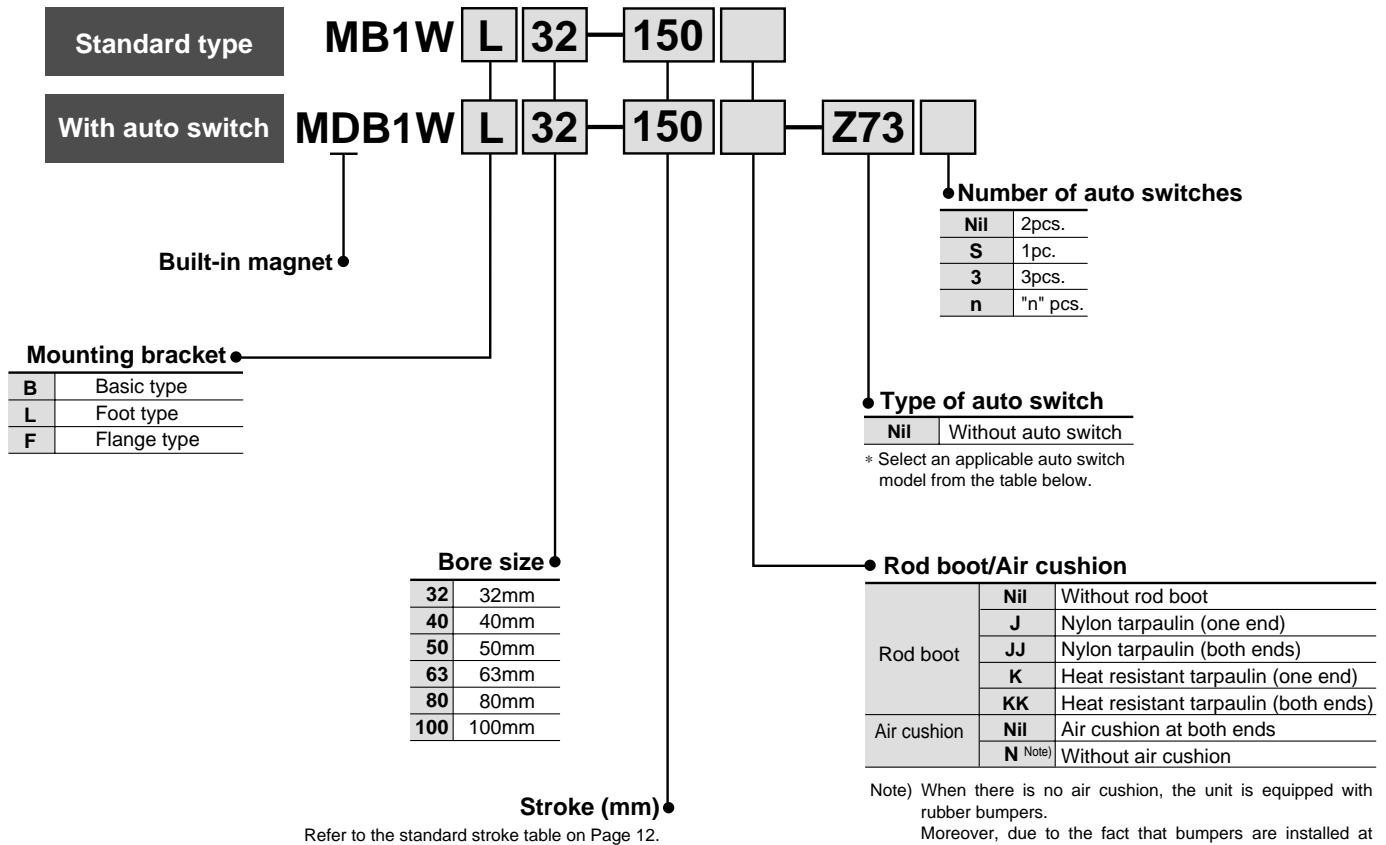


Square Tube Type Air Cylinder/Standard (Double Acting: Double Rod)

Series MB1W

ø32, ø40, ø50, ø63, ø80, ø100

How to Order



Note) When there is no air cushion, the unit is equipped with rubber bumpers. Moreover, due to the fact that bumpers are installed at each end of the piston, overall length is increased by 6mm for ø32 and ø40, 8mm for ø50 and ø63, and by 10mm for ø80 and ø100.

