

Air Cylinder: Standard Type

Single Acting, Spring Return/Extend

CM2 Series

ø20, ø25, ø32, ø40

RoHS

How to Order

Mounting

B	Basic (Double-side bossed)
L	Axial foot
F	Rod flange
G	Head flange
C	Single clevis
D	Double clevis
U	Rod trunnion

Head trunnion

T	Head trunnion
E	Integrated clevis
V	Integrated clevis (90°)
BZ	Boss-cut/Basic
FZ	Boss-cut/Rod flange
UZ	Boss-cut/Rod trunnion

Cylinder stroke (mm)

Refer to "Standard Strokes" on page 204.

Pivot bracket

Nil	None
N	Pivot bracket is shipped together with the product, but not assembled.

Only for C, T, U, E, V, UZ mounting types.

* Pivot bracket is shipped together with the product, but not assembled.

Made to Order
Refer to page 204 for details.

Action

S	Single acting, Spring return
T	Single acting, Spring extend

Rod end thread

Nil	Male rod end
F	Female rod end

CM2 B 32 - 150 S [] Z - [] - []

With auto switch CDM2 B 32 - 150 S [] Z - [] - [] M9BW [] - []

With auto switch
(Built-in magnet)

Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm

Rod end bracket

Nil	None
V	Single knuckle joint
W	Double knuckle joint

* No bracket is provided for the female rod end.
* A knuckle joint pin is not provided with the single knuckle joint.
* Rod end bracket is shipped together with the product, but not assembled.
* Not applicable to XB12.

Auto switch

Nil	Without auto switch
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* For applicable auto switches, refer to the table below.

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

* Refer to "Ordering Example of Cylinder Assembly" on page 204.

Applicable Auto Switches/Refer to pages 1575 to 1701 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)					Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)				
																Yes	No
Solid state auto switch	—	Grommet	—	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	●	●	●	○	○	○	IC circuit		
				3-wire (PNP)			M9PV	M9P	●	●	●	○	○				
		Connector		2-wire	M9BV	M9B	●	●	●	○	○	○					
				Terminal conduit	—	H7C	●	—	●	●	—	—					
		Diagnostic indication (2-color indicator)		Grommet	3-wire (NPN)	5 V, 12 V	24 V	—	M9NVV	M9NV	●	●	●	○		○	IC circuit
					3-wire (PNP)				M9PVV	M9PV	●	●	●	○		○	
	Water resistant (2-color indicator)		2-wire	M9BVV	M9BV	●	●	●	○	○	○						
			Grommet	3-wire (NPN)	M9NAV ^{*1}	M9NA ^{*1}	○	○	○	○	○	IC circuit					
	With diagnostic output (2-color indicator)	Grommet	3-wire (PNP)	5 V, 12 V	—	—	M9PAV ^{*1}	M9PA ^{*1}	○	○	○		○	○	IC circuit		
			2-wire				M9BAV ^{*1}	M9BA ^{*1}	○	○	○	○	○				
—		Grommet	4-wire (NPN)	5 V, 12 V	—	—	—	H7NF	●	—	●	○	○	IC circuit			
			—				—	—	—	—	—	—	—		—		
Reed auto switch	—	Grommet	—	3-wire (NPN equivalent)	5 V	—	A96V	A96	●	—	●	—	—	IC circuit			
							Connector	100 V	A93V ^{*2}	A93	●	●	●		—	—	
								100 V or less	A90V	A90	●	—	●		—	IC circuit	
								100 V, 200 V	—	B54	●	—	●		—		
								200 V or less	—	B64	●	—	●		—		
		Terminal conduit		Grommet	2-wire	24 V	12 V	—	—	C73C	●	—	●	—	—		IC circuit
									—	C80C	●	—	●	—			
									—	A33A	—	—	—	—	●	PLC	
									100 V,	A34A	—	—	—	—	●		
									200 V	A44A	—	—	—	—	●		
—	—	—	—	—	—	B59W	●	—	●	—	IC circuit						
—	—	—	—	—	—	—	—	—	—	Relay, PLC							

*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

* Please contact SMC regarding water resistant types with the above model numbers.

* 2.1 m type lead wire is only applicable to D-A93.

* Lead wire length symbols: 0.5 m.....Nil (Example) M9NW
1 m.....M (Example) M9NVW
3 m.....L (Example) M9NLW
5 m.....Z (Example) M9NZW
None.....N (Example) H7CN

* Solid state auto switches marked with "○" are produced upon receipt of order.
* Do not indicate suffix "N" for no lead wire on D-A3□□/A44□/G39A/K39A models.

* Since there are other applicable auto switches than listed above, refer to page 266 for details.

* For details about auto switches with pre-wired connector, refer to pages 1648 and 1649.

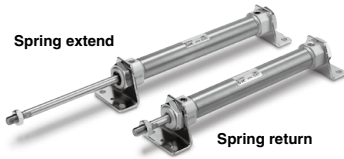
* The D-A9□□/M9□□□ auto switches are shipped together, (but not assembled). (However, only the auto switch mounting brackets are assembled before shipment.)



- CJ1
- CJP
- CJ2
- JCM
- CM2
- CM3
- CG1
- CG3
- JMB
- MB
- MB1
- CA2
- CS1
- CS2

D-□
-X□
Technical Data

Specifications



Bore size (mm)		20	25	32	40
Action		Single acting, Spring return/Single acting, Spring extend			
Type		Pneumatic			
Cushion		Rubber bumper			
Fluid		Air			
Proof pressure		1.5 MPa			
Maximum operating pressure		1.0 MPa			
Minimum operating pressure	Single acting, Spring return	0.18 MPa			
	Single acting, Spring extend	0.23 MPa			
Ambient and fluid temperature		Without auto switch: -10°C to 70°C (No freezing) With auto switch: -10°C to 60°C			
Lubrication		Not required (Non-lube)			
Stroke length tolerance		$^{+1.4}$ 0 mm			
Piston speed		50 to 750 mm/s			
Allowable kinetic energy	Male thread	0.27 J	0.4 J	0.65 J	1.2 J
	Female thread	0.11 J	0.18 J	0.29 J	0.52 J

Standard Strokes

Bore size (mm)	Standard stroke (mm) ^{Note 1)}
20	25, 50, 75, 100, 125, 150
25	25, 50, 75, 100, 125, 150
32	25, 50, 75, 100, 125, 150, 200
40	25, 50, 75, 100, 125, 150, 200, 250

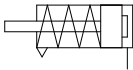
Note 1) Other intermediate strokes can be manufactured upon receipt of order. Manufacture of intermediate strokes at 1 mm intervals is possible. (Spacers are not used.)

Note 2) Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on front matter pages. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

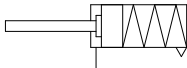
Note 3) Please consult with SMC for strokes which exceed the standard stroke length.

Symbol

Single acting, Spring return, Rubber bumper



Single acting, Spring extend, Rubber bumper



Made to Order
Click here for details

Symbol	Specifications
-XA□	Change of rod end shape
-XB12	External stainless steel cylinder*
-XC3	Special port location
-XC6	Made of stainless steel
-XC13	Auto switch rail mounting
-XC20	Head cover axial port
-XC25	No fixed throttle of connection port
-XC27	Double clevis and double knuckle pins made of stainless steel
-XC29	Double knuckle joint with spring pin
-XC52	Mounting nut with set screw
-XC85	Grease for food processing equipment

* The shape is the same as the current product.

Refer to pages 262 to 266 for cylinders with auto switches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

Mounting Bracket

For the mounting bracket part numbers other than basic type, refer to page 205.

* Stainless steel mounting brackets and accessories are also available. Refer to page 190 for details.

Theoretical Output

Refer to page 1903 (Theoretical Output 1).

Spring Reaction Force

Refer to page 1900 (Table (3): Spring Reaction Force).

Accessories

Refer to pages 189 and 190 for accessories, since it is the same as standard type, double acting, single rod.

Option: Ordering Example of Cylinder Assembly

Cylinder model: CDM2C32-150SZ-NV-M9BW

Mounting C: Single clevis
Pivot bracket N: Yes
Rod end bracket V: Single knuckle joint
Auto switch D-M9BW: 2 pcs.

- * Pivot bracket, single knuckle joint and auto switch are shipped together with the product, but not assembled.
- * Pivot bracket is available only for C, T, U, E, V, UZ mounting types.
- * No bracket is provided for the female rod end.

