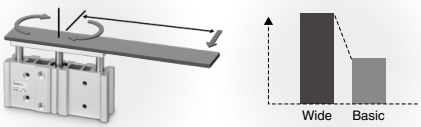
Doubling the guide pitch

doubles the allowable plate rotational torque.

1.63 N·m ← 0.75 N·m

For MGPWM20-50

◆ Allowable rotational torque



- The allowable rotational torque of the plate is improved by up to 3 times by making the guide pitch twice the basic type and placing the guide components at an optimal location.
- Suitable when used as a pusher or lifter.

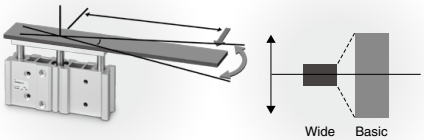
Non-rotating accuracy of the plate improved

±0.03° ← ±0.09°

Wide type — For MGPWL20

Basic type — For MGPL20

◆ Non-rotating accuracy

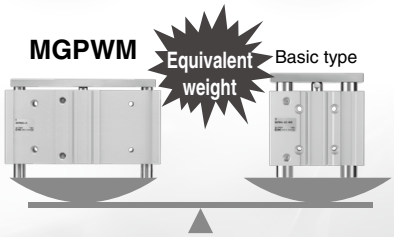


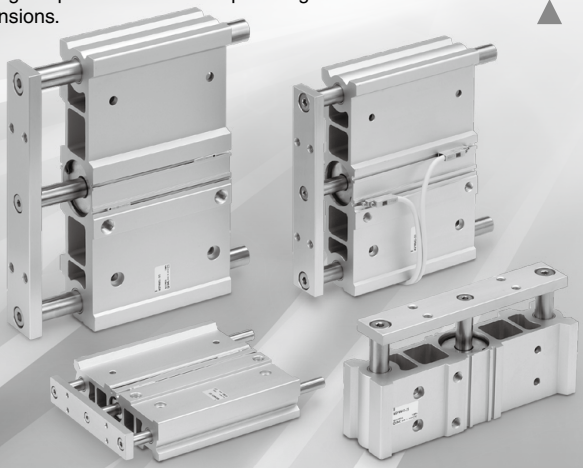
- The plate non-rotating accuracy is improved due to the increase in guide pitch.

Equivalent weight

to the basic type

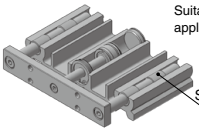
- Although the volume is 170% more than the MGP basic type, the weight of the MGP wide type is equivalent to the basic type by changing the plate material and optimizing the component dimensions.





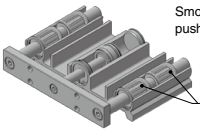
3 bearing types are available for various applications.

Slide bearing MGPWM Series



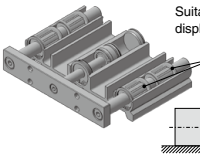
Suitable for lateral load applications

Ball bushing MGPWL Series



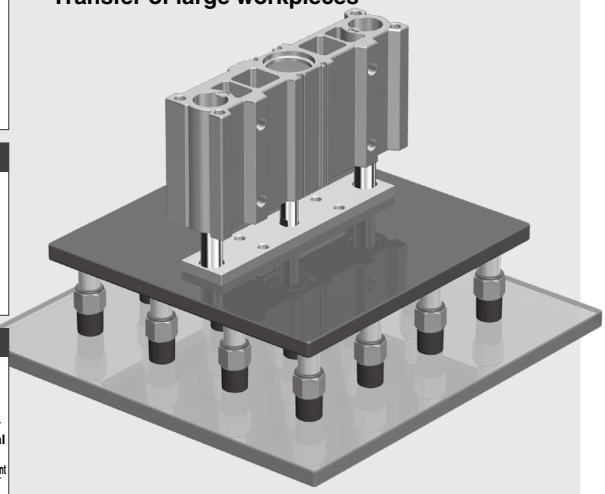
Smooth operation suitable for pusher and lifter

High precision ball bushing MGPWA Series



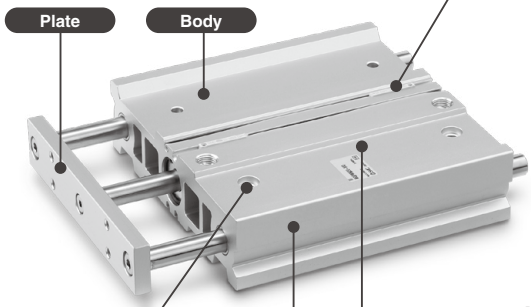
Suitable for minimizing plate displacement

Transfer of large workpieces



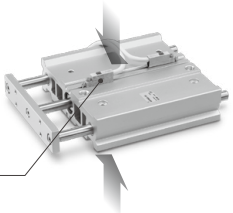
Knock pin hole is available as made to order.

If a knock pin is required on the plate or body, "–XC56: With knock pin holes" model is available as a made to order.



Small auto switches or magnetic field resistant auto switches can be mounted on 2 surfaces.

- 2-color indicator solid state auto switch **D-M9□**
- Reed auto switch **D-A9□**
- Magnetic field resistant 2-color indicator solid state auto switch **D-P3DWA**



*The D-Y7 and D-Z7 auto switches are not mountable.

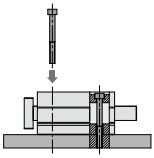
Top ported

Side porting is available as made to order.

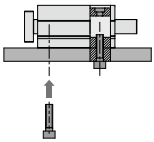
The port is located on the top of the body in the standard type, but if side porting is required, it is also available. (–X867: Side porting type)

3 mounting types are possible.

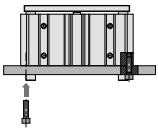
1. Top mounting



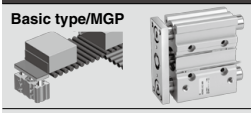
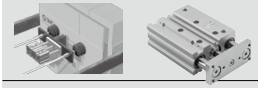
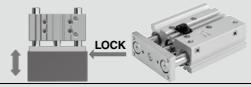
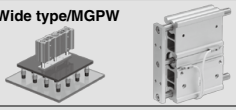
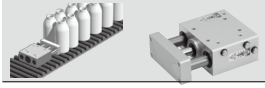
2. Side mounting



3. Bottom mounting



Compact Guide Cylinders, Series Variations

Series	Bearing type	Bore size (mm)											Page
		6	10	12	16	20	25	32	40	50	63	80	100	
Basic type/MGP 	Slide bearing Ball bushing High precision ball bushing			●	●	●	●	●	●	●	●	●	●	P.432
With air cushion/MGP-A 					●	●	●	●	●	●	●	●	●	P.452
With end lock/MGP-H/R 						●	●	●	●	●	●	●	●	P.469
Wide type/MGPW 	Slide bearing Ball bushing High precision ball bushing					●	●	●	●	●	●			P.498
Clean series/12/13-MGP 	Ball bushing			●	●	●	●	●	●	●	●			P.435
Water-resistant/MGP R/V 	Slide bearing					●	●	●	●	●	●	●	●	P.435
Heavy duty guide rod type/MGPS 										●		●		P.478
Miniature Guide Rod Cylinder/MGJ 		●	●											P.401
Compact Guide Cylinder with Lock/MLGP 	Slide bearing Ball bushing					●	●	●	●	●	●	●	●	P.1075
Hygienic Design Cylinder/HYG 	Slide bearing					●	●	●	●	●	●			Best Pneumatics No.2-1

MGPW Series (Wide type), Stroke Variations

Bearing type	Bore size (mm)	Stroke (mm)							
		25	50	75	100	125	150	175	200
MGPWM Slide bearing MGPWL Ball bushing MGPWA High precision ball bushing	20	●	●	●	●	●	●	●	●
	25	●	●	●	●	●	●	●	●
	32	●	●	●	●	●	●	●	●
	40	●	●	●	●	●	●	●	●
	50	●	●	●	●	●	●	●	●
	63	●	●	●	●	●	●	●	●

Compact Guide Cylinder/Wide Type

MGPW Series

ø20, ø25, ø32, ø40, ø50, ø63

How to Order

MGP W M 25 □ – 50 – M9BW □ – □

Compact Guide Cylinder

Wide type

Bearing type

M	Slide bearing
L	Ball bushing
A	High precision ball bushing

Bore size

20	20 mm	**40**	40 mm
25	25 mm	**50**	50 mm
32	32 mm	**63**	63 mm

Port thread type

Nil	Rc
TN	NPT
TF	G

Cylinder stroke (mm)
Refer to "Standard Strokes" on page 499.

Auto switch

Nil	Without auto switch (Built-in magnet)

∗ For applicable auto switch model, refer to the table below.

Number of auto switches

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

Made to Order
For details, refer to page 499.

Applicable Auto Switches/Refer to pages 1119 to 1245 for further information on auto switches.

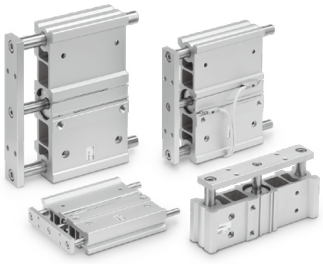
Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage DC	Load voltage AC	Auto switch model Perpendicular	Auto switch model In-line	Lead wire length (m) 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V,12 V	—	**M9NV**	**M9N**	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				**M9PV**	**M9P**	●	●	●	○	○		
				2-wire		12 V		**M9BV**	**M9B**	●	●	●	○	○	—	
	Diagnostic indication (2-color indicator)			3-wire (NPN)		5 V,12 V		**M9NWV**	**M9NW**	●	●	●	○	○	IC circuit	
				3-wire (PNP)				**M9PWV**	**M9PW**	●	●	●	○	○		
				2-wire		12 V		**M9BWV**	**M9BW**	●	●	●	○	○	—	
	Water-resistant (2-color indicator)			3-wire (NPN)		5 V,12 V		**M9NAV**∗1	**M9NA**∗1	○	○	●	○	○	IC circuit	
				3-wire (PNP)				**M9PAV**∗1	**M9PA**∗1	○	○	●	○	○		
				2-wire		12 V		**M9BAV**∗1	**M9BA**∗1	○	○	●	○	○	—	
	Magnetic field resistant (2-color indicator)			2-wire (Non-polar)		—		—	**P3DWA**∗∗	●	—	●	●	○		
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**A96V**	**A96**	●	—	●	—	—	IC circuit	—
			No	2-wire	24 V	12 V	100 V	**A93V**∗2	**A93**	●	●	●	●	—	—	Relay, PLC
							100 V or less	**A90V**	**A90**	●	—	●	—	—	IC circuit	

∗1 Water-resistant type auto switch can be mounted to the models with the above mentioned part numbers, but this does not guarantee the water resistance of the cylinder. A water-resistant type cylinder is recommended for use in an environment which requires water resistance.
∗2 1 m type lead wire is only applicable to D-A93.