Applicable auto switches/direct mounting type

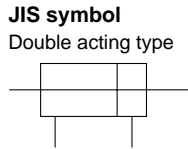
Type	Special function	Electrical entry	Indicator light	Wiring (output)	Load voltage		Auto switch model		Lead wire length (m) ^{Note)}			Applicable load		
					DC	AC	Electrical entry direction		0.5 (Nil)	3 (L)	5 (Z)			
							Vertical	Lateral						
Reed switch	—	Grommet	Yes	3 wire	—	5V	—	—	Z76	●	●	—	IC circuit	—
				2 wire	24V	—	100V	—	Z73	●	●	●	—	Relay PLC
			No	—	5V, 12V	100V or less	—	Z80	●	●	—	IC circuit	—	
Solid state switch	—	Grommet	Yes	3 wire (NPN)	24V	5V, 12V	—	Y69A	Y59A	●	●	○	IC circuit	Relay PLC
				3 wire (PNP)				Y7PV	Y7P	●	●	○		
				2 wire				Y69B	Y59B	●	●	○	—	
				3 wire (NPN)				Y7NWV	Y7NW	●	●	○	IC circuit	
				3 wire (PNP)				Y7PWV	Y7PW	●	●	○	—	
				2 wire				Y7BWV	Y7BW	●	●	○	—	
Water resistant (2 color indicator)	—	12V	—	Y7BA	—	●	—	—	—					

Note) Lead wire length symbol 0.5m Nil (Example) Y69B
3m L (Example) Y69BL
5m Z (Example) Y69BZ

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

Standard Type Series MB1W

Double Acting: *Double Rod*



Specifications

1MPa: Approx. 10.2kgf/cm²

Bore size (mm)	32	40	50	63	80	100
Type	Non-lube type air cylinder					
Action	Double acting double rod					
Fluid	Air					
Proof pressure	1.5MPa {15.3kgf/cm ² }					
Maximum operating pressure	1.0MPa {10.2kgf/cm ² }					
Minimum operating pressure	0.05MPa {0.5kgf/cm ² }					
Ambient and fluid temperature	Without auto switch -10 to 70°C (without freezing)					
	With auto switch -10 to 60°C (without freezing)					
Lubrication	Not required (non-lube)					
Piston speed	50 to 1000mm/s					
Stroke length tolerance	to 250 : $^{+1.0}_0$, 251 to 1000 : $^{+1.4}_0$					
Cushion ^{Note)}	Both ends (air cushion) ^{Note)}					
Thread tolerance	JIS class 2					
Port size	Rc(PT)1/8	Rc(PT)1/4	Rc(PT)1/4	Rc(PT)3/8	Rc(PT)3/8	Rc(PT)1/2
Mounting bracket	Basic type, Foot type, Flange type					

Standard stroke table

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

Note) When there is no air cushion, the unit is equipped with rubber bumpers. (Refer to Rod boot/Air cushion on page 11.)

The kinetic energy which can be absorbed by the cushion mechanism is the same as the double acting single rod type.

Accessories

Mounting bracket		Basic type	Foot type	Flange type
Standard equipment	Rod end nut	●	●	●
Options	Single knuckle joint	●	●	●
	Double knuckle joint (with pin)	●	●	●
	Rod boot	●	●	●

Intermediate strokes are also available.

Minimum strokes for auto switch mounting

Refer to page 9 regarding the minimum strokes for the mounting of auto switches.

Rod boot material

Symbol	Rod boot material	Max. ambient temp.
J	Nylon tarpaulin	60°C
K	Heat resistant tarpaulin	110°C ^{Note)}

Note) Maximum ambient temperature for the rod boot itself.

Switch spacers

Applicable bore size (mm)	32, 40	50, 63	80, 100
Switch spacer	BMP1-032		

Mounting brackets/Part nos.

