

Compact Guide Cylinder

MGQ Series

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

How to Order

MGQ M 25 - 30 - M9BW

• **Compact Guide Cylinder**

• **Bearing type**

M	Slide bearing
L	Ball bushing bearing

• **Bore size**

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

• **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 521.

• **Thread type**

Nil	M5 x 0.8	ø12, ø16
	Rc	
TN	NPT	ø20 to ø100
TF	G	

• **Made to Order**
(Refer to page 521 for details.)

Applicable Auto Switches

Refer to pages 1119 to 1245 for further information on 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	Relay, PLC
	3-wire (PNP)			M9PV				M9P	●	●	●	○	○	○	○		
	2-wire			M9BV				M9B	●	●	●	○	○	○	○		
	3-wire (NPN)			M9NVW				M9NW	●	●	●	○	○	○	○		
	Diagnostic indication (2-color indicator)			3-wire (PNP)	5 V, 12 V	M9PWV	M9PW	●	●	●	○	○	○	○	IC circuit		
	Water resistant (2-color indicator)			2-wire	12 V	M9BWV	M9BW	●	●	●	○	○	○	○	—		
				3-wire (NPN)	5 V, 12 V	M9NAV ^{*1}	M9NA ^{*1}	○	○	○	○	○	○	○	IC circuit		
				3-wire (PNP)	12 V	M9PAV ^{*1}	M9PA ^{*1}	○	○	●	○	○	○	○	—		
Reed auto switch		—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	IC circuit	—
	No	2-wire							24 V	12 V	100 V or less	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) M9NW
1 m M (Example) M9NWM
3 m L (Example) M9NWL
5 m Z (Example) M9NWX

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

* Since there are other applicable auto switches than listed, refer to page 531 for details.

* For details about auto switches with pre-wired connector, refer to pages 1192 and 1193.

* Auto switches are shipped together (not assembled).

Air cylinder integrated with guide has achieved anti-lateral load and high non-rotating accuracy.

Space-saving and compact design

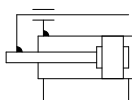
Suitable as stoppers or lifters in conveyor line

2 types of guide rod bearing are available depending upon the application

Slide bearing/Ball bushing bearing



Symbol
Rubber bumper



Made to Order: Individual Specifications
(For details, refer to pages 532 and 533.)

Symbol	Specifications
-X168	Helical insert thread
-X367	Bottom mounting type
-X399	Long bushing type
-X563	With anti-strong magnetic field switch (D-P4DW)

Made to Order Specifications
(For details, refer to pages 1247 to 1440.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB6	Heat resistant cylinder (-10 to 150°C)
-XB9	Low speed cylinder (10 to 50 mm/s)
-XB10	Intermediate stroke (Using exclusive body)
-XC22	Fluororubber seals
-XC56	With knock pin holes
-XC79	Machining tapped hole, drilled hole, and pin hole additionally

Specifications

Bearing type	Slide bearing		Ball bushing bearing
Model	MGQM		MGQL
Bore size (mm)	12, 16, 20, 25, 32, 40, 50, 63, 80, 100		
Action	Double acting		
Fluid	Air		
Proof pressure	1.5 MPa		
Max. operating pressure	1.0 MPa		
Min. operating pressure	ø12, ø16	0.12 MPa	
	ø20 to ø100	0.1 MPa	
Ambient and fluid temperature	-10 to 60°C (No freezing)		
Piston speed	ø12 to ø63	50 to 500 mm/s	
	ø80, ø100	50 to 400 mm/s	
Cushion	Rubber bumper on both ends		
Lubrication	Non-lube		
Stroke length tolerance	+1.5 0 mm		

Standard Stroke

Model	Standard stroke (mm)	Intermediate stroke (mm)
MGQ □ 12, 16	10, 20, 30, 40, 50, 75, 100	As for the intermediate strokes other than the standard strokes at left are manufactured by means of installing a spacer. ø12 to ø32 Stroke available in 1 stroke increments ø40 to ø100 Stroke available in 5 stroke increments (Example) 1. For MGQM20-21 st, MGQM20-30 st is provided with a 5 mm + 4 mm ≤ 9 mm width spacer. 2. For MGQM50-40 st, MGQM50-50 st is provided with a 10 mm width spacer.
MGQ □ 20, 25	20, 30, 40, 50, 75, 100 125, 150, 175, 200	
MGQ □ 32, 40 MGQ □ 50, 63 80, 100	25, 50, 75, 100, 125 150, 175, 200	

