	30	30	14	57
	160	40	M36 × 1.5	53	56	36	36	16	71.5
	180	45	M40 × 1.5	60	63	40	41	18	78.5
SSD	12	6	M5 × 0.8	9	10.5	5	5	3.5	3.5
*4	16	8	M6×1	10	12	6	6	3.5	3.5 (8.5)
*5	20	10	M8 × 1.25	12	14	8	8	4.5	4.5 (9.5)
	25	12	M10 × 1.25	15	17.5	10	10	5	5 (10)
	32	16	M14 × 1.5	20.5	23.5	14	14	5	5 (10)
	40	16	M14 × 1.5	20.5	23.5	14	14	5	5 (10)
	50	20	M18 × 1.5	26	28.5	18	17	5	5 (10)
	63	20	M18 × 1.5	26	28.5	18	17	5	5 (10)
	80	25	M22 × 1.5	32.5	35.5	22	22	8	8 (13)
	100	30	M26 × 1.5	32.5	35.5	26	27	8	8 (13)
	125	35	M30 × 1.5	42	45	30	30	11	13
	140	35	M30 × 1.5	42	45	30	30	11	13
	160	40	M36 × 1.5	47	50	36	36	11	14
FCD	25	12	M10 × 1.25	20	22	10	10	4	5
	32	16	M14 × 1.5	20	22	14	14	6	7
	40	16	M14 × 1.5	20	22	14	14	6	7
	50	20	M18 × 1.5	26	28	18	17	8	8
	63	20	M18 × 1.5	26	28	18	17	8	8
SCM	20	8	–	–	–	–	–	–	–
*6	25	10	–	–	–	–	–	–	–
	32	12	M10 × 1.25	20	22	10	10	5.5	18 (10)
	40	16	M14 × 1.5	27	30	14	14	6	20 (9)
	50	20	M18 × 1.5	32	35	18	17	8	23 (10)
	63	20	M18 × 1.5	32	35	18	17	8	23 (10)
	80	25	M22 × 1.5	37	40	22	22	11	31
	100	30	M26 × 1.5	37	40	26	27	13	31

Rod End Single Knuckle Shape (Pattern Code "N2")

Outline Dimension Drawing



Angle Tolerance

Code	Dimension	Angle Tolerance
CD	The tolerance shown to the right is applied uniformly regardless of the dimensions. When manufacturing with the dimensions in the dimension table, please specify pattern code "N2".	H10
MN	10 or less	-0.1 -0.2
	Over 10 30 or less	-0.1 −0.3
	Over 30 80 or less	-0.1 -0.4

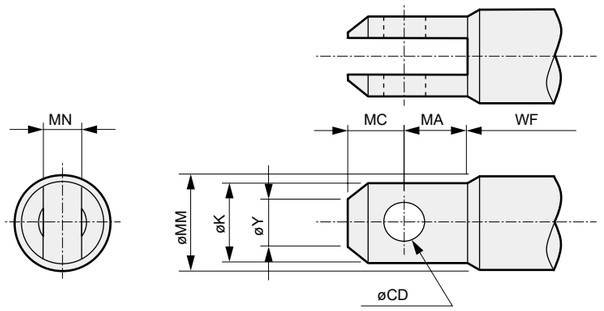
When manufacturing with the dimensions in the dimension table, please specify pattern code "N2". When it is necessary to change some dimensions, enter the pattern code followed by the dimension code, then the specified dimension.
(Example) SCM-00-40B-200-N2CD5MA7.5
The standard dimension for CD is 6, but it will be manufactured as 5.
The standard dimension for MA is 9, but it will be manufactured as 7.5.

*1: CMK2-G2/G3 dimensions are shown in ( ).
*2: For SSD-G2, G3, KG2, and KG3, use the dimensions shown in parentheses.
*3: For SSD, the WF dimension is different when LB2 or FA is selected. Please consult us separately.
*4: For SCM-LD, use the dimensions shown in parentheses.

Series	Bore Size	øMM	øCD	MN	MA	MC	øY	øK	WF
CMK2	20	10	4	4	6	4	5.4	9	24
CKV2	25	12	5	5	7.5	5	6.6	11	23 (28)
ULK	32	12	5	5	7.5	5	6.6	11	23 (28)
*1	40	14	6	6	9	6	7.8	13	23 (28)
SCG	32	12	5	5	7.5	5	6.6	11	25
SCG	40	16	6	6	9	6	9	15	21
JSG	50	20	8	8	12	8	11.4	19	23
	63	20	8	8	12	8	11.4	19	23
	80	25	10	10	15	10	14.4	24	32
	100	30	12	12	18	12	17.4	29	32
SCA2	40	16	6	6	9	6	9	15	33.5
	50	20	8	8	12	8	11.4	19	37
	63	20	8	8	12	8	11.4	19	35
	80	25	10	10	15	10	14.4	24	48
	100	30	12	12	18	12	17.4	29	53
SCS2	125	32	14	14	21	14	19.8	30	65
	140	32	14	14	21	14	19.8	30	67
	160	40	16	16	24	16	22.8	38	71
	180	45	18	18	27	18	25.8	43	78
	200	50	20	20	30	20	28.8	48	88
	250	60	24	24	36	24	34.8	58	94
JSC3	40	16	6	6	9	6	9	15	30
	50	20	8	8	12	8	11.4	19	34
	63	20	8	8	12	8	11.4	19	30
	80	25	10	10	15	10	14.4	24	43.5
	100	30	12	12	18	12	17.4	29	48
JSC4	125	35	14	14	21	14	19.8	33	55
	140	35	14	14	21	14	19.8	33	57
	160	40	16	16	24	16	22.8	38	71.5
	180	45	18	18	27	18	25.8	43	78.5
SSD	12	6	–	–	–	–	–	–	–
*2	16	8	–	–	–	–	–	–	–
*3	20	10	4	4	6	4	5.4	9	4.5 (9.5)
	25	12	5	5	7.5	5	6.6	11	5 (10)
	32	16	6	6	9	6	9	15	5 (10)
	40	16	6	6	9	6	9	15	5 (10)
	50	20	8	8	12	8	11.4	19	5 (10)
	63	20	8	8	12	8	11.4	19	5(13)
	80	25	10	10	15	10	14.4	24	8 (13)
	100	30	12	12	18	12	17.4	29	8 (13)
	125	35	14	14	21	14	19.8	33	13
	140	35	14	14	21	14	19.8	33	13
	160	40	16	16	24	16	22.8	38	14
SCM	20	8	–	–	–	–	–	–	–
*4	25	10	4	4	6	4	5.4	9	18 (10)
	32	12	5	5	7.5	5	6.6	11	18 (10)
	40	16	6	6	9	6	9	15	20 (9)
	50	20	8	8	12	8	11.4	19	23 (10)
	63	20	8	8	12	8	11.4	19	23 (10)
	80	25	10	10	15	10	14.4	24	31
	100	30	12	12	18	12	17.4	29	31

Rod End Double Knuckle Shape (Pattern Code "N21")

Outline Dimension Drawing



Angle Tolerance

Code	Dimension	Angle Tolerance
CD	The tolerance shown to the right is applied uniformly regardless of the dimensions.	H10
MN	10 or less	+0.2 +0.1
	Over 10 to 30 or Less	+0.3 +0.1
	Over 30 to 80 or Less	+0.4 +0.1

When manufacturing with the dimensions in the dimension table, please specify pattern code "N21". When it is necessary to change some dimensions, enter the pattern code followed by the dimension code, then the specified dimension.

(Example) SCM-00-40B-200-N21CD5MA7.5

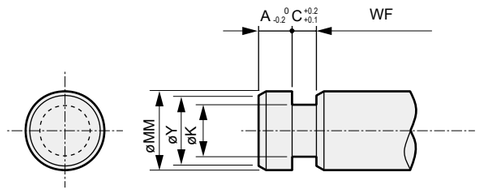
The standard dimension for CD is 6, but it will be manufactured as 5. The standard dimension for MA is 9, but it will be manufactured as 7.5.

*1: CMK2-G2/G3 dimensions are shown in ( ).
*2: For SSD-G2, G3, KG2, and KG3, use the dimensions shown in parentheses.
*3: For SSD, the WF dimension is different when LB2 or FA is selected. Please consult us separately.
*4: For SCM-LD, use the dimensions shown in parentheses.

Series	Bore Size	øMM	øCD	MN	MA	MC	øY	øK	WF
CMK2 CKV2 ULK *1	20	10	4	4	6	4	5.4	9	24
	25	12	5	5	7.5	5	6.6	11	23 (28)
	32	12	5	5	7.5	5	6.6	11	23 (28)
	40	14	6	6	9	6	7.8	13	23 (28)
SCG	32	12	5	5	7.5	5	6.6	11	25
SCG JSG	40	16	6	6	9	6	9	15	21
	50	20	8	8	12	8	11.4	19	23
	63	20	8	8	12	8	11.4	19	23
	80	25	10	10	15	10	14.4	24	32
	100	30	12	12	18	12	17.4	29	32
SCA2	40	16	6	6	9	6	9	15	33.5
	50	20	8	8	12	8	11.4	19	37
	63	20	8	8	12	8	11.4	19	35
	80	25	10	10	15	10	14.4	24	48
	100	30	12	12	18	12	17.4	29	53
SCS2	125	32	14	14	21	14	19.8	30	65
	140	32	14	14	21	14	19.8	30	67
	160	40	16	16	24	16	22.8	38	71
	180	45	18	18	27	18	25.8	43	78
	200	50	20	20	30	20	28.8	48	88
	250	60	24	24	36	24	34.8	58	94
JSC3	40	16	6	6	9	6	9	15	30
	50	20	8	8	12	8	11.4	19	34
	63	20	8	8	12	8	11.4	19	30
	80	25	10	10	15	10	14.4	24	43.5
	100	30	12	12	18	12	17.4	29	48
JSC4	125	35	14	14	21	14	19.8	33	55
	140	35	14	14	21	14	19.8	33	57
	160	40	16	16	24	16	22.8	38	71.5
	180	45	18	18	27	18	25.8	43	78.5
SSD *2 *3	12	6	–	–	–	–	–	–	–
	16	8	–	–	–	–	–	–	–
	20	10	4	4	6	4	5.4	9	4.5 (9.5)
	25	12	5	5	7.5	5	6.6	11	5 (10)
	32	16	6	6	9	6	9	15	5 (10)
	40	16	6	6	9	6	9	15	5 (10)
	50	20	8	8	12	8	11.4	19	5 (10)
	63	20	8	8	12	8	11.4	19	5 (10)
	80	25	10	10	15	10	14.4	24	8 (13)
	100	30	12	12	18	12	17.4	29	8 (13)
	125	35	14	14	21	14	19.8	33	13
	140	35	14	14	21	14	19.8	33	13
	160	40	16	16	24	16	22.8	38	14
SCM *4	20	8	–	–	–	–	–	–	–
	25	10	4	4	6	4	5.4	9	18 (10)
	32	12	5	5	7.5	5	6.6	1	18 (10)
	40	16	6	6	9	6	9	15	20 (9)
	50	20	8	8	12	8	11.4	19	23 (10)
	63	20	8	8	12	8	11.4	19	23 (10)
	80	25	10	10	15	10	14.4	24	31
	100	30	12	12	18	12	17.4	29	31

Rod End with Groove (Pattern Code "N3")

Outline Dimension Drawing



When manufacturing with the dimensions in the dimension table, please specify pattern code "N3".
When it is necessary to change some dimensions, enter the pattern code followed by the dimension code, then the specified dimension.

(Example) SCM-00-40B-200-N3WF25

WF standard dimension is 20, but this is available at 25.

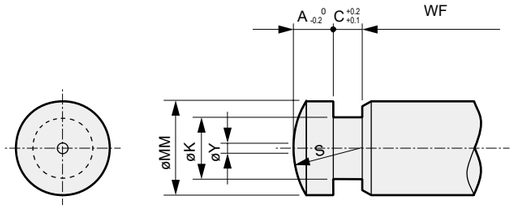
*1: CMK2-G2/G3 dimensions are shown in ( ).
*2: For SSD-G2, G3, KG2, and KG3, use the dimensions shown in parentheses.
*3: For SSD, the WF dimension is different when LB2 or FA is selected. Please consult us separately.
*4: For SCM-LD, use the dimensions shown in parentheses.

Series	Bore Size	øMM	øK	C	A	øY	WF
CMK2 CKV2 ULK *1	20	10	6	4	4	8	24
	25	12	7.2	4.8	4.8	10	23 (28)
	32	12	7.2	4.8	4.8	10	23 (28)
	40	14	8.4	5.6	5.6	12	23 (28)
SCG	32	12	7.2	4.8	4.8	10	25
SCG JSG	40	16	9.6	6.4	6.4	14	21
	50	20	12	8	8	18	23
	63	20	12	8	8	18	23
	80	25	15	10	10	22	32
	100	30	18	12	12	27	32
SCA2	40	16	9.6	6.4	6.4	14	33.5
	50	20	12	8	8	18	37
	63	20	12	8	8	18	35
	80	25	15	10	10	22	48
	100	30	18	12	12	27	53
SCS2	125	32	21	14	14	29	65
	140	32	21	14	14	29	67
	160	40	24	16	16	36	71
	180	45	27	18	18	41	78
	200	50	30	20	20	46	88
	250	60	36	22	22	56	94
JSC3	40	16	9.6	6.4	6.4	14	30
	50	20	12	8	8	18	34
	63	20	12	8	8	18	30
	80	25	15	10	10	22	43.5
	100	30	18	12	12	27	48
JSC4	125	35	21	14	14	32	55
	140	35	21	14	14	32	57
	160	40	24	16	16	36	71.5
	180	45	27	18	18	41	78.5
SSD *2 *3	12	6	–	–	–	–	–
	16	8	–	–	–	–	–
	20	10	6	4	4	8	4.5 (9.5)
	25	12	7.2	4.8	4.8	10	5 (10)
	32	16	9.6	6.4	6.4	14	7 (12)
	40	16	9.6	6.4	6.4	14	7 (12)
	50	20	12	8	8	18	8 (13)
	63	20	12	8	8	18	8 (13)
	80	25	15	10	10	22	10 (15)
	100	30	18	12	12	27	12 (17)
	125	35	21	14	14	33	16
	140	35	21	14	14	33	16
	160	40	24	16	16	38	17
SCM *4	20	8	–	–	–	–	–
	25	10	6	4	4	8	18 (10)
	32	12	7.2	4.8	4.8	10	18 (10)
	40	16	9.6	6.4	6.4	14	20 (9)
	50	20	12	8	8	18	23 (10)
	63	20	12	8	8	18	23 (10)
	80	25	15	10	10	22	31
	100	30	18	12	12	27	31

Custom

Rod End with Groove and Spherical Radius (Pattern Code "N31")

Outline Dimension Drawing



When manufacturing with the dimensions in the dimension table, please specify pattern code "N31".
When it is necessary to change some dimensions, enter the pattern code followed by the dimension code, then the specified dimension.
(Example) SCM-00-40B-200-N31WF25
WF standard dimension is 20, but this is available at 25.
*1: CMK2-G2/G3 dimensions are shown in ( ).
*2: For SSD-G2, G3, KG2, and KG3, use the dimensions shown in parentheses.
*3: For SSD, the WF dimension is different when LB2 or FA is selected. Please consult us separately.
*4: For SCM-LD, use the dimensions shown in parentheses.

