

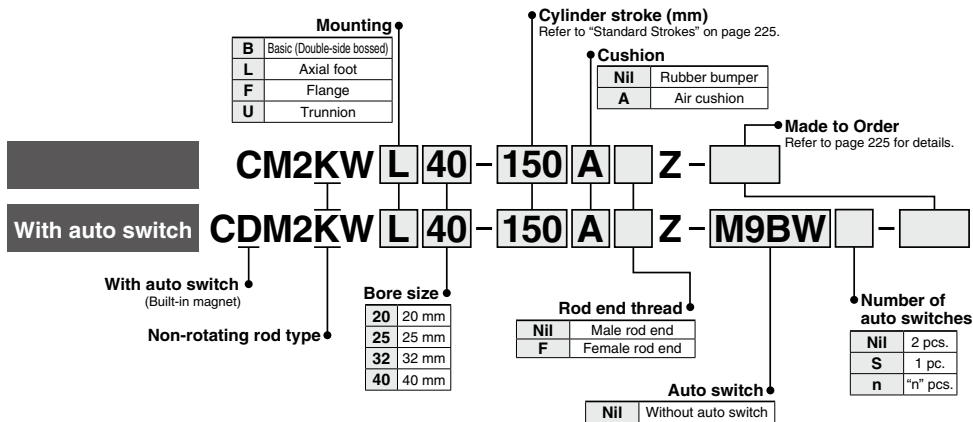
# Air Cylinder: Non-rotating Rod Type Double Acting, Double Rod

## CM2KW Series

ø20, ø25, ø32, ø40



### How to Order



\* For applicable auto switches, refer to the table below.

### 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 (L)	3 (M)	5 (Z)	None (N)						
Solid state auto switch	—	Grommet	No	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	●	●	●	—	—	—	—	—			
				3-wire (PNP)			M9PV	M9P	●	●	●	—	—	—	—	—	—		
		Connector		2-wire	12 V	—	—	—	—	—	—	—	—	—	—	—	—		
				Terminal conduit	3-wire (NPN)	5 V, 12 V	—	—	—	—	—	—	—	—	—	—	—	—	
		2-wire			12 V	—	—	—	—	—	—	—	—	—	—	—	—	—	
		Diagnostic indication (2-color indicator)		Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	—	G39A**	—	—	—	—	—	—	—	—
	3-wire (PNP)		—			K39A**				—	—	—	—	—	—	—	—	—	
	2-wire		12 V			—	—	—	—	—	—	—	—	—	—	—	—	—	
	2-wire		12 V			—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Reed auto switch	—	Grommet	No/Yes/No	3-wire (NPN)	24 V	12 V	—	M9NVV	M9NV	●	●	●	—	—	—	—	—	
3-wire (PNP)					M9PVV				M9PV	●	●	●	—	—	—	—	—	—	—
Connector			2-wire		12 V	—	—	—	—	—	—	—	—	—	—	—	—	—	
			Terminal conduit		3-wire (NPN)	5 V, 12 V	—	—	—	—	—	—	—	—	—	—	—	—	—
3-wire (PNP)					5 V, 12 V	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2-wire			12 V		—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Diagnostic indication (2-color indicator)		Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	—	—	—	—	
				—				A93V*2	A93	●	●	●	—	—	—	—	—	—	—
				Connector	2-wire	24 V	12 V	—	—	—	—	—	—	—	—	—	—	—	—
					—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Terminal conduit	2-wire	24 V	12 V	—	—	—	—	—	—	—	—	—	—	—	—	—			
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
DIN terminal	2-wire	24 V	12 V	—	—	—	—	—	—	—	—	—	—	—	—	—			
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
DIN terminal	2-wire	24 V	12 V	—	—	—	—	—	—	—	—	—	—	—	—	—			
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			

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

\*2 Please contact SMC regarding water resistant types with the above model numbers.

\*3 2 1 m type lead wire is only applicable to D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil  
1 m ..... M (Example) M9NVW  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWZ  
None ..... N (Example) H7CN

\* Solid state auto switches marked with "O" are produced upon receipt of order.

\* Do not indicate suffix "N" for no lead wire on the D-A3□/A44A/G39A/K39A models.

\*4 D-A3□/A44A/G39A/K39A/B54/B64 cannot be mounted on bore sizes ø20 and ø25 cylinder with air cushion.

\* 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.)

