

● With end lock type added

- Holds the cylinder's home position even if the air supply is cut off.
- Compact body $\phi 20$ to $\phi 63$ Body length for standard + 25 mm
 $\phi 80$, $\phi 100$ Standard + 50 mm body length

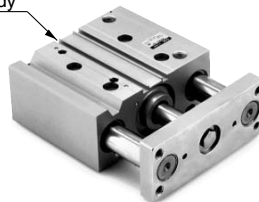
■ Stroke Variations

		Bearing type	Bore size (mm)	Stroke (mm)																Intermediate stroke	Lock direction	Manual release
				25	50	75	100	125	150	175	200	250	300	350	400							
MGPM Slide bearing	20	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Spacer type available by the 5 mm stroke interval.	Rod end lock	Non-lock type				
	25	●	●	●	●	●	●	●	●	●	●	●	●	●								
	32	●	●	●	●	●	●	●	●	●	●	●	●	●								
	40	●	●	●	●	●	●	●	●	●	●	●	●	●								
MGPL Ball bushing bearing	50	●	●	●	●	●	●	●	●	●	●	●	●	●		Head end lock	Lock type					
	63	●	●	●	●	●	●	●	●	●	●	●	●	●								
	80	●	●	●	●	●	●	●	●	●	●	●	●	●								
	100	●	●	●	●	●	●	●	●	●	●	●	●	●								

● With air cushion type standardized

- An air cushion has been added to the compact guide cylinder to suppress vibration and noise at the stroke end. It can absorb nearly three times as much kinetic energy as a rubber bumper.

Cushion valve is built into the body



■ Stroke Variations

Bearing type	Bore size (mm)	Stroke (mm)																Intermediate stroke											
		25	50	75	100	125	150	175	200	250	300	350	400																
MGPM Slide bearing	16	●	●	●	●	●	●	●	●	●	●	●	●	Strokes available by the 1 mm interval by changing the collar.															
	20	●	●	●	●	●	●	●	●	●	●	●	●																
	25	●	●	●	●	●	●	●	●	●	●	●	●																
	32	●	●	●	●	●	●	●	●	●	●	●	●																
	40	●	●	●	●	●	●	●	●	●	●	●	●																
MGPL Ball bushing bearing	50	●	●	●	●	●	●	●	●	●	●	●	●																
	63	●	●	●	●	●	●	●	●	●	●	●	●																
	80	●	●	●	●	●	●	●	●	●	●	●	●																
	100	●	●	●	●	●	●	●	●	●	●	●	●																

Strokes available by the 1 mm interval by changing the collar.

● Heavy duty guide rod type with improved load resistance



- Anti-lateral load: $\Delta 10\%$ increase
- Eccentric load resistance: $\Delta 25\%$ increase
- Impact load resistance: $\Delta 140\%$ increase
 (Compared with MGPM50 compact guide cylinder)

■ Stroke Variations

Bearing type	Bore size (mm)	Stroke (mm)							
		25	50	75	100	125	150	175	200
MGPS Slide bearing	50	●	●	●	●	●	●	●	●
	80	●	●	●	●	●	●	●	●

Bore size (mm)	Guide rod diameter (mm)	
	MGPS	MGPM
50	30	25
80	45	30

■ Series Variations

Series	Bearing type	Cushion	Bore size (mm)									
			12	16	20	25	32	40	50	63	80	100
Standard type MGP	Slide bearing	Rubber bumper	●	●	●	●	●	●	●	●	●	●
With air cushion MGP		Air cushion	●	●	●	●	●	●	●	●	●	●
With end lock MGP	Ball bushing bearing	Rubber bumper	●	●	●	●	●	●	●	●	●	●
Heavy duty guide rod type MGPS		Rubber bumper	●	●	●	●	●	●	●	●	●	●
High precision ball bushing bearing type MGPA	Ball bushing bearing	Rubber bumper	●	●	●	●	●	●	●	●	●	●

- Clean series: $\phi 12$ to $\phi 63$
- Water resistant: $\phi 20$ to $\phi 100$ (Note)
- Copper-free: $\phi 12$ to $\phi 100$

• Copper-free (20-)
 (Note) Available with $\phi 20$ to $\phi 100$ slide bearing type only

Compact Guide Cylinder Series *MGP*

ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

How to Order

MGP **M** **25** **30** **Y7BW**

Bearing type

M	Slide bearing
L	Ball bushing bearing

Bore size

12	12 mm	40	40 mm
16	16 mm	50	50 mm
20	20 mm	63	63 mm
25	25 mm	80	80 mm
32	32 mm	100	100 mm

Thread type

Nil	M5 x 0.8
N	NPT
TF	G

Cylinder stroke (mm)
Refer to "Standard Stroke" on page 8-19-9.

