

# Made to Order Common Specifications



|    |         |                                                                                                                   |        |
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| 36 | -XC29   | Double knuckle joint with spring pin.....                                                                         | P.1819 |
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| 38 | -XC34   | Non-rotating plate with workpiece mounting screw (No extended part on the rod end).....                           | P.1822 |
| 39 | -XC35   | With coil scraper.....                                                                                            | P.1823 |
| 40 | -XC36   | With boss in rod side.....                                                                                        | P.1829 |
| 41 | -XC37   | Larger throttle diameter of connection port.....                                                                  | P.1829 |
| 42 | -XC38   | Vacuum (Rod through-hole).....                                                                                    | P.1830 |
| 43 | -XC42   | Built-in shock absorber in head cover side.....                                                                   | P.1831 |
| 44 | -XC51   | With hose nipple.....                                                                                             | P.1832 |
| 45 | -XC52   | Mounting nut with set screw.....                                                                                  | P.1832 |
| 46 | -XC56   | With knock pin holes.....                                                                                         | P.1833 |
| 47 | -XC57   | Rodless cylinder with floating joint.....                                                                         | P.1836 |
| 48 | -XC65   | Made of Stainless Steel (Combination of XC7 and XC68).....                                                        | P.1838 |
| 49 | -XC67   | Dust seal band NBR lining specifications.....                                                                     | P.1839 |
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| 51 | -XC69   | MGP series with shock absorber.....                                                                               | P.1841 |
| 52 | -XC71   | Helical insert thread specifications.....                                                                         | P.1844 |
| 53 | -XC72   | Without built-in auto switch magnet.....                                                                          | P.1844 |
| 54 | -XC73   | Built-in cylinder with lock (CDNG).....                                                                           | P.1845 |
| 55 | -XC74   | With front plate for MGG cylinder.....                                                                            | P.1848 |
| 56 | -XC78   | Auto switch mounting special dimensions at stroke end.....                                                        | P.1849 |
| 57 | -XC82   | Bottom mounting type.....                                                                                         | P.1850 |

# Made to Order Common Specifications

|    |       |                                                                                                         |        |
|----|-------|---------------------------------------------------------------------------------------------------------|--------|
| 58 | -XC83 | Built-in cylinder with lock (MDNB).....                                                                 | P.1851 |
| 59 | -XC85 | Grease for food processing equipment.....                                                               | P.1854 |
| 60 | -XC86 | With rod end bracket.....                                                                               | P.1855 |
| 61 | -XC87 | Cylinder with one-way lock/heavy duty specifications.....                                               | P.1856 |
| 62 | -XC88 | Spatter resistant coil scraper, Lube-retainer, Grease for welding (Piston rod: Stainless steel 304) ... | P.1857 |
| 63 | -XC89 | Spatter resistant coil scraper, Lube-retainer, Grease for welding (Piston rod: S45C).....               | P.1857 |
| 64 | -XC91 | Spatter resistant coil scraper, Grease for welding (Piston rod: S45C).....                              | P.1857 |
| 65 | -XC92 | Dust resistant actuator .....                                                                           | P.1893 |
| 66 | -XC93 | With greater water resistance + stable lubrication function (Lube-retainer) .....                       | P.1896 |

## How to Order When Combining Made-to-Order Specifications

How to order when combining two specifications: simple specials (XA□) and made-to-order common specifications (XB□, XC□).

■How to Order Example: 1 (Enter the symbol in alphabetical order.)

CQ2B25 - 30D - **XA7B6**

Note) "X" of XB6 is not necessary.

### ●Made to Order

| Symbol     | Specifications          |
|------------|-------------------------|
| <b>XA7</b> | Change of rod end shape |
| <b>XB6</b> | Heat resistant cylinder |

■How to Order Example: 2 (Enter the symbol in numerical order when alphabetical letters are the same.)

CDQ2B25 - 30DZ - M9BW - **XC4C6**

Note) "X" of XC6 is not necessary.

### ●Made to Order

| Symbol     | Specifications          |
|------------|-------------------------|
| <b>XC4</b> | With heavy duty scraper |
| <b>XC6</b> | Made of stainless steel |

\* Please contact SMC for the availability of a desired combination of simple specials and made-to-order specifications or a combination of three or more made-to-order specifications.

# Made to Order Common Specifications: -XB5: Oversized Rod Cylinder

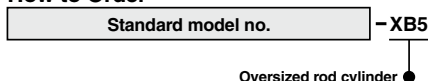


## 1 Oversized Rod Cylinder

Symbol  
-XB5

A cylinder that has been made stronger through the use of a piston rod with a larger diameter. It is used for long stroke applications that pose the risk of bending or buckling of the piston rod.  
(Please contact SMC if a lateral load must be applied to it.)

### How to Order

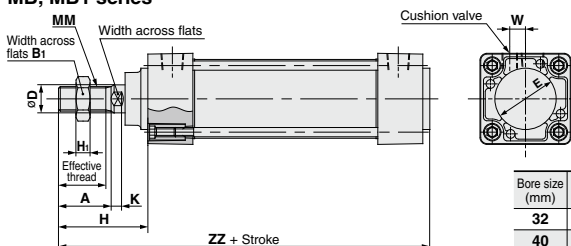


### Applicable Series

| Series     | Description  | Model | Action                    | Vol. no. (for std model) |
|------------|--------------|-------|---------------------------|--------------------------|
| <b>MB</b>  | Air cylinder | MB    | Double acting, Single rod | ②-1 From P. 392          |
| <b>MB1</b> | Air cylinder | MB1   | Double acting, Single rod | ②-1 From P. 440          |
| <b>CA2</b> | Air cylinder | CA2   | Double acting, Single rod | ②-1 From P. 470          |
| <b>CS1</b> | Air cylinder | CS1   | Double acting, Single rod | ②-1 From P. 530          |

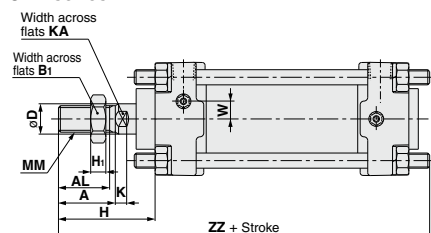
### Dimensions (Dimensions other than below are the same as standard type.)

#### MB, MB1 series



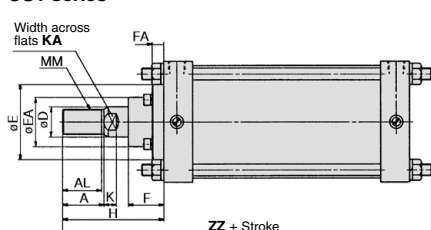
| Bore size (mm) | A  | Effective thread length | B1 | øD | H  | H1 | K  | Width across flats | MM        | W    | ZZ  |
|----------------|----|-------------------------|----|----|----|----|----|--------------------|-----------|------|-----|
| <b>32</b>      | 30 | 27                      | 22 | 16 | 51 | 8  | 6  | 14                 | M14 x 1.5 | 7.2  | 139 |
| <b>40</b>      | 35 | 32                      | 27 | 20 | 58 | 11 | 7  | 18                 | M18 x 1.5 | 9.7  | 146 |
| <b>50</b>      | 40 | 37                      | 32 | 25 | 68 | 13 | 10 | 22                 | M22 x 1.5 | 10.5 | 166 |
| <b>63</b>      | 40 | 37                      | 32 | 25 | 68 | 13 | 10 | 22                 | M22 x 1.5 | 12   | 166 |
| <b>80</b>      | 40 | 37                      | 41 | 30 | 74 | 16 | 10 | 26                 | M26 x 1.5 | 14   | 192 |
| <b>100</b>     | 50 | 47                      | 46 | 36 | 90 | 18 | 16 | 31                 | M30 x 1.5 | 15   | 208 |

#### CA2 series



| Bore size (mm) | A  | AL | B1 | øD | H  | H1 | K  | KA | MM        | W | ZZ  |
|----------------|----|----|----|----|----|----|----|----|-----------|---|-----|
| <b>40</b>      | 35 | 32 | 27 | 20 | 58 | 11 | 7  | 18 | M18 x 1.5 | 9 | 153 |
| <b>50</b>      | 40 | 37 | 32 | 25 | 71 | 13 | 11 | 22 | M22 x 1.5 | 9 | 172 |
| <b>63</b>      | 40 | 37 | 32 | 25 | 71 | 13 | 11 | 22 | M22 x 1.5 | 9 | 183 |
| <b>80</b>      | 40 | 37 | 41 | 30 | 72 | 16 | 11 | 26 | M26 x 1.5 | 0 | 205 |
| <b>100</b>     | 50 | 47 | 46 | 36 | 85 | 18 | 15 | 31 | M30 x 1.5 | 0 | 228 |

#### CS1 series



| Bore size (mm) | A  | AL | D  | E   | EA | F  | FA | H   | K  | KA | MM        | ZZ    |
|----------------|----|----|----|-----|----|----|----|-----|----|----|-----------|-------|
| <b>125</b>     | 63 | 60 | 50 | 115 | 74 | 48 | 17 | 135 | 20 | 46 | M45 x 1.5 | 260   |
| <b>140</b>     | 71 | 67 | 60 | 140 | 86 | 60 | 20 | 160 | 25 | 56 | M56 x 2.0 | 285   |
| <b>160</b>     | 71 | 67 | 60 | 140 | 86 | 60 | 20 | 160 | 25 | 56 | M56 x 2.0 | 296.5 |
| <b>180</b>     | 80 | 76 | 70 | 140 | 96 | 60 | 20 | 175 | 30 | 65 | M64 x 2.0 | 325   |
| <b>200</b>     | 80 | 76 | 70 | 140 | 96 | 60 | 20 | 175 | 30 | 65 | M64 x 2.0 | 325   |

# Made to Order Common Specifications: -XB6: Heat Resistant Cylinder (-10 to 150°C)



## 2 Heat Resistant Cylinder (-10 to 150°C)

Symbol

**-XB6**

Air cylinder which changed the seal material and grease, so that it could be used even at higher temperature up to 150 from -10°C.

### Applicable Series

| Series      | Description                                 | Model   | Action                    | Note                                                                                                        | Vol. no. (for std model) |
|-------------|---------------------------------------------|---------|---------------------------|-------------------------------------------------------------------------------------------------------------|--------------------------|
| <b>CJP2</b> | Pin cylinder                                | CJP2    | Double acting, Single rod | Except clevis, trunnion type, with auto switch, ø4. Packing set <sup>(6)</sup>                              | ②-1 From P. 23           |
| <b>CJ2</b>  | Air cylinder                                | CJ2-Z   | Double acting, Single rod | Except with air cushion and auto switch, rod end bracket T, U                                               | ②-1 From P. 46           |
|             |                                             | CJ2W-Z  | Double acting, Double rod | Except with air cushion and auto switch, rod end bracket T, U                                               |                          |
| <b>CM2</b>  | Air cylinder                                | CM2-Z   | Double acting, Single rod | Except with rod boot and with auto switch                                                                   | ②-1 From P. 172          |
|             |                                             | CM2W-Z  | Double acting, Double rod | Except with rod boot and with auto switch                                                                   |                          |
|             | Non-rotating rod type                       | CM2K-Z  | Double acting, Single rod | Except with rod boot and with auto switch                                                                   |                          |
|             |                                             | CM2KW-Z | Double acting, Double rod | Except with auto switch                                                                                     |                          |
|             | Direct mount type                           | CM2R-Z  | Double acting, Single rod | Except with auto switch                                                                                     |                          |
|             | Non-rotating rod, Direct mount type         | CM2RK-Z | Double acting, Single rod | Except with auto switch                                                                                     |                          |
| <b>CG1</b>  | Air cylinder                                | CG1-Z   | Double acting, Single rod | Except with rod boot and with auto switch                                                                   | ②-1 From P. 292          |
|             |                                             | CG1W-Z  | Double acting, Double rod | Except with auto switch. Without a bumper for cylinders with rubber bumper                                  |                          |
|             | Direct mount type                           | CG1R-Z  | Double acting, Single rod | Except with auto switch. Without a bumper for cylinders with rubber bumper                                  |                          |
|             |                                             | CG1RW-Z | Double acting, Double rod | Except with auto switch. Without a bumper for cylinders with rubber bumper                                  |                          |
| <b>MB</b>   | Air cylinder                                | MB-Z    | Double acting, Single rod | Except without air cushion and with auto switch                                                             | ②-1 From P. 392          |
|             |                                             | MBW-Z   | Double acting, Double rod | Except without air cushion and with auto switch                                                             |                          |
| <b>MB1</b>  | Air cylinder                                | MB1-Z   | Double acting, Single rod | Except without air cushion and with auto switch                                                             | ②-1 From P. 440          |
|             |                                             | MB1W-Z  | Double acting, Double rod | Except without air cushion and with auto switch                                                             |                          |
| <b>CA2</b>  | Air cylinder                                | CA2-Z   | Double acting, Single rod | Except with auto switch                                                                                     | ②-1 From P. 470          |
|             |                                             | CA2W-Z  | Double acting, Double rod | Except with auto switch                                                                                     |                          |
|             | End lock cylinder                           | CBA2    | Double acting, Single rod | Except with auto switch                                                                                     |                          |
| <b>CS1</b>  | Air cylinder                                | CS1□    | Double acting, Single rod | Except with auto switch. Applicable bore size (ø125 to ø200)                                                | ②-1 From P. 530          |
|             |                                             | CS1W□   | Double acting, Double rod |                                                                                                             |                          |
| <b>CS2</b>  | Air cylinder                                | CS2     | Double acting, Single rod | Except with auto switch                                                                                     | ②-1 From P. 568          |
|             |                                             | CS2W    | Double acting, Double rod | Except with auto switch                                                                                     |                          |
| <b>CUJ</b>  | Mini free mount cylinder                    | CUJ     | Double acting, Single rod | Except with auto switch and ø4                                                                              | ②-1 From P. 596          |
| <b>CU</b>   | Free mount cylinder                         | CU      | Double acting, Single rod | Except with auto switch                                                                                     | ②-1 From P. 623          |
|             | Non-rotating rod type                       | CUK     | Double acting, Single rod | Except with auto switch                                                                                     |                          |
|             | Long stroke                                 | CU      | Double acting, Single rod | Except with auto switch                                                                                     |                          |
|             | Long stroke, Non-rotating rod               | CUK     | Double acting, Single rod | Except with auto switch                                                                                     |                          |
| <b>CQS</b>  | Compact cylinder                            | CQS     | Double acting, Single rod | Except with rubber bumper and auto switch                                                                   | ②-1 From P. 693          |
|             |                                             | CQSW    | Double acting, Double rod | Except with rubber bumper and auto switch                                                                   |                          |
| <b>CQ2</b>  | Compact cylinder                            | CQ2-Z   | Double acting, Single rod | Except with rubber bumper and auto switch                                                                   | ②-1 From P. 773          |
|             |                                             | CQ2W-Z  | Double acting, Double rod | Except with rubber bumper and auto switch                                                                   |                          |
|             | Axial piping type (Centralized piping type) | CQP2    | Double acting, Single rod | Except with rubber bumper and auto switch                                                                   |                          |
|             |                                             | CQP2W   | Double acting, Double rod | Except with rubber bumper and auto switch                                                                   |                          |
|             | Non-rotating rod type                       | CQ2K-Z  | Double acting, Single rod | Except with rubber bumper and auto switch                                                                   |                          |
|             |                                             | CQ2KW-Z | Double acting, Double rod | Except with rubber bumper and auto switch                                                                   |                          |
| <b>CG5</b>  | Stainless cylinder                          | CG5     | Double acting, Single rod | Except with auto switch. Without a bumper for cylinders with a rubber bumper (Grease for non-food is used.) | ②-1 From P. 1070         |
| <b>CY3</b>  | Magnetically coupled rodless cylinder       | CY3B    | Basic type                | Except with auto switch. Without a bumper                                                                   | ②-1 From P. 1468         |
| <b>MK</b>   | Rotary clamp                                | MK-Z    | Double acting             | Except with auto switch, ø12 and ø16                                                                        | ②-3 From P. 389          |
| <b>MGP</b>  | Compact guide cylinder                      | MGPM-Z  | Double acting             | Except with auto switch. No rubber bumper is equipped.                                                      | ②-2 From P. 432          |
| <b>MGQ</b>  | Compact guide cylinder                      | MGQ     | Double acting             | Except with auto switch, ø12 to ø25 of MGQL (Ball bushing type)                                             | ②-2 From P. 520          |
| <b>MGG</b>  | Guide cylinder                              | MGG     | Double acting             | Except with auto switch. No shock absorber and rubber bumper are equipped.                                  | ②-2 From P. 538          |
| <b>MGC</b>  | Guide cylinder                              | MGC     | Double acting             | Except with auto switch                                                                                     | ②-2 From P. 578          |
| <b>CXSJ</b> | Dual rod cylinder                           | CXSJ    | Compact type              | Except with auto switch                                                                                     | ②-2 From P. 737          |
| <b>CXS</b>  | Dual rod cylinder                           | CXS     | Basic type                | Except with auto switch                                                                                     | ②-2 From P. 749          |

Note 1) Operate without lubrication from a pneumatic system lubricator.

Note 2) Please contact SMC for details on the maintenance intervals for this cylinder, which differ from those of the standard cylinder.

Note 3) In principle, it is impossible to make built-in magnet type and the one with auto switch. But, as for the one with auto switch, and the heat resistant cylinder with heat resistant auto switch, since it will be differed depending on the series, please contact SMC.

Note 4) Piston speed is ranged from 50 to 500 mm/s. But, for MGQ□80, 100 and MGP□80, 100, it will be 50 to 400 mm/s. 50 to 200 mm/s for the MK series. The piston speed for the CY3B series is 50 to 400 mm/s.

Note 5) Please contact SMC for the CQ2, CQS, MGQ and MGQ series with rubber bumper.

Note 6) As for the ambient temperature range of the CY3B series, since the magnetic holding force will be varied depending on the operating conditions, make sure that by referring to the next page.

Note 7) The ambient temperature range of the CY3B series is 50 to 150°C.

Note 8) Refer to the construction of the standard type for the details of the packing set for CJP2□6,10 and 16.

### How to Order

Standard model no.

**-XB6**

Heat resistant cylinder

### Specifications

|                                                         |                                               |
|---------------------------------------------------------|-----------------------------------------------|
| <b>Ambient temperature range</b>                        | -10 to 150°C (0 to 150°C for CS1, CS2 series) |
| <b>Seals materials</b>                                  | Fluororubber                                  |
| <b>Grease</b>                                           | Heat resistant grease                         |
| Specifications other than above and external dimensions | Same as standard type                         |

### Warning Precautions

Be aware that smoking cigarettes, etc. after your hands have come into contact with the grease used in this cylinder can create a gas that is hazardous to humans.



# Made to Order Common Specifications: -XB6: Heat Resistant Cylinder (-10 to 150°C)



## 2 Heat Resistant Cylinder (-10 to 150°C)

Symbol  
-XB6

### CY3B series How to Order

CY3B Bore size Port thread type - Stroke -XB6

Heat resistant cylinder

### Specifications

|                               |                 |
|-------------------------------|-----------------|
| Applicable size               | CY3B            |
| Bore size (mm)                | ø6 to ø63       |
| Ambient and fluid temperature | 50 to 150°C*    |
| Maximum operating pressure    | 0.5 MPa         |
| Piston speed                  | 50 to 400 mm/s* |

\* When using in less than 100°C range, since it could make a difference in the maintenance cycle, depending on the operating speed, use it at 200 mm/s or less.

### Operating Pressure Limit for Intermediate Stop and Vertical Operation

|                                                     |          |
|-----------------------------------------------------|----------|
| Maximum operating pressure at the intermediate stop | 0.4 MPa* |
|-----------------------------------------------------|----------|

\* Use caution that the magnet coupling will be removed, if it is used to stop in an intermediate stroke by an external stopper with the operating pressure over 0.4 MPa.

### Magnetic Holding Force

(N)

| Bore size (mm)           | 6    | 10   | 15   | 20  | 25  | 32  | 40  | 50   | 63   |
|--------------------------|------|------|------|-----|-----|-----|-----|------|------|
| Holding force (at 150°C) | 14.4 | 40.0 | 90.1 | 160 | 250 | 410 | 641 | 1000 | 1590 |
| Holding force (at 100°C) | 17.2 | 47.9 | 107  | 192 | 299 | 490 | 766 | 1190 | 1900 |

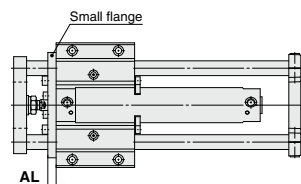
### MGC series How to Order

MGC Standard model no. -XB6

Heat resistant cylinder

### Dimensions (Dimensions other than below are the same as standard type.)

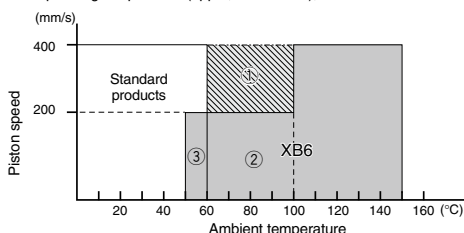
#### MGCLB series



| Bore size (mm) | AL |
|----------------|----|
| 20             | 9  |
| 25             | 9  |
| 32             | 9  |
| 40             | 12 |
| 50             | 12 |

### Temperature Range for Operating Cylinder and Piston Speed

- When using with the operating temperature from 60 up to 100°C, and the piston speed of more than 200 mm/s, please consult with SMC separately.
- When using with the operating temperature from 50 up to 100°C, and the piston speed of less than 200 mm/s, XB6 specifications can be used.
- As for XB6, regarding the temperature range (over 50 to 60°C) which overlaps the one of standard products, consider the tendency of operating temperature (upper, lower limits), then choose a model.



