

Compact Guide Cylinder Series *MGP*

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

How to Order

Compact Guide Cylinder

MGP **M** **25** **30** **Z73**

Compact guide cylinder

Bearing type

M	Slide bearing
L	Ball bushing

Bore size

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

Number of auto switches

Nil	2 pcs.
S	1 pc.

Auto switch type

Nil	Without auto switch (built-in magnet cylinder)
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* Refer to the table below for auto switch model numbers.

Cylinder stroke (mm)

Refer to the standard stroke table on page 2.

Applicable auto switches

Type	Special function	Electrical entry	Indicator light	Wiring (output)	Load voltage		Auto switch model		Lead wire length (m) ^{Note 1)}			Applicable load		Detailed specifications	
					DC	AC	Electrical entry direction		0.5 (Nil)	3 (L)	5 (Z)				
							Perpendicular	In-line							
Reed switch	—	Grommet	Yes	3 wire	—	5V	—	—	Z76	●	●	—	IC circuit	Relay, PLC	P. 59
				2 wire	24V	12V	100V	—	Z73	●	●	●	—		
			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	P. 60
				3 wire (PNP)		Y7PV		Y7P	●	●	○				
				2 wire		12V		Y69B	Y59B	●	●	○			
	3 wire (NPN)			5V 12V		Y7NWV		Y7NW	●	●	○	IC circuit			
	3 wire (PNP)			Y7PWV		Y7PW		●	●	○					
	2 wire			12V		Y7BWV		Y7BW	●	●	○		—		
		—	—	Y7BA	—	●	○								
			—	—	^{Note 3)} P5DW	—	●	●							

Note 1) Lead wire symbols 0.5m Nil (Example) Y69B
3m L Y69BL
5m Z Y69BZ

Note 2) Solid state auto switches marked with a "O" are produced upon receipt of order.

Note 3) Type D-P5DW cannot be mounted on bore sizes of ø32 or less.

Series MGP



Specifications

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

Standard Strokes

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 Strokes

Modification method	Spacer installation type Spacers are installed in a standard stroke cylinder. • ø12 to 32 : Available in 1mm stroke increments • ø40 to 100 : Available in 5mm stroke increments		Special body type (-XB10) A special body is manufactured for the specified stroke. • All bore sizes are available in 1mm increments.	
Part number	Refer to standard part numbers and ordering procedure.		Indicate -XB10 at the end of the standard model no. Refer to P.52 for order made specifications.	
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 1mm in width is installed in a MGPM20—40 . C dimension is 77mm.		Part no.: MGPM20—39—XB10 Special body manufactured for 39mm stroke. C dimension is 76mm.	

Note) The minimum stroke for mounting auto switches is 10mm or more for two switches, and 5mm or more for one switch.

Auto switch mounting bracket part no. for D-P5DW

Bore size (mm)	Mounting bracket part no.	Notes
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)

Theoretical Output

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
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)

Weights

Slide bearing: MGPM12 to 100

(kg)

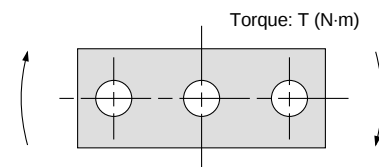
Bore size (mm)	Model	Standard stroke (mm)															
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400
12	MGPM12	0.24	0.28	—	0.31	0.35	0.39	0.50	0.59	0.70	0.79	0.89	0.98	1.17	—	—	—
16	MGPM16	0.33	0.38	—	0.43	0.48	0.53	0.68	0.80	0.97	1.09	1.22	1.35	1.60	—	—	—
20	MGPM20	—	0.67	—	0.75	0.83	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: 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

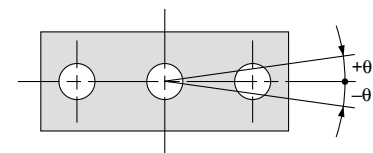
Allowable Rotational Torque of Plate



T (N-m)

