Compact Guide Cylinder/ Heavy Duty Guide Rod Type

MGPS Series

ø50, ø80

How to Order

MGP S 50 □ – 50 – M9BW □ – □

Compact Guide Cylinder

Heavy duty guide rod type

Bore size

50	50 mm
80	80 mm

Port thread type

Nil	Rc
N	NPT
TF	G

Cylinder stroke [mm]
Refer to Standard Strokes on page 585.

Auto switch

Nil	Without auto switch (Built-in magnet)

∗: For applicable auto switches, refer to the table below.

Number of auto switches

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

Made to Order
For details, refer to page 585.

Applicable Auto Switches/Refer to pages 1289 to 1383 for further information on auto switches.

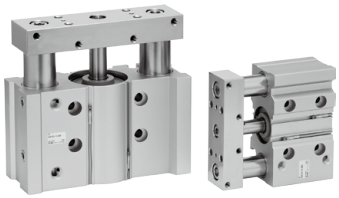
Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model Perpendicular	Auto switch model In-line	Lead wire length [m] 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V,12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

∗1: Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Please consult with SMC regarding water resistant types with the above model numbers.
∗2: 1 m type lead wire is only applicable to the D-A93.

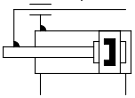
∗: Lead wire length symbols: 0.5 m····· Nil (Example) M9NW
1 m····· M (Example) M9NWM
3 m····· L (Example) M9NWL
5 m····· Z (Example) M9NWZ

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

∗: Since there are other applicable auto switches than listed above, refer to page 595 for details.
∗: For details about auto switches with pre-wired connector, refer to pages 1358 and 1359.
∗: Auto switches are shipped together, (but not assembled).



Symbol
Rubber bumper



Made to Order

Made to Order: Individual Specifications
(For details, refer to pages 597 and 598.)

Symbol	Specifications
-X867	Side porting type (Plug location changed) ∗1

∗1: The shape is the same as the current product.

Made to Order

Made to Order
Click here for details

Symbol	Specifications
-XB13	Low speed cylinder (5 to 50 mm/s)
-XC85	Grease for food processing equipment

Refer to pages 592 to 596 for cylinders with auto switches.

- Minimum stroke for auto switch mounting
- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Operating range
- Auto switch mounting brackets/Part no.
- Auto switch mounting

Specifications

Bore size [mm]	50	80
Action	Double acting	
Fluid	Air	
Proof pressure	1.5 MPa	
Maximum operating pressure	1.0 MPa	
Minimum operating pressure	0.1 MPa	
Ambient and fluid temperature	–10 to 60°C (No freezing)	
Piston speed ∗1	50 to 400 mm/s	
Cushion	Rubber bumper on both ends	
Lubrication	Not required (Non-lube)	
Stroke length tolerance	$^{+1.5}_{+0}$ mm	

∗1: Maximum speed with no load. Depending on the operating conditions, the piston speed may not be satisfied. Make a model selection, considering a load according to the graph on pages 586 to 588.

Standard Strokes

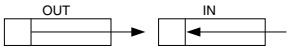
Bore size [mm]	Standard stroke [mm]
50, 80	25, 50, 75, 100, 125, 150, 175, 200

Manufacture of Intermediate Stroke

Description	Spacer installation type Spacers are installed in the standard stroke cylinder. Available in 5 mm stroke increments.
Part no.	Refer to "How to Order" for the standard model numbers on page 584.
Applicable stroke [mm]	5 to 195
Example	Part no.: MGPS50-35 A spacer 15 mm in width is installed in a MGPS50-50. C dimension is 94 mm.

∗: Intermediate stroke (in 1 mm increments) based on an exclusive body will be available upon request for special.

Theoretical Output



[N]

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
50	20	OUT	1963	393	589	785	982	1178	1374	1571	1767	1963
		IN	1649	330	495	660	825	990	1155	1319	1484	1649
80	25	OUT	5027	1005	1508	2011	2513	3016	3519	4021	4524	5027
		IN	4536	907	1361	1814	2268	2721	3175	3629	4082	4536

∗: Theoretical output [N] = Pressure [MPa] x Piston area [mm²]

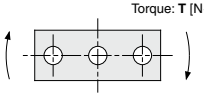
Weights

[kg]

Bore size [mm]	Standard stroke [mm]							
	25	50	75	100	125	150	175	200
50	3.90	4.68	5.74	6.52	7.30	8.08	8.86	9.64
80	9.21	10.7	13.0	14.5	15.9	17.9	18.9	20.3

Allowable Rotational Torque of Plate

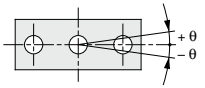
Torque: **T** [N·m]



T [N·m]

Bore size [mm]	Standard stroke [mm]							
	25	50	75	100	125	150	175	200
50	15	12	16	15	13	12	11	9.8
80	49	41	51	45	41	38	35	32

Non-rotating Accuracy of Plate

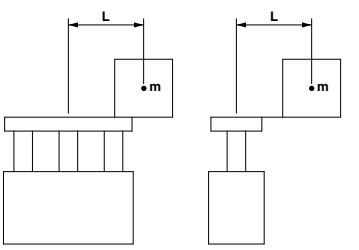
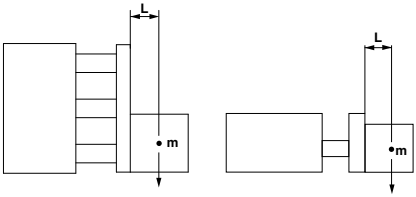


For non-rotating accuracy θ without load, use a value no more than the values in the table as a guide.