∗ 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 "○" are produced upon receipt of order.
∗∗ Bore sizes ø32 to ø63 are available for the D-P3DWA□.

∗ Since there are other applicable auto switches than listed, refer to page 515 for details.
∗ For details about auto switches with pre-wired connector, refer to pages 1192 and 1193.
∗ Auto switches are shipped together, (but not assembled).



Specifications

Bore size (mm)	20	25	32	40	50	63
Action	Double acting					
Fluid	Air					
Proof pressure	1.5 MPa					
Maximum operating pressure	1.0 MPa					
Minimum operating pressure	0.1 MPa					
Ambient and fluid temperature	–10 to 60°C (No freezing)					
Piston speed Note)	50 to 500 mm/s					
Cushion	Rubber bumper on both ends					
Lubrication	Not required (Non-lube)					
Stroke length tolerance	$^{+1.5}_{0}$ mm					

Note) Speed with no load

Standard Strokes

Bore size (mm)	Standard stroke (mm)
20 to 63	25, 50, 75, 100, 125, 150, 175, 200

Manufacture of Intermediate Strokes

Description	Spacer installation Spacers are installed in the standard stroke cylinder. • ø20 to ø32: Available in 1 mm stroke increments. • ø40 to ø63: Available in 5 mm stroke increments.	
Part no.	Refer to “How to Order” for the standard model numbers.	
Applicable stroke (mm)	ø20 to ø32	1 to 199
	ø40 to ø63	5 to 195
Example	Part no.:MGPWM20-49 A spacer 1 mm in width is installed in a MGPWM20-50. C dimension (Body length): 84 mm	

Refer to pages 514 to 516 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.

Made to Order

Made to Order: Individual Specifications (For details, refer to page 517.)

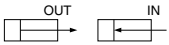
Symbol	Description
-X867	Side porting type

Made to Order

Click here for details

Symbol	Description
-XC56	With knock pin holes

Theoretical Output



(N)

Bore size (mm)	Rod size (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
20	10	OUT	314	63	94	126	157	188	220	251	283	314
		IN	236	47	71	94	118	141	165	188	212	236
25	10	OUT	491	98	147	196	245	295	344	393	442	491
		IN	412	82	124	165	206	247	289	330	371	412
32	14	OUT	804	161	241	322	402	483	563	643	724	804
		IN	650	130	195	260	325	390	455	520	585	650
40	14	OUT	1257	251	377	503	628	754	880	1005	1131	1257
		IN	1103	221	331	441	551	662	772	882	992	1103
50	18	OUT	1963	393	589	785	982	1178	1374	1571	1767	1963
		IN	1709	342	513	684	855	1025	1196	1367	1538	1709
63	18	OUT	3117	623	935	1247	1559	1870	2182	2494	2806	3117
		IN	2863	573	859	1145	1431	1718	2004	2290	2576	2863

Note) Theoretical output (N) = Pressure (MPa) x Piston area (mm^2)

Weight

Slide Bearing: MGPWM

(kg)

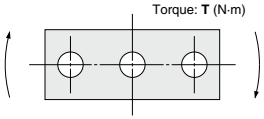
Bore size (mm)	Standard stroke (mm)							
	25	50	75	100	125	150	175	200
20	0.63	0.86	1.11	1.33	1.54	1.76	1.98	2.20
25	0.84	1.11	1.47	1.74	2.01	2.28	2.55	2.82
32	1.31	1.71	2.22	2.61	3.00	3.38	3.77	4.15
40	1.53	1.98	2.54	2.97	3.40	3.83	4.26	4.69
50	2.45	3.12	4.01	4.66	5.31	5.96	6.61	7.26
63	3.25	4.07	5.12	5.91	6.71	7.51	8.31	9.11

Ball Bushing: MGPWL/High Precision Ball Bushing: MGPWA

(kg)

Bore size (mm)	Standard stroke (mm)							
	25	50	75	100	125	150	175	200
20	0.65	0.92	1.15	1.37	1.61	1.83	2.05	2.28
25	0.89	1.23	1.52	1.81	2.11	2.40	2.68	2.97
32	1.36	1.76	2.22	2.61	3.03	3.41	3.80	4.18
40	1.58	2.02	2.53	2.96	3.43	3.86	4.29	4.72
50	2.51	3.19	3.94	4.59	5.26	5.91	6.55	7.20
63	3.32	4.14	5.04	5.84	6.66	7.46	8.26	9.06

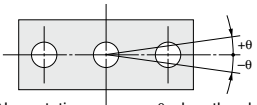
Allowable Rotational Torque of Plate



T (N·m)

Bore size (mm)	Bearing type	Stroke (mm)							
		25	50	75	100	125	150	175	200
20	**MGPWM**	2.10	1.63	1.74	1.51	1.34	1.20	1.08	0.99
	MGPWL/A	3.97	4.36	3.46	2.87	3.93	3.45	3.07	2.76
25	**MGPWM**	3.53	2.74	3.28	2.90	2.59	2.34	2.14	1.97
	MGPWL/A	6.88	6.78	5.43	4.51	6.27	5.51	4.90	4.40
32	**MGPWM**	7.98	6.39	7.00	6.19	5.54	5.02	4.59	4.22
	MGPWL/A	11.13	8.48	11.14	9.36	12.46	11.00	9.83	8.87
40	**MGPWM**	8.80	7.04	7.72	6.82	6.11	5.54	5.06	4.66
	MGPWL/A	12.26	9.34	12.27	10.31	13.73	12.12	10.83	9.77
50	**MGPWM**	17.57	14.28	16.17	14.44	13.04	11.89	10.93	10.11
	MGPWL/A	17.08	13.20	19.64	16.62	20.45	18.10	16.19	14.61
63	**MGPWM**	19.80	16.09	18.23	16.28	14.70	13.41	12.32	11.40
	MGPWL/A	19.18	14.81	22.07	18.66	22.98	20.33	18.18	16.39

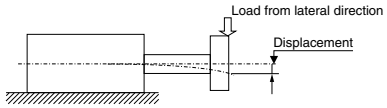
Non-rotating Accuracy of Plate



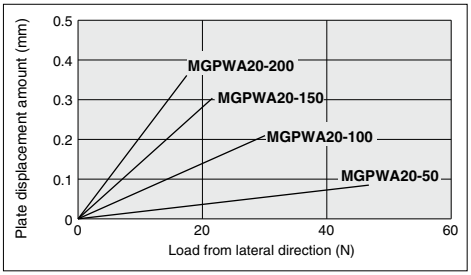
Non-rotating accuracy θ when the plate is retracted and when no load is applied is not more than the values shown in the table as a guide line.

Bore size (mm)	Non-rotating accuracy θ		
	MGPWM	**MGPWL**	**MGPWA**
20	±0.05°	±0.03°	±0.01°
25	±0.04°		
32			
40			
50	±0.03°		
63			

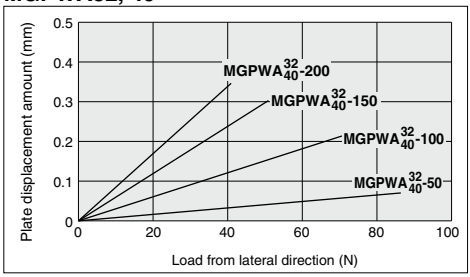
High Precision Ball Bushing/MGPWA Plate Displacement Amount (Reference Values)



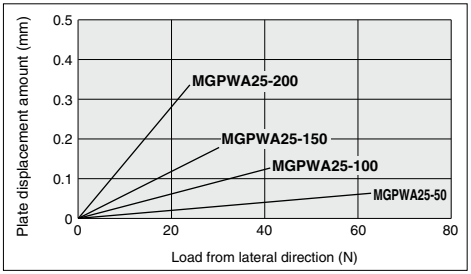
MGPWA20



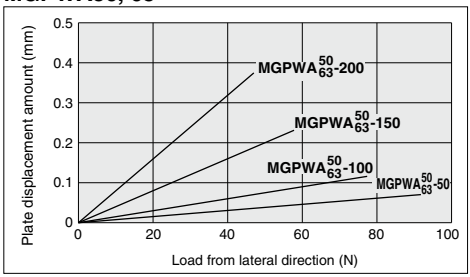
MGPWA32, 40



MGPWA25



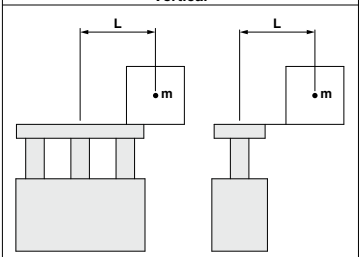
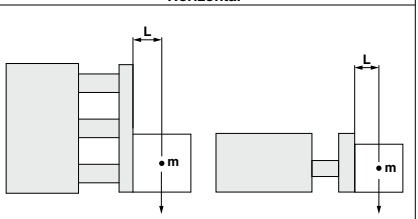
MGPWA50, 63



Note 1) The guide rod and self-weight for the plate are not included in the above displacement values.
Note 2) Allowable rotating torque, and operating range when used as a lifter, are the same as MGPWL series.

