

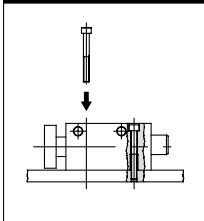
# Compact Guide Cylinder Series MGP

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

## 4 Standard mounting positions

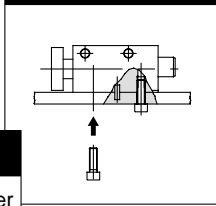
Piping from 2 directions is possible

### 1 Top mounting



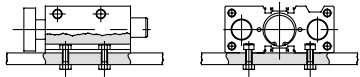
● Easy positioning  
Location pin holes on each mounting face.

### 2 Side mounting

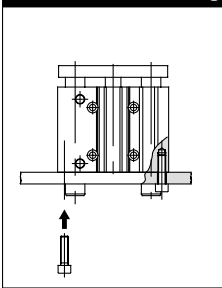


### 3 T-slot side mounting

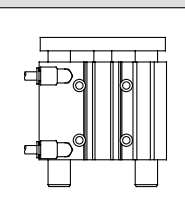
Easy to attach a workpiece to the cylinder



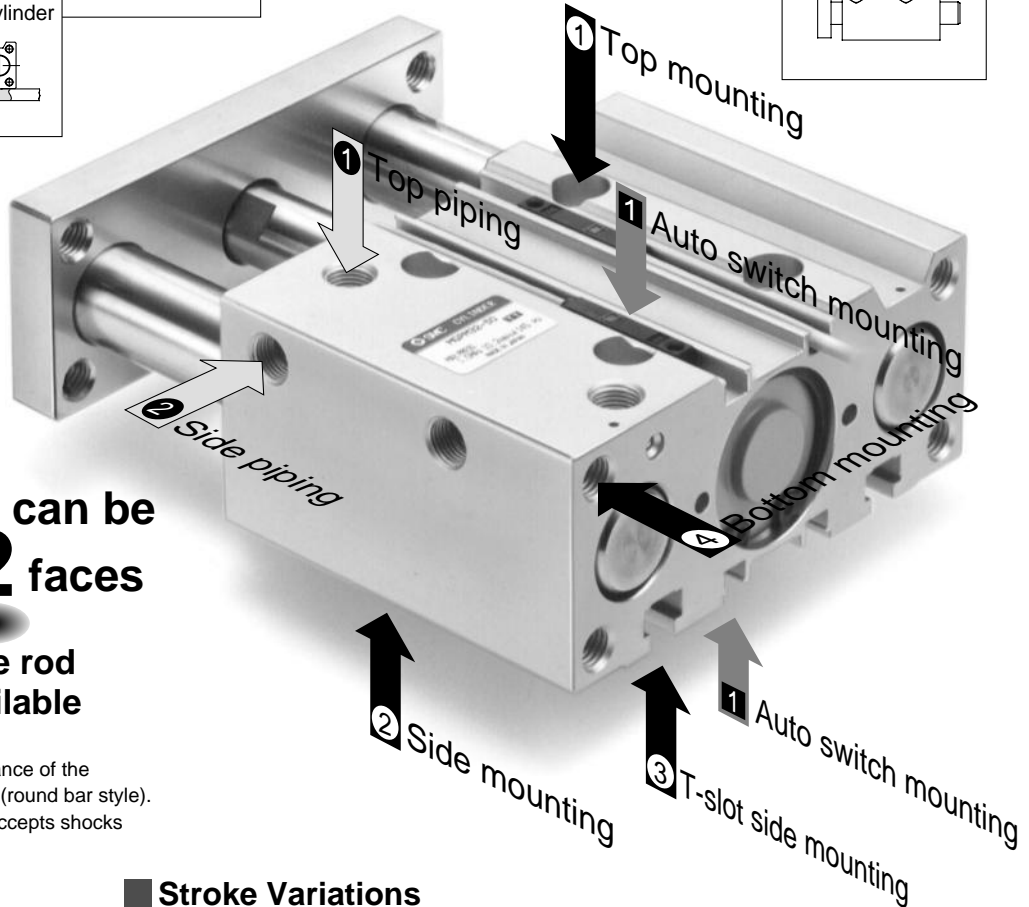
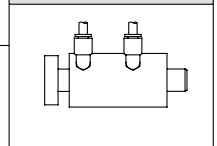
### 4 Bottom mounting



### 1 Top piping



### 2 Side piping



Auto switches can be mounted on 2 faces

### ● 2 styles of guide rod bearing are available

#### Slide bearing

2 times the lateral load resistance of the conventional stopper cylinder (round bar style). Suitable as a stopper which accepts shocks from lateral loads.

#### Ball bushing bearing

Suitable for pushing and lifting applications.

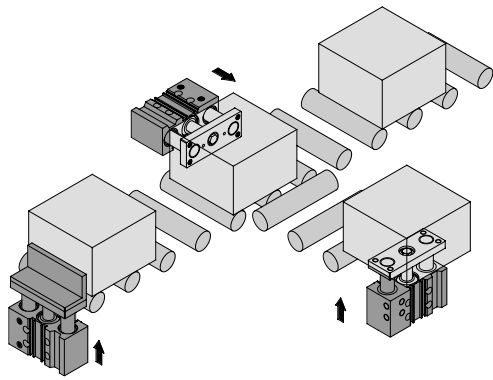
### ● Long strokes are available



### Stroke Variations

Bearing	Bore size (mm)	Stroke (mm)																
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400	
MGPM Slide bearing	12	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	16	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	20	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
MGPL Ball bushing bearing	40	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	50	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	63	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	80	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	100	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

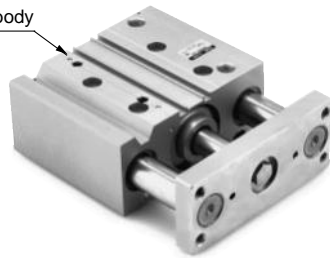
- CL
- MLGC
- CNA
- CB
- CV/MVG
- CXW
- CXS
- CXT
- MX
- MXU
- MXS
- MXQ
- MXF
- MXW
- MPX
- MG
- MGP
- MGQ
- MGG
- MGC
- MGF
- CY1
- MY1



## ● Standardized guide cylinder with air cushion

- An air cushion function has been added to the compact cylinder with a guide, in order to reduce vibration and noise at the stroke end.
- Absorbs approximately three times the kinetic energy than absorbed by a rubber bumper.

Built-in cushion valve inside the body



## ■ Stroke variations

Bearing	Bore size (mm)	Stroke (mm)							
		25	50	75	100	125	150	175	200
MGPM Slide bearing	16	●	●	●	●	●	●	●	●
	20	●	●	●	●	●	●	●	●
	25	●	●	●	●	●	●	●	●
	32	●	●	●	●	●	●	●	●
	40	●	●	●	●	●	●	●	●
MGPL Ball bushing bearing	50	●	●	●	●	●	●	●	●
	63	●	●	●	●	●	●	●	●
	80	●	●	●	●	●	●	●	●
	100	●	●	●	●	●	●	●	●

# Oversized Guide Rod Series *MGPS*

ø50, ø80

Improved Load Resistance Oversized Guide Rod: Series MGPS

- Lateral load resistance: **10% UP**
- Eccentric load resistance: **25% UP**
- Impact load resistance: **140% UP**

(Comparison with our equivalent model; Compact Guide Cylinder/MGPM50)



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

## ■ Stroke variations

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

## ■ Variations

Standard series MGP	Cushion	Bearing style	Bearing style				Bore size (mm)	Page
			Standard	Long stroke	Water resistant (ø20 to ø100)	Copper free		
Standard series MGP	Rubber bumper	Slide	●	●	●	●	12, 16, 20, 25, 32, 40, 50, 63, 80, 100	3.17-4
		Ball bushing	●	●	●	●		
	Air cushion	Slide	●	●	●	●	16, 20, 25, 32, 40, 50, 63, 80, 100	3.17-16
		Ball bushing	●	●	●	●		
Oversized guide rod series MGPS	Rubber bumper	Slide	●	●	●	50, 80	3.17-28	

## ■ Applicable Auto Switch

Reed switch	D-Z7/Z8
Solid state switch	D-Y5/Y6 D-Y7 (2 color) D-Y7BAL (Water resistant, 2 color)



# Series MGP/Precautions

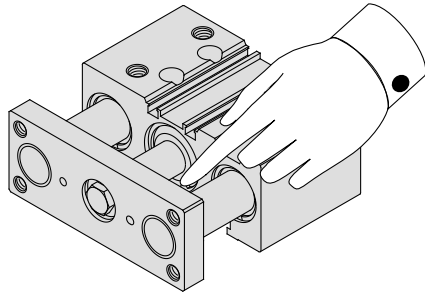
Be sure to read before handling. Refer to p.0-39 to 0-43 for Safety Instructions, and actuator and auto switch precautions.

## Mounting

### Warning

- ① Do not put hands or fingers between the plate and body.

Care should be taken that hands or fingers do not get caught in the space between the cylinder body and the plate when air pressure is applied.



### Caution

- ① Do not scratch or dent the sliding parts of the piston rod and guide rods.

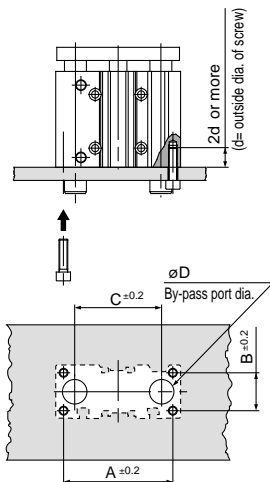
Damage to seals may cause air leaks or faulty operation.

- ② Bottom of cylinder

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

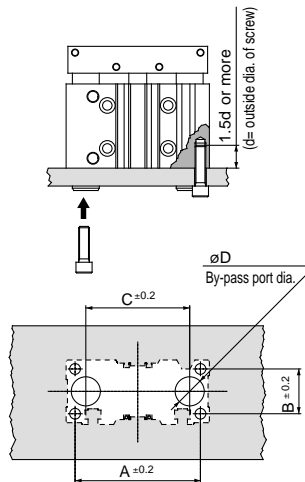
In case that shock will be delivered during use, the mounting bolts should be inserted to a depth of 2d or more (MGPS: 1.5d or more).

## Series MGP



Bore (mm)	A (mm)	B (mm)	C (mm)	D (mm)		Hex socket head mounting screw
				MGPM	MGPL	
12	50	18	41	10	8	M4 X 0.7
16	56	22	46	12	10	M5 X 0.8
20	72	24	54	14	12	M5 X 0.8
25	82	30	64	18	15	M6 X 1.0
32	98	34	78	22	18	M8 X 1.25
40	106	40	86	22	18	M8 X 1.25
50	130	46	110	27	22	M10 X 1.5
63	142	58	124	27	22	M10 X 1.5
80	180	54	156	33	28	M12 X 1.75
100	210	62	188	39	33	M14 X 2.0

## Series MGPS



Bore (mm)	A (mm)	B (mm)	C (mm)	D (mm)	Hex socket head mounting screw
80	214	66	170	47	M16 X 2

## Cushion

With air cushion

### Caution

- ① Adjust the cushion valve within a range of three turns from the fully closed position.

To adjust the cushion valve, use the screw driver described below or a wrench. Adjust the cushion valve within a range of three turns from the fully closed position. If the cylinder is operated with its cushion valve turned out four or more turns, it could lead to an air leak. Do not forcefully turn the cushion valve further out than the position of the stop mechanism provided in the cushion valve.

Bore size (mm)	Tool
16	Minus mini driver 3m/m
20, 25, 32, 40	JIS B4648 Hexagon wrench key 1.5
50, 63	JIS B4648 Hexagon wrench key 2.5
80, 100	JIS B4648 Hexagon wrench key 4

- ② Make sure to apply the air cushion at the cylinder's stroke end.

Make sure to apply the air cushion at the cylinder's stroke end.

If a cylinder must be operated with its cushion valve fully open, select a cylinder that is equipped with a rubber cushion. If a cylinder is operated without making sure of this, the piston rod assembly could become damaged.

- ③ If the cylinder has an air cushion, make sure to allow it to operate to its stroke end.

Unless the cylinder operates to its stroke end, the air cushion's capability cannot be brought into full play.

Therefore, if the cylinder's stroke is constrained by the use of an external stopper or the like, be aware that the cushion might not be applied at all.

CL

MLGC

CNA

CB

CV/MVG

CXW

CXS

CXT

MX

MXU

MXS

MXQ

MXF

MXW

MXP

MG

MGP

MGQ

MGG

MGC

MGF

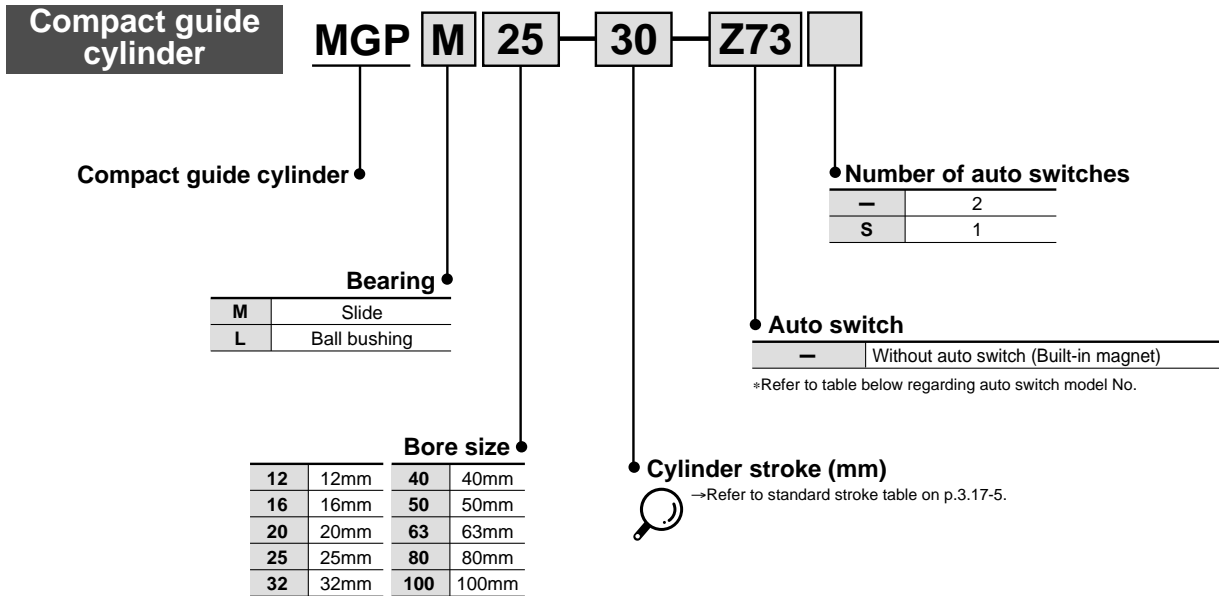
CY1

MY1

# Compact Guide Cylinder Series *MGP*

∅12, ∅16, ∅20, ∅25, ∅32, ∅40, ∅50, ∅63, ∅80, ∅100

## How to Order



## Applicable Auto Switches/Refer to p.5.3-2 for further information on auto switch.

Style	Special function	Electrical entry	Indicator	Wiring (Output)	Load voltage		Auto switch model		Load wire (m)			Applicable load		Specification details	
					DC	AC	Electrical entry direction		0.5 (-)	3 (L)	5 (Z)	IC circuit	Relay PLC		
							Perpendicular	In-line							
Reed switch	-	Grommet	Yes	3 wire	-	5V	-	-	Z76	●	●	-	IC circuit	Relay PLC	P.5.3-23
				2 wire	24V	12V	100V	-	Z73	●	●	●	-		
				No	5V 12V	100V or less	-	Z80	●	●	-	IC circuit	-		
Solid state switch	Diagnostic indication (2 color)	Grommet	Yes	3 wire (NPN)	24V	5V 12V	-	Y69A	Y59A	●	●	○	IC circuit	Relay PLC	P.5.3-40
				3 wire (PNP)				Y7PV	Y7P	●	●	○	IC circuit		
				2 wire				Y69B	Y59B	●	●	○	-		
				3 wire (NPN)				Y7NWV	Y7NW	●	●	○	IC circuit		
				3 wire (PNP)				Y7PWV	Y7PW	●	●	○	IC circuit		
				2 wire				Y7BWV	Y7BW	●	●	○	-		
	Water resistant (2 color)	-	Y7BAL	-	●	○	-								

\*Lead wire 0.5m..... (Example) Y69B  
3m.....L Y69BL  
5m.....Z Y69BZ

\*\*○: Manufactured upon receipt of order

PLC: Programmable Logic Controller

# Compact Guide Cylinder *Series MGP*



## Model

Model	Bearing	Bore size (mm)	Applicable auto switch	
			Reed switch	Solid state switch
<b>MGPM</b>	Slide	ø12, ø16, ø20 ø25, ø32, ø40 ø50, ø63, ø80 ø100	D-Z7 D-Z8	D-Y5 D-Y6 D-Y7
<b>MGPL</b>	Ball bushing			