Theoretical Output

Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm ²)	Operating pressure (MPa)									
				0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
12	6	OUT	113	23	34	45	57	68	79	90	102	113	
		IN	85	17	26	34	43	51	60	68	77	85	
16	8	OUT	201	40	60	80	101	121	141	161	181	201	
		IN	151	30	45	60	76	91	106	121	136	151	
20	10	OUT	314	63	94	126	157	188	220	251	283	314	
		IN	236	47	71	94	118	142	165	189	212	236	
25	12	OUT	491	98	147	196	246	295	344	393	442	491	
		IN	378	76	113	151	189	227	265	302	340	378	
32	16	OUT	804	161	241	322	402	482	563	643	724	804	
		IN	603	121	181	241	302	362	422	482	543	603	
40	16	OUT	1257	251	377	503	629	754	880	1006	1131	1257	
		IN	1056	211	317	422	528	634	739	845	950	1056	
50	20	OUT	1963	393	589	785	982	1178	1374	1570	1767	1963	
		IN	1649	330	495	660	825	990	1154	1319	1484	1649	
63	20	OUT	3117	623	935	1247	1559	1870	2182	2494	2805	3117	
		IN	2803	561	841	1121	1402	1682	1962	2242	2523	2803	
80	25	OUT	5027	1005	1508	2011	2514	3016	3519	4022	4524	5027	
		IN	4536	907	1361	1814	2268	2722	3175	3629	4082	4536	
100	30	OUT	7854	1571	2356	3142	3927	4712	5498	6283	7069	7854	
		IN	7147	1429	2144	2859	3574	4288	5003	5718	6432	7147	

(Note) Theoretical output (N) = Pressure (MPa) x Piston area (mm²)

MGJ

JMGPP

MGP

MGPW

MGQ

MGG

MGC

MGF

MGZ

MGT

D-□

-X□

MGQ Series

Weight/Slide Bearing: MGQM12 to 100

(kg)

Bore size (mm)	Model	Standard stroke (mm)											
		10	20	25	30	40	50	75	100	125	150	175	200
12	MGQM12	0.23	0.27	—	0.31	0.34	0.38	0.48	0.58	—	—	—	—
16	MGQM16	0.34	0.39	—	0.45	0.50	0.55	0.68	0.80	—	—	—	—
20	MGQM20	—	0.54	—	0.61	0.69	0.76	0.94	1.09	1.24	1.39	1.54	1.69
25	MGQM25	—	0.83	—	0.93	1.04	1.13	1.44	1.68	1.92	2.16	2.40	2.64
32	MGQM32	—	—	1.51	—	—	1.91	2.29	2.69	3.09	3.49	3.89	4.29
40	MGQM40	—	—	1.65	—	—	2.24	2.46	2.87	3.28	3.69	4.10	4.51
50	MGQM50	—	—	2.54	—	—	3.09	3.65	4.21	4.77	5.33	5.89	6.45
63	MGQM63	—	—	3.01	—	—	3.63	4.23	4.85	5.47	6.09	6.71	7.33
80	MGQM80	—	—	5.66	—	—	6.59	7.49	8.41	9.33	10.25	11.17	12.09
100	MGQM100	—	—	8.96	—	—	10.27	11.57	12.90	14.23	15.56	16.89	18.22

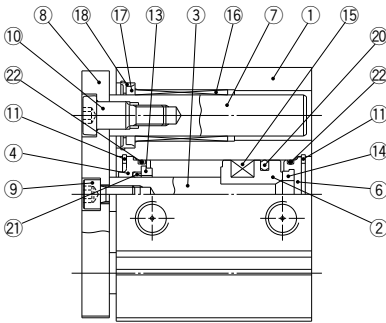
Weight/Ball Bushing Bearing: MGQL12 to 100

(kg)