Model Selection

Selection Conditions

Mounting orientation	Vertical		Horizontal	
				
Maximum speed (mm/s)	200 or less	400	200 or less	400
Graph (Slide bearing type)	(1), (2)	(3), (4)	(17), (18)	(19), (20)
Graph (Ball bushing type)	(5) to (10)	(11) to (16)	(21) to (24)	(25) to (28)

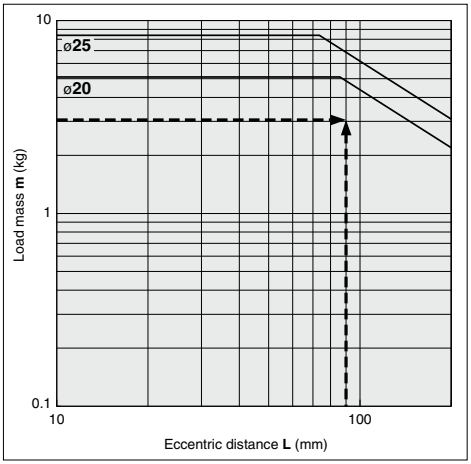
Selection Example 1 (Vertical Mounting)

Selection conditions

Mounting: Vertical
Bearing type: Ball bushing
Stroke: 50 stroke
Maximum speed: 200 mm/s
Load mass: 3 kg
Eccentric distance: 90 mm

Find the point of intersection for the load mass of 3 kg and the eccentric distance of 90 mm on graph (6), based on vertical mounting, ball bushing, 50 stroke, and the speed of 200 mm/s.
→ **MGPWL20-50** is selected.

(6) 26 to 100 stroke, V = 200 mm/s or less



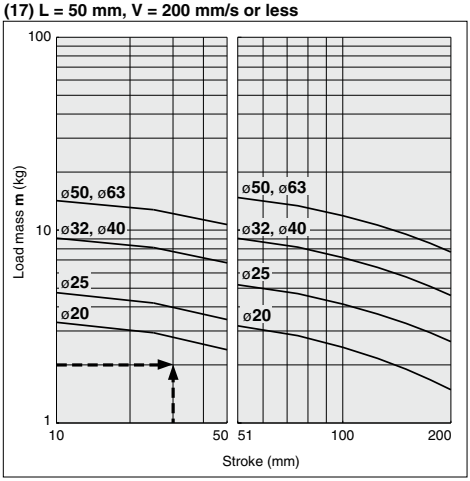
Selection Example 2 (Horizontal Mounting)

Selection conditions

Mounting: Horizontal
Bearing type: Slide bearing
Distance between plate and load center of gravity: 50 mm
Maximum speed: 200 mm/s
Load mass: 2 kg
Stroke: 30 stroke

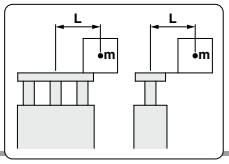
Find the point of intersection for the load mass of 2 kg and 30 stroke on graph (17), based on horizontal mounting, slide bearing, the distance of 50 mm between the plate and load center of gravity, and the speed of 200 mm/s.
→ **MGPWM20-30** is selected.

(17) L = 50 mm, V = 200 mm/s or less



· When the maximum speed exceeds 200 mm/s, the allowable load mass is determined by multiplying the value shown in the graph at 400 mm/s by the coefficient listed in the table below.

Max. speed	Up to 300 mm/s	Up to 400 mm/s	Up to 500 mm/s
Coefficient	1.7	1	0.6

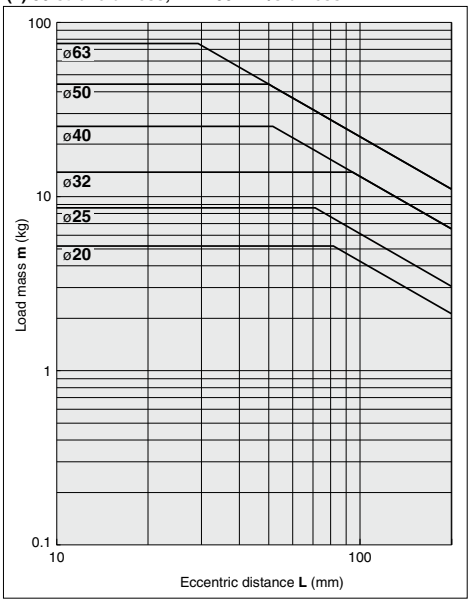


Vertical Mounting Slide bearing

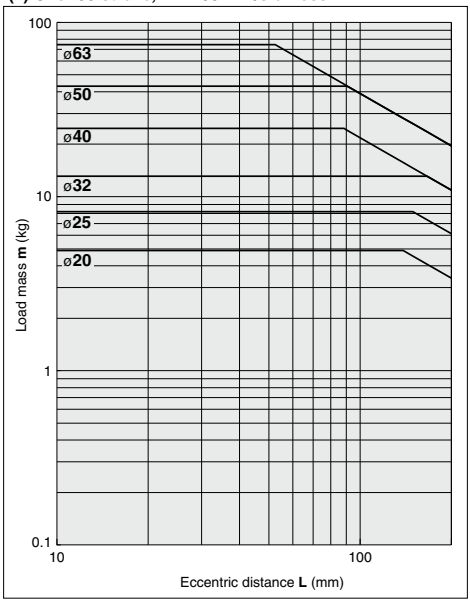
Operating pressure 0.5 MPa

MGPWM20 to 63

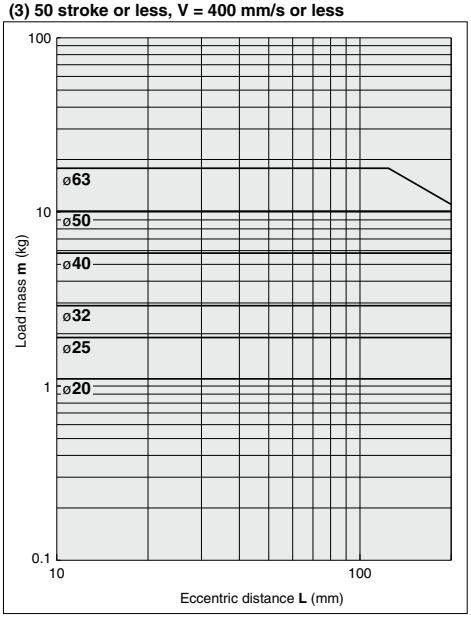
(1) 50 stroke or less, V = 200 mm/s or less



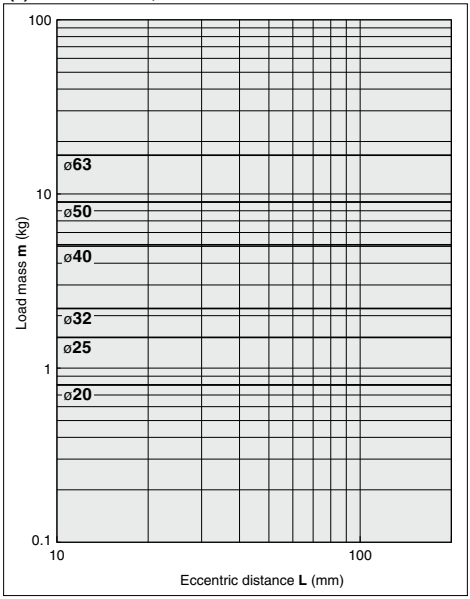
(2) Over 50 stroke, V = 200 mm/s or less

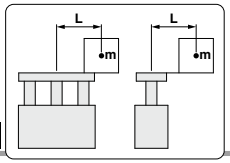


(3) 50 stroke or less, V = 400 mm/s or less



(4) Over 50 stroke, V = 400 mm/s or less



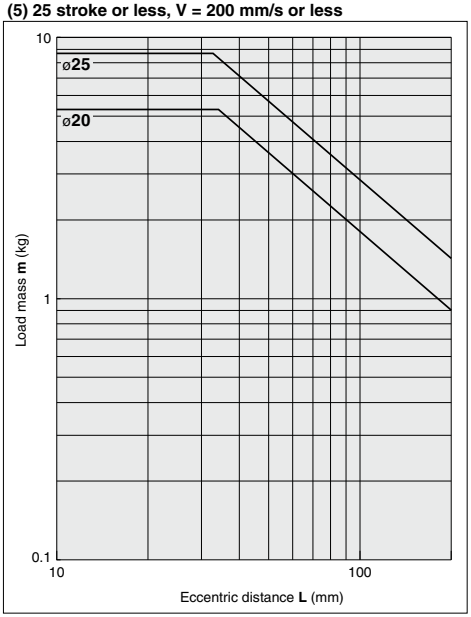


Vertical Mounting Ball bushing

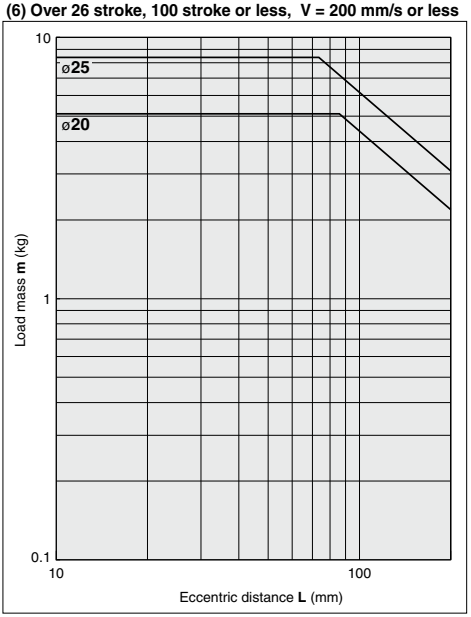
Operating pressure 0.5 MPa

MGPWL20 to 25, MGPWA20 to 25

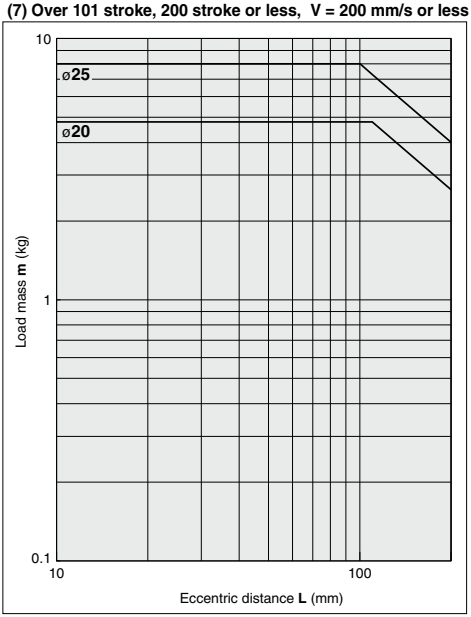
(5) 25 stroke or less, V = 200 mm/s or less