Mounting and Accessories

Accessories	Body	Standard (mounted to the body)					Standard (packaged together, but not assembled)							Option				
		Mounting nut <small>Note 1)</small>	Rod end nut <small>(Male thread)</small>	Single clevis	Double clevis	Liner <small>Note 7)</small>	Mounting nut	Foot	Flange	Pivot bracket	Pivot bracket pin <small>Note 5)</small>	Double clevis pin <small>Note 5)</small>	Trunnion	Mounting nut <small>(For trunnion)</small>	Clevis pivot bracket <small>(CM2E/CM2V)</small>	Clevis pivot bracket pin <small>(CM2E/CM2V)</small>	Single knuckle joint <small>(Male thread only)</small>	Double knuckle joint <small>(Male thread only)</small>
B Basic (Double-side bossed)	●(1 pc.)	●(1 pc.)	●(1 pc.)	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●
L Axial foot	●(1 pc.)	●(1 pc.) ^{Note 2)}	●(1 pc.)	—	—	—	●(1 pc.) ^{Note 2)}	●(2 pcs.)	—	—	—	—	—	—	—	—	●	●
F Rod flange	●(1 pc.)	●(1 pc.)	●(1 pc.)	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●
G Head flange	●(1 pc.)	●(1 pc.)	●(1 pc.)	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●
C Single clevis	●(1 pc.)	— ^{Note 3)}	●(1 pc.)	●(1 pc.)	—	—	●(Max. 3 pcs.) ^{Note 3)}	—	—	—	—	—	—	—	—	—	●	●
D Double clevis	●(1 pc.)	— ^{Note 3)}	●(1 pc.)	—	—	—	●(1 pc.)	●(Max. 3 pcs.) ^{Note 3)}	—	—	—	—	—	—	—	—	●	●
U Rod trunnion	●(1 pc.)	— ^{Note 4)}	●(1 pc.)	—	—	—	—	—	—	—	—	—	●(1 pc.)	●(1 pc.)	—	—	●	●
T Head trunnion	●(1 pc.)	— ^{Note 4)}	●(1 pc.)	—	—	—	—	—	—	—	—	—	●(1 pc.)	●(1 pc.)	—	—	●	●
E Integrated clevis	●(1 pc.)	— ^{Note 3)}	●(1 pc.)	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●
V Integrated clevis (90°)	●(1 pc.)	— ^{Note 3)}	●(1 pc.)	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●
BZ Boss-cut/Basic	●(1 pc.)	●(1 pc.)	●(1 pc.)	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●
FZ Boss-cut/ Rod flange	●(1 pc.)	●(1 pc.)	●(1 pc.)	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●
UZ Boss-cut/ Rod trunnion	●(1 pc.)	— ^{Note 4)}	●(1 pc.)	—	—	—	—	—	—	—	—	—	●(1 pc.)	●(1 pc.)	—	—	●	●

Note 1) Rod end nut is not provided for the female rod end.

Note 2) Two mounting nuts are packaged together.

Note 3) Mounting nut is not packaged for the clevis.

Note 4) Trunnion nut is packaged for U, T, UZ.

Note 5) Retaining rings are included.

Note 6) A pin and retaining rings (split pins for ø40) are included.

Note 7) This is the part(s) used to adjust the clevis angle. Mounting quantity can vary.

Mounting Brackets/Part No.

Mounting bracket	Min. order qty	Bore size (mm)			Contents (for minimum order quantity)	
		20	25	32		40
Foot*	2	CM-L020B	CM-L032B		CM-L040B	2 foots, 1 mounting nut
Flange	1	CM-F020B	CM-F032B		CM-F040B	1 flange
Single clevis**	1	CM-C020B	CM-C032B		CM-C040B	1 single clevis, 3 liners
Double clevis (with pin)***	1	CM-D020B	CM-D032B		CM-D040B	1 double clevis, 3 liners, 1 clevis pin, 2 retaining rings
Double clevis pin	1	CDP-1			CDP-2	1 clevis pin, 2 retaining rings (split pins)
Trunnion (with nut)	1	CM-T020B	CM-T032B		CM-T040B	1 trunnion, 1 trunnion nut
Rod end nut	1	NT-02	NT-03		NT-04	1 rod end nut
Mounting nut	1	SN-020B	SN-032B		SN-040B	1 mounting nut
Trunnion nut	1	TN-020B	TN-032B		TN-040B	1 trunnion nut
Single knuckle joint	1	I-020B	I-032B		I-040B	1 single knuckle joint
Double knuckle joint	1	Y-020B	Y-032B		Y-040B	1 double knuckle joint, 1 knuckle pin, 2 retaining rings
Double knuckle joint pin	1	CDP-1			CDP-3	1 knuckle pin, 2 retaining rings (split pins)
Clevis pivot bracket pin (For CM2E/CM2V)	1	CD-S02		CD-S03		1 clevis pin, 2 retaining rings
Clevis pivot bracket (For CM2E/CM2V)	1	CM-E020B		CM-E032B		1 clevis pivot bracket, 1 clevis pin, 2 retaining rings
Pivot bracket (For CM2C)	1	CM-B032			CM-B040	2 pivot brackets (1 of each type)
Pivot bracket pin (For CM2C)	1	CDP-1			CD-S03	1 pin, 2 retaining rings
Pivot bracket (For CM2T/CM2U)	1	CM-B020	CM-B032		CM-B040	2 pivot brackets (1 of each type)

* Order 2 foots per cylinder.

** 3 liners are included with a clevis bracket for adjusting the mounting angle.

*** A clevis pin and retaining rings (split pins for ø40) are included.

CJ1

CJP

CJ2

JCM

CM2

CM3

CG1

CG3

JMB

MB

MB1

CA2

CS1

CS2

D-□

-X□

Technical Data

Mounting Brackets, Accessories/Material, Surface Treatment

Segment	Description	Material	Surface treatment
Mounting brackets	Foot	Carbon steel	Nickel plating
	Flange	Carbon steel	Nickel plating
	Single clevis	Carbon steel	Nickel plating
	Double clevis	Carbon steel	Nickel plating
	Trunnion	Cast iron	Electroless nickel plating
Accessories	Rod end nut	Carbon steel	Zinc chromated
	Mounting nut	Carbon steel	Nickel plating
	Trunnion nut	Carbon steel	Nickel plating
	Clevis pivot bracket	Carbon steel	Nickel plating
	Clevis pivot bracket pin	Carbon steel	(None)
	Single knuckle joint	Carbon steel ø40: Free-cutting steel	Electroless nickel plating
	Double knuckle joint	Carbon steel ø40: Cast iron	Electroless nickel plating Metallic silver color painted for ø40
	Double clevis pin	Carbon steel	(None)
	Double knuckle joint pin	Carbon steel	(None)
	Pivot bracket	Carbon steel	Nickel plating
	Pivot bracket pin	Carbon steel	(None)

⚠ Precautions

Be sure to read this before handling the products.
Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

Handling

⚠ Warning

1. Do not rotate the cover.

If a cover is rotated when installing a cylinder or screwing a fitting into the port, it is likely to damage the junction part with cover.

⚠ Caution

1. Not able to disassemble.

Cover and cylinder tube are connected to each other by caulking method, thus making it impossible to disassemble. Therefore, internal parts of a cylinder other than rod seal are not replaceable.

2. Use caution to the popping of a retaining ring.

When replacing rod seals and removing and mounting a retaining ring, use a proper tool (retaining ring plier: tool for installing a type C retaining ring). Even if a proper tool is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be flown out of the tip of a plier. Be much careful with the popping of a retaining ring. Besides, be certain that a retaining ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

3. Do not touch the cylinder during operation.

Use caution when handling a cylinder, which is running at a high speed and a high frequency, because the surface of a cylinder tube could get so hot enough as to cause you get burned.

4. The oil stuck to the cylinder is grease.

5. The base oil of grease may seep out.

6. When using a rod end bracket and/or pivot bracket, make sure they do not interfere with other brackets, workpieces and rod section, etc.

Weights

Spring Return

(kg)

Bore size (mm)		20	25	32	40
Basic weight	25 stroke	0.20	0.30	0.42	0.77
	50 stroke	0.22	0.33	0.46	0.84
	75 stroke	0.27	0.42	0.58	1.03
	100 stroke	0.29	0.45	0.63	1.09
	125 stroke	0.35	0.54	0.76	1.29
	150 stroke	0.37	0.57	0.80	1.36
	200 stroke	—	—	0.97	1.61
	250 stroke	—	—	—	1.87
Mounting bracket weight	Foot	0.15	0.16	0.16	0.27
	Flange	0.06	0.09	0.09	0.12
	Single clevis	0.04	0.04	0.04	0.09
	Double clevis	0.05	0.06	0.06	0.13
	Trunnion	0.04	0.07	0.07	0.10
	Clevis integrated	-0.02	-0.02	-0.01	-0.04
	Boss-cut/Basic	-0.01	-0.02	-0.02	-0.03
	Boss-cut/Flange	0.05	0.07	0.07	0.09
	Boss-cut/Trunnion	0.03	0.05	0.05	0.07
	Clevis pivot bracket (with pin)	0.07	0.07	0.14	0.14
	Weight reduction for female rod end	-0.01	-0.02	-0.02	-0.04
Option bracket	Single knuckle joint	0.06	0.06	0.06	0.23
	Double knuckle joint (with pin)	0.07	0.07	0.07	0.20

Calculation:

(Example) **CM2L32-100SZ** (Bore size ø32, Foot, 100 stroke)

0.63 (Basic weight) + 0.16 (Mounting bracket weight) = **0.79 kg**

Spring Extend

(kg)

Bore size (mm)		20	25	32	40
Basic weight	25 stroke	0.19	0.29	0.40	0.74
	50 stroke	0.21	0.32	0.44	0.81
	75 stroke	0.25	0.39	0.54	0.97
	100 stroke	0.27	0.42	0.58	1.03
	125 stroke	0.32	0.49	0.69	1.20
	150 stroke	0.34	0.52	0.73	1.27
	200 stroke	—	—	0.88	1.49
	250 stroke	—	—	—	1.72
Mounting bracket weight	Foot	0.15	0.16	0.16	0.27
	Flange	0.06	0.09	0.09	0.12
	Single clevis	0.04	0.04	0.04	0.09
	Double clevis	0.05	0.06	0.06	0.13
	Trunnion	0.04	0.07	0.07	0.10
	Clevis integrated	-0.02	-0.02	-0.01	-0.04
	Boss-cut/Basic	-0.01	-0.02	-0.02	-0.03
	Boss-cut/Flange	0.05	0.07	0.07	0.09
	Boss-cut/Trunnion	0.03	0.05	0.05	0.07
	Clevis pivot bracket (with pin)	0.07	0.07	0.14	0.14
	Weight reduction for female rod end	-0.01	-0.02	-0.02	-0.04
Option bracket	Single knuckle joint	0.06	0.06	0.06	0.23
	Double knuckle joint (with pin)	0.07	0.07	0.07	0.20

Built-in One-touch Fittings (The shape is the same as the current product.)

