

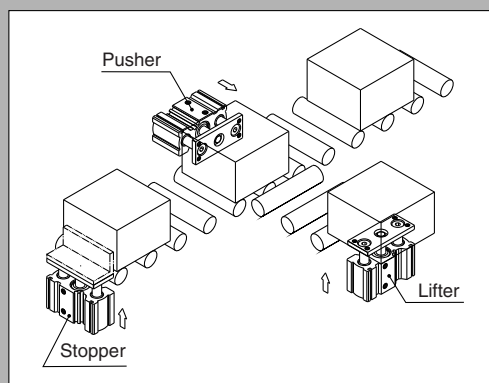
Compact Guide Cylinder

Series MGQ

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

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

Space-saving cylinder.
Suitable as stoppers or lifters in conveyor line.



Cylinder position can be detected.

All models have built-in magnets for auto switches.



Two types of guide rod bearing for different applications

Slide bearing

Slide bearing Strength against side load is more than 2 times as compared conventional stopper cylinder (Compared to SMC Series RSQ, round bar type).

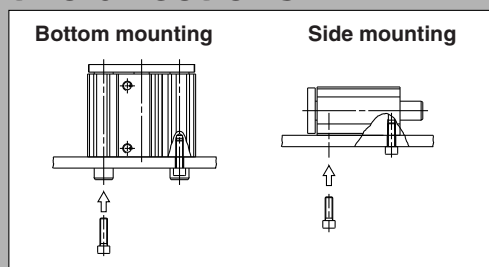
Ball bushing bearing

Smooth operation is suitable for pushing, lifter and applications where high precision is required.

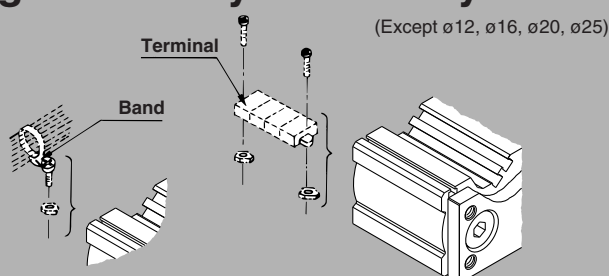
Non-rotating accuracy

Bore size (mm)	Non-rotating accuracy θ	
	MGQM	MGQL
12	$\pm 0.08^\circ$	$\pm 0.10^\circ$
16		
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		

Can be mounted from two directions



Auto switches, lead wires and terminals can be fixed in the groove of cylinder body.



MGJ

MGF

MGQ

MGG

MGK

MGF

MGZ

MGT

D-□

-X□

Individual

-X□

Compact Guide Cylinder Series *MGQ*

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

How to Order

Compact Guide Cylinder **MGQ** **M** **25** **30** **M9BW** **2** **1**

• **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

• **Cylinder stroke (mm)**
Refer to "Standard Stroke" on page 339.

• **Thread type**

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

• **Auto switch**

Nil	Without auto switch (Built-in magnet)
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* 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 339 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		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 switch	—	Grommet	Yes	3-wire (NPN)	24V	5V, 12V	—	M9NV	M9N	●	●	●	○	○	IC circuit	Relay, PLC
	3-wire (PNP)			M9PV				M9P	●	●	●	○	○			
	2-wire			5V, 12V		M9BV		M9B	●	●	●	○	○	IC circuit		
	3-wire (NPN)					M9NWV		M9NW	●	●	●	○	○			
	3-wire (PNP)					M9PWV		M9PW	●	●	●	○	○			
	2-wire					M9BWV		M9BW	●	●	●	○	○			
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5V	—	A96V	A96	●	—	●	—	—	IC circuit	—
			No	2-wire	24V	12V	100V	A93V	A93	●	—	●	—	—	—	Relay, PLC
							100 V or less	A90V	A90	●	—	●	—	—	IC circuit	

* Lead wire length symbols: 0.5 m Nil (Example) M9NW
 1 m M (Example) M9NWM
 3 m L (Example) M9NWL
 5 m Z (Example) M9NWLZ

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

* Since there are other applicable auto switches than listed, refer to page 351 for details.
 * For details about auto switches with pre-wired connector, refer to pages 1784 and 1785.
 * 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



Made to Order Specifications
(For details, refer to pages 1829 to 2021.)