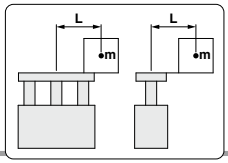


(6) Over 26 stroke, 100 stroke or less, V = 200 mm/s or less



(7) Over 101 stroke, 200 stroke or less, V = 200 mm/s or less



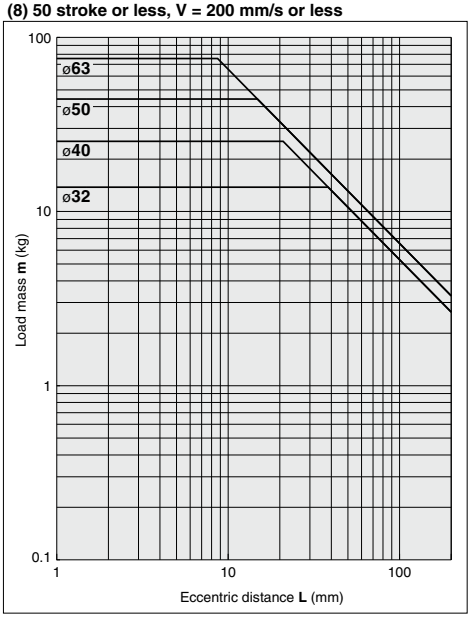


Vertical Mounting Ball bushing

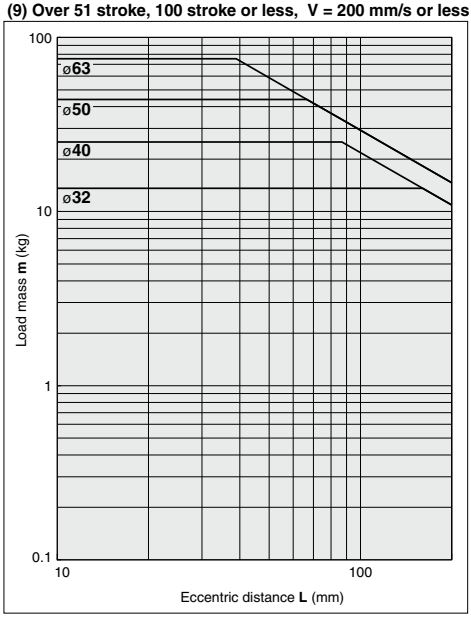
Operating pressure 0.5 MPa

MGPWL32 to 63, MGPWA32 to 63

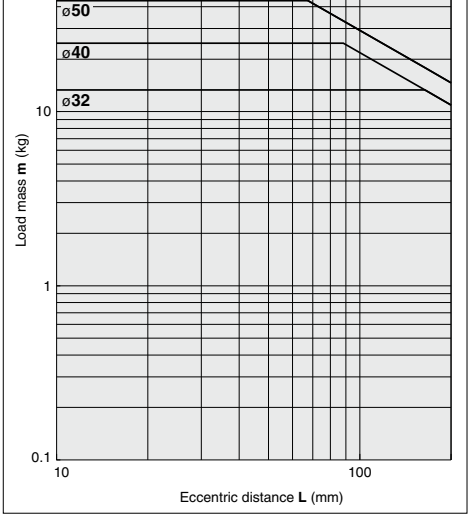
(8) 50 stroke or less, V = 200 mm/s or less