Series	Bore Size	øMM	øK	C	A	S	øY	WF
CMK2	20	10	6	4	4	10	0.5	24
CKV2	25	12	7.2	4.8	4.8	12	0.5	23 (28)
ULK	32	12	7.2	4.8	4.8	12	0.5	23 (28)
*1	40	14	8.4	5.6	5.6	14	0.5	23 (28)
SCG	32	12	7.2	4.8	4.8	12	0.5	25
SCG	40	16	9.6	6.4	6.4	16	1	21
JSG	50	20	12	8	8	20	1	23
	63	20	12	8	8	20	1	23
	80	25	15	10	10	25	1	32
	100	30	18	12	12	30	1	32
SCA2	40	16	9.6	6.4	6.4	16	1	33.5
	50	20	12	8	8	20	1	37
	63	20	12	8	8	20	1	35
	80	25	15	10	10	25	1	48
	100	30	18	12	12	30	1	53
SCS2	125	32	21	14	14	32	1	65
	140	32	21	14	14	32	2	67
	160	40	24	16	16	40	2	71
	180	45	27	18	18	45	2	78
	200	50	30	20	20	50	2	88
	250	60	36	22	22	60	2	94
JSC3	40	16	9.6	6.4	6.4	16	1	30
	50	20	12	8	8	20	1	34
	63	20	12	8	8	20	1	30
	80	25	15	10	10	25	1	43.5
	100	30	18	12	12	30	1	48
JSC4	125	35	21	14	14	35	1	55
	140	35	21	14	14	35	2	57
	160	40	24	16	16	40	2	71.5
	180	45	27	18	18	45	2	78.5
SSD	12	6	–	–	–	–	–	–
*2	16	8	–	–	–	–	–	–
*3	20	10	6	4	4	10	0.5	4.5 (9.5)
	25	12	7.2	4.8	4.8	12	0.5	5 (10)
	32	16	9.6	6.4	6.4	16	1	7 (12)
	40	16	9.6	6.4	6.4	16	1	7 (12)
	50	20	12	8	8	20	1	8 (13)
	63	20	12	8	8	20	1	8 (13)
	80	25	15	10	10	25	1	10 (15)
	100	30	18	12	12	30	1	12 (17)
	125	35	21	14	14	35	2	16
	140	35	21	14	14	35	2	16
	160	40	24	16	16	40	2	17
SCM	20	8	–	–	–	–	–	–
*4	25	10	6	4	4	10	0.5	18 (10)
	32	12	7.2	4.8	4.8	12	0.5	18 (10)
	40	16	9.6	6.4	6.4	16	1	20 (9)
	50	20	12	8	8	20	1	23 (10)
	63	20	12	8	8	20	1	23 (10)
	80	25	15	10	10	25	1	31
	100	30	18	12	12	30	1	31

MEMO

Ending

Product guide

	Page
Booster (B)	Ending 26
Air-Hydro Booster (AHB)	Ending 26
Celcon Cylinder / Celcon Hydro Cylinder	Ending 27

Booster (High hydraulic pressure can be obtained using only pneumatic pressure)

Model No.	Bore size mm	Pneumatic Pipe Connection Port Rc	Boosting ratio	Pressure Generated at 0.5 MPa	Discharge Oil Volume (cc)	Hydraulic Piping Connection Port Rc	Cushion
B-80-11	100	1/2	11.0	55	80	1/4	None
B-120-25	160		25.8	128	120		
B-160-25	160		25.8	128	160		



● B Series

RoHS

Air-Hydro Booster

Model No.	Bore size mm	Max. working pressure MPa	Min. Operating Pressure MPa	Boosting ratio	Generated Hydraulic Pressure (at 0.5 MPa) MPa	Fast-feed Discharge Volume cm^3 (min-max)	High-pressure Discharge Volume cm^3 (min-max)
AHB	50	1.0	0.2	1:13	65	90 to 360	7 to 28
				1:25	125	94 to 366	3.5 to 14
	100			1:4	20	294 to 1,176	95 to 380
				1:16	80	370 to 1,480	22 to 88
				1:30	150		11 to 44
	160			1:4	20	750 to 3,000	240 to 960
				1:16	80	940 to 3,760	60 to 240
				1:28	140	950 to 3,800	33 to 132

RoHS

Overview

An air-hydro booster is a booster device that converts pneumatic pressure, which is the operating source, into hydraulic pressure several to several tens of times higher using a built-in intensifier with hydraulic fluid. It is particularly convenient as it allows for a two-stage discharge: a low-pressure, large oil volume discharge for fast-feed, and a high-pressure, small oil volume discharge for intensified feed. With a low-cost pneumatic source, it can achieve automation requiring high hydraulic pressure, such as for marking, caulking, and pressing.



Main features

●Converts pneumatic pressure to high hydraulic pressure
High hydraulic pressure can be obtained using only pneumatic pressure.

●Stepless pressure adjustment
Hydraulic pressure can be adjusted steplessly just by adjusting the pneumatic pressure.

●No rise in oil temperature
Since there is no rise in oil temperature, stable operation can be obtained.

●Can switch between fast-feed and intensified feed.
Two-stage discharge for fast-feed and intensified feed can be easily performed with an air directional valve.

●Low air consumption.
For the same output, air consumption is 1/8.

Celcon Cylinder / Celcon Hydro Cylinder

Model No.	Actuation method	Bore Size mm	Standard Stroke (mm)	Max. Stroke mm	Mounting type		Connection Port Rc: Cylinder part	Connection Port Rc: Brake Part	Max. operating pressure MPa: Cylinder part	Max. operating pressure MPa: Brake Part	Min. Operating Pressure MPa: Cylinder part	Min. Operating Pressure MPa: Brake Part
JCC2 JCC2-H	Double Acting	20	20.50	700	Basic type	00	1/8	M5×0.8	0.7	0.6	0.15	0.35
		30	75		Axial Foot Type	LB		1/8				
		40	100		Rod Side Flange Type	FA						
			150		Single Clevis Type	CA						
			200		Head Side Flange Type	TB						
JCC3 JCC3-H	Double Acting	40	50	600	Basic type	00	1/4	1/8	1.0	0.7	0.05	0.3
		50	75		Axial Foot Type	LB	3/8					
		63	100		Rod Side Flange Type	FA		1/4				
		80		700	Head Side Flange Type	FB						
		100	150	800	Single Clevis Type	CA	1/2	3/8				
		125	200		Double Clevis Type	CB						
		140	300		Intermediate Trunnion Type	TC		1/2				
		160	400		Rod Side Flange Type	TA	3/4			1.0	0.1	
		180	500	900	Head Side Flange Type	TB						
PCU2	Double Acting	40	50	600	Basic type	00	1/4		0.2		1.0	
		50	75		Axial Foot Type	LB	3/8					
		63	100		Rod Side Flange Type	FA						
		80		700	Head Side Flange Type	FB	1/2					
		100	150	800	Single Clevis Type	CA						
			200		Double Clevis Type	CB						
			300		Intermediate Trunnion Type	TC						
			400		Rod Side Flange Type	TA						
			500		Head Side Flange Type	TB						

Overview

The CKD Celcon Cylinder is an actuator equipped with a position detection sensor. Its operating principle is that a controller (sold separately) receives pulse signals for the travel distance oscillated from the actuator, compares them with the program input, and freely controls intermediate stops and directional changes. It is an FMS-oriented cylinder with excellent accuracy and flexible control.

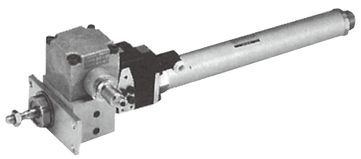
Main features

●Stop Position
Since it has a built-in position detection sensor, it can be stopped intermediately at any position.

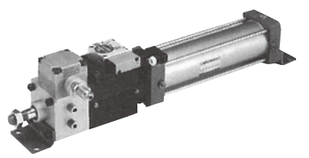
●**Excellent Stopping Accuracy**
The stopping accuracy is excellent, at ±1.0 mm or less at a cylinder speed of 300 mm/s. (at no load).

●High Safety
When the pneumatic source and power supply are OFF (such as during a power outage or accident), the piston rod is locked and operates on the safe side.

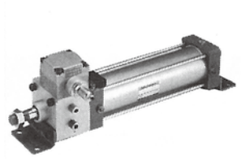
●Strong Holding Force
It has a holding force approximately twice the cylinder thrust (at 0.4 MPa). (JCC3: ø40 to ø180)



JCC2-FA-30



JCC3-LB-63B



PCU2-LB-63B

Standard-Compliant Products, ISO

Listed Page

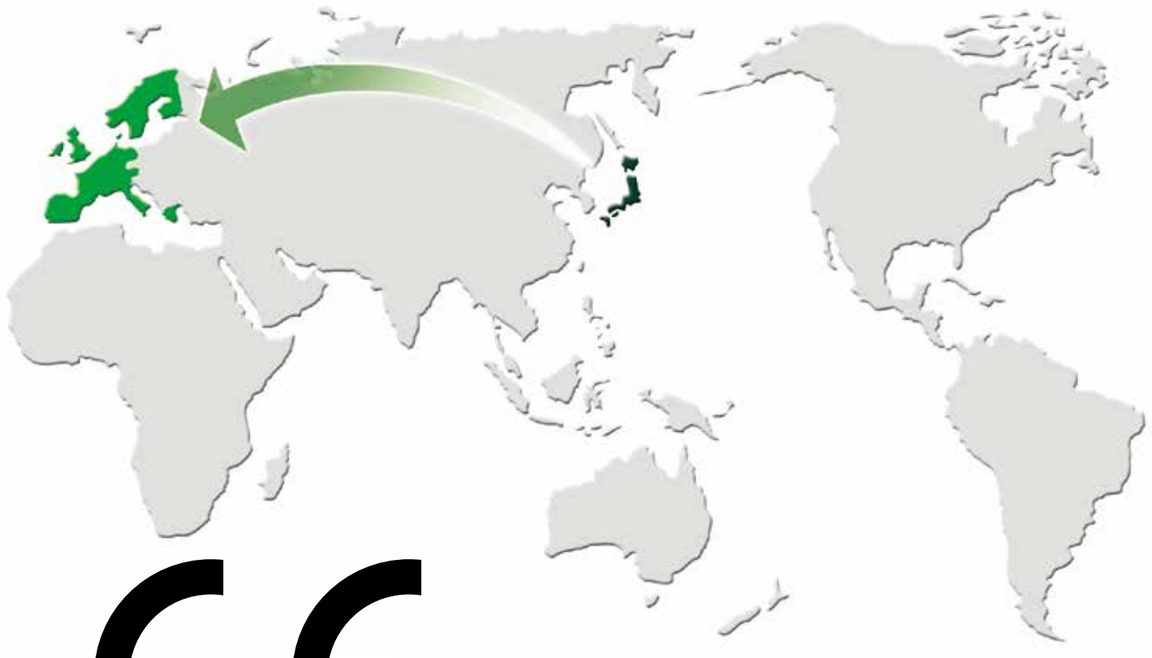
CE Marking Ending 30

RoHS Compliance Ending 32

ISO9001/ISO14001 Certification Acquisition Ending 34

CE Marking

CKD offers a variety of European standard compliant equipment to support customers in achieving CE Marking for their machinery products.



CE : Displayed on European standard compliant products

What is CE Marking?

- CE Marking is a mark that proves a product conforms to the essential requirements of all applicable EC directives.
- CE marking is a product passport within the EU, and products displaying the CE marking can be freely circulated within the EU.
- Machinery exported to the EU is required to comply with the Machinery Directive, EMC Directive, Low Voltage Directive, etc., but since CE marking is, in principle, mandatory for final products that flow directly to the market, marking on built-in components is not originally required. However, if built-in components (CKD equipment products) are certified for European standards, it makes CE Marking easier for the final product (your machinery product).

Content of Each EC Directive

CKD's main products, such as solenoid valves, sensors, and ABSODEX, are required to conform to the following directives, and many models are European standard compliant.

Directive	Requirements	Applicable
Machinery Directive (2006/42/EC)	Essential safety requirements for machinery	■ Machinery with drive parts Equipment such as solenoid valves are not subject to this, but ensuring compliance with standards makes CE Marking easier for customers.
EMC Directive (2014/30/EU)	Measures for both the generation of electromagnetic disturbance (EMI/emission) and the ability to eliminate electromagnetic disturbance (EMS/immunity)	■ Equipment that generates electromagnetic disturbance or equipment that is affected by electromagnetic disturbance Solenoid valves composed of simple solenoids do not generate electromagnetic disturbance, but ensuring compliance with standards makes CE Marking easier for customers.
Low Voltage Directive (2014/35/EU)	Electrical safety regarding electric shock, etc.	■ Components operating at 50 VAC to 1000 VAC and 75 VDC to 1500 VDC
Pressure Equipment Directive (2014/68/EU)	Safety regarding the hazards of fluid energy possessed by pressure equipment	■ When certain conditions are exceeded within pressure equipment
Simple Pressure Vessels Directive (2014/29/EU)	Safety regarding leakage and explosion of containers	■ Welded containers where the product of maximum operating pressure and volume (PV·S) exceeds 50 bar-liters Our air tanks (AT type) do not conform, so they cannot be exported to the EU.
RoHS Directive (2011/65/EU)	Restriction of 6 environmentally hazardous substances	■ Electrical/Electronic Equipment
2011/65/EU and (EU) 2015/863	Restriction of 10 environmentally hazardous substances	■ Electrical/Electronic Equipment

The countries to which CE marking applies are EU (European Union) member states, EFTA (European Free Trade Association) member states, and Turkey.

CKD's Compliance with European Standard Compliant Products

⚠Compliant products may not be available depending on the specification and detailed model number combination; for details, please contact our sales representative. For the latest information, please visit our website.
Home Page Address https://www.ckd.co.jp/productinfo/eu/

CKD RoHS Compliance

At CKD, our theme is the development of environmentally friendly products.

RoHS

RoHS is the abbreviation for Restriction Of the use of certain Hazardous Substances in electrical and electronic equipment. This is the directive prohibiting use of certain hazardous substances issued by the EU.



- ◆CKD products are approved as in conformity to RoHS directive in order of priority from July 1, 2006.
- ◆RoHS-compliant products are designed to reduce environmental load and can be distributed in the EU countries.

Environmental Policy

Based on the CKD Environmental Policy established in 2001, our company is engaged in environmental management system activities company-wide to protect the global environment.

CKD's Environmental Policy

1. Promote development and sales of low environmental load
2. Clarify and comply with the requirements of environmental laws and regulations, and promote the realization of carbon neutrality and the prevention of environmental pollution.
   a) Reduce CO_2 emissions b) Promote resource conservation
   c) Reduce waste d) Reduce environmental pollutants

Response to RoHS of CKD

For our main equipment products, we have been progressively implementing RoHS compliance since July 2006. This catalog indicates RoHS-compliant products with the "RoHS-compliant" mark.

(Note) For the latest compliance status, please check our website.

Technical Data

RoHSDirective

(Directive 2011/65/EU of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment)

This directive assimilates laws related to limiting the use of hazardous substances in electrical and electronics components set forth by each EU member state, contributes to the protection of human health, and provides sufficient means for processing and recycling waste electrical and electric products.