CM2 Mounting type Bore size **F** — Stroke Action

↓ Built-in One-touch fittings

This type has the One-touch fitting integrated in a cylinder, which enables to reduce the piping labor and installing space dramatically.



Specifications

Action	Single acting, Spring return	Single acting, Spring extend
Bore size (mm)	φ20, φ25, φ32, φ40	
Max. operating pressure	1.0 MPa	
Min. operating pressure	0.18 MPa	0.23 MPa
Cushion	Rubber bumper	
Piping	One-touch fittings	
Piston speed	50 to 750 mm/s	
Mounting	Basic, Axial foot, Rod flange, Head flange, Single clevis, Double clevis, Rod trunnion, Head trunnion, Integrated clevis, Boss-cut	

* Auto switch can be mounted.

Applicable Tubing O.D./I.D.

Bore size (mm)	20	25	32	40
Applicable tubing O.D./I.D. (mm)	6/4	6/4	6/4	8/6
Applicable tubing material	Can be used for either nylon, soft nylon or polyurethane tubing.			

⚠ Caution

1. One-touch fitting cannot be replaced.
 - One-touch fitting is press-fit into the cover, thus cannot be replaced.
2. Refer to Fittings and Tubing Precautions (Best Pneumatics No. 7) for handling One-touch fittings.

CJ1

CJP

CJ2

JCM

CM2

CM3

CG1

CG3

JMB

MB

MB1

CA2

CS1

CS2

D-□

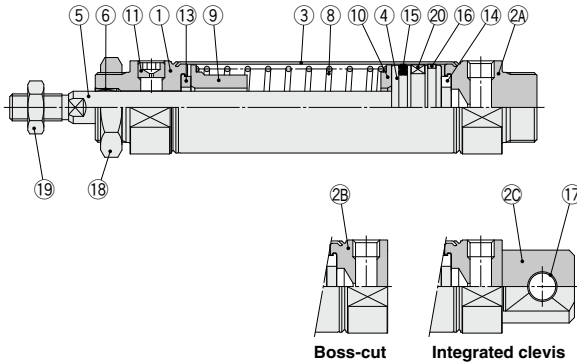
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Technical
Data

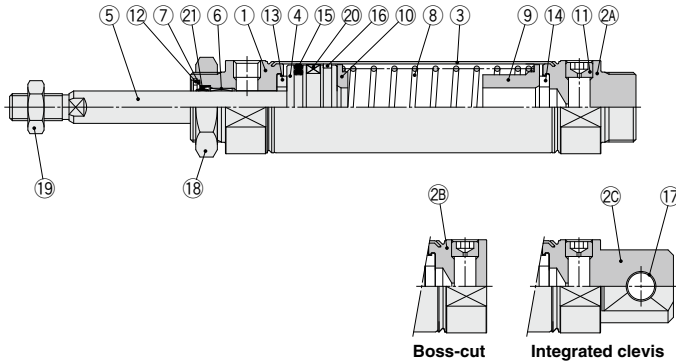
CM2 Series

Construction

Spring return



Spring extend



Component Parts

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	Anodized
2A	Head cover A	Aluminum alloy	Anodized
2B	Head cover B	Aluminum alloy	Anodized
2C	Head cover C	Aluminum alloy	Anodized
3	Cylinder tube	Stainless steel	
4	Piston	Aluminum alloy	
5	Piston rod	Carbon steel	Hard chrome plating
6	Bushing	Bearing alloy	
7	Seal retainer	Stainless steel	
8	Return spring	Steel wire	Zinc chromated
9	Spring guide	Aluminum alloy	Chromated
10	Spring seat	Aluminum alloy	Chromated
11	Plug with fixed orifice	Alloy steel	Black zinc chromated
12	Retaining ring	Carbon steel	Phosphate coating

No.	Description	Material	Note
13	Bumper	Resin	ø25 or larger is common.
14	Bumper	Resin	
15	Piston seal	NBR	
16	Wear ring	Resin	
17	Clevis bushing	Bearing alloy	
18	Mounting nut	Carbon steel	Nickel plating
19	Rod end nut	Carbon steel	Zinc chromated
20	Magnet	—	CDM2□20 to 40-□ $\frac{S}{Z}$
21	Rod seal	NBR	

Replacement Part: Seal

● With Rubber Bumper (Spring extend only)

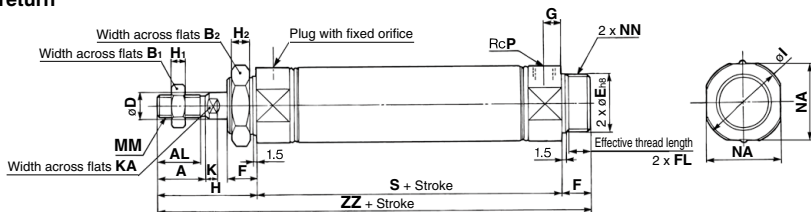
No.	Description	Material	Part no.			
			20	25	32	40
21	Rod seal	NBR	CM20Z-PS	CM25Z-PS	CM32Z-PS	CM40Z-PS

* Since the seal does not include a grease pack, order it separately.

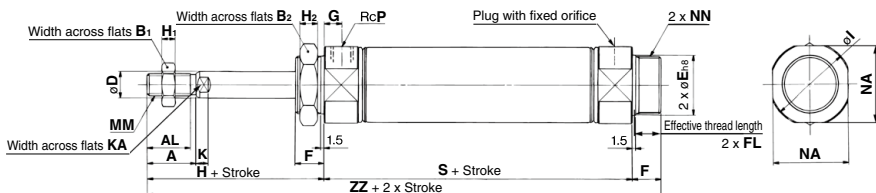
Grease pack part number: GR-S-010 (10 g)

Basic (Double-side Bossed) (B)

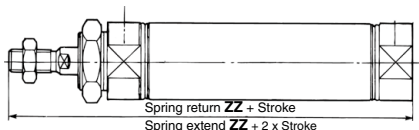
CM2B Bore size — Stroke $\frac{S}{Z}$
Spring return



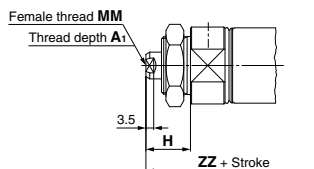
Spring extend



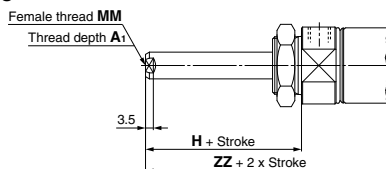
Boss-cut



Female rod end
Spring return



Spring extend



Bore size	A	AL	B ₁	B ₂	D	E	F	FL	G	H	H ₁	H ₂	I	K	KA	MM	NA	NN	P
20	18	15.5	13	26	8	20 ⁰ _{0.033}	13	10.5	8	41	5	8	28	5	6	M8 x 1.25	24	M20 x 1.5	1/8
25	22	19.5	17	32	10	26 ⁰ _{0.033}	13	10.5	8	45	6	8	33.5	5.5	8	M10 x 1.25	30	M26 x 1.5	1/8
32	22	19.5	17	32	12	26 ⁰ _{0.033}	13	10.5	8	45	6	8	37.5	5.5	10	M10 x 1.25	34.5	M26 x 1.5	1/8
40	24	21	22	41	14	32 ⁰ _{0.033}	16	13.5	11	50	8	10	46.5	7	12	M14 x 1.5	42.5	M32 x 2	1/4

Dimensions by Stroke

Stroke Symbol	1 to 50		51 to 100		101 to 150		151 to 200		201 to 250	
	S	ZZ	S	ZZ	S	ZZ	S	ZZ	S	ZZ
20	87	141	112	166	137	191	—	—	—	—
25	87	145	112	170	137	195	—	—	—	—
32	89	147	114	172	139	197	164	222	—	—
40	113	179	138	204	163	229	188	254	213	279

Boss-cut

Stroke Symbol	1 to 50		51 to 100		101 to 150		151 to 200		201 to 250	
	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ
20	128	153	178	—	—	—	—	—	—	—
25	132	157	182	—	—	—	—	—	—	—
32	134	159	184	209	—	—	—	—	—	—
40	163	188	213	238	263	—	—	—	—	—

Female Rod End

Stroke Symbol	A ₁	H	MM	1 to 50		51 to 100		101 to 150		151 to 200		201 to 250	
				S	ZZ	S	ZZ	S	ZZ	S	ZZ		
20	8	20	M4 x 0.7	87	120	112	145	137	170	—	—	—	—
25	8	20	M5 x 0.8	87	120	112	145	137	170	—	—	—	—
32	12	20	M6 x 1	89	122	114	147	139	172	164	197	—	—
40	13	21	M8 x 1.25	113	150	138	175	163	200	188	225	213	250

* When female thread is used, use a thin wrench when tightening the piston rod.
* When female thread is used, use a washer etc. to prevent the contact part at the rod end from being deformed depending on the material of the workpiece.

