

Air Cylinder: Single Rod

Series MB

ø32, ø40, ø50, ø63, ø80, ø100, ø125

How to Order

MB L 32 - 50 -

With auto switch **MDB L 32 - 50 - M9BW -**

With auto switch
(Built-in magnet)

Mounting

B	Basic/Without bracket
L	Axial foot
F	Rod side flange
G	Head side 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

Port thread type

Nil	Rc
TN	NPT
TF	G

Cylinder stroke (mm)
Refer to page 291 for standard strokes.

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
S	1
3	3
n	n

Made to Order
For details, refer to page 291.

Rod boot/Cushion

Rod boot	Nil	None
	J	Nylon tarpaulin
	K	Heat resistant tarpaulin
Cushion	Nil	Both ends
	N*	None

* Model without air cushion is designed to include rubber bumpers. The overall length is longer than the cylinder with air cushions because the bumpers are attached to the both sides of the piston as follows.
ø32, ø40: +6 mm, ø50, ø63: +8 mm, ø80, ø100: +10 mm, ø125: +12 mm

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) MDBB40-100

Applicable Auto Switch/Refer to pages 1263 to 1371 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 switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9N	—	●	●	●	○	○	IC circuit	Relay, PLC		
				3-wire (PNP)				M9P	—	●	●	●	○	○				
		Terminal conduit		2-wire	—	—		100 V, 200 V	J51	—	●	—	●	○			—	—
				3-wire (NPN)	24 V	5 V, 12 V		—	G39	—	—	—	—	—				
	2-wire	K39	—	—			—		—	—	—							
	Diagnostic indication (2-color indication)	Grommet	3-wire (NPN)	24 V	5 V, 12 V	—	M9NW	—	●	●	●	○	○	IC circuit				
			3-wire (PNP)				M9PW	—	●	●	●	○	○					
			2-wire				M9BW	—	●	●	●	○	○		—			
			3-wire (NPN)				M9NA	—	○	○	●	○	○					
	Water resistant (2-color indication)	Grommet	3-wire (PNP)	24 V	5 V, 12 V	—	M9PA	—	○	○	●	○	○	IC circuit				
			2-wire				M9BA	—	○	○	●	○	○					
			4-wire (NPN)				F59F	—	●	—	●	○	○		IC circuit			
			2-wire (Non-polar)				P4DW	—	—	—	●	●	○				—	
	Reed switch	—	Grommet	Yes	3-wire (Equiv. to NPN)	24 V	5 V	—	A96	—	●	—	●	—	—		IC circuit	Relay, PLC
No					100 V				A93	—	●	—	●	—	—	—		
					Yes		100 V or less		A90	—	●	—	●	—	—		IC circuit	
No					100 V, 200 V		A54		—	●	—	●	●	—	—			
Terminal conduit			No	200 V or less	A64		—		●	—	●	—	—	—				
				—	—		A33		—	—	—	—	—		—			
DIN terminal			Yes	100 V, 200 V	—		—		A34	—	—	—	—	—				
				—	—		A44		—	—	—	—	—		—			
Diagnostic indication (2-color indication)		Grommet	—	—	—	A59W	—	●	—	●	—	—	—	Relay, PLC				

* 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

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

* Besides the above models, there are some other auto switches that are applicable. For detailed information, please refer to page 327.

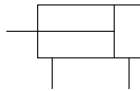
* Solid state auto switches are also available with a pre-wired connector. Refer to pages 1328 and 1329 for details.

* D-A9□/M9□/M9□W/M9□AL auto switches are shipped together (not assembled). (However, auto switch mounting brackets are assembled when being shipped.)

Air Cylinder: Single Rod *Series MB*



JIS Symbol
Double acting



Made to Order Specifications
(For details, refer to pages 1373 to 1498 and 1515.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB5	Oversized rod cylinder
-XB6	Heat resistant cylinder (150°C)
-XB13	Low speed cylinder (5 to 50 mm/s)
-XC3	Special port position
-XC4	With heavy duty scraper
-XC5	Heat resistant cylinder (110°C)
-XC6	Piston rod and rod end nut made of stainless steel
-XC7	Tie rod, cushion valve, tie rod nut, etc. made of stainless steel
-XC8	Adjustable stroke cylinder/Adjustable extend stroke
-XC9	Adjustable stroke cylinder/Adjustable retract stroke
-XC10	Dual stroke cylinder/Double rod
-XC11	Dual stroke cylinder/Single rod
-XC12	Tandem cylinder
-XC14	Change of trunnion bracket mounting position
-XC22	Fluororubber seals
-XC27	Double clevis pin and double knuckle pin made of stainless steel
-XC29	Double knuckle joint with spring pin
-XC30	Rod side trunnion
-XC35	With coil scraper
-XC59	Fluororubber seal, Built-in hard plastic magnet
-XC65	XC6 + XC7 specifications
-X1184	Cylinder with reed, heat-resistant switch

Refer to pages 322 and 327 for cylinders with auto switches.