Bore size (mm)	32	40	50
Foot	MB-L03	MB-L04	MB-L05
Flange	MB-F03	MB-F04	MB-F05

Bore size (mm)	63	80	100
Foot	MB-L06	MB-L08	MB-L10
Flange	MB-F06	MB-F08	MB-F10

Note) When ordering foot type brackets, 2pcs. should be arranged for each cylinder.

Theoretical output table

(Unit: N) OUT ← → IN

Bore size (mm)	Rod diameter (mm)	Operating direction	Piston area (mm ²)	Operating pressure (MPa)									
				0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
32	12	IN-OUT	691	138	207	276	346	415	484	553	622	691	
40	16	IN-OUT	1056	211	317	422	528	634	739	845	950	1056	
50	20	IN-OUT	1649	330	495	660	825	989	1154	1319	1484	1649	
63	20	IN-OUT	2803	561	841	1121	1402	1682	1962	2242	2523	2803	
80	25	IN-OUT	4536	907	1361	1814	2268	2722	3175	3629	4082	4536	
100	30	IN-OUT	7147	1429	2144	2859	3574	4288	5003	5718	6432	7147	

1N: approx. 0.102kgf 1MPa: approx. 10.2kgf/cm²

Note) Theoretical output (N) = Pressure (MPa) x Piston area (mm²).

Weight table

(kg)

Bore size (mm)		32	40	50	63	80	100
Basic weight	Basic type	0.59	0.82	1.39	1.72	3.22	4.27
	Foot type	0.71	0.96	1.61	2.0	3.72	4.93
	Flange type	0.88	1.19	1.84	2.51	4.67	7.58
Additional weight per 50mm stroke	All mounting brackets	0.20	0.29	0.41	0.45	0.75	1.0
	Accessories						
	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

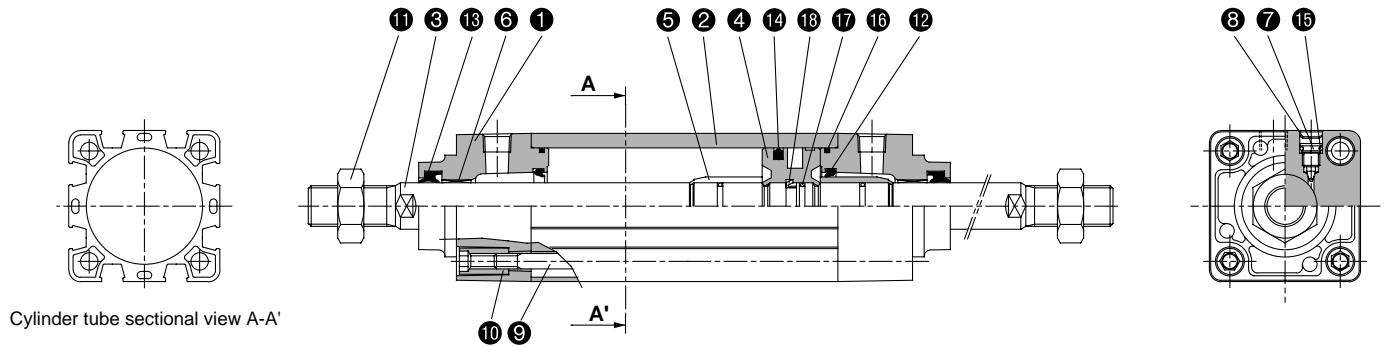
Calculation method

Example) **MB1B32-100** (basic type/ø32,100st)

- Basic weight 0.59kg
 - Additional weight 0.20/50mm stroke
 - Cylinder stroke100mm stroke
- 0.59 + 0.20 x 100/50 = 0.99kg

Series MB1W

Construction



Cylinder tube sectional view A-A'