Bore size [mm]	Non-rotating accuracy θ
50	±0.05°
80	±0.04°

MGPS Series
Model Selection

Selection Conditions

	Vertical		Horizontal	
Mounting orientation				
Maximum speed [mm/s]	200 or less	400	200 or less	400
Graph (Slide bearing type)	(1), (2)	(3), (4)	(5), (6)	(7), (8)

Selection Example 1 (Vertical Mounting)

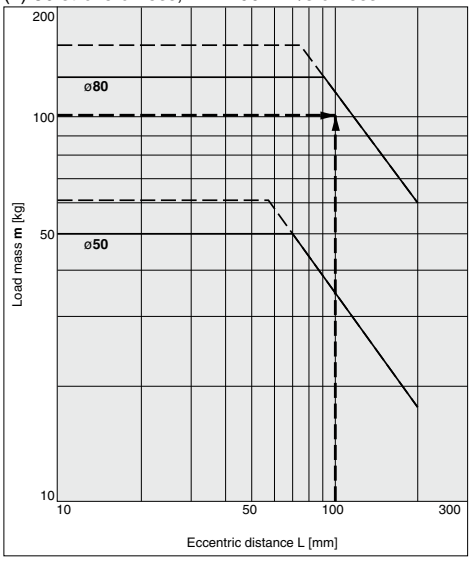
Selection conditions

Mounting: Vertical
Stroke: 50 stroke
Maximum speed: 200 mm/s
Load mass: 100 kg
Eccentric distance: 100 mm

Find the point of intersection for the load mass of 100 kg and the eccentric distance of 100 mm on graph 1, based on vertical mounting, 50 mm stroke, and the speed of 200 mm/s.

→**MGPS80-50** is selected.

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



Selection Example 2 (Horizontal Mounting)

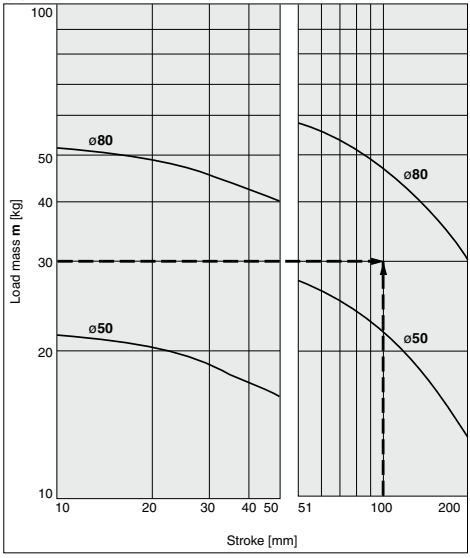
Selection conditions

Mounting: Horizontal
Distance between plate and load center of gravity: 50 mm
Maximum speed: 200 mm/s
Load mass: 30 kg
Stroke: 100 stroke

Find the point of intersection for the load mass of 30 kg and 100 stroke on graph 5, based on horizontal mounting, the distance of 50 mm between the plate and load center of gravity, and the speed of 200 mm/s.

→**MGPS80-100** is selected.

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



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

Maximum	Up to 300 mm/s	Up to 400 mm/s	Up to 500 mm/s
Coefficient	1.7	1	0.6

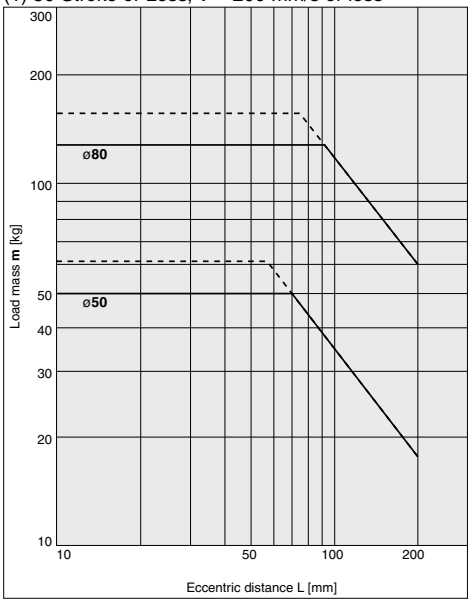
· Use the Guide Cylinder Selection Software, when the eccentric distance is 200 mm or more.

Vertical Mounting Slide Bearing

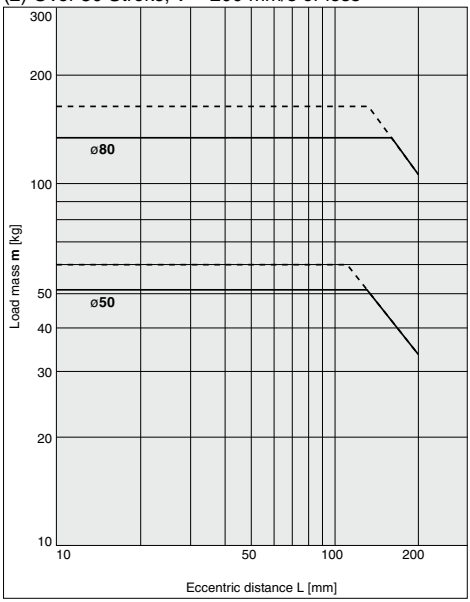
Operating pressure 0.4 MPa
Operating pressure 0.5 MPa or more

MGPS50, 80

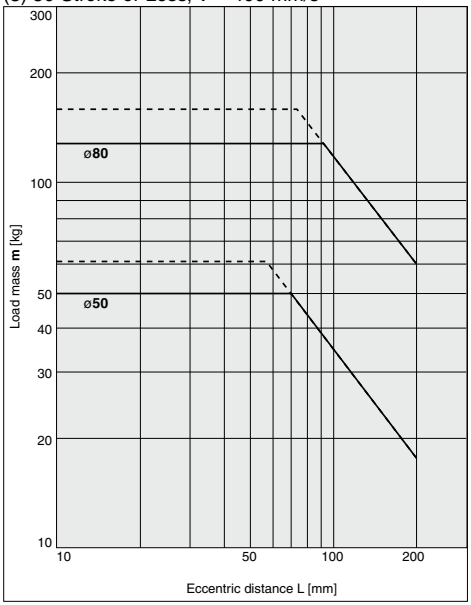
(1) 50 Stroke or Less, V = 200 mm/s or less



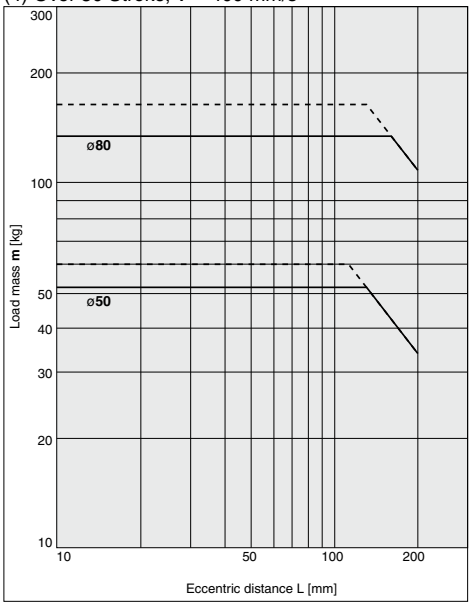
(2) Over 50 Stroke, V = 200 mm/s or less



