Guide Cylinder/Compact Type

Series MGC

ø20, ø25, ø32, ø40, ø50

How to Order

MGC L B 32 ☐ – 100 – R – M9BW ☐ – ☐

Guide Cylinder (Compact Type)

Bearing type

M	Slide bearing
L	Ball bushing bearing

Mounting style

B	Basic style
F	Front mounting flange style

Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm

Port thread type

Nil	M5 x 0.8
	Rc
TN	NPT
TF	G

∗ Bore sizes 20 and 25: M5 x 0.8 only

Cylinder stroke (mm)
Refer to "Standard Stroke" on page 393.

Rear plate

Nil	Without rear plate
R	With rear plate

Auto switch

Nil	Without auto switch (Built-in magnet)

∗ For the applicable auto switch model, refer to the table below.

Number of auto switches

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

Made to Order
Refer to page 393 for details.

Applicable Auto Switch/Refer to pages 1719 to 1827 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Applicable bore (mm) ø20, ø25	ø32	ø40, ø50	Lead wire length (m) 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state switch	——	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9N			●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			M9P			●	●	●	○	—	○		
				2-wire	12 V		M9B			●	●	●	○	—	○	—	
		Connector					H7C			●	—	●	●	●	—		
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)	5 V, 12 V		M9NW			●	●	●	○	—	○	IC circuit	
				3-wire (PNP)			M9PW			●	●	●	○	—	○		
				2-wire	12 V		M9BW			●	●	●	○	—	○	—	
	Water resistant (2-color indication)						H7BA			—	—	●	○	—	○		
	With diagnostic output (2-color indication)			4-wire (NPN)	5 V, 12 V		H7NF			●	—	●	○	—	○	IC circuit	
Reed switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96		●	—	●	—	—	—	—	—
			None	2-wire	24 V	12 V	100 V	A93		●	—	●	—	—	—	—	Relay, PLC
			Yes				100 V or less	A90		●	—	●	—	—	—	IC circuit	
			None				100 V, 200 V	(B54)	B54	●	—	●	●	—	—	—	
		Connector	Yes				200 V or less	(B64)	B64	●	—	●	—	—	—		
			None				—	C73C		●	—	●	●	●	—		
							24 V or less	C80C		●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-color indication)	Grommet	Yes		—	—	(B59W)	B59W		●	—	●	—	—	—	—	

∗ 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
None ····· N (Example) H7CN

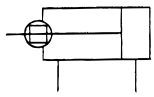
∗ Solid state auto switches marked with "○" are produced upon receipt of order.
∗ D-A9□V/M9□V/M9□WV/M9□A(V) types cannot be mounted.

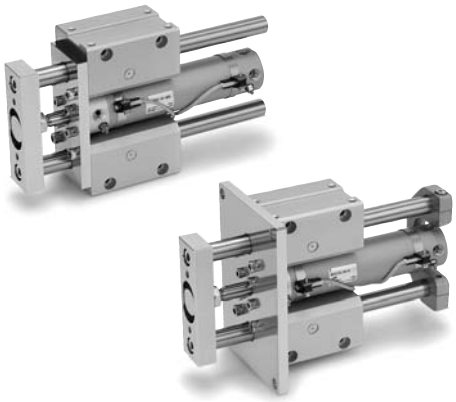
∗ Since there are other applicable auto switches than listed, refer to page 406 for details.
∗ For details about auto switches with pre-wired connector, refer to pages 1784 and 1785.
∗ D-A9□/M9□/M9□W auto switches are shipped together (not assembled). (Only switch mounting brackets are assembled at the time of shipment.)

Caution
When using auto switches shown inside ( ), stroke end detection may not be possible depending on the One-touch fitting or speed controller model. Please contact SMC in this case.

SMC

JIS Symbol





Specifications

Standard Stroke

Model (Bearing type)	Bore size (mm)	Standard stroke (mm)	Long stroke (mm)
MGCM (Slide bearing) / **MGCL (Ball bushing bearing)**	**20**	75, 100, 125, 150, 200	250, 300, 350, 400
	25	75, 100, 125, 150, 200, 250, 300	350, 400, 450, 500
	32		350, 400, 450, 500, 600
	40		350, 400, 450, 500, 600, 700, 800
	50		350, 400, 450, 500, 600, 700, 800, 900, 1000

∗ Intermediate strokes and short strokes other than the above are produced upon receipt of order.

