

# 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 |

**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 521 for details.)

**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        |             |

## 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 |   |
|                         | Diagnostic indication (2-color indicator) |                     |                    | 3-wire (PNP)            |              |           |                   | M9PV                | M9P                  | ●     | ●     | ●     | ○ | ○                   | ○               | ○          |            | ○ |
|                         |                                           |                     |                    | 2-wire                  |              |           |                   | M9BV                | M9B                  | ●     | ●     | ●     | ○ | ○                   | ○               | ○          |            | ○ |
|                         |                                           |                     |                    | 3-wire (NPN)            |              |           |                   | M9NVW               | M9NW                 | ●     | ●     | ●     | ○ | ○                   | ○               | ○          |            | ○ |
|                         |                                           |                     |                    | 3-wire (PNP)            |              |           |                   | M9PWV               | M9PW                 | ●     | ●     | ●     | ○ | ○                   | ○               | ○          |            | ○ |
|                         |                                           |                     |                    | 2-wire                  |              |           |                   | M9BWV               | M9BW                 | ●     | ●     | ●     | ○ | ○                   | ○               | ○          |            | ○ |
|                         |                                           |                     |                    | 3-wire (NPN)            |              |           |                   | M9NAV <sup>*1</sup> | M9NA <sup>*1</sup>   | ○     | ○     | ○     | ○ | ○                   | ○               | ○          |            | ○ |
|                         | Water resistant (2-color indicator)       |                     |                    | 3-wire (PNP)            |              |           |                   | M9PAV <sup>*1</sup> | M9PA <sup>*1</sup>   | ○     | ○     | ●     | ○ | ○                   | ○               | ○          |            | ○ |
| 2-wire                  |                                           | M9BAV <sup>*1</sup> | M9BA <sup>*1</sup> | ○                       | ○            | ●         | ○                 | ○                   | ○                    | ○     | ○     | ○     |   |                     |                 |            |            |   |
| 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 <sup>*2</sup>  | A93                  | ●     | ●     | ●     | ● | —                   | —               | —          | Relay, PLC |   |
|                         |                                           |                     |                    |                         |              |           |                   | 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) M9NWZ

\* 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

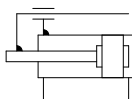
Suitable as stoppers or lifters in conveyor line

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<br>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.<br>ø12 to ø32 ..... Stroke available in 1 stroke increments ø40 to ø100 .... Stroke available in 5 stroke increments (Example)<br>1. For MGQM20-21 st, MGQM20-30 st is provided with a 5 mm + 4 mm ≤ 9 mm width spacer.<br>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<br>125, 150, 175, 200 |                                                                                                                                                                                                                                                                                                                                                                                                                               |
| MGQ □ 32, 40<br>MGQ □ 50, 63<br>80, 100 | 25, 50, 75, 100, 125<br>150, 175, 200         |                                                                                                                                                                                                                                                                                                                                                                                                                               |

## Theoretical Output

| Bore size (mm) | Rod size (mm) | Operating direction | Piston area (mm <sup>2</sup> ) | 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 (mm<sup>2</sup>)

MGJ

JMGF

MGP

MGPW

MGQ

MGG

MGC

MGF

MGZ

MGT

D-□

-X□

# MGQ Series

## Weight/Slide Bearing: MGQM12 to 100

(kg)

| Bore size<br>(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 |

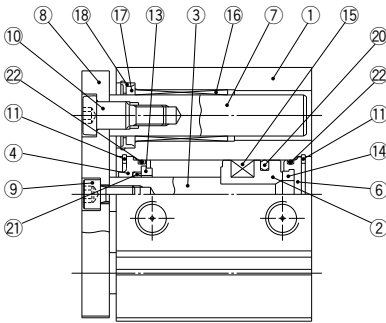
## Weight/Ball Bushing Bearing: MGQL12 to 100

(kg)