(3) 50 Stroke or Less, V = 400 mm/s



(4) Over 50 Stroke, V = 400 mm/s

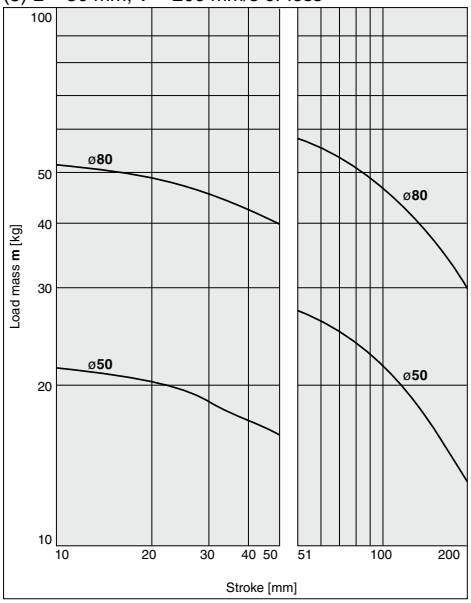


· Use the Guide Cylinder Selection Software, when the eccentric distance is 200 mm or more.

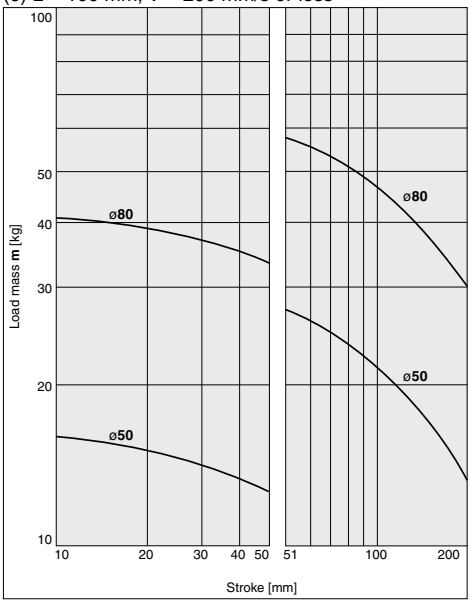
Horizontal Mounting Slide Bearing

MGPS50, 80

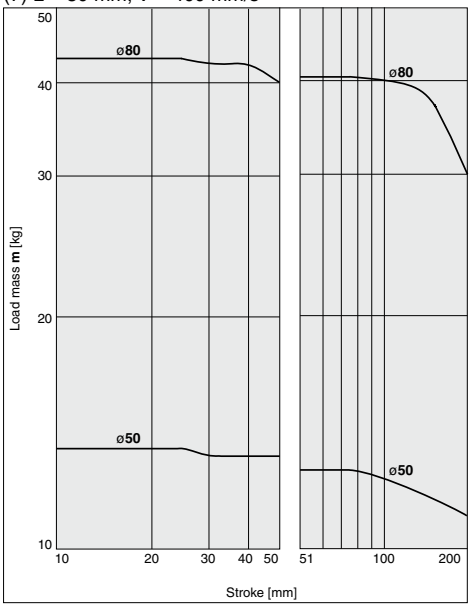
(5) L = 50 mm, V = 200 mm/s or less



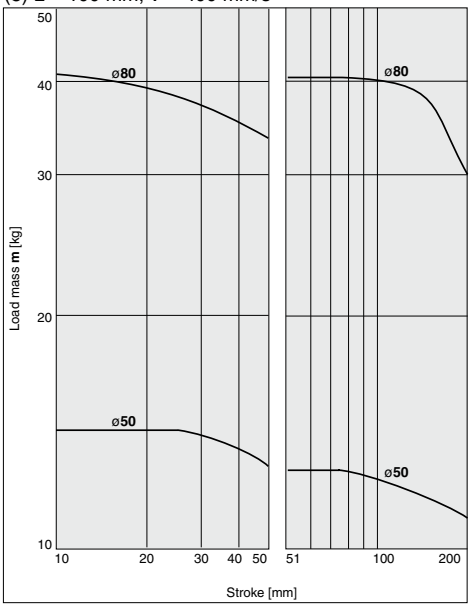
(6) L = 100 mm, V = 200 mm/s or less



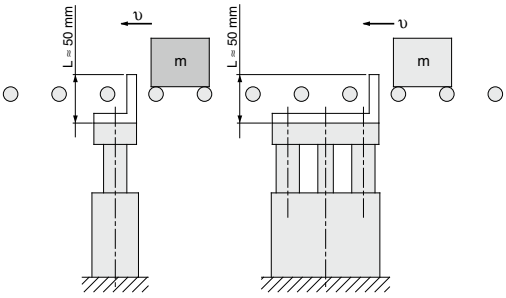
(7) L = 50 mm, V = 400 mm/s



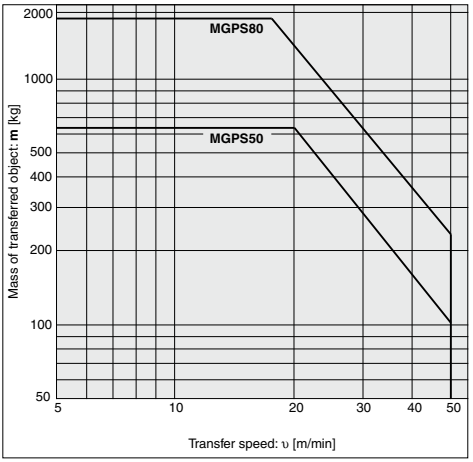
(8) L = 100 mm, V = 400 mm/s



Operating Range when Used as Stopper



∗: When selecting a model with a longer L dimension, be sure to choose a bore size which is sufficiently large.
∗: Refer to the horizontal mounting selection graph if line pressure is to be applied by a roller conveyor after the workpiece is stopped.