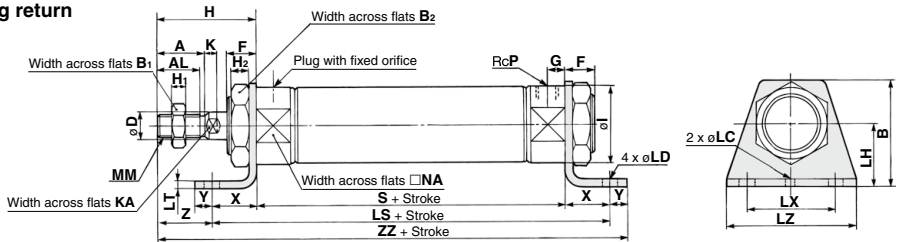
- CJ1
- CJP
- CJ2
- JCM
- CM2
- CM3
- CG1
- CG3
- JMB
- MB
- MB1
- CA2
- CS1
- CS2

CM2 Series

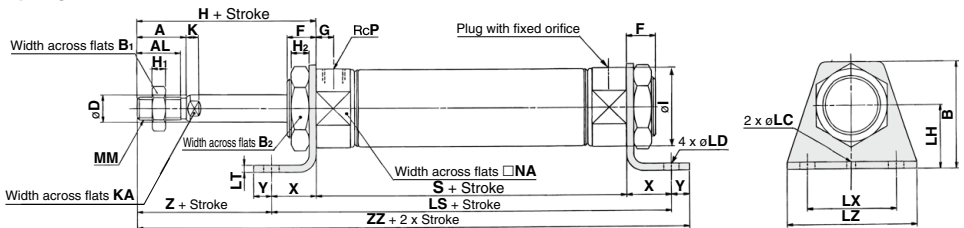
Axial Foot (L)

CM2L **Bore size** – **Stroke** $\frac{S}{Z}$

Spring return



Spring extend



Bore size	A	AL	B	B ₁	B ₂	D	F	G	H	H ₁	H ₂	I	K	KA	LC	LD	LH	LT	LX	LZ	MM	NA	P	X	Y	Z
20	18	15.5	40	13	26	8	13	8	41	5	8	28	5	6	4	6.8	25	3.2	40	55	M8 x 1.25	24	1/8	20	8	21
25	22	19.5	47	17	32	10	13	8	45	6	8	33.5	5.5	8	4	6.8	28	3.2	40	55	M10 x 1.25	30	1/8	20	8	25
32	22	19.5	47	17	32	12	13	8	45	6	8	37.5	5.5	10	4	6.8	28	3.2	40	55	M10 x 1.25	34.5	1/8	20	8	25
40	24	21	54	22	41	14	16	11	50	8	10	46.5	7	12	4	7	30	3.2	55	75	M14 x 1.5	42.5	1/4	23	10	27

Dimensions by Stroke

Bore size	Stroke		1 to 50			51 to 100			101 to 150			151 to 200			201 to 250		
	LS	S	ZZ	LS	S	ZZ	LS	S	ZZ	LS	S	ZZ	LS	S	ZZ		
20	127	87	156	152	112	181	177	137	206	—	—	—	—	—	—		
25	127	87	160	152	112	185	177	137	210	—	—	—	—	—	—		
32	129	89	162	154	114	187	179	139	212	204	164	237	—	—	—		
40	159	113	196	184	138	221	209	163	246	234	188	271	259	213	296		

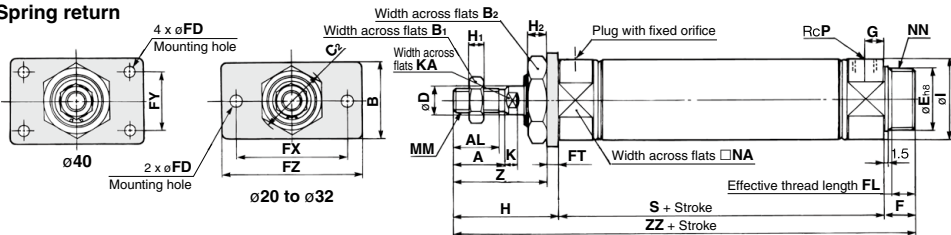
* The bracket is shipped together.

* Refer to page 209 for female thread dimensions.

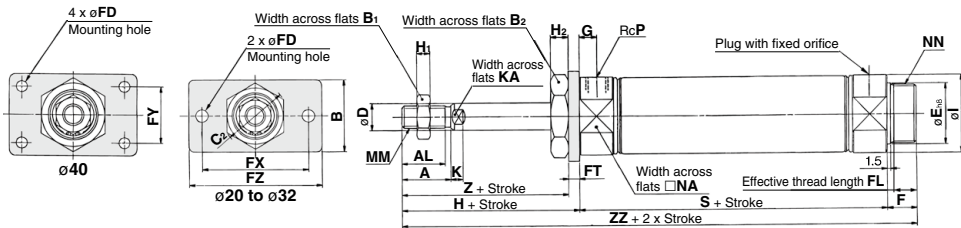
Rod Flange (F)

CM2F Bore size — Stroke $\frac{S}{Z}$

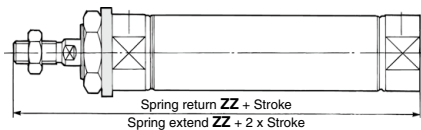
Spring return



Spring extend



Boss-cut



Bore size	A	AL	B	B ₁	B ₂	C ₂	D	E	F	FD	FL	FT	FX	FY	FZ	G	H	H ₁	H ₂	I	K	KA	MM	NA	NN	P	Z
20	18	15.5	34	13	26	30	8	20 ⁰ _{-0.033}	13	7	10.5	4	60	—	75	8	41	5	8	28	5	6	M8 x 1.25	24	M20 x 1.5	1/8	37
25	22	19.5	40	17	32	37	10	26 ⁰ _{-0.033}	13	7	10.5	4	60	—	75	8	45	6	8	33.5	5.5	8	M10 x 1.25	30	M26 x 1.5	1/8	41
32	22	19.5	40	17	32	37	12	26 ⁰ _{-0.033}	13	7	10.5	4	60	—	75	8	45	6	8	37.5	5.5	10	M10 x 1.25	34.5	M26 x 1.5	1/8	41
40	24	21	52	22	41	47.3	14	32 ⁰ _{-0.039}	16	7	13.5	5	66	36	82	11	50	8	10	46.5	7	12	M14 x 1.5	42.5	M32 x 2	1/4	45

Bore size	Stroke (mm)									
	1 to 50		51 to 100		101 to 150		151 to 200		201 to 250	
Symbol	S	ZZ	S	ZZ	S	ZZ	S	ZZ	S	ZZ
20	87	141	112	166	137	191	—	—	—	—
25	87	145	112	170	137	195	—	—	—	—
32	89	147	114	172	139	197	164	222	—	—
40	113	179	138	204	163	229	188	254	213	279

Bore size	Boss-cut (mm)				
	1 to 50	51 to 100	101 to 150	151 to 200	201 to 250
Symbol	ZZ	ZZ	ZZ	ZZ	ZZ
20	128	153	178	—	—
25	132	157	182	—	—
32	134	159	184	209	—
40	163	188	213	238	263

* The bracket is shipped together.
* Refer to page 209 for female thread dimensions.

- ◻ CJ1
- ◻ CJP
- ◻ CJ2
- ◻ JCM
- ◻ CM2
- ◻ CM3
- ◻ CG1
- ◻ CG3
- ◻ JMB
- ◻ MB
- ◻ MB1
- ◻ CA2
- ◻ CS1
- ◻ CS2

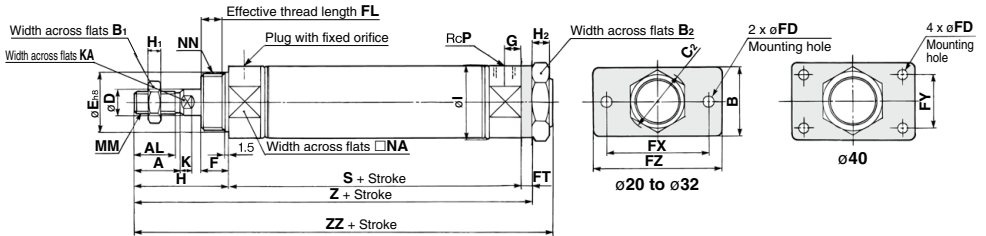
- ◻ D-□
- ◻ -X□
- Technical Data

CM2 Series

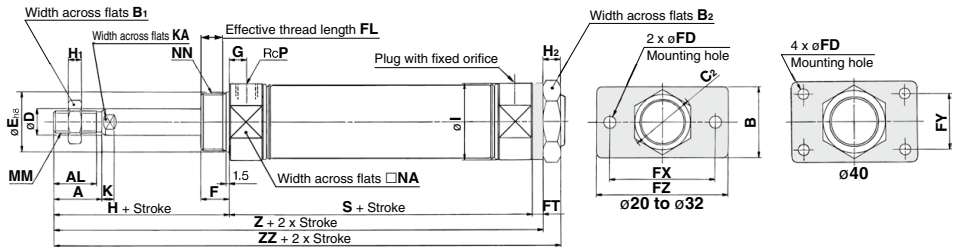
Head Flange (G)