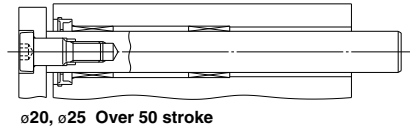
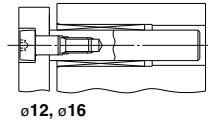
| Bore size<br>(mm) | Model   | Standard stroke (mm) |      |      |      |      |      |       |       |       |       |       |       |
|-------------------|---------|----------------------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
|                   |         | 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

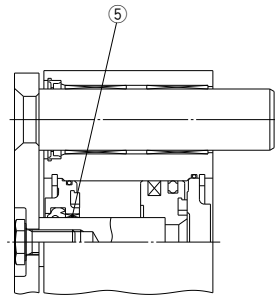
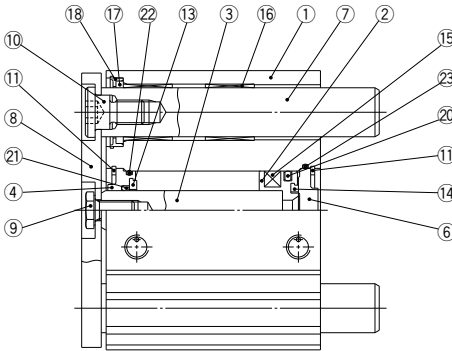
### MGQM12 to 25



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

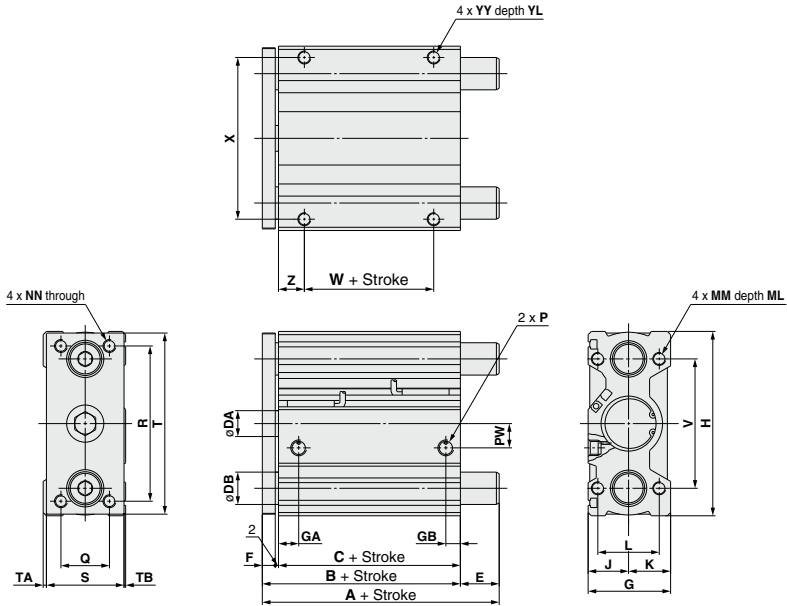
| Bore size (mm) | Kit no.  | Description                         |
|----------------|----------|-------------------------------------|
| 12             | MGQ12-PS | A set of ⑳, ㉑, ㉒ and ㉓ listed above |
| 16             | MGQ16-PS |                                     |
| 20             | MGQ20-PS |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