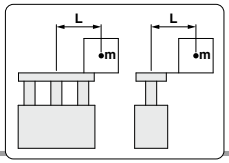


(9) Over 51 stroke, 100 stroke or less, V = 200 mm/s or less



(10) Over 101 stroke, 200 stroke or less, V = 200 mm/s or less



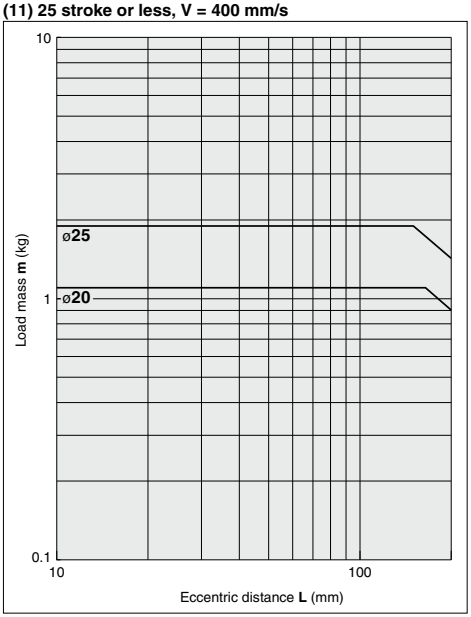


Vertical Mounting Ball bushing

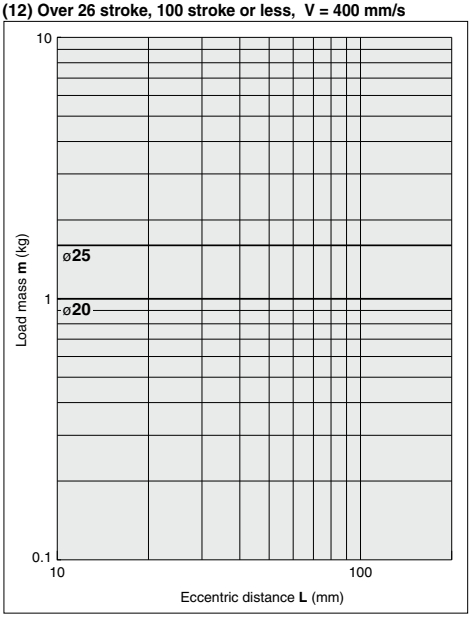
Operating pressure 0.5 MPa

MGPWL20 to 25, MGPWA20 to 25

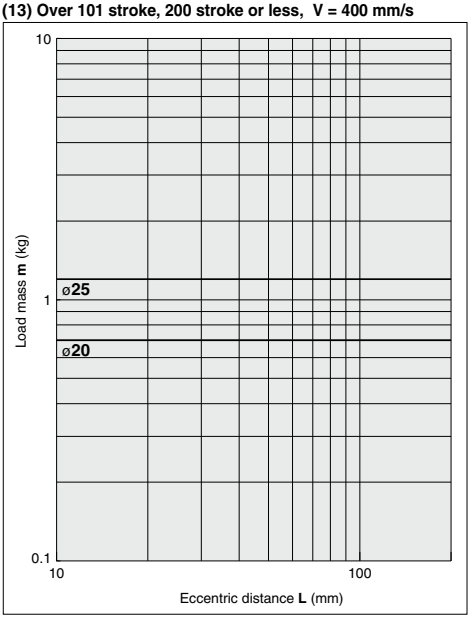
(11) 25 stroke or less, V = 400 mm/s

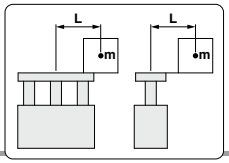


(12) Over 26 stroke, 100 stroke or less, V = 400 mm/s



(13) Over 101 stroke, 200 stroke or less, V = 400 mm/s



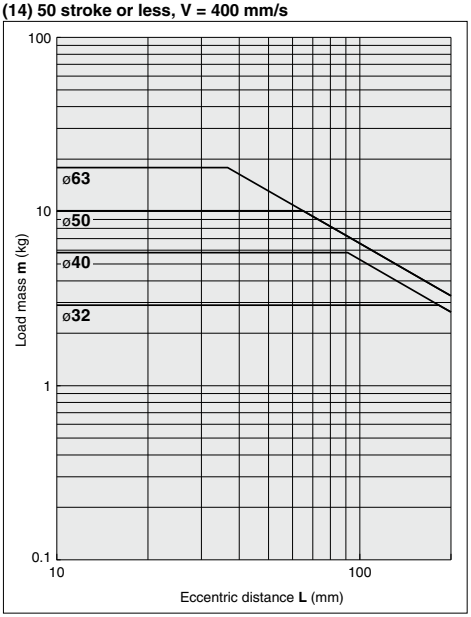


Vertical Mounting Ball bushing

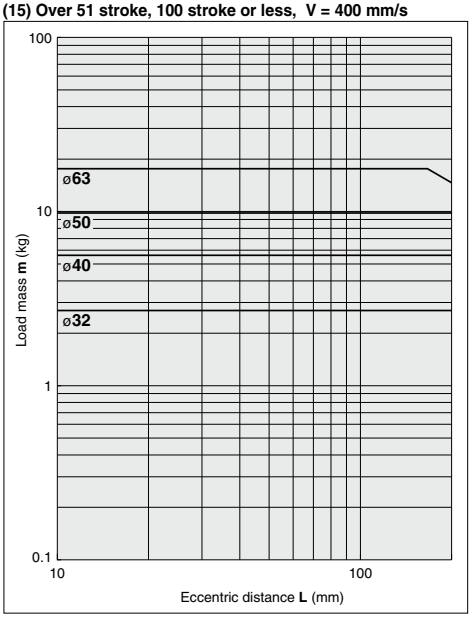
Operating pressure 0.5 MPa

MGPWL32 to 63, MGPWA32 to 63

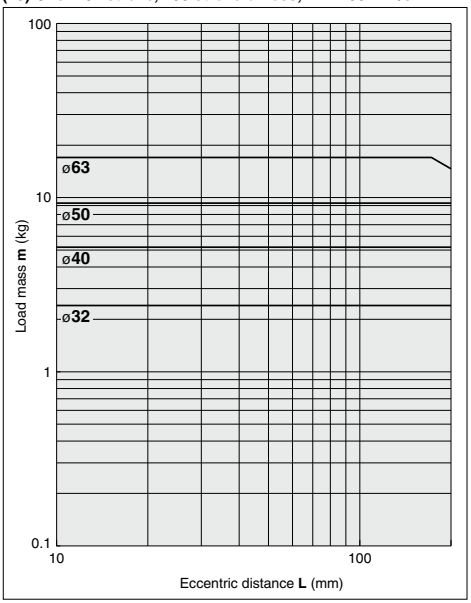
(14) 50 stroke or less, V = 400 mm/s

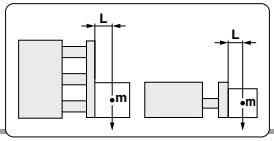


(15) Over 51 stroke, 100 stroke or less, V = 400 mm/s



(16) Over 101 stroke, 200 stroke or less, V = 400 mm/s

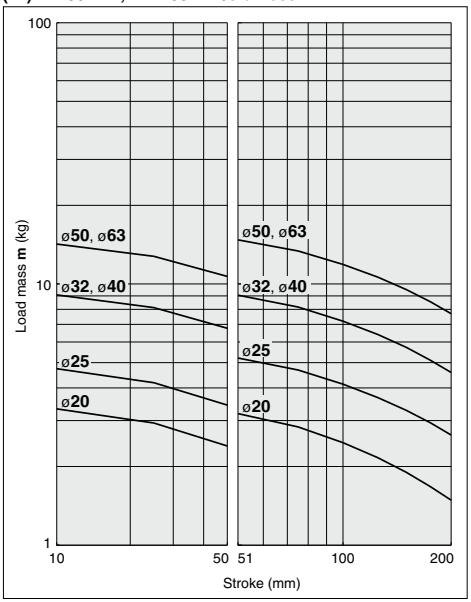




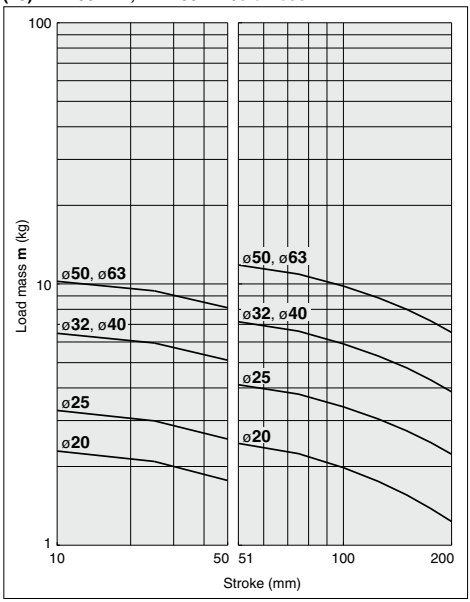
Horizontal Mounting Slide bearing

MGPWM20 to 63

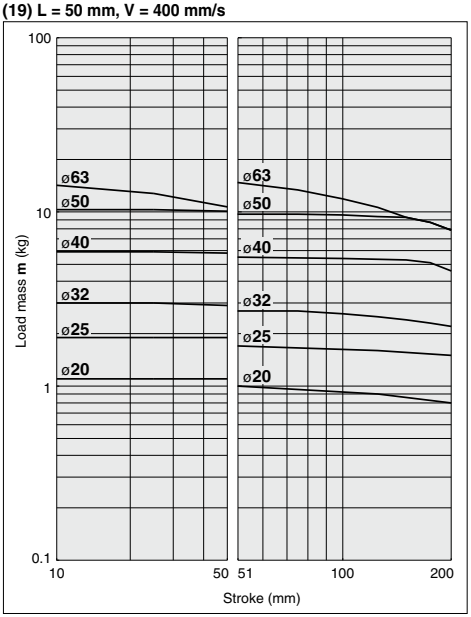
(17) L = 50 mm, V = 200 mm/s or less



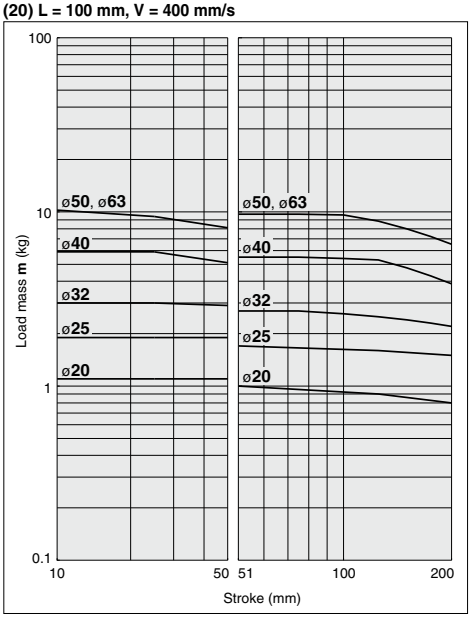
(18) L = 100 mm, V = 200 mm/s or less

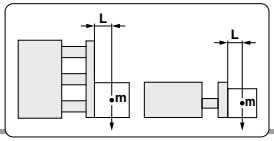


(19) L = 50 mm, V = 400 mm/s



(20) L = 100 mm, V = 400 mm/s

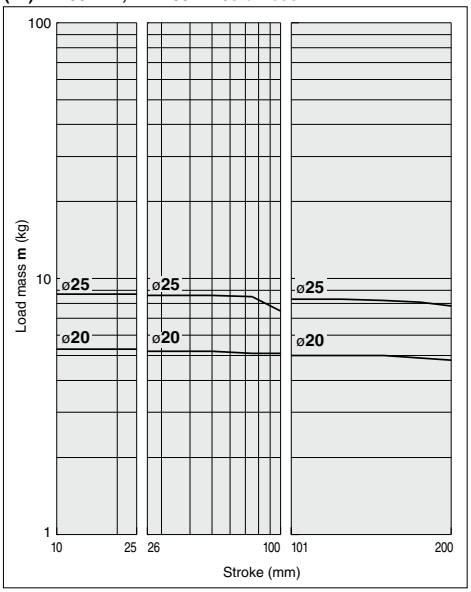




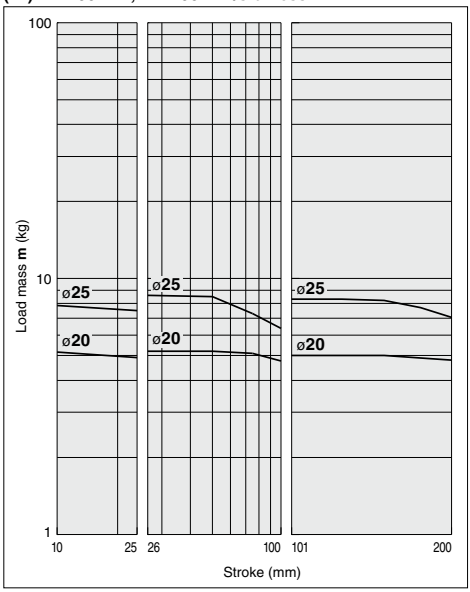
Horizontal Mounting Ball bushing

MGPWL20 to 25, MGPWA20 to 25

(21) L = 50 mm, V = 200 mm/s or less

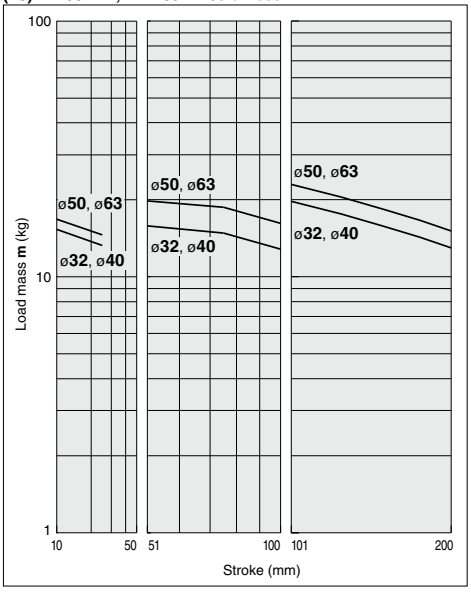


(22) L = 100 mm, V = 200 mm/s or less

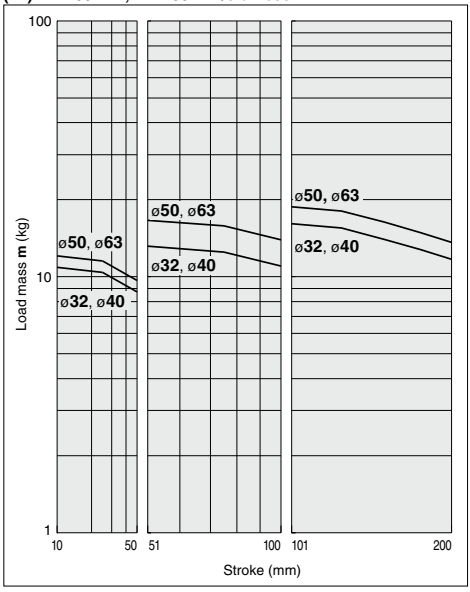


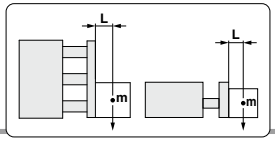
MGPWL32 to 63, MGPWA32 to 63

(23) L = 50 mm, V = 200 mm/s or less



(24) L = 100 mm, V = 200 mm/s or less

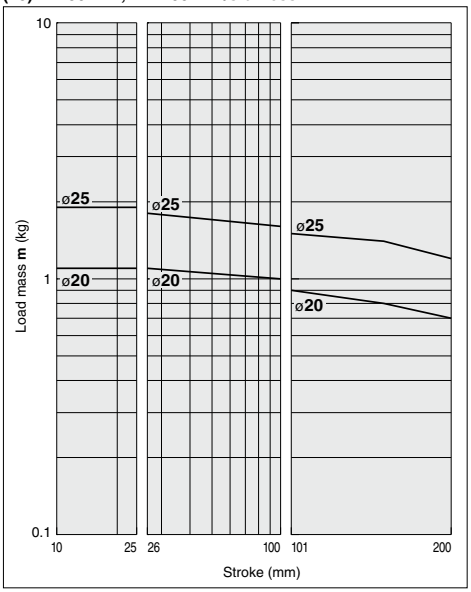




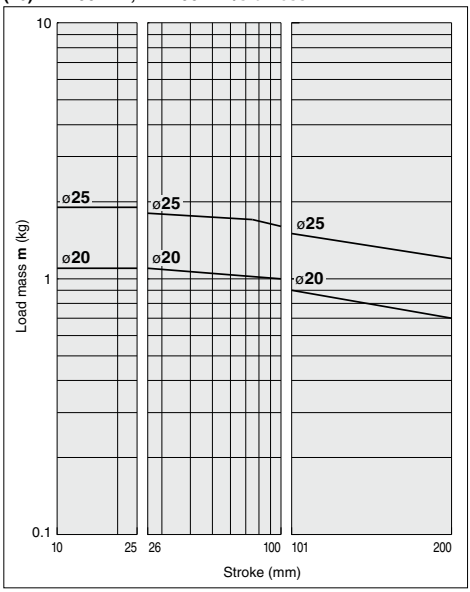
Horizontal Mounting Ball bushing

MGPWL20 to 25, MGPWA20 to 25

(25) L = 50 mm, V = 400 mm/s or less

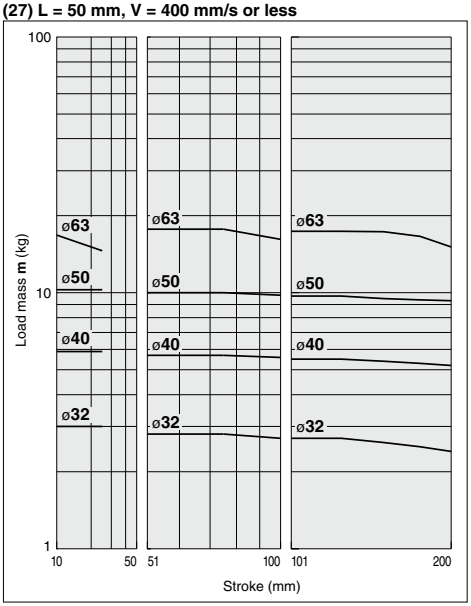