Specifications

Model	MGC□□20	MGC□□25	MGC□□32	MGC□□40	MGC□□50
Base cylinder	CDG1BA Bore size Port thread type – Stroke – Auto switch				
Bore size (mm)	**20**	**25**	**32**	**40**	**50**
Action	Double acting				
Fluid	Air				
Proof pressure	1.5 MPa				
Maximum operating pressure	1.0 MPa				
Minimum operating pressure	0.15 MPa (Horizontal with no load)				
Ambient and fluid temperature	–10 to 60°C				
Piston speed	50 to 750 mm/s				
Cushion	Air cushion				
Base cylinder lubrication	Non-lube				
Stroke length tolerance	$^{+1.9}_{+0.2}$ mm				
Non-rotating accuracy Note 1) **Slide bearing**	±0.07°	±0.06°	±0.06°	±0.05°	±0.04°
Non-rotating accuracy Note 1) **Ball bushing bearing**	±0.06°	±0.05°	±0.04°	±0.04°	±0.04°
Piping port size (Rc, NPT, G) Note 2)	M5 x 0.8		1/8		1/4

∗ 1 When the cylinder is retracted (initial value), the non-rotating accuracy without loads or deflection of the guide rods will be below the values shown in the table above as a guideline.
∗ 2 Bore sizes 20 and 25: M5 x 0.8 only

Made to Order Specifications
(For details, refer to pages 1829 to 1954, 1998.)

Symbol	Specifications
-XB6	Heat resistant cylinder (–10 to 150°C)
-XB13	Low speed cylinder (5 to 50 mm/s)
-XC4	With heavy duty scraper
-XC6□	Made of stainless steel
-XC8	Adjustable stroke cylinder/Adjustable extension type
-XC9	Adjustable stroke cylinder/Adjustable retraction type
-XC11	Dual stroke cylinder/Single rod type
-XC13	Auto switch rail mounting style
-XC22	Fluororubber seals
-XC35	With coil scraper
-XC37	Larger throttle diameter of connecting port
-XC56	With knock pin holes
-XC73	Cylinder with lock (CDNG)
-XC74	With front plate for MGG
-XC78	Auto switch mounting special dimensions at stroke end
-XC79	Machining tapped hole, drilled hole, and pin hole additionally
-X440	With piping ports for grease

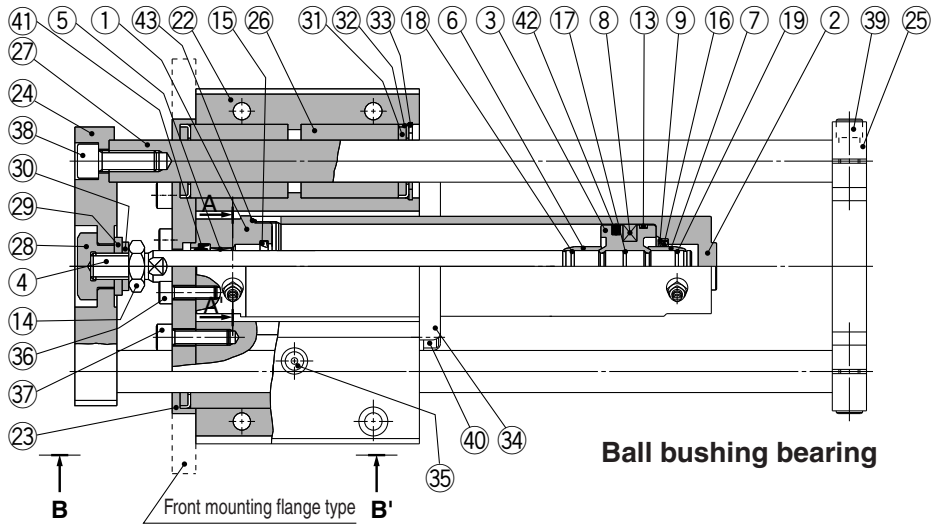
Theoretical Output

OUT IN (N)

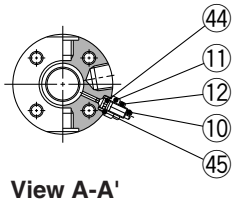
Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm^2)	Operating pressure (MPa) 0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
20	**8**	OUT	314	62.8	94.2	126	157	188	220	251	283	314
		IN	264	52.8	79.2	106	132	158	185	211	238	264
25	**10**	OUT	491	98.2	147	196	246	295	344	393	442	491
		IN	412	82.4	124	165	206	247	288	330	371	412
32	**12**	OUT	804	161	241	322	402	482	563	643	724	804
		IN	691	138	207	276	346	415	484	553	622	691
40	**16**	OUT	1260	252	378	504	630	756	882	1010	1130	1260
		IN	1060	212	318	424	530	636	742	848	954	1060
50	**20**	OUT	1960	392	588	784	980	1180	1370	1570	1760	1960
		IN	1650	330	495	660	825	990	1160	1320	1490	1650

Note) Theoretical output (N) = Pressure (MPa) x Piston area (mm^2)

