

Double Power Cylinder/ Without Non-rotating Mechanism

MGZR Series

ø20, ø25, ø32, ø40, ø50, ø63, ø80

How to Order

MGZR **40** **Z** - **100** - **M9BW** -

Without non-rotating mechanism

Mounting type

Nil	Basic type
L	Transaxial foot type
F	Rod flange type
G	Head flange type
D	Double clevis type

Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm

Thread type

Nil	M5 x 0.8	ø20
	Rc	ø25
TN	NPT	ø32
		ø40
		ø50
TF	G	ø63
		ø80

Made to Order
For details, refer to page 625.

Number of auto switches

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

Auto switch

Nil	Without auto switch (Built-in magnet)
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* For the applicable auto switch model, refer to the table below.

Cylinder stroke (mm)

Refer to "Standard Stroke" on page 625.

Coil scraper

Nil	Without coil scraper
Z	With coil scraper

Applicable Auto Switches

Refer to pages 1119 to 1245 for detailed specifications of auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)				Pre-wired connector	Applicable load			
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)					
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	○	IC circuit		
				3-wire (PNP)				M9PV	M9P	●	●	●	○	○			
				2-wire				M9BV	M9B	●	●	●	○	○		—	
	3-wire (NPN)			M9NWV				M9NW	●	●	●	○	○	IC circuit			
	3-wire (PNP)			M9BWW				M9BW	●	●	●	○	○				
	2-wire			M9NAV ^{*1}				M9NA ^{*1}	○	○	●	○	○				
Reed auto switch	—	Grommet	Yes	3-wire (NPN equiv.)	24 V	12 V	100 V 100 V or less	A96V	A96	●	—	●	—	—	IC circuit	Relay, PLC	
				2-wire				A93V ^{*2}	A93	●	●	●	●	—	—		
								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.

Consult with SMC regarding water resistant types with the above model numbers.

*2 1 m type lead wire is only applicable to D-A93.

* Lead wire length symbols: 0.5 m Nil (Example) M9NV
 1 m M (Example) M9NW
 3 m L (Example) M9NWL
 5 m Z (Example) M9NWL

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

* Refer to page 631 for applicable auto switches other than listed above.

* Refer to pages 1192 and 1193 for details of auto switches with a pre-wired connector.

* Auto switches are shipped together (not assembled).

Double Power Cylinder/ Without Non-rotating Mechanism **MGZR Series**



Made to Order

Made to Order: Individual Specifications
(Refer to page 632 for details.)

Symbol	Specifications
-X1248	Rod end female thread: 4 pcs.

Specifications

Bore size (mm)		20	25	32	40	50	63	80
Action		Double acting, Single rod						
Fluid		Air						
Proof pressure		1.5 MPa						
Max. operating pressure		1.0 MPa						
Min. operating pressure		Standard stroke: 0.08 MPa						
		Long stroke: 0.12 MPa						
Ambient and fluid temperature		Without auto switch: -10° to 70°C (With no freezing)						
		With auto switch: -10° to 60°C (With no freezing)						
Lubrication		Non-lube						
Piston speed	OUT	50 to 700 mm/s						
	IN	50 to 350 mm/s		50 to 450 mm/s				
Stroke length tolerance		Up to 250 ^{+1.0} ₀ , 251 to 1000 ^{+1.4} ₀						
Cushion		Rubber bumper						
Mounting		Basic type, Transaxial foot type, Rod flange type Head flange type, Double clevis type						

Standard Stroke

Bore sizes (mm)	Standard strokes (mm)	Long strokes (mm)
20, 25	75, 100, 125, 150, 175 200, 250, 300	350, 400, 450, 500 600, 700, 800
32, 40, 50 63, 80	75, 100, 125, 150, 175 200, 250, 300	350, 400, 450, 500, 600 700, 800, 900, 1000

Intermediate strokes and strokes shorter than 75mm are also available.