1 Scope of Application

1. Large household electrical appliances
2. Small appliances
3. IT Components and Telecommunications Components
4. Civilian Components
5. Lighting Components
6. Electric tools
7. Toys, leisure goods and sports components
8. Medical components, in-vitro diagnostics components
9. Monitoring and control components, industrial monitoring and control equipment
10. Vending machines
11. Other electrical and electronic equipment not falling into the above categories

Our components products mainly correspond to category 9, industrial monitoring and control equipment. (Some medical devices in Category 8 and non-applicable products also exist)

2 Directive Contents

Regulated substances (2011/65/EU)
- Lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBBs)
- Polybrominated diphenyl ethers (PBDE)

Additional regulated substances ((EU) 2015/863)
- Specific phthalates (DEHP, DBP, BBP, DIBP)

Electrical and electronic equipment containing the above substances, products in Categories 8 and 9, will not be able to be brought into the EU from July 22, 2021, and other categories from July 22, 2019, in principle.

Regarding ISO9001/ISO14001 Certification Acquisition

We deliver reliable quality that is gentle to people, machines, and the environment.

CKD has obtained ISO 9001 and ISO 14001 certification and established a quality and environmental management system. With safety, the environment, and energy saving as our primary themes, our entire company is dedicated to creating safe, reliable products and quality that pose no harm to people, machinery, society, or the global environment.




ISO 9001
マネジメントシステム登録証
CKD株式会社
JQA


ISO 14001
マネジメントシステム登録証
CKD株式会社
JQA

Model No. [Alphabetical Index]

Model No.	Model Name	Catalog No./Page
HS	Fluid Actuated Valve for Gas Combustion System	1024
HSV	Manual Valve/Standard	RJ-012AA

■Listed Page
This is the specification/model number page for models listed in this catalog.

■Listed Catalog No.

RJ-002AA ... Pneumatic Cylinder ①
RJ-003AA ... Pneumatic Cylinder ②
RJ-004AA ... Pneumatic Cylinder ③
RJ-005AA ... Pneumatic Cylinder ④
RJ-006AA ... Pneumatic Cylinder ⑤
RJ-007AA ... Air Preparation, Pressure Control, and Auxiliary Components
RJ-008AA ... Sensors/Controllers
RJ-009AA ... Main Line Equipment/Gas Generators
RJ-010AA ... Precision Components/Vacuum Components
RJ-011AA ... Directional Control Valve ①
RJ-012AA ... Directional Control Valve ②
RJ-013AA ... Fluid Control Valve
RJ-014AA ... Electric Actuator ROBODEX Pluse
RJ-015AA ... Electric Actuator ROBODEX Std.
RJ-016AA ... Dry Fine Equipment
CB-019SAA ... Indexman General
CB-031AA ... Wet Fine Equipment General
CB-054AA ... ABSODEX General
CB-055AA ... Electric Actuator Motorless General
CC-1055AA ... Life Science Equipment
CC-1276AA ... Outdoor Products WP Series
CC-1590AA ... Gas Combustion System
CC-1637AA ... Pharmaceutical Manufacturing Process Equipment
CC-297AA ... Automatic Watering Control Equipment

Others list the single item catalog No. for each series.

■Symbols

Ⓢⓥ...Single Valve Ⓦⓡ…Wiring Reduced Manifolds Ⓘⓜ …Individual Manifold
Ⓜⓧ...Mixed Manifold ⒷⓂ…Block Manifolds ⓂⓃ…Manifold

Model No.	Model Name	Catalog No./Page
1		
1219	Micro-mist Separator/Micro Naught Type (For Oil Mist Removal)	RJ-007AA
1238	Micro-mist Separator/Micro Naught Type (For Oil Mist Removal)	RJ-007AA
1326	Heavy Duty Air Filter	RJ-007AA
1126-□-□Y	Submicron Air Filter (For Tar Removal)	RJ-007AA
1126-□-E	Air Filter	RJ-007AA
1138-□-□Y	Submicron Air Filter (For Tar Removal)	RJ-007AA
1138-□-E	Air Filter	RJ-007AA
1226(J)	Micro-mist Separator/Micro Naught Type (For Oil Mist Removal)	RJ-007AA
1226(J)-□-X	Micro-mist Separator/Odor Naught Type (For Odor Removal)	RJ-007AA
1238-□-X	Micro-mist Separator/Odor Naught Type (For Odor Removal)	RJ-007AA
1326-□-□Y	Submicron Air Filter (For Tar Removal)	RJ-007AA
2		
2215	Regulator	RJ-007AA
2216	Regulator	RJ-007AA
2302 to **2304-□C**	Dial Air Regulator	RJ-007AA
2302 to **2304-□C-R**	Remote Control Dial Air Regulator	RJ-007AA
2415	Reverse Regulator (Built-in Check Valve)	RJ-007AA
2415-P11	Reverse Regulator (Built-in Check Valve)/Ozone Resistant	RJ-007AA
2419	Reverse Regulator (Built-in Check Valve)	RJ-007AA
2619	Regulator	RJ-007AA
2QV	Quick Valve with One-touch Fitting	RJ-007AA
3		
3003E to **3005E**	Lubricator/Economist Type	RJ-007AA
3003E-□C-V	Lubricator/Auto Fill Type	RJ-007AA
3GA1/2/3	ⓈⓋPilot Operated 3-Port Valve/Direct Piping	RJ-012AA
3GA1/2/3	ⓈⓋAir Operated 3-Port Valve (Master Valve)/Direct Piping	RJ-012AA
3GB1/2	ⓈⓋPilot Operated 3-Port Valve Dual Unit/Base Piping	RJ-012AA
3GD1/2/3	ⓈⓋPilot Operated 3-Port Valve/Direct Piping	RJ-012AA
3GD1/2□0EJ	ⓈⓋIntrinsically Safe Explosion-proof Pilot Operated 3-Port Valve/Direct Piping	RJ-012AA
3GD1/2□0EX	ⓈⓋIntrinsically Safe Explosion-proof Pilot Operated 3-Port Valve/Direct Piping	RJ-012AA
3GE1/2	ⓈⓋPilot Operated 3-Port Valve Dual Unit/Base Piping	RJ-012AA
3GE1/2□0EJ	ⓈⓋIntrinsically Safe Explosion-proof Pilot Operated 3-Port Valve/Base Piping	RJ-012AA
3GE1/2□0EX	ⓈⓋIntrinsically Safe Explosion-proof Pilot Operated 3-Port Valve/Base Piping	RJ-012AA
3KA1	ⓈⓋPilot Operated 3-Port Valve/Direct Piping	RJ-012AA
3KA1	ⓈⓋAir Operated 3-Port Valve (Master Valve)/Direct Piping	RJ-012AA
3MA0	ⓈⓋDirect Acting 3-Port Valve/Direct Piping	RJ-012AA
3MB0	ⓈⓋDirect Acting 3-Port Valve/Sub-plate Piping	RJ-012AA
3PA1/2	ⓈⓋDirect Acting 3-Port Valve/Direct Piping	RJ-012AA
3PB1/2	ⓈⓋDirect Acting 3-Port Valve/Sub-plate Piping	RJ-012AA
3QB1	ⓈⓋDirect Acting 3-Port Valve/Sub-plate Piping	RJ-012AA
3QE1	ⓈⓋDirect Acting 3-Port Valve/Sub-plate Piping	RJ-012AA
3QRA1	ⓈⓋDirect Acting 3-Port Valve/Direct Piping	RJ-012AA
3QRB1	ⓈⓋDirect Acting 3-Port Valve/Sub-plate Piping	RJ-012AA
3QV	Quick Valve with One-touch Fitting	RJ-007AA
4		
4001, 4002	Desiccant Air Dryer/Manual Air Dryer	RJ-009AA
4F0/1/2/3	ⓈⓋPilot Operated 5-Port Valve/Direct Piping	RJ-012AA
4F0/1/2/3	ⓈⓋAir Operated 5-Port Valve (Master Valve)/Direct Piping	RJ-012AA
4F2/3	ⓈⓋPilot Operated 5-Port Valve Outdoor Specification	CC-1276AA
4F3□□0EX	ⓈⓋExplosion-proof Pilot Operated 5-Port Valve/Direct Piping	RJ-012AA
4F3□□0E	ⓈⓋExplosion-proof Pilot Operated 5-Port Valve/Direct Piping	RJ-012AA
4F4/5/6/7	ⓈⓋPilot Operated 5-Port Valve/Sub-plate Piping	RJ-012AA
4F4/5/6/7	Air Operated 5-Port Valve (Master Valve)/Sub-plate Piping	RJ-012AA
4F4/5/6/7□□0EX	ⓈⓋExplosion-proof Pilot Operated 5-Port Valve/Sub-plate Piping	RJ-012AA
4F4/5/6/7□□0E	ⓈⓋExplosion-proof Pilot Operated 5-Port Valve/Sub-plate Piping	RJ-012AA
4GA1/2/3	ⓈⓋPilot Operated 5-Port Valve/Direct Piping	RJ-011AA
4GA1/2/3	ⓈⓋAir Operated 5-Port Valve (Master Valve)/Direct Piping	RJ-012AA
4GA4	ⓈⓋPilot Operated 5-Port Valve/Direct Piping	RJ-011AA
4GB1/2/3	ⓈⓋPilot Operated 5-Port Valve/Base Piping	RJ-011AA
4GB1/2/3	ⓈⓋAir Operated 5-Port Valve (Master Valve)/Base Piping	RJ-012AA
4GB4	ⓈⓋPilot Operated 5-Port Valve/Base Piping	RJ-011AA
4GD1/2/3	ⓈⓋPilot Operated 5-Port Valve/Direct Piping	RJ-011AA
4GD1/2/3/4□0EJ	ⓈⓋIntrinsically Safe Explosion-proof Pilot Operated 5-Port Valve/Direct Piping	RJ-012AA
4GD1/2/3/4□0EX	ⓈⓋIntrinsically Safe Explosion-proof Pilot Operated 5-Port Valve/Direct Piping	RJ-012AA
4GE1/2/3	ⓈⓋPilot Operated 5-Port Valve/Base Piping	RJ-011AA
4GE1/2/3/4□0EJ	ⓈⓋIntrinsically Safe Explosion-proof Pilot Operated 5-Port Valve/Base Piping	RJ-012AA
4GE1/2/3/4□0EX	ⓈⓋIntrinsically Safe Explosion-proof Pilot Operated 5-Port Valve/Base Piping	RJ-012AA
4KA1/2/3/4	ⓈⓋPilot Operated 5-Port Valve Direct Piping	RJ-012AA
4KA1/2/3/4	ⓈⓋAir Operated 5-Port Valve (Master Valve)/Direct Piping	RJ-012AA
4KB1/2/3/4	ⓈⓋPilot Operated 5-Port Valve/Sub-plate Piping	RJ-012AA
4KB1/2/3/4	ⓈⓋAir Operated 4, 5-Port Valve (Master Valve)/Sub-plate Piping	RJ-012AA
4SA0	ⓈⓋPilot Operated 5-Port Valve/Direct Piping	RJ-011AA
4SB0	ⓈⓋPilot Operated 5-Port Valve/Sub-plate Piping	RJ-011AA
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6119-2C	Moisture Indicator	RJ-009AA
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A101 to **801-W**	L-type Piping Adapter/Standard White Series	RJ-007AA
A1019	Air Filter	RJ-007AA
A1338	Heavy Duty Air Filter	RJ-007AA
A1338-□Y	Submicron Air Filter (For Tar Removal)	RJ-007AA
A2-3400	Cryogenic 2-Port Solenoid Valve	RJ-013AA
A2-5201	Direct Acting 2-Port Solenoid Valve (For High Frequency Operation)	RJ-013AA
A2-5202	Pilot Operated 2-Port Solenoid Valve (For High Frequency Operation)	RJ-013AA
A2-5800	Cryogenic 2-Port Solenoid Valve	RJ-013AA
A3019	Lubricator/Economist Type	RJ-007AA
AB21	Direct Acting 2-Port Solenoid Valve (Multilex)	RJ-013AA
AB31	Direct Acting 2-Port Solenoid Valve Single Unit (Multilex)	RJ-013AA
AB31-ZAA	Direct Acting 2-Port Solenoid Valve for Dry Air (Multilex)	RJ-013AA
AB41	Direct Acting 2-Port Solenoid Valve Single Unit (Multilex)	RJ-013AA
AB41E2	Explosion-proof Direct Acting 2-Port Solenoid Valve (Multilex)/d2G2	RJ-013AA
AB41E4	Explosion-proof Direct Acting 2-Port Solenoid Valve (Multilex)/d2G4	RJ-013AA

