

# Air Cylinder Short Type

## Standard: Double Acting, Single Rod

# Series CM3

ø20, ø25, ø32, ø40

RoHS

### How to Order

**CM3** **L** **40** - **150** **□**

**With auto switch** **CDM3** **L** **40** - **150** **□** - **M9BW** **□**

**With auto switch**  
(Built-in magnet)

**Mounting**

<b>B</b> Basic	<b>T</b> Head trunnion
<b>L</b> Foot	<b>E</b> Integral clevis
<b>F</b> Rod flange	<b>BZ</b> Boss-cut/Basic
<b>G</b> Head flange	<b>FZ</b> Boss-cut/Rod flange
<b>C</b> Single clevis	<b>UZ</b> Boss-cut/Rod trunnion
<b>D</b> Double clevis	
<b>U</b> Rod trunnion	

**Bore size**

<b>20</b>	20 mm
<b>25</b>	25 mm
<b>32</b>	32 mm
<b>40</b>	40 mm

**Rod end thread**

<b>Nil</b>	Male thread
<b>F</b>	Female thread
<b>G</b>	Long male rod end*

\* G: Same rod end dimensions (A, AL, H) as CM2 series.

**Number of auto switches**

<b>Nil</b>	2 pcs.
<b>S</b>	1 pc.
<b>n</b>	"n" pcs.

**Auto switch**

<b>Nil</b>	Without auto switch
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\* For applicable auto switches, refer to the below table.

**Cylinder stroke (mm)**  
Refer to the next page for standard strokes.

### Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch. (Example) CDM3F32-100

### Applicable Auto Switches/Refer to pages 1263 to 1371 in Best Pneumatics No. 2 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		0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)								
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	<b>M9N</b>	●	●	●	○	—	○	IC circuit	Relay, PLC					
				3-wire (PNP)			<b>M9P</b>	●	●	●	○	—	○							
		Connector		2-wire	12 V		<b>M9B</b>	●	●	●	○	—	○			—				
				Terminal conduit	3-wire (NPN)		5 V, 12 V	<b>H7C</b>	●	—	●	●	—			—				
		Diagnostic indication (2-color indication)		Grommet	Yes		2-wire	12 V	<b>G39A</b>	—	—	—	—			●	—	—	IC circuit	—
							3-wire (NPN)	5 V, 12 V	<b>K39A</b>	—	—	—	—			●	—	—		
	3-wire (PNP)		5 V, 12 V			<b>M9NW</b>	●	●	●	○	—	○	—	IC circuit						
	2-wire		12 V			<b>M9PW</b>	●	●	●	○	—	○	—	IC circuit						
	Water resistant (2-color indication)	Grommet	Yes	2-wire	12 V	<b>M9BW</b>	●	●	●	○	—	○	—	—						
	With diagnostic output (2-color indication)			4-wire (NPN)	5 V, 12 V	<b>H7BA</b>	—	—	●	○	—	○	—	—						
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	5 V	—	<b>A96</b>	●	—	●	—	—	—	IC circuit	—					
				Connector	2-wire	24 V	12 V	100 V	<b>A93</b>	●	—	●	●	—		—	—	—		
		100 V or less						<b>A90</b>	●	—	●	—	—	—		—	—	IC circuit		
		100 V, 200 V						<b>B54</b>	●	—	●	●	—	—		—	—	—		
		200 V or less						<b>B64</b>	●	—	●	—	—	—		—	—	—		
		—						<b>C73C</b>	●	—	●	●	●	—		—	—	—		
		24 V or less						<b>C80C</b>	●	—	●	●	●	—		—	—	—	IC circuit	
		Terminal conduit		Yes	2-wire	24 V	12 V	—	<b>A33A</b>	—	—	—	—	●		—	—	—		
								—	<b>A34A</b>	—	—	—	—	—		●	—	—	—	
								100 V, 200 V	<b>A44A</b>	—	—	—	—	—		●	—	—	—	
—	<b>B59W</b>		●					—	●	—	—	—	—	—	—					
Diagnostic indication (2-color indication)	Grommet	Yes	—	—	—	<b>A96</b>	●	—	●	—	—	—	—							

- \* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWZ  
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 the D-A3□A/A44A/G39A/K39A types.
- \* The D-G39A/K39A cannot be mounted on the bore size ø20.
- \* The D-A9□V/M9□V/M9□WV types and the D-M9□A(V)L type cannot be mounted.

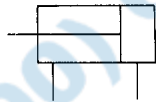
- \* Since there are other applicable auto switches than listed above, refer to Best Pneumatics.
- \* For details about auto switches with pre-wired connector, refer to pages 1328 and 1329 in Best Pneumatics No. 2.
- \* The D-A9□/M9□/M9□W type auto switches are shipped together, (but not assembled). (However, auto switch mounting brackets are assembled when being shipped.)
- \* Water resistant type auto switch can be mounted to the models with the above mentioned part numbers, but this does not guarantee the water resistance of the cylinder. A water resistant type cylinder is recommended for use in an environment which requires water resistance.
- \* For other applicable auto switches, please contact SMC.

# Series CM3



## JIS Symbol

Double acting,  
Single rod



Refer to pages 13 to 16 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.

## Warning

1. Operate the cylinder within the specified cylinder speed, kinetic energy and lateral load at the rod end.
2. The allowable kinetic energy is different between the cylinders with male rod end and with female rod end due to the different thread sizes. Refer to page 4.
3. When female rod end is used, use a washer, etc. to prevent the contact part at the rod end from being deformed depending on the material of the work piece.

## Caution

1. Use a thin wrench when tightening the piston rod.

## Specifications

Bore size (mm)		20	25	32	40
Type	Pneumatic				
Action	Double acting, Single rod				
Fluid	Air				
Proof pressure	145 psi (1.0 MPa)				
Maximum operating pressure	102 psi (0.7 MPa)				
Minimum operating pressure	7 psi (0.05 MPa)				
Ambient and fluid temperature	Without auto switch: 14 to 158°F (-10 to 70°C) (No freezing) With auto switch: 14 to 140°F (-10 to 60°C) (No freezing)				
Lubrication	Not required (Non-lube)				
Stroke length tolerance	$^{+1.4}_0$ mm				
Piston speed	50 to 750 mm/s				
Cushion	Rubber bumper				
Allowable kinetic energy	Male rod end	0.2 J	0.29 J	0.46 J	0.84 J
	Female rod end	0.11 J	0.18 J	0.29 J	0.52 J

\* Operate the cylinder within the allowable kinetic energy. Refer to page 4 for details.

## Standard Strokes

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



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

## Boss-cut

Boss for the head cover bracket is eliminated and the total length of cylinder is shortened.



## Comparison of the Full Length Dimension (Versus CM3□-□ type)

	ø20	ø25	ø32	ø40
(mm)	-13	-13	-13	-16

## Mounting

- Boss-cut/Basic (BZ)
- Boss-cut/Rod flange (FZ)
- Boss-cut/Rod trunnion (UZ)

## 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 feet, 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
Trunnion (with nut)	1	CM3-T020B	CM3-T032B	CM3-T040B		1 trunnion, 1 trunnion nut

\* Order 2 feet 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.