## Specifications

Action	Double acting	
Fluid	Air	
Proof pressure	1.5MPa	
Max. operating pressure	1.0MPa	
Min. operating pressure	ø12, ø16	0.12MPa
	ø20 to ø100	0.1MPa
Ambient and fluid temperature	-10 to 60°C	
Operating piston speed <sup>(1)</sup>	ø12 to ø63	50 to 500mm/s
	ø80, ø100	50 to 400mm/s
Cushion	Rubber bumper at both ends	
Lubrication	Not required	
Stroke tolerance	+1.5 0 mm	

Note 1) Refer to p.3.17-6 for allowable kinetic energy

## Standard Stroke

Model	Standard stroke (mm)	Long stroke (mm)	Intermediate stroke
<b>MGP</b> M 12 L 16	10, 20, 30, 40, 50, 75, 100	125, 150, 175, 200, 250	As for intermediate strokes other than the standard strokes, those with a ø12 to ø32 bore are in 1mm increments, and those with a ø40 to ø100 bore are manufactured with 5mm spacers. Example 1.) MGPM20-35 <sup>st</sup> is produced by installing 5mm spacer in MGPM20-40 <sup>st</sup> , total length is the same as 40 <sup>st</sup> . 2.) MGPM50-40st is produced by installing 10mm spacer in MGPM50-50 <sup>st</sup> , total length is the same as 50 <sup>st</sup> . The intermediate strokes that do not use a spacer are made to order "-XB10" shown on p.5.4-1.
<b>MGP</b> M 20 L 25	20, 30, 40, 50, 75, 100, 125, 150, 175, 200	250, 300, 350, 400	
<b>MGP</b> M 32 L 40 M 50 L 63 80 100	25, 50, 75, 100, 125, 150, 175, 200	250, 300, 350, 400	

## Theoretical Force

Bore size (mm)	Rod diameter (mm)	Operating direction	Piston area (mm <sup>2</sup> )	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 force(N)=Pressure(MPa) X Piston area(mm<sup>2</sup>)

CL

MLGC

CNA

CB

CV/MVG

CXW

CXS

CXT

MX

MXU

MXS

MXQ

MXF

MXW

MXP

MG

MGP

MGQ

MGG

MGC

MGF

CY1

MY1

# Series MGP

## Weight (Moving parts)

### Slide Bearing: MGPM12 to 100

(kg)

Bore (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 (0.12)	0.28 (0.13)	—	0.31 (0.14)	0.35 (0.15)	0.39 (0.16)	0.50 (0.20)	0.59 (0.23)	0.70 (0.27)	0.79 (0.30)	0.89 (0.32)	0.98 (0.35)	1.17 (0.40)	—	—	—
16	MGPM16	0.33 (0.16)	0.38 (0.18)	—	0.43 (0.19)	0.48 (0.21)	0.53 (0.22)	0.68 (0.29)	0.80 (0.33)	0.97 (0.41)	1.09 (0.45)	1.22 (0.49)	1.35 (0.53)	1.60 (0.62)	—	—	—
20	MGPM20	—	0.67 (0.33)	—	0.75 (0.35)	0.83 (0.38)	0.91 (0.40)	1.17 (0.52)	1.37 (0.58)	1.57 (0.64)	1.76 (0.70)	1.96 (0.76)	2.16 (0.82)	2.63 (1.01)	3.03 (1.13)	3.42 (1.24)	3.82 (1.36)
25	MGPM25	—	0.95 (0.52)	—	1.05 (0.56)	1.16 (0.60)	1.27 (0.64)	1.65 (0.84)	1.92 (0.95)	2.19 (1.05)	2.47 (1.15)	2.74 (1.25)	3.01 (1.35)	3.67 (1.67)	4.21 (1.87)	4.76 (2.07)	5.30 (2.27)
32	MGPM32	—	—	1.69 (1.07)	—	—	2.07 (1.23)	2.47 (1.42)	2.85 (1.58)	3.24 (1.74)	3.62 (1.91)	4.00 (2.07)	4.38 (2.23)	5.33 (2.74)	6.09 (3.07)	6.86 (3.40)	7.62 (3.72)
40	MGPM40	—	—	1.95 (1.14)	—	—	2.37 (1.30)	2.83 (1.49)	3.25 (1.65)	3.68 (1.81)	4.10 (1.98)	4.53 (2.14)	4.95 (2.30)	5.99 (2.82)	6.85 (3.14)	7.70 (3.47)	8.55 (3.79)
50	MGPM50	—	—	3.36 (2.15)	—	—	4.00 (2.40)	4.73 (2.75)	5.37 (3.00)	6.01 (3.26)	6.65 (3.51)	7.29 (3.76)	7.93 (4.02)	9.54 (4.86)	10.8 (5.37)	12.1 (5.88)	13.4 (6.38)
63	MGPM63	—	—	4.18 (2.50)	—	—	4.94 (2.75)	5.78 (3.09)	6.54 (3.35)	7.29 (3.60)	8.05 (3.86)	8.80 (4.11)	9.56 (4.36)	11.4 (5.20)	12.9 (5.71)	14.4 (6.22)	15.9 (6.73)
80	MGPM80	—	—	6.49 (4.27)	—	—	7.43 (4.65)	8.67 (5.32)	9.61 (5.69)	10.5 (6.07)	11.5 (6.44)	12.4 (6.82)	13.4 (7.19)	15.8 (8.50)	17.7 (9.25)	19.5 (10.0)	21.4 (10.7)
100	MGPM100	—	—	10.5 (7.01)	—	—	11.9 (7.55)	13.6 (8.48)	14.9 (9.02)	16.3 (9.56)	17.6 (10.1)	18.9 (10.6)	20.2 (11.2)	23.6 (12.9)	26.2 (14.0)	28.9 (15.1)	31.5 (16.1)

( ): moving parts

### Ball Bushing Bearing: MGPL12 to 100

(kg)

Bore (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 (0.11)	0.27 (0.11)	—	0.30 (0.12)	0.35 (0.13)	0.39 (0.14)	0.47 (0.16)	0.56 (0.17)	0.66 (0.20)	0.74 (0.22)	0.83 (0.23)	0.91 (0.25)	1.08 (0.29)	—	—	—
16	MGPL16	0.34 (0.15)	0.39 (0.16)	—	0.43 (0.17)	0.51 (0.20)	0.56 (0.21)	0.67 (0.24)	0.79 (0.27)	0.93 (0.32)	1.04 (0.35)	1.16 (0.38)	1.28 (0.41)	1.50 (0.47)	—	—	—
20	MGPL20	—	0.70 (0.31)	—	0.77 (0.33)	0.89 (0.37)	0.97 (0.39)	1.14 (0.44)	1.31 (0.48)	1.52 (0.56)	1.69 (0.60)	1.87 (0.65)	2.04 (0.70)	2.42 (0.81)	2.77 (0.90)	3.12 (1.00)	3.47 (1.09)
25	MGPL25	—	0.98 (0.49)	—	1.07 (0.52)	1.25 (0.58)	1.34 (0.61)	1.57 (0.69)	1.81 (0.76)	2.08 (0.88)	2.31 (0.95)	2.54 (1.02)	2.77 (1.10)	3.27 (1.28)	3.74 (1.43)	4.20 (1.58)	4.66 (1.73)
32	MGPL32	—	—	1.54 (0.82)	—	—	1.85 (0.94)	2.30 (1.11)	2.62 (1.23)	2.99 (1.41)	3.31 (1.53)	3.62 (1.65)	3.94 (1.77)	4.63 (2.07)	5.26 (2.31)	5.89 (2.55)	6.52 (2.78)
40	MGPL40	—	—	1.79 (0.89)	—	—	2.15 (1.01)	2.64 (1.18)	3.00 (1.30)	3.42 (1.48)	3.78 (1.60)	4.14 (1.72)	4.50 (1.83)	5.28 (2.14)	6.00 (2.38)	6.72 (2.61)	7.44 (2.85)
50	MGPL50	—	—	3.11 (1.77)	—	—	3.66 (1.95)	4.41 (2.24)	4.96 (2.43)	5.60 (2.71)	6.15 (2.89)	6.70 (3.08)	7.25 (3.27)	8.48 (3.77)	9.57 (4.14)	10.7 (4.51)	11.8 (4.88)
63	MGPL63	—	—	3.93 (2.11)	—	—	4.59 (2.30)	5.46 (2.59)	6.12 (2.77)	6.88 (3.05)	7.54 (3.24)	8.21 (3.42)	8.87 (3.61)	10.3 (4.11)	11.7 (4.48)	13.0 (4.85)	14.3 (5.22)
80	MGPL80	—	—	6.25 (3.83)	—	—	7.39 (4.28)	8.69 (4.80)	9.51 (5.09)	10.3 (5.38)	11.1 (5.67)	12.0 (5.96)	12.8 (6.25)	14.7 (7.08)	16.3 (7.66)	18.0 (8.23)	19.6 (8.81)
100	MGPL100	—	—	9.89 (6.17)	—	—	11.6 (6.87)	13.4 (7.66)	14.5 (8.07)	15.7 (8.49)	16.9 (8.90)	18.1 (9.32)	19.3 (9.74)	21.9 (10.8)	24.2 (11.7)	26.6 (12.5)	28.9 (13.3)

( ): moving parts

## Allowable Kinetic Energy

Exceeding the allowable kinetic energy given in Table 1 could lead to cylinder damage.

Table 1

Bore size (mm)	Allowable kinetic energy (J)
12	0.043
16	0.075
20	0.11
25	0.18
32	0.29
40	0.52
50	0.91
63	1.54
80	2.71
100	4.54

How to calculate the kinetic energy of load

$$E_k = \frac{M+m}{2} U^2 \quad U=1.4U_a$$

$E_k$  : Kinetic energy (J)

$M$  : Weight of driven object

$m$  : Weight of cylinder moving part (kg)

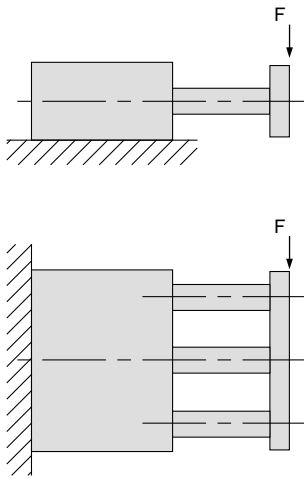
$U$  : Max. speed (m/s)

$U_a$  : Average speed (m/s)

Note) Select a cylinder so that " $E_k$ " does not exceed the allowable kinetic energy given in Table 1.

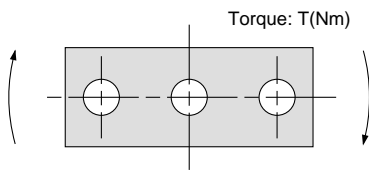
## Operating Conditions

### Allowable lateral load (Ordinary load)



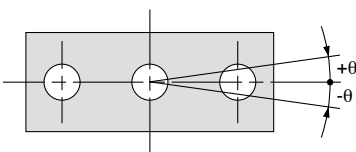
Bore size (mm)	Model	Stroke (mm)																F(N)
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400	
12	MGPM	24	19	—	17	14	13	26	22	19	17	15	13	11	—	—	—	
	MGPL	37	27	—	22	35	30	23	18	15	12	11	10	8	—	—	—	
16	MGPM	38	31	—	27	23	21	37	32	27	24	22	20	16	—	—	—	
	MGPL	54	40	—	32	54	47	35	28	23	20	17	15	12	—	—	—	
20	MGPM	—	49	—	43	38	35	87	75	66	59	54	49	42	36	32	29	
	MGPL	—	58	—	48	101	90	70	58	62	54	48	43	35	30	26	23	
25	MGPM	—	69	—	60	54	49	116	100	88	79	71	65	55	48	43	38	
	MGPL	—	82	—	68	132	118	93	77	80	70	62	55	45	38	33	29	
32	MGPM	—	—	203	—	—	164	182	159	142	127	116	106	91	80	71	64	
	MGPL	—	—	191	—	—	157	164	144	203	186	171	158	137	121	108	98	
40	MGPM	—	—	203	—	—	164	182	159	142	127	116	106	91	80	71	64	
	MGPL	—	—	190	—	—	157	163	144	203	185	171	158	137	121	108	97	
50	MGPM	—	—	296	—	—	245	273	241	216	195	179	164	142	125	111	101	
	MGPL	—	—	208	—	—	173	223	199	264	242	224	207	181	159	142	128	
63	MGPM	—	—	296	—	—	245	273	241	216	195	179	164	142	125	111	101	
	MGPL	—	—	206	—	—	171	221	196	262	240	221	205	178	157	140	126	
80	MGPM	—	—	352	—	—	297	368	329	298	272	251	232	202	179	161	146	
	MGPL	—	—	243	—	—	373	364	331	302	278	256	238	207	181	161	143	
100	MGPM	—	—	515	—	—	445	498	450	410	377	349	325	285	254	229	208	
	MGPL	—	—	360	—	—	407	503	460	423	390	362	337	294	259	230	206	

### Allowable rotary torque of plate



Bore size (mm)	Model	Stroke (mm)																T(Nm)
		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



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°

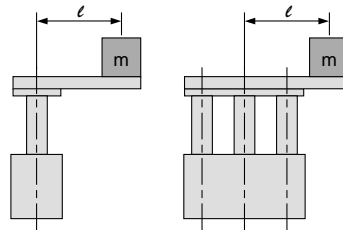
- CL
- MLGC
- CNA
- CB
- CV/MVG
- CXW
- CXS
- CXT
- MX
- MXU
- MXS
- MXQ
- MXF
- MXW
- MXP
- MG
- MGF
- MGQ
- MGG
- MGC
- MGF
- CY1
- MY1

# Series MGP

## Operating Range When Used as Lifter

● Select the bore size so that the load weight is within the specified rate to theoretical force.

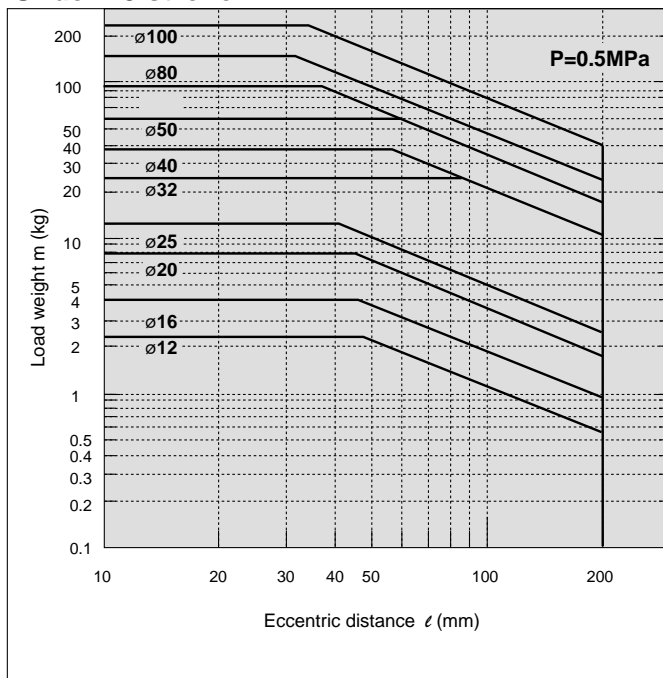
Bore size (mm)	Load rate
12, 16	40% or less
20, 25	50% or less
32 to 100	60% or less



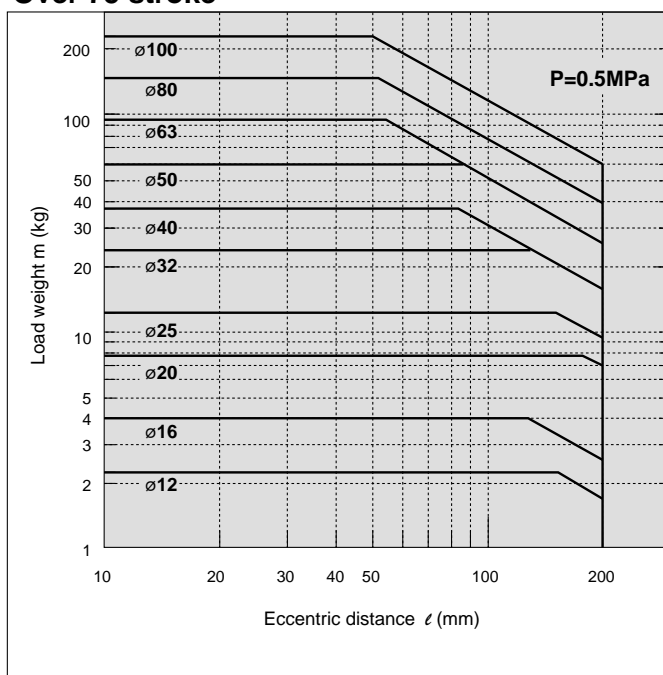
### Slide Bearing

#### MGPM12 to 100

##### Under 75 stroke



##### Over 75 stroke

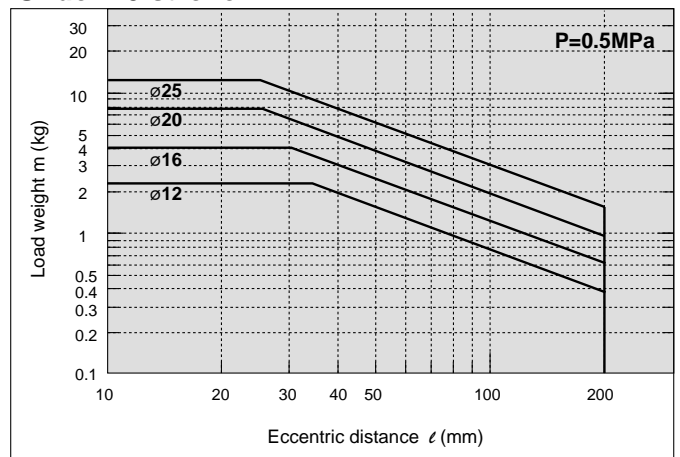


Note) Regarding intermediate strokes with a spacer, refer to the graph of the basic stroke