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AB41E4-ZAA	Explosion-proof Direct Acting 2-Port Solenoid Valve for Dry Air (Multilex)/d2G4	RJ-013AA
AB41EX2	Explosion-proof Direct Acting 2-Port Solenoid Valve (Multilex)/Exd II BT2	RJ-013AA
AB41EX4	Explosion-proof Direct Acting 2-Port Solenoid Valve (Multilex)/Exd II BT4	RJ-013AA
AB41-ZAA	Direct Acting 2-Port Solenoid Valve for Dry Air (Multilex)	RJ-013AA
AB42	Direct Acting 2-Port Solenoid Valve Single Unit (Multilex)	RJ-013AA
AB42E4	Explosion-proof Direct Acting 2-Port Solenoid Valve (Multilex)/d2G4	RJ-013AA
AB71	Direct Acting 2-Port Solenoid Valve (Multilex)/Large Bore	RJ-013AA
ABP	Air Booster	RJ-007AA
AD11	Pilot Operated 2-Port Solenoid Valve (Multilex)/ Diaphragm Driven	RJ-013AA
AD11E4	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Diaphragm Driven, d2G4	RJ-013AA
AD11EX4	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Diaphragm Driven, Exd II BT4	RJ-013AA
AD12	Pilot Operated 2-Port Solenoid Valve (Multilex)/ Diaphragm Driven	RJ-013AA
AD12E4	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Diaphragm Driven, d2G4	RJ-013AA
AD21	Pilot Operated 2-Port Solenoid Valve (Multilex)/ Diaphragm Driven	RJ-013AA
AD21E4	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Diaphragm Driven, d2G4	RJ-013AA
AD21EX4	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Diaphragm Driven, Exd II BT4	RJ-013AA
AD22	Pilot Operated 2-Port Solenoid Valve (Multilex)/ Diaphragm Driven	RJ-013AA
AD22E4	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Diaphragm Driven, d2G4	RJ-013AA
ADK11	Pilot Kick Operated 2-Port Solenoid Valve (Multilex)/ Diaphragm Driven	RJ-013AA
ADK11E4	Explosion-proof Pilot Kick Operated 2-Port Solenoid Valve (Multilex)/Diaphragm Driven, d2G4	RJ-013AA
ADK11EX4	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Diaphragm Driven, Exd II BT4	RJ-013AA
ADK11-ZAA	Pilot Kick Operated 2-Port Solenoid Valve for Dry Air (Multilex)	RJ-013AA
ADK12	Pilot Kick Operated 2-Port Solenoid Valve (Multilex)/ Diaphragm Driven	RJ-013AA
ADK12E4	Explosion-proof Pilot Kick Operated 2-Port Solenoid Valve (Multilex)/Diaphragm Driven, d2G4	RJ-013AA
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AES (Facilea AI)	Image Processing AI Tool	CC-1623AA
AESM (ExiaStudio)	Device Visual Programming Tool	CC-1579AA
AF2	Medium Size Main Line Filter	RJ-009AA
AF30□□	Large Size Main Line Filter (Standard Type)	RJ-009AA
AF40□□	Medium Size Main Line Filter (For Oil-Free)	RJ-009AA
AF50□□	Large Size Main Line Filter (For Oil-Free)	RJ-009AA
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AG3□-Z	Direct Acting 3-Port Solenoid Valve for Dry Air (Multilex)	RJ-013AA
AG3□	Direct Acting 3-Port Solenoid Valve Single Unit (Multilex)	RJ-013AA
AG4□E4-Z	Explosion-proof Direct Acting 3-Port Solenoid Valve for Dry Air (Multilex)/d2G4	RJ-013AA
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AG41	Direct Acting 3-Port Solenoid Valve Single Unit (Multilex)	RJ-013AA
AG41E4	Explosion-proof Direct Acting 3-Port Solenoid Valve (Multilex)/d2G4	RJ-013AA
AG41EX4	Explosion-proof Direct Acting 3-Port Solenoid Valve (Multilex)/Exd II BT4	RJ-013AA
AG43	Direct Acting 3-Port Solenoid Valve Single Unit (Multilex)	RJ-013AA
AG43E4	Explosion-proof Direct Acting 3-Port Solenoid Valve (Multilex)/d2G4	RJ-013AA
AG43EX4	Explosion-proof Direct Acting 3-Port Solenoid Valve (Multilex)/Exd II BT4	RJ-013AA
AG44	Direct Acting 3-Port Solenoid Valve Single Unit (Multilex)	RJ-013AA
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AMDS	Air Operated Valve for Chemicals/Integrated Suck-back Type	CB-031AA
AMG	Air Operated Valve for Chemicals (3-Port)	CB-031AA
AMS	Suck-back Valve for Chemicals	CB-031AA
AP11	Pilot Operated 2-Port Solenoid Valve (Multilex)/ Piston Driven	RJ-013AA
AP11E2	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Piston Driven, d2G2	RJ-013AA
AP11E4	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Piston Driven, d2G4	RJ-013AA
AP11EX2	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Piston Driven, Exd II BT2	RJ-013AA
AP11EX4	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Piston Driven, Exd II BT4	RJ-013AA
AP12	Pilot Operated 2-Port Solenoid Valve (Multilex)/ Piston Driven	RJ-013AA
AP12E2	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Piston Driven, d2G2	RJ-013AA
AP12E4	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Piston Driven, d2G4	RJ-013AA
AP21	Pilot Operated 2-Port Solenoid Valve (Multilex)/ Piston Driven	RJ-013AA
AP21E2	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Piston Driven, d2G2	RJ-013AA
AP21EX2	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Piston Driven/ Exd II BT2	RJ-013AA
AP21E4	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Piston Driven, d2G4	RJ-013AA
AP21EX4	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Piston Driven, Exd II BT4	RJ-013AA
AP22	Pilot Operated 2-Port Solenoid Valve (Multilex)/ Piston Driven	RJ-013AA
AP22E2	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Piston Driven, d2G2	RJ-013AA
AP22E4	Explosion-proof Pilot Operated 2-Port Solenoid Valve (Multilex)/Piston Driven, d2G4	RJ-013AA
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APK21	Pilot Kick Operated 2-Port Solenoid Valve (Multilex)/ Piston Driven	RJ-013AA
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AT	Air Tank	RJ-007AA
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AX1R, 2R, 4R	Direct Drive Actuator ABSODEX	CC-1614AA
AX6000M	Direct Drive Actuator ABSODEX	CB-054AA
AX9000TS, TH, MU	Driver for ABSODEX	CB-054AA
AXD	Driver for ABSODEX	CC-1614AA
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B2019-P11	Regulator/Ozone Resistant	RJ-007AA
B513□	Ⓢⓥ Pilot Operated 3-Port Valve/Sub-base Type	RJ-012AA
B5142	Ⓢⓥ Pilot Operated 5-Port Valve/Sub-base Type	RJ-012AA
B6061	Relief Valve	RJ-007AA
B7019	F.R. Unit	RJ-007AA
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B		
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BHA-LN	Gripper with Linear Norm Sensor/Cross Roller Parallel Gripper with Sensor	RJ-005AA
BHE	Centering Gripper	RJ-006AA
BHE-LN	Gripper with Linear Norm Sensor/Centering Gripper with Sensor	RJ-005AA
BHG	Compact Cross Roller Parallel Gripper with Rubber Cover	RJ-006AA
BHG-LN	Gripper with Linear Norm Sensor/Cross Roller Parallel Gripper with Rubber Cover and Sensor	RJ-005AA
BN	Air Blow Nozzle General Type	RJ-007AA
BNB	Air Blow Nozzle Blower Specification	RJ-007AA
BNE-F	Air Blow Nozzle Flat Type	RJ-007AA
BNE-R	Air Blow Nozzle Round Type	RJ-007AA
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C1010 to **8010-W**	W.L. Combination/Standard White Series	RJ-007AA
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C1030 to **8030-W**	F.M.R. Combination/Standard White Series	RJ-007AA
C1040 to **8040-W**	W.M. Combination/Standard White Series	RJ-007AA
C1050 to **8050-W**	R.M. Combination/Standard White Series	RJ-007AA
C1060 to **8060-W**	F.M. Combination/Standard White Series	RJ-007AA
C25N-B	Governor for Medium Pressure Gas	CC-1590AA
C3070 to **8070-W**	F.F.M. Combination/Standard White Series	RJ-007AA
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CAC-N32/40	Lightweight Clamp Cylinder/ Double Acting, Single Rod Type	RJ-005AA
CAT	Cartridge Cylinder/Single Acting, Push Type	RJ-003AA
CAU30	Clean Air Unit	RJ-007AA
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CAW	Compact Arm	CC-1613AA
CCH	Check Valve for Liquids	RJ-013AA
CCN	Check Valve for Liquids (Nozzle Type)	RJ-013AA
CG	Air Fiber One-touch Fitting (Clean Type)	RJ-007AA
CHB	Air Operated Ball Valve 2-Port (Compact Rotary Valve)	RJ-013AA
CHBF	Air Operated Ball Valve 2-Port (Compact Rotary Valve)/Full Bore	RJ-013AA
CHC	Auto Gripper Changer	RJ-006AA
CHG	Air Operated Ball Valve 3-Port (Compact Rotary Valve)	RJ-013AA
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CKJ	Ultra Long Stroke Chuck	RJ-006AA
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CKLB2	Bidirectional Powerful Chuck	RJ-006AA
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CKV2	Compact cylinder with valve/ With Valve, Double Acting, Single Rod Type	RJ-005AA
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CMA2	Small Bore Size Cylinder/ Double Acting, Single Rod Type	293
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COV□2	Cell Cylinder/With Valve, Double Acting, Lubricated Type	RJ-005AA
CPD	Electronic Pressure Switch for Coolant (with Digital Display)	RJ-008AA
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CSB	Air Operated Ball Valve 2-Port for Steam (Compact Rotary Valve)	RJ-013AA
CSBF	Air Operated Ball Valve 2-Port for Steam (Compact Rotary Valve)	RJ-013AA
CV3E	Low Pressure Air Operated 3-Port Valve (Coolant Valve)	RJ-013AA
CVE2, CVE22	Air Operated 2-Port Valve (Coolant Valve)	RJ-013AA
CVE3	Air Operated 3-Port Valve (Coolant Valve)	RJ-013AA
CVS3E	Low Pressure Air Operated 3-Port Valve (Coolant Valve)/ Solenoid Valve Mounted Type	RJ-013AA
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CVSE3	Air Operated 3-Port Valve (Coolant Valve)/Solenoid Valve Mounted Type	RJ-013AA
CXU	Air Unit	RJ-007AA
D		
D101 to **801-W**	Distributor/For Selex F.R.L/ Standard White Series	RJ-007AA
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DBS1006	Drain Sensor	RJ-009AA
DCKW	Electric Actuator with Motor Specification 3-Finger Gripper Type	RJ-014AA
DLSH	Electric Actuator with Motor Specification D Series 2-Finger Gripper Type	RJ-014AA
DMSDG	Electric Actuator with Motor Specification D Series Compact Guided Type	RJ-014AA
DSC	Speed Controller with Dial	RJ-007AA
DSG	Solenoid Valve for Gas Combustion System	CC-1590AA
DSG-W	Solenoid Valve for Gas Combustion System	CC-1590AA
DSSD2	Electric Actuator with Motor Specification D Series Rod Type	RJ-014AA
DSTG	Electric Actuator with Motor Specification D Series Guided Type	RJ-014AA
DSTK	Electric Actuator with Motor Specification D Series Stopper Type	RJ-014AA
DSTL	Electric Actuator with Motor Specification D Series Guided Type	RJ-014AA
DSTS	Electric Actuator with Motor Specification D Series Guided Type	RJ-014AA
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DT4000, 4010-W	Snap Drain	RJ-009AA
DVL	Needle Valve with Dial	RJ-007AA
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E0, ET0	Cylinder Switch/Heat Resistant, Reed 2-wire	1,000
ECS	Electric Actuator Motorless Specification Slider	CB-055AA
ETS	Electric Actuator Motorless Specification Slider	CB-055AA
EBS-L	Electric Actuator Motorless Specification Slider	CB-055AA
EBS-G, -M	Electric actuator Motor specification Slider	RJ-014AA
EBR-L	Electric Actuator Motorless Specification Rod	CB-055AA
EBR-G, -M	Single Axis Controller for Electric Actuator	RJ-014AA
ECG	Single Axis Controller for Electric Actuator	RJ-014AA
ECMG	Multi Axis Controllers for Electric Actuators	RJ-014AA
ECR	Single Axis Controller for Electric Actuator	RJ-014AA
ECV	Electric Actuator Motorless Specification Slider type (belt drive/low dust specifications)	CB-055AA
EH	Fiber Tube Clean-room Type (For push-in fitting)	RJ-007AA
EKS-L	Electric Actuator Motorless Specification Slider Type (Ball Screw Driven)	CB-055AA
EKS-M	Electric Actuator with Motor Specification Slider Type	CC-1457AA
EMB21, 41, 51	Metal-free 2-Port Solenoid Valve	RJ-013AA
EJSG	Electric Actuator with Motor Specification Slider Type	RJ-014AA
ESC4	Single Axis Controller for Electric Actuator	RJ-014AA
ESM	Electric Shuttle Mover (Belt Driven)	CC-1259AA
ETS	Electric Actuator Motorless Specification Slider Type (Ball Screw Driven)	CB-055AA
ETV	Electric Actuator Motorless Specification Slider Type (Belt Driven)	CB-055AA
EV2100V, 2109V	Electro-Pneumatic Regulator/ Solenoid Valve Type Vacuum Compatible	RJ-007AA
EVR	Electro-Pneumatic Regulator/ Solenoid Valve Type Medium Flow	RJ-007AA
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EXA	Pilot Operated 2-Port Solenoid Valve for Compressed Air	RJ-013AA
ExiaStudio (AESM)	Device Visual Programming Tool	CC-1579AA
F		
F□	Soft nylon tube	RJ-007AA
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F1000 to **8000-W**	Air Filter/Standard White Series	RJ-007AA
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F2, 3V/H	Cylinder Switch/1-Color Indicator, Solid State 2/3-wire	996
F3PH/V	Cylinder Switch/PNP Output Type Solid State 3-wire	996
F2, 3Y V/H	Cylinder Switch/2-Color Indicator, Solid State 2/3-wire	996
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FA□	Ultra Compact Joint/ Adjustable Socket	RJ-007AA
FA331 to **831**	Exhaust Cleaner	RJ-007AA
FAC	Clean Exhaust Filter	RJ-007AA
Facilea (AES)	Image Processing Visual Programming Tool	CC-1548AA
Facilea AI (AES)	Image Processing AI Tool	CC-1623AA
FAW	Flex Arm	CC-1615AA
FBS	Ultra Compact Joint/Bushing	RJ-007AA
FBU2	Fine Buffer	RJ-010AA
FC□	Ultra Compact Joint/Clamp Fitting	RJ-007AA
FCD	Flat Cylinder Compact Demi/ Double Acting, Single Rod Type	RJ-003AA
FCH	Flat Cylinder Compact Demi/ Single Acting, Retracting Type	RJ-003AA
FCK	Shock Absorber, Adjustable Type	RJ-005AA
FCM	Compact Flow Controller Rapiflow	RJ-008AA
FCS	Flat Cylinder Compact Demi/ Single Acting, Push Type	RJ-003AA
FCS1000	Inline Clean Filter	RJ-007AA
FCS500	Inline Clean Filter	RJ-007AA
FFB	Direct Acting 2-Port Solenoid Valve Multi-fit	RJ-013AA
FFBM	Direct Acting 2-Port Solenoid Valve Multi-fit	RJ-013AA
FFG	Direct Acting 3-Port Solenoid Valve Multi-fit	RJ-013AA
FFGM	Direct Acting 3-Port Solenoid Valve Multi-fit	RJ-013AA
FFLD	Electric Actuator with Motor F Series 2-Finger Gripper Type (Built-in Controller)	RJ-014AA
FGRC	Electric Actuator with Motor F Series Rotary Type	RJ-014AA
FGS	Ultra Compact Joint/Gasket	RJ-007AA
FH100	Feather Gripper (Mini Parallel Gripper)	RJ-006AA
FH500	Feather Gripper (Mini Pivot Gripper)	RJ-006AA
FJ	Free Joint	RJ-005AA
FK	Simple Flow Controller	RJ-005AA
FLCR	Electric Actuator with Motor Specification F Series Table Type	RJ-014AA
FLS	Ultra Compact Joint/ Extension	RJ-007AA
FLSH	Electric Actuator with Motor Specification F Series 2-Finger Gripper Type	RJ-014AA
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FM3000 to **8000**	Air Filter/Medium Pressure Series	RJ-007AA
FMD	Flow Control Valve	CB-031AA
FMS	Metering Valve with Silencer	RJ-007AA
FNS	Ultra Compact Joint/Double Nipple	RJ-007AA
FPL	Ultra Compact Joint/Plug	RJ-007AA
FPV	Block Valve	RJ-007AA
FS□	Ultra Compact Joint/Socket	RJ-007AA
FSL100	Inline Filter	RJ-007AA
FSL200	Inline Filter	RJ-007AA
FSL500	Inline Filter	RJ-007AA
FSM2-D	Compact Flow Sensor Rapiflow	RJ-008AA
FSM3	Compact Flow Sensor Rapiflow	RJ-008AA
FSM-V	Ultra Compact Flow Sensor Rapiflow	RJ-008AA
FSM-V-D	Separate Display Unit Rapiflow	RJ-008AA
FSM-VFM	Compact Flow Sensor/Inline Filter	RJ-008AA
FSM-X	Ultra Compact Flow Switch Rapiflow	RJ-008AA
FT□	Ultra Compact Joint/Barb Fitting	RJ-007AA
FWD	Compact Pilot Operated Solenoid Valve for Water	RJ-013AA
FWS	Ultra Compact Joint/Partition Wall	RJ-007AA
FW4000, 8000	Air Filter/Outdoor Series	CC-1276AA
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G39D	Round Pressure Gauge	RJ-007AA
G401-W	Thin Pressure Gauge	RJ-007AA
G40D	Pressure Gauge with Safety Mark	RJ-007AA
G45D	Pressure Gauge with Limit Mark	RJ-007AA
G49D, 59D	General Purpose Pressure Gauge	RJ-007AA
G49D, 59D-P6	Pressure Gauge/Copper Ion Restricted (No copper/PTFE Specification)	RJ-007AA
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G53D	Pressure Gauge for Panel Mount	RJ-007AA
GA400	Differential Pressure Gauge	RJ-007AA
GAB312/352	Direct Acting 2-Port Solenoid Valve Manifold/Actuator (Multilex)	RJ-013AA
GAB312/352-Z	Direct Acting 2-Port Solenoid Valve for Dry Air Manifold/ Actuator (Multilex)	RJ-013AA
GAB412	Direct Acting 2-Port Solenoid Valve Manifold/Actuator (Multilex)	RJ-013AA
GAB412-Z	Direct Acting 2-Port Solenoid Valve for Dry Air Manifold/ Actuator (Multilex)	RJ-013AA
GAB422	Direct Acting 2-Port Solenoid Valve Manifold/Actuator (Multilex)	RJ-013AA
GAB452	Direct Acting 2-Port Solenoid Valve Manifold/Actuator (Multilex)	RJ-013AA
GAB452-Z	Direct Acting 2-Port Solenoid Valve for Dry Air Manifold/ Actuator (Multilex)	RJ-013AA
GAG31□	Direct Acting 3-Port Solenoid Valve Manifold/Actuator (Multilex)	RJ-013AA
GAG31□-Z	Direct Acting 3-Port Solenoid Valve for Dry Air Manifold/ Actuator (Multilex)	RJ-013AA
GAG33□	Direct Acting 3-Port Solenoid Valve Manifold/Actuator (Multilex)	RJ-013AA
GAG33□-Z	Direct Acting 3-Port Solenoid Valve for Dry Air Manifold/ Actuator (Multilex)	RJ-013AA
GAG34□	Direct Acting 3-Port Solenoid Valve Actuator (Multilex)	RJ-013AA
GAG34□-Z	Direct Acting 3-Port Solenoid Valve for Dry Air Actuator (Multilex)	RJ-013AA
GAG35□	Direct Acting 3-Port Solenoid Valve Manifold/Actuator (Multilex)	RJ-013AA
GAG35□-Z	Direct Acting 3-Port Solenoid Valve for Dry Air Manifold/ Actuator (Multilex)	RJ-013AA
GAG41□	Direct Acting 3-Port Solenoid Valve Manifold/Actuator (Multilex)	RJ-013AA
GAG41□-Z	Direct Acting 3-Port Solenoid Valve for Dry Air Manifold/ Actuator (Multilex)	RJ-013AA
GAG43□	Direct Acting 3-Port Solenoid Valve Manifold/Actuator (Multilex)	RJ-013AA
GAG43□-Z	Direct Acting 3-Port Solenoid Valve for Dry Air Manifold/ Actuator (Multilex)	RJ-013AA
GAG44□	Direct Acting 3-Port Solenoid Valve Actuator (Multilex)	RJ-013AA
GAG44□-Z	Direct Acting 3-Port Solenoid Valve for Dry Air Actuator (Multilex)	RJ-013AA
GAG45□	Direct Acting 3-Port Solenoid Valve Manifold/Actuator (Multilex)	RJ-013AA
GAG45□-Z	Direct Acting 3-Port Solenoid Valve for Dry Air Manifold/ Actuator (Multilex)	RJ-013AA
GAMD	Air Operated Valve for Chemicals (Manifold/Branch Valve)	CB-031AA
GCKW	Electric Actuator with Motor Specification G Series 3-Finger Gripper	RJ-014AA
GCVE2	Modular Coolant Valve Air Operated Type	RJ-013AA
GCVSE2	Modular Coolant Valve Solenoid Valve Mounted Type	RJ-013AA
GEXA	Pilot Operated 2-Port Solenoid Valve Manifold with One-touch Fittings for Compressed Air	RJ-013AA
GFM	Float Star	RJ-010AA
GHV	Gas Combination Valve	CC-1590AA
GLC	Guideless Cylinder/Double Acting Type	RJ-005AA
GMF1	ⓂPilot Operated 5-Port ISO Compliant Valve/DIN Terminal Box Type/ISO Size ①	RJ-012AA
GMF1	ⓂPilot Operated 5-Port ISO Compliant Valve/I/O Connector Type/ISO Size ①	RJ-012AA
GMF2	ⓂPilot Operated 5-Port ISO Compliant Valve/DIN Terminal Box Type/ISO Size ②	RJ-012AA
GMF2	ⓂPilot Operated 5-Port ISO Compliant Valve/I/O Connector Type/ISO Size ②	RJ-012AA
GMFZ	ⓂⓍPilot Operated 5-Port ISO Compliant Valve/DIN Terminal Box Type/ISO Size ① & ②	RJ-012AA