Weight

Bore sizes (mm)		20	25	32	40	50	63	80	(kg)
Standard weight	Basic type	0.48	0.70	1.09	1.91	3.03	4.83	8.85	
	Foot type	0.63	0.86	1.34	2.39	3.92	6.08	10.61	
	Flange type	0.59	0.83	1.32	2.34	3.79	5.83	9.92	
	Double clevis type	0.58	0.83	1.32	2.19	3.47	5.62	10.66	
Weight per each 50 mm of stroke	All mounting brackets	0.19	0.22	0.29	0.39	0.59	0.78	1.21	

Theoretical Output

Model	Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm ²)	Operating pressure (MPa)									
					0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
MGZ20	20 x 25	10	OUT	726	145	218	290	363	436	508	581	653	726	
			IN	236	47	71	94	118	141	165	189	212	236	
MGZ25	25 x 30	12	OUT	1085	217	326	434	543	651	760	868	977	1085	
			IN	378	76	113	151	189	227	265	302	340	378	
MGZ32	36 x 32	16	OUT	1621	324	486	648	811	973	1135	1297	1459	1621	
			IN	603	121	181	241	302	362	422	482	543	603	
MGZ40	45 x 40	20	OUT	2533	507	760	1013	1267	1520	1773	2026	2280	2533	
			IN	942	188	283	377	471	565	659	754	848	942	
MGZ50	55 x 50	25	OUT	3848	770	1154	1539	1924	2309	2694	3078	3463	3848	
			IN	1473	295	442	589	737	884	1031	1178	1326	1473	
MGZ63	68 x 63	32	OUT	5945	1189	1784	2378	2973	3567	4162	4756	5351	5945	
			IN	2313	463	694	925	1157	1388	1619	1850	2082	2313	
MGZ80	87 x 80	40	OUT	9715	1943	2915	3886	4858	5829	6801	7772	8744	9715	
			IN	3770	754	1131	1508	1885	2262	2639	3016	3393	3770	

Mounting Bracket Part No.

Bore size (mm)	20	25	32	40	50	63	80
Foot	MGZ-L02	MGZ-L25	MGZ-L03	MGZ-L04	MGZ-L05	MGZ-L06	MGZ-L08
Flange	MGZ-F02	MGZ-F25	MGZ-F03	MGZ-F04	MGZ-F05	MGZ-F06	MGZ-F08
Double clevis	MGZ-D02	MGZ-D25	MGZ-D03	MGZ-D04	MGZ-D05	MGZ-D06	MGZ-D08

Note) Accessories for each mounting bracket are as follows.

Foot, Flange: Body mounting bolts, Double clevis: Body mounting bolt, clevis pins, cotter pins.

