

Air Cylinder: With End Lock

Series *CBM2*

ø20, ø25, ø32, ø40

How to Order

CBM2 **L** **40** - **150** **H** **N** -

With auto switch **CDBM2** **L** **40** - **150** **H** **N** - **M9BW** **C** -

With auto switch
(Built-in magnet)

Mounting

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

* Integral clevis and boss-cut types are available only for locking at rod end.

Bore size

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

Cylinder stroke (mm)

Refer to "Standard Strokes" on page 85.

Manual release

N	Non-locking type
L	Locking type

Lock position

H	Head end lock
R	Rod end lock
W	Double end lock

Auto switch mounting bracket (Note)
Note) This symbol is indicated when the D-A9□ or M9□ type auto switch is specified. This mounting bracket does not apply to other auto switches (D-C7□ and H7□, etc.) (Nil)

Number of auto switches

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

Auto switch

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

Rod boot

Nil	None
J	Nylon tarpaulin
K	Heat resistant tarpaulin

Cushion

Nil	Rubber bumper
A	Air cushion

Made to Order
Refer to page 85 for details.

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) CDBM2L40-100-HN

Applicable Auto Switches/Refer to the WEB catalog or the 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	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)							
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC			
		3-wire (PNP)		M9PV				M9P	●	●	●	○	—	○						
		2-wire		M9BV				M9B	●	●	●	○	—	○						
		—		H7C				●	—	●	●	●	—	—						
	Connector	3-wire (NPN)		5 V, 12 V				—	G39A**	—	—	—	—	●	—	—		IC circuit		
	Terminal conduit	2-wire		12 V				—	K39A**	—	—	—	—	●	—	—		—		
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)				5 V, 12 V	M9NWV	M9NW	●	●	●	○	—	○		IC circuit		
				3-wire (PNP)				M9PWV	M9PW	●	●	●	○	—	○	IC circuit				
				2-wire				12 V	M9BWV	M9BW	●	●	●	○	—	○		—		
				3-wire (NPN)				5 V, 12 V	M9NAV*1	M9NA*1	○	○	●	○	—	○		IC circuit		
				3-wire (PNP)				12 V	M9PAV*1	M9PA*1	○	○	●	○	—	○		—		
				2-wire				12 V	M9BAV*1	M9BA*1	○	○	●	○	—	○		—		
	With diagnostic output (2-color indication)	4-wire (NPN)	5 V, 12 V	—	H7NF	●	—	●	○	—	○	IC circuit								
	Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V	—	A96V	A96	●	—	●	—	—	—		IC circuit	Relay, PLC	
Connector									100 V	A93V*2	A93	●	●	●	●	—	—	—		
									100 V or less	A90V	A90	●	—	●	—	—	—	—		IC circuit
									100 V, 200 V	—	B54**	●	—	●	●	—	—	—		—
									200 V or less	—	B64**	●	—	●	—	—	—	—		
									—	—	C73C	●	—	●	●	●	—	IC circuit		
Terminal conduit			24 V or less						—	C80C	●	—	●	●	●	—	—	IC circuit		
			DIN terminal						—	—	A33A**	—	—	—	—	●	—	—		PLC
									100 V, 200 V	—	A34A**	—	—	—	—	●	—			
									—	—	A44A**	—	—	—	—	●	—			
									—	—	B59W	●	—	●	—	—	—			
									—	—	—	—	—	—	—	—	—			

*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) M9NWM
3 m L (Example) M9NWL
5 m Z (Example) M9NWX
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□A/A44A/G39A/K39A models.

** The D-A3□A/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 99 for details.

* For details about auto switches with pre-wired connector, refer to the WEB catalog or the Best Pneumatics No. 2.

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

Series CBM2

Holds the cylinder's home position even if the air supply is cut off.

When air is discharged at the stroke end position, the lock engages to maintain the rod in that position.

Non-locking type and locking type are standardized for manual release.

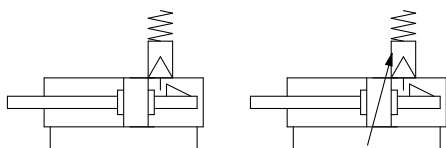
Auto switch is mountable.



Symbol

Rubber bumper

Air cushion



Made to Order

(For details, refer to pages 101 to 117.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB6	Heat resistant cylinder (−10 to 150°C)
-XB9	Low speed cylinder (10 to 50 mm/s)
-XC3	Special port location
-XC4 *	With heavy duty scraper
-XC5	Heat resistant cylinder (−10 to 110°C)
-XC6	Made of stainless steel
-XC8 *	Adjustable stroke cylinder/Adjustable extension type
-XC13	Auto switch rail mounting
-XC22	Fluororubber seal
-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
-XC35	With coil scraper
-XC52	Mounting nut with set screw

* Available only for locking at head end

Specifications

Bore size (mm)	20	25	32	40
Type	Pneumatic			
Action	Double acting, Single rod			
Fluid	Air			
Proof pressure	1.5 MPa			
Maximum operating pressure	1.0 MPa			
Minimum operating pressure	0.15 MPa *			
Ambient and fluid temperature	Without auto switch: −10°C to 70°C With auto switch: −10°C to 60°C (No freezing)			
Cushion	Rubber bumper, Air cushion			
Lubrication	Not required (Non-lube)			
Stroke length tolerance	+1.4 0 mm			
Piston speed	Rubber bumper	50 to 750 mm/s		
	Air cushion	50 to 1000 mm/s		
Mounting	Basic, Axial foot, Rod flange, Head flange, Single clevis, Double clevis, Rod trunnion, Head trunnion			

* 0.05 MPa for other part than the lock unit

Lock Specifications

Lock position	Head end, Rod end, Double end			
Holding force (Max.) (N)	ø20	ø25	ø32	ø40
	215	330	550	860
Backlash	1 mm or less			
Manual release	Non-locking type, Locking type			

Allowable Kinetic Energy

Bore size (mm)		20	25	32	40
Rubber bumper	Allowable kinetic energy (J)	0.27	0.4	0.65	1.2
Air cushion	Effective cushion length (mm)	11.0	11.0	11.0	11.8
	Cushion sectional area (cm²)	2.09	3.30	5.86	9.08
	Absorbable kinetic energy (J)	0.54	0.78	1.27	2.35

Standard Strokes

Bore size (mm)	Standard stroke (mm)	Long stroke * (mm)	Maximum manufacturable stroke (mm)
20	25, 50, 75, 100, 125, 150, 200, 250, 300	400	1000
25		450	
32		450	
40		500	

* Long stroke applies to the axial foot and rod flange types only.

When using other types of mounting brackets or exceeding the long stroke limit, refer to "Air Cylinders Model Selection" on front matter pages of the Best Pneumatics No. 2 or the **WEB catalog**.

* Manufacture of intermediate strokes at 1 mm intervals is possible. (Spacers are not used.)

Refer to pages 95 to 99 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.