**A cylinder which rod does not rotate because of the hexagonal rod shape.**

**Non-rotating accuracy**

∅20, ∅25  $\pm 0.7^\circ$

∅32, ∅40  $\pm 0.5^\circ$

**Can operate without lubrication.**

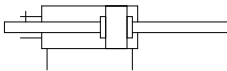
**The same installation dimensions as the standard cylinder.**

**Auto switches can also be mounted.**

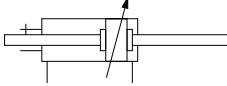
It can be installed with auto switches to simplify the detection of the stroke position of the cylinder.

### Symbol

Rubber bumper



Air cushion



**Made to Order: Individual Specifications**  
(For details, refer to page 267.)

Symbol	Specifications
-X446	PTFE grease

### Made to Order

[Click here for details](#)

Symbol	Specifications
-XA□	Change of rod end shape
-XB6	Heat resistant cylinder (-10 to 150°C)
-XC3	Special port location
-XC6	Made of stainless steel
-XC13	Auto switch rail mounting
-XC22	Fluororubber seal
-XC25	No fixed throttle of connection port*
-XC52	Mounting nut with set screw
-XC85	Grease for food processing equipment

\* Rubber bumper only.

## Specifications

Bore size (mm)		20	25	32	40	
Rod non-rotating accuracy		$\pm 0.7^\circ$			$\pm 0.5^\circ$	
Type		Pneumatic				
Cushion		Rubber bumper, Air cushion				
Action		Double acting, Double rod				
Fluid		Air				
Proof pressure		1.5 MPa				
Maximum operating pressure		1.0 MPa				
Minimum operating pressure		0.08 MPa				
Ambient and fluid temperature		Without auto switch: $-10^\circ\text{C}$ to $70^\circ\text{C}$ (No freezing) With auto switch: $-10^\circ\text{C}$ to $60^\circ\text{C}$				
Lubrication		Not required (Non-lube)				
Stroke length tolerance		$\pm \frac{1}{4}$ mm				
Piston speed		50 to 500 mm/s				
Allowable kinetic energy	Rubber bumper	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
	Air cushion (Effective cushion length (mm))	Male thread	0.54 J (11.0)	0.78 J (11.0)	1.27 J (11.0)	2.35 J (11.8)
		Female thread	0.11 J	0.18 J	0.29 J	0.52 J

## Standard Strokes

Bore size (mm)	Standard stroke (mm) <sup>Note 1)</sup>	Maximum manufacturable stroke (mm)
20	25, 50, 75, 100, 125, 150, 200, 250, 300	500
25		
32		
40		

Note 1) Intermediate strokes not listed above are produced upon receipt of order.

Manufacture of intermediate strokes in 1 mm increments 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.

## Accessories

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

\* Stainless steel mounting brackets and accessories are also available.

Refer to page 190 for details.

## Mounting and Accessories

Accessory	Standard		Option		
	Mounting nut	Rod end nut	Single knuckle joint	Double knuckle joint <sup>Note 2)</sup>	Pivot bracket
Mounting					
Basic	● (1 pc.)	● (2 pcs.)	●	●	—
Axial foot	● (2 pcs.)	● (2 pcs.)	●	●	
Flange	● (1 pc.)	● (2 pcs.)	●	●	
Trunnion	● (1 pc.) <sup>Note 1)</sup>	● (2 pcs.)	●	●	

Note 1) Trunnion nut is attached to the trunnion.

Note 2) A pin and retaining rings (split pins for ∅40) are shipped together with double knuckle joint.

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.

CJ1

CJP

CJ2

JCM

CM2

CM3

CG1

CG3

JMB

MB

MB1

CA2

CS1

CS2

D-□

-X□

Technical Data

## Weights

Bore size (mm)		(kg)			
		20	25	32	40
Basic weight	Basic (Double-side bossed)	0.16	0.25	0.32	0.66
	Axial foot	0.31	0.41	0.48	0.93
	Flange	0.22	0.34	0.41	0.78
	Trunnion	0.20	0.32	0.38	0.76
Additional weight per 50 mm of stroke		0.06	0.1	0.14	0.20
Weight reduction for female rod end		-0.02	-0.04	-0.04	-0.08
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) **CM2KWL32-100Z**

- Basic weight.....0.48 (Foot, ø32)
- Additional weight.....0.14/50 stroke
- Cylinder stroke.....100 stroke

$$0.48 + 0.14 \times 100/50 = 0.76 \text{ kg}$$

## Mounting Brackets/Part No.

Mounting bracket	Min. order qty	Bore size (mm)			Contents (for minimum order quantity)
		20	25	32	
Axial foot *	2	CM-L020B	CM-L032B	CM-L040B	2 feet, 1 mounting nut
Flange	1	CM-F020B	CM-F032B	CM-F040B	1 flange
Trunnion (with nut)	1	CM-T020B	CM-T032B	CM-T040B	1 trunnion, 1 trunnion nut

\* Order 2 feet per cylinder unit.

