

# Air Cylinder: Non-rotating Rod Type

## Series MBK

ø32, ø40, ø50, ø63, ø80, ø100

### How to Order

**MBK L 32 - 50 -**

**With auto switch** **MDBK 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

**Port thread type**

Nil	Rc
TN	NPT
TF	G

**Cylinder stroke (mm)**  
Refer to page 306 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 306.

**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

**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	M9B	—	●	●	●	○	○	—				
				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	12V	M9BW	—	●	●	●	○	○	—							
			3-wire (NPN)	5 V, 12 V	M9NA	—	○	○	●	○	○		IC circuit						
	3-wire (PNP)	M9PA	—		○	○	●	○	○										
	Water resistant (2-color indication)	Grommet	2-wire	12 V	M9BA	—	○	○	●	○	○	○	—						
			4-wire (NPN)	5 V, 12 V	F59F	—	●	—	●	○	○	○	IC circuit						
	Diagnostic output (2-color indication)	Grommet	Yes	2-wire (Non-polar)	—	—	P4DW	—	—	—	●	●	○	—					
	Magnetic field resistant (2-color indication)																		
Reed switch	—	Grommet	Yes	3-wire (Equiv. to NPN)	24 V	5 V	—	A96	—	●	—	●	—	—	IC circuit	—			
				2-wire				12 V	100 V	A93	—	●	—	●	—		—	—	
									100 V or less	A90	—	●	—	●	—		—	—	IC circuit
									100 V, 200 V	A54	—	●	—	●	●		—	—	
		200 V or less	A64		—	●	—		●	—	—	—	—						
		—	—	A33	—	—	—	—	—	—	PLC								
		—	—	A34	—	—	—	—	—	Relay, PLC									
		100 V, 200 V	—	A44	—	—	—	—	—										
	Diagnostic indication (2-color indication)	Grommet	Yes	—	—	—	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.)

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

CS2

D-□

-X□

Individual

-X□

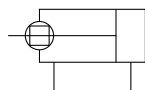
Technical

data

# Series MBK



**JIS Symbol**  
Double acting



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

Symbol	Specifications
-XA□	Change of rod end shape
-XC3	Special port position
-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
-XC14	Change of trunnion bracket mounting position
-XC27	Double clevis pin and double knuckle pin made of stainless steel
-XC30	Rod side trunnion

## Standard Stroke

Bore size (mm)	Standard stroke (mm)
32	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500
40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500
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

Intermediate strokes are available.  
(No spacer is used)

## Specifications

Bore size (mm)	32	40	50	63	80	100
<b>Action</b>	Double acting, Single rod					
<b>Fluid</b>	Air					
<b>Proof pressure</b>	1.5 MPa					
<b>Max. operating pressure</b>	1.0 MPa					
<b>Min. operating pressure</b>	0.05 MPa					
<b>Ambient and fluid temperature</b>	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)					
<b>Lubrication</b>	Not required (Non-lube)					
<b>Operating piston speed</b>	50 to 1000 mm/s					
<b>Allowable stroke tolerance</b>	up to 250: $^{+1.0}_0$ , 251 to 1000: $^{+1.4}_0$ , 1001 to 1500: $^{+1.8}_0$					
<b>Cushion</b> <small>Note 1)</small>	Both ends (Air cushion)					
<b>Port size (Rc, NPT, G)</b>	1/8	1/4	3/8	1/2		
<b>Mounting</b>	Basic, Foot, Rod side flange, Head side flange, Single clevis, Double clevis, Center trunnion					
<b>Non-rotating accuracy</b>	±0.5°		±0.5°		±0.3°	
<b>Allowable rotating torque N·m max.</b>	0.25	0.45	0.64	0.79	0.93	

Note 1) Absorbable kinetic energy by cushion mechanism is identical to double acting single rod. When requesting a cylinder without air cushion, cylinder utilizes rubber bumpers which increases cylinders overall length.

## 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	●	●	●	●	●	●	●

## Mass/Aluminum Tube

Bore size (mm)		32	40	50	63	80	100
Basic mass	Basic	0.50	0.66	1.21	1.51	2.58	3.73
	Foot	0.62	0.83	1.41	1.75	3.23	4.36
	Flange	0.79	1.03	1.64	2.30	4.03	7.04
	Single clevis	0.75	0.89	1.55	2.14	3.69	6.90
	Double clevis	0.76	0.93	1.64	2.30	3.98	7.42
	Trunnion	0.79	1.02	1.69	2.31	4.13	7.40
Add'l mass per each 50 mm stroke	All mounting bracket	0.11	0.15	0.26	0.27	0.40	0.52
Accessory	Single knuckle	0.15	0.23	0.26	0.26	0.60	0.83
	Double knuckle (with pin)	0.22	0.37	0.43	0.43	0.87	1.27

Calculation example: **MBKB32-100** (Basic, ø32, 100 st)

- Basic mass ..... 0.50 (Basic ø32)
- Additional mass ..... 0.11/50 stroke
- Cylinder stroke ..... 100 stroke

$$0.50 + 0.11 \times 100/50 = 0.72 \text{ kg}$$

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.