When using with the operating temperature fluctuated between 50°C or less and 100°C or more, the operating speed, etc. will be largely restricted by the durability. Prior to use, please contact SMC.

### <Reference>

Maintenance cycle for XB6 could vary substantially, depending on the operating condition and the ambient temperature.

Even if using in our recommended range, as a guide, conduct it in around 1/2 intervals, compared to the standard products.

### Dimensions (Dimensions other than below are the same as standard type.)

| Bore size (mm) | BA   | BL  |
|----------------|------|-----|
| 6              | —    | —   |
| 10             | —    | —   |
| 15             | —    | —   |
| 20             | —    | —   |
| 25             | 37   | 0.3 |
| 32             | —    | —   |
| 40             | —    | —   |
| 50             | 68.5 | 0.6 |
| 63             | —    | —   |

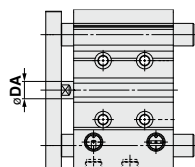
\* The cylinders other than those with a bore size of 25 or 50 have no convex shapes.

### MGP series How to Order

MGPM Standard model no. -XB6

Heat resistant cylinder

### Dimensions



| Bore size (mm) | DA   |
|----------------|------|
| 12             | (6)  |
| 16             | (8)  |
| 20             | (10) |
| 25             | (10) |
| 32             | (14) |
| 40             | (14) |
| 50             | 20   |
| 63             | 20   |
| 80             | 25   |
| 100            | 30   |

The dimensions in ( ) are the same as standard type.

# Made to Order Common Specifications: -XB7: Cold Resistant Cylinder (−40 to 70°C)



Symbol

## 3 Cold Resistant Cylinder (−40 to 70°C)

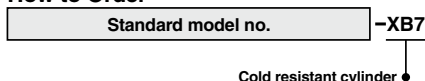
**-XB7**

Air cylinder which changed the seal material and grease, so that it could be used even at lower temperature down to −40°C.

### Applicable Series

| Series      | Description                                 | Model  | Action                    | Note                                                                                 | Vol. no. (for std model)       |
|-------------|---------------------------------------------|--------|---------------------------|--------------------------------------------------------------------------------------|--------------------------------|
| <b>CJP2</b> | Pin cylinder                                | CJP2   | Double acting, Single rod | Except clevis, trunnion type, with auto switch, ø4. Packing set <sup>(7)</sup>       | ②-1 From P. 23                 |
| <b>CJ2</b>  | Air cylinder                                | CJ2-Z  | Double acting, Single rod | Except with air cushion and auto switch, rod end bracket, pivot bracket              | ②-1 From P. 46                 |
|             |                                             | CJ2W-Z | Double acting, Double rod | Except with air cushion and auto switch, rod end bracket, pivot bracket              |                                |
| <b>CM2</b>  | Air cylinder                                | CM2-Z  | Double acting, Single rod | Except with rod boot, with air cushion, with auto switch                             | ②-1 From P. 172                |
|             |                                             | CM2W-Z | Double acting, Double rod | Except with rod boot, with air cushion, with auto switch                             |                                |
|             | Direct mount type                           | CM2R-Z | Double acting, Single rod | Except with air cushion, auto switch                                                 |                                |
|             |                                             |        |                           | Except with air cushion, auto switch                                                 |                                |
| <b>CG1</b>  | Air cylinder                                | CG1-Z  | Double acting, Single rod | Except with air cushion, auto switch. Cylinders with a rubber bumper have no bumper. | ②-1 From P. 292 <sup>(6)</sup> |
|             |                                             | CG1W-Z | Double acting, Double rod | Except with air cushion, auto switch. Cylinders with a rubber bumper have no bumper. |                                |
|             | Direct mount type                           | CG1R-Z | Double acting, Single rod | Except with air cushion, auto switch. Cylinders with a rubber bumper have no bumper. |                                |
| <b>CU</b>   | Free mount cylinder                         | CU     | Double acting, Single rod | Except with auto switch                                                              | ②-1 From P. 623                |
|             | Non-rotating rod type                       | CUK    | Double acting, Single rod | Except with auto switch                                                              |                                |
|             | Long stroke                                 | CU     | Double acting, Single rod | Except with auto switch                                                              |                                |
|             | Long stroke, Non-rotating rod               | CUK    | Double acting, Single rod | Except with auto switch                                                              |                                |
| <b>CQS</b>  | Compact cylinder                            | CQS    | Double acting, Single rod | Except with auto switch, with rubber bumper, with bracket                            | ②-1 From P. 693                |
|             |                                             | CQSW   | Double acting, Double rod | Except with auto switch, with rubber bumper, with bracket                            |                                |
| <b>CQ2</b>  | Compact cylinder                            | CQ2-Z  | Double acting, Single rod | ø12 to ø40. Except with auto switch, with rubber bumper, with bracket                | ②-1 From P. 773                |
|             |                                             | CQ2W-Z | Double acting, Double rod | ø12 to ø40. Except with auto switch, with rubber bumper, with bracket                |                                |
|             | Axial piping type (Centralized piping type) | CQP2   | Double acting, Single rod | ø12 to ø40. Except with auto switch, with rubber bumper, with bracket                |                                |

### How to Order



### Specifications

|                           |                       |
|---------------------------|-----------------------|
| Ambient temperature range | −40 to 70°C           |
| Seals material            | Low nitrile rubber    |
| Grease                    | Cold resistant grease |
| Auto switch               | Not mountable         |
| Dimensions                | Same as standard type |
| Additional specifications | Same as standard type |

### ⚠ Warning Precautions

Be aware that smoking cigarettes, etc. after your hands have come into contact with the grease used in this cylinder can create a gas that is hazardous to humans.

- Note 1) Operate without lubrication from a pneumatic system lubricator.  
 Note 2) Use dry air which is suitable for heatless air dryer, etc. not to cause the moisture to be frozen.  
 Note 3) Please contact SMC for details on the maintenance intervals for this cylinder, which differ from those of the standard cylinder.  
 Note 4) Mounting auto switch is impossible.  
 Note 5) Please contact SMC for the one with rubber bumper for CQ2, CQS.  
 Note 6) No cushion type is adopted.  
 Piston speed is ranged from 50 to 500 mm/s.  
 Note 7) Refer to the construction of the standard type for the details of the packing set for CJP2□6,10 and 16.

# Made to Order Common Specifications: -XB9: Low Speed Cylinder (10 to 50 mm/s)



## 4 Low Speed Cylinder (10 to 50 mm/s)

Symbol

**-XB9**

Even if driving at lower speeds 10 to 50 mm/s, there would be no stick-slip phenomenon and it can run smoothly.

### Applicable Series

| Series     | Description                                 | Model  | Action                    | Note                                              | Vol. no. (for std model) |
|------------|---------------------------------------------|--------|---------------------------|---------------------------------------------------|--------------------------|
| <b>CJ2</b> | Air cylinder                                | CJ2-Z  | Double acting, Single rod | Except with air cushion                           | ②-1 From P. 46           |
|            | Air cylinder                                | CM2-Z  | Double acting, Single rod | Except air-hydro, with air cushion, with rod boot |                          |
| <b>CM2</b> | Direct mount type                           | CM2R-Z | Double acting, Single rod | Except with air cushion                           | ②-1 From P. 172          |
|            | End lock cylinder                           | CBM2   | Double acting, Single rod | Except with rod boot, with air cushion            |                          |
| <b>CG1</b> | Air cylinder                                | CG1-Z  | Double acting, Single rod | Except with rod boot, with air cushion            | ②-1 From P. 292          |
|            | Direct mount type                           | CG1R-Z | Double acting, Single rod | Except with air cushion                           |                          |
| <b>CU</b>  | Free mount cylinder                         | CU     | Double acting, Single rod |                                                   |                          |
|            | Non-rotating rod type                       | CUK    | Double acting, Single rod |                                                   | ②-1 From P. 623          |
|            | Long stroke standard type                   | CU     | Double acting, Single rod |                                                   |                          |
|            | Long stroke, Non-rotating rod type          | CUK    | Double acting, Single rod |                                                   |                          |
| <b>CQS</b> | Compact cylinder                            | CQS    | Double acting, Single rod |                                                   | ②-1 From P. 693          |
|            |                                             | CQSW   | Double acting, Double rod |                                                   |                          |
| <b>CQ2</b> | Compact cylinder                            | CQ2-Z  | Double acting, Single rod |                                                   |                          |
|            |                                             | CQ2W-Z | Double acting, Double rod |                                                   | ②-1 From P. 773          |
|            | Axial piping type (Centralized piping type) | CQP2   | Double acting, Single rod |                                                   |                          |
| <b>CY</b>  | Magnetically coupled rodless cylinder       | CY3B   | Double acting             |                                                   |                          |
|            |                                             | CY1S-Z | Double acting             |                                                   | ②-1 From P. 1468         |
|            |                                             | CY1L   | Double acting             |                                                   |                          |
| <b>MGQ</b> | Compact guide cylinder                      | MGQ    | Double acting             |                                                   | ②-2 From P. 520          |

### How to Order

Standard model no.

**-XB9**

Low speed cylinder ●

Note) Operate without lubrication from a pneumatic system lubricator.

### Specifications

|                           |                                                     |
|---------------------------|-----------------------------------------------------|
| Piston speed              | 10 to 50 mm/s (CY is ranged between 15 to 50 mm/s.) |
| Dimensions                | Same as standard type                               |
| Additional specifications | Same as standard type                               |

### ⚠ Warning Precautions

Be aware that smoking cigarettes, etc. after your hands have come into contact with the grease used in this cylinder can create a gas that is hazardous to humans.

# Made to Order Common Specifications: -XB10: Intermediate Stroke (Using exclusive body)



## 5 Intermediate Stroke (Using exclusive body)

Symbol  
**-XB10**

Cylinder which can reduce the mounting space by using an exclusive body which does not use a spacer to achieve that the full length dimension could be shortened when an intermediate stroke other than the standard stroke is required.

### Applicable Series

| Series            | Description                           | Model                     | Action                        | Note                           | Vol. no. (for std model) |
|-------------------|---------------------------------------|---------------------------|-------------------------------|--------------------------------|--------------------------|
| CQS               | Compact cylinder                      | CQS                       | Double acting, Single rod     | Long stroke is available, too. | ②-1 From P. 693          |
|                   |                                       | CQSW                      | Single acting (Spring return) |                                |                          |
| CQ2               | Compact cylinder                      | CQ2-Z                     | Double acting, Double rod     | Except ø12 to 32               | ②-1 From P. 773          |
|                   |                                       | CQ2-Z                     | Single acting (Spring return) |                                |                          |
|                   |                                       | CQ2W-Z                    | Double acting, Double rod     |                                |                          |
|                   | Non-rotating rod type                 | CQ2K-Z                    | Double acting, Single rod     |                                |                          |
|                   | Large bore size                       | CQ2-Z                     | Double acting, Single rod     |                                |                          |
|                   |                                       | CQ2W-Z                    | Double acting, Double rod     |                                |                          |
|                   | Long stroke                           | CQ2-Z                     | Double acting, Single rod     |                                |                          |
| Anti-lateral load | CQ2□S-Z                               | Double acting, Single rod |                               |                                |                          |
| MGP               | Compact guide cylinder                | MGP-Z                     | Double acting                 | ②-2 From P. 432                |                          |
| MGQ               | Compact guide cylinder                | MGQ                       | Double acting                 | ②-2 From P. 520                |                          |
| CY1               | Magnetically coupled rodless cylinder | CY1H<br>CY1F              | Linear guide type             | ②-1 From P. 1528               |                          |
| REA               | Sine rodless cylinder                 | REAH                      | Linear guide type             | ②-3 From P. 75                 |                          |
| REB               |                                       | REBH                      |                               | ②-3 From P. 104                |                          |

### How to Order

Specifications: Same as standard type

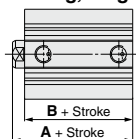
Standard model no.

-XB10

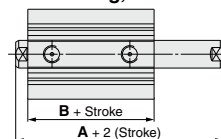
Intermediate stroke

### Dimensions: CQ2 Series

#### Double acting, Single rod



#### Double acting, Double rod



| Bore size<br>(mm) | Single rod type   |                 |                   |                 | Applicable<br>stroke<br>range (mm) |
|-------------------|-------------------|-----------------|-------------------|-----------------|------------------------------------|
|                   | A                 |                 | B                 |                 |                                    |
|                   | 49 stroke or less | 51 to 99 stroke | 49 stroke or less | 51 to 99 stroke |                                    |
| 12                | 20.5 (31.5)       | —               | 17 (28)           | —               | 6 to 29                            |
| 16                | 22 (34)           | —               | 18.5 (30.5)       | —               |                                    |
| 20                | 24 (36)           | —               | 19.5 (31.5)       | —               |                                    |
| 25                | 27.5 (37.5)       | —               | 22.5 (32.5)       | —               | 6 to 49                            |
| 32                | 30 (40)           | 40 (40)         | 23 (33)           | 33 (33)         |                                    |
| 40                | 36.5 (46.5)       | 46.5 (46.5)     | 29.5 (39.5)       | 39.5 (39.5)     | 6 to 99                            |
| 50                | 38.5 (48.5)       | 48.5 (48.5)     | 30.5 (40.5)       | 40.5 (40.5)     |                                    |
| 63                | 44 (54)           | 54 (54)         | 36 (46)           | 46 (46)         | 11 to 99                           |
| 80                | 53.5 (63.5)       | 63.5 (63.5)     | 43.5 (53.5)       | 53.5 (53.5)     |                                    |
| 100               | 65 (75)           | 75 (75)         | 53 (63)           | 63 (63)         |                                    |

| Bore size<br>(mm) | Single rod type (Single acting/Return) |             | Applicable<br>stroke<br>range (mm) |
|-------------------|----------------------------------------|-------------|------------------------------------|
|                   | A                                      | B           |                                    |
| 12                | 20.5 (31.5)                            | 17 (28)     | 6 to 9                             |
| 16                | 22 (34)                                | 18.5 (30.5) |                                    |
| 20                | 24 (36)                                | 19.5 (31.5) | 6 to 9                             |
| 25                | 27.5 (37.5)                            | 22.5 (32.5) |                                    |
| 32                | 30 (40)                                | 23 (33)     | 6 to 9                             |
| 40                | 36.5 (46.5)                            | 29.5 (39.5) |                                    |
| 50                | 38.5 (48.5)                            | 30.5 (40.5) | 11 to 19                           |

|                   |                   |                 |                   |                 | (mm)                               |
|-------------------|-------------------|-----------------|-------------------|-----------------|------------------------------------|
| Bore size<br>(mm) | Double rod type   |                 |                   |                 | Applicable<br>stroke<br>range (mm) |
|                   | A                 |                 | B                 |                 |                                    |
|                   | 49 stroke or less | 51 to 99 stroke | 49 stroke or less | 51 to 99 stroke |                                    |
| 12                | 32.2 (39.4)       | —               | 25.2 (32.4)       | —               | 6 to 29                            |
| 16                | 33 (43)           | —               | 26 (36)           | —               |                                    |
| 20                | 35 (47)           | —               | 26 (38)           | —               |                                    |
| 25                | 39 (49)           | —               | 29 (39)           | —               | 6 to 49                            |
| 32                | 44.5 (54.5)       | 54.5 (54.5)     | 30.5 (40.5)       | 40.5 (40.5)     | 6 to 99                            |
| 40                | 54 (64)           | 64 (64)         | 40 (50)           | 50 (50)         |                                    |
| 50                | 56.5 (66.5)       | 66.5 (66.5)     | 40.5 (50.5)       | 50.5 (50.5)     |                                    |
| 63                | 58 (68)           | 68 (68)         | 42 (52)           | 52 (52)         | 11 to 99                           |
| 80                | 71 (81)           | 81 (81)         | 51 (61)           | 61 (61)         |                                    |
| 100               | 84.5 (94.5)       | 94.5 (94.5)     | 60.5 (70.5)       | 70.5 (70.5)     |                                    |

\* ( ): Denotes the dimensions of auto switch type.  
\* Other dimensions are the same as standard type.  
Note) Applicable stroke available in 1 mm increments.

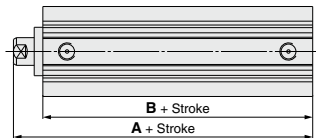
# Made to Order Common Specifications: -XB10: Intermediate Stroke (Using exclusive body)



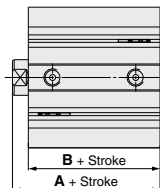
## 5 Intermediate Stroke (Using exclusive body)

### Dimensions: CQ2 Series

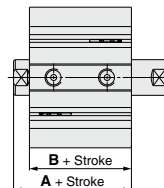
#### Double acting, Single rod/Long stroke



#### Double acting, Single rod/Large bore



#### Double acting, Double rod/Large bore



| Bore size<br>(mm) | Single rod type (Long stroke) |      | Applicable stroke<br>range(mm) |
|-------------------|-------------------------------|------|--------------------------------|
|                   | A                             | B    |                                |
| 32                | 62.5                          | 45.5 | 101 to 299                     |
| 40                | 72                            | 55   |                                |
| 50                | 73.5                          | 55.5 |                                |
| 63                | 75                            | 57   |                                |
| 80                | 86                            | 66   |                                |
| 100               | 97.5                          | 75.5 |                                |

\* Dimensions of "with auto switch" and those of "without auto switch" are the same.

| Bore size<br>(mm) | Single rod type |     | Applicable stroke<br>range(mm) |
|-------------------|-----------------|-----|--------------------------------|
|                   | A               | B   |                                |
| 125               | 99              | 83  | 11 to 299                      |
| 140               | 99              | 83  |                                |
| 160               | 108             | 91  |                                |
| 180               | 119             | 102 |                                |
| 200               | 126             | 109 |                                |

\* Dimensions other than listed above are the same as standard type.

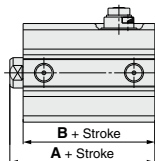
Note) Applicable stroke available in 1 mm increments.

| Bore size<br>(mm) | Double rod type |     | Applicable stroke<br>range(mm) |
|-------------------|-----------------|-----|--------------------------------|
|                   | A               | B   |                                |
| 125               | 115             | 83  | 11 to 299                      |
| 140               | 115             | 83  |                                |
| 160               | 125             | 91  |                                |
| 180               | 136             | 102 |                                |
| 200               | 143             | 109 |                                |

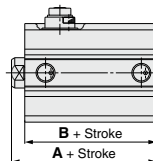
\* Dimensions other than listed above are the same as standard type.

Note) Applicable stroke available in 1 mm increments.