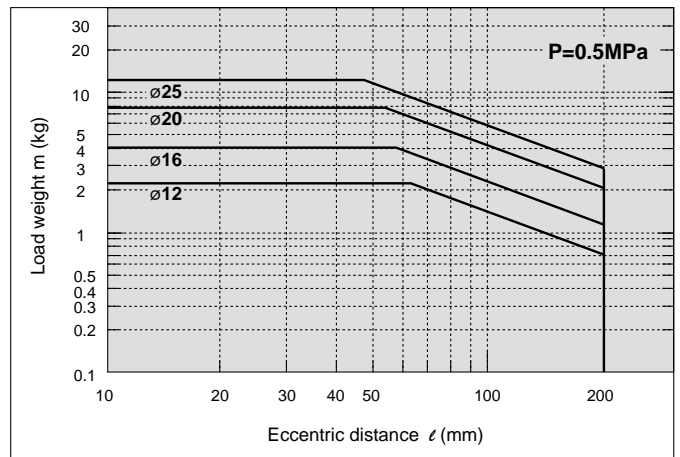
### Ball Bushing Bearing

#### MGPL12 to 25

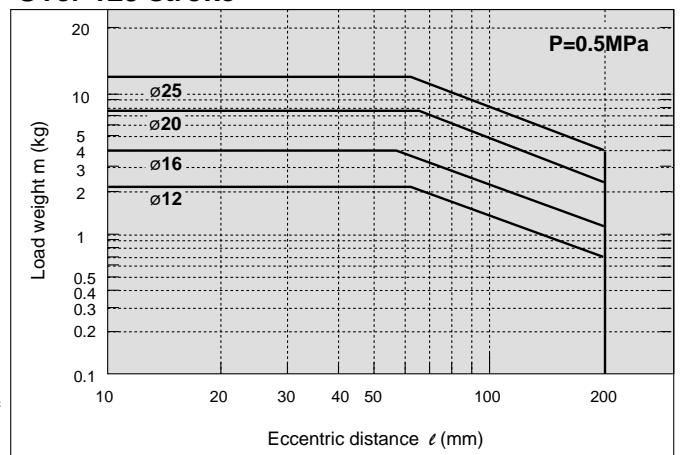
##### Under 40 stroke



##### 40 to 124 stroke



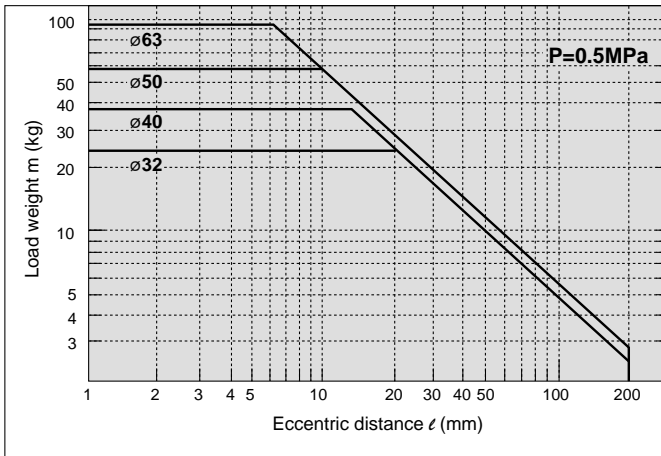
##### Over 125 stroke





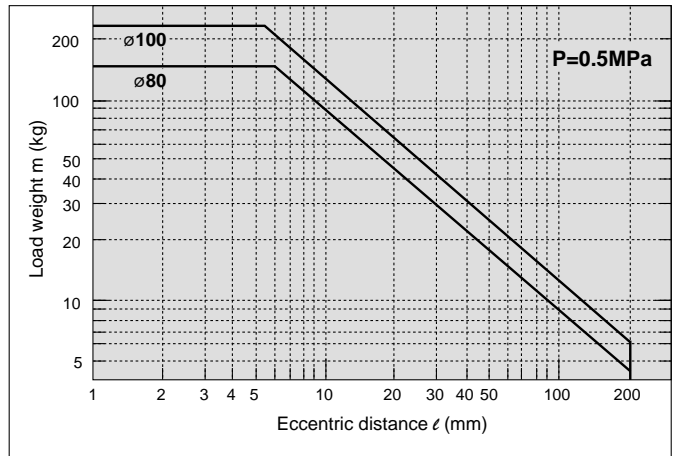
## MGPL32 to 63

### Under 75 stroke

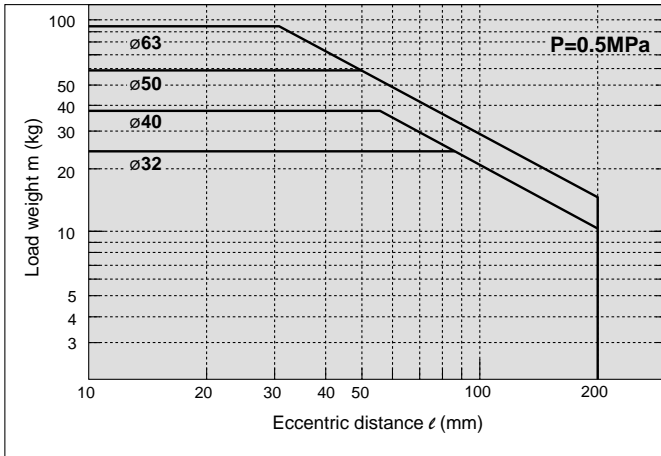


## MGPL80 to 100

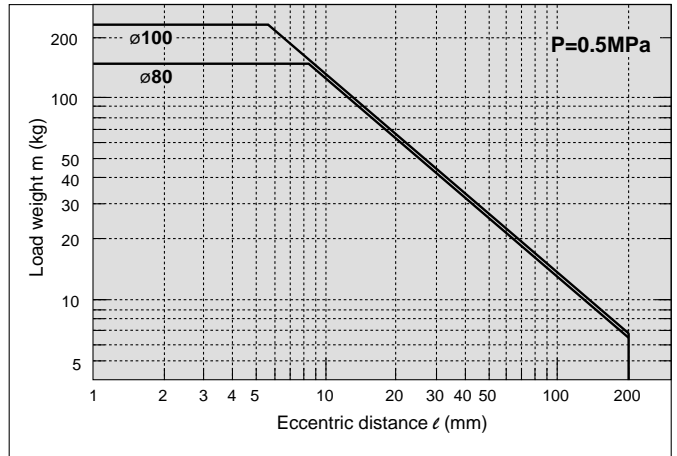
### Under 50 stroke



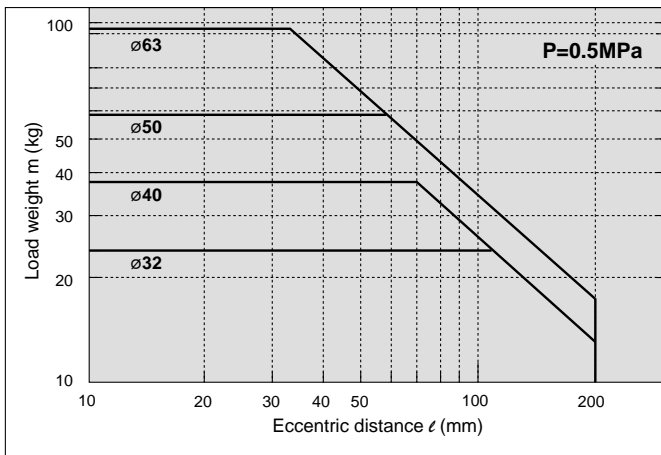
### 75 to 124 stroke



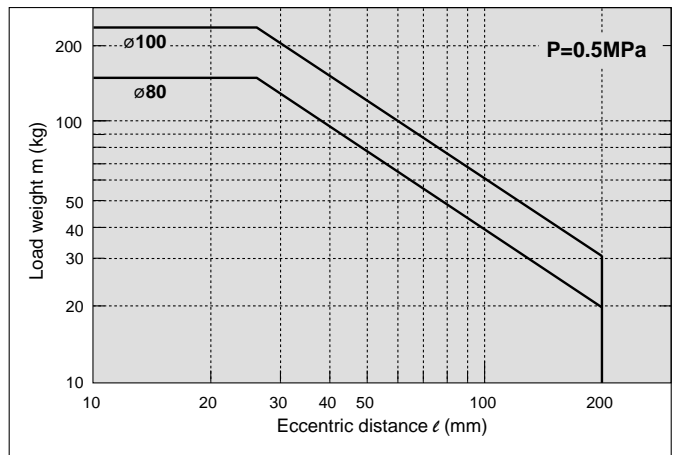
### 50 to 74 stroke



### Over 125 stroke



### Over 75 stroke



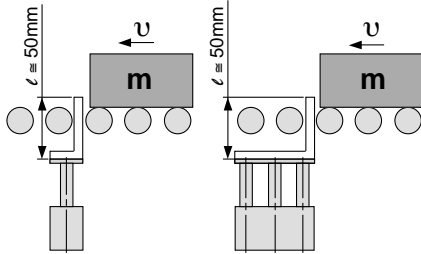
- CL
- MLGC
- CNA
- CB
- CV/MVG
- CXW
- CXS
- CXT
- MX
- MXU
- MXS
- MXQ
- MXF
- MXW
- MXP
- MG
- MGP**
- MGQ
- MGG
- MGC
- MGF
- CY1
- MY1

# Series MGP

## Operating Range When Used as Stopper

### Bore Size $\phi 12$ to 25/MGPM12 to 25 (Slide Bearing)

MGPM12 to 25 (Slide Bearing)



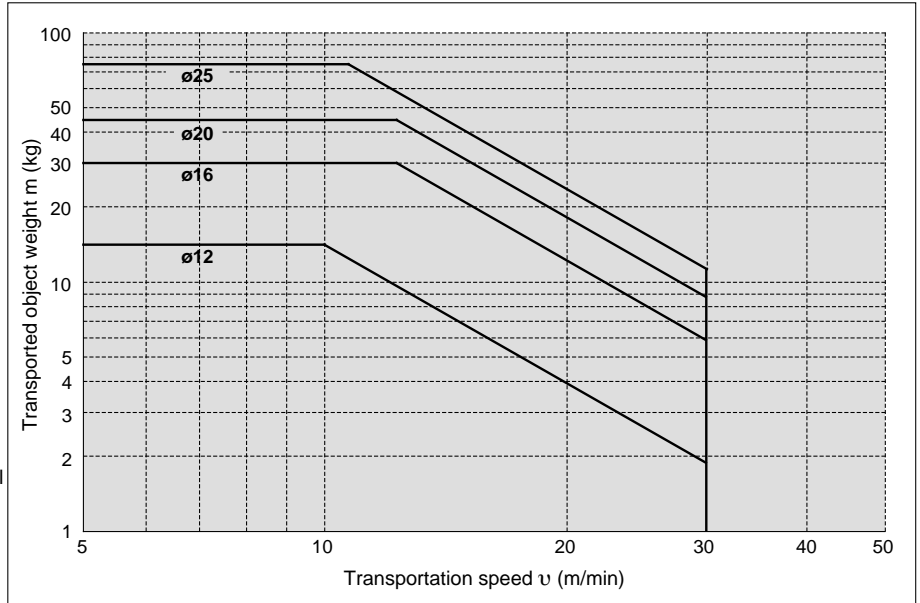
\*When requiring a bracket with a longer  $\ell$  dimension select a bore size large enough to accommodate the additional moment. Consult SMC.

#### ⚠ Caution

##### Cautions for operation

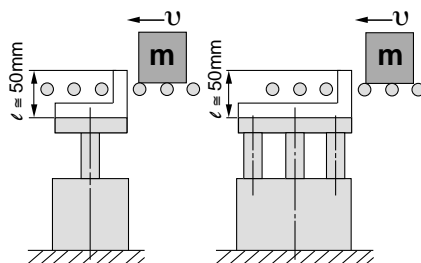
Note 1) When using this as a stopper, select a model with 30mm or shorter stroke.

Note 2) Do not use MGPL (ball bushing bearing) as a stopper.



### Bore Size $\phi 32$ to 100/MGPM32 to 100 (Slide Bearing)

MGPM32 to 100 (Slide Bearing)



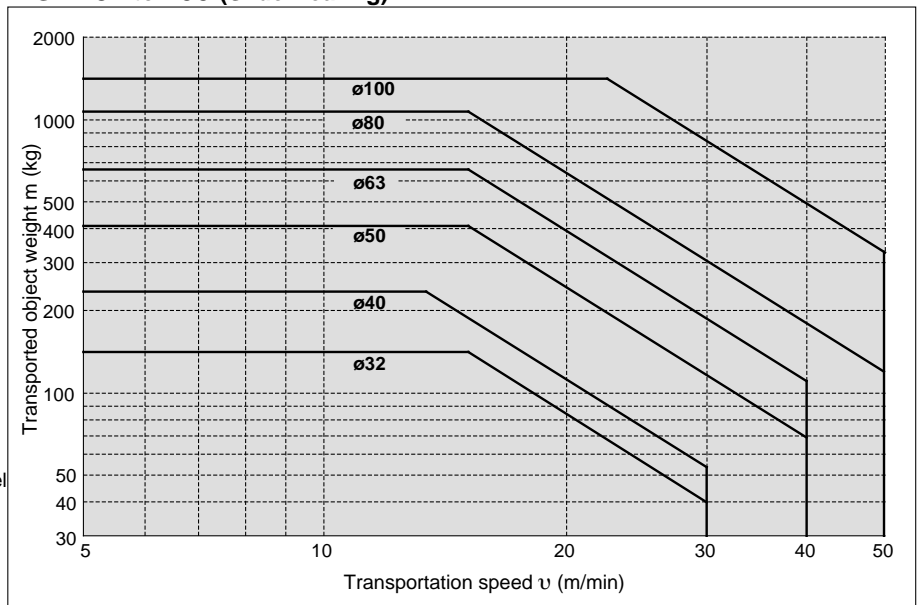
\*When requiring a bracket with a longer  $\ell$  dimension select a bore size large enough to accommodate the additional moment. Consult SMC.

#### ⚠ Caution

##### Cautions for operation

Note 1) When using this as a stopper, select a model with 50mm or shorter stroke.

Note 2) Do not use MGPL (ball bushing bearing) as a stopper.



# Compact Guide Cylinder *Series MGP*

## ① Water Resistant

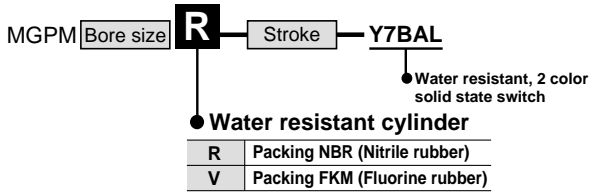
This is ideal for use in a machine tool environment exposed to coolants. It is also well suited for use in areas in where water splashes, such as food processing equipment or car washers.

### Specifications

Action	Double acting
Bore size (mm)	20, 25, 32, 40, 50, 63, 80, 100
Bearing	Slide
Cushion	Rubber bumper
Mounting auto switch	Direct mounting

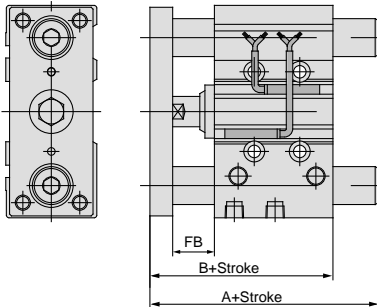
\* Regarding other specifications, it is same as standard.

### How to Order



\* Stainless steel material for piston rod is a special product.

### Dimensions



Bore (mm)	A		B	FB
	50 Stroke	51 Stroke or more		
20	66	97.5	66	19
25	67.5	99	67.5	20
32	109	114	71.5	22
40	109	114	78	22
50	117.5	129	83	23
63	117.5	129	88	23
80	121	148	102.5	24
100	141	166	120	29

\* Other dimensions are same as standard.

## ② Copper Free

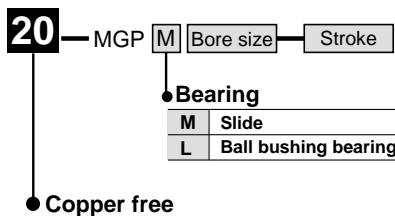
To eliminate influences of copper ions or halogen ions during CRT manufacturing processes, copper and fluorine materials are not used as component parts.