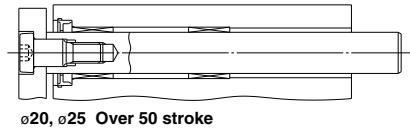
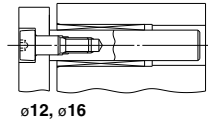
Bore size (mm)	Model	Standard stroke (mm)											
		10	20	25	30	40	50	75	100	125	150	175	200
12	MGQL12	0.23	0.26	—	0.29	0.35	0.38	0.46	0.53	—	—	—	—
16	MGQL16	0.35	0.39	—	0.44	0.52	0.57	0.70	0.82	—	—	—	—
20	MGQL20	—	0.54	—	0.60	0.70	0.75	0.90	1.04	1.18	1.32	1.46	1.60
25	MGQL25	—	0.84	—	0.93	1.08	1.17	1.37	1.58	1.79	2.00	2.21	2.42
32	MGQL32	—	—	1.32	—	—	1.67	2.09	2.45	2.81	3.17	3.53	3.89
40	MGQL40	—	—	1.46	—	—	1.82	2.27	2.63	2.99	3.35	3.71	4.07
50	MGQL50	—	—	2.11	—	—	2.59	3.19	3.68	4.17	4.66	5.15	5.64
63	MGQL63	—	—	2.65	—	—	3.19	3.85	4.39	4.93	5.47	6.01	6.55
80	MGQL80	—	—	5.49	—	—	6.38	7.95	8.79	9.63	10.47	11.31	12.15
100	MGQL100	—	—	8.34	—	—	9.53	11.78	12.96	14.14	15.32	16.50	17.68

Construction/MGQM Series

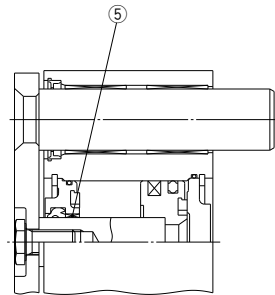
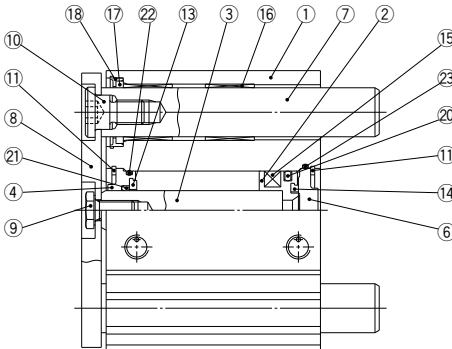
MGQM12 to 25



50 stroke or less



MGQM32 to 100



Component Parts

No.	Description	Material	Note
1	Body	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	
3	Piston rod	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø100
			Hard chrome plated
4	Collar	Aluminum bearing alloy	ø12 to ø40
		Aluminum alloy casted	ø50 to ø100
			Painted
5	Bushing	Bearing alloy	ø50 to ø100
6	Head cover	Aluminum alloy	ø12 to ø63
			ø80 to ø100
			Painted
7	Guide rod	Carbon steel	Hard chrome plated
8	Plate	Carbon steel	Nickel plated
9	Plate mounting bolt	Carbon steel	Nickel plated
10	Guide bolt	Carbon steel	Nickel plated

No.	Description	Material	Note
11	Retaining ring	Carbon tool steel	Phosphate coated
12	Retaining ring	Carbon tool steel	Phosphate coated
13	Bumper A	Urethane	
14	Bumper B	Urethane	
15	Magnet	—	
16	Slide Bearing	Bearing alloy	
17	Felt		
18	Holder	Resin	
19	Ball bushing		
20*	Piston seal	NBR	
21*	Rod seal	NBR	
22*	Gasket A	NBR	
23*	Gasket B	NBR	

Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Description
12	MGQ12-PS	A set of ⑳, ㉑, ㉒ and ㉓ listed above
16	MGQ16-PS	
20	MGQ20-PS	
25	MGQ25-PS	
32	MGQ32-PS	