CM2G **Bore size** – **Stroke** $\frac{S}{Z}$

Spring return



Spring extend



Bore size	A	AL	B	B ₁	B ₂	C ₂	D	E	F	FD	FL	FT	FX	FY	FZ	G	H	H ₁	H ₂	I	K	KA	MM	NA	NN	P
20	18	15.5	34	13	26	30	8	20 ⁰ _{-0.033}	13	7	10.5	4	60	—	75	8	41	5	8	28	5	6	M8 x 1.25	24	M20 x 1.5	1/8
25	22	19.5	40	17	32	37	10	26 ⁰ _{-0.033}	13	7	10.5	4	60	—	75	8	45	6	8	33.5	5.5	8	M10 x 1.25	30	M26 x 1.5	1/8
32	22	19.5	40	17	32	37	12	26 ⁰ _{-0.033}	13	7	10.5	4	60	—	75	8	45	6	8	37.5	5.5	10	M10 x 1.25	34.5	M26 x 1.5	1/8
40	24	21	52	22	41	47.3	14	32 ⁰ _{-0.039}	16	7	13.5	5	66	36	82	11	50	8	10	46.5	7	12	M14 x 1.5	42.5	M32 x 2	1/4

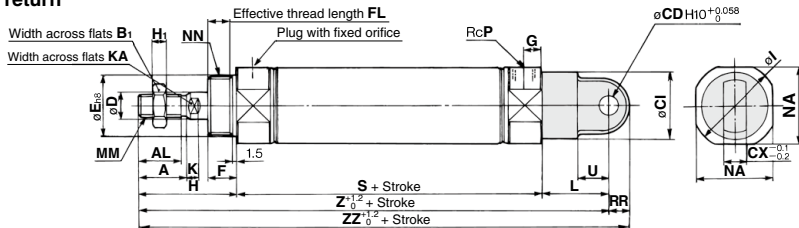
Bore size	Stroke			Stroke			Stroke			Stroke			Stroke		
	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ
20	87	132	141	112	157	166	137	182	191	—	—	—	—	—	—
25	87	136	145	112	161	170	137	186	195	—	—	—	—	—	—
32	89	138	147	114	163	172	139	188	197	164	213	222	—	—	—
40	113	168	179	138	193	204	163	218	229	188	243	254	213	268	279

* The bracket is shipped together.
* Refer to page 209 for female thread dimensions.

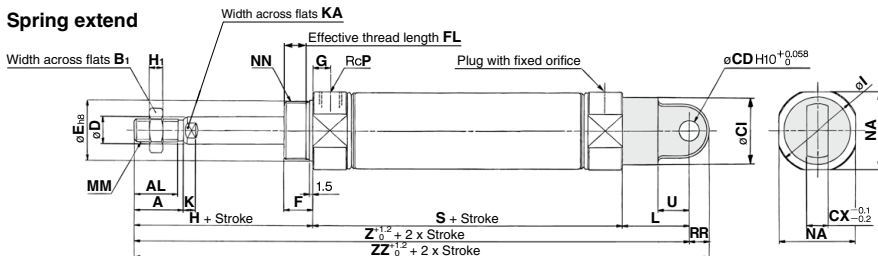
Single Clevis (C)

CM2C Bore size - Stroke $\begin{matrix} S \\ Z \\ ZZ \end{matrix}$

Spring return



Spring extend



- CJ1
- CJP
- CJ2
- JCM
- CM2**
- CM3
- CG1
- CG3
- JMB
- MB
- MB1
- CA2
- CS1
- CS2

Bore size	A	AL	B ₁	CD	CI	CX	D	E	F	FL	G	H	H ₁	I	K	KA	L	MM	NA	NN	P	RR	U
20	18	15.5	13	9	24	10	8	20 ⁰ _{-0.033}	13	10.5	8	41	5	28	5	6	30	M8 x 1.25	24	M20 x 1.5	1/8	9	14
25	22	19.5	17	9	30	10	10	26 ⁰ _{-0.033}	13	10.5	8	45	6	33.5	5.5	8	30	M10 x 1.25	30	M26 x 1.5	1/8	9	14
32	22	19.5	17	9	30	10	12	26 ⁰ _{-0.033}	13	10.5	8	45	6	37.5	5.5	10	30	M10 x 1.25	34.5	M26 x 1.5	1/8	9	14
40	24	21	22	10	38	15	14	32 ⁰ _{-0.039}	16	13.5	11	50	8	46.5	7	12	39	M14 x 1.5	42.5	M32 x 2	1/4	11	18

Dimensions by Stroke

Bore size	1 to 50			51 to 100			101 to 150			151 to 200			201 to 250		
	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ
20	87	158	167	112	183	192	137	208	217	—	—	—	—	—	—
25	87	162	171	112	187	196	137	212	221	—	—	—	—	—	—
32	89	164	173	114	189	198	139	214	223	164	239	248	—	—	—
40	113	202	213	138	227	238	163	252	263	188	277	288	213	302	313

* Refer to page 209 for female thread dimensions.

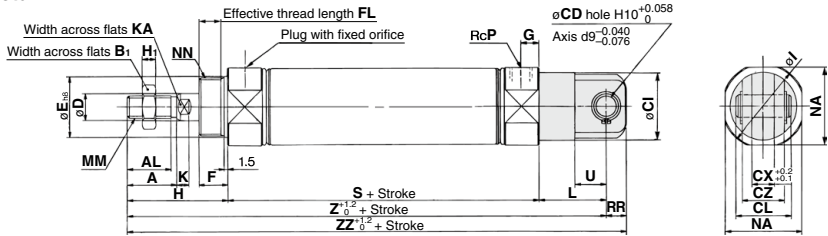
- D-□
- X□
- Technical Data

CM2 Series

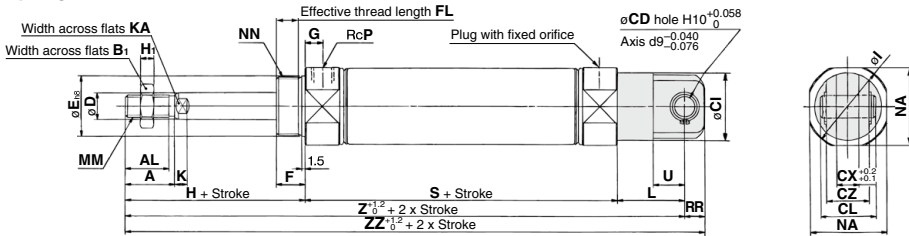
Double Clevis (D)

CM2D Bore size – Stroke | S Z

Spring return



Spring extend



Bore size	A	AL	B ₁	CD	CI	CL	CX	CZ	D	E	F	FL	G	H	H ₁	I	K	KA	L	MM	NA	NN	P	RR	U
20	18	15.5	13	9	24	25	10	19	8	20 ⁰ / -0.033	13	10.5	8	41	5	28	5	6	30	M8 x 1.25	24	M20 x 1.5	1/8	9	14
25	22	19.5	17	9	30	25	10	19	10	26 ⁰ / -0.033	13	10.5	8	45	6	33.5	5.5	8	30	M10 x 1.25	30	M26 x 1.5	1/8	9	14
32	22	19.5	17	9	30	25	10	19	12	26 ⁰ / -0.033	13	10.5	8	45	6	37.5	5.5	10	30	M10 x 1.25	34.5	M26 x 1.5	1/8	9	14
40	24	21	22	10	38	41.2	15	30	14	32 ⁰ / -0.039	16	13.5	11	50	8	46.5	7	12	39	M14 x 1.5	42.5	M32 x 2	1/4	11	18

Dimensions by Stroke

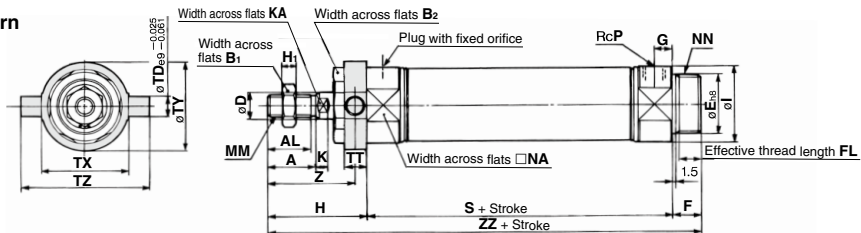
Bore size	Stroke														
	1 to 50			51 to 100			101 to 150			151 to 200			201 to 250		
Symbol	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ
20	87	158	167	112	183	192	137	208	217	—	—	—	—	—	—
25	87	162	171	112	187	196	137	212	221	—	—	—	—	—	—
32	89	164	173	114	189	198	139	214	223	164	239	248	—	—	—
40	113	202	213	138	227	238	163	252	263	188	277	288	213	302	313

* Refer to page 209 for female thread dimensions.