(26) L = 100 mm, V = 400 mm/s or less

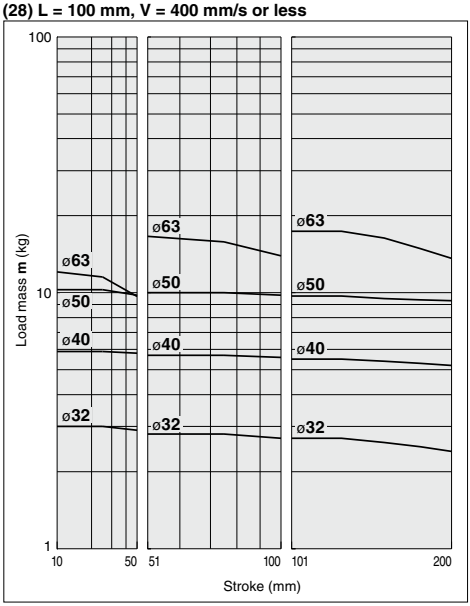


MGPWL32 to 63, MGPWA32 to 63

(27) L = 50 mm, V = 400 mm/s or less

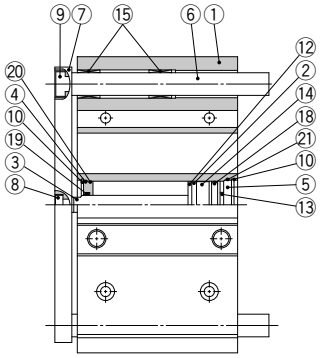


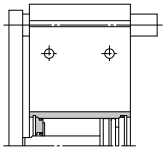
(28) L = 100 mm, V = 400 mm/s or less



Construction/MGPWM, MGPWL, MGPWA Series

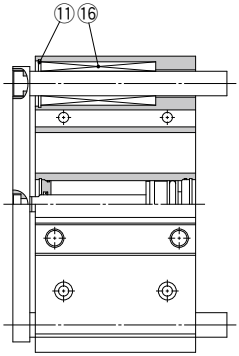
MGPWM20 to 63

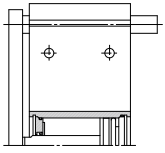




ø40 or more

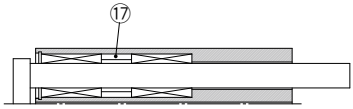
MGPWL20 to 63
MGPWA20 to 63





ø40 or more

100 stroke or less



Over 100 stroke

Component Parts

No.	Description	Material	Note	
1	**Body**	Aluminum alloy	Hard anodized	
2	**Piston**	Aluminum alloy	Chromated	
3	**Piston rod**	Stainless steel	ø20 to ø25	
		Carbon steel	ø32 to ø63	Hard chrome plated
4	**Collar**	Aluminum alloy	Chromated	
5	**Head cover**	Aluminum alloy	Chromated	
6	**Guide rod**	Carbon steel	Hard chrome plated	
7	**Plate**	Aluminum alloy	Anodized	
8	**Plate mounting bolt**	Carbon steel	Nickel plated	
9	**Guide bolt**	Carbon steel	Nickel plated	
10	**Retaining ring**	Carbon tool steel	Phosphate coated	
11	**Retaining ring**	Carbon tool steel	Phosphate coated	
12	**Bumper A**	Urethane		
13	**Bumper B**	Urethane		
14	**Magnet**	–		
15	**Slide bearing**	Babbitt		

Component Parts

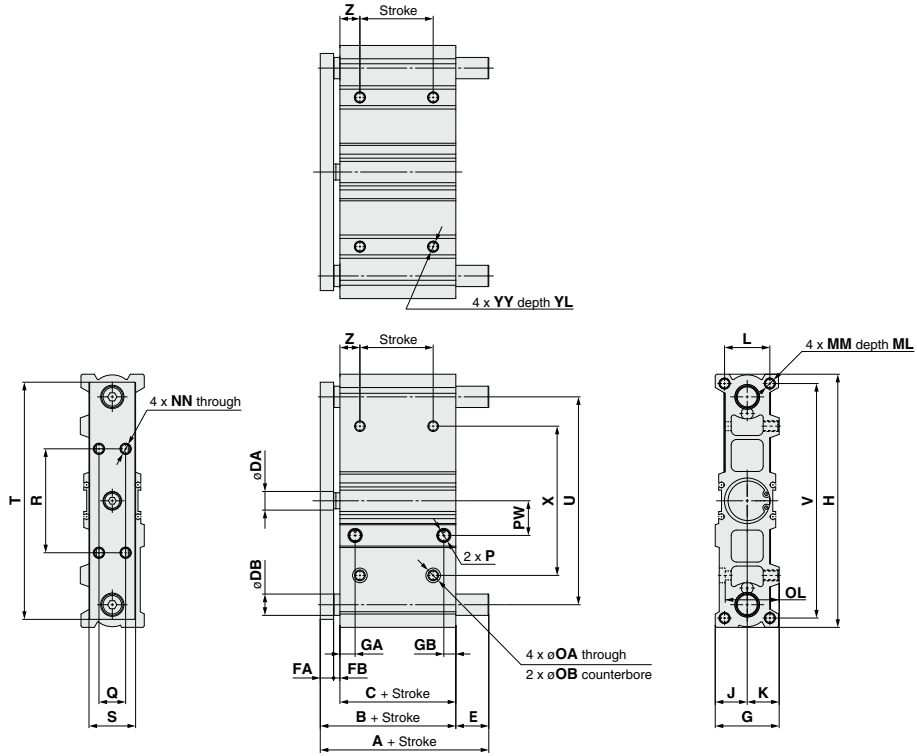
No.	Description	Material	Note
16	**Ball bushing**		
17	**Spacer**	Aluminum alloy	
18*	**Piston seal**	NBR	
19*	**Rod seal**	NBR	
20*	**Gasket A**	NBR	
21*	**Gasket B**	NBR	

Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents	Bore size (mm)	Kit no.	Contents
20	MGP20-Z-PS	Set of nos. above ⑱, ⑲, ⑳, ㉑	**40**	MGP40-Z-PS	Set of nos. above ⑱, ⑲, ⑳, ㉑
25	MGP25-Z-PS		**50**	MGP50-Z-PS	
32	MGP32-Z-PS		**63**	MGP63-Z-PS	

∗ Seal kit includes ⑱ to ㉑. Order the seal kit, based on each bore size.
∗ Since the seal kit does not include a grease pack, order it separately.
Grease pack part no.: GR-S-010 (10 g)

ø20 to ø63/MGPWM



∗ For intermediate strokes other than standard strokes, refer to "Manufacture of Intermediate Strokes" on page 499.