## ⚠ 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

- 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.
- Do not operate with the cushion needle in a fully closed condition.**  
Using it in the fully closed state will cause the cushion seal to be damaged. When adjusting the cushion needle, use the "Hexagon wrench key: nominal size 1.5".
- Do not open the cushion needle wide excessively.**  
If the cushion needle were set to be completely wide (more than 3 turns from fully closed), it would be equivalent to the cylinder with no cushion, thus making the impacts extremely high. Do not use it in such a way. Besides, using with fully open could give damage to the piston or cover.
- Do not open the cushion needle after rotating it numerous times in a row. Though uncommon, there are cases in which the cushion needle may leak air.**  
The cushion needle should be adjusted by gradually opening it while checking the operation of the cylinder cushion. In the unlikely event that air leakage occurs, return the cushion needle to the fully-closed state, and readjust the cushion needle to the desired position.

#### ⚠ Caution

- Avoid using the air cylinder in such a way that rotational torque would be applied to the piston rod.**

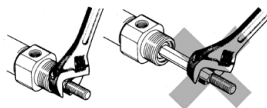
If rotational torque is applied, the non-rotating guide will become deformed, thus affecting the non-rotating accuracy.

Refer to the table below for the approximate values of the allowable range of rotational torque.

Allowable rotational torque (N·m or less)	ø20	ø25	ø32	ø40
	0.2	0.25	0.25	0.44

To screw a bracket or a nut onto the threaded portion at the tip of the piston rod, make sure to retract the piston rod entirely, and place a wrench over the flat portion of the rod that protrudes.

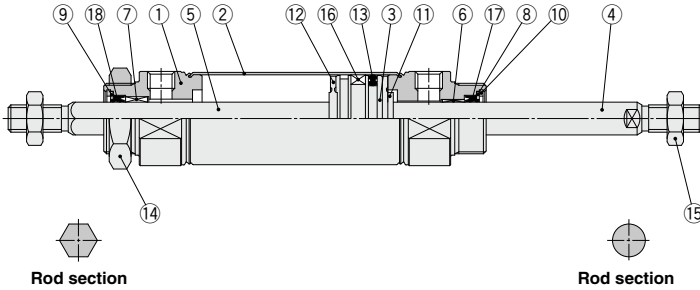
Tighten it by giving consideration to prevent the tightening torque from being applied to the non-rotating guide.



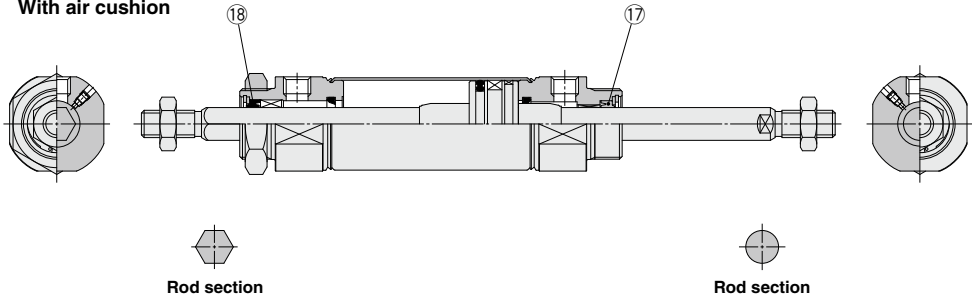
- When replacing rod seals, please contact SMC.**  
Air leakage may be happened, depending on the position in which a rod seal is fitted. Thus, please contact SMC when replacing them.
- Not able to disassemble.**  
Cover and cylinder tube are connected to each other by caulking method, thus making it impossible to disassemble. Therefore, internal parts of a cylinder other than rod seal are not replaceable.
- 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.
- The oil stuck to the cylinder is grease.**
- The base oil of grease may seep out.**
- When using a rod end bracket, make sure it does not interfere with other brackets, workpieces and rod section, etc.**