Auto switch

Nil	Without auto switch (Built-in magnet)
------------	---------------------------------------

* For the applicable auto switch model, refer to the table below.
* Auto switches are shipped together, (but not assembled).
(Except D-P5DW)

Number of auto switches

Nil	2 pcs.
S	1 pc.

* For bore sizes 12 and 16, M5 x 0.8 is only available.

Applicable Auto Switch/Refer to page 8-30-1 for further information on auto switches.

Appendix 4: Auto switch model selection

Page 3 of 14 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-wire connector	Applicable load		
					DC	AC	Perpendicular	In-line	0.5 (Nil)	3 (L)	5 (Z)				
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	Z76	●	●	—	—	IC circuit	—	
				2-wire	24 V	12 V	100 V	—	Z73	●	●	●	—	—	Relay, PLC
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	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	●	●	○	○			
				Y7BWV		Y7BW		●	●	○	○				
	Diagnostic indication (2-color indication)			2-wire		12 V		—	Y7BA	—	●	○	○	—	
	Water resistant (2-color indication)							—	P5DW	—	●	●	○		
Magnetic field resistant (2-color indication)															

* Lead wire length symbols: 0.5 m..... Nil
3 m..... L
5 m..... Z

(Example) Y59A
(Example) Y59AL
(Example) Y59AZ

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

* D-P5DW type can be mounted only on bore sizes 40 to 100.

- Since there are other applicable auto switches than listed, refer to page 8-19-20 for details.
- For details about auto switches with pre-wire connector, refer to page 8-30-52.

Specifications



Action	Double acting	
Fluid	Air	
Proof pressure	1.5 MPa	
Maximum operating pressure	1.0 MPa	
Minimum operating pressure	ø12, ø16	0.12 MPa
	ø20 to ø100	0.1 MPa
Ambient and fluid temperature	-10 to 60°C (No freezing)	
Piston speed Note)	ø12 to ø63	50 to 500 mm/s
	ø80, ø100	50 to 400 mm/s
Cushion	Rubber bumper on both ends	
Lubrication	Non-lube	
Stroke length tolerance	$+1.5$ 0 mm	

Note) Maximum speed with no load.

Make a model selection, considering a load according to the graph on page 8-19-11.

Standard Stroke

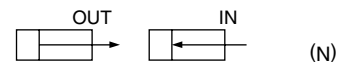
Bore size (mm)	Standard stroke (mm)
12, 16	10, 20, 30, 40, 50, 75, 100, 125, 150, 175, 200, 250
20, 25	20, 30, 40, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400
32 to 100	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400

Manufacture of Intermediate Stroke

Description	Spacer installation type Spacers are installed in the standard stroke cylinder. • ø12 to 32: Available by the 1 mm stroke interval. • ø40 to 100: Available by the 5 mm stroke interval.		Exclusive body (-XB10) Dealing with the stroke by making an exclusive body. • All bore sizes are available by the 1 mm interval.	
Part no.	Refer to "How to Order" for the standard model numbers.		Suffix "-XB10" to the end of standard part number. Note)	
Applicable stroke (mm)	ø12, ø16	1 to 249	ø12, ø16	11 to 249
	ø20, ø25, ø32	1 to 399	ø20, ø25	21 to 399
	ø40 to ø100	5 to 395	ø32 to ø100	26 to 399
Example	Part no.: MGPM20-39 A spacer 1 mm in width is installed in a MGPM20-40. C dimension is 77 mm.		Part no.: MGPM20-39-XB10 Special body manufactured for 39 stroke. C dimension is 76 mm.	

Note) For details, refer to "Made to Order Specifications".