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

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 ^M _L 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 by the 1 stroke interval ø40 to ø100 Stroke available by the 5 stroke interval (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 ^M _L 20, 25	20, 30, 40, 50, 75, 100 125, 150, 175, 200	
MGQ ^M _L 32, 40 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

MGP

MGQ

MGG

MGC

MGF

MGZ

MGT

D-□

-X□

Individual
-X□



Series MGQ

Specific Product Precautions

Be sure to read before handling. Refer to front matters 42 and 43 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

Mounting

⚠ Warning

1. Avoid placing your hands or fingers between the plate and the body.

- Be very careful to prevent your hands or fingers from getting caught in the gap between the cylinder body and the plate when air is applied.

⚠ Caution

1. Do not scratch or gouge the sliding portion of the piston rod and the guide rod.

- Damaged seals, etc. will result in leakage or malfunction.

2. Do not dent or scratch the mounting surface of a body and a plate.

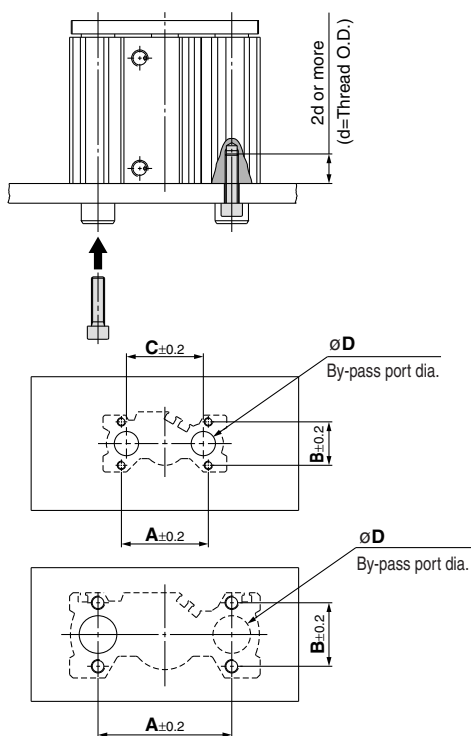
- The flatness of the mounting surface may not be maintained, which would cause the sliding resistance to increase.

3. Make sure that the cylinder mounting surface has a flatness of 0.05 mm or less.

- If the flatness of the workpieces and brackets mounted on the plate is not appropriate, sliding resistance may increase.

4. When mounting on the bottom of the cylinder, the guide rod protrudes from the bottom at the retraction stroke end. Therefore, drill holes for the hexagon socket bolts used for mounting purposes, and relief holes for the guide rods.

Moreover, in applications where impact occurs from a stopper, etc., the mounting bolts should be inserted to a depth of 2 d or more.



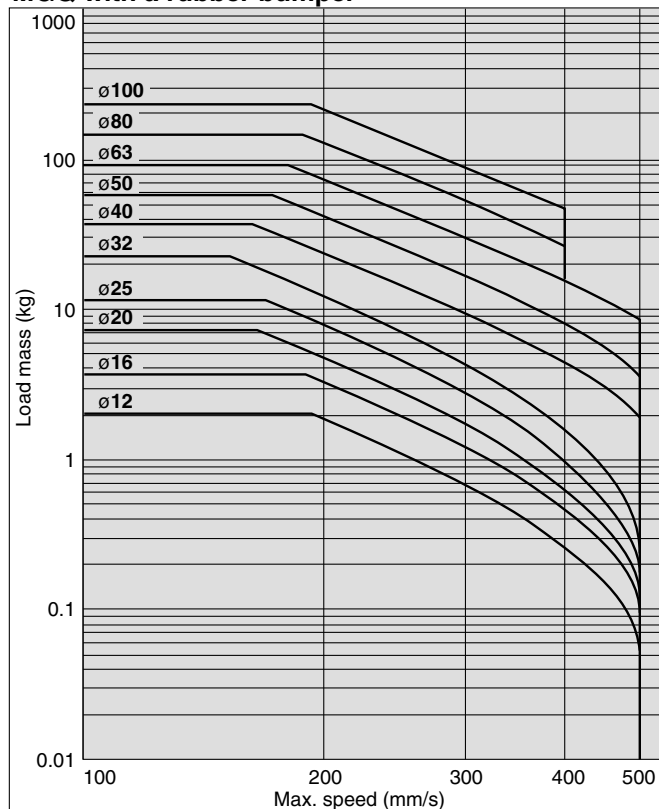
Bore size (mm)	A (mm)	B (mm)	C (mm)	øD(mm)		Hexagon socket head cap screw
				MGQM	MGQL	
12	40	18	36	10	8	M4 x 0.7
16	42	22	38	12	10	M5 x 0.8
20	52	26	46	14	12	M5 x 0.8
25	62	32	56	18	15	M6 x 1
32	80	38	—	22	18	M8 x 1.25
40	90	38	—	22	18	M8 x 1.25
50	100	44	—	27	22	M10 x 1.5
63	110	44	—	27	22	M10 x 1.5
80	140	56	—	31	28	M12 x 1.75
100	170	62	—	39	33	M14 x 2

C dimension for a bore size of 32 to 100 is identical to the A dimension.