MGJ

JMGF

MGP

MGPW

MGQ

MGG

MGC

MGF

MGZ

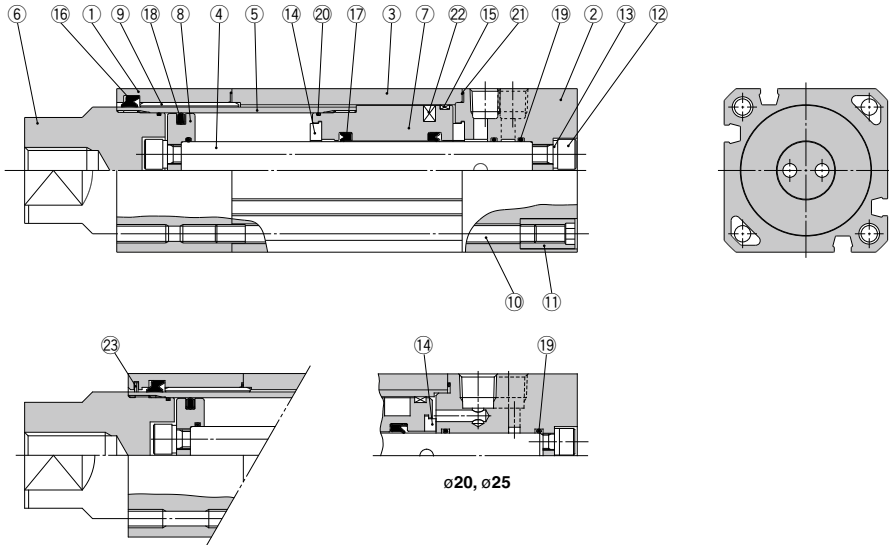
MGT

D-□

-X□

MGZR Series

Construction: MGZR



Component Parts

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	Clear anodized
2	Head cover	Aluminum alloy	Clear anodized
3	Cylinder tube	Aluminum alloy	Hard anodized
4	Piston rod	Aluminum alloy	Hard anodized
5	Tube rod	Carbon steel	Hard chromium electroplated
6	Tube rod cover	Carbon steel	Electroless nickel plated
7	Piston	Aluminum alloy	Chromated
8	Stationary piston	Aluminum alloy	Chromated
9	Bushing		
10	Tie-rod	Carbon steel	Corrosion resistant chromated
11	Tie-rod nut	Carbon steel	Nickel plated
12	Hexagon socket head screw	Chrome molybdenum steel	Zinc trivalent chromated

No.	Description	Material	Note
13	Spring washer	Steel wire	Zinc trivalent chromated
14	Bumper	Urethane rubber	
15	Wear ring	Resin	
16*	Rod seal A	NBR	
17	Rod seal B	NBR	
18	Piston seal	NBR	
19	Piston gasket	NBR	
20	Tube rod gasket	NBR	
21*	Cylinder tube gasket	NBR	
22	Magnet	—	
23	Coil scraper	Metal	

Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
20	MGZ20-PS	Items 16 and 21 from the above chart
25	MGZ25-PS	
32	MGZ32-PS	
40	MGZ40-PS	
50	MGZ50-PS	
63	MGZ63-PS	
80	MGZ80-PS	

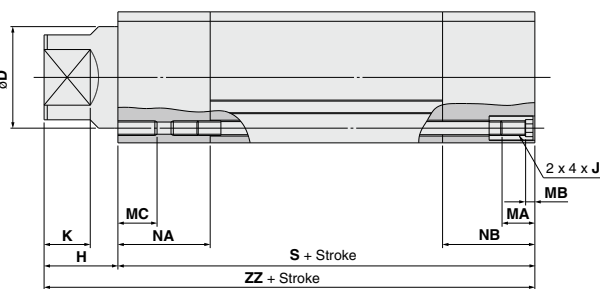
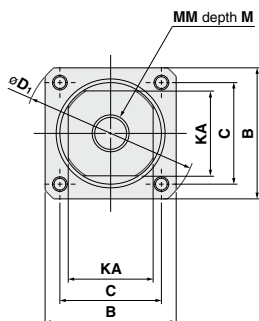
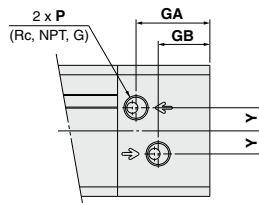
* Seal kits consist of items 16 and 21, and can be ordered by using the seal kit number corresponding to each bore size.

* Seal kit includes a grease pack (ø20 to ø50: 10 g, ø63, 80: 20 g).

Order with the following part number when only the grease pack is needed.
Grease pack part no.: GR-S-010 (10 g), GR-S-020 (20 g)