Theoretical Output



Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm²)	Operating pressure (MPa)								
				0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
12	6	OUT	113	23	34	45	57	68	79	90	102	113
		IN	85	17	26	34	43	51	60	68	77	85
16	8	OUT	201	40	60	80	101	121	141	161	181	201
		IN	151	30	45	60	76	91	106	121	136	151
20	10	OUT	314	63	94	126	157	188	220	251	283	314
		IN	236	47	71	94	118	142	165	189	212	236
25	12	OUT	491	98	147	196	246	295	344	393	442	491
		IN	378	76	113	151	189	227	265	302	340	378
32	16	OUT	804	161	241	322	402	482	563	643	724	804
		IN	603	121	181	241	302	362	422	482	543	603
40	16	OUT	1257	251	377	503	629	754	880	1006	1131	1257
		IN	1056	211	317	422	528	634	739	845	950	1056
50	20	OUT	1963	393	589	785	982	1178	1374	1570	1767	1963
		IN	1649	330	495	660	825	990	1154	1319	1484	1649
63	20	OUT	3117	623	935	1247	1559	1870	2182	2494	2805	3117
		IN	2803	561	841	1121	1402	1682	1962	2242	2523	2803
80	25	OUT	5027	1005	1508	2011	2514	3016	3519	4022	4524	5027
		IN	4536	907	1361	1814	2268	2722	3175	3629	4082	4536
100	30	OUT	7854	1571	2356	3142	3927	4712	5498	6283	7069	7854
		IN	7147	1429	2144	2859	3574	4288	5003	5718	6432	7147

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

Made to Order Specification (For details, refer to page 8-31-1.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB6	Heat resistant cylinder (150°C)
-XB10	Intermediate stroke (Using exclusive body)
-XB13	Low speed cylinder (5 to 50 mm/s)
-XC4	With heavy duty scraper
-XC6	Piston rod and rod end nut made of stainless steel
-XC8	Adjustable stroke cylinder/Adjustable extension type
-XC9	Adjustable stroke cylinder/Adjustable extension type
-XC22	Fluoro rubber seals
-XC35	With coil scraper
-XC69	With shock absorber
-XC79	Machining tapped hole, drilled hole and pin hole additionally.
-X867	Lateral piping type (Change of plug position)

Auto Switch Mounting Bracket Part No. for D-P5DW

Bore size (mm)	Mounting bracket part no.	Note
40, 50, 63, 80, 100	BMG1-040	Switch mounting bracket Hexagon socket head cap screw (M2.5 x 0.45 x 8) 2 pcs. Hexagon socket head cap screw (M3 x 0.5 x 16) 2 pcs. Spring washer (Nominal size 3)

Series MGP

Weight

Slide Bearing: MGPM12 to 100

(kg)

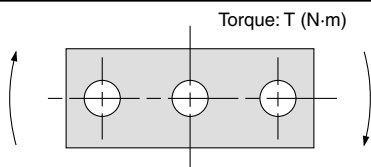
Bore size (mm)	Model	Standard stroke (mm)															
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400
12	MGPM12	0.24	0.28	—	0.31	0.35	0.39	0.50	0.59	0.70	0.79	0.89	0.98	1.17	—	—	—
16	MGPM16	0.33	0.38	—	0.43	0.48	0.53	0.68	0.80	0.97	1.09	1.22	1.35	1.60	—	—	—
20	MGPM20	—	0.67	—	0.75	0.83	0.91	1.17	1.37	1.57	1.76	1.96	2.16	2.63	3.03	3.42	3.82
25	MGPM25	—	0.95	—	1.05	1.16	1.27	1.65	1.92	2.19	2.47	2.74	3.01	3.67	4.21	4.76	5.30
32	MGPM32	—	—	1.69	—	—	2.07	2.47	2.85	3.24	3.62	4.00	4.38	5.33	6.09	6.86	7.62
40	MGPM40	—	—	1.95	—	—	2.37	2.83	3.25	3.68	4.10	4.53	4.95	5.99	6.85	7.70	8.55
50	MGPM50	—	—	3.36	—	—	4.00	4.73	5.37	6.01	6.65	7.29	7.93	9.54	10.8	12.1	13.4
63	MGPM63	—	—	4.18	—	—	4.94	5.78	6.54	7.29	8.05	8.80	9.56	11.4	12.9	14.4	15.9
80	MGPM80	—	—	6.49	—	—	7.43	8.67	9.61	10.5	11.5	12.4	13.4	15.8	17.7	19.5	21.4
100	MGPM100	—	—	10.5	—	—	11.9	13.6	14.9	16.3	17.6	18.9	20.2	23.6	26.2	28.9	31.5