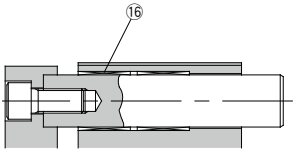


⚠Caution

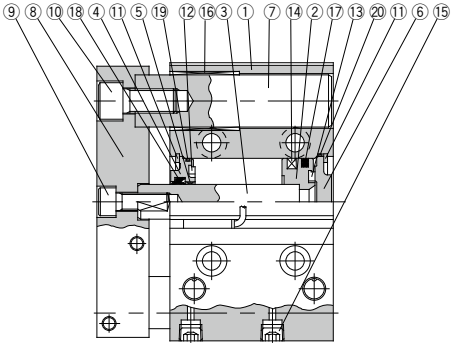
Caution on handling

When using as a stopper, select a model with 50 stroke or less.

Construction



Over 50 stroke



50 stroke or less

Component Parts

No.	Description	Material	Note	
1	**Body**	Aluminum alloy	Hard anodized	
2	**Piston**	Aluminum alloy		
3	**Piston rod**	Carbon steel	Hard chrome plating	
4	**Collar**	Aluminum alloy casted	Painted	
5	**Bushing**	Bearing alloy		
6	**Head cover**	Aluminum alloy	ø50	Chromated
			ø80	Painted
7	**Guide rod**	Carbon steel	Hard chrome plating	
8	**Plate**	Carbon steel	Nickel plating	
9	**Plate mounting bolt A**	Carbon steel	Nickel plating	For piston rod
10	**Plate mounting bolt B**	Carbon steel	Nickel plating	For guide rod

Component Parts

No.	Description	Material	Note
11	**Retaining ring**	Carbon tool steel	Phosphate coated
12	**Bumper A**	Urethane	
13	**Bumper B**	Urethane	
14	**Magnet**	—	
15	Hexagon socket head taper plug	Carbon steel	Nickel plating
16	**Slide Bearing**	Bearing alloy	
17*	**Piston seal**	NBR	
18*	**Rod seal**	NBR	
19*	**Gasket A**	NBR	
20*	**Gasket B**	NBR	

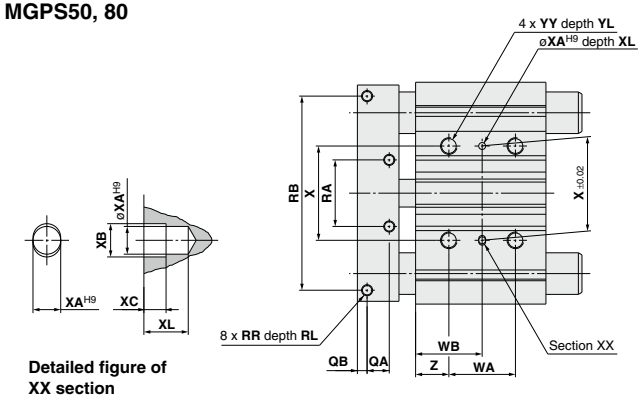
Replacement Parts/Seal Kit

Bore size [mm]	Kit no.	Contents
50	MGP50-PS	Set of nos. above ⑰, ⑱, ⑲, ⑳
80	MGP80-PS	

*: Seal kit includes ⑰ to ⑳. Order the seal kit, based on each bore size.
*: Since the seal kit does not include a grease pack, order it separately.
Grease pack part no.: GR-S-010 (10 g)

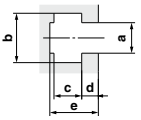
Dimensions

MGPS50, 80



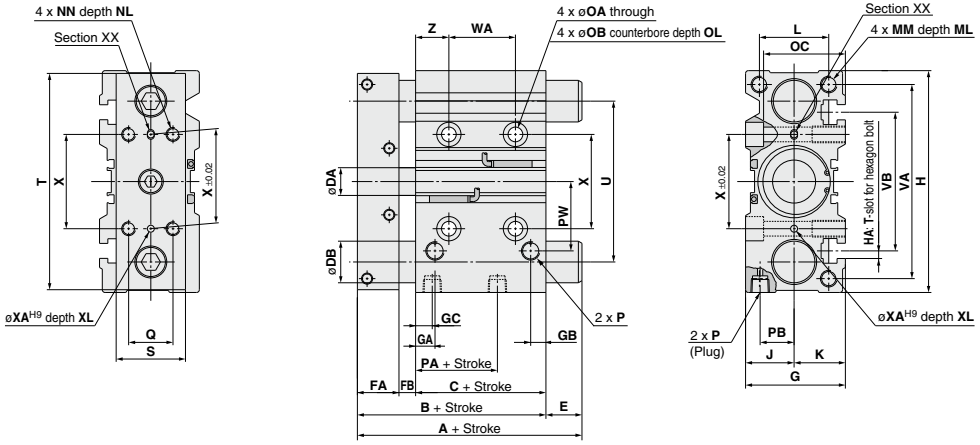
Detailed figure of XX section

T-slot dimensions



[mm]

Bore size [mm]	T-slot dimensions				
	a	b	c	d	e
50	11	17.8	10	6	17.5
80	13.3	20.3	12	8	22.5



∗: For intermediate strokes other than standard strokes, refer to the Manufacture of Intermediate Stroke on page 585.
∗: Rc, NPT and G ports can be selected. (Refer to page 584.)

Dimensions

[mm]

Bore size [mm]	Standard stroke [mm]	A		B	C	DA	DB	E		FA	FB	G	GA	GB	GC	H	HA	J	K	L
		25, 50 st	Over 50 st					25, 50 st	Over 50 st											
50	25, 50, 75, 100 125, 150, 175, 200	86	110	86	44	20	30	0	24	29.5	12.5	72	14	11	12	160	M10	35	37	50
80		118	151	118	65	25	45	0	33	35	18	95	19	24	14.5	242	M12	47	48	66

Bore size [mm]	MM	ML	NN	NL	OA	OB	OC	OL	P			PA	PB	PW	Q	QA	QB	RA	RB	RR
									Nil	N	TF									
50	M12 x 1.75	20	M10 x 1.5	20	10.6	17.5	59	13	Rc 1/4	NPT 1/4	G 1/4	9	24.5	50	32	16	7	48	140	M8 x 1.25
80	M16 x 2.0	32	M12 x 1.75	24	12.5	20	72	17.5	Rc 3/8	NPT 3/8	G 3/8	14.5	29	77	40	18	9	80	200	M10 x 1.5