Dimensions

Basic type



Bore size (mm)	Stroke range	B	C	D	KA	GA	GB	H	D ₁	J	K	M	MA	MB	MC	MM	NA	NB	P	S	Y	ZZ
20	Up to 800	39	29	25	21	16	12.5	20	51	M5 x 0.8	11	17	11	4	10	M8 x 1.25	19	21	M5 x 0.8	86	5	106
25	Up to 800	43	33	30	24	26	18	21	57	M5 x 0.8	12	17	11	4	10	M8 x 1.25	26	34	1/8	107	6.5	128
32	Up to 1000	49	38	36	30	28.5	19.5	35	66	M6 x 1	22	22	16	4	12	M10 x 1.5	37	1/8	120	8.5	155	
40	Up to 1000	59	46	45	36	34.5	23.5	40	78	M6 x 1	25	30	16	4	12	M16 x 2	44	1/4	138	9.5	178	
50	Up to 1000	71	55	55	46	40	28	45	92	M8 x 1.25	25	35	16	5	15	M20 x 2.5	50	1/4	150	12.5	195	
63	Up to 1000	82	66	68	53	46.5	34.5	50	110	M8 x 1.25	25	35	16	5	15	M20 x 2.5	56	1/4	171	15	221	
80	Up to 1000	106	86	87	65	54	36	50	144	M12 x 1.75	25	38	20	6	23	M22 x 2.5	66	3/8	198	20	248	

MGJ

JMGP

MGP

MGPW

MGQ

MGG

MGC

MGF

MGZ

MGT

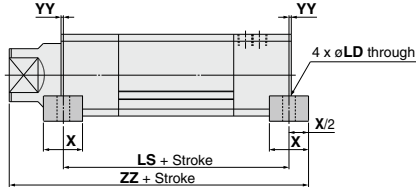
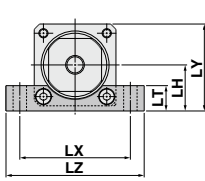
D-□

-X□

MGZR Series

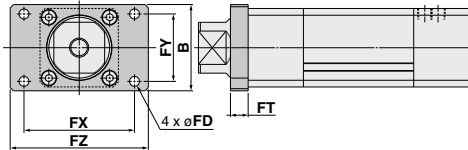
Dimensions: With Mounting Bracket

Transaxial foot type: (L)

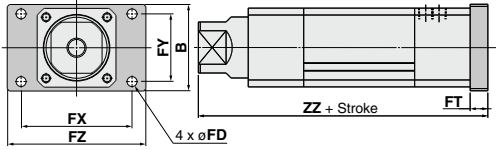


Bore size (mm)	Stroke range	X	YY	LD	LH	LT	LX	LY	LZ	LS	ZZ
20	Up to 800	16	0	6.6	22	13	58	41.5	72	86	114
25	Up to 800	16	0	6.6	24	14	62	45.5	75	107	136
32	Up to 1000	22	0	9	27.5	16	70	52	88	120	166
40	Up to 1000	24	0	9	34	19	80	63.5	100	138	190
50	Up to 1000	32	1	11	40	22	96	75.5	120	148	210
63	Up to 1000	36	3	13	47	24	110	88	140	165	236
80	Up to 1000	40	3	17	59	30	146	112	180	192	265

Rod flange type: (F)



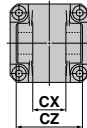
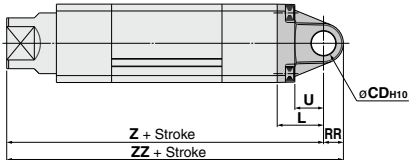
Head flange type: (G)



Bore size (mm)	Stroke range	B	FD	FT	FX	FY	FZ
20	Up to 800	44	5.5	8	50	34	60
25	Up to 800	48	6.6	8	57	36	70
32	Up to 1000	60	9	12	64	46	78
40	Up to 1000	74	9	12	80	58	100
50	Up to 1000	78	9	16	100	61	125
63	Up to 1000	100	12	16	112	75	138
80	Up to 1000	120	14	16	132	95	155

Bore size (mm)	Stroke range	B	FD	FT	FX	FY	FZ	ZZ
20	Up to 800	44	5.5	8	50	34	60	114
25	Up to 800	48	6.6	8	57	36	70	136
32	Up to 1000	60	9	12	64	46	78	167
40	Up to 1000	74	9	12	80	58	100	190
50	Up to 1000	78	9	16	100	61	125	211
63	Up to 1000	100	12	16	112	75	138	237
80	Up to 1000	120	14	16	132	95	155	264