### Specifications

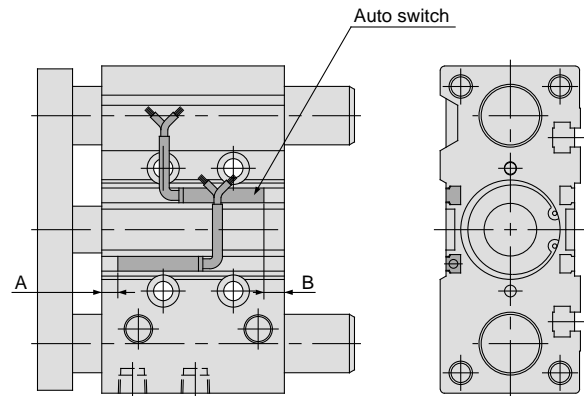
Applicable series	MGPM	MGPL
Bearing	Slide	Ball bushing
Bore size (mm)	12, 16, 20, 25, 32 40, 50, 63, 80, 100	

\* Other specifications and dimensions are same standard.

### How to Order



## Auto Switch/Proper Mounting Position at Stroke End Detection



### Applicable mounting position

Bore size (mm)	A	B	(mm)		
			Bore size (mm)	A	B
12	1.5	3	40	9.5	9.5
16	4.5	4	50	7.5	11.5
20	4	8	63	10	14
25	4.5	8	80	13	18.5
32	5.5	7	100	17.5	23.5

## How to Mount an Auto Switch

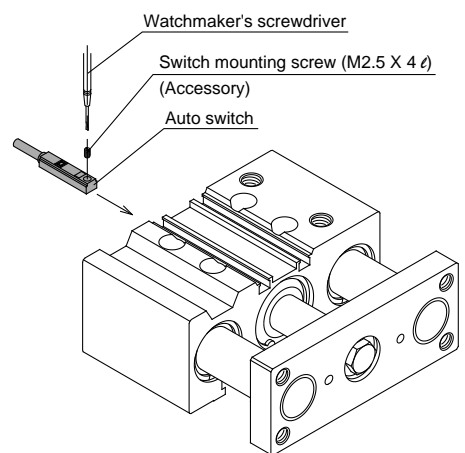
### ⚠ Caution

#### Tool to mount auto switch

When tightening the auto switch retaining screw (provided with the auto switch), use a screwdriver with a grip diameter of 5 to 6mm.

#### Screw torque

The tightening torque is 0.05 to 0.1N.m.  
As a rule, turn the screw an additional 90° after tightening resistance is felt.



CL

MLGC

CNA

CB

CV/MVG

CXW

CXS

CXT

MX

MXU

MXS

MXQ

MXF

MXW

MXP

MG

MGPM

MGQ

MGG

MGC

MGF

CY1

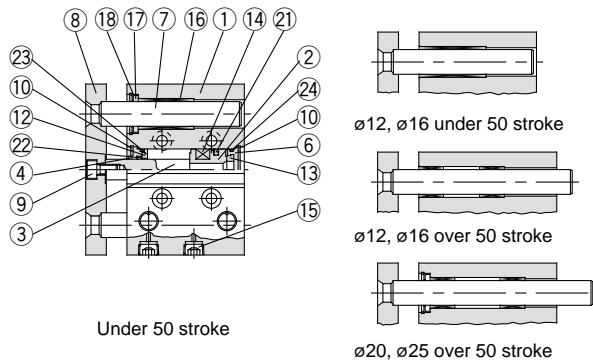
MY1

# Series MGP

## Construction

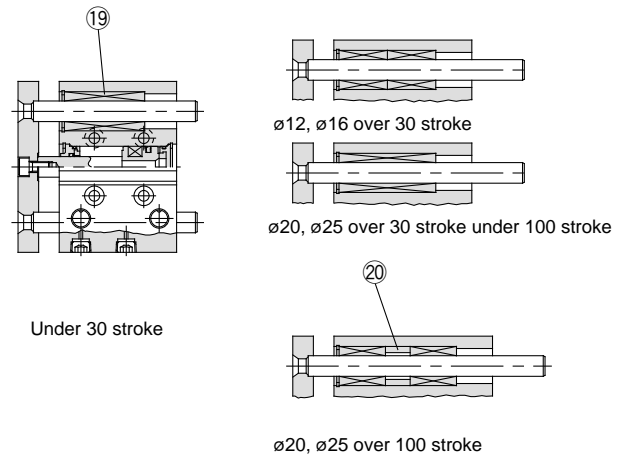
### Series MGPM

#### MGPM12 to 25

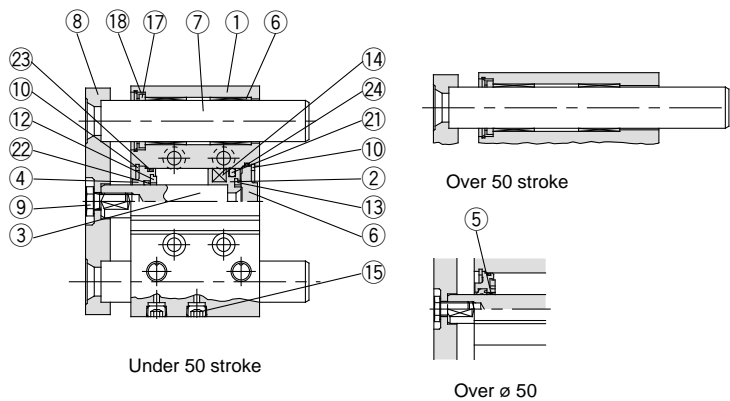


### Series MGPL

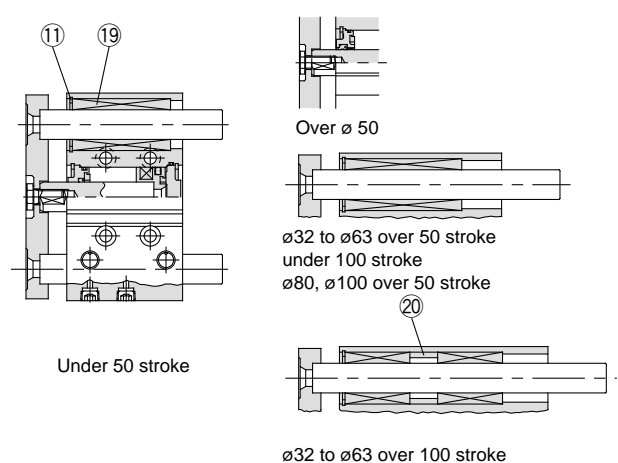
#### MGPL12 to 25



#### MGPM32 to 100



#### 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 bearing alloy	ø12 to ø40	White anodized
		Aluminum alloy cast	ø50 to ø100	Coated
⑤	Bushing	Lead bronze cast	ø50 to ø100	
⑥	Head cover	Aluminum alloy	ø12 to ø25	White anodized
			ø32 to ø100	Coated
⑦	Guide rod	Carbon steel	Hard chrome plated	
⑧	Plate	Carbon steel	Nickel plated	
⑨	Bolt for plate mounting	Carbon steel	Nickel plated	
⑩	Retaining ring	Carbon tool steel	Phosphate coated	
⑪	Retaining ring	Carbon tool steel	Phosphate coated	

#### Replacement Parts: Seal Kits

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

\*Seal kit includes piston seal ②①, rod seal ②②, gasket A ②③ and gasket B ②④. Order a seal kit according to applicable bore size.

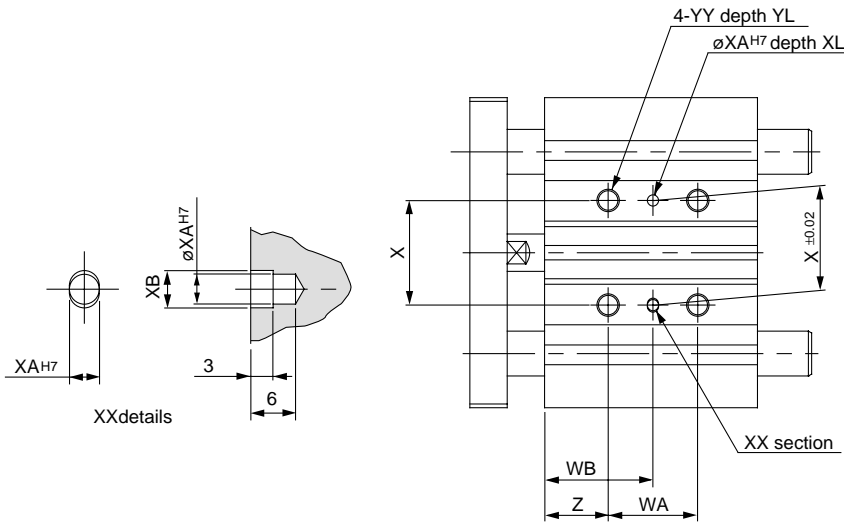
#### Component Parts

No.	Description	Material	Note	
⑫	Bumper A	Urethane		
⑬	Bumper B	Urethane		
⑭	Magnet	Synthetic rubber		
⑮	Plug(M-5P) Hex. socket head tapered plug	Brass	ø12, ø16	Nickel plated
		Carbon steel	ø20 to ø100	Nickel plated
⑯	Slide bearing	Lead bronze cast		
⑰	Felt	Felt		
⑱	Holder	Carbon steel		
⑲	Ball bushing			
⑳	Spacer	Aluminum alloy		
⑲*	Piston seal	NBR		
⑲*	Rod seal	NBR		
⑲*	Gasket A	NBR		
⑲*	Gasket B	NBR		

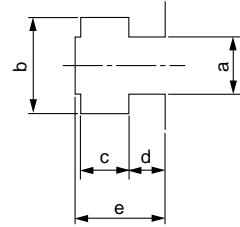
#### Replacement Parts: Seal Kits

Bore size (mm)	Kit No.	Contents
40	MGP40-PS	Set of includes ⑲①, ⑲②, ⑲③ and ⑲④.
50	MGP50-PS	
63	MGP63-PS	
80	MGP80-PS	
100	MGP100-PS	

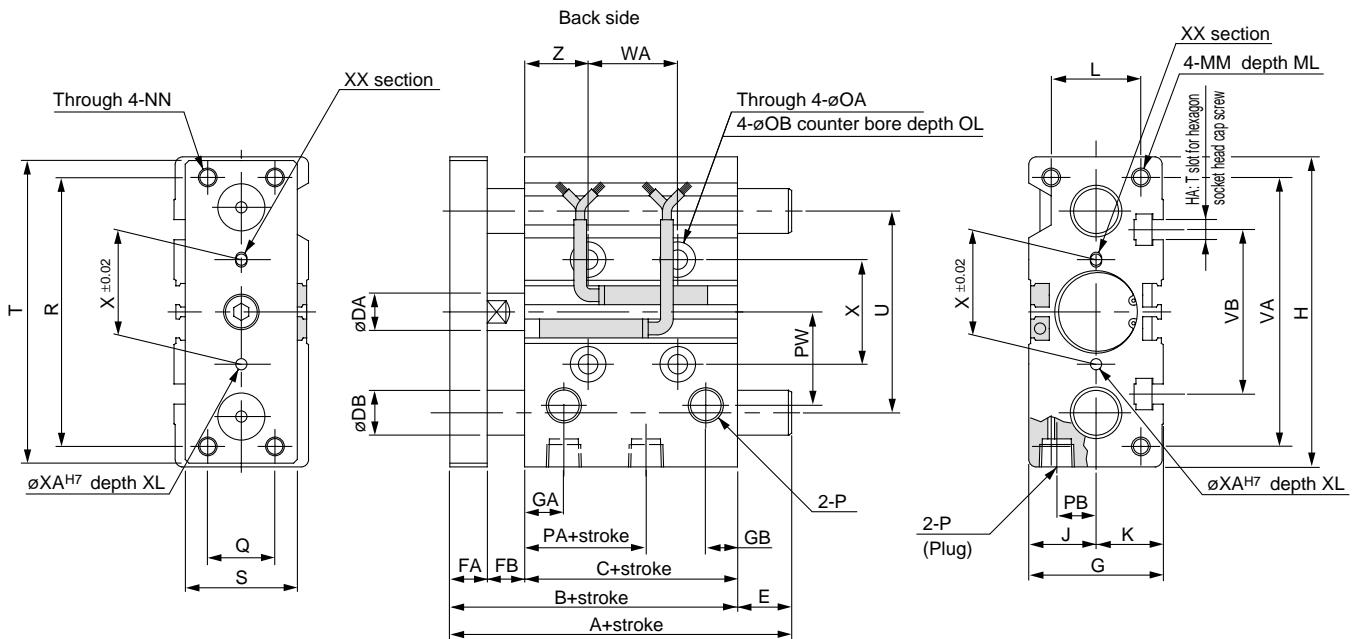
## MGPM, MGPL $\varnothing 12$ to $\varnothing 25$



Dimension of T slot



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



**MGPM, MGPL Common Dimensions**

Bore (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	Stroke																																																																							
																									30st $\geq$	30st< 100st $\geq$	100st< 200st $\geq$	200st< 300st $\geq$	300st<	30st $\geq$	30st< 100st $\geq$	100st< 200st $\geq$	200st< 300st $\geq$	300st<	X	XA	XB	YY	YL	Z																																																								
<b>12</b>	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	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, 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	Rc1/8	12.5	10.5	25	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	Rc1/8	12.5	13.5	28.5

**MGPM(Slide Bearing)/Dimensions A, DB, E**

Bore (mm)	A			DB	E		
	50st $\geq$	50st< 100st $\geq$	100st<		50st $\geq$	50st< 100st $\geq$	100st<
<b>12</b>	42	60.5	85	8	0	18.5	43
<b>16</b>	46	64.5	95	10	0	18.5	49

**MGPM(Slide Bearing)/Dimensions A, DB, E**

Bore (mm)	A			DB	E		
	50st $\geq$	50st< 200st $\geq$	200st<		50st $\geq$	50st< 200st $\geq$	200st<
<b>20</b>	53	84.5	122	12	0	31.5	69
<b>25</b>	53.5	85	122	16	0	31.5	68.5

**MGPL(Ball Bushing Bearing)/Dimensions A, DB, E**

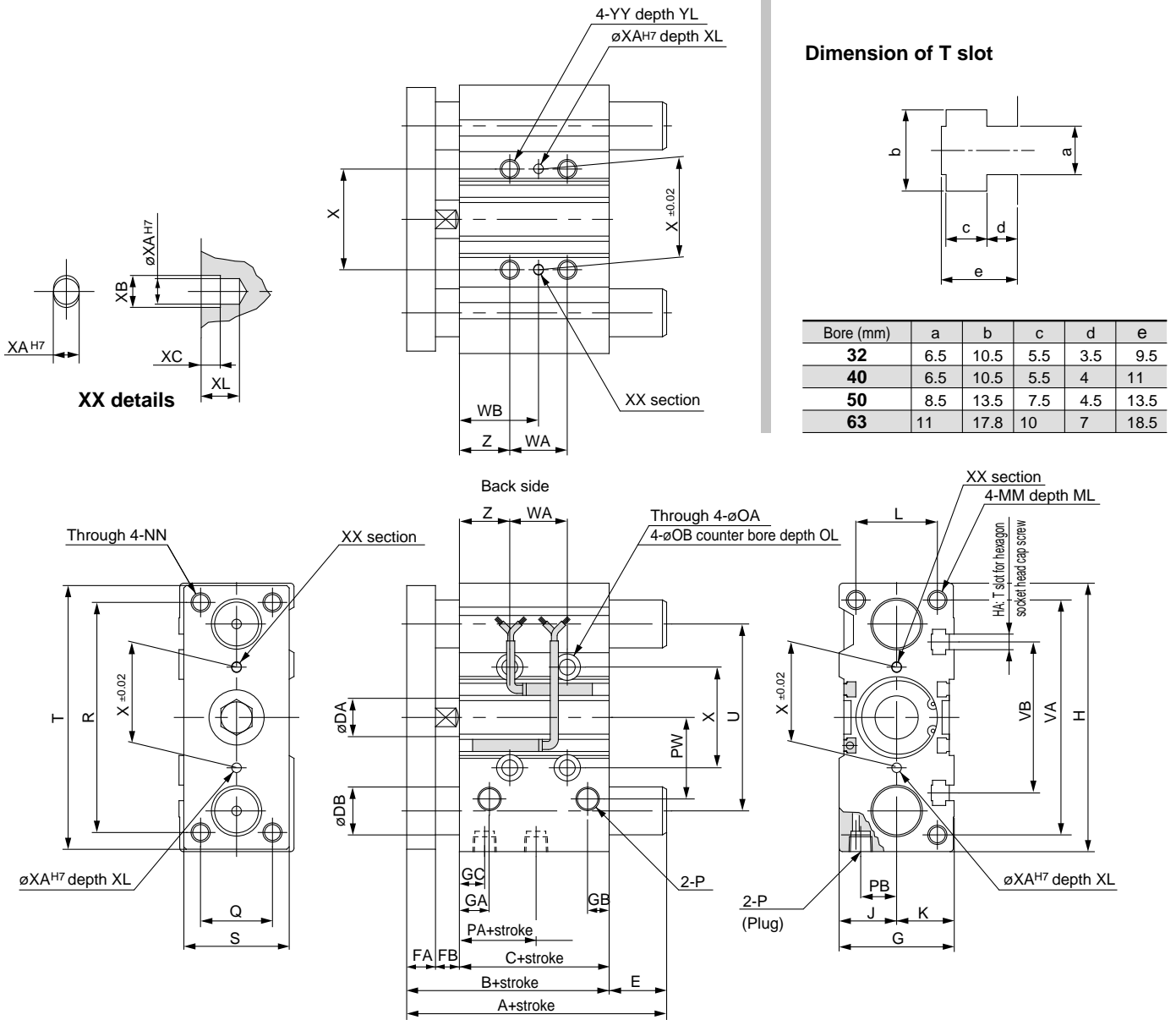
Bore (mm)	A			DB	E		
	30st $\geq$	30st< 100st $\geq$	100st<		30st $\geq$	30st< 100st $\geq$	100st<
<b>12</b>	43	55	85	6	1	13	43
<b>16</b>	49	65	95	8	3	19	49