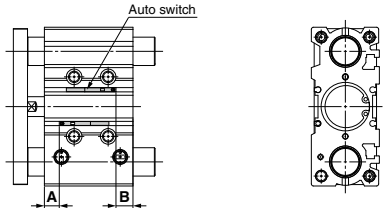
Bore size [mm]	RL	S	T	U	VA	VB	WA			WB			X	XA	XB	XC	XL	YY	YL	Z
							25 st	50, 75, 100 st	Over 100 st	25 st	50, 75, 100 st	Over 100 st								
50	14	50	156	116	140	100	24	48	124	36	48	86	68	5	6	4	8	M12 x 1.75	24	24
80	20	65	228	170	214	138	28	52	128	42	54	92	100	6	7	5	10	M14 x 2.0	28	28

Auto Switch Mounting

Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height/MGP-Z (Basic type), MGP-AZ (Air cushion), MGPS (Heavy duty guide rod type)

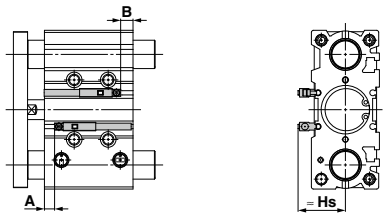
D-M9□/M9□V
D-M9□W/M9□WV
D-M9□A/M9□AV
D-A9□/A9□V

ø12 to ø100

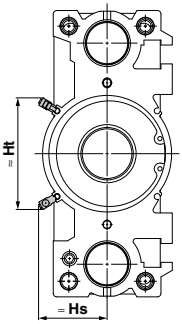


D-P3DWA

ø25 to ø63

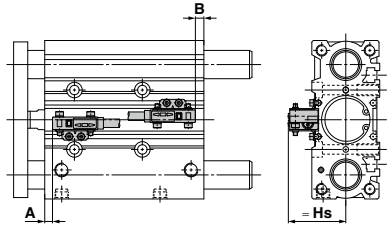


ø80, ø100

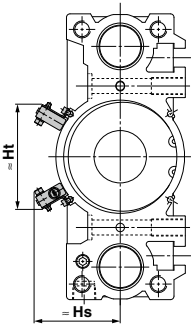


D-P4DW

ø32 to ø63



ø80, ø100



∗: The MGP-Z (Basic type) is shown as a representative example.

Applicable Cylinder: MGP-Z (Basic type)
Auto Switch Proper Mounting Position

[mm]

Auto switch model / Bore size	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-P3DWA		D-P4DW *1	
	A	B	A	B	A	B	A	B
12	7.5	9.5	3.5	5.5	—	—	—	—
16	10.5	10.5	6.5	6.5	—	—	—	—
20	12.5	12.5	8.5	8.5	—	—	—	—
25	11.5	14	7.5	10	7	9.5	—	—
32	12.5	13	8.5	9	8	8.5	5.5	6
40	15.5	16.5	11.5	12.5	11	12	8.5	9.5
50	14.5	17	10.5	13	10	12.5	7.5	10
63	16.5	20	12.5	16	12	15.5	9.5	13
80	18	26	14	22	13.5	21.5	11	19
100	21.5	32.5	17.5	28.5	17	28	14.5	25.5

∗1: The auto switch mounting bracket BMG7-032 is used.
∗: Adjust the auto switch after confirming the operating conditions in the actual setting.

Applicable Cylinder: MGP-Z (Basic type)
Auto Switch Proper Mounting Height

[mm]

Auto switch model / Bore size	D-M9□V D-M9□WV D-M9□AV		D-A9□V		D-P3DWA		D-P4DW *1	
	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht
12	19.5	—	17	—	—	—	—	—
16	22	—	19.5	—	—	—	—	—
20	24.5	—	22	—	—	—	—	—
25	26	—	24	—	32.5	—	—	—
32	29	—	26.5	—	35.5	—	40	—
40	33	—	30.5	—	39	—	44	—
50	38.5	—	36	—	44.5	—	49.5	—
63	45.5	—	43	—	51.5	—	56.5	—
80	45	74	43	71.5	49.5	80.5	61	74
100	55	85.5	53	83	59.5	92	71.5	86

∗1: The auto switch mounting bracket BMG7-032 is used.

Applicable Cylinder: MGP-AZ (Air cushion)
Auto Switch Proper Mounting Position

[mm]

Auto switch model / Bore size	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-P3DWA		D-P4DW *1	
	A	B	A	B	A	B	A	B
16	25	20.5	21	16.5	—	—	—	—
20	27	23	23	19	—	—	—	—
25	27	23	23	19	22.5	18.5	—	—
32	21	29	17	25	16.5	24.5	14	22
40	25.5	31.5	21.5	27.5	21	27	18.5	24.5
50	26	30.5	22	26.5	21.5	26	19	23.5
63	30	31.5	26	27.5	25.5	27	23	24.5
80	30.5	38.5	26.5	34.5	26	34	23.5	31.5
100	34.5	44	30.5	40	30	39.5	27.5	37

∗1: The auto switch mounting bracket BMG7-032 is used.

Applicable Cylinder: MGP-AZ (Air cushion)
Auto Switch Proper Mounting Height

[mm]

Auto switch model / Bore size	D-M9□V D-M9□WV D-M9□AV		D-A9□V		D-P3DWA		D-P4DW *1	
	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht
16	22	—	19.5	—	—	—	—	—
20	24.5	—	22	—	—	—	—	—
25	26	—	24	—	32.5	—	—	—
32	29	—	26.5	—	35.5	—	40	—
40	33	—	30.5	—	39	—	44	—
50	38.5	—	36	—	44.5	—	49.5	—
63	45.5	—	43	—	51.5	—	56.5	—
80	45	74	43	71.5	49.5	80.5	61	74
100	55	85.5	53	83	59.5	92	71.5	86

∗1: The auto switch mounting bracket BMG7-032 is used.

Applicable Cylinder: MGPS (Heavy duty guide rod)
Auto Switch Proper Mounting Position

[mm]

Auto switch model / Bore size	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV *1		D-A9□ D-A9□V *1		D-Z7□ D-Z80 D-Y59□ D-Y7P D-Y69□ D-Y7PV D-Y7□W D-Y7□ D-WV D-Y7BA		D-P3DWA *1		D-P4DW *2	
	A	B	A	B	A	B	A	B	A	B
50	12.5	16.5	8.5	12.5	7.5	11.5	8	12	7	11
80	18	23.5	14	19.5	13	18.5	13.5	19	12.5	18

∗1: The auto switch mounting bracket BMG2-012 is used.
∗2: The auto switch mounting bracket BMG1-040 is used.
∗: Adjust the auto switch after confirming the operating conditions in the actual setting.