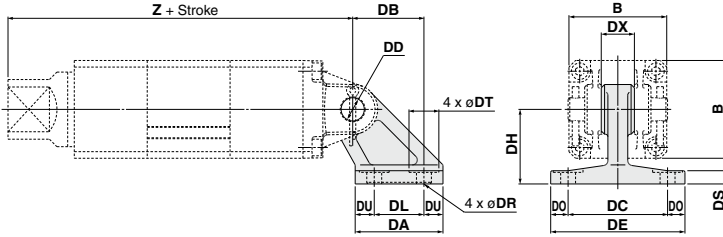
Double clevis type: (D)



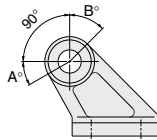
* A clevis pin and 2 cotter pins are included.

Bore size (mm)	Stroke range	L	RR	U	CDH10	CX ^{+0.3} _{0.1}	CZ	Z	ZZ
20	Up to 250	23	8.5	14	10	14	28	129	137.5
25	Up to 350	23	11	14	10	14	28	151	162
32	Up to 600	30	12	17	14	20	40	185	197
40	Up to 600	30	15	17	14	20	40	208	223
50	Up to 700	42	18	26	22	30	60	237	255
63	Up to 900	42	23	26	22	30	60	263	286
80	Up to 900	50	28	30	25	32	64	298	326

Double Clevis Bracket



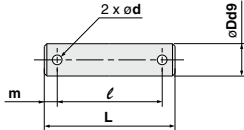
Model	Bore size (mm)	B	DA	DB	DC	DD _{H10}	DE	DH	DL	DO	DR	DS	DT	DU	DX	Z
MB-B03	20	39	42	32	44	10 ^{+0.058}	62	33	22	9	6.6	7	15	10	14	129
	25	43	42	32	44	10 ^{+0.058}	62	33	22	9	6.6	7	15	10	14	151
MB-B05	32	49	53	43	60	14 ^{+0.070}	81	45	30	10.5	9	8	18	11.5	20	185
	40	59	53	43	60	14 ^{+0.070}	81	45	30	10.5	9	8	18	11.5	20	208
MB-B08	50	71	73	64	86	22 ^{+0.084}	111	65	45	12.5	11	10	22	14	30	237
	63	82	73	64	86	22 ^{+0.084}	111	65	45	12.5	11	10	22	14	30	263
MB-B12	80	106	90	78	110	25 ^{+0.084}	136	75	60	13	13.5	14	24	15	32	298



Rotation

Bore size (mm)	A°	B°	A° + B° + 90°
20	35	50	175
25	30	50	170
32, 40	30	50	170
50, 63	35	50	175
80	30	35	155

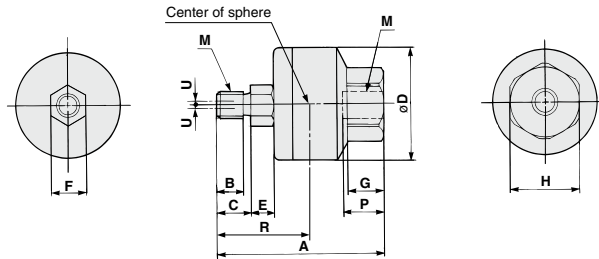
Clevis Pin



Model	Bore size (mm)	Dd9	L	ℓ	m	d (Drill through)	Coater pin ^{Note}
CD-M03	20, 25	10 ^{-0.040} -0.076	44	36	4	3	ø3 x 18 ℓ
CD-M05	32, 40	14 ^{-0.050} -0.093	60	51	4.5	4	ø4 x 25 ℓ
CD-M08	50, 63	22 ^{-0.117} -0.062	82	72	5	4	ø4 x 35 ℓ
CDP-7A	80	25 ^{-0.117} -0.062	88	78	5	4	ø4 x 36 ℓ

Note) Coater pins and flat washers are included.