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G		
GMFZ	ⓂⓍPilot Operated 5-Port ISO Compliant Valve/I/O Connector Type/ISO Size ① & ②	RJ-012AA
GMMD	Manual Valve Manifold for Chemicals	CB-031AA
GNAB□	Air Operated 2-Port Valve Manifold (Compact Cylinder Valve)	RJ-013AA
GNAD□	Diaphragm Cylinder Valve Manifold	RJ-013AA
GPS2	Seating Confirmation Switch/ Single Unit	RJ-008AA
GPS3	Digital Gap Switch/Single Unit	RJ-008AA
GRC	Table Type Rotary Actuator/ Basic Type	RJ-005AA
GRV	Medium Pressure Gas Combination Valve	CC-1590AA
GSSD2	Electric Actuator with Motor Specification G Series Rod Type	RJ-014AA
GSTG	Electric Actuator with Motor Specification G Series Guided Type	RJ-014AA
GSTK	Electric Actuator with Motor Specification G Series Stopper Type	RJ-014AA
GSTL	Electric Actuator with Motor Specification G Series Guided Type	RJ-014AA
GSTS	Electric Actuator with Motor Specification G Series Guided Type	RJ-014AA
GSV	Solenoid Valve for Automatic Watering Control	CC-297AA
GSV2	Solenoid Valve for Automatic Watering Control	CC-297AA
GT9000	Refrigerated Air Dryer/	RJ-009AA
GW49D	Outdoor Pressure Gauge	CC-1276AA
GW	New Joint	RJ-007AA
GX3200D	Refrigerated Air Dryer/ Compact For Equipment Installation, Standard Inlet Air (35°C) Type	RJ-009AA
GX5200D	Refrigerated Air Dryer/ Compact For Direct Compressor Connection, High Inlet Air (55°C) Type	RJ-009AA
H		
H0	Cylinder Switch/1-Color Indicator, Reed	998
H0Y	Cylinder Switch/2-Color Indicator, Reed	998
HAP-1C	Parallel Gripper	RJ-006AA
HAP-2 to **4CS**	Parallel Gripper	RJ-006AA
HB	High Corrosion Resistance Direct Acting 2-Port Solenoid Valve	RJ-013AA
HBL	Pivot Gripper	RJ-006AA
HCA	High Speed Cylinder/Double Acting, Single Rod Type	RJ-005AA
HCM	High Energy Absorption Cylinder/Double Acting, Single Rod Type	RJ-005AA
HCP	Horizontal Parallel Gripper	RJ-006AA
HD-0.5 to **9**	Desiccant Air Dryer/Compact Heatless Dryer	RJ-009AA
HDL	Wide Angle Gripper	RJ-006AA
HFP	Wide Parallel Gripper	RJ-006AA
HGP	Long Stroke Parallel Gripper	RJ-006AA
HJL	Toggle Gripper	RJ-006AA
HK1	Fluid Actuated Valve for Gas Combustion System	CC-1590AA
HKP	Cross Roller Parallel Gripper	RJ-006AA
HLA	Low Profile Parallel Gripper	RJ-006AA
HLB	Low Profile Parallel Gripper	RJ-006AA
HLC	Low Profile Long Stroke Parallel Gripper	RJ-006AA
HLD	Ultra Thin Parallel Gripper	RJ-006AA
HLF2	Low Profile Long Stroke Gripper	RJ-006AA
HMD	Low Profile Wide Angle Gripper	RJ-006AA
HMC-HP1	Wide Parallel Gripper	RJ-006AA
HMF	Compact Wide Parallel Gripper	RJ-006AA
HMFB	Large Wide Parallel Gripper with LM Guide	RJ-006AA
HMTB1	Metal-free Compact Lever Type 2-Port Solenoid Valve for Medical Equipment	CC-1055AA
HMTG1	Metal-free Compact Lever Type 3-Port Solenoid Valve for Medical Equipment	CC-1055AA
HMV	ⓈⓋManual Valve/Miniature	RJ-012AA
HMVE	ⓈⓋManual Valve/Miniature	RJ-012AA
HNB1	Compact Direct Acting 2-Port Solenoid Valve	RJ-013AA
HNG1	Compact Direct Acting 3-Port Solenoid Valve	RJ-013AA
HO	Worm Reducer	CC-1601AA
HPS	Adhesion Confirmation Switch/Single Unit	RJ-008AA
HRL-1	Hybrid Robot/Single Axis Unit Element for Pneumatic Robot	RJ-005AA
HS	Fluid Actuated Valve for Gas Combustion System	CC-1590AA
HSV	ⓈⓋManual Valve/Standard	RJ-012AA
HSVE	ⓈⓋManual Valve/Standard	RJ-012AA
HVB□12	High Vacuum Solenoid Valve	RJ-013AA
HVL12	Delayed Vacuum Solenoid Valve	RJ-013AA
HYA	Fine Pinch Valve	CC-1055AA
HYN	Direct Acting 2, 3-Port Valve (Fine Pinch Valve)	CC-1055AA
I		
IAGD□	Integrated Gas Supply System	CB-035AA
IAVB	Vacuum Pressure Control System	CB-035AA
J		
J100 to **800-W**	Joiner/For Selex F.R.L/ Standard White Series	RJ-007AA
JL	Fitting (Elbow Joint)	RJ-007AA
JSB3	Brake Unit	RJ-005AA
JSC3(-N) JSC4(-N)	Brake Cylinder (Medium/ Large Bore)/Double Acting, Single Rod Type	RJ-005AA
JSG	Tie Rod Cylinder with Brake/ Double Acting, Single Rod Type	RJ-005AA
JSK2	Brake Cylinder (Small Bore ø20 to 40, Crimped Type)/ Double Acting Type	RJ-005AA
JSM2	Brake Cylinder (Small Bore ø20 to 40, Serviceable Type)/ Double Acting Type	RJ-005AA
K		
K0V/H	Cylinder Switch/1-Color Indicator, Reed 2-wire	994
K2, 3 V/H	Cylinder Switch/1-Color Indicator, Solid State 2/3-wire	994
K2, 3Y V/H	Cylinder Switch/2-Color Indicator, Solid State 2/3-wire	994
K3P V/H	Cylinder Switch/PNP Output Type, Solid State 3-wire	994
K5V/H	Cylinder Switch/No Indication, Reed 2-wire	994
K60570	F.R.L. Kit	RJ-007AA
KBX	Electric Actuator with Motor Specification Slider Type Rod Type R-axis Type	CC-1275AA
KCA	Controller	CC-1275AA
KHE	SCARA Robot	CC-1436AA
KHL	SCARA Robot	CC-1436AA
KML	Fine Level Switch	CB-031AA
KX	Coiling Tube	RJ-007AA
KZV3	Pilot Operated 2-Port Solenoid Valve	RJ-013AA
L		
L1000 to **8000-W**	Lubricator/Copper Ion Restricted (No copper/PTFE Specification)	RJ-007AA
L1000 to **8000-W**	Lubricator/Standard White Series	RJ-007AA
LAD	Diaphragm Cylinder Valve	RJ-013AA
LBC	Air Bearing Actuator	RJ-010AA
LCG	Linear Slide Cylinder/Double Acting, Single Rod Type	RJ-004AA
LCM	Linear Slide Cylinder/Double Acting, Single Rod Type	RJ-004AA
LCR	Linear Slide Cylinder/Double Acting, Single Rod Type	RJ-004AA
LCW	Linear Slide Cylinder/Double Acting, Single Rod Type	RJ-004AA
LCX	Linear Slide Cylinder/Double Acting, Single Rod Type	RJ-004AA
LFC-KL	Lifter Cylinder	CC-902AA
LGD	Air Operated Valve for Process Gas	CB-035AA
LHA	Linear Guide Gripper	RJ-006AA
LHAG	Linear Guide Gripper with Rubber Cover	RJ-006AA
LMB	Linear Guide Lock	RJ-005AA
LML	Linear Guide Lock	RJ-005AA
LN	Cylinder with Linear Norm Sensor/Sensor, Amplifier, Indicator	RJ-005AA
LSH	Linear Slide Gripper	RJ-006AA
LSH-HP1	Linear Slide Gripper	RJ-006AA
LSHL-HP1	Linear Slide Gripper	RJ-006AA
LSHM-HP2	Linear Slide Gripper with Length Measurement Function	RJ-006AA
LST-HP1	Low Profile Long Stroke Gripper	RJ-006AA
LSTM-HP2	Low Profile Long Stroke Gripper with Length Measurement Function	RJ-006AA
LW4000/ LW8000	Lubricator Outdoor Series	CC-1276AA
LYX	Air Operated Valve for Chemicals	CB-031AA
M		
M0V/H	Cylinder Switch/1-Color Indicator, Reed 2-wire	982
M1000 to **8000-P6**	Oil Mist Filter/Copper Ion Restricted (No copper/PTFE Specification)	RJ-007AA
M1000 to **8000-W**	Oil Mist Filter/Standard White Series	RJ-007AA
M2, 3V/H	Cylinder Switch/1-Color Indicator, Solid State 2/3-wire	982
M2, 3WV	Cylinder Switch/2-Color Indicator, Solid State 2/3-wire	982
M3GA1/2/3	ⓂPilot Operated 3-Port Valve/Direct Piping	RJ-011AA
M3GA1/2/3	ⓂRPilot Operated 3-Port Valve/Direct Piping	RJ-011AA
M3GA1/2/3	ⓂNAir Operated 3-Port Valve (Master Valve)/Direct Piping	RJ-012AA
M3GB1/2	ⓂPilot Operated 3-Port Valve Dual Unit/Base Piping	RJ-011AA