Ball Bushing Bearing: MGPL12 to 100

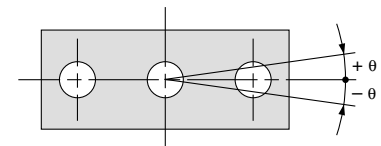
(kg)

Bore size (mm)	Model	Standard stroke (mm)															
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400
12	MGPL12	0.24	0.27	—	0.30	0.35	0.39	0.47	0.56	0.66	0.74	0.83	0.91	1.08	—	—	—
16	MGPL16	0.34	0.39	—	0.43	0.51	0.56	0.67	0.79	0.93	1.04	1.16	1.28	1.50	—	—	—
20	MGPL20	—	0.70	—	0.77	0.89	0.97	1.14	1.31	1.52	1.69	1.87	2.04	2.42	2.77	3.12	3.47
25	MGPL25	—	0.98	—	1.07	1.25	1.34	1.57	1.81	2.08	2.31	2.54	2.77	3.27	3.74	4.20	4.66
32	MGPL32	—	—	1.54	—	—	1.85	2.30	2.62	2.99	3.31	3.62	3.94	4.63	5.26	5.89	6.52
40	MGPL40	—	—	1.79	—	—	2.15	2.64	3.00	3.42	3.78	4.14	4.50	5.28	6.00	6.72	7.44
50	MGPL50	—	—	3.11	—	—	3.66	4.41	4.96	5.60	6.15	6.70	7.25	8.48	9.57	10.7	11.8
63	MGPL63	—	—	3.93	—	—	4.59	5.46	6.12	6.88	7.54	8.21	8.87	10.3	11.7	13.0	14.3
80	MGPL80	—	—	6.25	—	—	7.39	8.69	9.51	10.3	11.1	12.0	12.8	14.7	16.3	18.0	19.6
100	MGPL100	—	—	9.89	—	—	11.6	13.4	14.5	15.7	16.9	18.1	19.3	21.9	24.2	26.6	28.9

Allowable Rotational Torque of Plate



Non-rotating Accuracy of Plate



For non-rotating accuracy without load, use a value no more than the values in the table as a guide.