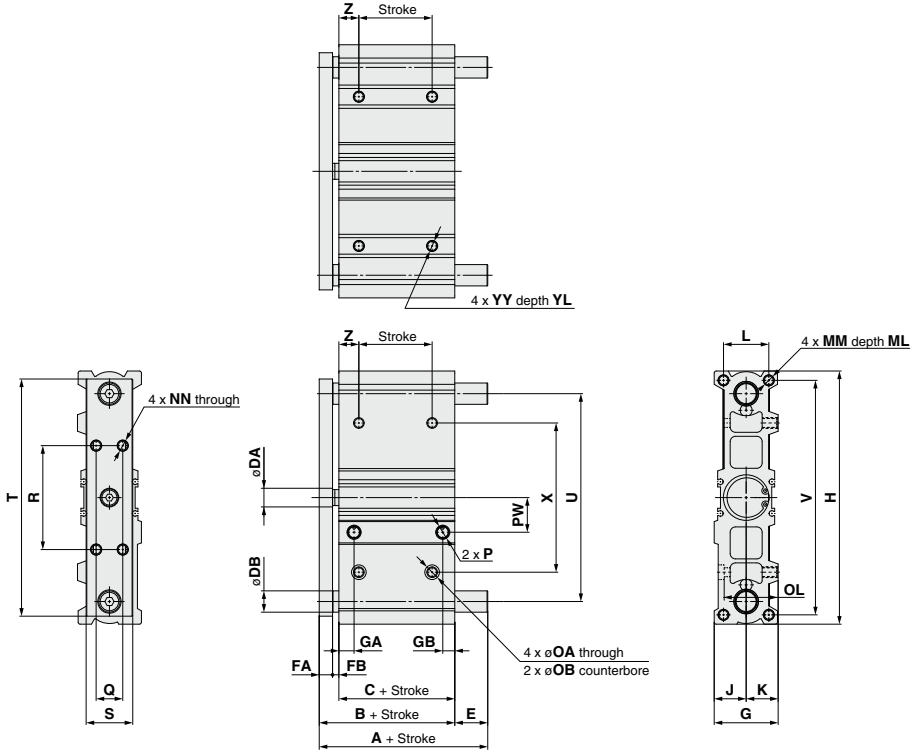
MGPWM Common Dimensions

(mm)

Bore size (mm)	Standard stroke (mm)	A		B	C	DA	DB	E		FA	FB	G	GA	GB	H	J	K	L
		50 st or less	Over 50 stroke					50 st or less	Over 50 stroke									
20	25, 50, 75, 100, 125, 150, 175, 200	62	92	44.5	34	10	10	17.5	47.5	7.5	3	36	9.9	7.5	137	18	18	24
25		63.5	113.5	47	35	10	12	16.5	66.5	9	3	42	10.3	8.7	157	21	21	30
32		76.5	116.5	52	37	14	16	24.5	64.5	10	5	48	11.4	9	190	24	24	34
40		76.5	116.5	56	41	14	16	20.5	60.5	10	5	54	13.5	10.5	206	27	27	40
50		85	135	60.5	42	18	20	24.5	74.5	12.5	6	64	14	11.1	258	32	32	46
63		85	135	67.5	49	18	20	17.5	67.5	12.5	6	78	15.5	13.5	286	39	39	58

Bore size (mm)	MM	ML	NN	OA	OB	OL	P			PW	Q	R	S	T	U	V	X	YY	YL	Z
							Nil	TN	TF											
20	M5 x 0.8	13	M5 x 0.8	5.4	9.5	30.5	Rc1/8	NPT1/8	G1/8	17	14	64	24	123	108	126	76	M6 x 1	9	20
25	M6 x 1	15	M6 x 1	5.4	9.5	36.5	Rc1/8	NPT1/8	G1/8	18	16	68	26	146	128	146	92	M6 x 1	9	20
32	M8 x 1.25	20	M8 x 1.25	6.7	11	40.5	Rc1/8	NPT1/8	G1/8	26	20	78	35	178	156	176	112	M8 x 1.25	12	20
40	M8 x 1.25	20	M8 x 1.25	6.7	11	46.5	Rc1/8	NPT1/8	G1/8	27	20	92	35	193	172	192	128	M8 x 1.25	12	23
50	M10 x 1.5	22	M10 x 1.5	8.6	14	54.5	Rc1/4	NPT1/4	G1/4	28.5	26	132	44	247	220	240	168	M10 x 1.5	15	25
63	M10 x 1.5	22	M10 x 1.5	8.6	14	68.5	Rc1/4	NPT1/4	G1/4	30	30	160	48	274	248	266	196	M10 x 1.5	15	27

ø20 to ø63/MGPWL, MGPWA



∗ For intermediate strokes other than standard strokes, refer to "Manufacture of Intermediate Strokes" on page 499.

MGPWL, MGPWA Common Dimensions

(mm)

Bore size (mm)	Standard stroke (mm)	B	C	DA	DB	FA	FB	G	GA	GB	H	J	K	L	MM	ML
20	25, 50, 75, 100, 125, 150, 175, 200	44.5	34	10	10	7.5	3	36	9.9	7.5	137	18	18	24	M5 x 0.8	13
25		47	35	10	13	9	3	42	10.3	8.7	157	21	21	30	M6 x 1	15
32		52	37	14	16	10	5	48	11.4	9	190	24	24	34	M8 x 1.25	20
40		56	41	14	16	10	5	54	13.5	10.5	206	27	27	40	M8 x 1.25	20
50		60.5	42	18	20	12.5	6	64	14	11.1	258	32	32	46	M10 x 1.5	22
63		67.5	49	18	20	12.5	6	78	15.5	13.5	286	39	39	58	M10 x 1.5	22

Bore size (mm)	NN	OA	OB	OL	P			PW	Q	R	S	T	U	V	X	YY	YL	Z
					Nil	TN	TF											
20	M5 x 0.8	5.4	9.5	30.5	Rc1/8	NPT1/8	G1/8	17	14	64	24	123	108	126	76	M6 x 1	9	20
25	M6 x 1	5.4	9.5	36.5	Rc1/8	NPT1/8	G1/8	18	16	68	26	146	128	146	92	M6 x 1	9	20
32	M8 x 1.25	6.7	11	40.5	Rc1/8	NPT1/8	G1/8	26	20	78	35	178	156	176	112	M8 x 1.25	12	20
40	M8 x 1.25	6.7	11	46.5	Rc1/8	NPT1/8	G1/8	27	20	92	35	193	172	192	128	M8 x 1.25	12	23
50	M10 x 1.5	8.6	14	54.5	Rc1/4	NPT1/4	G1/4	28.5	26	132	44	247	220	240	168	M10 x 1.5	15	25
63	M10 x 1.5	8.6	14	68.5	Rc1/4	NPT1/4	G1/4	30	30	160	48	274	248	266	196	M10 x 1.5	15	27

MGPWL, MGPWA ø20, ø25/A, E Dimensions

(mm)

Bore size (mm)	A			E		
	25 st or less	Over 25 st 100 st or less	Over 100 st	25 st or less	Over 25 st 100 st or less	Over 100 st
20	53.5	70.5	94.5	9	26	50
25	61.5	77.5	96.5	14.5	30.5	49.5

MGPWL, MGPWA ø32 to ø63/A, E Dimensions

(mm)

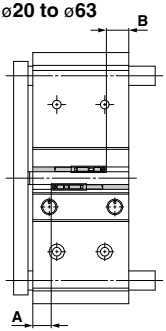
Bore size (mm)	A			E		
	50 st or less	Over 50 st 100 st or less	Over 100 st	50 st or less	Over 50 st 100 st or less	Over 100 st
32	72.5	89.5	109.5	20.5	37.5	57.5
40	72.5	89.5	109.5	16.5	33.5	53.5
50	82	103	123	21.5	42.5	62.5
63	82	103	123	14.5	35.5	55.5

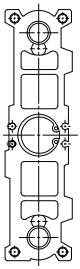
Auto Switch Mounting

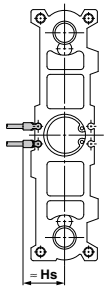
Auto Switch Proper Mounting Position (Detection at Stroke End) and Its Mounting Height

D-M9□
D-M9□V
D-M9□W
D-M9□WV
D-M9□A
D-M9□AV
D-A9□
D-A9□V

ø20 to ø63

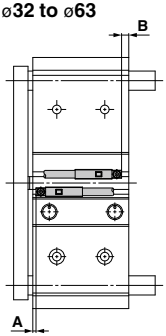


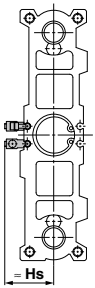




D-P3DWA

ø32 to ø63





Auto Switch Proper Mounting Position (mm)

Auto switch model / Bore size (mm)	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-P3DWA	
	A	B	A	B	A	B
20	11	11	7	7	—	—
25	10.5	12.5	6.5	8.5	6	8
32	12	13	8	9	7.5	8.5
40	14	15	10	11	9.5	10.5
50	13.5	16	9.5	12	9	11.5
63	16.5	20	12.5	16	12	15.5

Note) Adjust the auto switch after confirming the operating conditions in the actual setting.

Auto Switch Mounting Height (mm)

Auto switch model / Bore size (mm)	D-M9□V D-M9□WV D-M9□AV	D-A9□V	D-P3DWA
	Hs	Hs	Hs
20	24.5	22	—
25	26	24	32.5
32	29	26.5	35.5
40	33	30.5	39
50	38.5	36	44.5
63	45.5	43	51.5

Minimum Stroke for Auto Switch Mounting

(mm)

Auto switch model	No. of auto switches mounted	ø20	ø25	ø32	ø40	ø50	ø63
D-M9□	1 pc.	5 Note 1)		5			
	2 pcs.	10					
D-M9□W	1 pc.	5 Note 2)					
	2 pcs.	10					
D-M9□WV **D-M9□AV**	1 pc.	5 Note 2)					
	2 pcs.	10					
D-M9□A	1 pc.	5 Note 2)					
	2 pcs.	10 Note 2)					
D-M9□V	1 pc.	5					
	2 pcs.	5					
D-A9□V	1 pc.	5					
	2 pcs.	10					
D-A9□	1 pc.	5					
	2 pcs.	10					
D-P3DWA	1 pc.	—		15			
	2 pcs.	—		15			

Note 1) Confirm that it is possible to secure the minimum bending radius of 10 mm of the auto switch lead wire before use.
Note 2) Confirm that it is possible to securely set the auto switch(es) within the range of indicator green light ON range before use.
For in-line entry type, please also consider Note 1) shown above.
Note 3) The D-P3DWA□ can be mounted on bore sizes ø32 to ø63.