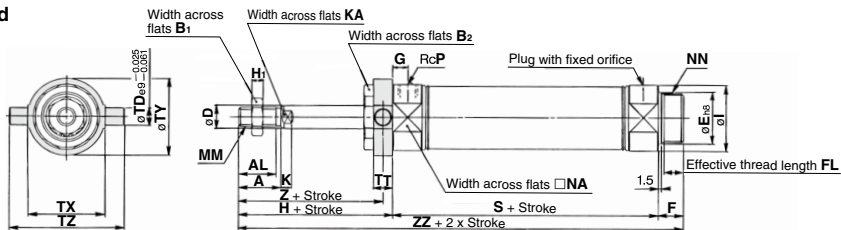
Rod Trunnion (U)

CM2U Bore size - Stroke S Z

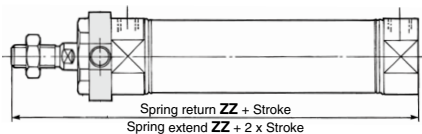
Spring return



Spring extend



Boss-cut



Bore size	A	AL	B ₁	B ₂	D	E	F	FL	G	H	H ₁	I	K	KA	MM	NA	NN	P	TD	TT	TX	TY	TZ	Z
20	18	15.5	13	26	8	20 ^{+0.033}	13	10.5	8	41	5	28	5	6	M8 x 1.25	24	M20 x 1.5	1/8	8	10	32	32	52	36
25	22	19.5	17	32	10	26 ^{+0.033}	13	10.5	8	45	6	33.5	5.5	8	M10 x 1.25	30	M26 x 1.5	1/8	9	10	40	40	60	40
32	22	19.5	17	32	12	26 ^{+0.033}	13	10.5	8	45	6	37.5	5.5	10	M10 x 1.25	34.5	M26 x 1.5	1/8	9	10	40	40	60	40
40	24	21	22	41	14	32 ^{+0.039}	16	13.5	11	50	8	46.5	7	12	M14 x 1.5	42.5	M32 x 2	1/4	10	11	53	53	77	44.5

Dimensions by Stroke

Bore size	Stroke		Stroke		Stroke		Stroke		Stroke	
	S	ZZ	S	ZZ	S	ZZ	S	ZZ	S	ZZ
20	87	141	112	166	137	191	—	—	—	—
25	87	145	112	170	137	195	—	—	—	—
32	89	147	114	172	139	197	164	222	—	—
40	113	179	138	204	163	229	188	254	213	279

Boss-cut

Bore size	Stroke		Stroke		Stroke	
	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ
20	128	153	178	—	—	—
25	132	157	182	—	—	—
32	134	159	184	209	—	—
40	163	188	213	238	263	—

* The bracket is shipped together.
* Refer to page 209 for female thread dimensions.

CJ1
CJP
CJ2
JCM
CM2
CM3
CG1
CG3
JMB
MB
MB1
CA2
CS1
CS2

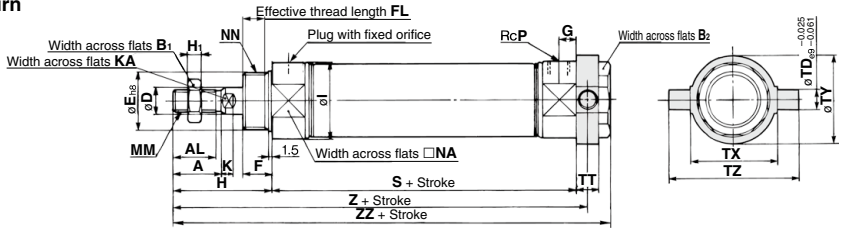
D-□
-X□
Technical Data

CM2 Series

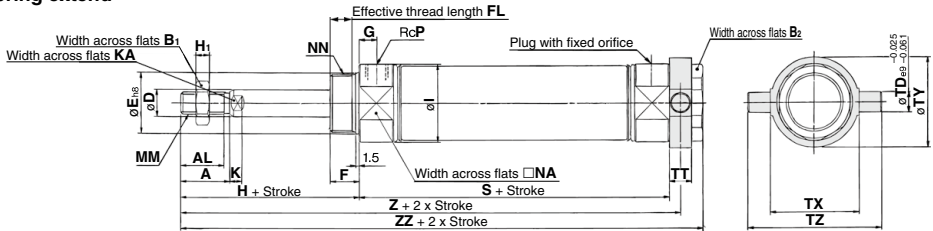
Head Trunnion (T)

CM2T Bore size – Stroke $\frac{S}{T}$ Z

Spring return



Spring extend



Bore size	A	AL	B ₁	B ₂	D	E	F	FL	G	H	H ₁	I	K	KA	MM	NA	NN	P	TD	TT	TX	TY	TZ
20	18	15.5	13	26	8	20 ^{+0.033}	13	10.5	8	41	5	28	5	6	M8 x 1.25	24	M20 x 1.5	1/8	8	10	32	32	52
25	22	19.5	17	32	10	26 ^{+0.033}	13	10.5	8	45	6	33.5	5.5	8	M10 x 1.25	30	M26 x 1.5	1/8	9	10	40	40	60
32	22	19.5	17	32	12	26 ^{+0.033}	13	10.5	8	45	6	37.5	5.5	10	M10 x 1.25	34.5	M26 x 1.5	1/8	9	10	40	40	60
40	24	21	22	41	14	32 ^{+0.039}	16	13.5	11	50	8	46.5	7	12	M14 x 1.5	42.5	M32 x 2	1/4	10	11	53	53	77

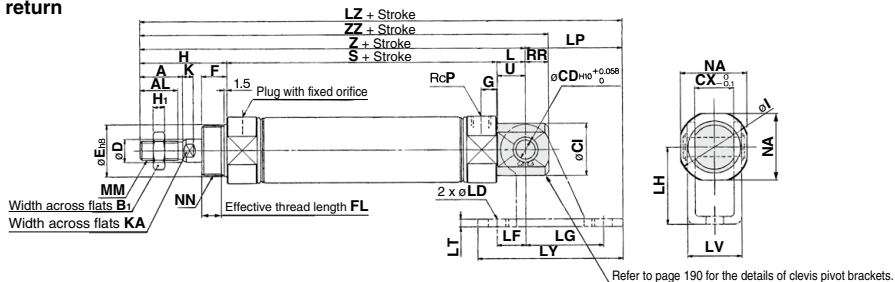
Stroke		1 to 50			51 to 100			101 to 150			151 to 200			201 to 250		
Bore size	Symbol	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ
20	87	133	143	112	158	168	137	183	193	—	—	—	—	—	—	—
25	87	137	147	112	162	172	137	187	197	—	—	—	—	—	—	—
32	89	139	149	114	164	174	139	189	199	164	214	224	—	—	—	—
40	113	168.5	179	138	193.5	204	163	218.5	229	188	243.5	254	213	268.5	279	—

* The bracket is shipped together.
* Refer to page 209 for female thread dimensions.

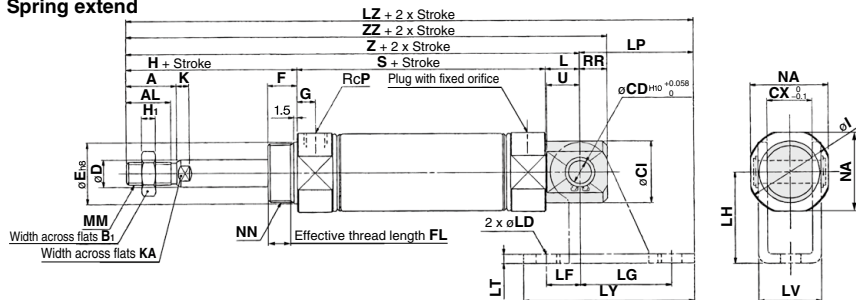
Integrated Clevis (E)

CM2E Bore size – Stroke $\frac{S}{T}$ Z

Spring return



Spring extend



- CJ1
- CJP
- CJ2
- JCM
- CM2
- CM3
- CG1
- CG3
- JMB
- MB
- MB1
- CA2
- CS1
- CS2

Bore size	(mm)																						
	A	AL	B ₁	CD	CI	CX	D	E	F	FL	G	H	H ₁	I	K	KA	L	MM	NA	NN	P	RR	U
20	18	15.5	13	8	20	12	8	20 ⁰ _{-0.033}	13	10.5	8	41	5	28	5	6	12	M8 x 1.25	24	M20 x 1.5	1/8	9	11.5
25	22	19.5	17	8	22	12	10	26 ⁰ _{-0.033}	13	10.5	8	45	6	33.5	5.5	8	12	M10 x 1.25	30	M26 x 1.5	1/8	9	11.5
32	22	19.5	17	10	27	20	12	26 ⁰ _{-0.033}	13	10.5	8	45	6	37.5	5.5	10	15	M10 x 1.25	34.5	M26 x 1.5	1/8	12	14.5
40	24	21	22	10	33	20	14	32 ⁰ _{-0.039}	16	13.5	11	50	8	46.5	7	12	15	M14 x 1.5	42.5	M32 x 2	1/4	12	14.5

Dimensions by Stroke

Bore size	Stroke												Symbol						
	1 to 50				51 to 100				101 to 150				151 to 200				201 to 250		
	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	
20	87	140	149	112	165	174	137	190	199	—	—	—	—	—	—	—	—		
25	87	144	153	112	169	178	137	194	203	—	—	—	—	—	—	—	—		
32	89	149	161	114	174	186	139	199	211	164	224	236	—	—	—	—	—		
40	113	178	190	138	203	215	163	228	240	188	253	265	213	278	290	—	—		

Clevis Pivot Bracket

Bore size	Stroke												Symbol								
	1 to 50				51 to 100				101 to 150				151 to 200				201 to 250				
	LD	LF	LG	LH	LP	LT	LV	LY	LZ	LZ	LZ	LZ	LZ	LZ	LZ	LZ	LZ				
20	6.8	15	30	30	37	3.2	18.4	59	177	202	227	—	—	—	—	—					
25	6.8	15	30	30	37	3.2	18.4	59	181	206	231	—	—	—	—	—					
32	9	15	40	40	50	4	28	75	199	224	249	274	—	—	—	—					
40	9	15	40	40	50	4	28	75	228	253	278	303	328	—	—	—					

* Refer to page 209 for female thread dimensions.

