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

∗ For applicable auto switches, refer to tha table below.

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

Number of auto switches

Nil	2
S	1
3	3
n	n

Made to Order
For details, refer to page 291.

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.

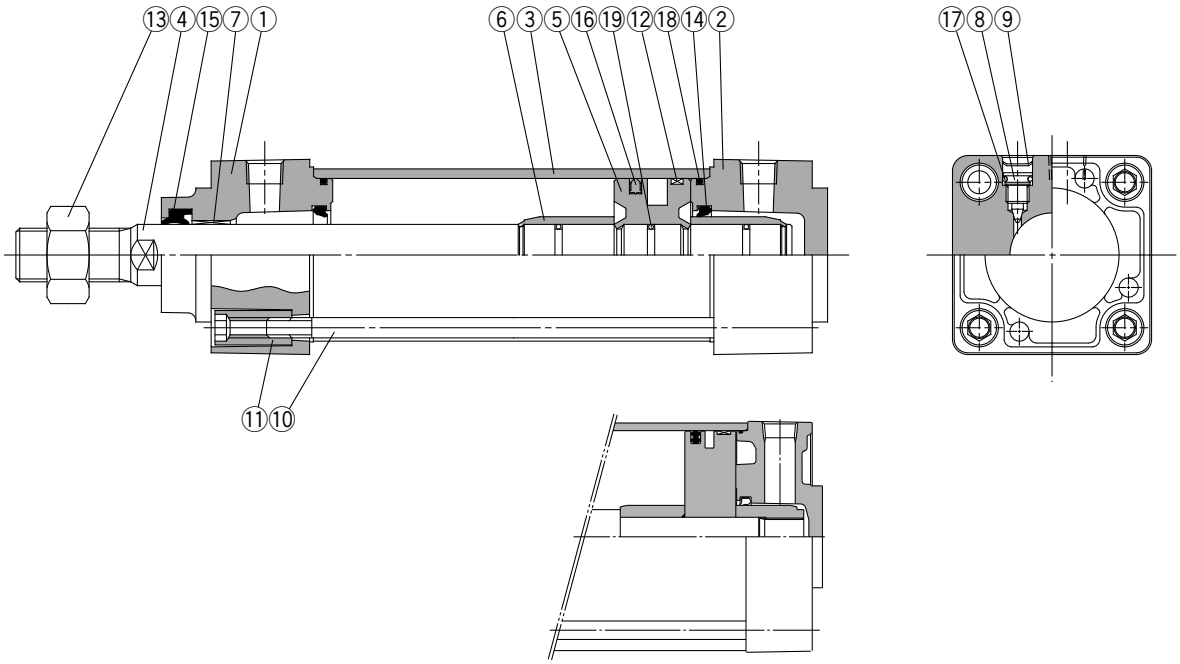
Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Load voltage AC	Auto switch model: Tie-rod mounting	Auto switch model: Band mounting	Lead wire length (m): 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**M9N**	—	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				**M9P**	—	●	●	●	○	○		
				2-wire		12 V		**M9B**	—	●	●	●	○	○		
					—	—	100 V, 200 V	**J51**	—	●	—	●	○	—	—	
		Terminal conduit		3-wire (NPN)	24 V	5 V, 12 V	—	—	**G39**	—	—	—	—	—	—	
				2-wire		12 V		—	**K39**	—	—	—	—	—	—	
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)		5 V, 12 V		**M9NW**	—	●	●	●	○	○	IC circuit	
				3-wire (PNP)				**M9PW**	—	●	●	●	○	○		
				2-wire		12V		**M9BW**	—	●	●	●	○	○	—	
	Water resistant (2-color indication)			3-wire (NPN)		5 V, 12 V		**M9NA**	—	○	○	●	○	○	IC circuit	
				3-wire (PNP)				**M9PA**	—	○	○	●	○	○		
				2-wire		12 V		**M9BA**	—	○	○	●	○	○	—	
	Diagnostic output (2-color indication)			4-wire (NPN)		5 V, 12 V		**F59F**	—	●	—	●	○	○	IC circuit	
	Magnetic field resistant (2-color indication)			2-wire (Non-polar)		—		**P4DW**	—	—	—	●	●	○	—	
Reed switch	—	Grommet	Yes	3-wire (Equiv. to NPN)	—	5 V	—	**A96**	—	●	—	●	—	—	IC circuit	—
			No	2-wire	24 V	12 V	100 V	**A93**	—	●	—	●	—	—	—	Relay, PLC
							100 V or less	**A90**	—	●	—	●	—	—	IC circuit	
			Yes				100 V, 200 V	**A54**	—	●	—	●	●	—	—	
			No				200 V or less	**A64**	—	●	—	●	—	—		
		Terminal conduit	Yes				—	—	**A33**	—	—	—	—	—	—	
							100 V, 200 V	—	**A34**	—	—	—	—	—	—	PLC
		DIN terminal						—	**A44**	—	—	—	—	—	—	Relay, PLC
	Diagnostic indication (2-color indication)	Grommet				—	—	**A59W**	—	●	—	●	—	—		