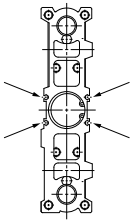
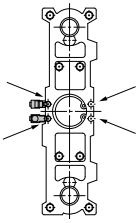
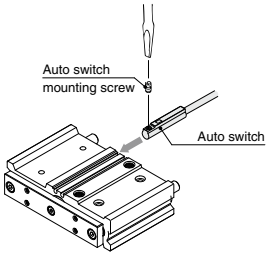
Other than the applicable auto switches listed in "How to Order", the following auto switches are mountable.
Refer to pages 1119 to 1245 for detailed specifications.

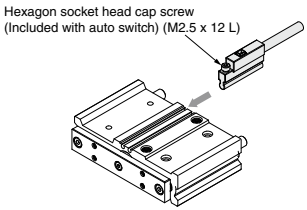
Type	Model	Electrical entry	Features
Solid state switch	D-P4DW	Grommet (In-line)	Diagnostic indication (2-color indicator) Bore size: ø32 to ø63

* With pre-wired connector is also available for solid state auto switches. For details, refer to pages 1192 and 1193.
* Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H) are also available. For details, refer to page 1137.
* When installing the D-P4DW, use the BMG7-032 auto switch mounting bracket.

Auto Switch Mounting Brackets/Part No.

Applicable Cylinder Series: MGPWM, MGPWL, MGPWA

<table>
<tr><td>Applicable auto switches</td><td>D-M9□/M9□V
D-M9□W/M9□WV
D-M9□A/M9□AV
D-A9□/A9□V</td><td>D-P3DWA</td></tr>
<tr><td>Bore size (mm)</td><td>ø20 to ø63</td><td>ø32 to ø63</td></tr>
<tr><td>Auto switch mounting bracket part no.</td><td>—</td><td>—</td></tr>
<tr><td>Auto switch mounting bracket fitting parts lineup/Weight</td><td>—</td><td>—</td></tr>
<tr><td rowspan="2">Auto switch mounting surfaces</td><td>Surfaces with auto switch mounting slot</td><td>Surfaces with auto switch mounting slot</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Mounting of auto switch</td><td> 

• When tightening the auto switch mounting screw, use a watchmakers' screwdriver with a handle 5 to 6 mm in diameter.
Tightening Torque for Auto Switch Mounting Screw (N·m)
<table>
<tr><th>Auto switch model</th><th>Tightening torque</th></tr>
<tr><td>D-M9□(V)
D-M9□W(V)
D-M9□A(V)</td><td>0.05 to 0.15</td></tr>
<tr><td>D-A9□(V)</td><td>0.10 to 0.20</td></tr>
</table></td><td>① Insert the mounting bracket into the mating groove of the cylinder tube.
② Check the detecting position of the auto switch and fix the auto switch firmly with the hexagon socket head cap screw (M2.5 x 12 L).*
③ If the detecting position is changed, go back to step ①.
Note 1) Ensure that the auto switch is covered with the mating groove to protect the auto switch.
Note 2) The tightening torque for the hexagon socket head cap screw (M2.5 x 12 L) is 0.2 to 0.3 N·m.

</td></tr>
</table>

Note) Auto switch mounting brackets and auto switches are enclosed with the cylinder for shipment.
For an environment that needs the water-resistant auto switch, select the D-M9□A(V) type.

Made to Order: Individual Specifications

Please contact SMC for detailed dimensions, specifications and lead times.

Made to Order

Symbol

1 Side Porting Type — -X867

Ports are only on the top of the cylinder for the standard model, but side ports are also available.

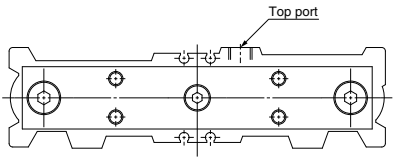
How to Order

MGPW | **Standard model no.** | **−X867**

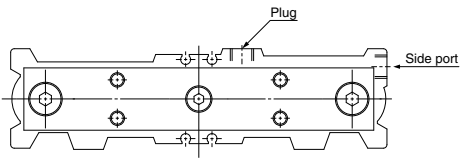
-X867: Side porting type

Port positions

Standard

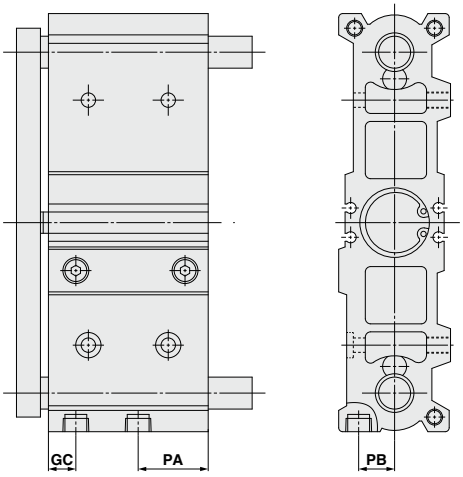


-X867



Specifications: Same as standard type

Dimensions (Dimensions other than below are the same as standard type.)



(mm)

Bore size (mm)	GC	PA	PB
20	9.9	23.5	10.5
25	10.3	25	13.5
32	11.4	31	16
40	13.5	31	18
50	14	35	21.5
63	15.5	36	28

MGPW Series
Specific Product Precautions

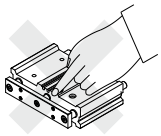
Be sure to read this before handling the products.
Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

Mounting

⚠Warning

1. Never place your hands or fingers between the plate and the body.

Be very careful to prevent your hands or fingers from getting caught in the gap between the cylinder body and the plate when air is applied.



⚠Caution

1. Use cylinders within the piston speed range.

An orifice is set for this cylinder, but the piston speed may exceed the operating range if the speed controller is not used. If the cylinder is used outside the operating speed range, it may cause damage to the cylinder and shorten the service life. Adjust the speed by installing the speed controller and use the cylinder within the limited range.

2. Pay attention to the operating speed when the product is mounted vertically.

When using the product in the vertical direction, if the load factor is large, the operating speed can be faster than the control speed of the speed controller (i.e. quick extension). In such cases, it is recommended to use a dual speed controller.

3. Do not scratch or gouge the sliding portion of the piston rod and the guide rod.

Damaged seals, etc. will result in leakage or malfunction.

4. Do not dent or scratch the mounting surface of a body and a plate.

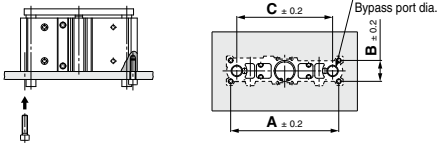
The flatness of the mounting surface may not be maintained, which would cause an increase in sliding resistance.

5. Make sure that the cylinder mounting surface has a flatness of 0.05 mm or less.

Insufficient flatness of a workpiece or bracket mounted on the mounting surface or plate of the cylinder and other parts can cause defective operation and an increase in the sliding resistance.

6. Bottom of cylinder

The guide rods protrude from the bottom of the cylinder at the end of the retracting stroke, and therefore, in cases where the cylinder is to be bottom mounted, it is necessary to provide bypass ports in the mounting surface for the guide rods, as well as holes for the hexagon socket head cap screws which are used for mounting.

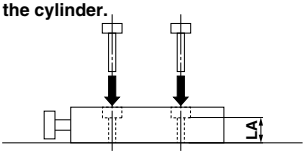


Bore size (mm)	A (mm)	B (mm)	C (mm)	D (mm) MGPWM	D (mm) MGPWL/A	Hexagon socket head cap screw
20	126	24	108	12	12	M5 x 0.8
25	146	30	128	14	15	M6 x 1.0
32	176	34	156	18	18	M8 x 1.25
40	192	40	172	18	18	M8 x 1.25
50	240	46	220	22	22	M10 x 1.5
63	266	58	248	22	22	M10 x 1.5

Mounting

⚠Caution

7. Tighten the screws to the correct tightening torques specified in the table below when mounting parts on top of the cylinder.



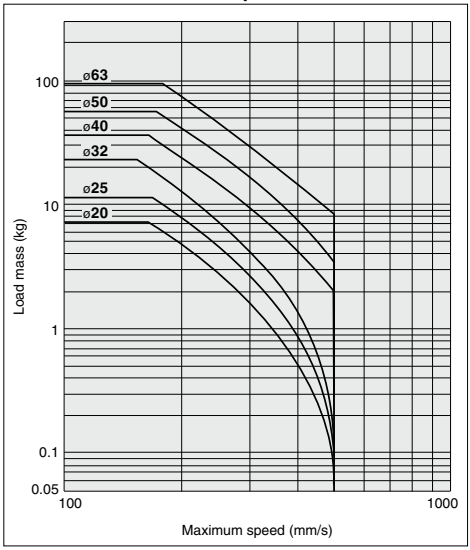
Bore size (mm)	Hexagon socket head cap screw	Tightening torque (N·m)	**LA** dimension (mm)
20	M5	3.0 to 4.0	30.5
25			36.5
32	M6	5.2 to 6.4	40.5
40			46.5
50	M8	12.5 to 15.5	54.5
63			68.5

Allowable Kinetic Energy

⚠Caution

Load mass and a maximum speed must be within the ranges shown in the graph below.

MGPW with Rubber Bumper



Other

⚠Caution

Do not use this cylinder as a stopper.