

Air Cylinder: Standard Type Double Acting, Single Rod

MB Series

ø32, ø40, ø50, ø63, ø80, ø100, ø125

RoHS

How to Order



With auto switch MB B 32 [] - 50 [] [] Z - [] [] - []

With auto switch (Built-in magnet)

Mounting type

B	Basic
L	Axial foot
F	Rod flange
G	Head flange
C	Single clevis
D	Double clevis
T	Center trunnion

Bore size

32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm
125	125 mm

Accessories 1

Nil	No bracket
N	Pivot bracket

* Only for D and T mounting types.
* Pivot bracket is shipped together with the product.
* For details, refer to page 400.

Suffix (Cushion)

Nil	Air cushion
N*	Rubber bumper

* Since the bumpers are attached to the both sides of the piston for rubber bumper type, the overall length is longer than the cylinder with air cushion as follows: ø32, ø40: +8 mm, ø50, ø63: +8 mm, ø80, ø100: +10 mm, ø125: +12 mm.

Auto switch

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

Number of auto switches

Nil	2 pcs.
S	1 pc.
3	3 pcs.
n	"n" pcs.

Made to Order
For details, refer to page 393.

Port thread type

Nil	Rc
TN	NPT
TF	G

Cylinder stroke [mm]
Refer to "Standard Strokes" on page 393.

Suffix (Rod boot)

Nil	None
J	Nylon tarpaulin
K	Heat resistant tarpaulin

* Refer to "Ordering Example of Cylinder Assembly" on page 393.

Applicable Auto Switches/Refer to the 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	Tie-rod mounting	Band mounting	0.5 (Nil)	1 (M)	3 (L)	5 (Z)				
Solid state auto switch		Grommet		3-wire (NPN)	24 V	5 V, 12 V	—	M9N	—	●	●	●	○	○	IC circuit	Relay, PLC	
				3-wire (PNP)				M9P	—	●	●	●	○	○			
		2-wire		M9B				—	●	●	●	○	○				
		Terminal conduit		3-wire (NPN)	24 V	5 V, 12 V	—	—	G39	—	—	—	—	—			
	2-wire			—				K39	—	—	—	—					
	Diagnostic indication (2-color indicator)	3-wire (NPN)		24 V				5 V, 12 V	—	M9NW	—	●	●		●		○
		3-wire (PNP)			M9PW	—	●			●	●	○	○				
		2-wire			M9BW	—	●			●	●	○	○				
		Water resistant (2-color indicator)	Grommet	3-wire (NPN)	24 V	5 V, 12 V	—	M9NA ^{*1}	—	○	○	●	○	○	IC circuit		
	3-wire (PNP)			M9PA ^{*1}				—	○	○	●	○	○				
With diagnostic output (2-color indicator)		2-wire	24 V	12 V				—	M9BA ^{*1}	—	○	○	●	○		○	—
		4-wire (NPN)			F59F	—	●		●	●	○	○					
Magnetic field resistant (2-color indicator)		2-wire (Non-polar)			24 V	—	—		P3DWA	—	●	●	●	○	○	IC circuit	
		—	P4DW	—				—	—	—	○	—					
Reed auto switch		Grommet	Yes	3-wire (NPN equivalent)				24 V	12 V	—	A96	—	●	●	●		—
				—	100 V	A93	—				●	●	●	—	—		
				—	100 V or less	A90	—				●	●	●	—	—		
				—	100 V, 200 V	A54	—				●	●	●	—	—		
		Terminal conduit		—	200 V or less	A64	—				●	●	●	—	—	—	
				—	—	A33	—				—	—	—	—	—		
		DIN terminal		Yes	—	100 V, 200 V	A34				—	—	—	—	—	PLC	
					—	—	A44				—	—	—	—	—		Relay, PLC
		Diagnostic indication (2-color indicator)	Grommet	—	—	A59W	—				●	●	●	—	—		

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

A water resistant type cylinder is recommended for use in an environment which requires water resistance.

* Lead wire length symbols: 0.5 m.....Nil (Example) M9NW 3 m.....L (Example) M9NWL
1 m.....M (Example) M9NWM 5 m.....Z (Example) M9NwZ

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

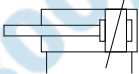
* Since there are other applicable auto switches than listed above, refer to page 432 for details.

* The D-A9□/M9□/P3DWA□ auto switches are shipped together, (but not assembled). (However, auto switch mounting brackets are assembled for the D-A9□/M9□ before shipment.)