#### Double acting, Single rod/End lock With head side locking



#### Double acting, Single rod/End lock With rod side locking



#### Head Side Locking

| Head Side Locking |                   |                 |                   |                 | (mm)                              |
|-------------------|-------------------|-----------------|-------------------|-----------------|-----------------------------------|
| Bore size<br>(mm) | A                 |                 | B                 |                 | Applicable<br>stroke<br>range(mm) |
|                   | 24 stroke or less | 26 to 99 stroke | 24 stroke or less | 26 to 99 stroke |                                   |
| 20                | 65.5              | 80.5            | 61                | 66              | 6 to 99                           |
| 25                | 69                | 84              | 64                | 69              |                                   |
| 32                | 72.5              |                 | 65.5              |                 |                                   |
| 40                | 82                |                 | 75                |                 |                                   |
| 50                | 83.5              |                 | 75.5              |                 |                                   |
| 63                | 85                |                 | 77                |                 |                                   |

| Bore size<br>(mm) | A                 |                 | B                 |                 | Applicable stroke<br>range(mm) |
|-------------------|-------------------|-----------------|-------------------|-----------------|--------------------------------|
|                   | 49 stroke or less | 51 to 99 stroke | 49 stroke or less | 51 to 99 stroke |                                |
| 80                | 121               | 136             | 111               | 116             | 6 to 99                        |
| 100               | 132.5             | 147.5           | 120.5             | 125.5           |                                |

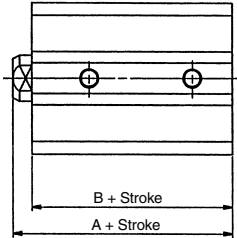
#### Rod Side Locking

| Rod Side Locking  |                   |                 |                   |                 | (mm)                           |
|-------------------|-------------------|-----------------|-------------------|-----------------|--------------------------------|
| Bore size<br>(mm) | A                 |                 | B                 |                 | Applicable stroke<br>range(mm) |
|                   | 24 stroke or less | 26 to 99 stroke | 24 stroke or less | 26 to 99 stroke |                                |
| 20                | 59                | 80.5            | 54.5              | 66              | 6 to 99                        |
| 25                | 62.5              | 84              | 57.5              | 69              |                                |
| 32                | 65                |                 | 58                |                 |                                |
| 40                | 71.5              |                 | 64.5              |                 |                                |
| 50                | 73.5              |                 | 65.5              |                 |                                |
| 63                | 79                |                 | 71                |                 |                                |

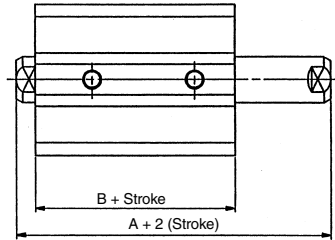
| Bore size<br>(mm) | A                 |                 | B                 |                 | Applicable stroke<br>range(mm) |
|-------------------|-------------------|-----------------|-------------------|-----------------|--------------------------------|
|                   | 49 stroke or less | 51 to 99 stroke | 49 stroke or less | 51 to 99 stroke |                                |
| 80                | 113.5             | 136             | 103.5             | 116             | 6 to 99                        |
| 100               | 125               | 147.5           | 113               | 125.5           |                                |

## Dimensions: CQS Series

Double acting,  
Single rod/Long stroke



Double acting, Double rod



(mm)

| Bore size<br>(mm) | Single rod type |             | Applicable stroke |
|-------------------|-----------------|-------------|-------------------|
|                   | A               | B           |                   |
| 12                | 20.5 (25.5)     | 17 (22)     | 6 to 29           |
| 16                | 20.5 (25.5)     | 17 (22)     |                   |
| 20                | 24 (34)         | 19.5 (29.5) | 6 to 49           |
| 25                | 27.5 (37.5)     | 22.5 (32.5) |                   |

(mm)

| Bore size<br>(mm) | Double rod type |         | Applicable stroke |
|-------------------|-----------------|---------|-------------------|
|                   | A               | B       |                   |
| 12                | 29 (34)         | 22 (27) | 6 to 29           |
| 16                | 29 (34)         | 22 (27) |                   |
| 20                | 35 (45)         | 26 (36) | 6 to 49           |
| 25                | 39 (49)         | 29 (39) |                   |

(mm)

| Bore size<br>(mm) | Single rod type (Long stroke) |    | Applicable stroke |
|-------------------|-------------------------------|----|-------------------|
|                   | A                             | B  |                   |
| 12                | 45.5                          | 32 | 31 to 99          |
| 16                | 45.5                          | 32 |                   |
| 20                | 55.5                          | 41 | 51 to 199         |
| 25                | 59                            | 44 | 51 to 299         |

(mm)

| Bore size<br>(mm) | Single rod type (Single acting/Return) |             | Applicable stroke |
|-------------------|----------------------------------------|-------------|-------------------|
|                   | A                                      | B           |                   |
| 12                | 20.5 (25.5)                            | 17 (22)     | 6 to 9            |
| 16                | 20.5 (25.5)                            | 17 (22)     |                   |
| 20                | 24 (34)                                | 19.5 (29.5) | 6 to 9            |
| 25                | 27.5 (37.5)                            | 22.5 (32.5) |                   |

\* ( ): Denotes the dimensions with auto switch.

\* ( ): Denotes the dimensions with auto switch.

\* In the case of long stroke, dimensions of "with auto switch" and those of "without auto switch" are the same.

\* Dimensions other than listed at left are the same as standard type.

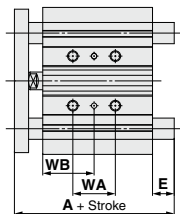
Note) Applicable stroke available in 1 mm increments.

# Made to Order Common Specifications: -XB10: Intermediate Stroke (Using exclusive body)



## 5 Intermediate Stroke (Using exclusive body)

### Dimensions: MGP Series



### Stroke Range

| Bore size (mm)          | Stroke range (mm) |
|-------------------------|-------------------|
| 12, 16                  | 11 to 249         |
| 20, 25                  | 21 to 399         |
| 32, 40, 50, 63, 80, 100 | 26 to 399         |

\* Specifications except the stroke range are the same as standard.  
Note) Applicable stroke available in 1 mm increments.

### MGPM-Z, MGPL-Z, MGPA-Z/WA, WB Dimensions

| Bore size (mm) | Stroke range (mm) | WA          |             |               |               | WB          |             |               |               |
|----------------|-------------------|-------------|-------------|---------------|---------------|-------------|-------------|---------------|---------------|
|                |                   | 11 to 39 st | 41 to 99 st | 101 to 199 st | 201 to 249 st | 11 to 39 st | 41 to 99 st | 101 to 199 st | 201 to 249 st |
| 12             | 11 to 249         | 20          | 40          | 110           | 200           | 15          | 25          | 60            | 105           |
| 16             |                   | 24          | 44          | 110           | 200           | 17          | 27          | 60            | 105           |

| Bore size (mm) | Stroke range (mm) | WA          |              |               |               | WB          |              |               |               |
|----------------|-------------------|-------------|--------------|---------------|---------------|-------------|--------------|---------------|---------------|
|                |                   | 21 to 39 st | 41 to 124 st | 126 to 199 st | 201 to 399 st | 21 to 39 st | 41 to 124 st | 126 to 199 st | 201 to 399 st |
| 20             | 21 to 399         | 24          | 44           | 120           | 200           | 29          | 39           | 77            | 117           |
| 25             |                   | 24          | 44           | 120           | 200           | 29          | 39           | 77            | 117           |

| Bore size (mm) | Stroke range (mm) | WA          |              |               |               | WB          |              |               |               |
|----------------|-------------------|-------------|--------------|---------------|---------------|-------------|--------------|---------------|---------------|
|                |                   | 26 to 49 st | 51 to 124 st | 126 to 199 st | 201 to 399 st | 26 to 49 st | 51 to 124 st | 126 to 199 st | 201 to 399 st |
| 32             | 26 to 399         | 24          | 48           | 124           | 200           | 33          | 45           | 83            | 121           |
| 40             |                   | 24          | 48           | 124           | 200           | 34          | 46           | 84            | 122           |
| 50             |                   | 24          | 48           | 124           | 200           | 36          | 48           | 86            | 124           |
| 63             |                   | 28          | 52           | 128           | 200           | 38          | 50           | 88            | 124           |
| 80             |                   | 28          | 52           | 128           | 200           | 42          | 54           | 92            | 128           |
| 100            |                   | 48          | 72           | 148           | 220           | 35          | 47           | 85            | 121           |

### MGPM-Z/A, E Dimensions

| Bore size (mm) | A           |             |               | E           |             |               |
|----------------|-------------|-------------|---------------|-------------|-------------|---------------|
|                | 11 to 74 st | 76 to 99 st | 101 to 249 st | 11 to 74 st | 76 to 99 st | 101 to 249 st |
| 12             | 42          | 60.5        | 82.5          | 0           | 18.5        | 40.5          |
| 16             | 46          | 64.5        | 92.5          | 0           | 18.5        | 46.5          |

| Bore size (mm) | A           |              |               | E           |              |               |
|----------------|-------------|--------------|---------------|-------------|--------------|---------------|
|                | 21 to 74 st | 76 to 199 st | 201 to 399 st | 21 to 74 st | 76 to 199 st | 201 to 399 st |
| 20             | 53          | 77.5         | 110           | 0           | 24.5         | 57            |
| 25             | 53.5        | 77.5         | 109.5         | 0           | 24           | 56            |

| Bore size (mm) | A           |              |               | E           |              |               |
|----------------|-------------|--------------|---------------|-------------|--------------|---------------|
|                | 26 to 74 st | 76 to 199 st | 201 to 399 st | 26 to 74 st | 76 to 199 st | 201 to 399 st |
| 32             | 75          | 93.5         | 129.5         | 15.5        | 34           | 70            |
| 40             | 75          | 93.5         | 129.5         | 9           | 27.5         | 63.5          |
| 50             | 88.5        | 109.5        | 150.5         | 16.5        | 37.5         | 78.5          |
| 63             | 88.5        | 109.5        | 150.5         | 11.5        | 32.5         | 73.5          |
| 80             | 104.5       | 131.5        | 180.5         | 8           | 35           | 84            |
| 100            | 126.5       | 151.5        | 190.5         | 10.5        | 35.5         | 74.5          |

\* Dimensions except mentioned above are the same as standard type.

### MGPL-Z, MGPA-Z/A, E Dimensions

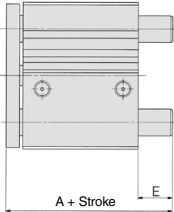
| Bore size (mm) | A           |             |               | E           |             |               |
|----------------|-------------|-------------|---------------|-------------|-------------|---------------|
|                | 11 to 39 st | 41 to 99 st | 101 to 249 st | 11 to 39 st | 41 to 99 st | 101 to 249 st |
| 12             | 43          | 55          | 84.5          | 1           | 13          | 42.5          |
| 16             | 49          | 65          | 94.5          | 3           | 19          | 48.5          |

| Bore size (mm) | A           |              |               | E           |              |               |
|----------------|-------------|--------------|---------------|-------------|--------------|---------------|
|                | 21 to 39 st | 41 to 124 st | 126 to 199 st | 21 to 39 st | 41 to 124 st | 126 to 199 st |
| 20             | 59          | 76           | 100           | 117.5       | 6            | 23            |
| 25             | 65.5        | 81.5         | 100.5         | 117.5       | 12           | 28            |

| Bore size (mm) | A           |              |               | E           |              |               |
|----------------|-------------|--------------|---------------|-------------|--------------|---------------|
|                | 26 to 74 st | 76 to 124 st | 126 to 199 st | 26 to 74 st | 76 to 124 st | 126 to 199 st |
| 32             | 79.5        | 96.5         | 116.5         | 138.5       | 20           | 37            |
| 40             | 79.5        | 96.5         | 116.5         | 138.5       | 13.5         | 30.5          |
| 50             | 91.5        | 112.5        | 132.5         | 159.5       | 19.5         | 40.5          |
| 63             | 91.5        | 112.5        | 132.5         | 159.5       | 14.5         | 35.5          |

| Bore size (mm) | A           |             |              | E           |             |              |
|----------------|-------------|-------------|--------------|-------------|-------------|--------------|
|                | 26 to 49 st | 51 to 74 st | 76 to 199 st | 26 to 49 st | 51 to 74 st | 76 to 199 st |
| 80             | 104.5       | 128.5       | 158.5        | 191.5       | 8           | 32           |
| 100            | 119.5       | 145.5       | 178.5        | 201.5       | 3.5         | 29.5         |

# Dimensions: MGQ Series



## Stroke Range

| Bore size (mm)          | Stroke range (mm) |
|-------------------------|-------------------|
| 12, 16                  | 11 to 99          |
| 20, 25                  | 21 to 199         |
| 32, 40, 50, 63, 80, 100 | 26 to 199         |

\* Specifications except the stroke range are the same as standard.  
Note) Applicable stroke available in 1 mm increments.

## MGQM (Slide bearing) A, E Dimensions

| Bore size (mm) | A           |  | E           |  |
|----------------|-------------|--|-------------|--|
|                | 11 to 99 st |  | 11 to 99 st |  |
| 12             | 39          |  | 0           |  |
| 16             | 43          |  | 0           |  |

| Bore size (mm) | A           |              | E           |              |
|----------------|-------------|--------------|-------------|--------------|
|                | 21 to 74 st | 76 to 199 st | 21 to 74 st | 76 to 199 st |
| 20             | 47          | 61.5         | 0           | 14.5         |
| 25             | 47.5        | 62           | 0           | 14.5         |

| Bore size (mm) | A            |  | E            |  |
|----------------|--------------|--|--------------|--|
|                | 26 to 199 st |  | 26 to 199 st |  |
| 32             | 71.5         |  | 24           |  |
| 40             | 71.5         |  | 17.5         |  |
| 50             | 81           |  | 25           |  |
| 63             | 81           |  | 20           |  |
| 80             | 93           |  | 18.5         |  |
| 100            | 105          |  | 21           |  |

\* Dimensions except mentioned above are the same as standard type.

## MGQL (Ball bushing bearing) A, E Dimensions

| Bore size (mm) | A           |             | E           |             |
|----------------|-------------|-------------|-------------|-------------|
|                | 11 to 39 st | 41 to 99 st | 11 to 39 st | 41 to 99 st |
| 12             | 43          | 55          | 4           | 16          |
| 16             | 49          | 65          | 6           | 22          |

| Bore size (mm) | A           |              | E           |              |
|----------------|-------------|--------------|-------------|--------------|
|                | 21 to 39 st | 41 to 199 st | 21 to 39 st | 41 to 199 st |
| 20             | 57          | 74           | 10          | 27           |
| 25             | 63.5        | 79.5         | 16          | 32           |

| Bore size (mm) | A           |              | E           |              |
|----------------|-------------|--------------|-------------|--------------|
|                | 26 to 74 st | 76 to 199 st | 26 to 74 st | 76 to 199 st |
| 32             | 53          | 90           | 5.5         | 42.5         |
| 40             | 54          | 90           | 0           | 36           |
| 50             | 60          | 102          | 4           | 46           |
| 63             | 61          | 102          | 0           | 41           |
| 80             | 84          | 143          | 9.5         | 68.5         |
| 100            | 89          | 153          | 5           | 69           |

\* Dimensions except mentioned above are the same as standard type.

## RE<sup>A</sup><sub>B</sub> series

REAH  
REBH Bore size — Stroke — XB10

(Refer to the table below.)

● Intermediate stroke

## Strokes

| Bore size                         | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 325 | 350 | 375 | 400 | 425 | 450 | 475 | 500 | 525 | 550 | 575 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 |
|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| REAH10                            | ●   | ○   | ●   | ○   | ○   | ○   | ●   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○    |
| RE <sup>A</sup> <sub>B</sub> H15  | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○    |
| REAH20                            | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○    |
| RE <sup>A</sup> <sub>B</sub> H25  | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○    |
| RE <sup>A</sup> <sub>B</sub> HT25 | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○    |
| RE <sup>A</sup> <sub>B</sub> HT32 | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○   | ○    |

●: Standard stroke

○: Strokes set for -XB10

—: No setting

# Made to Order Common Specifications: -XB10A: Intermediate Stroke (Spacer-installed type)



## 6 Intermediate Stroke (Spacer-installed type)

Symbol

**-XB10A**

Intermediate stroke: Available in 1 mm increments. A spacer is installed on tubes with a stroke longer than the specified stroke (● in the below table).

### Applicable Series

| Series     | Model         | Action | Note                      |
|------------|---------------|--------|---------------------------|
| <b>CQ2</b> | Standard type | CQ2-Z  | Double acting, Single rod |
|            |               |        | ø32 to ø100               |

### Applicable Stroke

Intermediate stroke with ○: Available in 1 mm increments.

A spacer is installed on tubes with a stroke longer than the specified stroke (●).

◆: Standard stroke ●: Stroke in stock

| Bore size<br>(mm) | Stroke range | Type             | Stroke |    |    |    |    |    |    |    |    |     |   |   |   |   |   |   |
|-------------------|--------------|------------------|--------|----|----|----|----|----|----|----|----|-----|---|---|---|---|---|---|
|                   |              |                  | 55     | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 95 | 100 |   |   |   |   |   |   |
| 32, 40            | 51 to 94     | Spacer-installed | ○      | ●  | ○  | ●  | ○  | ●  | —  | ◆  | ○  | ●   | ○ | ● | ○ | ● | — | ◆ |
| 50 to 100         | 51 to 94     | type 2           | ○      | ●  | ○  | ●  | ○  | ●  | —  | ◆  | ○  | ●   | ○ | ● | ○ | ● | — | ◆ |

Note) Specify a spacer-installed type 1 with standard model number for ordering an intermediate stroke with a \* mark. Refer to the CQ2 series, page 775 for details.

### Specifications: Same as standard type

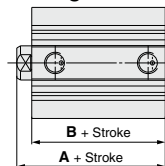
How to Order **C□Q2** **Standard model no.** — **XB10 A**

Intermediate stroke ●  
Spacer-installed type ◆

| Order no. | CQ2B32-57DZ-XB10A (uses 60 mm stroke tube)                                                                                              |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------|
|           | <ul style="list-style-type: none"> <li>• CQ2B32-60DZ-XB10 with 3 mm width spacer inside</li> <li>• The B dimension is 93 mm.</li> </ul> |

### Dimensions: CQ2 Series

Double acting,  
Single rod



| Symbol<br>Stroke | A        |          |          |          |          |          |          |          | B        |          |          |          |          |          |          |          |
|------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                  | 51 to 54 | 56 to 59 | 61 to 64 | 66 to 69 | 76 to 79 | 81 to 84 | 86 to 89 | 91 to 94 | 51 to 54 | 56 to 59 | 61 to 64 | 66 to 69 | 76 to 79 | 81 to 84 | 86 to 89 | 91 to 94 |
| Bore size        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 32               | 95       | 100      | 105      | 110      | 120      | 125      | 130      | 135      | 88       | 93       | 98       | 103      | 113      | 118      | 123      | 128      |
| 40               | 101.5    | 106.5    | 111.5    | 116.5    | 126.5    | 131.5    | 136.5    | 141.5    | 94.5     | 99.5     | 104.5    | 109.5    | 119.5    | 124.5    | 129.5    | 134.5    |
| 50               | 103.5    | 108.5    | 113.5    | 118.5    | 128.5    | 133.5    | 138.5    | 143.5    | 95.5     | 100.5    | 105.5    | 110.5    | 120.5    | 125.5    | 130.5    | 135.5    |
| 63               | 109      | 114      | 119      | 124      | 134      | 139      | 144      | 149      | 101      | 106      | 111      | 116      | 126      | 131      | 136      | 141      |
| 80               | 118.5    | 123.5    | 128.5    | 133.5    | 143.5    | 148.5    | 153.5    | 158.5    | 108.5    | 113.5    | 118.5    | 123.5    | 133.5    | 138.5    | 143.5    | 148.5    |
| 100              | 130      | 135      | 140      | 145      | 155      | 160      | 165      | 170      | 118      | 123      | 128      | 133      | 143      | 148      | 153      | 158      |

# Made to Order Common Specifications: -XB11: Long Stroke Type



## 7 Long Stroke Type

Symbol  
**-XB11**

Stroke which exceeds the standard stroke length

### Applicable Series

| Series | Description                                | Model                | Type                      | Note                     | Vol. no. (for std model) |
|--------|--------------------------------------------|----------------------|---------------------------|--------------------------|--------------------------|
| CY     | Magnetically coupled rodless cylinder      | CY3B                 | Basic type                |                          | ②-1 From P. 1468         |
|        |                                            | CY1H                 | Linear guide type         |                          |                          |
| CX2    | Slide unit                                 | CX2                  | Slide bearing type        |                          | ②-2 From P. 650          |
| CXW    | Slide unit                                 | CXWM                 | Slide bearing type        |                          | ②-2 From P. 659          |
|        |                                            | CXWL                 | Ball bushing bearing type |                          |                          |
| CXSJ   | Dual rod cylinder                          | CXSJ                 | Standard type             | Except ø6, Axial type    | ②-2 From P. 737          |
| CXS    |                                            | CXS <sup>Note)</sup> | Standard type             |                          | ②-2 From P. 749          |
|        |                                            | CXSW                 | Double rod type           |                          |                          |
| ML1    | Hy-rodless cylinder                        | ML1C                 | Cam follower guide type   |                          | ②-2 From P. 1108         |
| REA    | Sine rodless cylinder                      | REA                  | Basic type                |                          | ②-3 From P. 25           |
| RSQ    | Stopper cylinder/<br>Fixed mounting height | RSQ-Z                | Double acting             | Round bar type only      | ②-3 From P. 560          |
|        |                                            | RSQ                  | Double acting             | ø12, Round bar type only |                          |

Note) The product with air cushion or with end lock for retraction side is available as a special order.

### How to Order

Standard model no.

**-XB11**

Long stroke type

\* Enter a symbol for stroke required.

### Specifications: Same as standard type

\* Refer to page 1741-1 for specifications and dimensions of the RSQ.