**MGPL(Ball Bushing Bearing)/Dimensions A, DB, E**

Bore (mm)	A				DB	E			
	30st $\geq$	30st< 100st $\geq$	100st< 200st $\geq$	200st<		30st $\geq$	30st< 100st $\geq$	100st< 200st $\geq$	200st<
<b>20</b>	63	80	104	122	10	10	27	51	69
<b>25</b>	69.5	85.5	104.5	122	13	16	32	51	68.5

# Series MGP

## MGPM, MGPL $\varnothing 32$ to $\varnothing 63$



### MGPM, MGPL/Common Dimensions

Bore (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	Rc1/8	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	Rc1/8	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	Rc1/4	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	Rc1/4	14	28	55	50

Bore (mm)	R	S	T	U	VA	VB	WA					WB					X	XA	XB	XC	XL	YY	YL	Z
							25st $\geq$	25st< 100st $\geq$	100st< 200st $\geq$	200st< 300st $\geq$	300st<	25st $\geq$	25st< 100st $\geq$	100st< 200st $\geq$	200st< 300st $\geq$	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

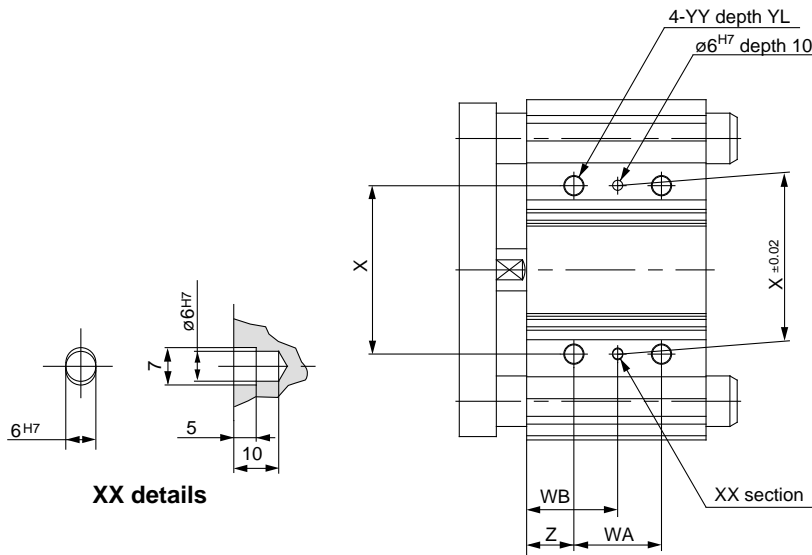
Bore (mm)	A			DB	E		
	50st $\geq$	50st< 200st $\geq$	200st<		50st $\geq$	50st< 200st $\geq$	200st<
32	97	102	140	20	37.5	42.5	80.5
40	97	102	140	20	31	36	74
50	106.5	118	161	25	34.5	46	89
63	106.5	118	161	25	29.5	41	84

### MGPL(Ball Bushing Bearing)/Dimensions A, DB, E

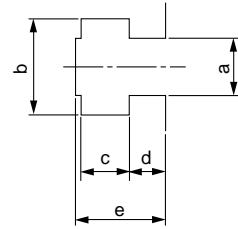
Bore (mm)	A				DB	E			
	50st $\geq$	50st< 100st $\geq$	100st< 200st $\geq$	200st<		50st $\geq$	50st< 100st $\geq$	100st< 200st $\geq$	200st<
32	81	98	118	140	16	21.5	38.5	58.5	80.5
40	81	98	118	140	16	15	32	52	74
50	93	114	134	161	20	21	42	62	89
63	93	114	134	161	20	16	37	57	84

# Compact Guide Cylinder *Series MGP*

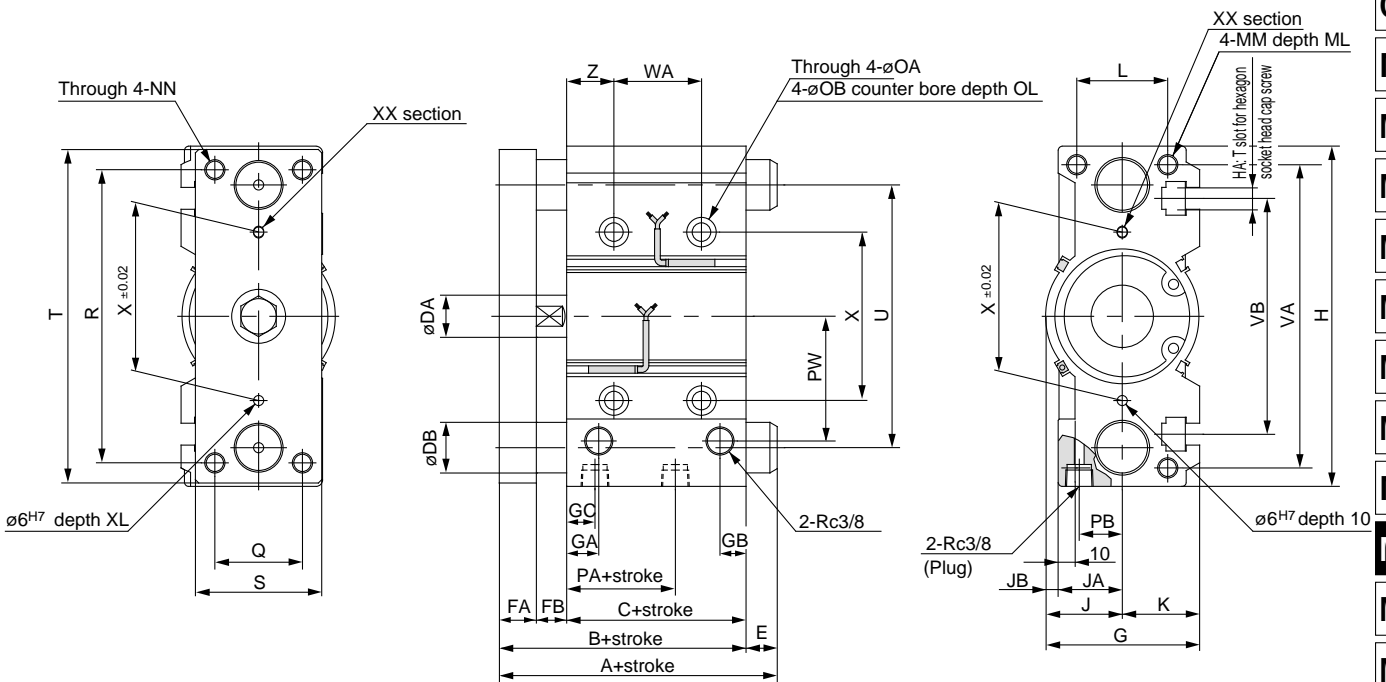
## MGPM, MGPL $\varnothing 80/\varnothing 100$



**Dimension of T slot**



Bore (mm)	a	b	c	d	e
80	13.3	20.3	12	8	22.5
100	15.3	23.3	13.5	10	30



**MGPM, MGPL/Common Dimensions**

Bore (mm)	Standard stroke (mm)	B	C	DA	FA	FB	G	GA	GB	GC	H	HA	J	JA	JB	K	L	MM	ML	NN	OA	OB	PA	PB	PW	Q	R
80	25, 50, 75, 100, 125, 150, 175, 200	96.5	56.5	25	22	18	91.5	19	15.5	14.5	202	M12	45.5	38	7.5	46	54	M12 X 1.75	25	M12 X 1.75	10.6	17.5	14.5	25.5	74	52	174
100	250, 300, 350, 400	116	66	30	25	25	111.5	23	19	18	240	M14	55.5	45	10.5	56	62	M14 X 2.0	31	M14 X 2.0	12.5	20	17.5	32.5	89	64	210

Bore (mm)	S	T	U	VA	VB	WA					WB					X	YY	YL	Z
						25st $\geq$	25st< 100st $\geq$	100st< 200st $\geq$	200st< 300st $\geq$	300st<	25st $\geq$	25st< 100st $\geq$	100st< 200st $\geq$	200st< 300st $\geq$	300st<				
80	75	198	156	180	140	28	52	128	200	300	42	54	92	128	178	100	M12 X 1.75	24	28
100	90	236	188	210	166	48	72	148	220	320	35	47	85	121	171	124	M14 X 2.0	28	11

**MGPM(Slide Bearing)/Dimensions A, DB, E**

Bore (mm)	A			DB	E		
	50st $\geq$	50st< 200st $\geq$	200st<		50st $\geq$	50st< 200st $\geq$	200st<
80	115	142	193	30	18.5	45.5	96.5
100	137	162	203	36	21	46	87

**MGPL(Ball Bushing Bearing)/Dimensions A, DB, E**

Bore (mm)	A				DB	E			
	25st $\geq$	25st< 50st $\geq$	50st< 200st $\geq$	200st<		25st $\geq$	25st< 50st $\geq$	50st< 200st $\geq$	200st<
80	109.5	130	160	193	25	13	33.5	63.5	96.5
100	121	147	180	203	30	5	31	64	87

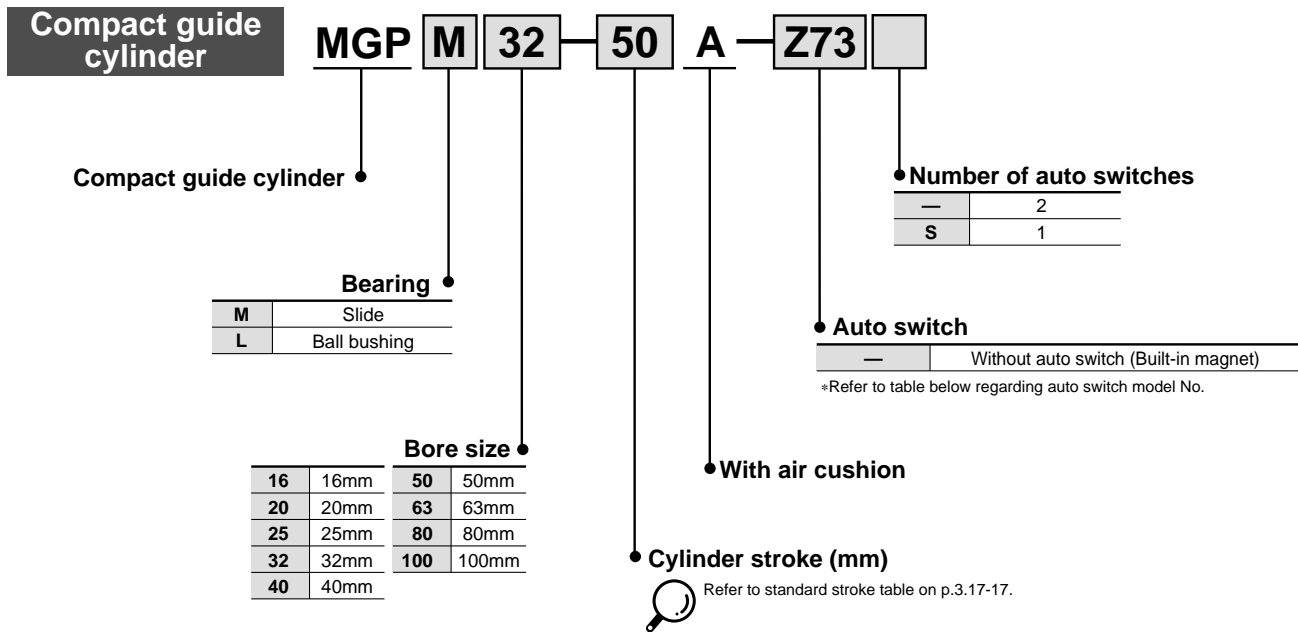
- CL
- MLGC
- CNA
- CB
- CV/MVG
- CXW
- CXS
- CXT
- MX
- MXU
- MXS
- MXQ
- MXF
- MXW
- MXP
- MG
- MGP**
- MGQ
- MGG
- MGC
- MGF
- CY1
- MY1

# Compact Guide Cylinder

## Series *MGP* (With Air Cushion)

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

### How to Order



### Applicable Auto Switches/Refer to p.5.3-2 for further information on auto switch.

Style	Special function	Electrical entry	Indicator	Wiring (Output)	Load voltage		Auto switch model		Lead wire (m)			Applicable load		Specification details							
					DC	AC	Electrical entry		0.5 (—)	3 (L)	5 (Z)	IC circuit	Relay PLC								
							Perpendicular	In-line													
Reed switch	—	Grommet	Yes	3 wire	—	5V	—	—	Z76	●	●	—	IC circuit	—							
										2 wire	24V	12V	100V		—	Z73	●	●	●	—	Relay PLC
												5V 12V	100V or less		—	Z80	●	●	—	IC circuit	
Solid state switch	—	Grommet	Yes	3 wire (NPN)	—	5V 12V	—	Y69A	Y59A	●	●	○	IC circuit	P.5.3-40							
				3 wire (PNP)				Y7PV	Y7P	●	●	○	IC circuit								
				2 wire				Y69B	Y59B	●	●	○	—								
	Diagnostic indication (2 color)	Grommet	Yes	3 wire (NPN)	24V	5V 12V	—	Y7NWV	Y7NW	●	●	○	IC circuit	Relay PLC							
				3 wire (PNP)				Y7PWV	Y7PW	●	●	○	IC circuit								
				2 wire				Y7BWV	Y7BW	●	●	○	—								
				—				Y7BAL	—	●	○	—									
Water resistant (2 color)	—	—	—	2 wire	12V	—	—	—	●	○	—	P.5.3-63									



\*Lead wire 0.5m..... (Example) Y69B  
 3m.....L Y69BL  
 5m.....Z Y69BZ

\*\*○: Manufactured upon receipt of order

PLC: Programmable Logic Controller



# Compact Guide Cylinder *Series MGP*



## Model

Model	Bearing	Bore size (mm)	Applicable auto switch	
			Reed switch	Solid state switch
<b>MGPM</b>	Slide	16, 20, 25, 32 40, 50, 63, 80 100	D-Z7 D-Z8	D-Y5 D-Y6 D-Y7
<b>MGPL</b>	Ball bushing			

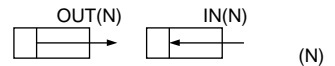
## Specifications

Action	Double acting	
Fluid	Air	
Proof pressure	1.5MPa	
Max. operating pressure	1.0MPa	
Min. operating pressure	ø16	0.15MPa
	ø20 to ø100	0.12MPa
Ambient and fluid temperature	-10 to 60°C	
Operating piston speed	ø16 to ø63	50 to 500mm/s
	ø80, ø100	50 to 400mm/s
Cushion	Air cushion at both ends (without bumper)	
Lubrication	Not required	
Stroke tolerance	+1.5 0 mm	

## Standard Stroke

Model	Standard stroke (mm)	Intermediate stroke
<b>MGP<sup>M</sup><sub>L</sub> 16</b>	25, 50, 75, 100	Regarding intermediate strokes (supported by the Made to Order specification -XC19): The cylinder will be manufactured by replacing the part (collar) that serves as a rod cover with a longer one. Example: In the case of the MGPL32-30st, the collar of the MGPL32 - 50st will be replaced with one that is 20mm longer than the standard, resulting in the same overall length as the 50st. Note) Contact SMC if a special body or a long stroke that exceeds the standard strokes given on the left is needed.
<b>MGP<sup>M</sup><sub>L</sub> 20 25 32 40 50 63</b>	25, 50, 75, 100, 125, 150, 175, 200	
<b>MGP<sup>M</sup><sub>L</sub> 80 100</b>	50, 75, 100, 125, 150, 175, 200	

## Theoretical Force



Bore size (mm)	Rod dia. (mm)	Operating direction	Piston area (mm <sup>2</sup> )	Operating pressure (MPa)											
				0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0			
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 force (N)=Pressure (MPa) X Piston area (mm<sup>2</sup>)