Applicable Cylinder: MGPS (Heavy duty guide rod)
Auto Switch Proper Mounting Height

[mm]

Auto switch model / Bore size	D-M9□ D-M9□W D-M9□A D-Z7□ D-Z80 D-Y59□ D-Y7P D-Y7□W D-Y7BA *1		D-M9□V D-M9□WV D-M9□AV *2		D-A9□V *2		D-Y69□ D-Y7PV D-Y7□WV		D-P3DWA *2		D-P4DW *3	
	Hs	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht
50	32.5	38.5	—	36	—	34	—	44.5	—	50	—		
80	40	45	74	43	71.5	41	70	49.5	78.5	61	84.5		

∗1: For the D-M9□, the auto switch mounting bracket BMG2-012 is used.
∗2: The auto switch mounting bracket BMG2-012 is used.
∗3: The auto switch mounting bracket BMG1-040 is used.

Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height/MGP (With end lock)

Applicable cylinder: MGP series, With end lock

With rod end lock

D-M9□	**D-M9□A**	**D-Z7□**	**D-Y7P**
D-M9□V	**D-M9□AV**	**D-Z80**	**D-Y7PV**
D-M9□W	**D-A9□**	**D-Y59□**	**D-Y7□W**
D-M9□WV	**D-A9□V**	**D-Y69□**	**D-Y7□WV**
			D-Y7BA

Auto Switch Proper Mounting Position [mm]

Auto switch model / Bore size	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV *1		D-A9□ D-A9□V *1		D-Z7□/Z80 D-Y59□/Y7P D-Y69□/Y7PV D-Y7□W D-Y7□WV D-Y7BA		D-P3DWA *3, *4		D-P4DW *2	
	A	B	A	B	A	B	A	B	A	B
20	40	7	36	3	35	2	—	—	—	—
25	40.5	7	36.5	3	35.5	2	36	2.5*5	—	—
32	37.5	10	33.5	6	32.5	5	33	6	32	4.5
40	43.5	10.5	39.5	6.5	38.5	5.5	39	6	38	5
50	44.5	9.5	40.5	5.5	39.5	4.5	40	5	39	4
63	47	12	43	8	42	7	42.5	7.5	41.5	6.5
80	68	23.5	64	19.5	63	18.5	63.5	19	62.5	18
100	72.5	28.5	68.5	24.5	67.5	23.5	68	24	67	23

*1: The auto switch mounting bracket BMG2-012 is used.
*2: The auto switch mounting bracket BMG1-040 is used.
*3: The auto switch mounting bracket BMG10-025 is used.
*4: This shows the top end position of the mounting bracket when the auto switch is put in contact with the mounting bracket.
*5: When mounted on the head end of ø25, the tip of the BMG2-012 protrudes 3.5 mm from the cylinder body
*: Adjust the auto switch after confirming the operating conditions in the actual setting.

Auto Switch Proper Mounting Height (D-P3DWA) [mm]

Bore size	Hs	Ht
25	32	—
32	35	—
40	39	—
50	44.5	—
63	51.5	—
80	49.5	78.5
100	60	90

Auto Switch Proper Mounting Height (D-P4DW) [mm]

Bore size	Hs	Ht
32	41.5	—
40	44.5	—
50	50	—
63	57	—
80	61	84.5
100	71	96.5

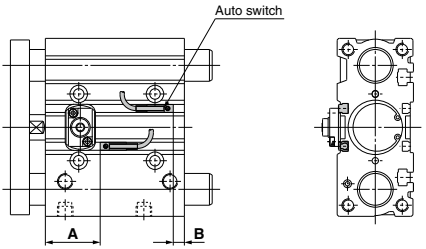
With head end lock

D-M9□	**D-M9□A**	**D-Z7□**	**D-Y7P**
D-M9□V	**D-M9□AV**	**D-Z80**	**D-Y7PV**
D-M9□W	**D-A9□**	**D-Y59□**	**D-Y7□W**
D-M9□WV	**D-A9□V**	**D-Y69□**	**D-Y7□WV**
			D-Y7BA

Auto Switch Proper Mounting Position [mm]

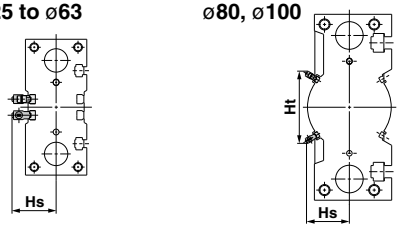
Auto switch model / Bore size	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV *1		D-A9□ D-A9□V *1		D-Z7□/Z80 D-Y59□/Y7P D-Y69□/Y7PV D-Y7□W D-Y7□WV D-Y7BA		D-P3DWA *3, *4		D-P4DW *2	
	A	B	A	B	A	B	A	B	A	B
20	9	38	5	34	4	33	—	—	—	—
25	9.5	38	5.5	34	4.5	33	6	33.5	—	—
32	10.5	37	6.5	33	5.5	32	6	32.5	5	31.5
40	14.5	39.5	10.5	35.5	9.5	34.5	10	35	9	34
50	12.5	41.5	8.5	37.5	7.5	36.5	8	37	7	36
63	15	44	11	40	10	39	10.5	39.5	9.5	38.5
80	18	73.5	14	69.5	13	68.5	13.5	69	12.5	68
100	22.5	78.5	18.5	74.5	17.5	73.5	18	74	17	73

*1: The auto switch mounting bracket BMG2-012 is used.
*2: The auto switch mounting bracket BMG1-040 is used.
*3: The auto switch mounting bracket BMG10-025 is used.
*4: This shows the top end position of the mounting bracket when the auto switch is put in contact with the mounting bracket.
*: Adjust the auto switch after confirming the operating conditions in the actual setting.



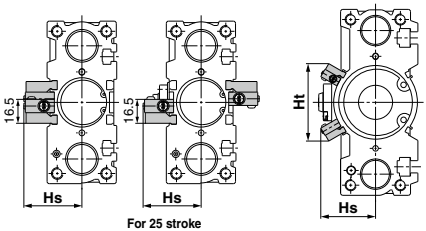
For D-P3DWA (*: Cannot be mounted on bore size ø20.)