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M		
M3GB1/2	ⓌⓇPilot Operated 3-Port Valve Dual Unit/Base Piping	RJ-011AA
M3GD1/2/3	ⓂPilot Operated 3-Port Valve/Direct Piping	RJ-011AA
M3GD1/2/3	ⓌⓇPilot Operated 3-Port Valve/Direct Piping	RJ-011AA
M3GD1/2□ 0EJ	ⓂIntrinsically Safe Explosion-proof Pilot Operated 3-Port Valve/Direct Piping	RJ-012AA
M3GD1/2□ 0EX	ⓂIntrinsically Safe Explosion-proof Pilot Operated 3-Port Valve/Direct Piping	RJ-012AA
M3GE1/2	ⓂPilot Operated 3-Port Valve Dual Unit/Base Piping	RJ-011AA
M3GE1/2	ⓌⓇPilot Operated 3-Port Valve Dual Unit/Base Piping	RJ-011AA
M3GE1/2□ 0EJ	ⓂIntrinsically Safe Explosion-proof Pilot Operated 3-Port Valve/Base Piping	RJ-012AA
M3GE1/2□ 0EX	ⓂIntrinsically Safe Explosion-proof Pilot Operated 3-Port Valve/Base Piping	RJ-012AA
M3KA1	ⓂPilot Operated 3-Port Valve/Direct Piping	RJ-012AA
M3KA1	ⓃⓃAir Operated 3-Port Valve (Master Valve)/Direct Piping	RJ-012AA
M3MA0	ⓂDirect Acting 3-Port Valve/Direct Piping	RJ-012AA
M3MB0	ⓂDirect Acting 3-Port Valve/Sub-plate Piping	RJ-012AA
M3P V/H	Cylinder Switch/1-Color Indicator, PNP Output Type, Solid State 3-wire	982
M3PA1/2	ⓂDirect Acting 3-Port Valve/Direct Piping	RJ-012AA
M3PB1/2	ⓂDirect Acting 3-Port Valve/Sub-plate Piping	RJ-012AA
M3QB1	ⓂDirect Acting 3-Port Valve/Sub-plate Piping	RJ-012AA
M3QE1	ⓂDirect Acting 3-Port Valve/Sub-plate Piping	RJ-012AA
M3QZ1	ⓂDirect Acting 3-Port Valve/Sub-plate Piping	RJ-012AA
M3QRA	ⓂDirect Acting 3-Port Valve/Direct Piping	RJ-012AA
M3QRB	ⓂDirect Acting 3-Port Valve/Sub-plate Piping	RJ-012AA
M4F0/1/2/3	ⓂPilot Operated 5-Port Valve/Direct Piping	RJ-012AA
M4F0/1/2/3	ⓃⓃAir Operated 5-Port Valve (Master Valve)/Direct Piping	RJ-012AA
M4F3□□ 0EX	ⓂExplosion-proof Pilot Operated 5-Port Valve/Direct Piping	RJ-012AA
M4F3□0E	ⓂExplosion-proof Pilot Operated 5-Port Valve/Direct Piping	RJ-012AA
M4F4/5/6/7	ⓂPilot Operated 5-Port Valve/Sub-plate Piping	RJ-012AA
M4F4/5/6/7	Air Operated 5-Port Valve (Master Valve)/Sub-plate Piping	RJ-012AA
M4F4/5/6/7□ 0EX	ⓂExplosion-proof Pilot Operated 5-Port Valve/Sub-plate Piping	RJ-012AA
M4F4/5/6/7□ 0E	ⓂExplosion-proof Pilot Operated 5-Port Valve/Sub-plate Piping	RJ-012AA
M4GA1/2/3	ⓂPilot Operated 5-Port Valve/Direct Piping	RJ-011AA
M4GA1/2/3	ⓌⓇPilot Operated 5-Port Valve/Direct Piping	RJ-011AA
M4GA1/2/3	ⓃⓃAir Operated 5-Port Valve (Master Valve)/Direct Piping	RJ-012AA
M4GA4	ⓂPilot Operated 5-Port Valve/Direct Piping	RJ-011AA
M4GA4	ⓌⓇPilot Operated 5-Port Valve/Direct Piping	RJ-011AA
M4GB1/2/3	ⓂPilot Operated 5-Port Valve/Base Piping	RJ-011AA
M4GB1/2/3	ⓌⓇPilot Operated 5-Port Valve/Base Piping	RJ-011AA
M4GB1/2/3	ⓃⓃAir Operated 5-Port Valve (Master Valve)/Base Piping	RJ-012AA
M4GB4	ⓂPilot Operated 5-Port Valve/Base Piping	RJ-011AA
M4GB4	ⓌⓇPilot Operated 5-Port Valve/Base Piping	RJ-011AA
M4GD1/2/3	ⓂPilot Operated 5-Port Valve/Direct Piping	RJ-011AA
M4GD1/2/3	ⓌⓇPilot Operated 5-Port Valve/Direct Piping	RJ-011AA
M4GD1/2/3/4□ 0EJ	ⓂIntrinsically Safe Explosion-proof Pilot Operated 5-Port Valve/Direct Piping	RJ-012AA
M4GD1/2/3/4□ 0EX	ⓂIntrinsically Safe Explosion-proof Pilot Operated 5-Port Valve/Direct Piping	RJ-012AA
M4GE1/2/3	ⓂPilot Operated 5-Port Valve/Base Piping	RJ-011AA
M4GE1/2/3	ⓌⓇPilot Operated 5-Port Valve/Base Piping	RJ-011AA
M4GE1/2/3/4□ 0EJ	ⓂIntrinsically Safe Explosion-proof Pilot Operated 5-Port Valve/Base Piping	RJ-012AA
M4GE1/2/3/4□ 0EX	ⓂIntrinsically Safe Explosion-proof Pilot Operated 5-Port Valve/Base Piping	RJ-012AA
M4KA1/2/3/4	ⓂPilot Operated 5-Port Valve/Direct Piping	RJ-012AA
M4KA1/2/3/4	ⓃⓃAir Operated 5-Port Valve (Master Valve)/Direct Piping	RJ-012AA
M4KB1/2/3/4	ⓂPilot Operated 4, 5-Port Valve/Sub-plate Piping	RJ-012AA
M4KB1/2/3/4	ⓃⓃAir Operated 4, 5-Port Valve (Master Valve)/Sub-plate Piping	RJ-012AA
M4SA0	ⓂPilot Operated 5-Port Valve/Direct Piping	RJ-011AA
M4SB0	ⓂPilot Operated 5-Port Valve/Sub-plate Piping	RJ-011AA
M4SB0	ⓌⓇPilot Operated 5-Port Valve/Sub-plate Piping	RJ-011AA
M512□	ⓈⓋPilot Operated 2-Port Valve/Direct Type	RJ-012AA
M513□	ⓈⓋPilot Operated 3-Port Valve/Direct Type	RJ-012AA
M5V/H	Cylinder Switch/No Indication, Reed 2-wire	982
MAB1/ MAG1	Metal-free 2-Port Solenoid Valve	CC-1055AA
MAVL	Large Mechanical Valve/Detector	RJ-007AA
MCP	Mechanical Power Cylinder	RJ-005AA
MD	Multi Monitor	RJ-008AA
MDC2	Compact Direct Cylinder/Double Acting, Single Rod Type	RJ-003AA
MDV	Compact Direct Cylinder	CC-905AA
MEB2/ MEG2	Metal-free 2-Port Solenoid Valve	CC-1055AA
MEVT	Low Profile Electro-Pneumatic Regulator/Wiring-saving Manifold Type	RJ-007AA
MGD	Manual Valve for Process Gas	CB-035AA
MGPS2	Seating Confirmation Switch/Manifold	RJ-008AA
MGPS3	Digital Gap Switch/Manifold	RJ-008AA
MHB4	Miniature Electric Ball Valve 2-Port (Motor Valve)	RJ-013AA
MHG4	Miniature Electric Ball Valve 3-Port (Motor Valve)	RJ-013AA
MHPS	Adhesion Confirmation Switch/Manifold	RJ-008AA
MJB3	Metal-free Direct Acting 2-Port Solenoid Valve	CC-1055AA
MJL□	Compression Joint/Elbow Type	RJ-007AA
MJN□	Compression Joint/Sleeve	RJ-007AA
MJS□	Compression Joint/Straight Type	RJ-007AA
MJT□	Compression Joint/Tee Type	RJ-007AA
MJU□	Compression Joint/Insert Ring	RJ-007AA
MKB3	Metal-free 2-Port Solenoid Valve	CC-1055AA
MKML	Fine Level Switch Manifold	CB-031AA
MM	Medium Mechanical Valve/Detector	RJ-007AA
MM3000 to **8000**	Oil Mist Filter/Medium Pressure Series	RJ-007AA
MMD	Manual Valve for Chemicals	CB-031AA
MN3E0	ⓌⓇPilot Operated 3, 4-Port Valve	RJ-011AA
MN3E00	ⓌⓇPilot Operated 3, 4-Port Valve	RJ-011AA
MN3GA1/2	Ⓦ, ⒷⓂPilot Operated 3-Port Valve/Direct Piping	RJ-011AA
MN3GA1/2	ⓌⓇ, ⒷⓂPilot Operated 3-Port Valve/Direct Piping	RJ-011AA
MN3GAX12	ⓌⓇ, ⓂⓍPilot Operated 3-Port Valve/Direct Piping	RJ-011AA
MN3GB1/2	Ⓦ, ⒷⓂPilot Operated 3-Port Valve Dual Unit/Base Piping	RJ-011AA
MN3GB1/2	ⓌⓇ, ⒷⓂPilot Operated 3-Port Valve Dual Unit/Base Piping	RJ-011AA
MN3GD1/2	Ⓦ, ⒷⓂPilot Operated 3-Port Valve/Direct Piping	RJ-011AA
MN3GD1/2	ⓌⓇ, ⒷⓂPilot Operated 3-Port Valve/Direct Piping	RJ-011AA
MN3GDX12	ⓌⓇ, ⓂⓍPilot Operated 3-Port Valve/Direct Piping	RJ-011AA
MN3GE1/2	Ⓜ, ⒷⓂPilot Operated 3-Port Valve Dual Unit/Base Piping	RJ-011AA
MN3GE1/2	ⓌⓇ, ⒷⓂPilot Operated 3-Port Valve Dual Unit/Base Piping	RJ-011AA
MN3Q	ⓌⓇDirect Acting 3-Port Valve	RJ-012AA
MN4E0	ⓌⓇPilot Operated 3, 4-Port Valve	RJ-011AA
MN4E00	ⓌⓇPilot Operated 3, 4-Port Valve	RJ-011AA
MN4EX0	ⓌⓇ/ⓂⓍPilot Operated 4-Port Valve	RJ-011AA
MN4GA1/2	Ⓜ/ⒷⓂPilot Operated 5-Port Valve/Direct Piping	RJ-011AA
MN4GA1/2	ⓌⓇ/ⒷⓂPilot Operated 5-Port Valve/Direct Piping	RJ-011AA
MN4GAX12	ⓌⓇ/ⓂⓍPilot Operated 5-Port Valve/Direct Piping	RJ-011AA
MN4GB1/2	Ⓜ/ⒷⓂPilot Operated 5-Port Valve/Base Piping	RJ-011AA
MN4GB1/2	ⓌⓇ/ⒷⓂPilot Operated 5-Port Valve/Base Piping	RJ-011AA
MN4GBX12	ⓌⓇ/ⓂⓍPilot Operated 5-Port Valve/Base Piping	RJ-011AA
MN4GD1/2	Ⓜ/ⒷⓂPilot Operated 5-Port Valve/Direct Piping	RJ-011AA
MN4GD1/2	ⓌⓇ/ⒷⓂPilot Operated 5-Port Valve/Direct Piping	RJ-011AA
MN4GDX12	ⓌⓇ/ⓂⓍPilot Operated 5-Port Valve/Direct Piping	RJ-011AA
MN4GE1/2	Ⓜ/ⒷⓂPilot Operated 5-Port Valve/Base Piping	RJ-011AA
MN4GE1/2	ⓌⓇ/ⒷⓂPilot Operated 5-Port Valve/Base Piping	RJ-011AA
MN4GEX12	ⓌⓇ/ⓂⓍPilot Operated 5-Port Valve/Base Piping	RJ-011AA
MN4KB1/2	ⒷⓂPilot Operated 5-Port Valve/Sub-plate Piping	RJ-012AA
MNRB500	Block Manifold Regulator	RJ-007AA
MNRB500-P11	Block Manifold Regulator/Ozone Resistant	RJ-007AA
MNRJB500	Block Manifold Compact Direct Acting Precision Regulator	RJ-007AA
MNV	Flow Control Valve	CB-031AA
MR10R	Metal-free Compact 2, 3-Port Solenoid Valve	CC-1055AA
MR16	Metal-free Compact 2, 3-Port Solenoid Valve	CC-1055AA
MRG2	Magnet Type Rodless Cylinder/Double Acting Type	RJ-005AA
MRL2	Magnet Type Rodless Cylinder/Basic Type	RJ-005AA
MS	Compact Mechanical Valve/Detector	RJ-007AA
MSB1□	Electric Ball Valve 2-Port for Steam (Motor Valve)	RJ-013AA
MSD	Compact Cylinder/Double Acting, Single Rod Type	RJ-003AA