Floating Joint



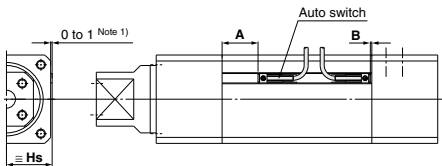
Applicable bore size	Model	M		A	B	C	D	E	F	G	H	Center of sphere R	Max. screw-in depth P	Allowable eccentricity U	Max. operating tension and compression N		Weight (kg)
		Nominal size	Pitch												Compression	Tension	
20, 25	JB40-8-125	8	1.25	51	8.5	11	31	6	11	11	22	29	13	0.75	6000	1300	0.15
32	JB63-10-150	10	1.5	62.5	10	13	41	7.5	14	13.5	27	35.5	15	1	11000	3100	0.29
40	JB80-16-200	16	2	80.5	16	20	50	9.5	19	16	32	47.5	18	1.25	18000	5000	0.56
50, 63	JB100-20-250	20	2.5	101	21	26	59.5	11.5	24	20	41	59	24	2	28000	7900	1.04
80	JB140-22-250	22	2.5	129	18	22	79	14	30	22	46	71.5	38	2.5	54000	15300	2.6

Auto Switch Mounting

Minimum Stroke for Mounting

Model		No. of auto switches	(mm)						
			ø20	ø25	ø32	ø40	ø50	ø63	ø80
D-A9□	2 pcs. (Same surface)			50			50		50
	2 pcs. (Different surfaces)			15			15		15
	1 pc.			15			15		10
D-A9□V	2 pcs. (Same surface)			25			25		25
	2 pcs. (Different surfaces)			10			10		10
	1 pc.			5			5		5
D-M9□V	2 pcs. (Same surface)			30			30		30
	2 pcs. (Different surfaces)			10			10		10
	1 pc.			5			5		5
D-M9□ D-M9□W	2 pcs. (Same surface)			55			55		55
	2 pcs. (Different surfaces)			15			15		15
	1 pc.			15			15		10
D-M9□WV	2 pcs. (Same surface)			30			30		30
	2 pcs. (Different surfaces)			15			15		15
	1 pc.			10			10		10
D-M9□A	2 pcs. (Same surface)			60			60		60
	2 pcs. (Different surfaces)		20	15			15		15
	1 pc.			15			15		10
D-M9□AV	2 pcs. (Same surface)			35			35		35
	2 pcs. (Different surfaces)			15			15		15
	1 pc.			10			10		10
D-Z7□/Z80	2 pcs. (Same surface)			—			60		70
	2 pcs. (Different surfaces)			—			20		20
	1 pc.			—			20		20
D-Y59□/Y69□ D-Y7P/Y7PV	2 pcs. (Same surface)			—			60		65
	2 pcs. (Different surfaces)			—			20		20
	1 pc.			—			20		20
D-Y7□W D-Y7□WV	2 pcs. (Same surface)			—			70		65
	2 pcs. (Different surfaces)			—			25		20
	1 pc.			—			25		20
D-Y7BA	2 pcs. (Same surface)			—			70		75
	2 pcs. (Different surfaces)			—			25		20
	1 pc.			—			25		20

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



Auto Switch Proper Mounting Position

Auto switch model	(mm)					
	D-A9□ D-A9□V		D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV		D-Z7□/Z80 D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV D-Y7BA	
Bore size	A	B	A	B	A	B
20	24	3	28	7	—	—
25	24	3	28	7	—	—
32	22	4	26	8	—	—
40	24.5	2.5	28.5	6.5	23	0
50	24.5	2.5	28.5	6.5	23	0
63	33.5	2.5	37.5	6.5	32	0
80	38	5	42	9	37	4

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

Auto Switch Mounting Height

Auto switch model	(mm)	
	D-A9□V Note 2) D-Y69□ D-Y7PV D-Y7□WV	D-M9□WV D-M9□AV
Bore size	Hs	Hs
20	25	28
25	27	30
32	30	33
40	28.5	31.5
50	38.5	41.5
63	44	47
80	56	59

Note 1) The above figures are when the in-line electrical entry type D-A9□/M9□/M9□W/M9□A/Z7□/Z80/Y59□/Y7P/Y7□W/Y7BA auto switches are mounted.