ø25 to ø63 **ø80, ø100**

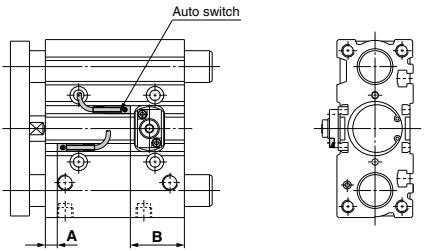


For D-P4DW (*: Cannot be mounted on bore size ø25 or less.)

ø32 to ø63 **ø80, ø100**



For 25 stroke
*: For bore sizes ø40 to ø63 with two auto switches, one switch is mounted on each side.



Mounting of Auto Switch

⚠ Caution

In the case of 25 st or less with head side end lock type, it might not insert auto switch from the rod side.
In this case, install it after removing the plate temporarily.
Regarding the plate removal and the way of assembly, please consult with SMC.

Minimum Stroke for Auto Switch Mounting

[mm]

Auto switch model	Number of auto switches	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
D-M9□V	1 pc.	5									
	2 pcs.	5									
D-M9□	1 pc.	5 *1				5					
	2 pcs.	10 *1	10								
D-M9□W	1 pc.	5 *2									
	2 pcs.	10 *2	10								
D-M9□WV **D-M9□AV**	1 pc.	5 *2									
	2 pcs.	10									
D-M9□A	1 pc.	5 *2									
	2 pcs.	10 *2									
D-A9□	1 pc.	5 *1				5					
	2 pcs.	10 *1				10					
D-A9□V	1 pc.	5									
	2 pcs.	10									
D-Z7□ **D-Z80**	1 pc.	—		5 *1		5					
	2 pcs.	—		10							
D-Y59□ **D-Y7P**	1 pc.	—		5 *1		5					
	2 pcs.	—		10							
D-Y69□ **D-Y7PV**	1 pc.	—		5							
	2 pcs.	—		5							
D-Y7□W **D-Y7□WV**	1 pc.	—		5 *2							
	2 pcs.	—		10 *2							
D-Y7BA	1 pc.	—		5 *2							
	2 pcs.	—		10 *2							
D-P3DWA	1 pc.	—			15 *2						
	2 pcs.	—			15 *2						
D-P4DW	1 pc.	—			5 *2						
	2 pcs. (Different surfaces)	—			10 *2						
	2 pcs. (Same surface)	—			75					10	

*1: Confirm that it is possible to secure the minimum bending radius of 10 mm of the auto switch lead wire before use.
*2: Confirm that it is possible to securely set the auto switch(es) within the range of indicator green light ON range before use.
For in-line entry type, also consider *1 shown above.

Operating Range

[mm]

Auto switch model	Bore size									
	12	16	20	25	32	40	50	63	80	100
D-M9□/M9□V **D-M9□W/M9□WV** **D-M9□A/M9□AV**	3.5	5	5	5	6	6	6	6.5	6	7
D-A9□/A9□V	7	9	9	9	9.5	9.5	9.5	11	10.5	10.5
D-Z7□/Z80	—	—	10	10	10.5	10.5	10.5	11.5	11.5	12
D-Y59□/Y69□ **D-Y7P/Y7PV** **D-Y7□W/Y7□WV** **D-Y7BA**	—	—	7.5	7	6.5	6	7	8	9.5	10
D-P3DWA	—	—	—	5.5	6.5	6	6	6.5	6	7
D-P4DW	—	—	—	—	5	4	4	5	4	4

*: Values which include hysteresis are for guideline purposes only, they are not a guarantee (assuming approximately ±30% dispersion) and may change substantially depending on the ambient environment.

Other than the applicable auto switches listed in How to Order, the following auto switches are mountable.
***: The auto switches other than the D-P4DW are mountable on the models with end lock and heavy duty guide rod type only.**

Refer to pages 1289 to 1383 for the detailed specifications.

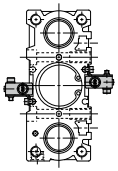
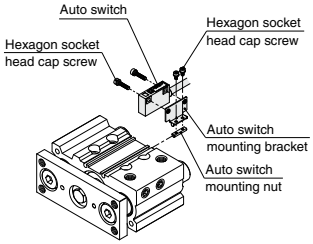
Type	Model	Electrical entry	Features
Reed	D-Z73, Z76	Grommet (In-line)	—
	D-Z80		Without indicator light
Solid state	D-P4DW	Grommet (In-line)	Magnetic field resistant (2-color indicator) Bore size: ø32 to ø100
	D-Y69A, Y69B, Y7PV	Grommet (Perpendicular)	—
	D-Y7NWV, Y7PWV, Y7BWV		Diagnostic indication (2-color indicator)
	D-Y59A, Y59B, Y7P	Grommet (In-line)	—
	D-Y7NW, Y7PW, Y7BW		Diagnostic indication (2-color indicator)
	D-Y7BA		Water resistant (2-color indicator)

*: With pre-wired connector is also available for solid state auto switches.
For details, refer to pages 1358 and 1359.
*: Normally closed (NC = b contact) solid state auto switches (D-M9□E(V)) are also available.
For details, refer to page 1308.
*: When installing the D-P4DW, use the BMG7-032 auto switch mounting bracket.