## Construction

### Rubber bumper



### With air cushion



CJ1
CJP
CJ2
JCM
<b>CM2</b>
CM3
CG1
CG3
JMB
MB
MB1
CA2
CS1
CS2

### Component Parts

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	Anodized
2	Cylinder tube	Stainless steel	
3	Piston	Aluminum alloy	
4	Piston rod A	Carbon steel	Hard chrome plating
5	Piston rod B	Stainless steel	
6	Bushing	Bearing alloy	
7	Non-rotating guide	Bearing alloy	
8	Seal retainer A	Stainless steel	
9	Seal retainer B	Carbon steel	Nickel plating
10	Retaining ring	Carbon steel	Phosphate coating
11	Bumper	Resin	
12	Bumper	Resin	
13	Piston seal	NBR	
14	Mounting nut	Carbon steel	Zinc chromated
15	Rod end nut	Carbon steel	Nickel plating
16	Magnet	—	CDM2KW□20 to 40-□Z
17	Rod seal A	NBR	
18	Rod seal B	NBR	

### Replacement Parts: Seal

#### ● With Rubber Bumper/With Air Cushion

No.	Description	Material	Bore size (mm)			
			20	25	32	40
17	Rod seal A	NBR	CM20Z-PS	CM25Z-PS	CM32Z-PS	CM40Z-PS
18	Rod seal B	NBR	CM2K20-PS	CM2K25-PS	CM2K32-PS	CM2K40-PS

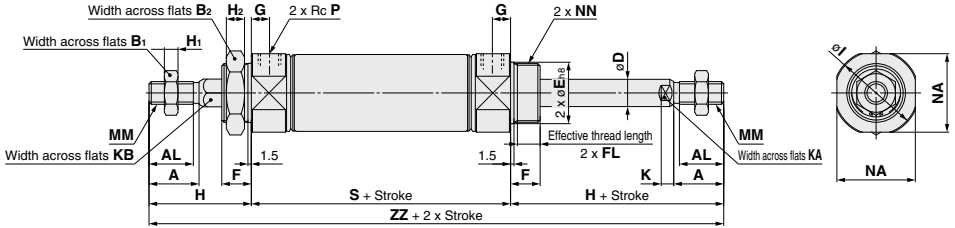
\* Since the seal does not include a grease pack, order it separately.  
**Grease pack part number: GR-S-010 (10 g)**

D-□
-X□
Technical Data

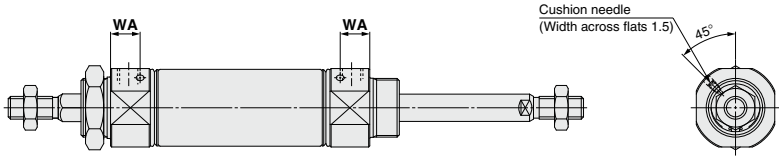
# CM2KW Series

## Basic (Double-side Bossed) (B)

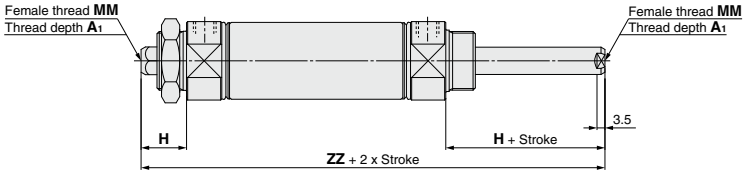
CM2KWB  –



### With air cushion



### Female rod end



Bore size	A	AL	B <sub>1</sub>	B <sub>2</sub>	D	E	F	FL	G	H	H <sub>1</sub>	H <sub>2</sub>	I	K	KA	KB	MM	NA	NN	P	S	ZZ
20	18	15.5	13	26	8	20 <sup>0</sup> <sub>-0.033</sub>	13	10.5	8	41	5	8	28	5	6	8.2	M8 x 1.25	24	M20 x 1.5	1/8	62	144
25	22	19.5	17	32	10	26 <sup>0</sup> <sub>-0.033</sub>	13	10.5	8	45	6	8	33.5	5.5	8	10.2	M10 x 1.25	30	M26 x 1.5	1/8	62	152
32	22	19.5	17	32	12	26 <sup>0</sup> <sub>-0.033</sub>	13	10.5	8	45	6	8	37.5	5.5	10	12.2	M10 x 1.25	34.5	M26 x 1.5	1/8	64	154
40	24	21	22	41	14	32 <sup>0</sup> <sub>-0.033</sub>	16	13.5	11	50	8	10	46.5	7	12	14.2	M14 x 1.5	42.5	M32 x 2	1/4	88	188

### With Air Cushion (mm)

Bore size	WA
20	13
25	13
32	13
40	16

### Female Rod End (mm)

Bore size	A <sub>1</sub>	H	MM	ZZ
20	8	20	M4 x 0.7	102
25	8	20	M5 x 0.8	102
32	12	20	M6 x 1	104
40	13	21	M8 x 1.25	130

\* 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.