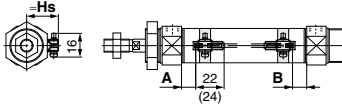
- D-□
- X□
- Technical Data

CM2 Series Auto Switch Mounting

Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height

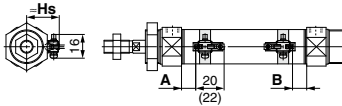
Solid state auto switch

- D-M9□
- D-M9□W
- D-M9□A



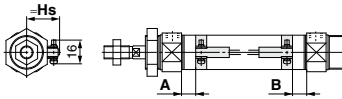
(): Values for D-M9□A
A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

- D-M9□V
- D-M9□WV
- D-M9□AV

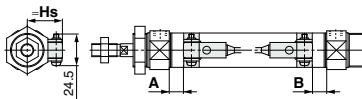


(): Values for D-M9□AV
A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

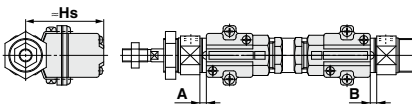
D-H7□/H7□W/H7NF/H7BA/H7C



D-G5NT

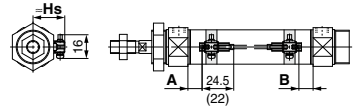


D-G39A/K39A



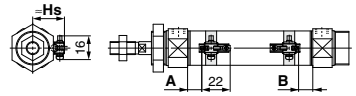
Reed auto switch

- D-A9□



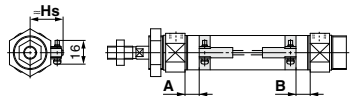
(): Values for D-A96
A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

- D-A9□V

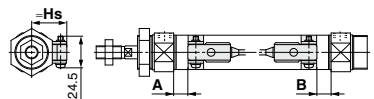


A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

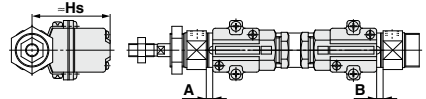
D-C7/C8/C73C/C80C



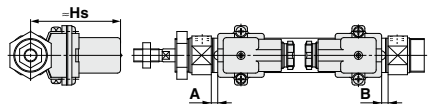
D-B5/B6/B59W



D-A33A/A34A



D-A44A



Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height

Auto Switch Proper Mounting Position

(Standard type (except single acting type), Non-rotating rod type, Direct mount type, Direct mount, Non-rotating rod type (except single acting type)) (mm)

Auto switch model	D-M9□(V) D-M9□W(V) D-M9□A(V)		D-A9□(V)		D-G39A D-K39A D-A3□A D-A44A		D-H7□ D-H7C D-H7□W D-H7BA D-H7NF		D-G5NT		D-C7/C8 D-C73C D-C80C		D-B5□ D-B64		D-B59W	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
20	11	9.5	7	5.5	1	0	6.5	5	3	1.5	7.5	6	1.5	0	4	3
25	10	10	6	6	0	0	5.5	5.5	2	2	6.5	6.5	0.5	0.5	3.5	3.5
32	11.5	10.5	7.5	6.5	1.5	0.5	7	6	3.5	2.5	8	7	2	1	5	4
40	17.5	15.5	13.5	11.5	7.5	5.5	13	11	9.5	7.5	14	12	8	6	11	9

Note) Adjust the auto switch after confirming the operating condition in the actual setting.

Auto Switch Proper Mounting Position (Centralized piping type, With end lock)

(mm)

Auto switch model	D-M9□(V) D-M9□W(V) D-M9□A(V)		D-A9□(V)		D-G39A D-K39A D-A3□A D-A44A		D-H7□ D-H7C D-H7□W D-H7BA D-H7NF		D-G5NT		D-B5□ D-B64		D-C7□ D-C80 D-C73C D-C80C		D-B59W	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
20	10.5 (8)	9.5 (7)	6.5 (4)	5.5 (3)	0.5 (—)	0 (—)	6 (4)	5 (3)	2.5 (0.5)	1.5 (0)	1 (—)	0 (—)	7 (5)	6 (4)	4 (2)	3 (1)
25	10.5 (8)	9.5 (7)	6.5 (4)	5.5 (3)	0.5 (—)	0 (—)	6 (4)	5 (3)	2.5 (0.5)	1.5 (0)	1 (—)	0 (—)	7 (5)	6 (4)	4 (2)	3 (1)
32	11.5 (9)	10.5 (8)	7.5 (5)	6.5 (4)	1.5 (0)	0.5 (0)	7 (5)	6 (4)	3.5 (1.5)	2.5 (0.5)	2 (0)	1 (0)	8 (6)	7 (5)	5 (3)	4 (2)
40	17.5	15.5	13.5	11.5	6.5	5.5	12	11	8.5	7.5	7	6	13	12	10	9

* () : Setting position for the auto switch with an air cushion.

The D-B5/B6/A3□A/A44A/G39A/K39A cannot be mounted on the bore size ø20 and ø25 cylinder with an air cushion.

Note 1) Adjust the auto switch after confirming the operating condition in the actual setting.

Note 2) The D-A3□A/A44A/G39A/K39A cannot be mounted on the centralized piping type CDM2□P series.

Auto Switch Mounting Height

(mm)

Auto switch model	D-A9□(V) D-M9□(V) D-M9□W(V) D-M9□A(V)		D-B5□ D-B64 D-B59W D-G5NT D-H7C		D-C73C D-C80C		D-G39A D-K39A D-A3□A		D-A44A	
	Hs	Hs	Hs	Hs	Hs	Hs				
20	24.5	25.5	25	60	69.5					
25	27	28	27.5	62.5	72					
32	30.5	31.5	31	66	75.5					
40	34.5	35.5	35	70	79.5					

CG1

CJP

CJ2

JCM

CM2

CM3

CG1

CG3

JMB

MB

MB1

CA2

CS1

CS2

D-□

-X□

Technical Data

CM2 Series

Auto Switch Proper Mounting Position (Detection at stroke end) Single Acting/Spring Return Type (S), Spring Extend Type (T)

Standard Type/Spring Return Type (S)

Non-rotating Rod Type/Spring Return Type (S)

(mm)

Auto switch model	Bore size	A dimensions					B
		Up to 50 st	51 to 100 st	101 to 150 st	151 to 200 st	201 to 250 st	
D-M9□(V) D-M9□W(V) D-M9□A(V)	20	36	61	86	—	—	9.5
	25	35	60	85	—	—	10
	32	36.5	61.5	86.5	111.5	—	10.5
	40	42.5	67.5	92.5	117.5	142.5	15.5
D-A9□(V)	20	32	57	82	—	—	5.5
	25	31	56	81	—	—	6
	32	32.5	57.5	82.5	107.5	—	6.5
	40	38.5	63.5	88.5	113.5	138.5	11.5
D-H7□ D-H7C D-H7□W D-H7BA D-H7NF	20	31.5	56.5	81.5	—	—	5
	25	30.5	55.5	80.5	—	—	5.5
	32	32	57	82	107	—	6
	40	38	63	88	113	138	11
D-G5NT	20	28	53	78	—	—	1.5
	25	27	52	77	—	—	2
	32	28.5	53.5	78.5	103.5	—	2.5
	40	34.5	59.5	84.5	109.5	134.5	7.5
D-B5□ D-B64	20	26.5	51.5	76.5	—	—	0
	25	25.5	50.5	75.5	—	—	0.5
	32	27	52	77	102	—	1
	40	33	58	83	108	133	6
D-C7□ D-C80 D-C73C D-C80C	20	32.5	57.5	82.5	—	—	6
	25	31.5	56.5	81.5	—	—	6.5
	32	33	58	83	108	—	7
	40	39	64	89	114	139	12
D-B59W	20	29	54	79	—	—	2.5
	25	28.5	53.5	78.5	—	—	3.5
	32	30	55	80	105	—	4
	40	36	61	86	111	136	9
D-G39A D-K39A D-A3□A D-A44A	20	26	51	76	—	—	0
	25	25	50	75	—	—	0
	32	26.5	51.5	76.5	101.5	—	0.5
	40	32.5	57.5	82.5	107.5	132.5	5.5

Note) Adjust the auto switch after confirming the operating condition in the actual setting.

Standard Type/Spring Extend Type (T)

Non-rotating Rod Type/Spring Extend Type (T)

(mm)

Auto switch model	Bore size	A	B dimensions				
			Up to 50 st	51 to 100 st	101 to 150 st	151 to 200 st	201 to 250 st
D-M9□(V) D-M9□W(V) D-M9□A(V)	20	11	34.5	59.5	84.5	—	—
	25	10	35	60	85	—	—
	32	11.5	35.5	60.5	85.5	110.5	—
	40	17.5	40.5	65.5	90.5	115.5	140.5
D-A9□(V)	20	7	30.5	55.5	80.5	—	—
	25	6	31	56	81	—	—
	32	7.5	31.5	56.5	81.5	106.5	—
	40	13.5	36.5	61.5	86.5	111.5	136.5
D-H7□ D-H7C D-H7□W D-H7BA D-H7NF	20	6.5	30	55	80	—	—
	25	5.5	30.5	55.5	80.5	—	—
	32	7	31	56	81	106	—
	40	13	36	61	86	111	136
D-G5NT	20	3	26.5	51.5	76.5	—	—
	25	2	27	52	77	—	—
	32	3.5	27.5	52.5	77.5	102.5	—
	40	9.5	32.5	57.5	81.5	107.5	132.5
D-B5□ D-B64	20	1.5	25	50	75	—	—
	25	0.5	25.5	50.5	75.5	—	—
	32	2	26	51	76	101	—
	40	8	31	56	81	106	131
D-C7□ D-C80 D-C73C D-C80C	20	7.5	31	56	81	—	—
	25	6.5	31.5	56.5	81.5	—	—
	32	8	32	57	82	107	—
	40	14	37	62	87	112	137
D-B59W	20	4	28	53	78	—	—
	25	3.5	28.5	53.5	78.5	—	—
	32	5	29	54	79	104	—
	40	11	34	59	84	109	134
D-G39A D-K39A D-A3□A D-A44A	20	1	24.5	49.5	74.5	—	—
	25	0	25	50	75	—	—
	32	1.5	25.5	50.5	75.5	100.5	—
	40	7.5	30.5	55.5	80.5	105.5	130.5

Note) Adjust the auto switch after confirming the operating condition in the actual setting.