Auto Switch Mounting

Applicable Cylinder: MGP-Z (Basic type), MGP-AZ (Air cushion)

Applicable auto switches	**D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV D-A9□/A9□V**	**D-P3DWA**
Bore size [mm]	**ø12 to ø100**	**ø25 to ø100**
Auto switch tightening torque	[N·m] Auto switch model / Tightening torque **D-M9□(V) D-M9□W(V) D-A93**: 0.05 to 0.15 **D-M9□A(V)**: 0.05 to 0.10 **D-A9□(V) (Excludes the D-A93)**: 0.10 to 0.20	0.2 to 0.3 N·m

Applicable auto switches	**D-P4DW**
Bore size [mm]	**ø32 to ø100**
Auto switch mounting bracket part no.	BMG7-032
Auto switch mounting bracket/ Quantity	• Auto switch mounting bracket x 1 pc. • Auto switch mounting nut x 1 pc. • Hexagon socket head cap screw x 2 pcs. • Hexagon socket head cap screw x 2 pcs. (With spring washer x 2 pcs.)
Auto switch mounting surface	
Mounting of auto switch	1. Attach the auto switch to the auto switch mounting bracket with the hexagon socket head cap screw (M3 x 14 L). The tightening torque for the M3 hexagon socket head cap screw is 0.5 to 0.8 N·m. 2. Fix the auto switch mounting nut and the auto switch mounting bracket temporarily by tightening the hexagon socket head cap screw (M2.5 x 5 L). 3. Insert the temporarily fixed auto switch mounting bracket into the auto switch mounting groove, and slide the auto switch through the auto switch mounting groove. 4. Check the detecting position of the auto switch and fix the auto switch firmly with the hexagon socket head cap screw (M2.5 x 5 L). The tightening torque for the M2.5 hexagon socket head cap screw is 0.2 to 0.3 N·m. 5. If the detecting position is changed, go back to step 3. 

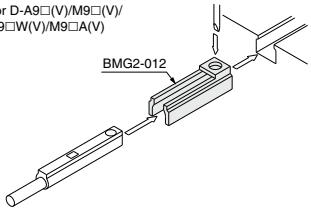
∗: Auto switch mounting brackets and auto switches are enclosed with the cylinder for shipment. For an environment that needs the water-resistant auto switch, select the D-M9□A(V) type.

Applicable Cylinder: MGP (With end lock), MGPS (Heavy duty guide rod type)

Auto switch model	Bore size [mm]	
	ø25	**ø32 to ø100**
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV D-A9□/A9□V	BMG2-012	
D-P3DWA	BMG10-025 (With end lock)	
	BMG2-012 (Heavy duty guide rod type)	
D-P4DW	—	BMG1-040

∗: Cylinders with an end lock are available in ø25 to ø100.
∗: The heavy duty guide rod type is available in ø50 and ø80.

· For D-A9□(V)/M9□(V)/ M9□W(V)/M9□A(V)



Made to Order: Individual Specifications

Made to Order

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

1 Symmetrical Port Position

Symbol: **-X144**

Ports are mounted symmetrically.

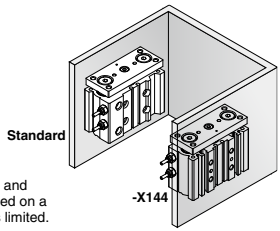
Applicable Series

Description	Model	Action
Standard type	MGPM-Z	Double acting
	MGPL-Z	Double acting
	MGPA-Z	Double acting

How to Order

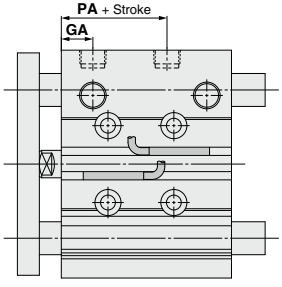
MGP M L A **Standard model no.** **-X144**

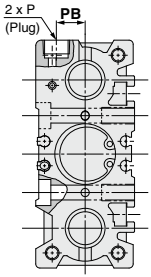
Symmetrical port position



This makes it easy to remove and rotate piping when it is mounted on a wall where mounting space is limited.

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





MGPM-Z, MGPL-Z, MGPA-Z Common Dimensions

Bore size [mm]	GA	PA	PB
12	10	13	8
16	10.5	14.5	10
20	11.5	13.5	10.5
25	11.5	12.5	13.5
32	12	6.5	16
40	15	13	18
50	15	9	21.5
63	15.5	13	28
80	19	14.5	25.5
100	22.5	17.5	32.5

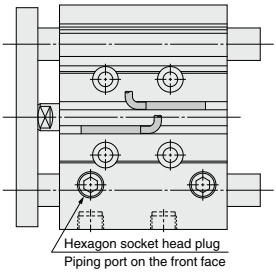
2 Side Porting Type (Plug location changed)

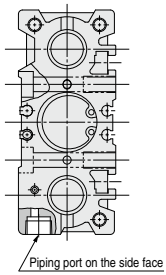
Symbol: **-X867**

Ports on the top plugged in order to use the piping port on the side.

Applicable Series

Description	Model	Action
Standard type	MGPM-Z	Double acting
	MGPL-Z	Double acting
	MGPA-Z	Double acting
With air cushion	MGPM-AZ	Double acting
	MGPL-AZ	Double acting
	MGPA-AZ	Double acting
With end lock	MGPM	Double acting
	MGPL	Double acting
	MGPA	Double acting
Heavy duty guide rod type	MGPS	Double acting





How to Order

MGP M L A **Standard model no.** **-X867**

Side porting type (Plug location changed)

Symbol

3 Enlarged Plate and Body Gap Dimensions -X471

This specification increases the gap between the plate and body when the cylinder is retracted (Standard: 7 to 16 mm) to 28 to 31 mm.
(Features a safety measure to protect fingers from being caught in the gap)

Applicable series

Description	Model	Action
Standard type	MGPM-Z	Double Acting

Specifications: Same as standard type

How to Order

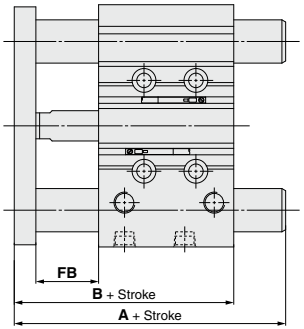
MGPM 32 – 100 Z – M9BW □ – X471

- **Bore size**

12	12 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm

- **Cylinder stroke** (Same as standard type.)
- **Auto switch** (Same as standard type.)
- **Number of auto switches** (Same as standard type.)
- **Enlarged plate and body gap dimensions**

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



[mm]

Bore size [mm]	A				B	FB
	50 st or less	Over 50 st 100 st or less	Over 100 st 200 st or less	Over 200 st		
12	64	82.5	104.5	104.5	64	28
16	68	86.5	114.5	114.5	68	28
20	74	98.5	98.5	131	74	29
25	74.5	98.5	98.5	130.5	74.5	28

[mm]

Bore size [mm]	A			B	FB
	50 st or less	Over 50 st 200 st or less	Over 200 st		
32	92	110.5	146.5	76.5	29
40	92	110.5	146.5	83	29
50	103.5	124.5	165.5	87	31
63	103.5	124.5	165.5	92	31