### Stroke Range

| Model | Bore size (mm)     | Standard stroke (mm) | Long stroke (mm)                                       |
|-------|--------------------|----------------------|--------------------------------------------------------|
| CY3B  | 25, 32, 40, 50, 63 | 100 to 1000          | 2001 to 3000 (ø25 to ø40)<br>2001 to 5000 (ø50, ø63)   |
| CY1H  | 10                 | 100 to 300           | 301 to 500                                             |
|       | 15                 | 100 to 500           | 501 to 750                                             |
|       | 20                 | 100 to 600           | 601 to 1000                                            |
|       | 25                 | 100 to 800           | 801 to 1200                                            |
| CY1HT | 25                 | 100 to 1000          | 1001 to 1200                                           |
|       | 32                 |                      | 1001 to 1500                                           |
| CX2   | 15, 25             | 25 to 200            | 225, 250, 275, 300                                     |
| CXWM  | 16, 20, 25, 32     | 25 to 200            | 225, 250, 275, 300 (CXWM16 to 25)<br>225, 250 (CXWM32) |
| CXWL  |                    |                      | 225, 250, 275 (CXWL16 to 25)<br>225 (CXWL32)           |

| Model | Bore size (mm)     | Standard stroke (mm)        | Long stroke (mm)                                                         |
|-------|--------------------|-----------------------------|--------------------------------------------------------------------------|
| CXSJ  | 10                 | 10 to 75                    | 80, 90, 100, 110, 120, 125, 150                                          |
|       | 15                 | 10 to 100                   | 110, 120, 125, 150                                                       |
|       | 20, 25, 32         | 10 to 100                   | 110, 120, 125, 150, 175, 200                                             |
| CXS   | 10                 | 10 to 75                    | 80, 90, 100, 110, 120, 125, 150                                          |
|       | 15                 | 10 to 100                   | 110, 120, 125, 150                                                       |
|       | 20, 25, 32         | 10 to 100                   | 110, 120, 125, 150, 175, 200                                             |
| CXSW  | 10, 15             | 10, 20, 30, 40, 50          | 75, 100, 125, 150                                                        |
|       | 20, 25, 32         | 10, 20, 30, 40, 50, 75, 100 | 125, 150, 175, 200                                                       |
|       | ML1                | 25, 32, 40                  | 100 to 1000                                                              |
| REA   | 25, 32, 40, 50, 63 | 200 to 1000                 | 2001 to 4000 (ø25, ø32)<br>2001 to 5000 (ø40)<br>2001 to 6000 (ø50, ø63) |
| RSQ   | 12                 | 10                          | 15, 20                                                                   |
| RSQ-Z | 16                 | 10, 15                      | 20, 30                                                                   |
|       | 20, 32             | 10, 15, 20                  | 30, 40                                                                   |
|       | 40, 50             | 20, 25, 30                  | 40, 50                                                                   |

-XC

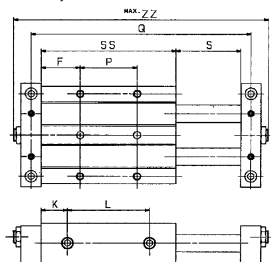
# Made to Order Common Specifications: -XB11: Long Stroke Type



## 7 Long Stroke Type

### Dimensions

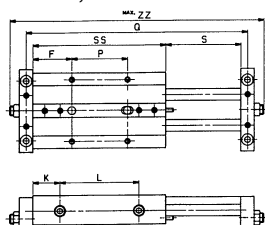
CX2 series:  $\phi 15, \phi 25$



| Model      | F     | L   | K    | P  | Q   | S   | SS  | Z   | ZZ  |
|------------|-------|-----|------|----|-----|-----|-----|-----|-----|
| CX2N15-225 | 89.5  | 238 | 15.5 | 90 | 506 | 227 | 269 | 496 | 528 |
| CX2N15-250 | 102   | 263 | 15.5 | 90 | 556 | 252 | 294 | 546 | 578 |
| CX2N15-275 | 114.5 | 288 | 15.5 | 90 | 606 | 277 | 319 | 596 | 628 |
| CX2N15-300 | 127   | 313 | 15.5 | 90 | 656 | 302 | 344 | 646 | 678 |

| Model      | F     | L   | K    | P  | Q   | S   | SS  | Z   | ZZ  |
|------------|-------|-----|------|----|-----|-----|-----|-----|-----|
| CX2N25-225 | 96    | 241 | 20.5 | 90 | 525 | 227 | 282 | 509 | 553 |
| CX2N25-250 | 108.5 | 266 | 20.5 | 90 | 575 | 252 | 307 | 559 | 603 |
| CX2N25-275 | 121   | 291 | 20.5 | 90 | 625 | 277 | 332 | 609 | 653 |
| CX2N25-300 | 133.5 | 316 | 20.5 | 90 | 675 | 302 | 357 | 659 | 703 |

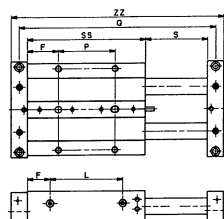
CXWM series:  $\phi 16, \phi 25$



| Model      | F     | L   | K    | P  | Q   | S   | SS  | Z   | ZZ  |
|------------|-------|-----|------|----|-----|-----|-----|-----|-----|
| CXWM16-225 | 92.5  | 238 | 18.5 | 90 | 514 | 227 | 275 | 502 | 538 |
| CXWM16-250 | 105   | 263 | 18.5 | 90 | 564 | 252 | 300 | 552 | 588 |
| CXWM16-275 | 117.5 | 288 | 18.5 | 90 | 614 | 277 | 325 | 602 | 638 |
| CXWM16-300 | 130   | 313 | 18.5 | 90 | 664 | 302 | 350 | 652 | 688 |

| Model      | F     | L   | K    | P  | Q   | S   | SS  | Z   | ZZ  |
|------------|-------|-----|------|----|-----|-----|-----|-----|-----|
| CXWM25-225 | 96    | 241 | 20.5 | 90 | 525 | 227 | 282 | 509 | 553 |
| CXWM25-250 | 108.5 | 266 | 20.5 | 90 | 575 | 252 | 307 | 559 | 603 |
| CXWM25-275 | 121   | 291 | 20.5 | 90 | 625 | 277 | 332 | 609 | 653 |
| CXWM25-300 | 133.5 | 316 | 20.5 | 90 | 675 | 302 | 357 | 659 | 703 |

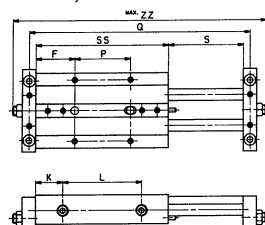
$\phi 20, \phi 32$



| Model      | F     | L   | K  | P  | Q   | S   | SS  | Z   | ZZ  |
|------------|-------|-----|----|----|-----|-----|-----|-----|-----|
| CXWM20-225 | 94.5  | 239 | 20 | 90 | 520 | 227 | 279 | 506 | 534 |
| CXWM20-250 | 107   | 264 | 20 | 90 | 570 | 252 | 304 | 556 | 584 |
| CXWM20-275 | 119.5 | 289 | 20 | 90 | 620 | 277 | 329 | 606 | 634 |
| CXWM20-300 | 132   | 314 | 20 | 90 | 670 | 302 | 354 | 656 | 684 |

| Model      | F  | L   | K  | P   | Q   | S   | SS  | Z   | ZZ  |
|------------|----|-----|----|-----|-----|-----|-----|-----|-----|
| CXWM32-225 | 38 | 240 | 28 | 220 | 543 | 227 | 296 | 523 | 563 |
| CXWM32-250 | 38 | 265 | 28 | 245 | 593 | 252 | 321 | 573 | 613 |

CXWL series:  $\phi 16, \phi 25$



| Model      | F     | L   | K  | P  | Q   | S   | SS  | Z   | ZZ  |
|------------|-------|-----|----|----|-----|-----|-----|-----|-----|
| CXWL16-225 | 115.5 | 239 | 41 | 90 | 560 | 227 | 321 | 548 | 584 |
| CXWL16-250 | 128   | 264 | 41 | 90 | 610 | 252 | 346 | 598 | 634 |
| CXWL16-275 | 140.5 | 289 | 41 | 90 | 660 | 277 | 371 | 648 | 684 |

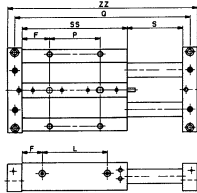
| Model      | F     | L   | K    | P  | Q   | S   | SS  | Z   | ZZ  |
|------------|-------|-----|------|----|-----|-----|-----|-----|-----|
| CXWL25-225 | 119   | 241 | 43.5 | 90 | 571 | 227 | 328 | 555 | 599 |
| CXWL25-250 | 131.5 | 266 | 43.5 | 90 | 621 | 252 | 353 | 605 | 649 |
| CXWL25-275 | 144   | 291 | 43.5 | 90 | 671 | 277 | 378 | 655 | 699 |

Symbol

-XB11

## Dimensions

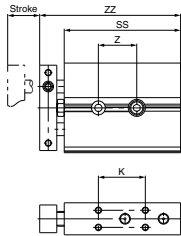
### CXWL series: $\varnothing 20$ , $\varnothing 32$



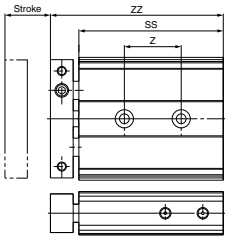
| (mm)       |       |     |    |    |     |     |     |     |     |
|------------|-------|-----|----|----|-----|-----|-----|-----|-----|
| Model      | F     | L   | K  | P  | Q   | S   | SS  | Z   | ZZ  |
| CXWL20-225 | 116.5 | 239 | 42 | 90 | 564 | 227 | 323 | 550 | 578 |
| CXWL20-250 | 129   | 264 | 42 | 90 | 614 | 252 | 348 | 600 | 628 |
| CXWL20-275 | 141.5 | 289 | 42 | 90 | 664 | 277 | 373 | 650 | 678 |

| Model      | F  | L   | K  | P   | Q   | S   | SS  | Z   | ZZ  |
|------------|----|-----|----|-----|-----|-----|-----|-----|-----|
| CXWL32-225 | 41 | 277 | 30 | 255 | 584 | 227 | 337 | 564 | 604 |

### CXSJ<sup>M</sup><sub>L</sub> series: $\varnothing 10$



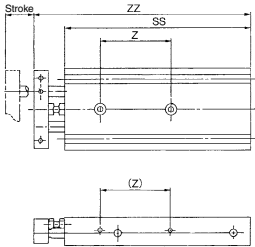
### CXSJ<sup>M</sup> series: $\varnothing 15$ , $\varnothing 20$ , $\varnothing 25$ , $\varnothing 32$



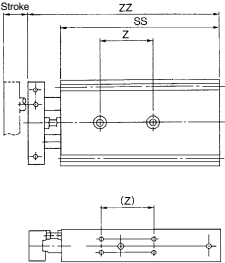
| Model  | CXSJ <sup>M</sup> 10 |       |       |       |       |       |       |       | CXSJ <sup>M</sup> 15 |       |       |       |       |       |       |       | CXSJ <sup>M</sup> 20 |       |       |       |       |       |       |       | CXSJ <sup>M</sup> 25 |       |       |       |       |       |       |       | CXSJ <sup>M</sup> 32 |       |       |       |   |  |  |  |
|--------|----------------------|-------|-------|-------|-------|-------|-------|-------|----------------------|-------|-------|-------|-------|-------|-------|-------|----------------------|-------|-------|-------|-------|-------|-------|-------|----------------------|-------|-------|-------|-------|-------|-------|-------|----------------------|-------|-------|-------|---|--|--|--|
| Stroke | 80                   | 90    | 100   | 110   | 120   | 125   | 150   | 110   | 120                  | 125   | 150   | 110   | 120   | 125   | 150   | 175   | 200                  | 110   | 120   | 125   | 150   | 175   | 200   | 110   | 120                  | 125   | 150   | 175   | 200   | 110   | 120   | 125   | 150                  | 175   | 200   |       |   |  |  |  |
| Symbol | SS                   | 124.5 | 134.5 | 144.5 | 154.5 | 164.5 | 169.5 | 194.5 | 167.5                | 177.5 | 182.5 | 207.5 | 177.5 | 187.5 | 192.5 | 217.5 | 242.5                | 267.5 | 180.5 | 190.5 | 195.5 | 220.5 | 245.5 | 270.5 | 190.5                | 200.5 | 205.5 | 230.5 | 255.5 | 280.5 | 190.5 | 200.5 | 205.5                | 230.5 | 255.5 | 280.5 |   |  |  |  |
|        | ZZ                   | 136   | 146   | 156   | 166   | 176   | 181   | 206   | 180                  | 190   | 195   | 220   | 194   | 204   | 209   | 234   | 259                  | 284   | 197   | 207   | 212   | 237   | 262   | 287   | 210.5                | 220.5 | 225.5 | 250.5 | 275.5 | 300.5 | 210.5 | 220.5 | 225.5                | 250.5 | 275.5 | 300.5 |   |  |  |  |
|        | Z                    | 88    | 98    | 108   | 118   | 128   | 133   | 158   | 65                   | 75    | 80    | 100   | 80    | 90    | 95    | 110   | 120                  | 130   | 80    | 90    | 95    | 110   | 120   | 130   | 80                   | 90    | 95    | 110   | 120   | 130   | 80    | 90    | 95                   | 110   | 120   | 130   |   |  |  |  |
|        | K                    | 92    | 102   | 112   | 122   | 132   | 137   | 162   | —                    | —     | —     | —     | —     | —     | —     | —     | —                    | —     | —     | —     | —     | —     | —     | —     | —                    | —     | —     | —     | —     | —     | —     | —     | —                    | —     | —     | —     | — |  |  |  |

Note 1) Dimensions of each model except SS, ZZ, Z and K on the above table are the same as standard type.

### CXS<sup>M</sup><sub>L</sub> series: $\varnothing 10$ , $\varnothing 15$



### CXS<sup>M</sup> series: $\varnothing 20$ , $\varnothing 25$ , $\varnothing 32$



| Model  | CXS <sup>M</sup> 10 |     |     |     |     |     |     |     | CXS <sup>M</sup> 15 |     |     |     | CXS <sup>M</sup> 20 |     |     |     |     |     | CXS <sup>M</sup> 25 |     |     |     |     |     | CXS <sup>M</sup> 32 |     |     |     |     |     |     |     |     |     |     |
|--------|---------------------|-----|-----|-----|-----|-----|-----|-----|---------------------|-----|-----|-----|---------------------|-----|-----|-----|-----|-----|---------------------|-----|-----|-----|-----|-----|---------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Stroke | 80                  | 90  | 100 | 110 | 120 | 125 | 150 | 110 | 120                 | 125 | 150 | 110 | 120                 | 125 | 150 | 175 | 200 | 110 | 120                 | 125 | 150 | 175 | 200 | 110 | 120                 | 125 | 150 | 175 | 200 | 110 | 120 | 125 | 150 | 175 | 200 |
| Symbol | SS                  | 135 | 145 | 155 | 165 | 175 | 180 | 205 | 170                 | 180 | 185 | 210 | 180                 | 190 | 195 | 220 | 245 | 270 | 182                 | 192 | 197 | 222 | 247 | 272 | 192                 | 202 | 207 | 232 | 257 | 282 | 287 | 312 | 287 | 312 |     |
|        | ZZ                  | 152 | 162 | 172 | 182 | 192 | 197 | 222 | 189                 | 199 | 204 | 229 | 204                 | 214 | 219 | 244 | 269 | 294 | 206                 | 216 | 221 | 246 | 271 | 296 | 222                 | 232 | 237 | 262 | 287 | 312 | 222 | 232 | 237 | 262 | 287 |
| Z      | 50                  | 60  |     | 70  |     | 80  |     |     | 65                  |     | 75  |     |                     | 80  |     | 100 |     |     | 80                  |     | 100 |     |     |     | 90                  |     | 90  |     | 110 |     |     |     |     | 110 |     |

Note 1) Dimensions of each model except SS, ZZ and Z on the above table are the same as standard type.

Note 2) For the external dimensions of the CXSW series double rod, refer to the standard type of CXSW.

# Made to Order Common Specifications: -XB11: Long Stroke Type



## 7 Long Stroke Type

Symbol

-XB11

### How to Order

For  $\phi 12$

RS(D)Q Mounting bracket 12 - Stroke D - Auto switch Suffix -XB11  
 • Refer to the below for specifications. • Long stroke type

For  $\phi 16$  to  $\phi 50$

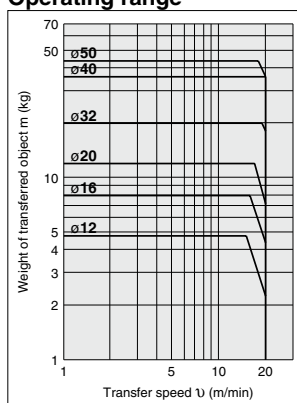
RS(D)Q Mounting bracket Bore size - Stroke DZ - Auto switch Suffix -XB11  
 • Refer to the below for specifications. • Long stroke type

### Specifications

|                                 |                       |
|---------------------------------|-----------------------|
| Applicable series               | RSQ                   |
| Action                          | Double acting         |
| Rod end configuration           | Round bar type        |
| Stroke range                    | See below.            |
| Operating range                 | See below.            |
| Specifications other than above | Same as standard type |

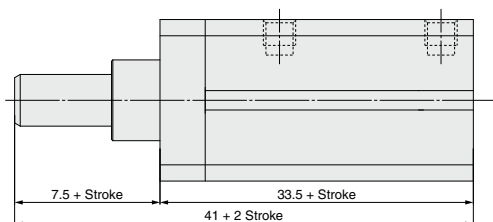
| Model | Bore size (mm) | Standard stroke (mm) | Long stroke (mm) |
|-------|----------------|----------------------|------------------|
| RSQ   | 12             | 10                   | 15, 20           |
|       | 16             | 10, 15               | 20, 30           |
| RSQ-Z | 20, 32         | 10, 15, 20           | 30, 40           |
|       | 40, 50         | 20, 25, 30           | 40, 50           |

### Operating range



### Dimensions (Dimensions other than below are the same as standard type.)

RS□QB12





# Made to Order Common Specifications: -XB12: External Stainless Steel Cylinder



## 8 External Stainless Steel Cylinder

Symbol

**-XB12**

A cylinder that uses stainless steel that excels in rust resistance for all external parts that are exposed to the surrounding environment. Its external dimensions and installation dimensions are identical to those of the standard CM2 series.

### Applicable Series

| Series | Description           | Model | Action                                                            | Vol. no. (for std. model) |
|--------|-----------------------|-------|-------------------------------------------------------------------|---------------------------|
| CM2    | Air cylinder          | CM2   | Double acting, Single rod<br>Single acting (Spring return/extend) | ②-1 From P. 172           |
|        |                       | CM2W  | Double acting, Double rod                                         |                           |
|        | Non-rotating rod type | CM2K  | Double acting, Single rod                                         |                           |
|        |                       |       | Single acting (Spring return/extend)                              |                           |

### How to Order

CM2 Standard model no. -XB12

External stainless steel cylinder ↓

### Specifications

| Material                                                | External stainless steel 304                                                                                      |                           |
|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|---------------------------|
| Series                                                  | CM2, CM2K                                                                                                         | CM2W                      |
| Cushion                                                 | Rubber bumper (Standard equipment)                                                                                |                           |
| Mounting type                                           | Basic, Axial foot, Rod side flange, Head side flange, Integrated clevis, Boss-cut basic, Boss-cut rod side flange | Basic, Axial foot, Flange |
| Specifications other than above and external dimensions | Same as standard type                                                                                             |                           |

Note) With air cushion, One-touch fitting integrated type are not available.

### Mounting Bracket Part No.

| Description                                 | Bore size (mm) |               |               |    |
|---------------------------------------------|----------------|---------------|---------------|----|
|                                             | 20             | 25            | 32            | 40 |
| Foot <sup>(1)</sup>                         | CM-L020B-XB12  | CM-L032B-XB12 | CM-L040B-XB12 |    |
| Flange                                      | CM-F020B-XB12  | CM-F032B-XB12 | CM-F040B-XB12 |    |
| Mounting nut                                | SN-020BSUS     | SN-032BSUS    | SN-040BSUS    |    |
| Rod end nut                                 | NT-02SUS       | NT-03SUS      | NT-04SUS      |    |
| Single knuckle joint                        | I-020B-XB12    | I-032B-XB12   | I-040B-XB12   |    |
| Double knuckle <sup>(2)</sup> joint         | Y-020B-XB12    | Y-032B-XB12   | Y-040B-XB12   |    |
| Pin for double <sup>(3)</sup> knuckle joint | CDP-1-XC27     |               | CDP-3-XC27    |    |

Note 1) The minimum order quantity includes 2 foot brackets and 1 mounting nut. Order 2 pcs. per cylinder.

Note 2) With pin, retaining ring

Note 3) With retaining ring (Cotter pins for bore size ø40)

# Made to Order Common Specifications: -XB13: Low Speed Cylinder (5 to 50 mm/s)



## 9 Low Speed Cylinder (5 to 50 mm/s)

Symbol

**-XB13**

Even if driving at lower speeds 5 to 50 mm/s (CY: 7 to 50 mm/s), there would be no stick-slip phenomenon and it can run smoothly.