Minimum Stroke for Auto Switch Mounting

(Standard type (except single acting type), Non-rotating rod type, Direct mount type,

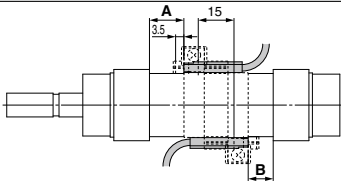
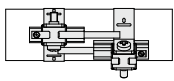
Direct mount, Non-rotating rod type (except single acting type), Centralized piping type, With end lock)

n: Number of auto switches (mm)

Auto switch model	Number of auto switches				
	With 1 pc.	With 2 pcs.		With n pcs.	
		Different surfaces	Same surface	Different surfaces	Same surface
D-M9□	5	15 <small>Note 1)</small>	40 <small>Note 1)</small>	$20 + 35 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)<small>Note 3)</small></small>	$55 + 35 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>
D-M9□W	10	15 <small>Note 1)</small>	40 <small>Note 1)</small>	$20 + 35 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)<small>Note 3)</small></small>	$55 + 35 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>
D-M9□A	10	15 <small>Note 1)</small>	40 <small>Note 1)</small>	$25 + 35 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)<small>Note 3)</small></small>	$60 + 35 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>
D-A9□	5	15	30 <small>Note 1)</small>	$15 + 35 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)<small>Note 3)</small></small>	$50 + 35 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>
D-M9□V	5	15 <small>Note 1)</small>	35	$20 + 35 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)<small>Note 3)</small></small>	$35 + 35 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>
D-A9□V	5	15	25	$15 + 35 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)<small>Note 3)</small></small>	$25 + 35 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>
D-M9□WV D-M9□AV	10	15 <small>Note 1)</small>	35	$20 + 35 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)<small>Note 3)</small></small>	$35 + 35 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>
D-C7□ D-C80	10	15	50	$15 + 45 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)<small>Note 3)</small></small>	$50 + 45 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>
D-H7□ D-H7□W D-H7BA D-H7NF	10	15	60	$15 + 45 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)<small>Note 3)</small></small>	$60 + 45 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>
D-H7C D-C73C D-C80C	10	15	65	$15 + 50 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)<small>Note 3)</small></small>	$65 + 50 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>
D-G5NT D-B5□/B64	10	15	75	$15 + 50 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)<small>Note 3)</small></small>	$75 + 55 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>
D-B59W	15	20	75	$20 + 50 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)<small>Note 3)</small></small>	$75 + 55 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>
D-G39A <small>Note 4)</small> D-K39A D-A3□A D-A44A	10	35	100	$35 + 30 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>	$100 + 100 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>

Note 3) When "n" is an odd number, an even number that is one larger than this odd number is used for the calculation.
 Note 4) The D-A3□A/A44A/G39A/K39A cannot be mounted on the centralized piping type CDM2□P series.

Note 1) Auto switch mounting

Auto switch model	With 2 auto switches	
	Different surfaces	Same surface
	 <p>The proper auto switch mounting position is 3.5 mm inward from the switch holder edge.</p>	 <p>The auto switch is mounted by slightly displacing it in a direction (cylinder tube circumferential exterior) so that the auto switch and lead wire do not interfere with each other.</p>
D-M9□(V) D-M9□W(V)	15 to 20 stroke <small>Note 2)</small>	40 to 55 stroke <small>Note 2)</small>
D-M9□A(V)	15 to 25 stroke <small>Note 2)</small>	40 to 60 stroke <small>Note 2)</small>
D-A9□(V)	—	30 to 50 stroke <small>Note 2)</small>

Note 2) Minimum stroke for auto switch mounting in types other than those in Note 1.

- CJ1
- CJP
- CJ2
- JCM
- CM2
- CM3
- CG1
- CG3
- JMB
- MB
- MB1
- CA2
- CS1
- CS2

- D-□
- X□
- Technical Data

Operating Range

Auto switch model	Bore size (mm)			
	20	25	32	40
D-A9□(V)	6	6	6	6
D-M9□(V)	3	3	4	3.5
D-M9□W(V)				
D-M9□A(V)				
D-C7□/C80	7	8	8	8
D-C73C/C80C	8	8	9	9
D-B5□/B64				
D-A3□A/A44A (Note)				
D-B59W	12	12	13	13
D-H7□/H7□W/H7BA	4	4	4.5	5
D-G5NT/H7NF				
D-H7C	7	8.5	9	10
D-G39A/K39A (Note)	8	9	9	9

* Values which include hysteresis are for guideline purposes only, they are not a guarantee (assuming approximately ±30% dispersion) and may change substantially depending on the ambient environment.

Note) The D-A3□A/A44A/G39A/K39A cannot be mounted on the centralized piping type CDM2□P series.

Auto Switch Mounting Brackets/Part No.

Auto switch model	Bore size (mm)			
	ø20	ø25	ø32	ø40
D-M9□(V)	BM5-020 (A set of a, b, c, d)	BM5-025 (A set of a, b, c, d)	BM5-032 (A set of a, b, c, d)	BM5-040 (A set of a, b, c, d)
D-M9□W(V)				
D-A9□(V)				
D-M9□A(V) (Note 2)	BM5-020S (A set of b, c, d, e)	BM5-025S (A set of b, c, d, e)	BM5-032S (A set of b, c, d, e)	BM5-040S (A set of b, c, d, e)

D-H7□ D-H7□W D-H7NF D-C7□/C80 D-C73C/C80C	BM2-020A (A set of band and screw)	BM2-025A (A set of band and screw)	BM2-032A (A set of band and screw)	BM2-040A (A set of band and screw)
D-H7BA	BM2-020AS (A set of band and screw)	BM2-025AS (A set of band and screw)	BM2-032AS (A set of band and screw)	BM2-040AS (A set of band and screw)
D-B5□/B64 D-B59W D-G5NT	BA2-020 (A set of band and screw)	BA2-025 (A set of band and screw)	BA2-032 (A set of band and screw)	BA2-040 (A set of band and screw)
D-A3□A/A44A (Note 3) D-G39A/K39A	BM3-020 (A set of band and screw)	BM3-025 (A set of band and screw)	BM3-032 (A set of band and screw)	BM3-040 (A set of band and screw)

Note 1) Since the switch bracket (made from nylon) are affected in an environment where alcohol, chloroform, methylamines, hydrochloric acid or sulfuric acid is splashed over, so it cannot be used. Please contact SMC regarding other chemicals.

Note 2) As the indicator LED is projected from the switch unit, indicator LED may be damaged if the switch bracket is fixed on the indicator LED.

Note 3) The D-A3□A/A44A/G39A/K39A cannot be mounted on the centralized piping type CDM2□P series.

Band Mounting Brackets Set Part No.

Set part no.	Contents
BM2-□□□A(S) * S: Stainless steel screw	<ul style="list-style-type: none"> • Auto switch mounting band (c) • Auto switch mounting screw (d)
BJ4-1	<ul style="list-style-type: none"> • Switch bracket (White/PBT) (e) • Switch holder (b)
BJ5-1	<ul style="list-style-type: none"> • Switch bracket (Transparent/Nylon) (a) • Switch holder (b)

Other than the applicable auto switches listed in "How to Order", the following auto switches are mountable.

Refer to pages 1575 to 1701 for the detailed specifications.

Type	Model	Electrical entry	Features
Solid state	D-H7A1, H7A2, H7B	Grommet (In-line)	—
	D-H7NW, H7PW, H7BW		Diagnostic indication (2-color indicator)
	D-H7BA		Water resistant (2-color indicator)
	D-G5NT		With timer
Reed	D-B53, C73, C76	Grommet (In-line)	—
	D-C80		Without indicator light

* With pre-wired connector is also available for solid state auto switches. For details, refer to pages 1648 and 1649.

* Normally closed (NC = b contact) solid state auto switches (D-M9□E(V)) are also available. For details, refer to page 1592-1.



1 PTFE Grease

Symbol
-X446

Applicable Series

Description	Model	Action	Note
Standard type	CM2	Double acting, Single rod	
	CM2W	Double acting, Double rod	
Non-rotating rod type	CM2K	Double acting, Single rod	
	CM2KW	Double acting, Double rod	
Direct mount type	CM2R	Double acting, Single rod	
Direct mount, Non-rotating rod type	CM2RK	Double acting, Single rod	

How to Order

Standard model no. - X446
↓
 PTFE grease

Specifications: Same as standard type

Dimensions: Same as standard type

* When grease is necessary for maintenance, grease pack is available, please order it separately.
GR-F-005 (Grease: 5 g)

Warning Precautions

Be aware that smoking cigarettes etc after your hands have come into contact with the grease used in this cylinder can create a gas that is hazardous to humans.

CJ1

CJP

CJ2

JCM

CM2

CM3

CG1

CG3

JMB

MB

MB1

CA2

CS1

CS2

D-□

-X□

Technical Data