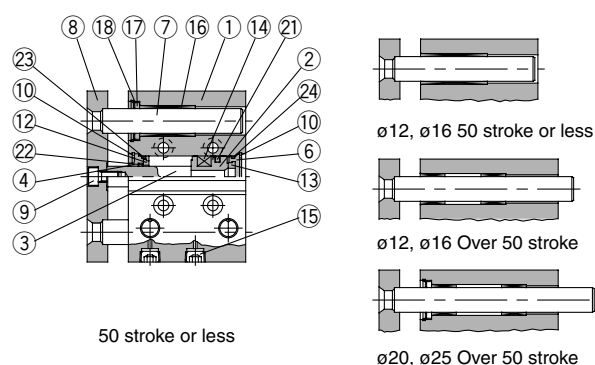
Bore size (mm)	Bearing type	Stroke (mm)															
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400
12	MGPM	0.39	0.32	—	0.27	0.24	0.21	0.43	0.36	0.31	0.27	0.24	0.22	0.19	—	—	—
	MGPL	0.61	0.45	—	0.35	0.58	0.50	0.37	0.29	0.24	0.20	0.18	0.16	0.12	—	—	—
16	MGPM	0.69	0.58	—	0.49	0.43	0.38	0.69	0.58	0.50	0.44	0.40	0.36	0.30	—	—	—
	MGPL	0.99	0.74	—	0.59	0.99	0.86	0.65	0.52	0.43	0.37	0.32	0.28	0.23	—	—	—
20	MGPM	—	1.05	—	0.93	0.83	0.75	1.88	1.63	1.44	1.28	1.16	1.06	0.90	0.78	0.69	0.62
	MGPL	—	1.26	—	1.03	2.17	1.94	1.52	1.34	1.17	1.03	0.93	0.76	0.65	0.56	0.49	—
25	MGPM	—	1.76	—	1.55	1.38	1.25	2.96	2.57	2.26	2.02	1.83	1.67	1.42	1.24	1.09	0.98
	MGPL	—	2.11	—	1.75	3.37	3.02	2.38	1.97	2.05	1.78	1.58	1.41	1.16	0.98	0.85	0.74
32	MGPM	—	—	6.35	—	—	5.13	5.69	4.97	4.42	3.98	3.61	3.31	2.84	2.48	2.20	1.98
	MGPL	—	—	5.95	—	—	4.89	5.11	4.51	6.34	5.79	5.33	4.93	4.29	3.78	3.38	3.04
40	MGPM	—	—	7.00	—	—	5.66	6.27	5.48	4.87	4.38	3.98	3.65	3.13	2.74	2.43	2.19
	MGPL	—	—	6.55	—	—	5.39	5.62	4.96	6.98	6.38	5.87	5.43	4.72	4.16	3.71	3.35
50	MGPM	—	—	13.0	—	—	10.8	12.0	10.6	9.50	8.60	7.86	7.24	6.24	5.49	4.90	4.43
	MGPL	—	—	9.17	—	—	7.62	9.83	8.74	11.6	10.7	9.83	9.12	7.95	7.02	6.26	5.63
63	MGPM	—	—	14.7	—	—	12.1	13.5	11.9	10.7	9.69	8.86	8.16	7.04	6.19	5.52	4.99
	MGPL	—	—	10.2	—	—	8.48	11.0	9.74	13.0	11.9	11.0	10.2	8.84	7.80	6.94	6.24
80	MGPM	—	—	21.9	—	—	18.6	22.9	20.5	18.6	17.0	15.6	14.5	12.6	11.2	10.0	9.11
	MGPL	—	—	15.1	—	—	23.3	22.7	20.6	18.9	17.3	16.0	14.8	12.9	11.3	10.0	8.94
100	MGPM	—	—	38.8	—	—	33.5	37.5	33.8	30.9	28.4	26.2	24.4	21.4	19.1	17.2	15.7
	MGPL	—	—	27.1	—	—	30.6	37.9	34.6	31.8	29.3	27.2	25.3	22.1	19.5	17.3	15.5

Bore size (mm)	Non-rotating accuracy θ	
	MGPM	MGPL
12	$\pm 0.08^\circ$	$\pm 0.10^\circ$
16	$\pm 0.08^\circ$	$\pm 0.10^\circ$
20	$\pm 0.07^\circ$	$\pm 0.09^\circ$
25	$\pm 0.07^\circ$	$\pm 0.09^\circ$
32	$\pm 0.06^\circ$	$\pm 0.08^\circ$
40	$\pm 0.06^\circ$	$\pm 0.08^\circ$
50	$\pm 0.05^\circ$	$\pm 0.06^\circ$
63	$\pm 0.05^\circ$	$\pm 0.06^\circ$
80	$\pm 0.04^\circ$	$\pm 0.05^\circ$
100	$\pm 0.04^\circ$	$\pm 0.05^\circ$