### Applicable Series

| Series      | Description                                 | Model                            | Action                    | Note                                                                     | Vol. no. (for std model) |
|-------------|---------------------------------------------|----------------------------------|---------------------------|--------------------------------------------------------------------------|--------------------------|
| <b>CJ2</b>  | Air cylinder                                | CJ2                              | Double acting, Single rod | ø6 only                                                                  | ②-1 From P. 46           |
| <b>CM2</b>  | Air cylinder                                | CM2                              | Double acting, Single rod | Except with rod boot and with air cushion                                | ②-1 From P. 172          |
|             | Direct mount type                           | CM2R                             | Double acting, Single rod | Except with air cushion                                                  |                          |
| <b>CG1</b>  | Air cylinder                                | CG1-Z                            | Double acting, Single rod | Except with rod boot and with air cushion                                | ②-1 From P. 292          |
|             | Direct mount type                           | CG1R                             | Double acting, Single rod | Except with air cushion                                                  |                          |
| <b>MB</b>   | Air cylinder                                | MB                               | Double acting, Single rod | Except ø125                                                              | ②-1 From P. 392          |
| <b>CU</b>   | Free mount cylinder                         | CU                               | Double acting, Single rod |                                                                          | ②-1 From P. 623          |
|             | Non-rotating rod type                       | CUK                              | Double acting, Single rod |                                                                          |                          |
|             | Long stroke, standard type                  | CU                               | Double acting, Single rod |                                                                          |                          |
|             | Long stroke, non-rotating rod type          | CUK                              | Double acting, Single rod |                                                                          |                          |
| <b>CQS</b>  | Compact cylinder                            | CQS                              | Double acting, Single rod | Except long stroke, non-rotating and anti-lateral load types             | ②-1 From P. 693          |
|             |                                             | CQSW                             | Double acting, Double rod | Except non-rotating type                                                 |                          |
| <b>CQ2</b>  | Compact cylinder                            | CQ2-Z                            | Double acting, Single rod | Except long stroke, non-rotating, large bore and anti-lateral load types | ②-1 From P. 773          |
|             |                                             | CQ2W-Z                           | Double acting, Double rod | Except non-rotating and large bore types                                 |                          |
|             | Axial piping type (Centralized piping type) | CQP2                             | Double acting, Single rod |                                                                          |                          |
| <b>CX2</b>  | Slide unit                                  | CX2                              | Slide bearing type        |                                                                          | ②-2 From P. 650          |
| <b>CXW</b>  | Slide unit                                  | CXWM                             | Slide bearing type        |                                                                          | ②-2 From P. 659          |
|             |                                             | CXWL                             | Ball bushing bearing type |                                                                          |                          |
| <b>MXH</b>  | Compact slide                               | MXH-Z                            | Double acting, Single rod |                                                                          | ②-2 From P. 19           |
| <b>CXSJ</b> | Dual rod cylinder                           | CXSJ                             | Standard type             |                                                                          | ②-2 From P. 737          |
| <b>CXS</b>  |                                             | CXS                              | Standard type             |                                                                          | ②-2 From P. 749          |
| <b>MGP</b>  | Compact guide cylinder                      | MGP <sup>M</sup> <sub>L</sub> -Z | Double acting             |                                                                          | ②-2 From P. 432          |
| <b>MGG</b>  | Guide cylinder                              | MGGM                             | Double acting             | Shock absorber cannot be mounted.                                        | ②-2 From P. 538          |
| <b>MGC</b>  | Guide cylinder                              | MGCM                             | Double acting             | With rubber bumper. Port size Rc1/8 is applicable to ø20, 25.            | ②-2 From P. 578          |
| <b>CY</b>   | Magnetically coupled rodless cylinder       | CY3B                             | Basic type                |                                                                          | ②-1 From P. 1468         |
|             |                                             | CY1S-Z                           | Slide bearing type        |                                                                          |                          |
|             |                                             | CY1L                             | Ball bushing bearing type |                                                                          |                          |
| <b>CXT</b>  | Platform cylinder                           | CXT                              | Double acting             | Except long stroke. Shock absorber cannot be mounted.                    | ②-2 From P. 712          |

### How to Order

Standard model no.

**-XB13**

Low speed cylinder

Note 1) Operate without lubrication from a pneumatic system lubricator.

Note 2) For the speed adjustment, use speed controllers for controlling at lower speeds. (AS-FM/AS-M series)

### Specifications

|                           |                                 |
|---------------------------|---------------------------------|
| Piston speed              | 5 to 50 mm/s (CY: 7 to 50 mm/s) |
| Dimensions                | Same as standard type           |
| Additional specifications | Same as standard type           |

### ⚠ Warning

#### Operating Precautions

Be aware that smoking cigarettes, etc. after your hands have come into contact with the grease used in this cylinder can create a gas that is hazardous to humans.

# Made to Order Common Specifications: -XB14: Cylinder with Heat Resistant Auto Switch



## 10 Cylinder with Heat Resistant Auto Switch CQ2 Series/D-M9□J

Symbol

-XB14

Heat resistant (Max. 150°C) type added to the D-M9□ compact auto switch. Choice of output types: PNP, NPN

### Applicable Series

| Series | Description      | Model  | Action                       | Note                                         | Vol. no. (for std. model) |
|--------|------------------|--------|------------------------------|----------------------------------------------|---------------------------|
| CDQ2   | Compact cylinder | CDQ2-Z | Double acting,<br>Single rod | ø16 to ø63 only<br>Except with rubber bumper | ②-1 From P. 773           |

### How to Order

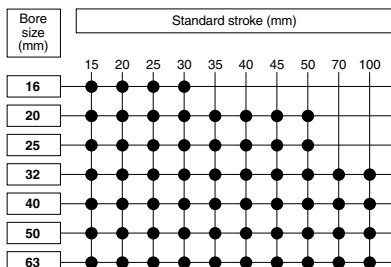
CDQ2 Standard model no. - M9NJL - XB14

| Symbol | Output |
|--------|--------|
| M9NJ   | NPN    |
| M9PJ   | PNP    |

\* Lead wire length symbols  
3 m..... L (Example) M9NJL  
5 m..... Z (Example) M9NJZ

Number of auto switches

Cylinder with heat resistant  
auto switch



• Manufacturing of intermediate strokes  
Intermediate strokes in 1 mm increments are available by using spacers with standard stroke cylinders.

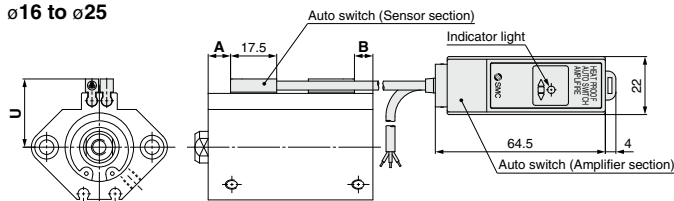
### Specifications

|                                     |                       |
|-------------------------------------|-----------------------|
| Ambient and fluid temperature range | 0 to 150°C            |
| Seal material                       | Fluororubber          |
| Grease                              | Heat resistant grease |
| Standard stroke                     | See right side.       |
| Dimensions                          | See below.            |
| Specifications other than above     | Same as standard type |

Note) For detailed specifications about auto switch, refer to page 1636.

### Proper Mounting Auto Switch Position (Detection at stroke end)

ø16 to ø25

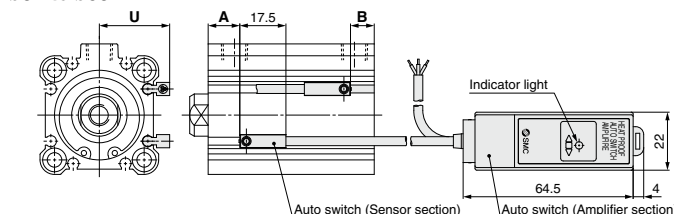


Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height (mm)

| Auto switch model | D-M9□J |      |      |
|-------------------|--------|------|------|
|                   | A      | B    | U    |
| Bore size 16      | 9.5    | 7    | 21   |
| 20                | 9.5    | 8.5  | 23.5 |
| 25                | 9.5    | 9    | 27   |
| 32                | 11     | 8    | 29   |
| 40                | 15     | 10.5 | 31   |
| 50                | 13     | 13.5 | 36   |
| 63                | 15.5   | 16.5 | 41.5 |

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

ø32 to ø63



Operating Range (mm)

| Auto switch model | Bore size |     |     |    |     |    |    |
|-------------------|-----------|-----|-----|----|-----|----|----|
|                   | 16        | 20  | 25  | 32 | 40  | 50 | 63 |
| D-M9NJ□           | 4.5       | 4.5 | 4.5 | 5  | 4.5 | 5  | 5  |
| D-M9PJ□           | 4.5       | 4.5 | 4.5 | 5  | 4.5 | 5  | 5  |

\* Since the operating range is provided as a guideline at room temperature, it cannot be guaranteed. It may change substantially depending on the ambient environment.

\* Dimensions on the cylinder body is equivalent to the standard type, double acting, single rod of the CDQ2 series.

Note 1) Auto switches are shipped in the same package, but not assembled in order to protect it at the time of shipment. Assemble it by referring to A, B dimensions for mounting position shown in the table above.

Note 2) Tightening torque for auto switch mounting M3 screw should be set as 0.5 to 0.7 N·m.

# Made to Order Common Specifications: -XB14: Cylinder with Heat Resistant Auto Switch



## 10 Cylinder with Heat Resistant Auto Switch CQ2 Series/D-F7NJ□

Symbol

**-XB14**

Heat resistant compact cylinder CDQ2 series (ø16 to ø63) which can mount heat resistant solid state switch. (D-F7NJ 1/2 Max. 150°C)

### Applicable Series

| Series | Description      | Model | Action                       | Note                                                  | Vol. no. (for std model) |
|--------|------------------|-------|------------------------------|-------------------------------------------------------|--------------------------|
| CQ2    | Compact cylinder | CQ2-Z | Double acting,<br>Single rod | Applicable to ø16 to ø63<br>Except with rubber bumper | ②-1 From P. 773          |

### How to Order

CDQ2 Standard model no. - F7NJL - XB14

Cylinder with heat resistant auto switch

### Specifications

|                                     |                       |
|-------------------------------------|-----------------------|
| Ambient and fluid temperature range | 0 to 150°C            |
| Seal material                       | Fluororubber          |
| Grease                              | Heat resistant grease |
| Standard stroke                     | See right side.       |
| Dimensions                          | See below.            |
| Specifications other than above     | Same as standard type |

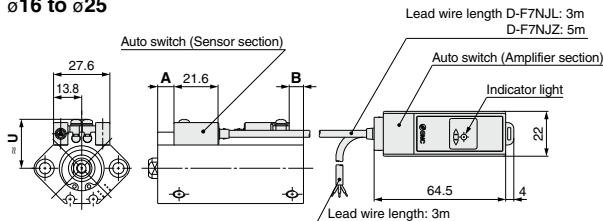
Note) For detailed specifications about auto switch, refer to page 1637.

| Bore size (mm) | Standard stroke (mm) |    |    |    |    |    |    |    |    |     |  |
|----------------|----------------------|----|----|----|----|----|----|----|----|-----|--|
|                | 15                   | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 70 | 100 |  |
| 16             | ●                    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●   |  |
| 20             | ●                    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●   |  |
| 25             | ●                    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●   |  |
| 32             | ●                    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●   |  |
| 40             | ●                    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●   |  |
| 50             | ●                    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●   |  |
| 63             | ●                    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●   |  |

• Manufacturing of intermediate strokes  
Intermediate strokes in 1 mm increments are available by using spacers with standard stroke cylinders.

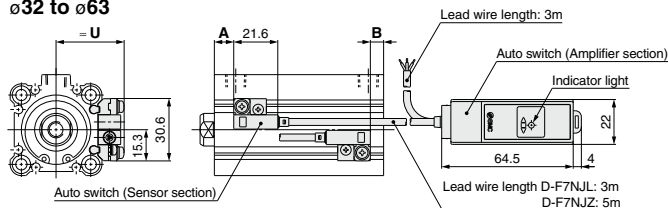
### Proper Mounting Auto Switch Position (Detection at stroke end)

ø16 to ø25



| Bore size (mm) | A    | B   | U    |
|----------------|------|-----|------|
| 16             | 8    | 5.5 | 22.5 |
| 20             | 8    | 7   | 25.5 |
| 25             | 8    | 7.5 | 28   |
| 32             | 9.5  | 6.5 | 36   |
| 40             | 13.5 | 9   | 38   |
| 50             | 11.5 | 12  | 43.5 |
| 63             | 14   | 15  | 48.5 |

ø32 to ø63



#### Auto Switch Mounting Bracket: Part No.

| Auto switch model | Bore size (mm) |    |    |          |    |       |
|-------------------|----------------|----|----|----------|----|-------|
|                   | 16             | 20 | 25 | 32       | 40 | 50 63 |
| D-F7NJL(Z)        | BQ4-012        |    |    | BQJ2-032 |    |       |

#### Auto Switch Mounting Bracket Weight

| Mounting bracket part no. | Weight (g) |
|---------------------------|------------|
| BQ4-012                   | 1.5        |
| BQJ2-032                  | 3.6        |

\* Dimensions on the cylinder body is equivalent to the standard type, double acting, single rod of the CDQ2 series.

Note 1) Auto switches are shipped in the same package, but not assembled in order to protect it at the time of shipment. Assemble it by referring to A, B dimensions for mounting position shown in the table above.

Note 2) Tightening torque for auto switch mounting M3 screw should be set as 0.5 to 0.7 N·m.



# Made to Order Common Specifications: -XB19: High Speed Type



## 11 High Speed Type

Symbol

-XB19

This is a high speed type of the dual rod cylinder CXS series.

The cylinder speed can reach a maximum of 1500 mm/s (1000 mm/s for  $\phi 25$  and  $\phi 32$ ) by enlarging the orifice diameter of the cylinder port. The allowable kinetic energy is approximately four times that of the standard type.

### Applicable Series

| Series | Description       | Model | Action                    | Vol. no. (for std model) |
|--------|-------------------|-------|---------------------------|--------------------------|
| CXS    | Dual rod cylinder | CXS   | Double acting, Single rod | ②-2 From P. 749          |

### How to Order

CXS Standard model no. -XB19  
High speed type

### Specifications

| Bore size (mm)                | 6                                          | 10      | 15 | 20 | 25              | 32 |
|-------------------------------|--------------------------------------------|---------|----|----|-----------------|----|
| Minimum operating pressure    | 0.15 MPa                                   | 0.1 MPa |    |    | 0.05 MPa        |    |
| Maximum operating pressure    | 0.7 MPa                                    |         |    |    |                 |    |
| Proof pressure                | 1.05 MPa                                   |         |    |    |                 |    |
| Fluid                         | Air (Non-Lube)                             |         |    |    |                 |    |
| Ambient and fluid temperature | -10 to 60°C (No freezing)                  |         |    |    |                 |    |
| Piston speed                  | 30 to 1500 mm/s                            |         |    |    | 30 to 1000 mm/s |    |
| Port size                     | M5 x 0.8                                   |         |    |    | Rc 1/8          |    |
| Stroke adjustable range       | 0 to -5 mm compared to the standard stroke |         |    |    |                 |    |
| Bearing type                  | Slide bearing, Ball bushing bearing        |         |    |    |                 |    |
| Cushion                       | Rubber bumper                              |         |    |    |                 |    |

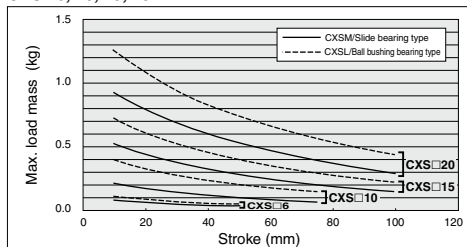
### Operating Conditions

#### Maximum Load Mass

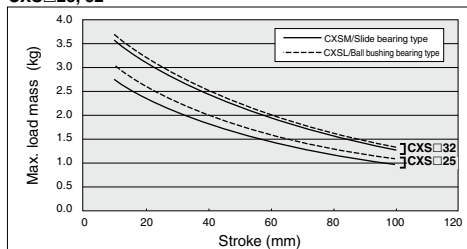
When the cylinder is mounted as shown in the diagrams on the right, the maximum load mass (m) should not exceed the values indicated in the graph below.



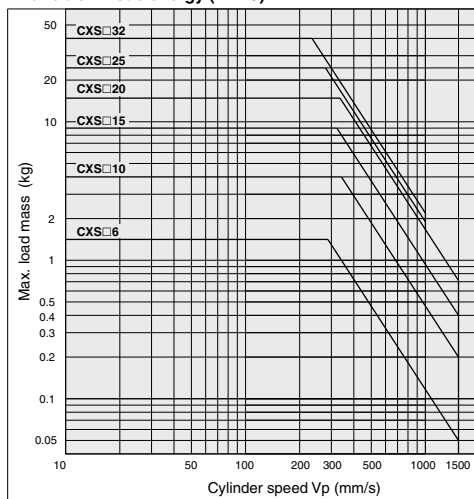
CXS  $\square$  6, 10, 15, 20



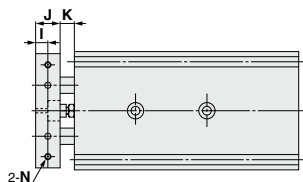
CXS  $\square$  25, 32



#### Allowable kinetic energy (XB19)



### Dimensions



| Bore size (mm) | I    | J   | K  | N                         |
|----------------|------|-----|----|---------------------------|
| 6              | 3.25 | 6.5 | 7  | M3 x 0.5 through-hole     |
| 10             | 5    | 10  | 7  | M3 x 0.5 through-hole     |
| 15             | 6    | 12  | 7  | M3 x 0.5 through-hole     |
| 20             | 7    | 14  | 10 | M4 x 0.7 thread depth 6   |
| 25             | 7    | 14  | 10 | M5 x 0.8 thread depth 7.5 |
| 32             | 9    | 18  | 12 | M5 x 0.8 thread depth 8   |

-X  $\square$

# Made to Order Common Specifications: -XB20: Stroke Adjustment Unit with Adjustment Bolt



## 12 Stroke Adjustment Unit with Adjustment Bolt

Stroke adjustment unit with an adjustment bolt.

### Applicable Series

| Series | Description                           | Model | Action                     | Vol. no. (for std model) |
|--------|---------------------------------------|-------|----------------------------|--------------------------|
| MY2    | Mechanically jointed rodless cylinder | MY2H  | Linear guide (Single axis) | ●-1 From P. 1388         |
|        |                                       | MY2HT | Linear guide (Double axis) |                          |

### How to Order

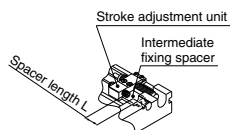
MY2H  
MY2HT Standard model no. -XB20

### Stroke Adjustment Unit Specifications

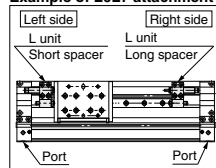
| Bore size (mm)                                             |                   | 16             |        | 25           |        | 40         |        |
|------------------------------------------------------------|-------------------|----------------|--------|--------------|--------|------------|--------|
| Unit symbol                                                |                   | L              | H      | L            | H      | L          | H      |
| Shock absorber model                                       | MY2H              | RB0806         | RB1007 | RB1007       | RB1412 | RB1412     | RB2015 |
|                                                            | MY2HT             | RB1007         | RB1412 | RB1412       | RB2015 | RB2015     | RB2725 |
| Stroke adjustment range by intermediate fixing spacer (mm) | Without spacer    | 0 to -5.6      |        | 0 to -11.5   |        | 0 to -16   |        |
|                                                            | With short spacer | -5.6 to -11.2  |        | -11.5 to -23 |        | -16 to -32 |        |
|                                                            | With long spacer  | -11.2 to -16.8 |        | -23 to -34.5 |        | -32 to -48 |        |

\* Spacers are used to fix the stroke adjustment unit at an intermediate stroke position.  
\* Stroke adjustment range is applicable for one side when mounted on a cylinder.

Stroke adjustment unit mounting diagram



Example of L6L7 attachment



### Stroke Adjustment Unit Model

Note) Stroke adjustment unit with adjusting bolt (-XB20) cannot be mounted on the standard cylinder.

**MY2 H - A 25 L2 - 6N - XB20**

Guide symbol ●

|    |         |
|----|---------|
| H  | MY2H16  |
| H  | MY2H25  |
| H  | MY2H40  |
| HT | MY2HT16 |
| HT | MY2HT25 |
| HT | MY2HT40 |

Stroke adjustment unit ●

Cylinder ●

bore size

|    |       |
|----|-------|
| 16 | 16 mm |
| 25 | 25 mm |
| 40 | 40 mm |

Unit part no. ●

| Symbol | Stroke adjustment unit | Mounting position |
|--------|------------------------|-------------------|
| L1     | L unit                 | For left          |
| L2     |                        | For right         |
| H1     | H unit                 | For left          |
| H2     |                        | For right         |

\* L unit only for ø16

With adjustment bolt

Intermediate fixing spacer

|     |                |
|-----|----------------|
| Nil | Without spacer |
| 6   | Short spacer   |
| 7   | Long spacer    |

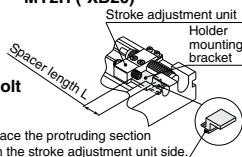
Spacer shipping method

|     |                     |
|-----|---------------------|
| Nil | Assembled as a unit |
| N   | Spacer only         |

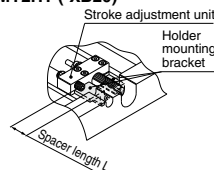
\* Spacers for MY2HT are shipped in 2 piece sets.

\* Intermediate fixing spacers are shipped together.

MY2H (-XB20)

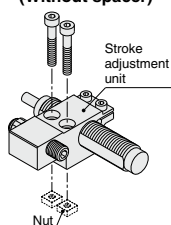


MY2HT (-XB20)

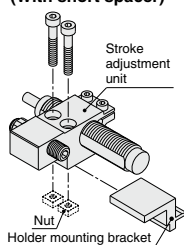


### Components Parts

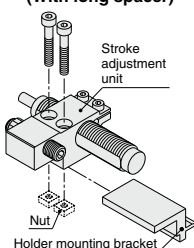
MY2H-A25L2-XB20  
(Without spacer)



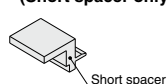
MY2H-A25L2-6-XB20  
(With short spacer)



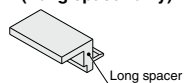
MY2H-A25L2-7-XB20  
(With long spacer)



MY2H-A25L2-6N-XB20  
(Short spacer only)



MY2H-A25L2-7N-XB20  
(Long spacer only)



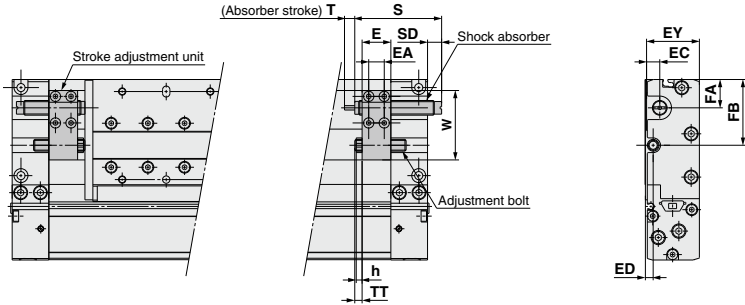
\* Nuts are installed onto the cylinder body.