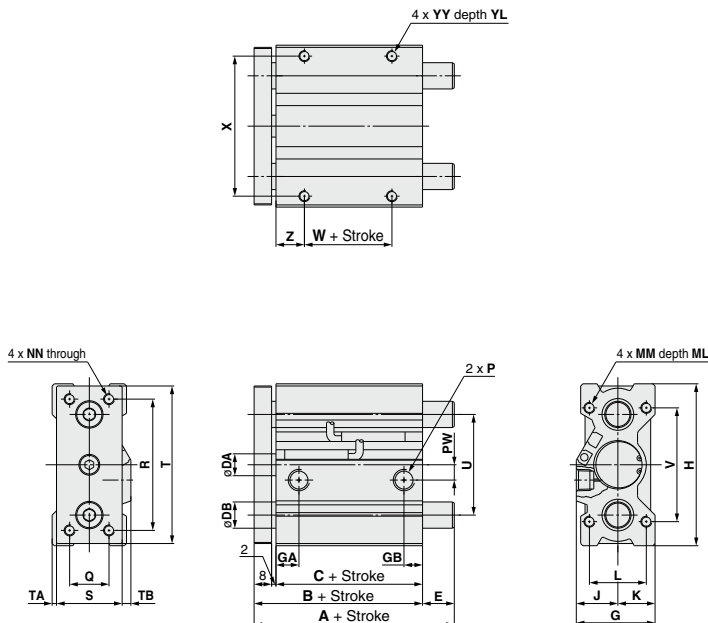
* Seal kit includes ㉒ to ㉓. Order the seal kit, based on each bore size.

Bore size (mm)	Kit no.	Description
40	MGQ40-PS	A set of ㉒, ㉑, ㉓ and ㉔ listed above
50	MGQ50-PS	
63	MGQ63-PS	
80	MGQ80-PS	
100	MGQ100-PS	

* Since the seal kit does not include a grease pack, order it separately.
Grease pack part no.: GR-S-010 (10 g)

MGQ Series

Bore Size $\phi 12$ to $\phi 25$: MGQM, MGQL



MGQM, MGQL Common Dimensions

Bore size (mm)	Standard stroke (mm)	B	C	DA	G	GA	GB	H	J	K	L	MM	ML	NN	P			PW	Q	R
															Nil	TN	TF			
12	10, 20, 30, 40, 50, 75, 100	39	29	6	29	11	7.5	58	16	13	18	M4 x 0.7	10	M4 x 0.7	M5 x 0.8	—	—	7	14	48
16		43	33	8	33	11	8	64	18	15	22	M5 x 0.8	13	M5 x 0.8	M5 x 0.8	—	—	5	16	52
20	20, 30, 40, 50, 75, 100	47	37	10	36	10.5	8.5	74	19	17	26	M5 x 0.8	13	M5 x 0.8	Rc1/8	NPT1/8	G1/8	7	18	60
25	125, 150, 175, 200	47.5	37.5	12	42	11.5	9	88	21	21	32	M6 x 1.0	15	M6 x 1.0	Rc1/8	NPT1/8	G1/8	8	26	70

Bore size (mm)	S	T	TA	TB	U	V	W	X	YY	YL	Z
12	22	56	2	5	36	40	5	50	M4 x 0.7	7	12
16	25	62	2.5	5.5	38	42	7	54	M5 x 0.8	8	13
20	30	72	2	4	46	52	10	64	M5 x 0.8	8	13
25	38	86	2	2	56	62	10	76	M6 x 1.0	9	14

MGQM (Slide bearing)/A, DB, E Dimensions (mm)

Bore size (mm)	A		DB	E	
	50 st or less	Over 50 st		50 st or less	Over 50 st
12	39		8	0	
16	43		10	0	
20	47	61.5	12	0	14.5
25	47.5	62	16	0	14.5

MGQL (Ball bushing bearing)/A, DB, E Dimensions (mm)

Bore size (mm)	A		DB	E	
	30 st or less	Over 30 st		30 st or less	Over 30 st
12	43	55	6	4	16
16	49	65	8	6	22
20	57	74	10	10	27
25	63.5	79.5	13	16	32

Note) For intermediate strokes other than standard strokes, refer to the Manufacture of Intermediate Stroke on page 521.

• Bore size 12 and 16 are only for the M5 x 0.8 port.

• For bore size 20 or more, Rc, NPT and G ports can be selected. (Refer to page 520.)