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Model No.	Model Name	Catalog No./Page
M		
MSDG-L	Compact Cylinder/Double Acting, Guided Type, with Switch	RJ-004AA
MTLPS	Tool Breakage Detection Switch/Manifold	RJ-008AA
MV3QRA	3QR Negative Pressure Switching Unit Direct Piping	RJ-012AA
MV3QRB	3QR Negative Pressure Switching Unit Sub-plate Piping	RJ-012AA
MXKML	Fine Level Switch Manifold	CB-031AA
MVB	Manual Valve for High Vacuum	CB-035AA
MVC	Compact Cylinder with Vacuum Pad/Double Acting, Single Rod Type	RJ-005AA
MW3GA2	(M)Pilot Operated 3-Port Valve/Direct Piping	RJ-011AA
MW3GA2	(WR)Pilot Operated 3-Port Valve/Direct Piping	RJ-011AA
MW4GA2	(M)Pilot Operated 5-Port Valve/Direct Piping	RJ-011AA
MW4GA2	(WR)Pilot Operated 5-Port Valve/Direct Piping	RJ-011AA
MW4GB2	(M)Pilot Operated 5-Port Valve/Base Side Piping	RJ-011AA
MW4GB2	(WR)Pilot Operated 5-Port Valve/Base Side Piping	RJ-011AA
MW4GB4	(M)Pilot Operated 5-Port Valve/Base Side Piping	RJ-011AA
MW4GB4	(WR)Pilot Operated 5-Port Valve/Base Side Piping	RJ-011AA
MW4GZ2	(M)Pilot Operated 5-Port Valve/Base Bottom Piping	RJ-011AA
MW4GZ2	(WR)Pilot Operated 5-Port Valve/Base Bottom Piping	RJ-011AA
MW4GZ4	(M)Pilot Operated 5-Port Valve/Base Bottom Piping	RJ-011AA
MW4GZ4	(WR)Pilot Operated 5-Port Valve/Base Bottom Piping	RJ-011AA
MW4000, 8000	Oil Mist Filter/Outdoor Series Outdoor Series	CC-1276AA
MWD	Wear Type Diaphragm Valve	CC-1637AA
MX1000 to **8000-W**	High Performance Oil Mist Filter/Standard White Series	RJ-007AA
MXB1□	Electric Ball Valve 2-Port (Motor Valve)	RJ-013AA
MXB1D-N	Electric Oil-free Ball Valve 2-Port (Motor Valve)	RJ-013AA
MXB1F	Electric Ball Valve 2-Port (Motor Valve)/Full Bore	RJ-013AA
MXB1-N	Electric Oil-free Ball Valve 2-Port (Motor Valve)	RJ-013AA
MXBC2	Proportional Control Electric Ball Valve 2-Port (Motor Valve)	RJ-013AA
MXG1□	Electric Ball Valve 3-Port (Motor Valve)	RJ-013AA
MXG1D-N	Electric Oil-free Ball Valve 3-Port (Motor Valve)	RJ-013AA
MXG1-N	Electric Oil-free Ball Valve 3-Port (Motor Valve)	RJ-013AA
MXGC2	Proportional Control Electric Ball Valve 3-Port (Motor Valve)	RJ-013AA
MYB□	Metal-free 2-Port Solenoid Valve	CC-1055AA
MYG□	Metal-free 3-Port Solenoid Valve	CC-1055AA
N		
N□P51□	(SM)Pilot Operated 2, 3, 5-Port Valve/Block Manifold	RJ-012AA
NAB□	Air Operated 2-Port Valve Single Unit (Compact Cylinder Valve)	RJ-013AA
NAD□	Diaphragm Cylinder Valve	RJ-013AA
NAP11	Air Operated 3-Port Valve	RJ-012AA
NCK	Shock Absorber, Fixed Type	RJ-005AA
NHS-H	New Handling System/Z-axis Module HRL	RJ-005AA
NHS-S	New Handling System/Z-axis Module STL-B	RJ-005AA
NP13R/14R	Internal Pilot Operated 3-Port Valve Solenoid Valve Mounted Type	RJ-012AA
NPV2	Direct Air Pressure Automatic Pinch Valve	RJ-013AA
NS	Nitrogen Extraction Unit/Unit Type	RJ-009AA
NSU	Nitrogen Extraction Unit/System Type	RJ-009AA
NSR	New Handling System/X-axis Module	RJ-005AA
NU	New Urethane Tubing	RJ-007AA
NVP11R	Air Operated 3-Port Valve/Solenoid Valve Mounted Type	RJ-012AA
NX4	ABSODEX	CC-1456AA
NXD	Driver	CC-1456AA
O		
OGD	Manual Valve for Process Gas	CB-035AA
OMC2	Sequential Controller for Pulse Jet Valve (Pulse Jet Controller)	RJ-013AA
P		
P1100-W	Reed Switch, Contact Type Compact Mechanical Pressure Switch	RJ-007AA
P4000-W	Mechanical Pressure Switch/Standard White Series	RJ-007AA
P4100-W	Reed Switch, Contact Type Compact Mechanical Pressure Switch	RJ-007AA
P512□	(SV)Pilot Operated 2-Port Valve/Pilot Type	RJ-012AA
P513□	(SV)Pilot Operated 3-Port Valve/Pilot Type	RJ-012AA
P5142	(SV)Pilot Operated 5-Port Valve/Pilot Type	RJ-012AA
P8100-W	Reed Switch, Contact Type Compact Mechanical Pressure Switch	RJ-007AA
PAW	Powerful Arm	CC-1418AA
PCC	Pin Clamp Cylinder Double Acting, Single Rod Type	RJ-005AA
PCIS/PCOS	Parallel cam unit	CB-019SAA
PD2	Pilot Operated 2-Port Air Operated Valve for Dust Collector	RJ-013AA
PD3	Pilot Operated 2-Port Air Operated Valve for Dust Collector	RJ-013AA
PDV2	Pilot Operated 2-Port Valve with Solenoid for Dust Collector	RJ-013AA
PDV3	Pilot Operated 2-Port Valve with Solenoid for Dust Collector	RJ-013AA
PDVE4	Explosion-proof 2-Port Solenoid Valve for Dust Collector (Explosion-proof Pulse Jet Valve)	RJ-013AA
PE	Pressure Switch/Logic Valve	RJ-007AA
PFD	Flow Sensor for Compressed Air/Separate Display Type Flurex	RJ-008AA
PG	Air Fiber One-touch Fitting (Standard Type)	RJ-007AA
PGM	Regulator for Process Gas	CB-035AA
PG-P2-B	Blank Plug	RJ-007AA
PJVB	Box Type Manifold Solenoid Valve for Operation (2-Port Solenoid Valve for Pulse Jet Control)	RJ-013AA
PKA	Pilot Kick Operated 2-Port Solenoid Valve for Air	RJ-013AA
PKS	Pilot Kick Operated 2-Port Solenoid Valve for Steam	RJ-013AA
PKW	Pilot Kick Operated 2-Port Solenoid Valve for Water	RJ-013AA
PLE-B12	Side Block/Integrated Type	RJ-007AA
PLJ-C12	YES Element/Relay Type	RJ-007AA
PLK-A11	OR Element/Line Type	RJ-007AA
PLK-B12	OR Element/Integrated Type	RJ-007AA
PLK-C12	OR Element/Relay Type	RJ-007AA
PLL-A11	AND Element/Line Type	RJ-007AA
PLL-B12	AND Element/Integrated Type	RJ-007AA
PLL-C12	AND Element/Relay Type	RJ-007AA
PLM	Memory Element/Relay Type	RJ-007AA
PLN-B12	NOT Element/Integrated Type	RJ-007AA
PLN-C12	NOT Element/Relay Type	RJ-007AA
PLN-D12	Threshold Element/Relay Type	RJ-007AA
PMM	Fine Regulator	CB-031AA
PMP	Fine Regulator	CB-031AA
PNA	Oxygen Concentration Meter	RJ-009AA
PPD3	Electronic Pressure Switch/Sensor/Amplifier Integrated Type with Display	RJ-008AA
PPD3-S	Electronic Pressure Switch, Stainless Steel Diaphragm Sensor Type/Sensor/Amplifier Integrated Type with Display	RJ-008AA
PPE	Electronic Compact Pressure Switch/Sensor/Amplifier Integrated Type without Display	RJ-008AA
PPE-□A	Electronic Compact Pressure Switch/Sensor/Amplifier Integrated Type without Display, Analog Output Type	RJ-008AA
PPEV-□A	Electronic Compact Pressure Switch/Sensor/Amplifier Integrated Type without Display, Analog Output Type	RJ-008AA
PPG-D	Electronic Pressure Sensor with Digital Display	RJ-008AA
PPLX	Linear Pick & Place Unit	CB-019SAA
PPR	Electronic Pressure Sensor with Digital Display	RJ-008AA
PPX	Digital Pressure Sensor	RJ-008AA
PRD	Amplifier/Elements and Sensors	RJ-007AA
PRE-A12	Pressure Switch/Relay Type	RJ-007AA
PRF-A2	Booster/Elements and Sensors	RJ-007AA
PRS-A12	Solenoid Valve/Relay Type	RJ-007AA
PRT	Timer/Relay Type	RJ-007AA
PSD	Sequencer Branch Block	RJ-007AA
PSE	Sequencer Input/Output Block	RJ-007AA
PSL	Sequencer AND Element	RJ-007AA
PSM	Sequencer Element	RJ-007AA
PSV	Sequencer Sub-base V-Type	RJ-007AA
PTN2	Dedicated Fitting for Air Fiber	RJ-007AA
PV5	(SV)Pilot Operated 5-Port ISO Compliant Valve/I/O Connector Type/ISO Size ①	RJ-012AA
PV5G	(SV)Pilot Operated 5-Port ISO Compliant Valve/DIN Terminal Box Type/ISO Size ①	RJ-012AA
PV5S-0	ISO Compliant Master Valve	RJ-012AA
PVP	Precision Suction Plate	RJ-010AA
PVS	Pilot Operated 2-Port Solenoid Valve	RJ-013AA
PWS	Threshold Sensor	RJ-007AA
PXB-B3	Push Button Switch/Switch Body/Separate Type	RJ-007AA
PXC-K	Limit Switch	RJ-007AA
PXC-M	Miniature Limit Switch	RJ-007AA
PXC-M	Compact Limit Switch	RJ-007AA
PXD	Proximity Sensor/Elements and Sensors	RJ-007AA
PXF	Limit Sensor/Elements and Sensors	RJ-007AA
PXV	Air Lamp	RJ-007AA
PYM	Fine Regulator	CB-031AA
PZM	Mounting Bracket/Line Type	RJ-007AA

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Model No.	Model Name	Catalog No./Page
Q		
PZU	Sub-base/Input Block/Relay Type Sub-base	RJ-007AA
QEL	Quick Exhaust Valve	RJ-007AA
QEV2	Quick Exhaust Valve	RJ-007AA
R		
R0, 3, 4, 6	Cylinder Switch/1-Color Indicator, Reed 2-wire	984
R1, 2	Cylinder Switch/1-Color Indicator, Solid State 2-wire	984
R1000 to **8000-P11**	Regulator/Ozone Resistant	RJ-007AA
R1000 to **8000-P6**	Regulator/Copper Ion Restricted (No copper/PTFE Specification)	RJ-007AA
R1000 to **8000-W**	Regulator/Standard White Series	RJ-007AA
R1100 to **8100-P11**	Reverse Regulator/Ozone Resistant	RJ-007AA
R1100 to **8100-P6**	Reverse Regulator/Copper Ion Restricted (No copper/PTFE Specification)	RJ-007AA
R1100 to **R8100-W**	Reverse Regulator/Standard White Series	RJ-007AA
R2, 3Y	Cylinder Switch/2-Color Indicator, Solid State 2/3-wire	984
R3000 to **8000-G4**	Regulator/Flame Resistant Series	RJ-007AA
R3100 to **8100-G4**	Reverse Regulator/Flame Resistant Series	RJ-007AA
R5	Cylinder Switch/No Indication, Reed 2-wire	984
RA800	Compact Regulator/Compact Piston Type	RJ-007AA
RB500	Compact Regulator	RJ-007AA
RB500-P11	Compact Regulator/Ozone Resistant	RJ-007AA
RC2000	Clean Regulator	RJ-007AA
RCC2	Rotary Clamp Cylinder Double Acting, Single Rod Type	RJ-005AA
RCKL	Gripper for Collaborative Robot 3-Jaw Type	RJ-006AA
RCS2	Rotary Clamp Cylinder (Single Guide Type) Double Acting, Single Rod Type	RJ-005AA
RG	One-touch Fitting for Air Fiber (Flame Resistant Type)	RJ-007AA
RHLF	Gripper for Collaborative Robot Long Stroke Type	RJ-006AA
RJB500	Compact Direct Acting Precision Regulator	RJ-007AA
RJF	Rotary Joint	RJ-007AA
RLSH	Gripper for Collaborative Robot Compact Type	RJ-006AA
RM3000, 4000	Regulator/Medium Pressure Series	RJ-007AA
RN3000 to **8000**	Oil-free Regulator	RJ-007AA
RP1000	Precision Regulator	RJ-007AA
RPE1000	Precision Regulator	RJ-007AA
RP2000	Precision Regulator	RJ-007AA
RRC	Selex Rotary/Rack & Pinion Type	RJ-005AA
RS-6	Rain Sensor for Automatic Watering Control	CC-297AA
RSC	Automatic Watering Controller	CC-297AA
RSV	Solenoid Valve for Automatic Watering Control	CC-297AA
RT	Remote I/O	RJ-011AA
RTD-3A	Air Timer/Logic Valve	RJ-007AA
RW4000, 8000	Regulator/Outdoor Series Outdoor Series	CC-1276AA
RV3□	Selex Rotary/Vane Type	RJ-005AA
RVC	Shock Absorber	RJ-005AA
S		
SAB□□	Air Operated 2-Port Valve (Cylinder Valve)	RJ-013AA
SAL	Compact Air Lamp/Logic Valve	RJ-007AA
SC1	Speed Controller/Medium Bore Type	RJ-007AA
SC-20A to **50A**	Speed Controller/Large Bore Type	RJ-007AA
SC3P	Speed Controller/Stainless Steel Corrosion Resistant Type	RJ-007AA
SC3R	Speed Controller/Direct Port Connection, Elbow Type	RJ-007AA
SC3U	Speed Controller/Universal Type with One-touch Fitting	RJ-007AA
SC3W	Speed Controller/Elbow Type with One-touch Fitting	RJ-007AA
SCA2	Medium Bore Size Cylinder (Medium Bore ø40 to 100)/Double Acting, Single Rod Type	619
SCD	Speed Controller/Ultra Compact In-Out Type	RJ-007AA
SCD2	Speed Controller/In-Out Line Type with One-touch Fitting	RJ-007AA
SCG	Tie Rod Cylinder/Double Acting, Single Rod Type	483
SCK	Shock Absorber, Adjustable Type	RJ-005AA
SCL2	Speed Controller/Line Type with One-touch Fitting	RJ-007AA
SCL2-N	Needle Valve/Line Type with One-touch Fitting	RJ-007AA
SCM	Round shaped cylinder/Double Acting, Single Rod Type	319
SC-M3/ M5(-F)	Speed Controller/Ultra Compact	RJ-007AA
SCPD3	Pencil Shaped Cylinder/Double Acting, Single Rod Type	12
SCPH3	Pencil Shaped Cylinder/Single Acting, Retracting Type	22
SCPS	Pencil Shaped Cylinder/ Single Acting, Push Type	22
SCPS3	Pencil Shaped Cylinder/ Single Acting, Push Type	22
SCS2	Medium Bore Size Cylinder (Large Bore ø125 to 250)/ Double Acting, Single Rod Type, Lubricated Type	867
SD301, 302D	Membrane Air Dryer/Single Unit	RJ-009AA
SD301, 302E	Membrane Air Dryer/Single Unit	RJ-009AA
SD3015 to **3075**	Membrane Air Dryer/Single Unit	RJ-009AA
SD401, 402D	Membrane Air Dryer/Single Unit	RJ-009AA
SD401, 402E	Membrane Air Dryer/Single Unit	RJ-009AA
SD4050 to **4100**	Membrane Air Dryer/Single Unit	RJ-009AA
SDM4050 to **4100**	Membrane Air Dryer/Super Dryer Modular Series (Large Size)	RJ-009AA
SFC□	Antibacterial/Germ-removing Filter	RJ-007AA
SFS10	Germ-removing Filter/Inline Type	RJ-007AA
SFR/SFRT	Super Fan Rotary	CC-984AA
SFX	Siloxane/Ozone Remover	RJ-007AA
SHD	Desiccant Air Dryer/Medium/ Large Heatless Dryer	RJ-009AA
SHV2	Shuttle Valve	RJ-007AA
SKAC	Contact Protection Circuit Box (For AC Circuit)	1001
SKDC	Contact Protection Circuit Box (For DC Circuit)	1001
SKH	Shockless Valve	RJ-012AA
SKL	Shock Absorber	RJ-005AA
SL	Silencer/Metal Body Type	RJ-007AA
SLM	Silencer/Ultra Compact Type	RJ-007AA
SLW	Silencer/Small Bore, Resin Body Type	RJ-007AA
SM-25	Shuttle Mover Standard Type/ High Load Type	RJ-005AA
SMG	Compact Cylinder/Double Acting, Single Rod Type	RJ-003AA
SMW	Metering Valve with Silencer	RJ-007AA
SMW2	Metering Valve with Silencer	RJ-007AA
SNP	3-Port Solenoid Valve with Spool Position Detection Function	RJ-007AA
SNS	Residual Pressure Exhaust Valve with Spool Position Detection Function	RJ-007AA
SP	Thin Pilot Operated 2-Port Solenoid Valve for Compressed Air	RJ-013AA
SPD	Poppet Type Diaphragm Valve	CC-1637AA
SPK	Pilot Kick Operated 2-Port Solenoid Valve for Steam	RJ-013AA
SR	Flame Resistant Tubing	RJ-007AA
SRG3	High Precision Guided Rodless Cylinder (Single Guide)/Double Acting Type	RJ-005AA
SRL3	Rodless Cylinder/Double Acting Type	RJ-005AA
SRM3	High Precision Guided Rodless Cylinder (Double Guide)/Double Acting Type	RJ-005AA
SRT3	Rodless Cylinder with Brake/ Double Acting Type	RJ-005AA
SSD	Compact Cylinder/Double Acting, Single Rod Type	RJ-003AA
SSD2	Compact Cylinder/Double Acting, Single Rod Type	RJ-003AA
SSD-LN	With Linear Norm Sensor	RJ-005AA
SSG	Guided Compact Cylinder/ Double Acting, Single Rod Type	RJ-003AA
STG	Guided Cylinder/Double Acting, Single Rod Type	RJ-004AA
STK	Stopper Cylinder/Double Acting, Round Rod End Type	RJ-005AA
STL-□	Guided Cylinder (Long Stroke Type)/Double Acting, Single Rod Type	RJ-004AA
STM-M/B	Guided Cylinder/Double Acting, Single Rod Type	RJ-004AA
STR2-□	Twin Rod Cylinder/Double Acting, Single Rod Type	RJ-004AA
STS-□	Guided Cylinder (Short Stroke Type)/Double Acting, Single Rod Type	RJ-004AA
SU301, 302D	Membrane Air Dryer/Unit	RJ-009AA
SU301, 302E	Membrane Air Dryer/Unit	RJ-009AA
SU3015 to **3075**	Membrane Air Dryer/Unit	RJ-009AA
SU401, 402D	Membrane Air Dryer/Unit	RJ-009AA
SU401, 402E	Membrane Air Dryer/Unit	RJ-009AA
SU4050, 4100	Membrane Air Dryer/Unit	RJ-009AA
SVB□□	Air Operated 2-Port Valve Solenoid Valve Mounted Type (Cylinder Valve)	RJ-013AA
SWD	Wear Type Diaphragm Valve	CC-1637AA
T		
T0V/H/C	Cylinder Switch/1-Color Indicator, Reed 2-wire	986
T0Y	Cylinder Switch/Reed 2-wire for Magnetic Environments	992
T1 V/H	Cylinder Switch/1-Color Indicator, Solid State 2-wire	986
T2 V/H R	Cylinder Switch/Flexible Shielded Cable Type, Solid State 2-wire	986
T2, 3 V/H/C	Cylinder Switch/1-Color Indicator, Solid State 2/3-wire	986
T2, 3YL V/H	Cylinder Switch/Solid State 2/3-wire for Cutting Oil	987
T2J V/H	Cylinder Switch/Off-delay Type, Solid State 2-wire	986
T2YD(T)	Cylinder Switch/Solid State 2-wire for Strong Magnetic Fields	987