# Made to Order Common Specifications: Stroke Adjustment Unit with Adjustment Bolt

Symbol  
**-XB20**

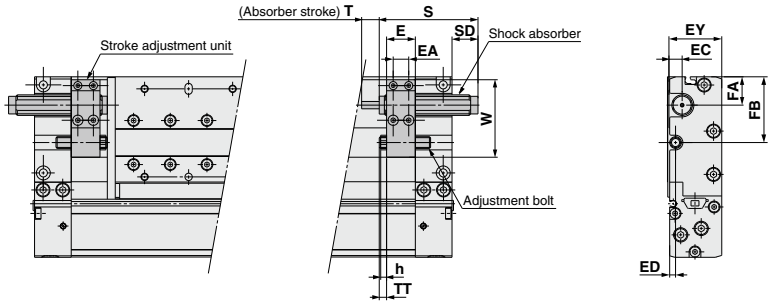
## Dimensions (Dimensions other than below are the same as standard type.)

### MY2H L unit

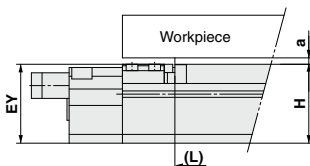


| Applicable cylinder | E    | EA   | EC  | ED  | EY | FA   | FB   | h   | S    | T  | SD  | TT             | W    | Shock absorber model | Adjusting bolt  | Adjustment range |
|---------------------|------|------|-----|-----|----|------|------|-----|------|----|-----|----------------|------|----------------------|-----------------|------------------|
| MY2H16              | 15.8 | 8.4  | 6.2 | 5   | 28 | 12.4 | 30   | 3.2 | 40.8 | 6  | 1.3 | 4.2 (Max. 9.8) | 34.5 | RB0806               | M5 x 0.8 x 25L  | 5.6              |
| MY2H25              | 19.6 | 10.6 | 10  | 5.5 | 37 | 19.3 | 44.8 | 4   | 46.7 | 7  | —   | 5 (Max. 16.5)  | 47.3 | RB1007               | M8 x 1.0 x 35L  | 11.5             |
| MY2H40              | 29   | 16   | 13  | 8   | 57 | 17   | 49   | 5   | 67.3 | 12 | —   | 6 (Max. 22)    | 59   | RB1412               | M10 x 1.0 x 50L | 16               |

### MY2H H unit



| Applicable cylinder | E    | EA   | EC  | ED  | EY | FA   | FB   | h   | S    | SD   | T  | TT             | W    | Shock absorber model | Adjustment bolt | Adjustment range |
|---------------------|------|------|-----|-----|----|------|------|-----|------|------|----|----------------|------|----------------------|-----------------|------------------|
| MY2H16              | 15.8 | 8.4  | 6.2 | 5   | 28 | 12.4 | 30   | 3.2 | 46.7 | 7.2  | 7  | 4.2 (Max. 9.8) | 35.5 | RB1007               | M5 x 0.8 x 25L  | 5.6              |
| MY2H25              | 19.6 | 10.6 | 10  | 5.5 | 37 | 19.3 | 44.8 | 4   | 67.3 | 18.2 | 12 | 5 (Max. 16.5)  | 52.8 | RB1412               | M8 x 1.0 x 35L  | 11.5             |
| MY2H40              | 29   | 16   | 13  | 8   | 57 | 17   | 49   | 5   | 73.2 | —    | 15 | 6 (Max. 22)    | 59   | RB2015               | M10 x 1.0 x 50L | 16               |



### ⚠ Caution

Since the dimension **EY** of the unit is greater than the table top height (dimension **H**), when a workpiece is loaded that is larger than the full length (dimension **L**) of the slide table, allow a clearance of size "a" or larger at the workpiece side.

| Applicable cylinder | a | EY | H  |
|---------------------|---|----|----|
| MY2H16 L/H Unit     | 1 | 28 | 28 |
| MY2H25 L/H Unit     | 1 | 37 | 37 |
| MY2H40 L/H Unit     | 0 | 57 | 58 |

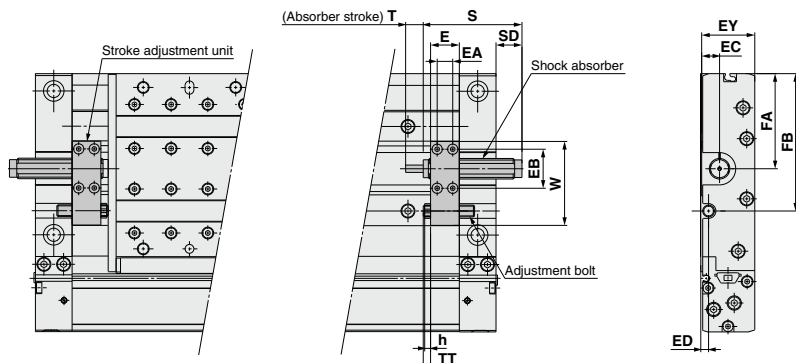
# Made to Order Common Specifications: -XB20: Stroke Adjustment Unit with Adjustment Bolt



## 12 Stroke Adjustment Unit with Adjustment Bolt

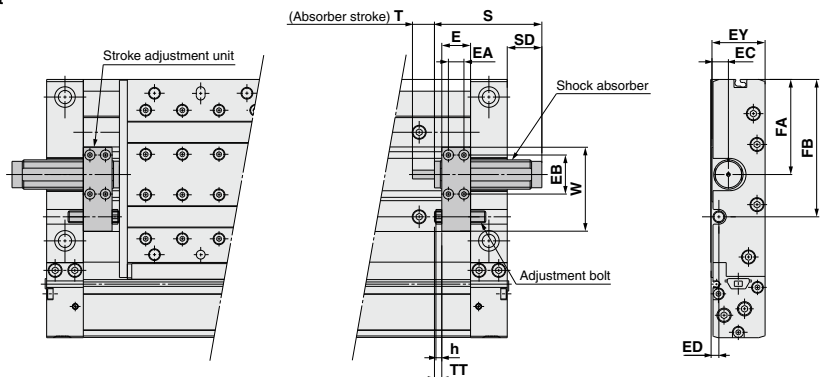
**Dimensions** (Dimensions other than below are the same as standard type.)

### MY2HT L unit

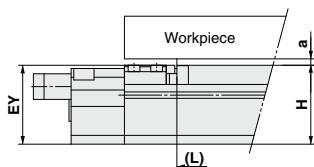


| Applicable cylinder | E    | EA   | EB   | EC   | ED  | EY | FA   | FB    | h   | S    | SD   | T  | TT             | W    | Shock absorber model | Adjustment bolt | Adjustment range |
|---------------------|------|------|------|------|-----|----|------|-------|-----|------|------|----|----------------|------|----------------------|-----------------|------------------|
| MY2HT16             | 15.8 | 8.4  | 21   | 9    | 5   | 28 | 46.5 | 67    | 3.2 | 46.7 | 7.2  | 7  | 4.2 (Max. 9.8) | 40.6 | RB1007               | M5 x 0.8 x 25L  | 5.6              |
| MY2HT25             | 19.6 | 10.6 | 26.6 | 12.2 | 5.5 | 37 | 64.8 | 93.6  | 4   | 67.3 | 18.2 | 12 | 5 (Max. 16.5)  | 57.2 | RB1412               | M8 x 1.0 x 35L  | 11.5             |
| MY2HT40             | 29   | 16   | 37   | 18.2 | 8   | 58 | 74.5 | 110.5 | 5   | 73.2 | —    | 15 | 6 (Max. 22)    | 71.6 | RB2015               | M10 x 1.0 x 50L | 16               |

### MY2HT H unit



| Applicable cylinder | E    | EA   | EB   | EC   | ED  | EY | FA   | FB    | h   | S    | SD   | T  | TT             | W    | Shock absorber model | Adjustment bolt | Adjustment range |
|---------------------|------|------|------|------|-----|----|------|-------|-----|------|------|----|----------------|------|----------------------|-----------------|------------------|
| MY2HT16             | 15.8 | 8.4  | 21   | 9    | 5   | 28 | 46.5 | 67    | 3.2 | 67.3 | 27.8 | 12 | 4.2 (Max. 9.8) | 40.6 | RB1412               | M5 x 0.8 x 25L  | 5.6              |
| MY2HT25             | 19.6 | 10.6 | 26.6 | 12.2 | 5.5 | 37 | 64.8 | 93.6  | 4   | 73.2 | 24.1 | 15 | 5 (Max. 16.5)  | 57.2 | RB2015               | M8 x 1.0 x 35L  | 11.5             |
| MY2HT40             | 29   | 16   | 37   | 18.2 | 8   | 58 | 74.5 | 110.5 | 5   | 99   | 24.5 | 25 | 6 (Max. 22)    | 71.6 | RB2725               | M10 x 1.0 x 50L | 16               |



### Caution

Since the dimension EY of the unit is greater than the table top height (dimension H), when a workpiece is loaded that is larger than the full length (dimension L) of the slide table, allow a clearance of size "a" or larger at the workpiece side.

| Applicable cylinder | a | EY | H  |
|---------------------|---|----|----|
| MY2HT16 L/H Unit    | 1 | 28 | 28 |
| MY2HT25 L/H Unit    | 1 | 37 | 37 |
| MY2HT40 L/H Unit    | 1 | 58 | 58 |

# Made to Order Common Specifications: Stroke Adjustment Unit with Adjustment Bolt

Symbol  
**-XB20**

## XB20 (Stroke Adjustment Unit with Adjustment Bolt)

### ⚠ Caution

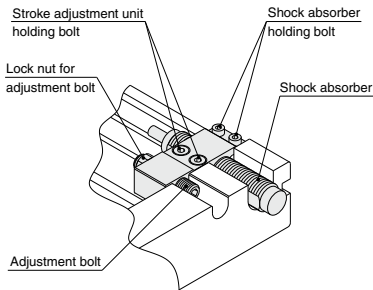
#### <Stroke adjustment with adjusting bolt>

1. Loosen the lock nut for the adjustment bolt and adjust a stroke by rotating the adjustment bolt.

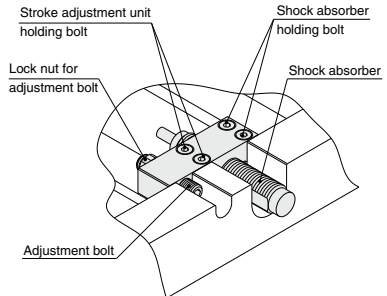
After adjusting the stroke, secure the adjustment bolt by tightening the lock nut.

If the effective stroke of the shock absorber is shortened by the stroke adjustment, its absorption capacity will be drastically reduced. Therefore, the adjustment bolt should be secured at a position where it projects about 0.5 mm farther than the shock absorber.

Tighten shock absorber holding bolts equally with the specified tightening torque.



MY2H(-XB20)



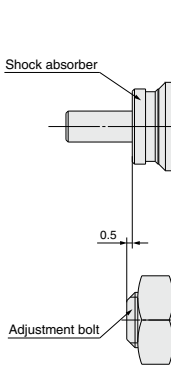
MY2HT(-XB20)

#### Tightening Torque for Stroke Adjustment Unit Holding Bolt

| Bore size<br>(mm) | MY2H   |        | MY2HT  |        | (N·m) |
|-------------------|--------|--------|--------|--------|-------|
|                   | L unit | H unit | L unit | H unit |       |
| 16                |        |        |        |        | 0.6   |
| 25                |        |        |        |        | 1.5   |
| 40                |        |        |        |        | 5.0   |

#### Tightening Torque for Shock Absorber Holding Bolt

| Bore size<br>(mm) | MY2H   |        | MY2HT  |        | (N·m) |
|-------------------|--------|--------|--------|--------|-------|
|                   | L unit | H unit | L unit | H unit |       |
| 16                |        |        |        |        | 0.6   |
| 25                | 1.5    | 0.6    |        | 1.5    |       |
| 40                | 5.0    | 1.5    |        | 5.0    |       |



2. Do not use the shock absorber and air cushion together.

-X□

# Made to Order Common Specifications: -XB22: Shock Absorber Soft Type RJ Series Type



## 13 Shock Absorber Soft Type RJ Series Type

- The standard cylinder has been equipped with shock absorber soft type RJ series type to enable soft stopping at the stroke end.
- Two different shock absorbers are available in accordance with the operating conditions.

### Applicable Series

| Series | Description                           | Model  | Bearing type                                  | Applicable bore size | Vol. no. (for std model) |
|--------|---------------------------------------|--------|-----------------------------------------------|----------------------|--------------------------|
| MY     | Mechanically jointed rodless cylinder | MY1B-Z | Basic type                                    | ø25, ø32, ø40        | ②-1 From P. 1188         |
|        |                                       | MY1H-Z | Single-axis linear guide type                 | ø25, ø32, ø40        |                          |
|        |                                       | MY1B   | Basic type                                    | ø10, ø20             |                          |
|        |                                       | MY1M   | Slide bearing type                            | ø16 to ø40           |                          |
|        |                                       | MY1C   | Cam follower type                             | ø16 to ø40           |                          |
|        |                                       | MY1H   | Single-axis linear guide type                 | ø10, ø16, ø20        |                          |
|        |                                       | MY1□W  | With protective cover                         | ø16 to ø40           |                          |
|        |                                       | MY2C   | Cam follower type                             | ø16, ø25, ø40        |                          |
|        |                                       | MY2H   | Single-axis linear guide type                 | ø16, ø25, ø40        |                          |
|        |                                       | MY2HT  | Double-axis linear guide type                 | ø16, ø25             |                          |
|        |                                       | MY3B   | Basic type                                    | ø16 to ø50           |                          |
|        |                                       | MY3M   | Slide bearing type                            | ø16, ø25, ø40        |                          |
| CY     | Magnetically coupled rodless cylinder | CY1L   | Ball bushing bearing type                     | ø6 to ø25            | ②-1 From P. 1516         |
|        |                                       | CY1H   | Single-axis linear guide type                 | ø10 to ø25           |                          |
|        |                                       | CY1HT  | Double-axis linear guide type                 | ø25                  |                          |
| MGP    | Compact guide cylinder                | MGP-Z  | Slide bearing type, Ball bushing bearing type | ø12 to ø40           | ②-2 From P. 432          |
| MGG    | Guide cylinder                        | MGG    | Slide bearing type, Ball bushing bearing type | ø20 to ø32           | ②-2 From P. 538          |
| CX2    | Slide unit                            | CX2N   | Slide bearing type                            | ø10, ø15, ø25        | ②-2 From P. 650          |
| CXT    | Platform cylinder                     | CXT    | Slide bearing type, Ball bushing bearing type | ø12 to ø25           | ②-2 From P. 712          |

### How to Order

Standard model no.

-XB22

● Shock absorber soft type RJ series type

### How to Order a Stroke Adjustment Unit for MY Itself

Stroke adjustment unit model

-XB22

### Specifications

|                                                         |                                                          |
|---------------------------------------------------------|----------------------------------------------------------|
| Absorbed energy                                         | For the maximum impact weight graph, refer to page 1754. |
| Specifications other than above and external dimensions | Same as standard type                                    |

\* For dimensions of the MGP series, refer to page 1754-1.

- \* For details on shock absorber soft type RJ series, refer to Best Pneumatics No.2-3.
- \* The shock absorber service life is different from that of each cylinder. Refer to the “Specific Product Precautions” of the RJ series for the replacement period.

## Cylinders

Note) Refer to Best Pneumatics No. 2-3 for the details of the shock absorber RB series.

### Mechanically Jointed Rodless Cylinder

| Model            | Type  | Stroke<br>adjusting unit | Bore size |                              |         |         |         |        |     |        |
|------------------|-------|--------------------------|-----------|------------------------------|---------|---------|---------|--------|-----|--------|
|                  |       |                          | ø10       | ø16                          | ø20     | ø25     | ø32     | ø40    | ø50 |        |
| MY1B-Z<br>MY1H-Z | -XB22 | L                        |           |                              |         | RJ1007H | RJ1412H |        |     |        |
|                  |       | H                        |           |                              |         | RJ1412H | —       | —      |     |        |
|                  |       | L                        |           |                              |         | RB1007  | RB1412  |        |     |        |
|                  |       | H                        |           |                              |         | RB1412  | RB2015  |        |     |        |
| MY1B             | -XB22 | L                        | RJ0805    |                              | RJ0806H |         |         |        |     |        |
|                  |       | H                        |           |                              | RJ1007H |         |         |        |     |        |
|                  |       | L                        |           |                              | RB0806  |         |         |        |     |        |
|                  |       | H                        |           |                              | RB1007  |         |         |        |     |        |
| MY1M<br>MY1C     | -XB22 | L                        |           | RJ0806H                      | RJ1007H | RJ1412H | —       | —      |     |        |
|                  |       | H                        |           | RJ1007H                      |         |         |         |        |     |        |
|                  |       | L                        |           | RB0806                       |         | RB1007  |         |        |     | RB1412 |
|                  |       | H                        |           | RB1007                       |         | RB1412  |         |        |     | RB2015 |
| MY1H             | -XB22 | L                        | RJ0805    | RJ0806H                      | RJ1007H |         |         |        |     |        |
|                  |       | H                        |           | RJ1007H                      |         |         |         |        |     |        |
|                  |       | L                        |           | RB0806                       |         |         |         |        |     |        |
|                  |       | H                        |           | RB1007                       |         |         |         |        |     |        |
| MY1□W            | -XB22 | L                        |           | RJ0806H                      | RJ1007H | RJ1412H | —       | —      |     |        |
|                  |       | H                        |           | RB0806                       |         |         |         |        |     | RB1007 |
|                  |       | L                        |           | RB1007                       |         | RB1412  |         |        |     |        |
|                  |       | H                        |           | RB1412                       |         | RB2015  |         |        |     |        |
| MY2C<br>MY2H     | -XB22 | L                        |           | RJ0806H                      | RJ1007H | RJ1412H | —       | —      |     |        |
|                  |       | H                        |           | RJ1007H <small>Note)</small> |         |         |         |        |     |        |
|                  |       | L                        |           | RB0806                       |         | RB1007  |         |        |     | RB1412 |
|                  |       | H                        |           | RB1007 <small>Note)</small>  |         | RB1412  |         |        |     | RB2015 |
| MY2HT            | -XB22 | L                        |           | RJ1007H                      | RJ1412H | —       | —       | —      |     |        |
|                  |       | H                        |           | RJ1412H                      |         |         |         |        |     |        |
|                  |       | L                        |           | RB1007                       |         | RB1412  |         | RB2015 |     |        |
|                  |       | H                        |           | RB1412                       |         | RB2015  |         | RB2725 |     |        |
| MY3B             | -XB22 | L                        |           | RJ0806H                      | RJ1007H | RJ1412H | —       | —      |     |        |
|                  |       | H                        |           | RJ1007H                      |         |         |         |        |     |        |
|                  |       | L                        |           | RB0806                       |         | RB1007  |         | RB1412 |     |        |
|                  |       | H                        |           | RB1007                       |         | RB1412  |         | RB2015 |     |        |
| MY3M             | -XB22 | L                        |           | RJ0806H                      | RJ1007H | RJ1412H | —       | —      |     |        |
|                  |       | H                        |           | RJ1007H                      |         |         |         |        |     |        |
|                  |       | L                        |           | RB0806                       |         | RB1007  |         | RB1412 |     |        |
|                  |       | H                        |           | RB1007                       |         | RB1412  |         | RB2015 |     |        |

Note) MY2C16 is not available with H unit.

### Magnetically Coupled Rodless Cylinder

| Model | Type     | Bore size |         |     |         |         |
|-------|----------|-----------|---------|-----|---------|---------|
|       |          | ø6        | ø10     | ø15 | ø20     | ø25     |
| CY1L  | -XB22    | RJ0805    | RJ0806H |     | RJ1007H | RJ1412H |
|       | Standard |           | RB0805  |     | RB1006  | RB1411  |
| CY1H  | -XB22    |           | RJ0806H |     | RJ1007H | RJ1412H |
|       | Standard |           | RB0805  |     | RB1006  | RB1411  |
| CY1HT | -XB22    |           |         |     |         | RJ1412H |
|       | Standard |           |         |     |         | RB1411  |

### Guide Cylinder

| Model | Type     | Bore size |     |         |         |         |        |
|-------|----------|-----------|-----|---------|---------|---------|--------|
|       |          | ø12       | ø16 | ø20     | ø25     | ø32     | ø40    |
| MGP-Z | -XB22    | RJ0806H   |     | RJ1007H |         | RJ1412H |        |
|       | -XC69    | RB0806    |     | RB1007  |         | RB1412  |        |
| MGG   | -XB22    |           |     | RJ1007H | RJ1412H |         | —      |
|       | Standard |           |     | RB1007  | RB1412  |         | RB2015 |

### Platform Cylinder

| Model | Type     | Bore size |     |         |         |
|-------|----------|-----------|-----|---------|---------|
|       |          | ø12       | ø16 | ø20     | ø25     |
| CXT   | -XB22    | RJ0806H   |     | RJ1007H | RJ1412H |
|       | Standard | RB0806    |     | RB1007  | RB1411  |

### Slide Unit/Double Rod Type

| Model | Type     | Bore size |     |         |
|-------|----------|-----------|-----|---------|
|       |          | ø10       | ø15 | ø25     |
| CX2N  | -XB22    | RJ0806H   |     | RJ1007H |
|       | Standard | RB0805    |     | RB1006  |

# Made to Order Common Specifications: -XB22: Shock Absorber Soft Type RJ Series Type



## 13 Shock Absorber Soft Type RJ Series Type

Symbol  
-XB22

### Maximum Impact Weight Graph (Shock Absorber Performance Line Graph)

\* Values in the maximum impact mass graph are at room temperature (20 to 25°C).