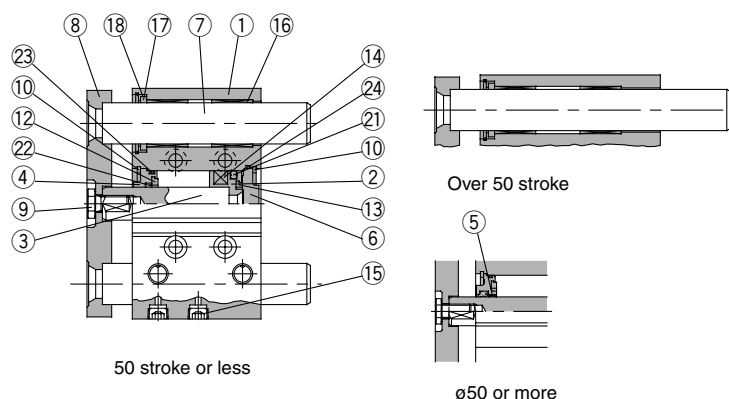
Construction

Series MGPM

MGPM12 to 25

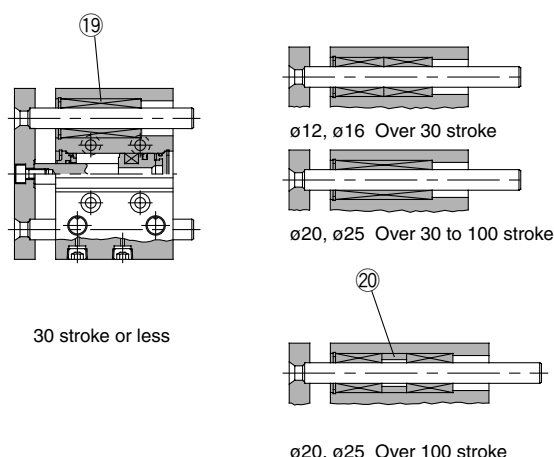


MGPM32 to 100

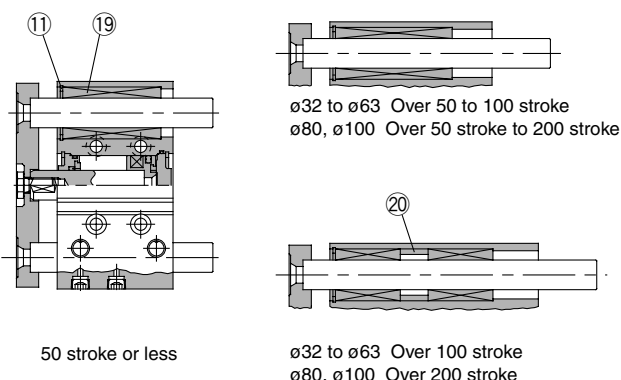


Series MGPL

MGPL12 to 25



MGPL32 to 100



Component Parts

No.	Description	Material	Note
①	Body	Aluminum alloy	Hard anodized
②	Piston	Aluminum alloy	Chromated
③	Piston rod	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø100 Hard chrome plated
④	Collar	Aluminum alloy	ø12 to ø40 Clear anodized
		Aluminum alloy casted	ø50 to ø100 Painted
⑤	Bushing	Lead bronze casting	ø50 to ø100
⑥	Head cover	Aluminum alloy	ø12 to ø63 Colorless chromated
			ø80 to ø100 Painted
⑦	Guide rod	Carbon steel	Hard chrome plated
⑧	Plate	Carbon steel	Nickel plated
⑨	Plate mounting bolt	Carbon steel	Nickel plated
⑩	Snap ring	Carbon tool steel	Phosphate coated
⑪	Snap ring	Carbon tool steel	Phosphate coated

No.	Description	Material	Note
⑫	Bumper A	Urethane	
⑬	Bumper B	Urethane	
⑭	Magnet	Magnetic material	
⑮	Plug (M-5P) Hexagon socket head taper plug	Brass	ø12, ø16 Nickel plated
		Carbon steel	ø20 to ø100 Nickel plated
⑯	Slide Bearing	Lead-bronze casted	
⑰	Felt	Felt	Except ø12, ø16
⑱	Holder	Resin	Except ø12, ø16
⑲	Ball bushing		
⑳	Spacer	Aluminum alloy	
㉑*	Piston seal	NBR	
㉒*	Rod seal	NBR	
㉓*	Gasket A	NBR	
㉔*	Gasket B	NBR	

Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Contents
12	MGP12-PS	Set of nos. above ㉑, ㉒, ㉓, ㉔
16	MGP16-PS	
20	MGP20-PS	
25	MGP25-PS	
32	MGP32-PS	

Bore size (mm)	Kit no.	Contents
40	MGP40-PS	Set of nos. above ㉑, ㉒, ㉓, ㉔
50	MGP50-PS	
63	MGP63-PS	
80	MGP80-PS	
100	MGP100-PS	

* Seal kit includes ㉑ to ㉔. Order the seal kit, based on each bore size.