∗ 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

∗ 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.)

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
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	

Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
32	MB32-PS	Set of the No. ⑭, ⑮, ⑯ and ⑱
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 ⑱, 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.

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.

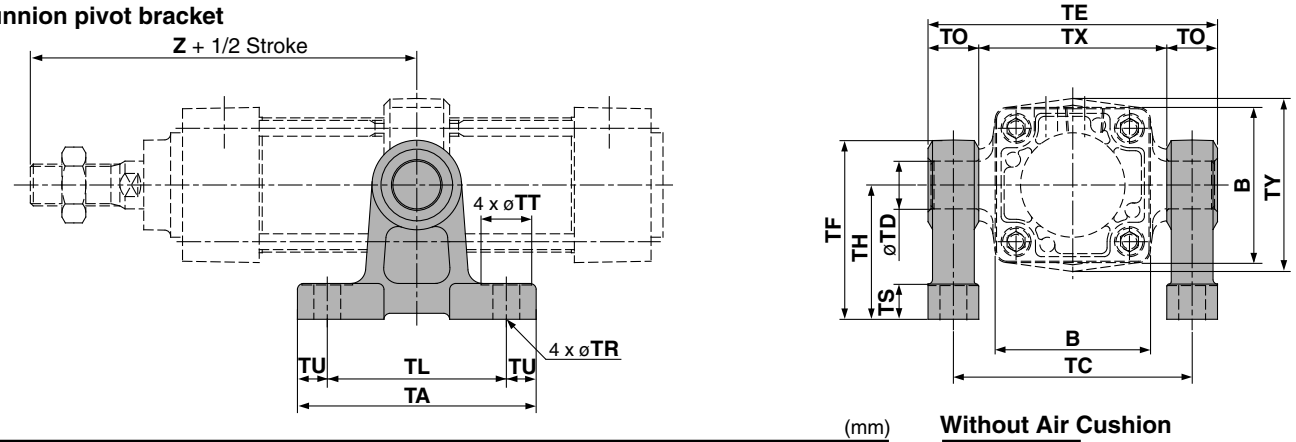
Trunnion/Double Clevis Pivot Bracket

Part No.

Description \ Cylinder model	MB□32	MB□40	MB□50	MB□63	MB□80	MB□100	MB□125
Trunnion pivot bracket Note 1)	MB-S03	MB-S04		MB-S06		MB-S10	MB-S12
Double clevis pivot bracket	MB-B03		MB-B05		MB-B08		MB-B12

Note 1) When ordering a trunnion pivot bracket, order 2 pcs. for 1 cylinder.