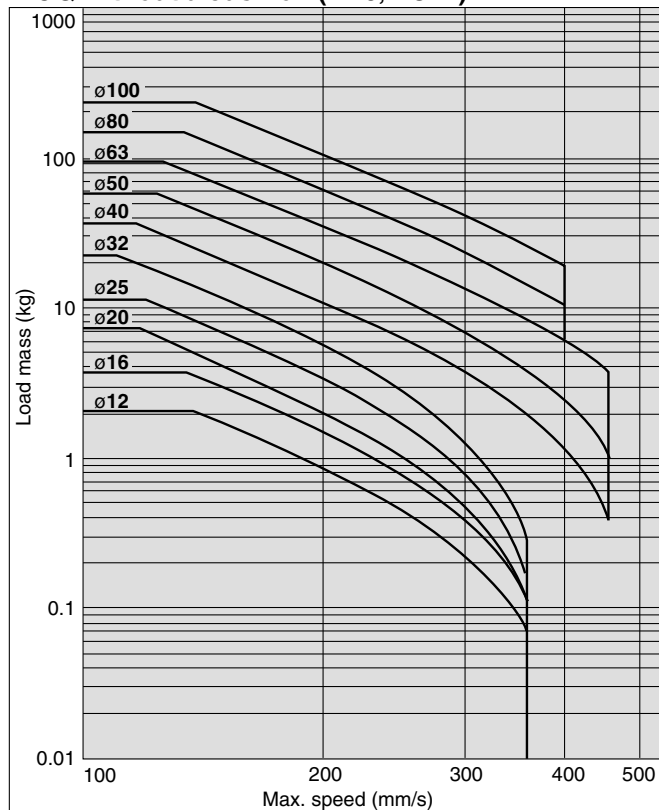
Allowable Kinetic Energy

Load mass and cylinder speed should be observed within the range given in the graph below.

MGQ with a rubber bumper



MGQ without a cushion (XB6, XC22)



MGJ

MGP

MGQ

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MGC

MGF

MGZ

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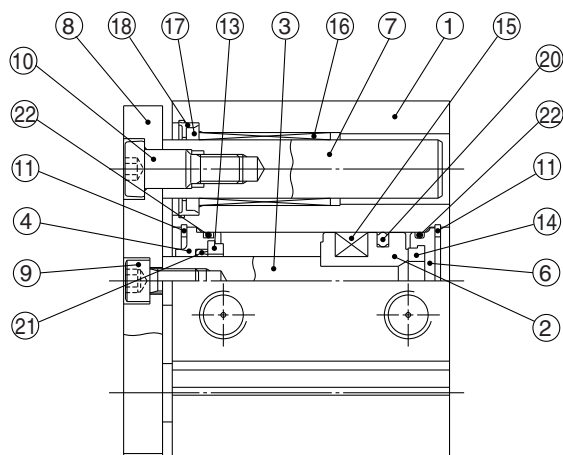
Individual