**Bore Size  $\phi 32$  to  $\phi 100$ : MGQM, MGQL**



**MGQM, MGQL Common Dimensions**

| Bore size (mm) | Standard stroke (mm)                | B    | C    | DA | F  | G   | GA   | GB   | H   | J    | K    | L  | MM         | ML | NN         | P     |        |      | PW | Q  | R   | S   |
|----------------|-------------------------------------|------|------|----|----|-----|------|------|-----|------|------|----|------------|----|------------|-------|--------|------|----|----|-----|-----|
|                |                                     |      |      |    |    |     |      |      |     |      |      |    |            |    |            | Nil   | TN     | TF   |    |    |     |     |
| 32             | 25, 50, 75, 100, 125, 150, 175, 200 | 47.5 | 37.5 | 16 | 8  | 51  | 12.5 | 9    | 114 | 25   | 26   | 38 | M8 x 1.25  | 20 | M8 x 1.25  | Rc1/8 | NPT1/8 | G1/8 | 15 | 30 | 96  | 48  |
| 40             |                                     | 54   | 44   | 16 | 8  | 51  | 14   | 10   | 124 | 25   | 26   | 38 | M8 x 1.25  | 20 | M8 x 1.25  | Rc1/8 | NPT1/8 | G1/8 | 21 | 30 | 106 | 48  |
| 50             |                                     | 56   | 44   | 20 | 10 | 59  | 14   | 11   | 140 | 29   | 30   | 44 | M10 x 1.5  | 25 | M10 x 1.5  | Rc1/4 | NPT1/4 | G1/4 | 27 | 40 | 120 | 56  |
| 63             |                                     | 61   | 49   | 20 | 10 | 72  | 16.5 | 13.5 | 150 | 35.5 | 36.5 | 44 | M10 x 1.5  | 25 | M10 x 1.5  | Rc1/4 | NPT1/4 | G1/4 | 33 | 50 | 130 | 69  |
| 80             |                                     | 74.5 | 56.5 | 25 | 16 | 92  | 19   | 15.5 | 188 | 45.5 | 46.5 | 56 | M12 x 1.75 | 30 | M12 x 1.75 | Rc3/8 | NPT3/8 | G3/8 | 37 | 60 | 160 | 88  |
| 100            |                                     | 84   | 66   | 30 | 16 | 112 | 23   | 19   | 224 | 55.5 | 56.5 | 62 | M14 x 2    | 35 | M14 x 2    | Rc3/8 | NPT3/8 | G3/8 | 40 | 80 | 190 | 108 |

| Bore size (mm) | T   | TA  | TB  | V   | W  | X   | YY         | YL   | Z  |
|----------------|-----|-----|-----|-----|----|-----|------------|------|----|
| 32             | 112 | 2   | 1   | 80  | 5  | 100 | M8 x 1.25  | 11   | 16 |
| 40             | 122 | 2   | 1   | 90  | 10 | 110 | M8 x 1.25  | 11   | 17 |
| 50             | 138 | 2   | 1   | 100 | 10 | 124 | M10 x 1.5  | 12.5 | 17 |
| 63             | 148 | 2   | 1   | 110 | 10 | 132 | M10 x 1.5  | 15   | 19 |
| 80             | 185 | 2.5 | 1.5 | 140 | 15 | 166 | M12 x 1.75 | 18   | 21 |
| 100            | 221 | 2.5 | 1.5 | 170 | 15 | 200 | M14 x 2    | 21   | 25 |

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

| Bore size (mm) | A    | DB | E    |
|----------------|------|----|------|
| 32             | 71.5 | 20 | 24   |
| 40             | 71.5 | 20 | 17.5 |
| 50             | 81   | 25 | 25   |
| 63             | 81   | 25 | 20   |
| 80             | 93   | 28 | 18.5 |
| 100            | 105  | 36 | 21   |

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

| Bore size (mm) | A             |            | DB | E             |            |
|----------------|---------------|------------|----|---------------|------------|
|                | 50 st or less | Over 50 st |    | 50 st or less | Over 50 st |
| 32             | 53            | 90         | 16 | 5.5           | 42.5       |
| 40             | 54            | 90         | 16 | 0             | 36         |
| 50             | 60            | 102        | 20 | 4             | 46         |
| 63             | 61            | 102        | 20 | 0             | 41         |
| 80             | 84            | 143        | 25 | 9.5           | 68.5       |
| 100            | 89            | 153        | 30 | 5             | 69         |

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

• Rc, NPT and G ports can be selected. (Refer to page 520.)

**Grooves (Except  $\phi 12$ ,  $\phi 16$ ,  $\phi 20$ ,  $\phi 25$ )**

Use grooves section "a" and section "b" in the figure below of the cylinder body for firmly fixing in the following case. (Applicable bolt size is M3.)

- These grooves can be used for firmly fixing the tying bands of lead wires of the auto switch, etc., and also terminal boards, etc., to the main body of the cylinder.
- When the terminal block is fixed on a cylinder directly.