CL

MLGC

CNA

CB

CV/MVG

CXW

CXS

CXT

MX

MXU

MXS

MXQ

MXF

MXW

MXP

MG

MGP

MGQ

MGG

MGC

MGF

CY1

MY1

## Weight (Moving parts)

### Slide Bearing: MGPM16 to 100 (kg)

Bore size (mm)	Model	Standard stroke (mm)							
		25	50	75	100	125	150	175	200
16	MGPM16	0.51 (0.20)	0.69 (0.29)	0.78 (0.30)	0.91 (0.34)	—	—	—	—
20	MGPM20	0.89 (0.37)	1.14 (0.49)	1.34 (0.54)	1.54 (0.60)	1.74 (0.66)	1.94 (0.72)	2.13 (0.78)	2.33 (0.84)
25	MGPM25	1.23 (0.58)	1.60 (0.78)	1.87 (0.87)	2.14 (0.97)	2.41 (1.08)	2.68 (1.18)	2.95 (1.28)	3.23 (1.38)
32	MGPM32	1.98 (1.12)	2.51 (1.43)	2.77 (1.47)	3.15 (1.63)	3.53 (1.80)	3.91 (1.96)	4.29 (2.12)	4.68 (2.28)
40	MGPM40	2.34 (1.19)	2.91 (1.50)	3.21 (1.54)	3.64 (1.70)	4.06 (1.87)	4.49 (2.03)	4.92 (2.19)	5.34 (2.35)
50	MGPM50	3.92 (2.23)	4.75 (2.68)	5.29 (2.83)	5.93 (3.08)	6.57 (3.34)	7.21 (3.59)	7.85 (3.85)	8.49 (4.10)
63	MGPM63	4.94 (2.58)	5.89 (3.03)	6.54 (3.18)	7.29 (3.43)	8.05 (3.69)	8.81 (3.94)	9.56 (4.20)	10.32 (4.45)
80	MGPM80	—	8.98 (5.26)	9.64 (5.36)	10.6 (5.73)	11.5 (6.10)	12.5 (6.48)	13.4 (6.85)	14.3 (7.23)
100	MGPM100	—	14.2 (8.49)	15.1 (8.63)	16.5 (9.17)	17.8 (9.70)	19.1 (10.2)	20.5 (10.8)	21.8 (11.3)

( ): Moving parts

### Ball Bushing Bearing: MGPL16 to 100 (kg)

Bore size (mm)	Model	Standard stroke (mm)							
		25	50	75	100	125	150	175	200
16	MGPL16	0.56 (0.20)	0.66 (0.22)	0.78 (0.25)	0.89 (0.28)	—	—	—	—
20	MGPL20	0.97 (0.38)	1.12 (0.41)	1.30 (0.46)	1.50 (0.53)	1.68 (0.58)	1.85 (0.62)	2.03 (0.67)	2.20 (0.72)
25	MGPL25	1.34 (0.59)	1.54 (0.64)	1.78 (0.71)	2.05 (0.83)	2.28 (0.90)	2.51 (0.97)	2.74 (1.05)	2.97 (1.12)
32	MGPL32	1.81 (0.87)	2.34 (1.12)	2.57 (1.16)	2.94 (1.34)	3.26 (1.46)	3.58 (1.58)	3.89 (1.70)	4.21 (1.82)
40	MGPL40	2.15 (0.94)	2.73 (1.19)	3.01 (1.23)	3.42 (1.40)	3.78 (1.53)	4.14 (1.65)	4.50 (1.77)	4.86 (1.89)
50	MGPL50	3.65 (1.85)	4.47 (2.21)	4.95 (2.32)	5.71 (2.73)	6.14 (2.79)	6.69 (2.98)	7.24 (3.16)	7.79 (3.35)
63	MGPL63	4.66 (2.20)	5.60 (2.55)	6.20 (2.67)	7.07 (3.08)	7.61 (3.14)	8.28 (3.32)	8.95 (3.51)	9.61 (3.69)
80	MGPL80	—	8.88 (4.61)	9.63 (4.84)	10.5 (5.13)	11.3 (5.42)	12.1 (5.71)	12.9 (5.99)	13.7 (6.28)
100	MGPL100	—	13.7 (7.37)	14.9 (7.80)	16.0 (8.21)	17.2 (8.63)	18.4 (9.05)	19.6 (9.46)	20.8 (9.88)

( ): Moving parts

## Allowable Kinetic Energy (With air cushion)

Bore size (mm)	Effective cushion length (mm)	Allowable kinetic energy (J)
16	9.5	0.23
20	8.5	0.31
25	8.4	0.53
32	10.5	1.0
40	10.5	1.9
50	11.5	3.2
63	11.5	5.2
80	16.5	10.9
100	16.5	16.4

### Air cushion

Utilizes the compression force of air to absorb the large kinetic energy that is created by a large load and a high speed, as the piston comes to a stop at the stroke end. As such, the function of the air cushion is not to slow down the speed of the piston that is approaching the stroke end. The kinetic energy of the load can be obtained with the following formula:



$$E_k = \frac{M+m}{2} U^2 \quad U = 1.4 U_a$$

$E_k$  : Kinetic energy (J)

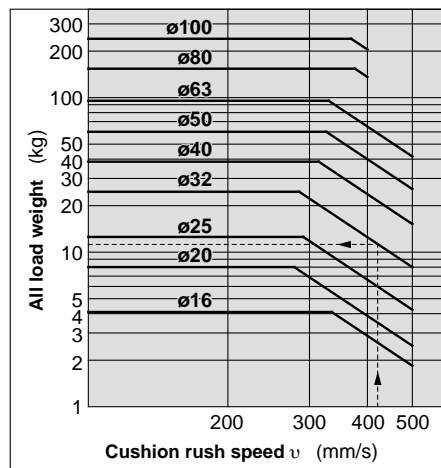
$M$  : Weight of driven object (kg)

$m$  : Weight of cylinder moving parts (kg)

$U$  : Max. speed (m/s)

$U_a$  : Average speed (m/s)

Note) Set  $U_a$  so that the cushion approach speed  $U$  does not exceed 0.5m/s (or 0.4m/s in the case of the 80 or 100)



Also, the graph above can be used for making a selection.

Example: Obtain the maximum load weight when a lifter is used at an average speed of  $U_a$  300mm/s on a slide bearing type cylinder with a  $\phi 32$  bore and a 100mm stroke. The cushion approaching speed  $U$  will be:

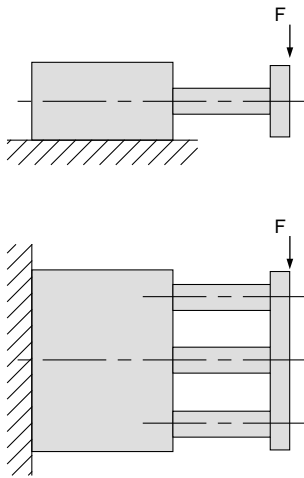
$$U = 1.4 \times 300 = 420 \text{ mm/s}$$

Hence, extend upward from the 420mm/s horizontal axis in the graph, and extend to the left from the point at which it intersects with the  $\phi 32$  bore size line, thus obtaining a total load weight of 11kg. From this figure, subtract 1.63kg, the weight of the moving parts (refer to the weight table above), to obtain 9.37kg, which is the maximum load weight.

Note) In the case of horizontal applications, make sure that the load weight does not exceed the allowable horizontal load on page 3.17-19.

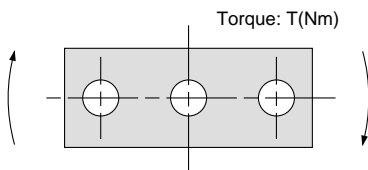
## Operating Conditions

### Allowable lateral load (Air cushion)



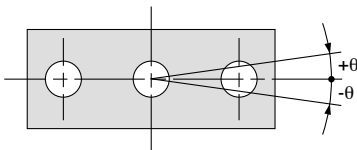
Bore size (mm)	Model	Stroke (mm)							
		25	50	75	100	125	150	175	200
16	MGPM	29	46	37	32	—	—	—	—
	MGPL	69	47	35	28	—	—	—	—
20	MGPM	46	103	87	75	66	59	54	49
	MGPL	123	90	70	73	62	54	48	43
25	MGPM	64	137	116	100	88	79	71	65
	MGPL	159	118	93	94	80	70	62	55
32	MGPM	203	213	182	159	142	127	116	106
	MGPL	191	189	164	224	203	186	171	158
40	MGPM	203	213	182	159	142	127	116	106
	MGPL	190	189	163	224	203	185	171	158
50	MGPM	296	314	273	241	216	195	179	164
	MGPL	208	255	223	290	264	242	224	207
63	MGPM	296	314	273	241	216	195	179	164
	MGPL	206	253	221	288	262	240	221	205
80	MGPM	—	416	368	329	298	272	251	232
	MGPL	—	405	364	331	302	278	256	238
100	MGPM	—	558	498	450	410	377	349	325
	MGPL	—	555	503	460	423	390	362	337

### Allowable rotary torque (Air cushion)



Bore size (mm)	Model	Stroke (mm)							
		25	50	75	100	125	150	175	200
16	MGPM	0.53	0.84	0.69	0.58	—	—	—	—
	MGPL	1.27	0.86	0.65	0.52	—	—	—	—
20	MGPM	0.99	2.23	1.88	1.63	1.44	1.28	1.16	1.06
	MGPL	2.66	1.94	1.52	1.57	1.34	1.17	1.03	0.93
25	MGPM	1.64	3.51	2.96	2.57	2.26	2.02	1.83	1.67
	MGPL	4.08	3.02	2.38	2.41	2.05	1.78	1.58	1.41
32	MGPM	6.35	6.64	5.69	4.97	4.42	3.98	3.61	3.31
	MGPL	5.95	5.89	5.11	6.99	6.34	5.79	5.33	4.93
40	MGPM	7.00	7.32	6.27	5.48	4.87	4.38	3.98	3.65
	MGPL	6.55	6.49	5.62	7.70	6.98	6.38	5.87	5.43
50	MGPM	13.0	13.8	12.0	10.60	9.50	8.60	7.86	7.24
	MGPL	9.17	11.2	9.8	12.8	11.6	10.7	9.80	9.10
63	MGPM	14.7	15.6	13.5	11.9	10.7	9.69	8.86	8.16
	MGPL	10.2	12.5	11.0	14.3	13.0	11.9	11.0	10.2
80	MGPM	—	26.0	22.9	20.5	18.6	17.0	15.6	14.5
	MGPL	—	25.2	22.7	20.6	18.9	17.3	16.0	14.8
100	MGPM	—	41.9	37.5	33.8	30.9	28.4	26.2	24.4
	MGPL	—	41.7	37.9	34.6	31.8	29.3	27.2	25.3

### Non-rotating accuracy of plate



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

CL

MLGC

CNA

CB

CV/MVG

CXW

CXS

CXT

MX

MXU

MXS

MXQ

MXF

MXW

MXP

MG

MGP

MGQ

MGG

MGC

MGF

CY1

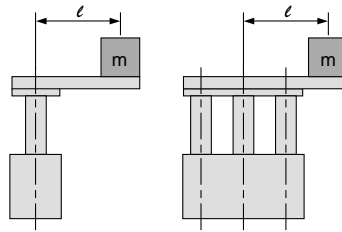
MY1

# Series MGP

## Operating Range When Used as Lifter

- Select the bore size so that the load weight is within the specified rate to theoretical force.

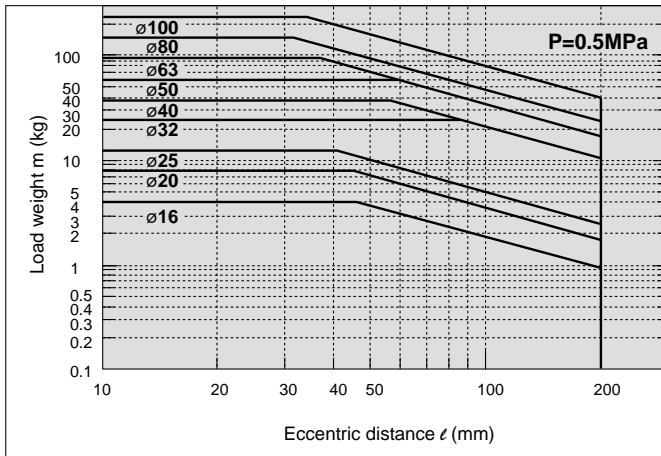
Bore size (mm)	Load rate
16	40% or less
20, 25	50% or less
32 to 100	60% or less



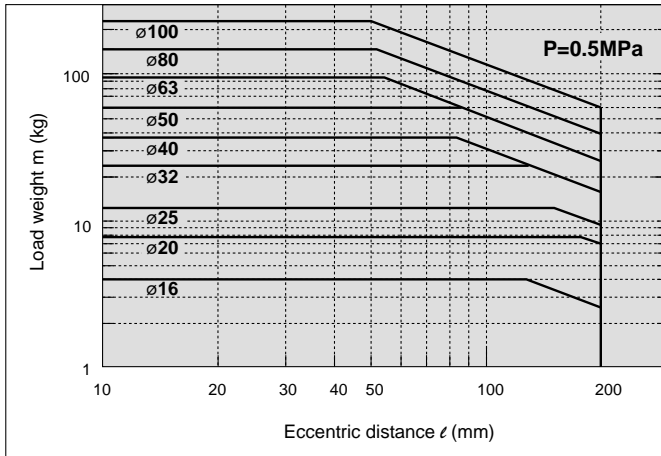
### Slide Bearing

#### MGPM16 to 100

##### Under 50 stroke



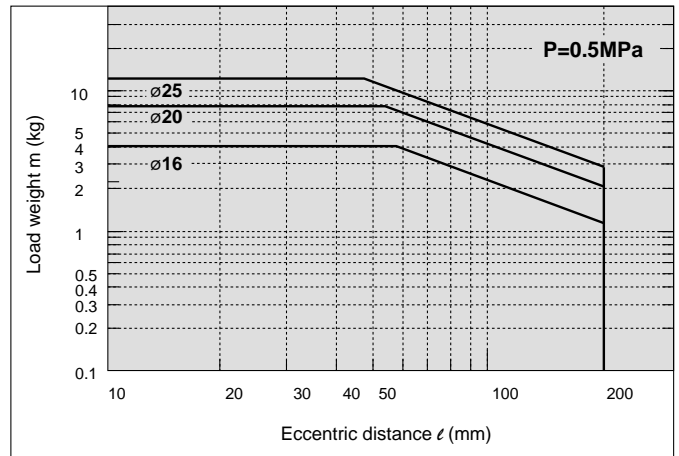
##### Over 50 stroke



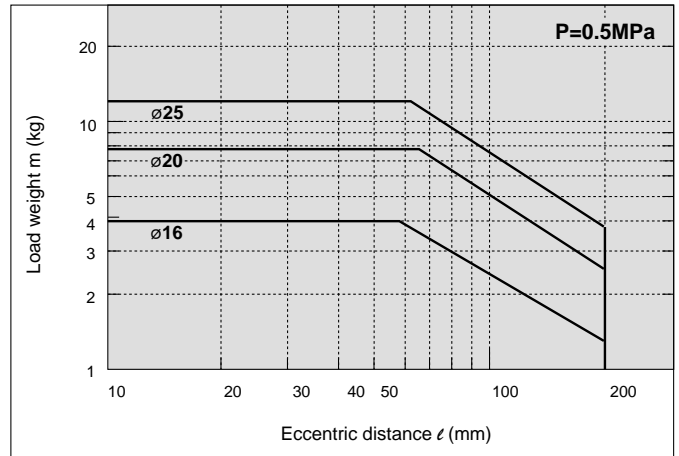
### Ball Bushing Bearing

#### MGPL16 to 25

##### Under 100 stroke



##### Over 100 stroke

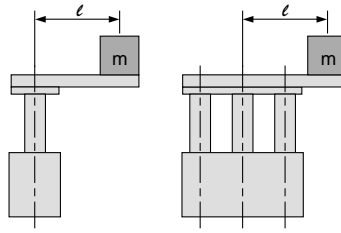


Note) Regarding intermediate stroke with a spacer, refer to the graph of the basic stroke.

## Operating Range When Used as Lifter

- Select the bore size so that the load weight is within the specified rate to theoretical force.