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Model No.	Model Name	Catalog No./Page
T		
T2WL V/H	Cylinder Switch/Improved Water Resistance, Solid State 2-wire	990
T3P V/H	Cylinder Switch/PNP Output Type, Solid State 3-wire	986
T5V/H/C	Cylinder Switch/No Indication, Reed 2-wire	986
T8 V/H	Cylinder Switch/1-Color Indicator, Reed 2-wire	986
TAC-25	Medium Pressure Gas Safety Shutoff Control System	CC-1590AA
TGX	Torque Guard	CC-1601AA
TLPS	Tool Breakage Detection Switch/Single Unit	RJ-008AA
TSF	Torque Saver	CC-1601AA
TVG	Plug-in Block Manifold	RJ-011AA
U		
U	Urethane Tubing	RJ-007AA
UB	Lock Unit	RJ-005AA
UCA2	Unit Cylinder/Double Acting, Single Rod, Plain Bearing Type	RJ-004AA
UCAC2	Clamp Cylinder with Fall Prevention/Double Acting, Single Rod Type	RJ-005AA
UCAC-N32/40	Lightweight Clamp Cylinder/ With Fall Prevention, Double Acting, Single Rod Type	RJ-005AA
UFCD	Flat Cylinder with Free Position Fall Prevention/Double Acting, Single Rod Type	RJ-005AA
UGPS2	Seating Confirmation Switch/Unit	RJ-008AA
UGPS3	Digital Gap Switch/Unit	RJ-008AA
UHPS	Adhesion Confirmation Switch/Unit	RJ-008AA
ULK	Brake Cylinder/Double Acting, Single Rod Type	RJ-005AA
UMB1	High Corrosion Resistance Ultra Compact Direct Acting 2-Port Solenoid Valve for Medical Equipment	CC-1055AA
UMG1	High Corrosion Resistance Ultra Compact Direct Acting 3-Port Solenoid Valve for Medical Equipment	CC-1055AA
UP	Air Fiber Antistatic Type (For One-touch Fittings)	RJ-007AA
UP-□□-F1/ F2	Antistatic Tubing	RJ-007AA
UP-9102-20-□-F1	Air Fiber Antistatic Type	RJ-007AA
UP-9102-SR	Flame Resistant Air Fiber (For One-touch Fittings)	RJ-007AA
US	Compact Direct Acting 2, 3-Port Solenoid Valve (Resin Body Type)	RJ-013AA
USB□	Compact Direct Acting 2-Port Solenoid Valve	RJ-013AA
USC	Medium Bore Size Cylinder with Free Position Fall Prevention/Double Acting, Single Rod Type	RJ-005AA
USG□	Compact Direct Acting 3-Port Solenoid Valve	RJ-013AA
USSD	Compact Cylinder with Drop Prevention/Double Acting, Single Rod Type	RJ-005AA
UTLPS	Tool Breakage Detection Switch/Unit	RJ-008AA
V		
V0	Cylinder Switch/Compact Reed 2-wire for Strong Magnetic Fields	999
V1000, 3000-W	Residual Pressure Exhaust Valve/Standard White Series	RJ-007AA
V3010, 6010-W	Residual Pressure Exhaust Valve with Keyhole, Keyhole, OSA Compliant	RJ-007AA
V3301, 3321-W	Slow Start Valve	RJ-007AA
VFA1000 to 4000	Vacuum Filter	RJ-010AA
VG	Vacuum Generator	CB-035AA
VG41D	Vacuum Pressure Gauge with Limit Mark	RJ-007AA
VLA	Solenoid Valve for Gas Combustion System	CC-1590AA
VLM	Shutoff Valve for Medium Pressure Gas Safety Shutoff Control	CC-1590AA
VNA	Solenoid Valve for Gas Combustion System	CC-1590AA
VNA-R/RH	Solenoid Valve for Gas Combustion System	CC-1590AA
VNM	Shutoff Valve for Medium Pressure Gas Safety Shutoff Control	CC-1590AA
VNM-25-K	Safety Shutoff Valve (Fire Safety Enhanced Specification)	CC-1590AA
VNR	Solenoid Valve for Gas Combustion System (Normally Closed when energized)	CC-1590AA
VRA2000	Vacuum Regulator	RJ-010AA
VSB	Ejector System/Square Type	RJ-010AA
VSC	Ejector System/Pad Direct Mount Type	RJ-010AA
VSECV	Vacuum Related Equipment/ Fall Prevention Valve	RJ-010AA
VSFB	Vacuum Related Equipment/ Large Capacity Union Type Vacuum Filter	RJ-010AA
VSFJ	Vacuum Related Equipment/ Compact Socket Type Vacuum Filter	RJ-010AA
VSFU	Vacuum Related Equipment/ Compact Union Type Vacuum Filter	RJ-010AA
VSG	Ejector System/20 mm Width Single Unit Dedicated Type	RJ-010AA
VSH	Ejector System/Solenoid Valve Direct Mount Type	RJ-010AA
VSJ/VSJM	Ejector System/20 mm Width General Type	RJ-010AA
VSJP/ VSJPM	Vacuum Pump System/20 mm Width General Type	RJ-010AA
VSK/VSKM	Ejector System/16 mm Width General Type	RJ-010AA
VSLF	Vacuum Related Equipment/ Vacuum Break Unit	RJ-010AA
VSN/VSNM	Ejector System/10.3 mm Width General Type	RJ-010AA
VSNP/ VSNPM	Vacuum Pump System/10.3 mm Width General Type	RJ-010AA
VSP	Suction Pad	RJ-010AA
VSQ	Ejector System/31.5 mm Width Single Unit Dedicated Type	RJ-010AA
VSQP	Vacuum Pump System/31.5 mm Width General Type	RJ-010AA
VSRVV	Vacuum Related Equipment/ Compact Vacuum Regulator	RJ-010AA
VSRL	Vacuum Related Equipment/ Ring Blow Type Vacuum Generator	RJ-010AA
VST	Vacuum Related Equipment/ Air Tweezers	RJ-010AA
VSU	Ejector System/Pipe Type	RJ-010AA
VSUS	Vacuum Related Equipment/ Vacuum Pressure Switch	RJ-010AA
VSX/VSXM	Ejector System/10.5 mm Width General Type	RJ-010AA
VSXP/ VSXPM	Vacuum Pump System/10.5 mm Width General Type	RJ-010AA
VSY	Ejector System/Vacuum Break Function Type	RJ-010AA
VSZM	Ejector System/11 mm Pitch Manifold Dedicated Type	RJ-010AA
VSZPM	Vacuum Pump System/11 mm Pitch Manifold Dedicated Type	RJ-010AA
W		
W1000 to 8100-P11	Filter Regulator/Ozone Resistant	RJ-007AA
W1000 to 8000-P6	Filter Regulator/Copper Ion Restricted (No copper/PTFE Specification)	RJ-007AA
W1000 to 8000-W	Filter Regulator/Standard White Series	RJ-007AA
W1100 to 8100-P11	Reverse Filter Regulator/ Ozone Resistant	RJ-007AA
W1100 to 8100-P6	Reverse Filter Regulator/ Copper Ion Restricted (No copper/PTFE Specification)	RJ-007AA
W1100 to 8100-W	Reverse Filter Regulator/ Standard White Series	RJ-007AA
W2P513□	(SV)Pilot Operated 5-Port Valve/Double Type	RJ-012AA
W3000 to 8000-G4	Filter Regulator/Flame Resistant Series	RJ-007AA
W3100 to 8100-G4	Reverse Filter Regulator/ Flame Resistant Series	RJ-007AA
W4GB2	(SV)Pilot Operated 3, 5-Port Valve/Base Piping	RJ-011AA
W4GB4	(SV)Pilot Operated 5-Port Valve/Base Side Piping	RJ-011AA
W4GZ4	(SV)Pilot Operated 5-Port Valve/Base Bottom Piping	RJ-011AA
WB500	Compact Filter Regulator	RJ-007AA
WFC	Capacitance Electromagnetic Flow Sensor	RJ-008AA
WFK2	Karman Vortex Flow Sensor for Liquids Flurex	RJ-008AA
WFK3000	Karman Vortex Flow Sensor for Water Flurex	RJ-008AA
WR1 / 2	Regulator for Water	RJ-007AA
WW4000, 8000	Filter Regulator/Outdoor Series Outdoor Series	CC-1276AA
WXU	Water Manifold Unit	RJ-008AA
Y		
YS	Y-type Strainer	RJ-013AA
Z		
ZB4-B	Switch Head	RJ-007AA
ZCK	Rotary Type Head Lever Actuator	RJ-007AA
ZRS	Roller Gear Cam Unit	CC-1601AA
ZSP	New Joint Stainless Steel Type	RJ-007AA
ZW	New Joint Stainless Steel Type	RJ-007AA

Products by Application

-FP□	For Food Manufacturing Process	CC-1271AA
-HP□	High Durability Equipment	CC-1421AA
-P4□	For Rechargeable Battery Manufacturing Process	CC-1226AA
-P5□	For Clean Components	CB-033SAA
-P6	Copper Ion Restricted (No copper/PTFE Specification)	RJ-001AA
-P7□	For Clean Components	CB-033SAA
-P8□	For Clean Components, Oil-free Treatment	CB-033SAA
-P9□	For Clean Components, Oil-free Treatment	CB-033SAA
-P11	Ozone Resistant	RJ-001AA
-P12	Oil-free Compatible	RJ-001AA
-W□	For Outdoor Use	CC-1276AA

Pneumatic Cylinders① General Type

Catalog No. RJ-002AA

Pneumatic Cylinders I

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Uses environmentally friendly “Vegetable Oil Ink”.

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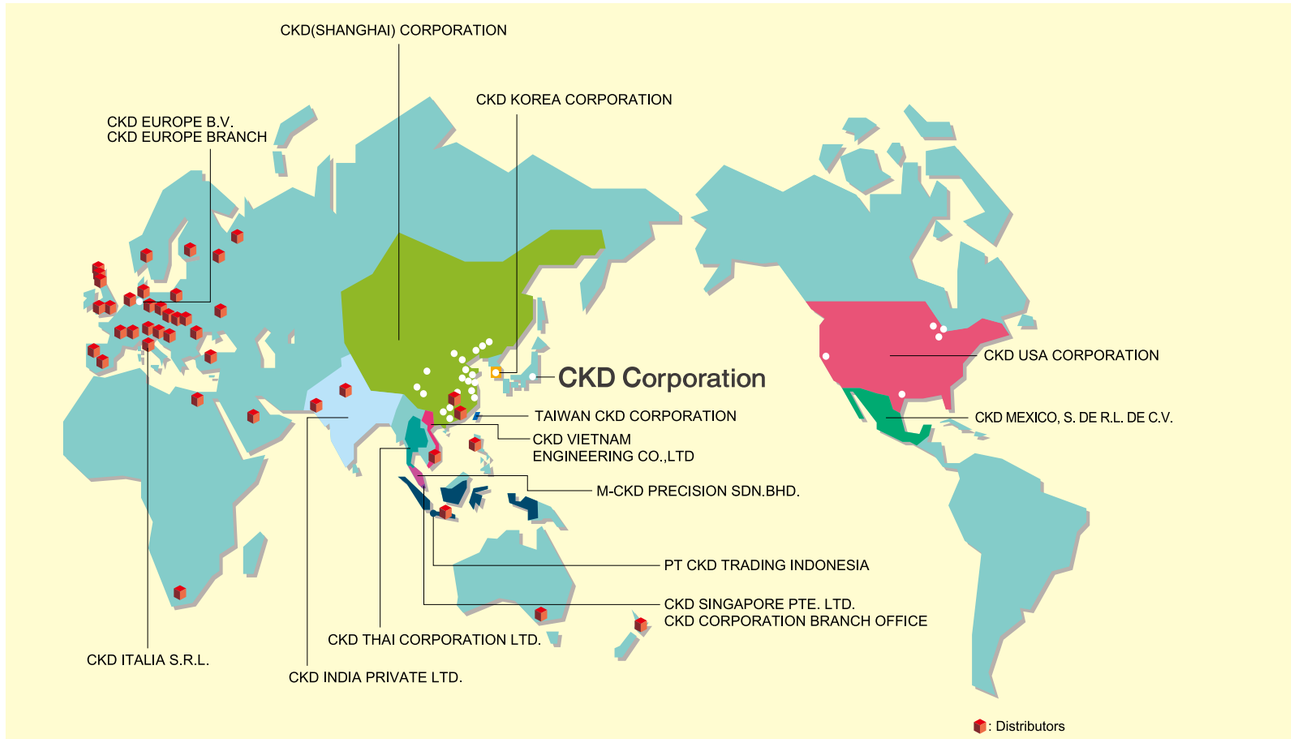
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Pneumatic Cylinders ①

General Type

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