Air Cylinder: Standard Type Double Acting, Single Rod **MB Series**



Symbol
Double acting



Made to Order: Individual Specifications
(For details, refer to page 433.)

Symbol	Specifications
-X1184	Cylinder with heat resistant reed auto switch (-10 to 120°C)

Made to Order
(For details, refer to pages 1703 to 1896.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB5	Oversized rod cylinder*1 *2 *3
-XB6	Heat resistant cylinder (-10 to 150°C)
-XC3	Special port location*3
-XC4	With heavy duty scraper
-XC5	Heat resistant cylinder (-10 to 110°C)
-XC6	Made of stainless steel*3 *4
-XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel
-XC8	Adjustable stroke cylinder/Adjustable extension type
-XC9	Adjustable stroke cylinder/Adjustable retraction type
-XC10	Dual stroke cylinder/Double rod type
-XC11	Dual stroke cylinder/Single rod type
-XC12	Tandem cylinder
-XC14	Change of trunnion bracket mounting position
-XC22	Fluororubber seal
-XC26	With split pins for double clevis pin/double knuckle joint pin and flat washers*4
-XC27	Double clevis and double knuckle joint pins made of stainless steel
-XC29	Double knuckle joint with spring pin
-XC30	Rod trunnion
-XC35	With coil scraper
-XC65	Made of stainless steel (Combination of XC7 and XC68)*2
-XC68	Made of stainless steel (with hard chrome plated piston rod)*2
-XC88	Spatter resistant coil scraper, Lubricator, Grease for welding (Piston rod: Stainless steel 304)
-XC89	Spatter resistant coil scraper, Lubricator, Grease for welding (Piston rod: S45C)
-XC91	Spatter resistant coil scraper, Grease for welding (Piston rod: S45C)

*1 Air cushion only

*2 Except ø125

*3 The cover shape is the same as the current product.

*4 ø125 only

For special port location (-XC3), the mounting bracket and port location can be determined using the standard product corresponding to the operating conditions. Also, this is only applicable to -XC3BB, -XC3CC and -XC3DD with trunnion bracket.

For parts made of stainless steel (-XC6), use the same specification stainless steel with the surface treatment (with hard chrome plated piston rod) (-XC68).

Specifications

Bore size [mm]	32	40	50	63	80	100	125
Action	Double acting, Single rod						
Fluid	Air						
Proof pressure	1.5 MPa						
Maximum operating pressure	1.0 MPa						
Minimum operating pressure	0.05 MPa						
Ambient and fluid temperature	Without auto switch: -10 to 70°C With auto switch: -10 to 60°C (No freezing)						
Lubricant	Not required (Non-lube)						
Piston speed	50 to 1000 mm/s						
Stroke length tolerance	Up to 250: $^{+1.0}_0$, 251 to 1000: $^{+1.4}_0$, 1001 to 1500: $^{+1.8}_0$, 1501 to 2000: $^{+2.2}_0$						
Cushion	Air cushion or Rubber bumper						
Port size (Rc)	1/8	1/4	3/8		1/2		
Mounting	Basic, Axial foot, Rod flange, Head flange Single clevis, Double clevis, Center trunnion						

Standard Strokes

Bore size	Standard stroke	Max. manufacturable stroke
	Stroke range ①	Stroke range ②
32	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500	Up to 1000
40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500	Up to 1800
50	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600	
63	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600	
80	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800	
100	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800	Up to 2700
125	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800, 900, 1000	

Note 1) Manufacture of intermediate strokes is possible. (Spacers are not used.)

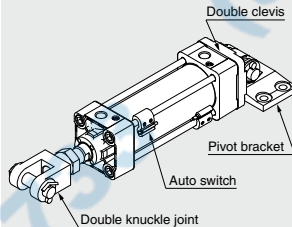
Note 2) Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on front matter pages. In addition, the products that exceed the stroke range ① might not be able to fulfill the specifications due to the deflection etc.

Note 3) Please consult with SMC for manufacturability and the part numbers when exceeding the stroke range ②.

Note 4) The stroke range with rod boot is up to 1000 mm. Please consult with SMC when exceeding 1000 mm strokes.

Ordering Example of Cylinder Assembly

Cylinder model: MDBD32-50Z-NW-M9BW



Mounting D: Double clevis
Pivot bracket N: Yes
Rod end bracket W: Double knuckle joint
Auto switch D-M9BW: 2 pcs.

* Pivot bracket, double knuckle joint and auto switch are shipped together with the product, but not assembled.

Refer to pages 425 to 432 for cylinders with auto switches.

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