MX□

MTS

MY□

CY□

MG□

CX□

D-

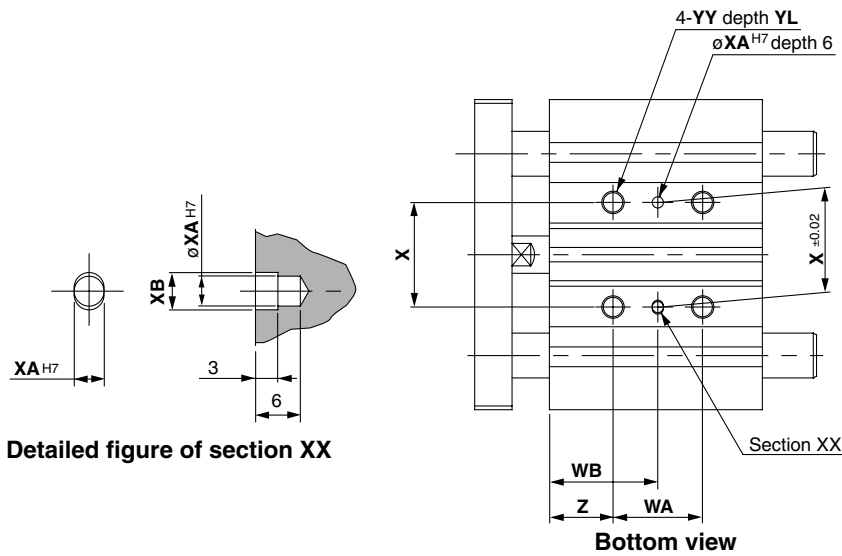
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20-