Note 2) Z7□/Z80/Y59□/Y7P/Y7□W/Y7BA cannot be mounted on ø20 to ø32.

Operating Range

Auto switch model	Bore size (mm)						
	20	25	32	40	50	63	80
D-A9□/A9□V	8	9.5	8	8	8.5	9.5	9.5
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	4.5	4.5	5	5	5	6.5	6
D-Z7□/Z80	—	—	—	10	10	11	13
D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV D-Y7BA	—	—	—	6	5	6	8

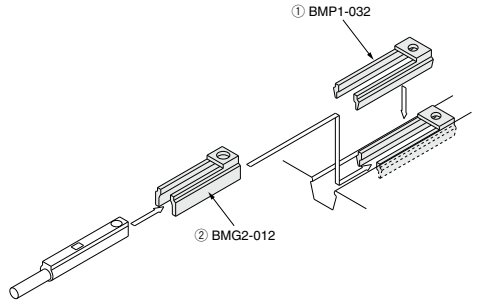
* Hysteresis specifications are given as a guide, it is not a guaranteed range.
(Tolerance ±30%)
Hysteresis may fluctuate due to the operating environment.

Auto Switch Mounting Bracket: Part No.

Auto switch model	Bore size	
	ø20 to ø32	ø40 to ø80
D-A9□/A9□V D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	BM3-016	Note) ① BMP1-032 ② BMG2-012
D-Z7□/Z80 D-Y5□/Y7P D-Y7□W D-Y6□/Y7PV D-Y7□WV D-Y7BA	—	① BMP1-032

Note) Two kinds of auto switch mounting brackets are used as a set.

D-A9□V/M9□(V)/M9□W(V)/M9□A(V) with bore sizes of ø40 to ø80.



Besides the models listed in How to Order, the following auto switches are applicable.
Refer to pages 1119 to 1245 for the detailed specifications.

Auto switch type	Model	Electrical entry (Fetching direction)	Features	Applicable bore size
Reed	D-Z73, Z76	Grommet (In-line)	—	ø40 to ø80
	D-Z80		Without indicator light	
Solid state	D-Y69A, Y69B, Y7PV	Grommet (Perpendicular)	—	
	D-Y7NWV, Y7PWV, Y7BWW		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)	

* For solid state auto switches, auto switches with a pre-wired connector are also available. Refer to pages 1192 and 1193 for details.
* Normally closed (NC = b contact) solid state auto switches (D-M9□E(V)/Y7G/Y7H) are also available. Refer to pages 1592-1 and 1139 for details.

MGJ
JMGP
MGP
MGPW
MGQ
MGG
MGC
MGF
MGZ
MGT

D-□
-X□

MGZ/MGZR Series

Made to Order: Individual Specifications

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

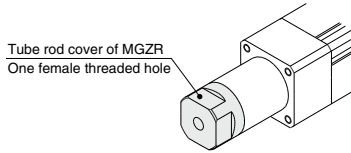


1 Rod End One Female Threaded Hole Symbol -X1247

The tube rod cover of MGZR is the same as that mounted on MGZ.

MGZ Refer to How to Order -X1247

* The rod end shape and dimensions are identical to those of MGZR.



2 Rod End Four Female Threaded Holes Symbol -X1248

The tube rod cover of MGZ is the same as that mounted on MGZR.

MGZR Refer to How to Order -X1248

* The rod end shape and dimensions are identical to those of MGZ.