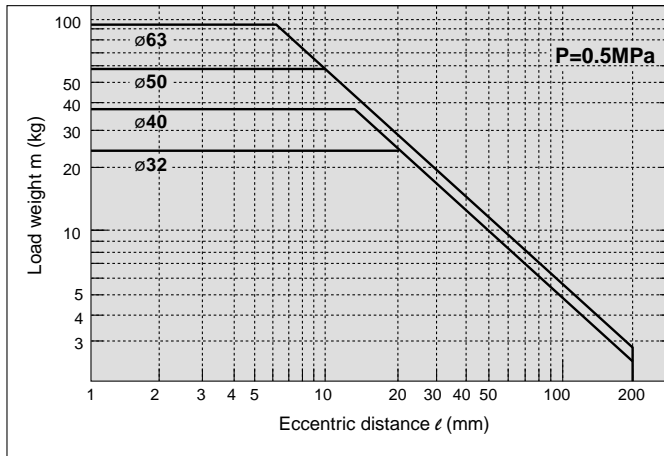
Bore size (mm)	Load rate
16	40% or less
20, 25	50% or less
32 to 100	60% or less



### Ball Bushing Bearing

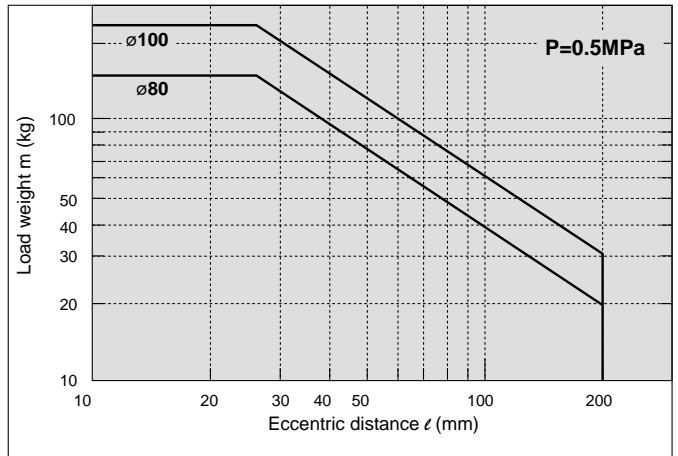
#### MGPL32 to 63

##### Under 50 stroke

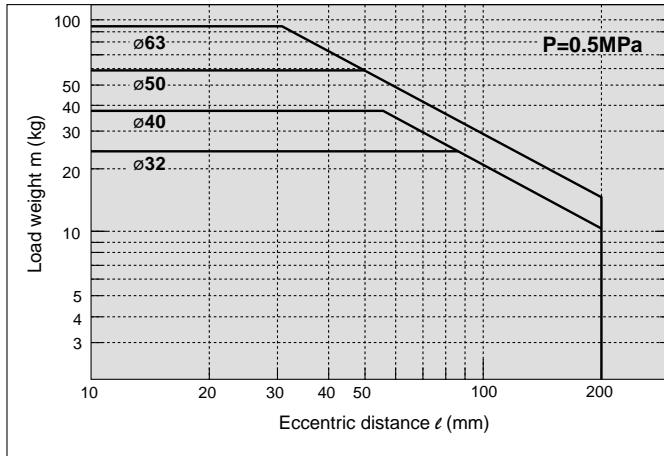


#### MGPL80 to 100

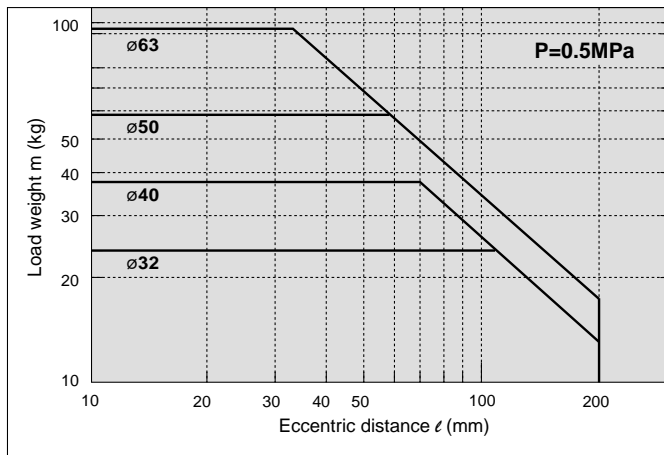
##### Over 50 stroke



##### 50 to 99 stroke



##### Over 100 stroke



Note) Regarding intermediate stroke with a spacer, refer to the graph of the basic stroke.

CL

MLGC

CNA

CB

CV/MVG

CXW

CXS

CXT

MX

MXU

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MXP

MG

**MGP**

MGQ

MGG

MGC

MGF

CY1

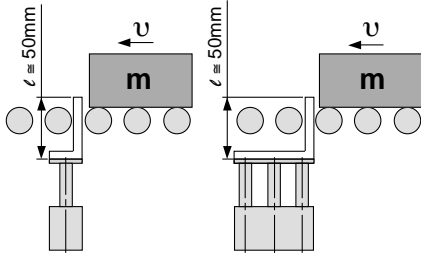
MY1

# Series MGP

## Operating Range When Used as Stopper

### Bore Size $\phi 16$ to 25/MGPM16 to 25 (Slide Bearing)

#### MGPM16 to 25 (Slide Bearing)



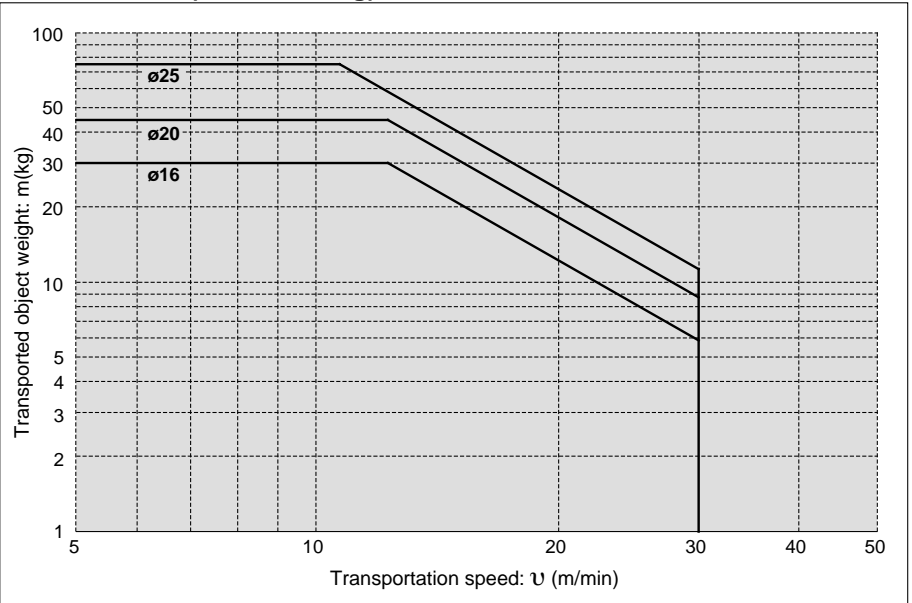
\*When requiring a bracket with a longer  $l$  dimension select a bore size large enough to accommodate the additional moment. Consult SMC.

#### ⚠ Cautions

##### Cautions for operation

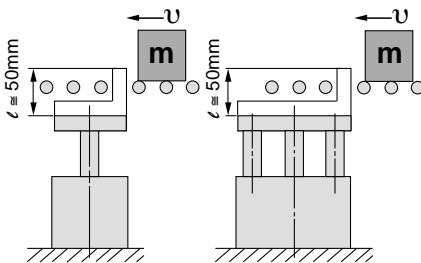
Note 1) When using this as a stopper, select a model with 25mm or shorter stroke.

Note 2) Do not use MGPL(ball bushing bearing) as a stopper.



### Bore Size $\phi 32$ to 100/MGPM32 to 100 (Slide Bearing)

#### MGPM32 to 100 (Slide Bearing)



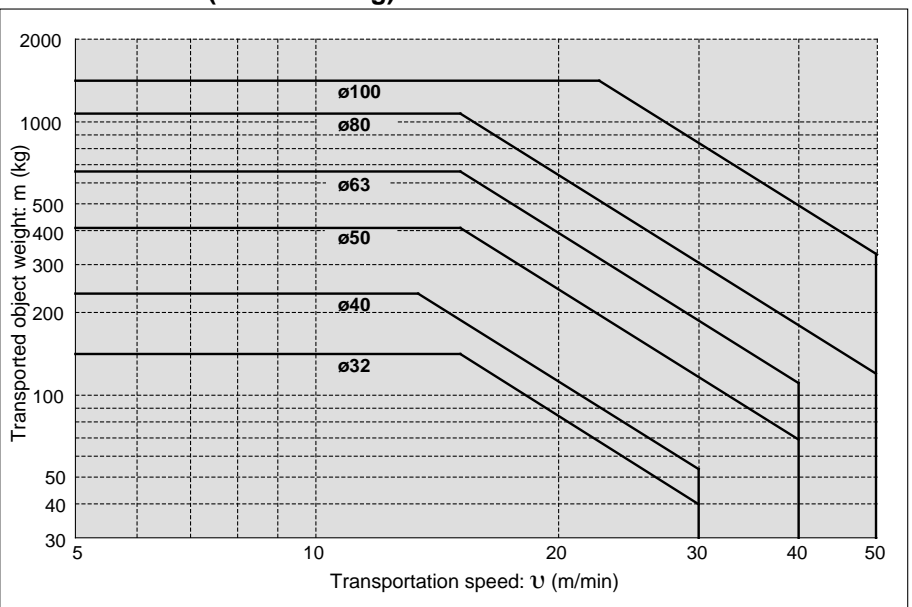
\*When requiring a bracket with a longer  $l$  dimension select a bore size large enough to accommodate the additional moment. Consult SMC.

#### ⚠ Cautions

##### Cautions for operation

Note 1) When using this as a stopper, select a model with 50mm or shorter stroke.

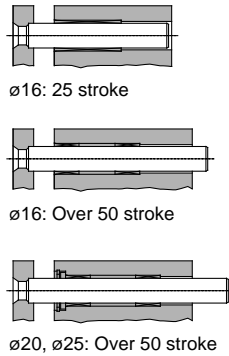
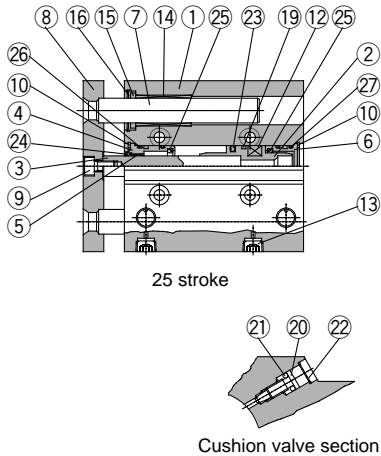
Note 2) Do not use MGPL(ball bushing bearing) as a stopper.



## Construction (With air cushion)

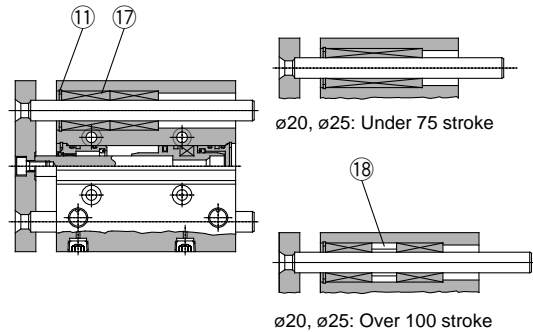
### Series MGPM

#### MGPM16 to 25

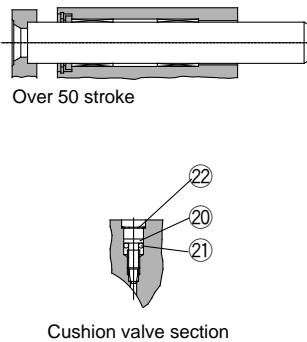
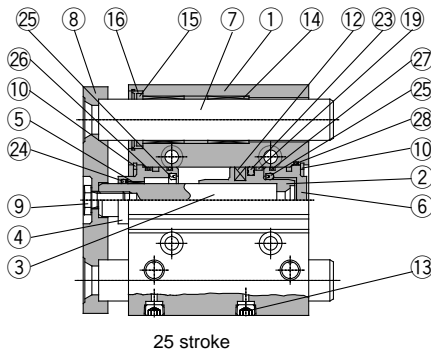


### Series MGPL

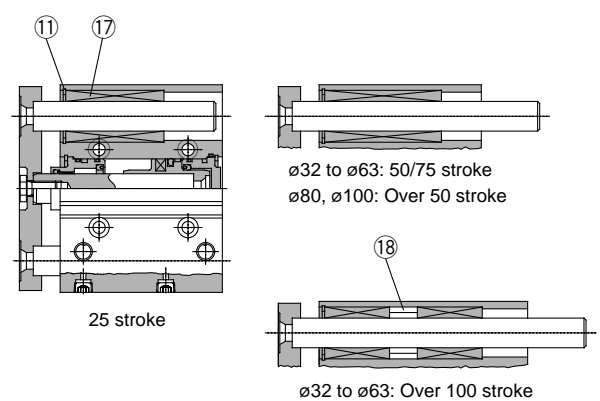
#### MGPL16 to 25



#### MGPM32 to 100



#### 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	$\phi 16$ to $\phi 25$	
		Carbon steel	$\phi 32$ to $\phi 100$	Hard chrome plated
④	Collar	Aluminum alloy	$\phi 16$ to $\phi 63$	White anodized
			$\phi 80/\phi 100$	Coated
⑤	Bushing	Lead bronze casted		
⑥	Head cover	Aluminum alloy	$\phi 16$ to $\phi 25$	White anodized
			$\phi 32$ to $\phi 100$	Coated
⑦	Guide rod	Carbon steel	Hard chrome plated	
⑧	Plate	Carbon steel	Nickel plated	
⑨	Bolt for plate mounting	Carbon steel	Nickel plated	
⑩	Retaining ring	Carbon tool steel	Phosphate coated	
⑪	Retaining ring	Carbon tool steel	Phosphate coated	
⑫	Magnet	Synthetic rubber		
⑬	Plug(M-5P)	Brass	$\phi 16$	Nickel plated
		Carbon steel	$\phi 20$ to $\phi 100$	Nickel plated
⑭	Slide bearing	Lead bronze casted		
⑮	Felt	Felt		
⑯	Resin	Resin		
⑰	Ball bushing			

### Component Parts

No.	Description	Material	Note
⑱	Spacer	Aluminum alloy	
⑲	Wearing	Resin	
⑳	Cushion valve	Steel	
㉑	Gasket	NBR	
㉒	Retaining ring	Carbon tool steel	except $\phi 16$
㉓*	Piston seal	NBR	
㉔*	Rod seal	NBR	
㉕*	Cushion seal	Urethane	
㉖*	Gasket A	NBR	
㉗*	Gasket B	NBR	
㉘*	Gasket C	NBR	

### Replacement Parts: Seal Kits

Bore size (mm)	Parts No.	Contents	Bore size (mm)	Kit No.	Contents
16	MGP16-A-PS	Set of above ㉓, ㉔, ㉕, ㉖, ㉗ and ㉘	50	MGP50-A-PS	Set of above ㉓, ㉔, ㉕, ㉖, ㉗ and ㉘
20	MGP20-A-PS		63	MGP63-A-PS	
25	MGP25-A-PS		80	MGP80-A-PS	
32	MGP32-A-PS		100	MGP100-A-PS	
40	MGP40-A-PS				

\*Seal kit includes piston seal ㉓, rod seal ㉔, cushion seal ㉕, gasket A ㉖, gasket B ㉗ and gasket C ㉘. Order a seal kit according to applicable bore size.

CL

MLGC

CNA

CB

CV/MVG

CXW

CXS

CXT

MX

MXU

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MXF

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MXP

MG

MGP

MGQ

MGG

MGC

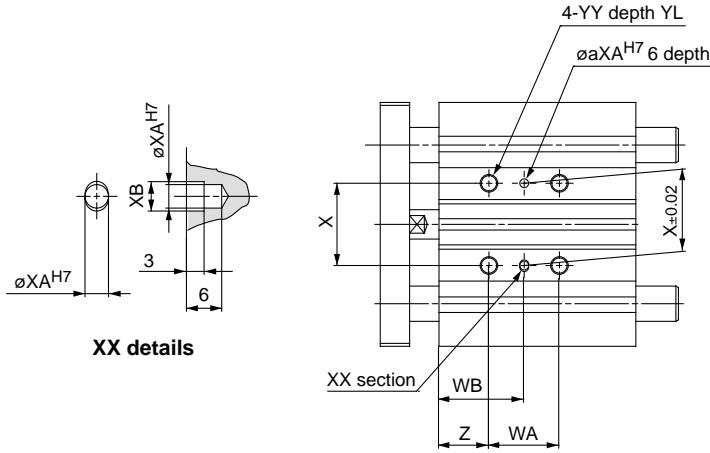
MGF

CY1

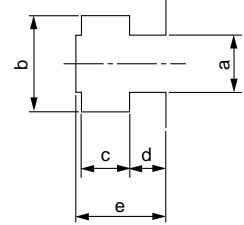
MY1

# Series MGP

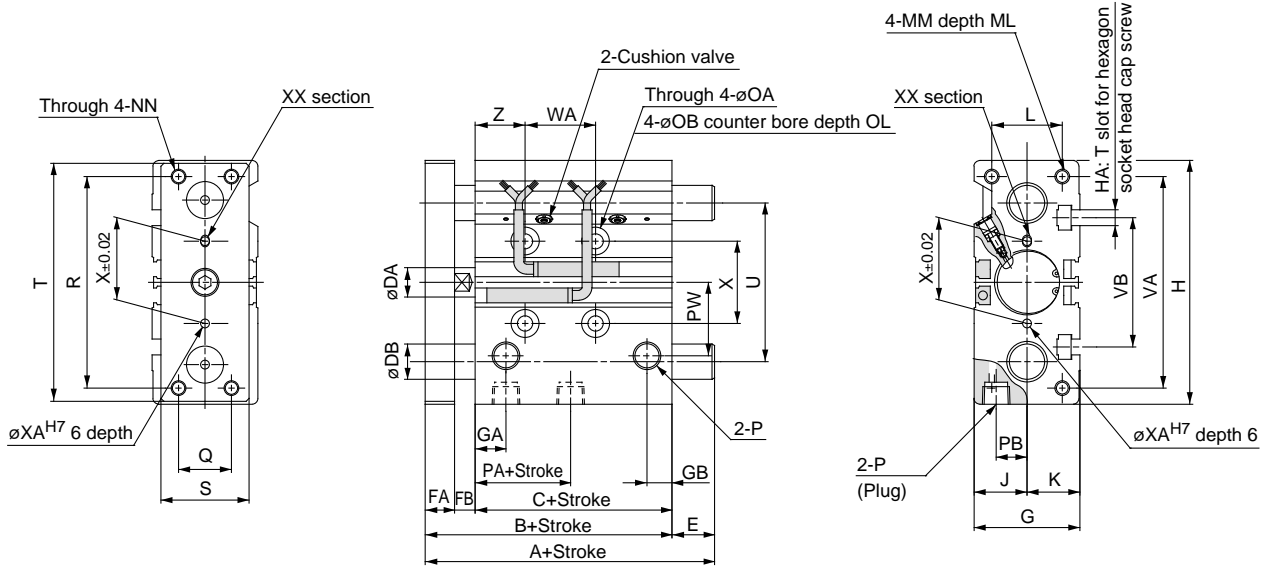
## MGPM, MGPL(With air cushion) $\varnothing 16$ to $\varnothing 25$