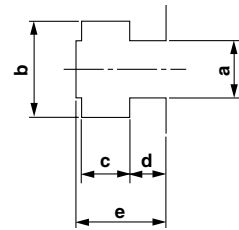
Data

Series MGP

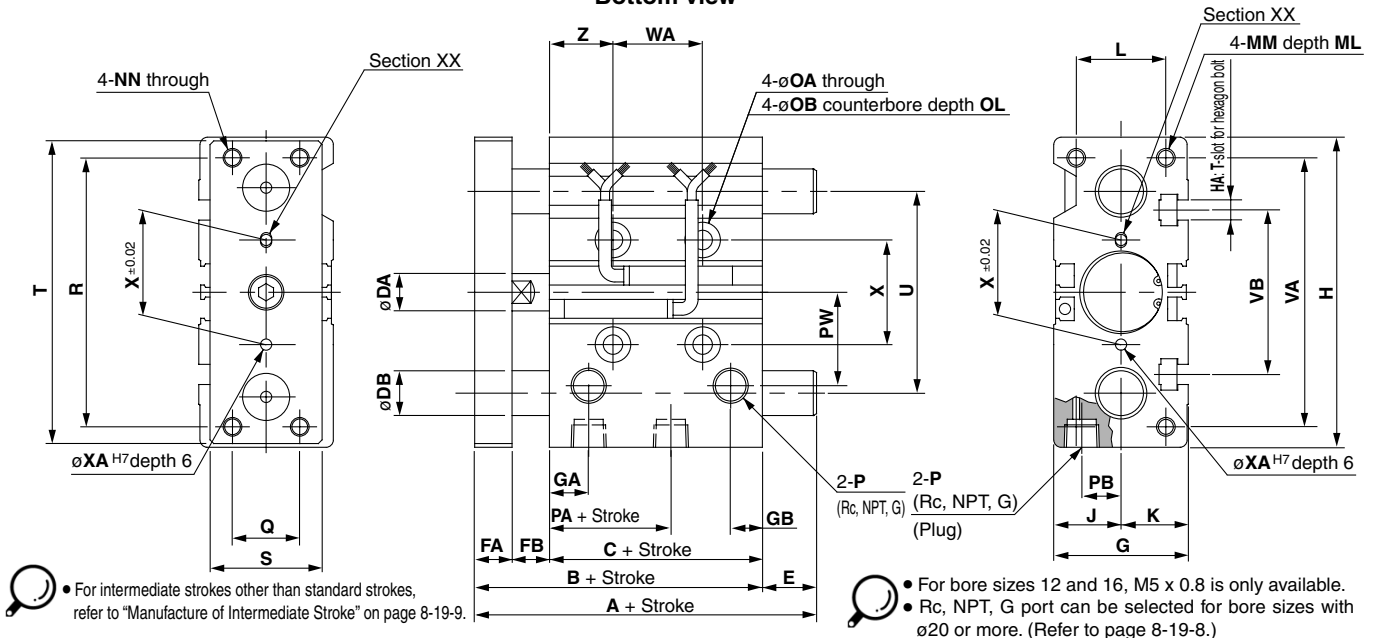
MGPM, MGPL: $\phi 12$ to $\phi 25$



T-slot dimensions



Bore size (mm)	a	b	c	d	e
12	4.4	7.4	3.7	2	6.2
16	4.4	7.4	3.7	2.5	6.7
20	5.4	8.4	4.5	2.8	7.8
25	5.4	8.4	4.5	3	8.2



MGPM, MGPL Common Dimensions

Bore size (mm)	Standard stroke (mm)	B	C	DA	FA	FB	G	GA	GB	H	HA	J	K	L	MM	ML	NN	OA	OB	OL	P	PA	PB	PW
12	10, 20, 30, 40, 50, 75, 100	42	29	6	8	5	26	11	7.5	58	M4	13	13	18	M4 x 0.7	10	M4 x 0.7	4.3	8	4.5	M5 x 0.8	13	8	18
16	125, 150, 175, 200, 250	46	33	8	8	5	30	11	8	64	M4	15	15	22	M5 x 0.8	12	M5 x 0.8	4.3	8	4.5	M5 x 0.8	15	10	19
20	20, 30, 40, 50, 75, 100	53	37	10	10	6	36	10.5	8.5	83	M5	18	18	24	M5 x 0.8	13	M5 x 0.8	5.6	9.5	5.5	1/8	12.5	10.5	25
25	125, 150, 175, 200 250, 300, 350, 400	53.5	37.5	12	10	6	42	11.5	9	93	M5	21	21	30	M6 x 1.0	15	M6 x 1.0	5.6	9.5	5.5	1/8	12.5	13.5	28.5

Bore size (mm)	Q	R	S	T	U	VA	VB	WA					WB					X	XA	XB	YY	YL	Z
								30 st or less	Over 30 st to 100 st	Over 100 st to 200 st	Over 200 st to 300 st	Over 300 st	30 st or less	Over 30 st to 100 st	Over 100 st to 200 st	Over 200 st to 300 st	Over 300 st						
12	14	48	22	56	41	50	37	20	40	110	200	—	15	25	60	105	—	23	3	3.5	M5 x 0.8	10	5
16	16	54	25	62	46	56	38	24	44	110	200	—	17	27	60	105	—	24	3	3.5	M5 x 0.8	10	5
20	18	70	30	81	54	72	44	24	44	120	200	300	29	39	77	117	167	28	3	3.5	M6 x 1.0	12	17
25	26	78	38	91	64	82	50	24	44	120	200	300	29	39	77	117	167	34	4	4.5	M6 x 1.0	12	17

MGPM (Slide bearing) A, DB, E Dimensions

Bore size (mm)	A			DB	E		
	50 st or less	Over 50 st to 100 st	Over 100 st		50 st or less	Over 50 st to 100 st	Over 100 st
12	42	60.5	85	8	0	18.5	43
16	46	64.5	95	10	0	18.5	49

MGPM (Slide bearing) A, DB, E Dimensions

Bore size (mm)	A			DB	E		
	50 st or less	Over 50 st to 100 st	Over 100 st		50 st or less	Over 50 st to 100 st	Over 100 st
20	53	84.5	122	12	0	31.5	69
25	53.5	85	122	16	0	31.5	68.5

MGPL (Ball bushing bearing) A, DB, E Dimensions

Bore size (mm)	A			DB	E		
	30 st or less	Over 30 st to 100 st	Over 100 st		30 st or less	Over 30 st to 100 st	Over 100 st
12	43	55	85	6	1	13	43
16	49	65	95	8	3	19	49

MGPL (Ball bushing bearing) A, DB, E Dimensions

Bore size (mm)	A				DB	E			
	30 st or less	Over 30 st to 100 st	Over 100 st to 200 st	Over 200 st		30 st or less	Over 30 st to 100 st	Over 100 st to 200 st	Over 200 st
20	63	80	104	122	10	10	27	51	69
25	69.5	85.5	104.5	122	13	16	32	51	68.5