Parts list

No.	Description	Material	Note
①	Rod cover	Die-cast aluminum	Metallic coated
②	Cylinder tube	Aluminum alloy	Hard anodized
③	Piston rod	Carbon steel	Hard chrome plated
④	Piston	Aluminum alloy	Chromated
⑤	Cushion ring	Brass	
⑥	Bushing	Lead-bronze casting	
⑦	Cushion valve	Steel wire	Nickel plated
⑧	Snap ring	Spring steel	ø40 to ø100
⑨	Tie-rod	Carbon steel	Chromated
⑩	Tie-rod nut	Carbon steel	Nickel plated
⑪	Rod end nut	Carbon steel	Nickel plated

No.	Description	Material	Note
*⑫	Cushion seal	Urethane	
*⑬	Rod seal	NBR	
*⑭	Piston seal	NBR	
⑮	Cushion valve seal	NBR	
*⑯	Cylinder tube gasket	NBR	
⑰	Piston gasket	NBR	
⑱	Piston holder	Urethane	

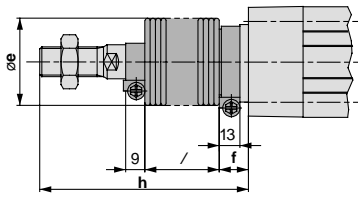
Replaceable parts: Seal kits

Bore size (mm)	Order No.	Contents
32	MBW32-PS	Kits include items 12 (2pcs.), 13, 14 & 16 from the table above.
40	MBW40-PS	
50	MBW50-PS	
63	MBW63-PS	
80	MBW80-PS	
100	MBW100-PS	

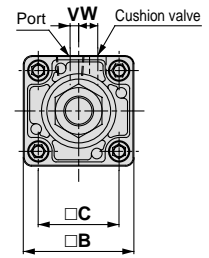
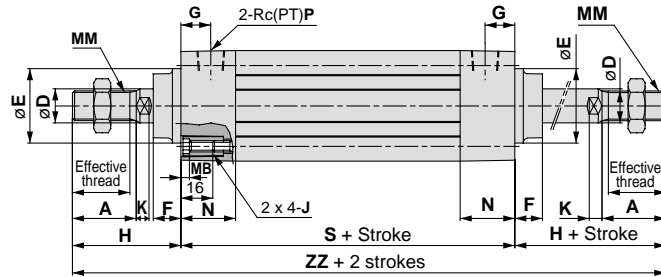
* Seal kits consist of items 12, 13, 14 and 16 contained in one kit, and can be ordered using the order number for each respective tube bore size.

Standard Type

Basic type(B)

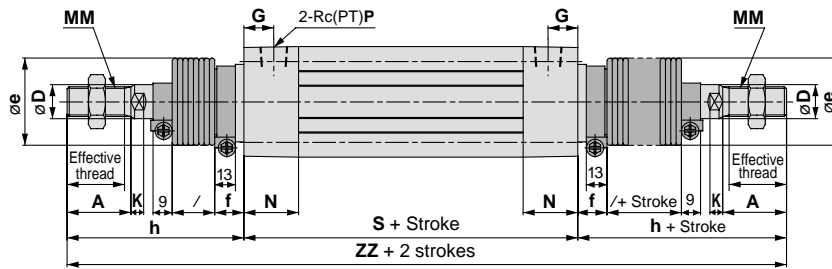


With rod boot



* When there is no air cushion, the unit is equipped with rubber bumpers. Moreover, due to the fact that bumpers are installed at each end of the piston, overall length is increased by 6mm for ø32 and ø40, 8mm for ø50 and ø63, and by 10mm for ø80 and ø100.

** When there is no air cushion, the unit is equipped with rubber bumpers. Moreover, due to the fact that bumpers are installed at each end of the piston, the Z dimension is increased by 3mm for ø32 and ø40, 4mm for ø50 and ø63, and by 5mm for ø80 and ø100 (with trunnion and trunnion bracket).