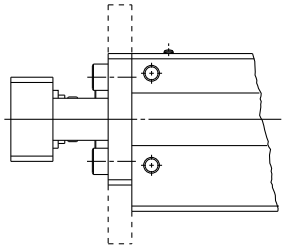
Construction: With Rear Plate



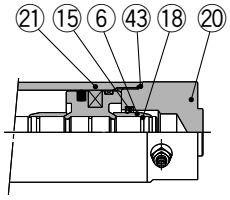
Ball bushing bearing



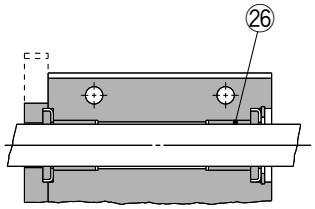
View A-A'



View B-B'



Long stroke



Slide bearing

Component Parts

No.	Description	Material	Note	
1	**Rod cover**	Aluminum alloy	Clear hard anodized	
2	**Tube cover**	Aluminum alloy	Clear hard anodized	
3	**Piston**	Aluminum alloy	Chromated	
4	**Piston rod**	Carbon steel	Hard chrome plated	ø20, ø25 are stainless steel
5	**Bushing**	Bearing alloy		
6	**Cushion ring A**	Brass		
7	**Cushion ring B**	Brass	(Note 1)	
8	**Magnet**	—		
9	**Seal retainer**	Rolled steel	Nickel plated (Nothing for long stroke)	
10	**Cushion valve**	Rolled steel	Electroless nickel plated	
11	**Valve retainer**	Rolled steel	Electroless nickel plated	
12	**Lock nut**	Rolled steel	Nickel plated	
13	**Wear ring**	Resin		
14	**Rod end nut**	Rolled steel	Nickel plated	
15	**Cushion seal A**	Urethane		
16	**Cushion seal B**	Urethane	(Note 2)	
17	**Piston gasket**	NBR		
18	**Cushion ring gasket A**	NBR		
19	**Cushion ring gasket B**	NBR	W/ cushion ring gasket A: Except standard ø20 and ø25	
20	**Head cover**	Aluminum alloy	Clear hard anodized	For long stroke
21	**Cylinder tube**	Aluminum alloy	Hard anodized	
22	**Guide body**	Aluminum alloy	White anodized	
23	**Small flange**	Rolled steel	Flat nickel plated	For basic type
	Large flange			For front mounting flange style
24	**Front plate**	Rolled steel	Flat nickel plated	
25	**Rear plate**	Cast iron	Platinum sliver	
26	**Slide bearing**	Bearing alloy	For slide bearing	
	Ball bushing bearing	—	For ball bushing bearing	
27	**Guide rod**	Carbon steel	Hard chrome plated	For slide bearing
		High carbon chrome bearing steel	Quenched, hard chrome plated	For ball bushing bearing
28	**End bracket**	Carbon steel	Flat nickel plated	
29	**Washer**	Rolled steel	Nickel plated	

Note 1) Common with cushion ring A: Except standard ø20 and ø25
Note 2) Common with cushion packing A: Except standard ø20 and ø25
Note 3) In the case of the one without rear plate, ㉕ and ㊴ will not be required.

Component Parts

No.	Description	Material	Note	
30	**Spring washer**	Steel wire	Nickel plated	
31	**Felt**	Felt		
32	**Holder**	Stainless steel		
33	**Type C retaining ring for hole**	Carbon tool steel	Nickel plated	
34	**Bracket**	Stainless steel		
35	**Nipple**	—	Nickel plated	
36	**Hexagon socket head cap screw**	Chromium molybdenum steel	Nickel plated	For cylinder mounting
37	**Hexagon socket head cap screw**	Chromium molybdenum steel	Nickel plated	Small/Large flange mounting
38	**Hexagon socket head cap screw**	Chromium molybdenum steel	Nickel plated	For front plate mounting
39	**Hexagon socket head cap screw**	Chromium molybdenum steel	Nickel plated	For rear plate mounting
40	**Hexagon socket head cap screw**	Chromium molybdenum steel	Nickel plated	For bracket mounting
41	**Rod seal**	NBR		
42	**Piston seal**	NBR		
43	**Tube gasket**	NBR		
44	**Valve seal**	NBR		
45	**Valve retainer gasket**	NBR		

Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
20	CG1A20-PS	Set of nos. above ㊶, ㊷, ㊸, ㊹, ㊺
25	CG1A25-PS	
32	CG1A32-PS	
40	CG1A40-PS	

* Seal kit includes ㊶ to ㊺. Order the seal kit, based on each bore size.
* Seal kit includes a grease pack (10 g). Order with the following part number when only the grease pack is needed.
  Grease pack part number: GR-S-010 (10 g)

⚠Caution

When disassembling cylinders with bore sizes of ø20 through ø40, grip the double flat part of either the tube cover or the rod cover with a vise and loosen the other side with a wrench or an adjustable angle wrench, and then remove the cover. When re-tightening, tighten approximately 2 degrees more than the original position. (Cylinders with ø50 or larger bore sizes are tightened with a large tightening torque and cannot be disassembled. Please contact SMC when disassembly is required.)