### Dimension of T slot



Bore (mm)	a	b	c	d	e
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 (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	Q
		16	25, 50, 75, 100	71	58	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	40	10
20	25, 50, 75, 100, 125, 150, 175, 200	78	62	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	Rc1/8	37.5	10.5	25	18
25	125, 150, 175, 200	78.5	62.5	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	Rc1/8	37.5	13.5	28.5	26

Bore (mm)	Standard stroke (mm)	R	S	T	U	VA	VB	WA			WB			X	XA	XB	YY	YL	Z
								75st $\geq$	100 to 175st	200st	75st $\geq$	100 to 175st	200st						
16	25, 50, 75, 100	54	25	62	46	56	38	44	110	—	27	60	—	24	3	3.5	M5 X 0.8	10	5
20	25, 50, 75, 100, 125, 150, 175, 200	70	30	81	54	72	44	44	120	200	39	77	117	28	3	3.5	M6 X 1.0	12	17
25	150, 175, 200	78	38	91	64	82	50	44	120	200	39	77	117	34	4	4.5	M6 X 1.0	12	17

### MGPM (Slide Bearing)/Dimensions A, DB, E

Bore (mm)	A			DB	E		
	25st	50st	75st<		25st	50st	75st<
16	71	89.5	71	10	0	18.5	0
20	78	86.5	84.5	12	0	8.5	6.5
25	78.5	87	85	16	0	8.5	6.5

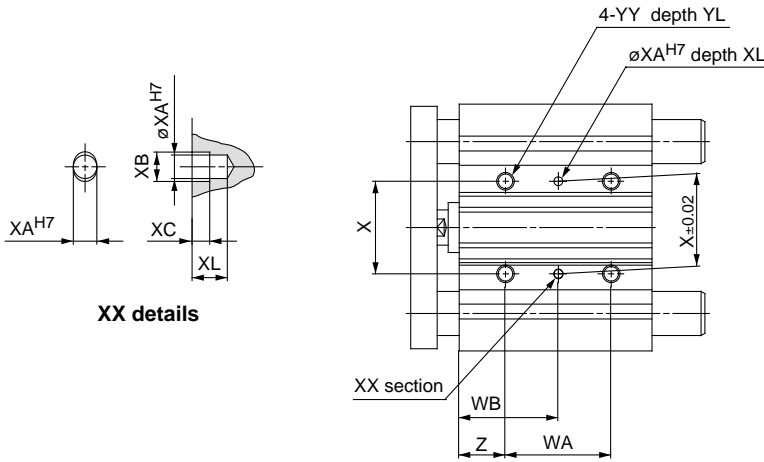
### MGPL (Ball Bushing Bearing)/Dimensions A, DB, E

Bore (mm)	A				DB	E			
	25st	50,75st	100st	125st<		25st	50,75st	100st	125st<
16	80	71	71	—	8	9	0	0	—
20	95	80	99	104	10	17	2	21	26
25	100.5	85.5	99.5	104.5	13	22	7	21	26



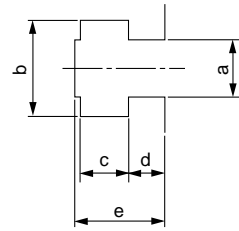
# Compact Guide Cylinder Series MGP

## MGPM, MGPL(With air cushion) $\varnothing 32$ to $\varnothing 63$

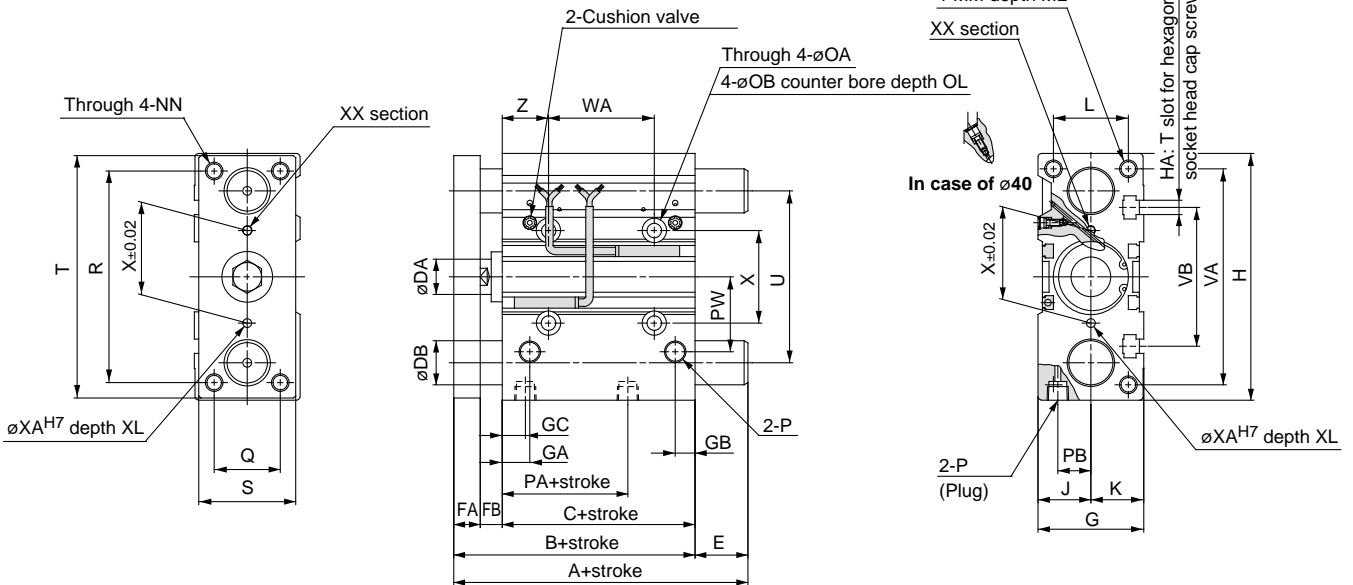


XX details

Dimension of T slot



Bore (mm)	a	b	c	d	e
32	6.5	10.5	5.5	3.5	9.5
40	6.5	10.5	5.5	4	11
50	8.5	13.5	7.5	4.5	13.5
63	11	17.8	10	7	18.5



### MGPM, MGPL/Common Dimensions

Bore (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	84.5	62.5	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	Rc1/8	32	15
40	91	69		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	Rc1/8	38	18	38	30
50	97	69		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	Rc1/4	34	21.5	47	40
63	102	74		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	Rc1/4	39	28	55	50

Bore (mm)	Standard stroke (mm)	R	S	T	U	VA	VB	WA			WB			X	XA	XB	XC	XL	YY	YL	Z
								25, 50, 75st	100 to 175st	200st	25, 50, 75st	100 to 175st	200st								
32	25, 50, 75, 100, 125, 150, 175, 200	96	44	110	78	98	63	48	124	200	45	83	121	42	4	4.5	3	6	M8 X 1.25	16	21
40		104	44	118	86	106	72	48	124	200	46	84	122	50	4	4.5	3	6	M8 X 1.25	16	22
50		130	60	146	110	130	92	48	124	200	48	86	124	66	5	6	4	8	M10 X 1.5	20	24
63		130	70	158	124	142	110	52	128	200	50	88	124	80	5	6	4	8	M10 X 1.5	20	24

### MGPM(Slide Bearing)/Dimensions A, DB, E

Bore (mm)	A			DB	E		
	25st	50st	75st<		25st	50st	75st<
32	97	127	102	20	12.5	42.5	17.5
40	97	127	102	20	6	36	11
50	106.5	131.5	118	25	9.5	34.5	21
63	106.5	131.5	118	25	4.5	29.5	16

### MGPL(Ball Bushing Bearing)/Dimensions A, DB, E

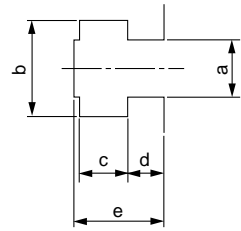
Bore (mm)	A					DB	E				
	25st	50st	75st	100st	125st<		25st	50st	75st	100st	125st<
32	84.5	123	98	115.5	118	16	0	38.5	13.5	31	33.5
40	91	123	98	115.5	118	16	0	32	7	24.5	27
50	97	127.5	114	159	134	20	0	30.5	17	62	37
63	102	127.5	114	159	134	20	0	25.5	12	57	32

- CL
- MLGC
- CNA
- CB
- CV/MVG
- CXW
- CXS
- CXT
- MX
- MXU
- MXS
- MXQ
- MXF
- MXW
- MXP
- MG
- MGP
- MGQ
- MGG
- MGC
- MGF
- CY1
- MY1

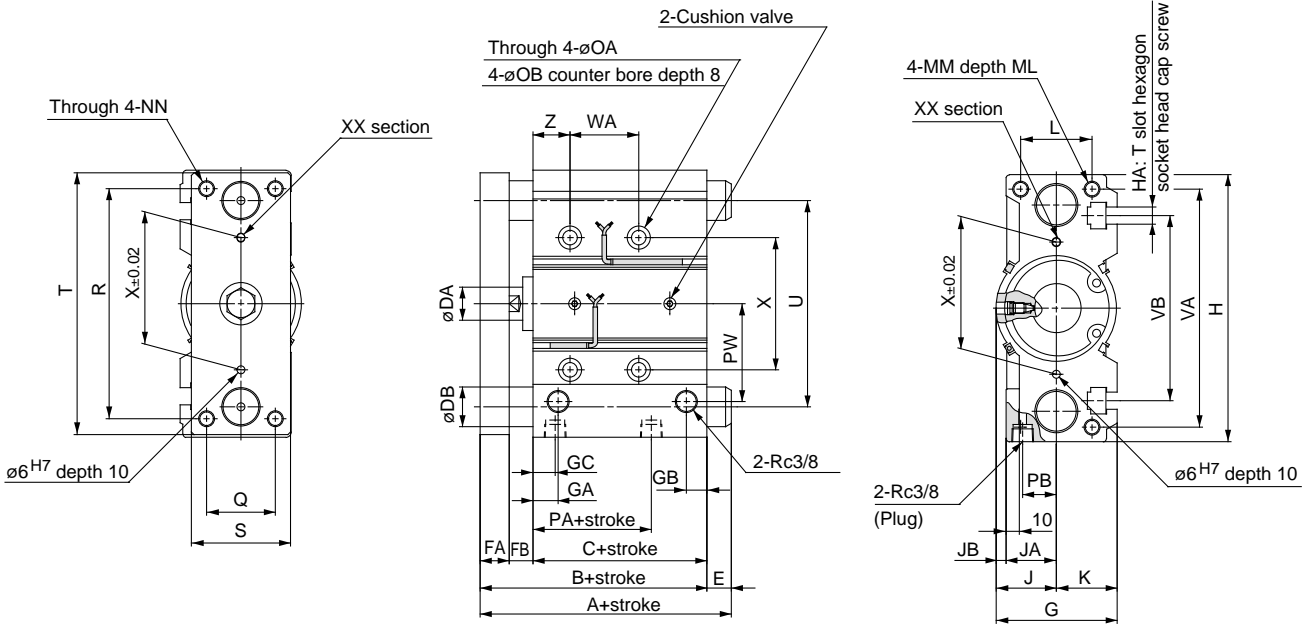
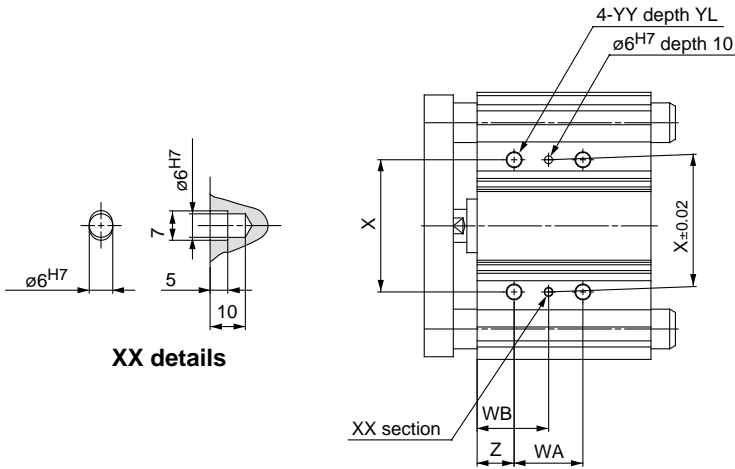
# Series MGP

## MGPM, MGPL(With air cushion) $\varnothing 80/\varnothing 100$

### Dimension of T slot



Bore (mm)	a	b	c	d	e
<b>80</b>	13.3	20.3	12	8	22.5
<b>100</b>	15.3	23.3	13.5	10	30



### MGPM, MGPL/Common Dimensions

Bore (mm)	Standard stroke (mm)	B	C	DA	FA	FB	G	GA	GB	GC	H	HA	J	JA	JB	K	L	MM	ML	NN	OA	OB	PA	PB	PW
<b>80</b>	50, 75, 100, 125,	121.5	81.5	25	22	18	91.5	19	15.5	14.5	202	M12	45.5	38	7.5	46	54	M12 X 1.75	25	M12 X 1.75	10.6	17.5	39.5	25.5	74
<b>100</b>	150, 175, 200	141	91	30	25	25	111.5	23	19	18	240	M14	55.5	45	10.5	56	62	M14 X 2.0	31	M14 X 2.0	12.5	20	32.5	42.5	89

Bore (mm)	Standard stroke (mm)	Q	R	S	T	U	VA	VB	WA			WB			X	YY	YL	Z
									50,75st	100 to 175st	200st	50,75st	100 to 175st	200st				
<b>80</b>	50, 75, 100, 125,	52	174	75	198	156	180	140	52	128	200	54	92	128	100	M12 X 1.75	24	28
<b>100</b>	150, 175, 200	64	210	90	236	188	210	166	72	148	220	47	85	121	124	M14 X 2.0	28	11

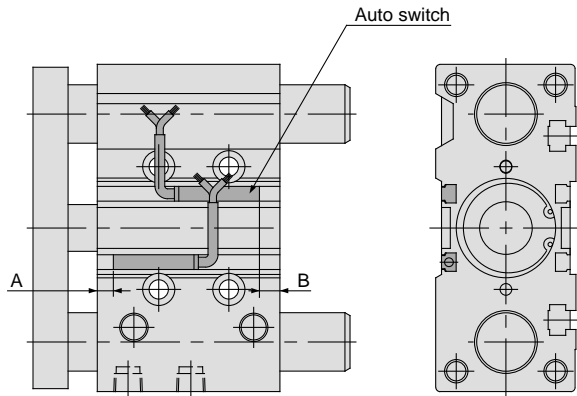
### MGPM(Slide Bearing)/Dimensions A, DB, E

Bore (mm)	A		DB	E	
	50st	75st<		50st	75st<
<b>80</b>	167	142	30	45.5	20.5
<b>100</b>	187	162	36	46	21

### MGPL(Ball Bushing Bearing)/Dimensions A, DB, E

Bore (mm)	A		DB	E	
	50st	75st<		50st	75st<
<b>80</b>	168.5	160	25	47	38.5
<b>100</b>	178.5	180	30	37.5	39

## Auto Switch/Proper Mounting Position at Stroke End Detection



### Applicable mounting position

Bore size (mm)	A	B	Bore size (mm)	A	B
16	17.5	15.5	40	26	18
20	26	11	50	27.5	16.5
25	23	14.5	63	28	21
32	16	21.5	80	25	31.5
			100	28.5	37.5

## How to Mount and Move an Auto Switch

Refer to p.5.3-73 for details.

## Contact Protection Box

Refer to p.5.3-6.

## Copper Free

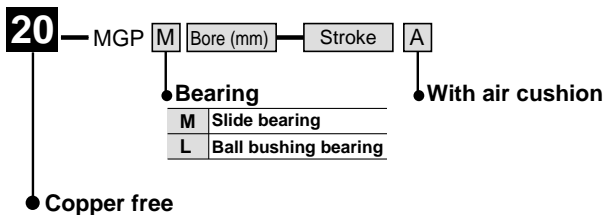
To eliminate influences of copper ions or halogen ions during CRT manufacturing processes, copper and fluorine materials are not used as component parts.

## Specifications

Applicable series	MGPM	MGPL
Bearing	Slide	Ball bushing
Bore size (mm)	16, 20, 25, 32, 40, 50, 63, 80, 100	

\* The specifications and the exterior dimensions other than those listed above are identical to the standard basic.

## How to Order



- CL
- MLGC
- CNA
- CB
- CV/MVG
- CXW
- CXS
- CXT
- MX
- MXU
- MXS
- MXQ
- MXF
- MXW
- MPX
- MG
- MGP**
- MGQ
- MGG
- MGC
- MGF
- CY1
- MY1