Ensure that the impact mass and the impact speed are within the absorbed energy graphs below.

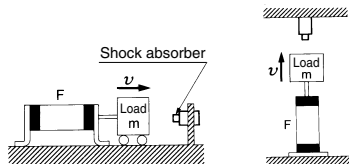
Refer to each cylinder selection calculation for load factors and guide load factors.

Please consult with SMC for the MY3 series since there are restrictions on collision speed resulting from the cylinder.

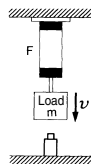
#### ■ Type of collision

##### Horizontally-applied impact

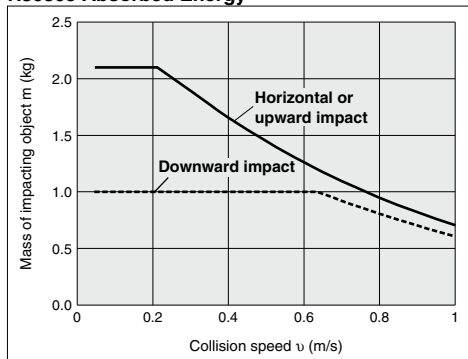
##### Air cylinder impact (horizontal/upward)



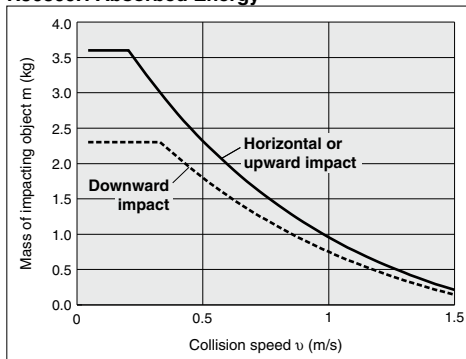
##### Air cylinder impact (downward)



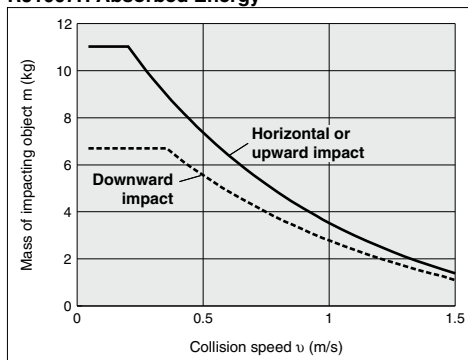
#### RJ0805 Absorbed Energy



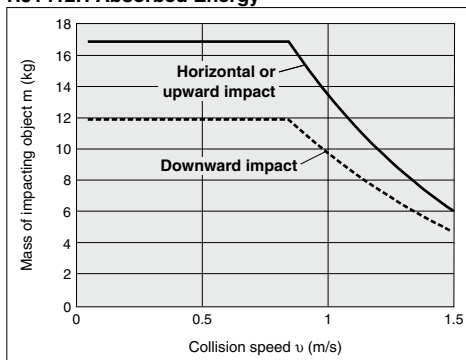
#### RJ0806H Absorbed Energy



#### RJ1007H Absorbed Energy



#### RJ1412H Absorbed Energy



\* Be sure to read "Handling Precautions for SMC Products" (M-E03-3) and "Shock Absorber Soft Type RJ Series" (Best Pneumatics No. 2-3) before using.

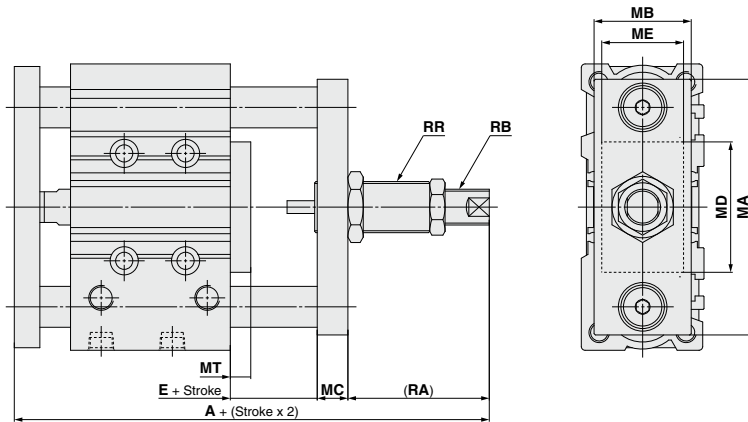
**Made to Order Common Specifications:  
Shock Absorber Soft Type RJ Series Type**

**13 Shock Absorber Soft Type RJ Series Type**

Symbol

**-XB22**

**Dimensions** (Dimensions other than below are the same as standard type.)



(mm)

| Bore size | A     | E | MA  | MB | MC | MD | ME | MT | RA | RB      | RR        |
|-----------|-------|---|-----|----|----|----|----|----|----|---------|-----------|
| <b>12</b> | 90    | 7 | 51  | 19 | 8  | 27 | 13 | 6  | 33 | RJ0806H | M12 x 1.5 |
| <b>16</b> | 94    | 7 | 58  | 19 | 8  | 28 | 16 | 6  | 33 | RJ0806H | M12 x 1.5 |
| <b>20</b> | 109   | 9 | 68  | 30 | 10 | 33 | 22 | 8  | 37 | RJ1007H | M14 x 1.5 |
| <b>25</b> | 109.5 | 9 | 82  | 30 | 10 | 41 | 25 | 8  | 37 | RJ1007H | M14 x 1.5 |
| <b>32</b> | 135.5 | 9 | 100 | 38 | 12 | 51 | 32 | 8  | 55 | RJ1412H | M20 x 1.5 |
| <b>40</b> | 142   | 9 | 108 | 38 | 12 | 60 | 32 | 8  | 55 | RJ1412H | M20 x 1.5 |



# Made to Order Common Specifications: -XC2(A): Rod End Length Extended 10 mm



## 14 Rod End Length Extended 10 mm

Symbol

**-XC2(A)**

Rod end length (L dimension) specifications of the cylinder for mounting the flange on the foot or rod side are "standard product + 10 mm" (-XC2).

### Applicable Series

| Series | Description           | Model   | Action                    | Note                            | Vol. no. (for std model) |
|--------|-----------------------|---------|---------------------------|---------------------------------|--------------------------|
| CQ2    | Standard type         | CQ2-Z   | Double acting, Single rod | Foot type, Rod side flange only | ②-1 From P. 773          |
|        |                       | CQ2W-Z  | Double acting, Double rod | Foot type only                  |                          |
|        | Non-rotating rod type | CQ2K-Z  | Double acting, Single rod | Foot type, Rod side flange only |                          |
|        |                       | CQ2KW-Z | Double acting, Double rod | Foot type only                  |                          |

Rod end length (L dimension) specifications of the cylinder for mounting the double rod flange are "standard product + 10 mm" (-XC2A).

### Applicable Series

| Series | Description           | Model   | Action                    | Note        | Vol. no. (for std model) |
|--------|-----------------------|---------|---------------------------|-------------|--------------------------|
| CQ2    | Standard type         | CQ2W-Z  | Double acting, Double rod | Flange only | ②-1 From P. 799          |
|        | Non-rotating rod type | CQ2KW-Z | Double acting, Double rod | Flange only |                          |

### How to Order

Standard model no.

- XC2 (A)

● Rod end length extended 10 mm

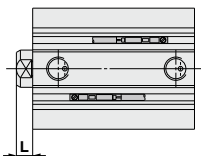
-XC2 Foot type, Rod side flange only

-XC2A For mounting double rod flange

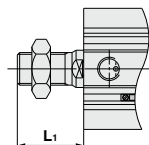
Specifications: Same as standard type

### Dimensions (Dimensions other than below are the same as standard type.)

#### Double acting, Single rod

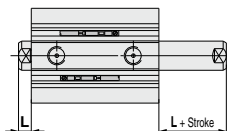


Rod end female thread

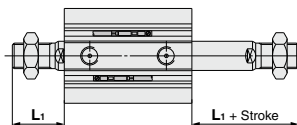


Rod end male thread

#### Double acting, Double rod (-XC2)

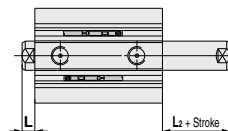


Rod end female thread

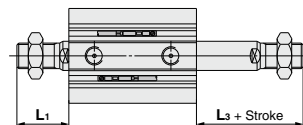


Rod end male thread

#### Double acting, Double rod (-XC2A)



Rod end female thread



Rod end male thread

### Dimensions

| Bore size<br>(mm) | Applicable series |                          | Dimensions    |                |
|-------------------|-------------------|--------------------------|---------------|----------------|
|                   | Standard<br>type  | Non-rotating<br>rod type | Female thread | Male thread    |
|                   |                   |                          | L             | L <sub>1</sub> |
| 12                | ○                 | —                        | 13.5          | 24             |
| 16                | ○                 | —                        | 13.5          | 25.5           |
| 20                | ○                 | —                        | 14.5          | 28.5           |
| 25                | ○                 | —                        | 15            | 32.5           |
| 32                | ○                 | —                        | 17            | 38.5           |
| 40                | ○                 | ○                        | 17            | 38.5           |
| 50                | ○                 | ○                        | 18            | 43.5           |
| 63                | ○                 | ○                        | 18            | 43.5           |
| 80                | ○                 | —                        | 20            | 53.5           |
| 100               | ○                 | —                        | 22            | 53.5           |

### Dimensions

| Bore size<br>(mm) | Applicable series |                          | Dimensions    |                |                |                |
|-------------------|-------------------|--------------------------|---------------|----------------|----------------|----------------|
|                   | Standard<br>type  | Non-rotating<br>rod type | Female thread |                | Male thread    |                |
|                   |                   |                          | L             | L <sub>2</sub> | L <sub>1</sub> | L <sub>3</sub> |
| 12                | ○                 | —                        | 13.5          | 3.5            | 24             | 14             |
| 16                | ○                 | —                        | 13.5          | 3.5            | 25.5           | 15.5           |
| 20                | ○                 | —                        | 14.5          | 4.5            | 28.5           | 18.5           |
| 25                | ○                 | —                        | 15            | 5              | 32.5           | 22.5           |
| 32                | ○                 | —                        | 17            | 7              | 38.5           | 28.5           |
| 40                | ○                 | ○                        | 17            | 7              | 38.5           | 28.5           |
| 50                | ○                 | ○                        | 18            | 8              | 43.5           | 33.5           |
| 63                | ○                 | ○                        | 18            | 8              | 43.5           | 33.5           |
| 80                | ○                 | —                        | 20            | 10             | 53.5           | 43.5           |
| 100               | ○                 | —                        | 22            | 12             | 53.5           | 43.5           |

# Made to Order Common Specifications: -XC3: Special Port Location



## 15 Special Port Location

Compared with the standard type, a cylinder which changes the connection port location of rod/head cover and the location of cushion valve.

### Applicable Series

| Series | Description                         | Model   | Action                               | Note                                                       | Vol. no. (for std model) |
|--------|-------------------------------------|---------|--------------------------------------|------------------------------------------------------------|--------------------------|
| CJ2    | Standard type                       | CJ2-Z   | Double acting, Single rod            | Except w/ rail mounting type auto switches, w/ air cushion | ②-1 From P. 46           |
|        | Non-rotating rod type               | CJ2K-Z  | Double acting, Single rod            | Except w/ rail mounting type auto switches                 |                          |
|        | Smooth cylinder                     | CJ2Y-Z  | Double acting, Single rod            |                                                            |                          |
| CM2    | Standard type                       | CM2-Z   | Double acting, Single rod            |                                                            | ②-1 From P. 172          |
|        |                                     |         | Single acting (Spring return/extend) |                                                            |                          |
|        |                                     | CM2W-Z  | Double acting, Double rod            |                                                            |                          |
|        | Air-hydro type                      | CM2H-Z  | Double acting, Single rod            |                                                            |                          |
|        |                                     |         | Double acting, Single rod            |                                                            |                          |
|        | Non-rotating rod type               | CM2K-Z  | Single acting (Spring return/extend) |                                                            |                          |
|        |                                     | CM2KW-Z | Double acting, Double rod            |                                                            |                          |
|        | Direct mount type                   | CM2R-Z  | Double acting, Single rod            | Except with air cushion                                    |                          |
|        | Direct mount type, Air-hydro type   | CM2RH-Z | Double acting, Single rod            |                                                            |                          |
|        | Non-rotating rod, Direct mount type | CM2RK-Z | Double acting, Single rod            |                                                            |                          |
| MB     | Standard type                       | MB      | Double acting, Single rod            |                                                            | ②-1 From P. 392          |
|        |                                     | MBW     | Double acting, Double rod            |                                                            |                          |
|        | Non-rotating rod type               | MBK     | Double acting, Single rod            |                                                            |                          |
| MB1    | Standard type                       | MBKW    | Double acting, Double rod            |                                                            | ②-1 From P. 440          |
|        |                                     | MB1     | Double acting, Single rod            |                                                            |                          |
|        | Non-rotating rod type               | MB1K    | Double acting, Double rod            |                                                            |                          |
| CA2    | Standard type                       | CA2     | Double acting, Single rod            |                                                            | ②-1 From P. 470          |
|        |                                     | CA2W    | Double acting, Double rod            |                                                            |                          |
|        | End lock cylinder                   | CBA2    | Double acting, Single rod            |                                                            |                          |
| CS1    | Standard type                       | CS1     | Double acting, Single rod            |                                                            | ②-1 From P. 530          |
|        | Low friction type                   | CS1□Q   | Double acting, Single rod            |                                                            |                          |
| CS2    | Standard type                       | CS2     | Double acting, Single rod            |                                                            | ②-1 From P. 568          |
|        | Smooth cylinder                     | CS2Y    | Double acting, Single rod            | Applicable to ø20 to ø40                                   |                          |
| RHC    | High power cylinder                 | RHC     | Double acting, Single rod            |                                                            | ②-3 From P. 351          |
| RSQ    | Stopper cylinder                    | RSQ-Z   | Double acting                        |                                                            | ②-3 From P. 560          |
|        |                                     |         | Double acting with spring installed  |                                                            |                          |
|        |                                     |         | Single acting                        |                                                            |                          |
|        |                                     | RSQ*    | Double acting                        | ø12 only                                                   |                          |
|        |                                     |         | Double acting with spring installed  | ø12 only                                                   |                          |
| RSG    | Stopper cylinder                    | RSG     | Single acting                        | ø12 only                                                   |                          |
|        |                                     |         | Double acting                        |                                                            |                          |
|        |                                     |         | Double acting with spring installed  |                                                            |                          |
|        |                                     | RSG     | Single acting                        |                                                            |                          |
|        |                                     |         | Double acting                        |                                                            |                          |
| CL1    | Locked up cylinder                  | CL1     | Double acting, Single rod            |                                                            | ②-2 From P. 830          |
| CLS    | Cylinder with lock                  | CLS     | Double acting, Single rod            |                                                            | ②-2 From P. 982          |
| CNA2   | Cylinder with lock                  | CNA2    | Double acting, Single rod            | Unlocking cams are on the same side as cushion valves.     | ②-2 From P. 922          |
| MXH    | Compact slide                       | MXH-Z   | Double acting                        |                                                            | ②-2 From P. 19           |

\* The RSQ is the same shape as the current product.

### How to Order

CJ2  
CM2      Standard model no.      -XC3      A      B

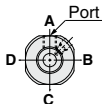
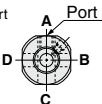
Special port location

- Head port location seen from the rod side
- Rod port location seen from the rod side

Specifications: Same as standard type.

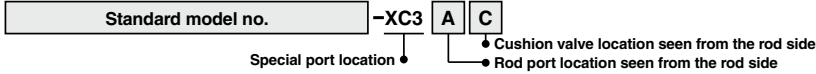
\* For port location, refer to the following diagrams and show the symbols of A, B, C and D.

### Port Location

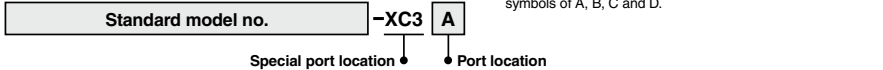
| Series     | Corresponding symbol of mounting bracket (Positional relationships)                                                                                                                                                                        |                                                                                                                                                                                                                                               |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CJ2<br>CM2 |  <p>Position relation between clevis and port</p> <p>* Viewed from the rod side, the ports are rendered A, B, C, and D, in the clockwise direction.</p> |  <p>* Viewed from the rod side, with the clevis positioned as shown in the diagram, the ports are rendered A, B, C, and D, in the clockwise direction.</p> |
|            | 1. Positional relationships between port and cushion valve cannot be changed.                                                                                                                                                              | 2. Cylinder with cushion of CJ2 (CJ2-A) is not available for -XC3.                                                                                                                                                                            |

## How to Order

MB, MB1, CA2, CS1, CS2, CNA2, CL1

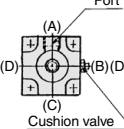
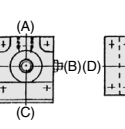
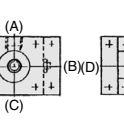
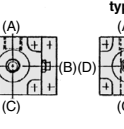
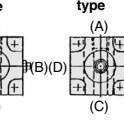
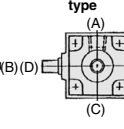
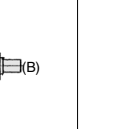
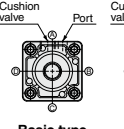
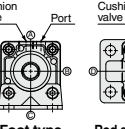
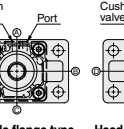
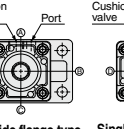
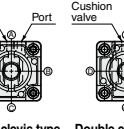
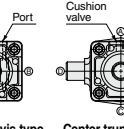
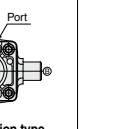
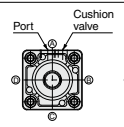
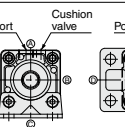
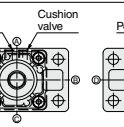
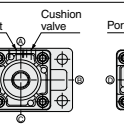
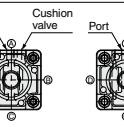
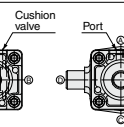
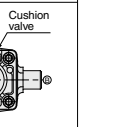
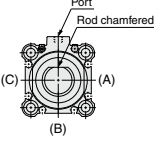
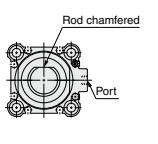
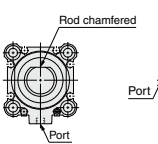
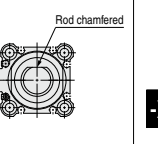


RSQ-Z, RSQ, RSG



Specifications: Same as standard type

## Relation between Port Location and Cushion Valve Location

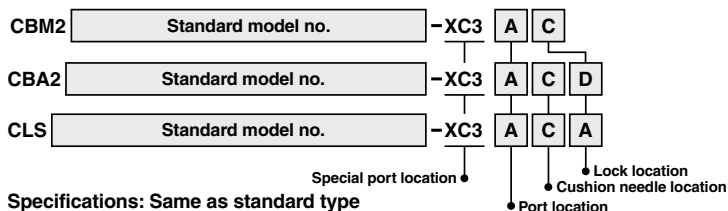
| Series                    | Corresponding symbol of mounting bracket (Positional relationships)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                  |                                                                                                             |                                                                                                              |                                                                                                           |                                                                                                           |                                                                                                                           |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| CA2<br>CS1<br>CNA2<br>CL1 | Basic type<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Foot type<br>   | Rod side flange type<br>   | Head side flange type<br>   | Single clevis type<br>   | Double clevis type<br>   | Center trunnion type<br>                |
| CS2                       | Basic type<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Foot type<br>   | Rod side flange type<br>   | Head side flange type<br>   | Single clevis type<br>   | Double clevis type<br>   | Center trunnion type<br>                |
| MB<br>MB1                 | Basic type<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Foot type<br> | Rod side flange type<br> | Head side flange type<br> | Single clevis type<br> | Double clevis type<br> | Center trunnion type (Except MB1)<br> |
| RSQ-Z<br>RSQ<br>RSG       | <p>In the case of standard type, the symbol for port and rod-chamfered positions are on the same surface and positioned upward.<br/>Define the port position at right to be A, and then B, C in a clockwise order.</p>     <p>Standard type      -XC3A      -XC3B      -XC3C</p> |                                                                                                  |                                                                                                             |                                                                                                              |                                                                                                           |                                                                                                           |                                                                                                                           |

# Made to Order Common Specifications: -XC3: Special Port Location



## 15 Special Port Location

### How to Order



Specifications: Same as standard type

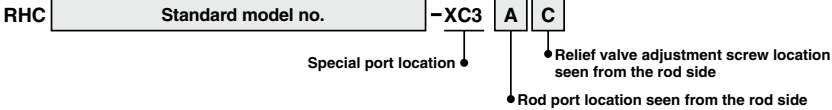
### Relation between Port Location and Cushion Valve Location

| Series | Corresponding symbol of mounting bracket (Positional relationships)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                             |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CBM2   | <p>Port location<br/>Rod side port and head side port are at the same location. Symbols of lock position and port location are as the following diagrams.</p> <p>Standard (AD) AC AB</p> <p>Except with air cushion</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>Clevis type and trunnion type are based on the direction of clevis bracket.</p> <p>AD CD BD</p> <p>Standard (BA) CA DA</p> <p>Diagrams seen from the rod side</p>                                                                                                                        |
|        | <p>Port and cushion needle are at the same rod/head position. Symbols of port location, cushion needle position and lock position are as the following diagrams.</p> <p>Standard (ABD) ACD ADB</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>When the mounting bracket is attached, the conditions placed like below are on a basis.</p> <p>Foot type (A) Rod side flange type (A) Head side flange type (A)</p> <p>Single clevis type (A) Double clevis type (A) Center trunnion type (A)</p> <p>Diagrams seen from the rod side</p> |
| CLS    | <p>Basic type Foot type Rod side flange type Head side flange type Single clevis type Double clevis type Center trunnion type</p> <p>Lock location Port</p> <p>Cushion valve</p> <ol style="list-style-type: none"> <li>Symbols of port and cushion valve, and lock positions, have to be looked at from the rod side as shown in the figures above. Define the upper side to be A, and then B, C, and D in a clockwise order.</li> <li>The combination model of a port and a cushion valve is applicable when the rod and head covers are moved to the same position.</li> <li>Part number of -XC3[A][B][A] is not available since it indicates a standard type.</li> <li>For the rod side flange type, lock positions [B] and [D] cannot be manufactured since the brake cylinder and the mounting hole of the flange bracket interfere with each other.</li> <li>Symbols excluding those that indicate the locations of ports and cushion valves are the same as the standard type.</li> </ol> |                                                                                                                                                                                                                                                                                             |

Symbol

-XC3□

### How to Order



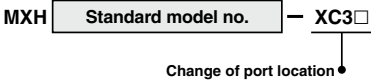
\* For port location, refer to the following diagrams and show the symbols of A, B, C and D.