Trunnion pivot bracket



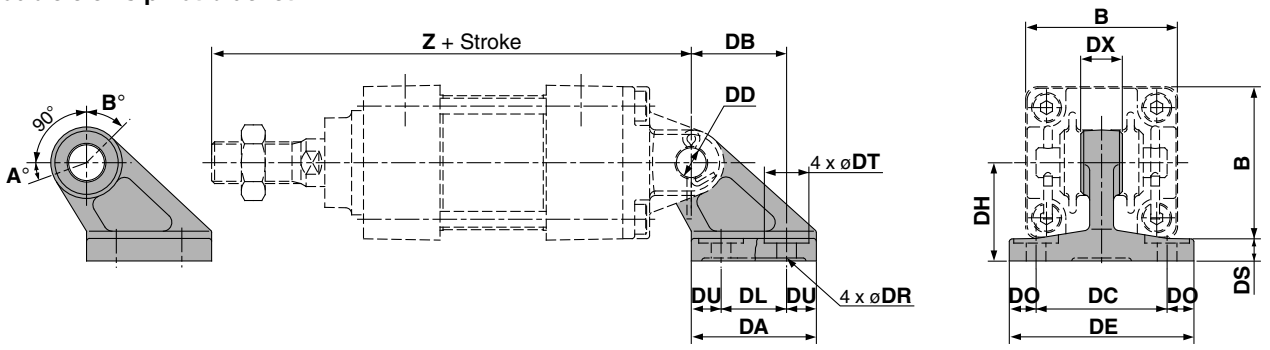
(mm)

Part no.	Bore size (mm)	B	TA	TL	TU	TC	TX	TE	TO	TR	TT	TS	TH	TF	Z**	TD H10
MB-S03	32	46	62	45	8.5	62	50	74	12	7	13	10	35	47	89	$12^{+0.070}_{0}$
MB-S04	40	52	80	60	10	80	63	97	17	9	17	12	45	60	93	$16^{+0.070}_{0}$
	50	65	80	60	10	92	75	109	17	9	17	12	45	60	105	$16^{+0.070}_{0}$
MB-S06	63	75	100	70	15	110	90	130	20	11	22	14	60	80	105	$20^{+0.084}_{0}$
	80	95	100	70	15	130	110	150	20	11	22	14	60	80	129	$20^{+0.084}_{0}$
MB-S10	100	114	120	90	15	158	132	184	26	13.5	24	17	75	100	129	$25^{+0.084}_{0}$
MB-S12	125	136	142	105	18.5	186	160	212	26	13.5	24	25	85	115	157	$25^{+0.084}_{0}$

Without Air Cushion

Bore size (mm)	Z
32	92
40	96
50	109
63	109
80	134
100	134
125	163

Double clevis pivot bracket



(mm)

Part no.	Bore size (mm)	B	DA	DB	DL	DU	DC	DX	DE	DO	DR	DT	DS	DH	Z*	DD H10
MB-B03	32	46	42	32	22	10	44	14	62	9	6.6	15	7	33	154	$10^{+0.058}_{0}$
	40	52	42	32	22	10	44	14	62	9	6.6	15	7	33	158	$10^{+0.058}_{0}$
MB-B05	50	65	53	43	30	11.5	60	20	81	10.5	9	18	8	45	182	$14^{+0.070}_{0}$
	63	75	53	43	30	11.5	60	20	81	10.5	9	18	8	45	182	$14^{+0.070}_{0}$
MB-B08	80	95	73	64	45	14	86	30	111	12.5	11	22	10	65	228	$22^{+0.084}_{0}$
	100	114	73	64	45	14	86	30	111	12.5	11	22	10	65	228	$22^{+0.084}_{0}$
MB-B12	125	136	90	78	60	15	110	32	136	13	13.5	24	14	75	267	$25^{+0.084}_{0}$

Without Air Cushion

Bore size (mm)	Z
32	160
40	164
50	190
63	190
80	238
100	238
125	279

Rotating Angle

Bore size (mm)	A°	B°	A° + B° + 90°
32, 40	25°	45°	160°
50, 63	40°	60°	190°
80, 100	30°	55°	175°
125	30°	50°	170°

** **Trunnion pivot bracket**
Model without air cushion is designed to include rubber bumpers. The overall length is longer than the cylinder with air cushion as follows because the bumpers are attached to the both sides of the piston; ø32, ø40: +3 mm, ø50, ø63: +4 mm, ø80, ø100: +5 mm, ø125: +6 mm

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