- Minimum stroke for auto switch mounting
- Proper auto switch mounting position (detection at stroke end) and mounting height
- Operating range
- Switch mounting bracket: Part no.

Specifications

Bore size (mm)	32	40	50	63	80	100	125
Action	Double acting, Single rod						
Fluid	Air						
Proof pressure	1.5 MPa						
Max. operating pressure	1.0 MPa						
Min. operating pressure	0.05 MPa						
Ambient and fluid temperature	Without auto switch: −10 to 70°C (No freezing) With auto switch: −10 to 60°C (No freezing)						
Lubrication	Not required (Non-lube)						
Operating piston speed	50 to 1000 mm/s						50 to 700 mm/s
Allowable stroke tolerance	up to 250: $^{+1.0}_0$, 251 to 1000: $^{+1.4}_0$, 1001 to 1500: $^{+1.8}_0$						
Cushion ^{Note 1)}	Both ends (Air cushion)						
Port size (Rc, NPT, G)	1/8	1/4	3/8	1/2			
Mounting	Basic, Foot, Rod side flange, Head side flange, Single clevis, Double clevis, Center trunnion						

Note 1) When requesting a cylinder without air cushion, cylinder utilizes rubber bumpers which increases cylinders overall length.

Standard Stroke

Bore (mm)	Standard stroke (mm)	Max. stroke
32	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500	700
40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500	800
50	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600	1000
63	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600	1000
80	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800	1000
100	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800	1000
125	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800, 1000	1400

Intermediate strokes are available. (No spacer is used.)

Accessory

	Mounting	Basic	Foot	Rod side flange	Head side flange	Single clevis	Double clevis	Center trunnion
Standard	Rod end nut	●	●	●	●	●	●	●
	Clevis pin	—	—	—	—	—	●	—
Option	Single knuckle joint	●	●	●	●	●	●	●
	Double knuckle joint (with pin)	●	●	●	●	●	●	●
	Rod boot	●	●	●	●	●	●	●

Material of Rod Boot

Symbol	Material	Max. ambient temp.
J	Nylon tarpaulin	70°C
K	Heat resistant tarpaulin	110°C*

* Max. ambient temperature for rod boot itself.

Mounting Bracket Part No.

Bore size (mm)	32	40	50	63	80	100	125
Foot <small>Note 1)</small>	MB-L03	MB-L04	MB-L05	MB-L06	MB-L08	MB-L10	MB-L12
Flange	MB-F03	MB-F04	MB-F05	MB-F06	MB-F08	MB-F10	MB-F12
Single clevis	MB-C03	MB-C04	MB-C05	MB-C06	MB-C08	MB-C10	MB-C12
Double clevis	MB-D03	MB-D04	MB-D05	MB-D06	MB-D08	MB-D10	MB-D12

Note 1) Two foot brackets required for one cylinder.

Note 2) Accessories for each mounting bracket are as follows:

Foot, flange, single clevis/body mounting bolt, double clevis/body mounting bolt, clevis pins, flat washer and cotter pins. → Refer to page 298 for details.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