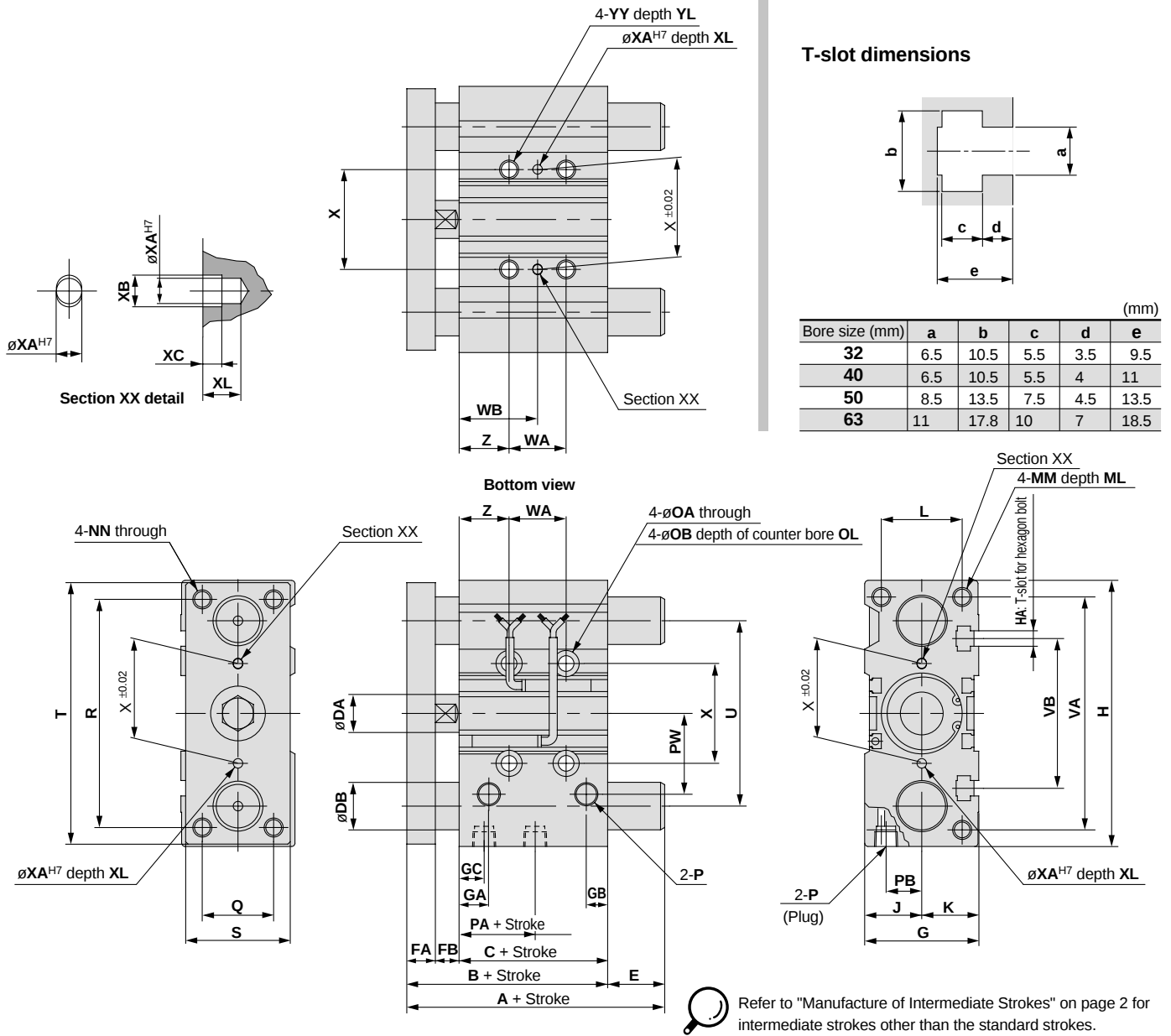
Bore size (mm)	Bearing type	Stroke (mm)															
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400
12	MGPM	0.39	0.32	—	0.27	0.24	0.21	0.43	0.36	0.31	0.27	0.24	0.22	0.19	—	—	—
	MGPL	0.61	0.45	—	0.35	0.58	0.50	0.37	0.29	0.24	0.20	0.18	0.16	0.12	—	—	—
16	MGPM	0.69	0.58	—	0.49	0.43	0.38	0.69	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	1.25	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

Non-rotating Accuracy of Plate



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

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



MGPM, MGPL Common dimensions

Bore size (mm)	Standard stroke (mm)		B	C	DA	FA	FB	G	GA	GB	GC	H	HA	J	K	L	MM	ML	NN	OA	OB	OL	P	PA	PB	PW	Q
32	25, 50, 75, 100, 125, 150, 175, 200 250, 300, 350, 400		59.5	37.5	16	12	10	48	12.5	9	12.5	112	M6	24	24	34	M8 x 1.25	20	M8 x 1.25	6.6	11	7.5	Rc 1/8	7	15	34	30
40			66	44	16	12	10	54	14	10	14	120	M6	27	27	40	M8 x 1.25	20	M8 x 1.25	6.6	11	7.5	Rc 1/8	13	18	38	30
50			72	44	20	16	12	64	14	11	12	148	M8	32	32	46	M10 x 1.5	22	M10 x 1.5	8.6	14	9	Rc 1/4	9	21.5	47	40
63			77	49	20	16	12	78	16.5	13.5	16.5	162	M10	39	39	58	M10 x 1.5	22	M10 x 1.5	8.6	14	9	Rc 1/4	14	28	55	50
Bore size (mm)	R	S	T	U	VA	VB	WA					WB					X	XA	XB	XC	XL	YY	YL	Z			
							25st or less	Over 25st to 100st	Over 100st to 200st	Over 200st to 300st	Over 300st	25st or less	Over 25st to 100st	Over 100st to 200st	Over 200st to 300st	Over 300st											
32	96	44	110	78	98	63	24	48	124	200	300	33	45	83	121	171	42	4	4.5	3	6	M8 x 1.25	16	21			
40	104	44	118	86	106	72	24	48	124	200	300	34	46	84	122	172	50	4	4.5	3	6	M8 x 1.25	16	22			
50	130	60	146	110	130	92	24	48	124	200	300	36	48	86	124	174	66	5	6	4	8	M10 x 1.5	20	24			
63	130	70	158	124	142	110	28	52	128	200	300	38	50	88	124	174	80	5	6	4	8	M10 x 1.5	20	24			

MGPM (slide bearing)/Dimensions A, DB, E

Bore size (mm)	A			DB	E		
	50st or less	Over 50st to 200st	Over 200st		50st or less	Over 50st to 200st	Over 200st
32	97	102	140	20	37.5	42.5	80.5
40	97	102	140	20	31	36	74
50	106.5	118	161	25	34.5	46	89
63	106.5	118	161	25	29.5	41	84

MGPL (ball bushing)/Dimensions A, DB, E

Bore size (mm)	A				DB	E			
	50st or less	Over 50st to 100st	Over 100st to 200st	Over 200st		50st or less	Over 50st to 100st	Over 100st to 200st	Over 200st
32	81	98	118	140	16	21.5	38.5	58.5	80.5
40	81	98	118	140	16	15	32	52	74
50	93	114	134	161	20	21	42	62	89
63	93	114	134	161	20	16	37	57	84