Without air cushion

Bore size (mm)	Stroke range	Effective thread length	Width across flats	A	□B	□C	D	Ee11	F	G	H	MB	J	K	MM	N	P	*S	V	W	*ZZ	S	ZZ
32	to 500	19.5	10	22	46	32.5	12	30	13	13	47	4	M6 x 1.0	6	M10 x 1.25	26.5	1/8	84	4	6.5	178	90	184
40	to 500	27	14	30	52	38	16	35	13	14	51	4	M6 x 1.0	6	M14 x 1.5	26.5	1/4	84	4	9	186	90	192
50	to 600	32	18	35	65	46.5	20	40	14	15.5	58	5	M8 x 1.25	7	M18 x 1.5	31	1/4	94	5	10.5	210	102	218
63	to 600	32	18	35	75	56.5	20	45	14	16.5	58	5	M8 x 1.25	7	M18 x 1.5	31	3/8	94	9	12	210	102	218
80	to 800	37	22	40	95	72	25	45	20	19	72	5	M10 x 1.5	10	M22 x 1.5	37.5	3/8	114	11.5	14	258	124	268
100	to 800	37	26	40	114	89	30	55	20	19	72	5	M10 x 1.5	10	M26 x 1.5	37.5	1/2	114	17	15	258	124	268

With rod boot

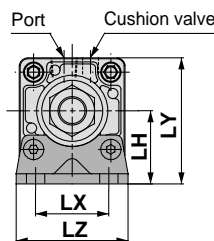
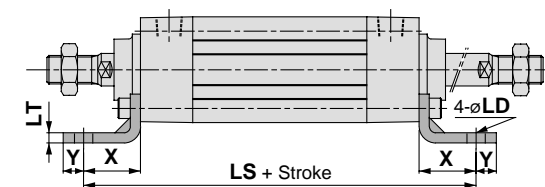
Note) ZZ indicates the dimension for the double rod boot type.

Bore size (mm)	e	f	h																ZZ Note)													
			1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	501 to 600	601 to 700	701 to 800	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	501 to 600	601 to 700	701 to 800										
32	36	23	12.5	25	37.5	50	75	100	125	-	-	-	73	86	98	111	136	161	186	-	-	-	230	256	280	306	356	406	456	-	-	-
40	41	23	12.5	25	37.5	50	75	100	125	-	-	-	81	94	106	119	144	169	194	-	-	-	246	272	296	322	372	422	472	-	-	-
50	51	25	12.5	25	37.5	50	75	100	125	150	-	-	89	102	114	127	152	177	202	227	-	-	272	298	322	348	398	448	498	548	-	-
63	51	25	12.5	25	37.5	50	75	100	125	150	-	-	89	102	114	127	152	177	202	227	-	-	272	298	322	348	398	448	498	548	-	-
80	56	29	12.5	25	37.5	50	75	100	125	150	175	200	101	114	126	139	164	189	214	239	264	276	316	342	366	392	442	492	542	592	642	692
100	61	29	12.5	25	37.5	50	75	100	125	150	175	200	101	114	126	139	164	189	214	239	264	276	316	342	366	392	442	492	542	592	642	692

Standard Type/with Mounting Brackets

* Dimensions not shown are the same as the basic type (drawing above).

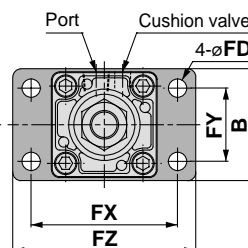
Foot type (L)



Foot type

Bore size (mm)	Stroke range	Effective thread length	X	Y	LD	LH	*LS	LT	LX	LY	LZ
32	to 500	19.5	22	9	7	30	128	3.2	32	53	50
40	to 500	27	24	11	9	33	132	3.2	38	59	55
50	to 600	32	27	11	9	40	148	3.2	46	72.5	70
63	to 600	32	27	14	12	45	148	3.6	56	82.5	80
80	to 750	37	30	14	12	55	174	4.5	72	102.5	100
100	to 750	37	32	16	14	65	178	4.5	89	122	120

Front flange type (F)



Front flange type

Bore size (mm)	Stroke range	Effective thread length	B	FD	FT	FX	FY	FZ	Fd
32	to 500	19.5	50	7	10	64	32	79	25
40	to 500	27	55	9	10	72	36	90	31
50	to 600	32	70	9	12	90	45	110	38.5
63	to 600	32	80	9	12	100	50	120	39.5
80	to 750	37	100	12	16	126	63	153	45.5
100	to 750	37	120	14	16	150	75	178	54