### Dimensions of Each Mounting Bracket

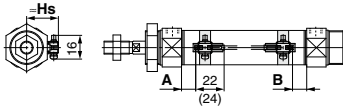
The dimensions of each mounting bracket other than basic type are the same as standard type, double acting, double rod (except KA dimension). Refer to pages 200 to 202.

# CM2 Series Auto Switch Mounting

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

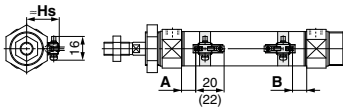
### Solid state auto switch

- D-M9□
- D-M9□W
- D-M9□A



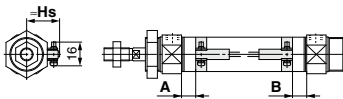
( ): Values for D-M9□A  
A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

- D-M9□V
- D-M9□WV
- D-M9□AV

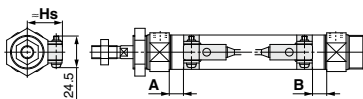


( ): Values for D-M9□AV  
A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

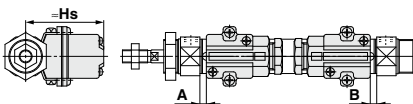
### D-H7□/H7□W/H7NF/H7BA/H7C



### D-G5NT

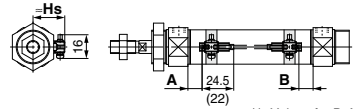


### D-G39A/K39A



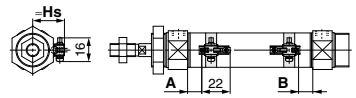
### Reed auto switch

- D-A9□



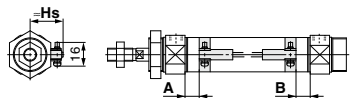
( ): Values for D-A96  
A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

- D-A9□V

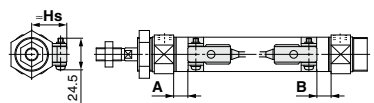


A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

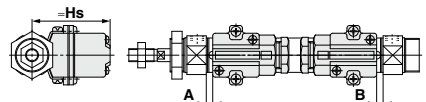
### D-C7/C8/C73C/C80C



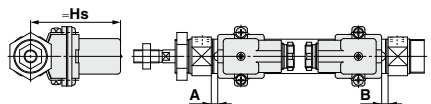
### D-B5/B6/B59W



### 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
<b>20</b>	11	9.5	7	5.5	1	0	6.5	5	3	1.5	7.5	6	1.5	0	4	3
<b>25</b>	10	10	6	6	0	0	5.5	5.5	2	2	6.5	6.5	0.5	0.5	3.5	3.5
<b>32</b>	11.5	10.5	7.5	6.5	1.5	0.5	7	6	3.5	2.5	8	7	2	1	5	4
<b>40</b>	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)**

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

(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
<b>20</b>	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)
<b>25</b>	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)
<b>32</b>	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)
<b>40</b>	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				
<b>20</b>	24.5	25.5	25	60	69.5					
<b>25</b>	27	28	27.5	62.5	72					
<b>32</b>	30.5	31.5	31	66	75.5					
<b>40</b>	34.5	35.5	35	70	79.5					

- 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)**

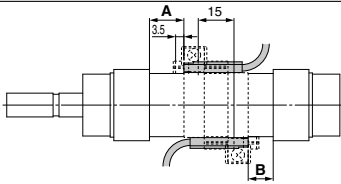
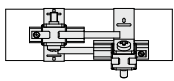
n: Number of auto switches (mm)

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

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) D-M9□W(V) D-M9□A(V)	3	3	4	3.5
D-C7□/C80 D-C73C/C80C	7	8	8	8
D-B5□/B64 D-A3□A/A44A (Note)	8	8	9	9
D-B59W	12	12	13	13
D-H7□/H7□W/H7BA D-G5NT/H7NF	4	4	4.5	5
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) D-M9□W(V) D-A9□(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□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"> <li>Auto switch mounting band (c)</li> <li>Auto switch mounting screw (d)</li> </ul>
BJ4-1	<ul style="list-style-type: none"> <li>Switch bracket (White/PBT) (e)</li> <li>Switch holder (b)</li> </ul>
BJ5-1	<ul style="list-style-type: none"> <li>Switch bracket (Transparent/Nylon) (a)</li> <li>Switch holder (b)</li> </ul>

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