-X□

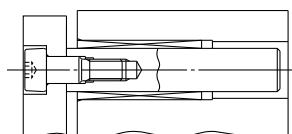
Series MGQ

Construction/Series MGQM

MGQM12 to 25



50 stroke or less

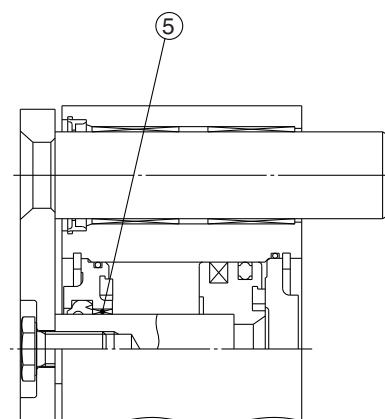
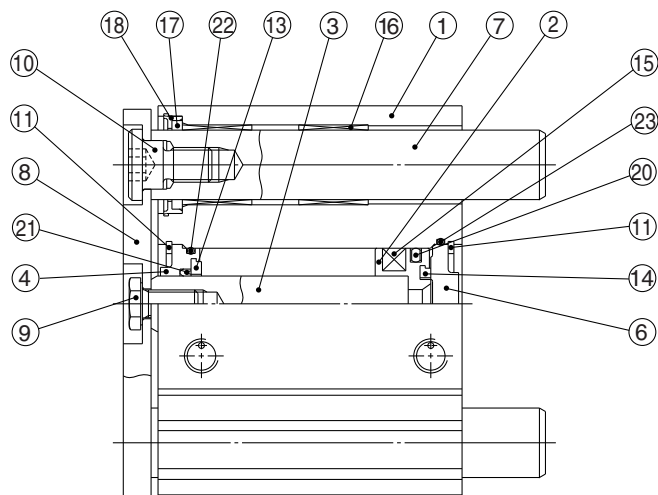


ø12, ø16



ø20, ø25 Over 50 stroke

MGQM32 to 100



Over 50 stroke

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 casted	ø50 to ø100 Painted
5	Bushing	Babbitt	ø50 to ø100
6	Head cover	Aluminum alloy	ø12 to ø63 Chromated
			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	Babbitt	
17	Felt	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	

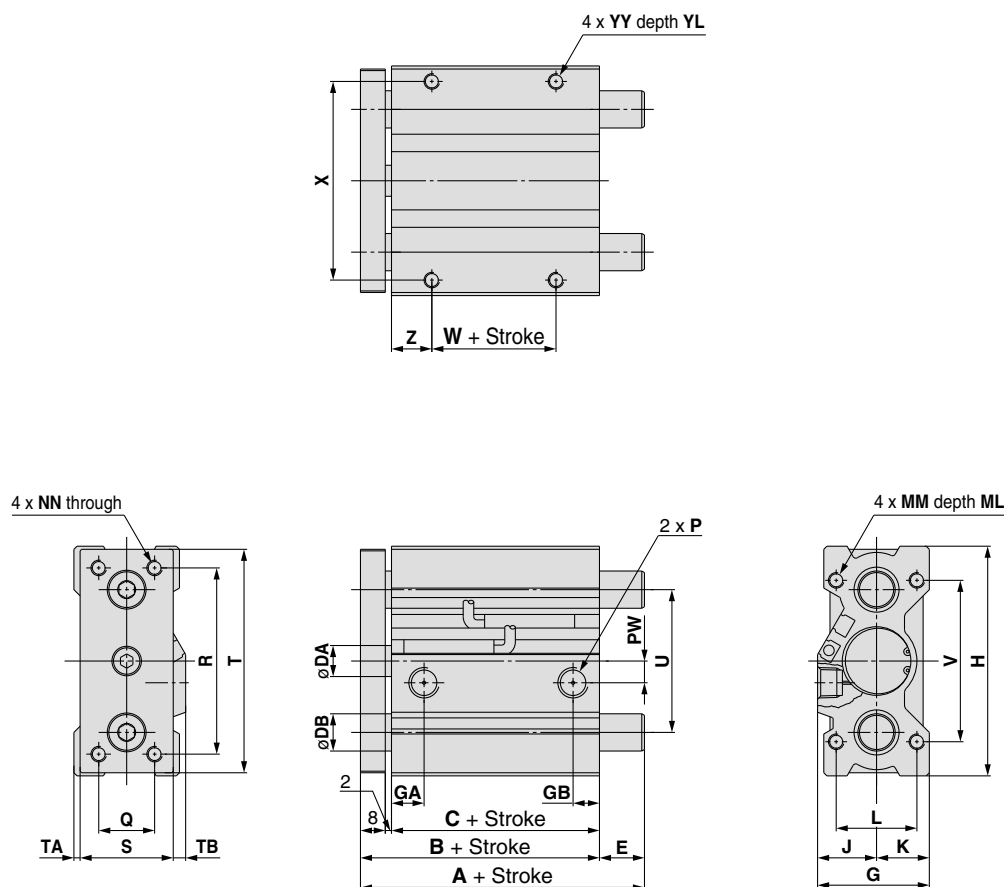
* Seal kit includes 20 to 23. Order the seal kit, based on each bore size.

Bore size (mm)	Kit no.	Description
40	MGQ40-PS	A set of 20, 21, 22 and 23 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)

Series *MGQ*

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,	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	50, 75, 100	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 339.

• 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 338.)