CS2

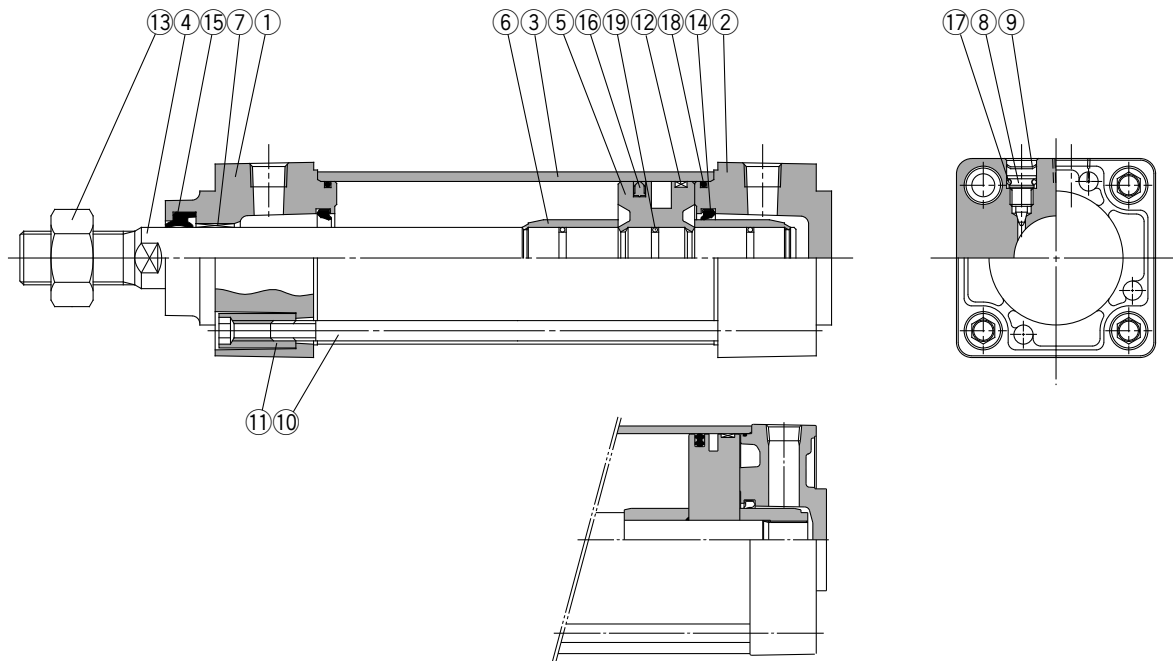
D-□

-X□

Individual
-X□

Technical
data

Construction



MB125

Component Parts

No.	Description	Material	Note
①	Rod cover	Aluminum die-cast	Metallic painted
②	Head cover	Aluminum die-cast	Metallic painted
③	Cylinder tube	Aluminum alloy	Hard anodized
④	Piston rod	Carbon steel	Hard chrome plated
⑤	Piston	Aluminum alloy	Chromated
⑥	Cushion ring	Brass	
⑦	Bushing	Lead bronze cast	
⑧	Cushion ring	Steel wire	Nickel plated
⑨	Retaining ring	Steel for spring	ø40 to ø100
⑩	Tie rod	Carbon steel	Zinc chromated
⑪	Tie rod nut	Carbon steel	Nickel plated
⑫	Wear ring	Resin	
⑬	Rod end nut	Carbon steel	Nickel plated

Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
32	MB32-PS	Set of the No. ⑭, ⑮, ⑯ and ⑰
40	MB40-PS	
50	MB50-PS	
63	MB63-PS	
80	MB80-PS	
100	MB100-PS	
125	MB125-PS	

* Seal kits consist of items ⑭, ⑮, ⑯ and ⑰, and can be ordered by using the seal kit number corresponding to each bore size.

* Trunnion type should not be disassembled. (Refer to page 328.)

* Seal kit includes a grease pack (ø32 to 50: 10 g, ø63, 80: 20 g, ø100, 125: 30 g).

Order with the following part number when only the grease pack is needed.

Grease pack part number: GR-S-010 (10 g), GR-S-020 (20 g)

Water Resistant Air Cylinder

Water resistant air cylinders are also available in Series MB, which are suitable for use on machine tools, where exposure to coolant is possible and applicable for food machinery and automobile washing equipment in an environment where water splashes. Please refer to page 899 for more information.

No.	Description	Material	Note
⑭ *	Cushion seal	Urethane	
⑮ *	Rod seal	NBR	
⑯ *	Piston seal	NBR	
⑰	Cushion valve seal	NBR	
⑱ *	Cylinder tube gasket	NBR	
⑲	Piston gasket	NBR	

Copper/Fluorine-free

20 – MB Mounting bracket Bore size Port thread type – Stroke Suffix

↓ Copper/Fluorine-free

Copper material has been replaced with non-copper material to prevent generation of copper ions. This is to eliminate influence of copper ions and fluororesin upon color CRT.

Specifications

Action	Double acting single rod
Bore size	ø32, ø40, ø50, ø63, ø80, ø100
Max. operating pressure	1.0 MPa
Min. operating pressure	0.05 MPa
Cushion	Air cushion *
Piping	Screw-in piping
Operating piston speed	50 to 1000 mm/s
Mounting bracket	Basic, Axial foot, Rod side flange, Head side flange, Single clevis, Double clevis, Center trunnion

* Auto switch capable.

★ The cylinder should be operated within its allowable kinetic energy. (Refer to page 292.)

* In case of types with no air cushion, a rubber bumper is used.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

CS2

D-□

-X□

Individual

-X□

Technical data