### Specifications: Same as standard type

### Relation between Port Location and Relief Valve Adjustment Screw Location

| Series | Corresponding symbol of mounting bracket (Positional relationships)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         |                                    |                                     |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------------------------|-------------------------------------|
| RHC    | <p><b>Basic type</b></p> <p>Port</p> <p>Relief valve adjustment screw</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p><b>Foot type</b></p> | <p><b>Rod side flange type</b></p> | <p><b>Head side flange type</b></p> |
|        | <p>① As shown in the above diagram, the symbols for the positions of the ports and the relief valve adjustment screws are as follows: viewed from the rod side, the top position is rendered A, then B, C and D in the clockwise direction.</p> <p>② The type in which the ports and the relief valve adjustment screws is applicable only when the rod cover and the head cover are changed to the same positions.</p> <p>③ The symbol indicated as "-XC3 <span style="border: 1px solid black; padding: 0 2px;">A</span> <span style="border: 1px solid black; padding: 0 2px;">B</span>" is the standard specification, and there are no part numbers A or B.</p> <p>④ Those shown above are the same as standard, other than the symbols that indicate the positions of the ports and the relief valve adjustment screws.</p> <p>⑤ Brackets are shipped together.</p> |                         |                                    |                                     |

### How to Order



### Specifications: Same as standard type

The port location of a standard product is in the axial direction, and it is shipped as plugged on both sides. However, side ported types can be ordered. A shifting of the plugs is not required by the customer.

### Relation between Port Location and Plug Location

| Standard                                                                    | -XC3A                                                  | -XC3B                                                  |
|-----------------------------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|
| <p>OUT</p> <p>IN</p> <p>Plug</p> <p>OUT port</p> <p>IN port</p> <p>Plug</p> | <p>OUT port</p> <p>IN port</p> <p>Plug</p> <p>Plug</p> | <p>OUT port</p> <p>IN port</p> <p>Plug</p> <p>Plug</p> |

# Made to Order Common Specifications: -XC4: With Heavy Duty Scraper



## 16 With Heavy Duty Scraper

Cylinders with a heavy duty scraper on the wiper ring are suitable for use in extremely dusty environments and those where they will be exposed to earth or sand, such as in die-casted equipment, construction machinery, and industrial vehicles.

### Applicable Series

| Series | Description                                 | Model  | Action                    | Note                                                | Vol. no. (for std model) |
|--------|---------------------------------------------|--------|---------------------------|-----------------------------------------------------|--------------------------|
| CM2    | Air cylinder                                | CM2-Z  | Double acting, Single rod |                                                     | ②-1 From P. 172          |
|        |                                             | CM2W-Z | Double acting, Double rod |                                                     |                          |
|        | Centralized piping type                     | CM2□□P | Double acting, Single rod |                                                     |                          |
|        | End lock cylinder                           | CBM2   | Double acting, Single rod | Head side locking type only (Except w/ air cushion) |                          |
| CG1    | Air cylinder                                | CG1-Z  | Double acting, Single rod | Applicable to ø32 to ø63                            | ②-1 From P. 292          |
| MB     | Air cylinder                                | MB-Z   | Double acting, Single rod | Except ø125                                         | ②-1 From P. 392          |
|        |                                             | MBW-Z  | Double acting, Double rod | Except ø125                                         |                          |
| MB1    | Air cylinder                                | MB1-Z  | Double acting, Single rod | Except ø125                                         | ②-1 From P. 440          |
|        |                                             | MB1W-Z | Double acting, Double rod | Except ø125                                         |                          |
| CA2 *  | Air cylinder                                | CA2-Z  | Double acting, Single rod |                                                     | ②-1 From P. 470          |
|        |                                             | CA2W-Z | Double acting, Double rod |                                                     |                          |
|        | End lock cylinder                           | CBA2   | Double acting, Single rod | Head side locking type only                         |                          |
| CS1    | Air cylinder                                | CS1    | Double acting, Single rod |                                                     | ②-1 From P. 530          |
|        |                                             | CS1W   | Double acting, Double rod |                                                     |                          |
| CS2    | Air cylinder                                | CS2    | Double acting, Single rod |                                                     | ②-1 From P. 568          |
|        |                                             | CS2W   | Double acting, Double rod |                                                     |                          |
| CQ2    | Air cylinder                                | CQ2-Z  | Double acting, Single rod | Applicable to ø20 to ø100                           | ②-1 From P. 773          |
|        |                                             | CQ2W-Z | Double acting, Double rod | Applicable to ø40 to ø100                           |                          |
|        | Axial piping type (Centralized piping type) | CQP2   | Double acting, Single rod | Applicable to ø32 to ø100                           |                          |
|        | Long stroke                                 | CQ2-Z  | Double acting, Single rod |                                                     |                          |
| RQ     | Compact cylinder with air cushion           | RQ     | Double acting, Single rod |                                                     | ②-1 From P. 985          |
| CV     | Valve mounted air cylinder                  | CVM5   | Double acting, Single rod |                                                     | ②-3 From P. 771          |
|        |                                             | CV3    | Double acting, Single rod |                                                     | ②-3 From P. 812          |
|        |                                             | CVS1   | Double acting, Single rod |                                                     |                          |
| MGP    | Compact guide cylinder                      | MGPM-Z | Double acting             | Applicable to ø20 to ø100                           | ②-2 From P. 432          |
|        |                                             | MGPL-Z | Double acting             | Applicable to ø20 to ø100                           |                          |
|        |                                             | MGPA-Z | Double acting             | Applicable to ø20 to ø100                           |                          |
| MGG    | Guide cylinder                              | MGG    | Double acting             | Applicable to ø32 to ø100                           | ②-2 From P. 538          |
| MGC    | Guide cylinder                              | MGC    | Double acting             | Applicable to ø32 to ø50                            | ②-2 From P. 578          |
| CNA2   | Cylinder with lock                          | CNA2   | Double acting, Single rod |                                                     | ②-2 From P. 922          |
| CNG    | Cylinder with lock                          | CNG    | Double acting, Single rod | Applicable to ø32, ø40                              | ②-2 From P. 866          |
| MK     | Rotary clamp cylinder                       | MK-Z   | Double acting             | Except ø12                                          | ②-3 From P. 389          |

\* CA2□□H (Air-hydro type) comes with a heavy duty scraper as standard.

### How to Order

|                    |                         |
|--------------------|-------------------------|
| Standard model no. | -XC4                    |
|                    | With heavy duty scraper |

\* For the MGP series, refer to page 1764.

### ⚠ Caution

**Do not replace heavy duty scrapers.**

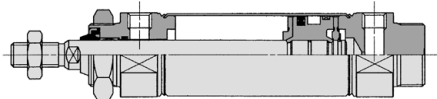
- Since heavy duty scrapers are press-fit, do not replace the cover only, but rather the entire rod cover assembly.

The CM2 series cannot replace either heavy duty scraper or rod seal. (It goes for replacing retainer assembly for the CS1 series.)  
Replace the CNA2 series with the lock unit.

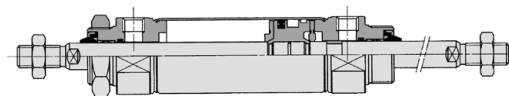
**Specifications: Same as standard type**

**Construction** (Dimensions are the same as standard.)

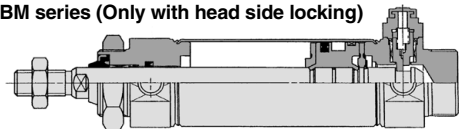
**CM2 series** Refer to page 1762 for the female rod end.



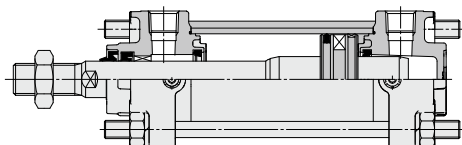
**CM2W series** Refer to page 1762 for the female rod end.



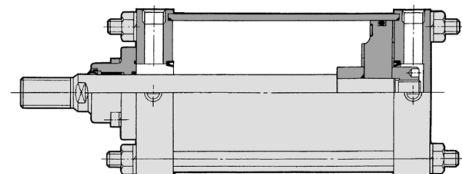
**CBM series (Only with head side locking)**



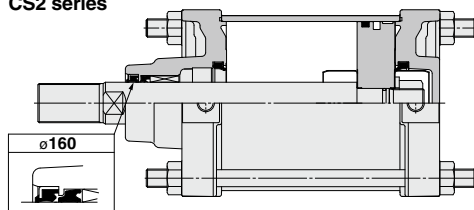
**CA2 series**



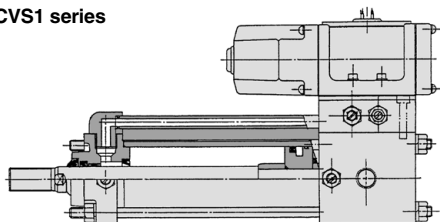
**CS1 series**



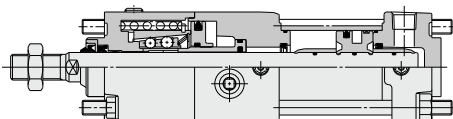
**CS2 series**



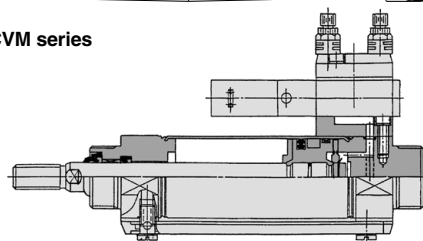
**CVS1 series**



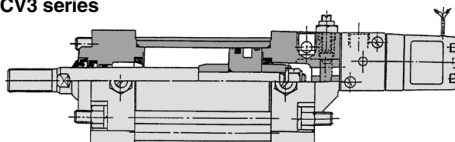
**CNA2 series**



**CVM series**



**CV3 series**



# Made to Order Common Specifications: -XC4: With Heavy Duty Scraper



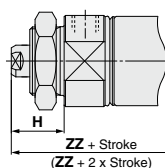
## 16 With Heavy Duty Scraper

### Dimensions (Dimensions other than below are the same as standard type.)

#### CM2 series CM2W series

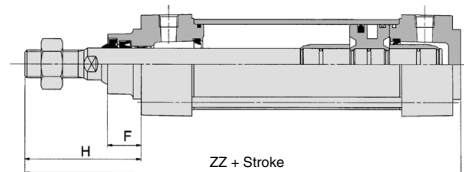
\* ( ): Denotes the dimensions for the CM2W series.

##### Female rod end



| Bore size | CM2 series |     | CM2W series |     |
|-----------|------------|-----|-------------|-----|
|           | H          | ZZ  | H           | ZZ  |
| 20        | 24         | 99  | 24          | 110 |
| 25        | 24         | 99  | 24          | 110 |
| 32        | 24         | 101 | 24          | 112 |
| 40        | 26         | 130 | 26          | 140 |

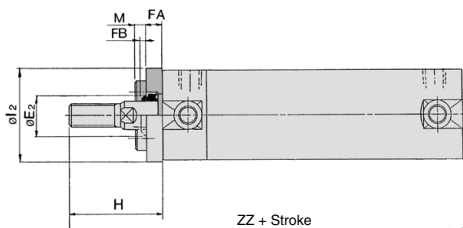
#### MB series MB1 series



##### MB, MB1 Series (mm)

| Bore size (mm) | F  | H  | ZZ  |
|----------------|----|----|-----|
| 32             | 15 | 47 | 135 |
| 40             | 17 | 58 | 146 |
| 50             | 19 | 67 | 165 |
| 63             | 19 | 67 | 165 |
| 80             | 25 | 81 | 199 |
| 100            | 25 | 81 | 199 |

#### CG1 series



##### CG1 Series

| Bore size | E <sub>2</sub> | FA | FB | M   | l <sub>2</sub> | H           |               | ZZ          |               |
|-----------|----------------|----|----|-----|----------------|-------------|---------------|-------------|---------------|
|           |                |    |    |     |                | Male thread | Female thread | Male thread | Female thread |
| 32        | 17             | 8  | 3  | 5   | 38             | 48          | 28            | 121         | 101           |
| 40        | 21             | 8  | 3  | 3.5 | 47             | 58          | 29            | 138         | 109           |
| 50        | 26             | 9  | 3  | 4.5 | 58             | 66          | 30            | 158         | 122           |
| 63        | 26             | 9  | 3  | 5.5 | 72             | 66          | 30            | 158         | 122           |

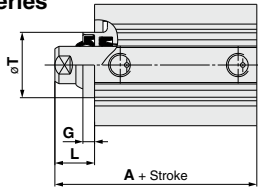
##### Long Stroke

| ZZ          |               |
|-------------|---------------|
| Male thread | Female thread |
| 129         | 109           |
| 147         | 118           |
| 170         | 134           |
| 170         | 134           |

\* On the axial foot type and the rod side flange type, the mounting bracket is wedged and bolted between the cylinder and the scraper at the time of shipment. On other types, it is placed in the same package (not assembled).

**Dimensions** (Dimensions other than below are the same as standard type.)

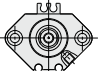
**CQ2 series**



- \* ( ) : Denotes the dimensions with auto switch magnet.
- \* Relation between bore size 20 to 32 piping port and mounting holes is as the following diagram.
- \* Please contact SMC for bore size 20 to 32 with both ends tapped and mounting brackets.



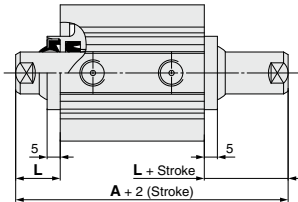
Without auto switch magnet  
Bore size 20 to 32  
With auto switch magnet  
Bore size 32



With auto switch magnet  
Bore size 20, 25

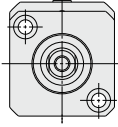
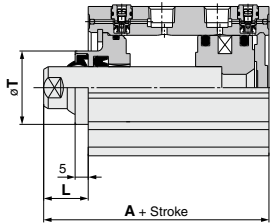
| Bore size<br>(mm) | A                 |                |                   | G                  |                    | L                  |                   | T  |
|-------------------|-------------------|----------------|-------------------|--------------------|--------------------|--------------------|-------------------|----|
|                   | 50 stroke or less | 75, 100 stroke | 125 to 300 stroke | 100 stroke or less | 125 stroke or more | 100 stroke or less | 125 to 300 stroke |    |
| <b>20</b>         | 34 (46)           | —              | —                 | —                  | —                  | 4.5                | —                 | —  |
| <b>25</b>         | 37.5 (47.5)       | —              | —                 | —                  | —                  | 5                  | —                 | —  |
| <b>32</b>         | 40 (50)           | 50             | 67.5              | —                  | —                  | 7                  | 12                | —  |
| <b>40</b>         | 46.5 (56.5)       | 56.5           | 77                | 5                  | 10                 | 17                 | 22                | 28 |
| <b>50</b>         | 48.5 (58.5)       | 58.5           | 78.5              | 5                  | 10                 | 18                 | 23                | 35 |
| <b>63</b>         | 54 (64)           | 64             | 80                | 5                  | 10                 | 18                 | 23                | 35 |
| <b>80</b>         | 63.5 (73.5)       | 73.5           | 91                | 5                  | 10                 | 20                 | 25                | 43 |
| <b>100</b>        | 75 (85)           | 85             | 102.5             | 5                  | 10                 | 22                 | 27                | 59 |

**CQ2W series**

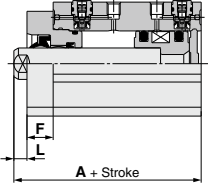


| Bore size<br>(mm) | A                 |                | L  |
|-------------------|-------------------|----------------|----|
|                   | 50 stroke or less | 75, 100 stroke |    |
| <b>40</b>         | 74 (84)           | 84             | 17 |
| <b>50</b>         | 76.5 (86.5)       | 86.5           | 18 |
| <b>63</b>         | 78 (88)           | 88             | 18 |
| <b>80</b>         | 91 (101)          | 101            | 20 |
| <b>100</b>        | 104.5 (114.5)     | 114.5          | 22 |

**RQ series**



Bore size 20, 25



| Bore size<br>(mm) | (mm) |    |     |    |
|-------------------|------|----|-----|----|
|                   | A    | F  | L   | T  |
| <b>20</b>         | 46.5 | 10 | 4.5 | —  |
| <b>25</b>         | 51.5 | 10 | 5   | —  |
| <b>32</b>         | 54   | 10 | 7   | —  |
| <b>40</b>         | 61   | —  | 17  | 28 |
| <b>50</b>         | 67.5 | —  | 18  | 35 |
| <b>63</b>         | 73   | —  | 18  | 35 |
| <b>80</b>         | 83.5 | —  | 20  | 43 |
| <b>100</b>        | 98   | —  | 22  | 59 |

- \* Please contact SMC for bore size 20 to 32 with both ends tapped and mounting brackets.
- \* Only standard strokes are applicable.

# Made to Order Common Specifications: -XC4: With Heavy Duty Scraper

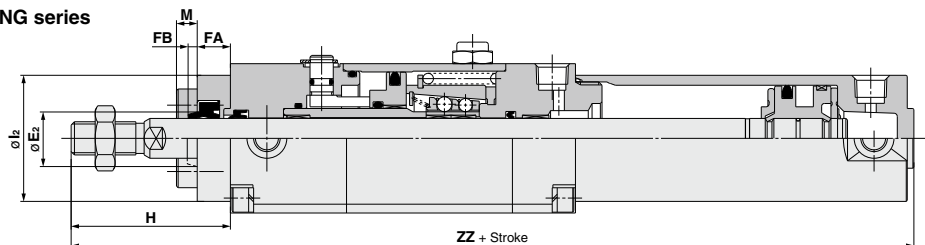


## 16 With Heavy Duty Scraper

Symbol  
**-XC4**

**Dimensions** (Dimensions other than below are the same as standard type.)

### CNG series

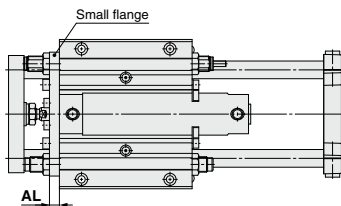


| Bore size | E <sub>2</sub> | FA | FB | M | I <sub>2</sub> | H  | ZZ  |
|-----------|----------------|----|----|---|----------------|----|-----|
| 32        | 17             | 8  | 3  | 5 | 38             | 48 | 204 |
| 40        | 21             | 8  | 3  | 6 | 48             | 58 | 229 |

|              | ZZ  |
|--------------|-----|
| Long strokes | 212 |
|              | 238 |

- \* The above figure shows the rubber bumper type.
- \* On the axial foot type and the rod side flange type, the mounting bracket is wedged and bolted between the cylinder and the scraper at the time of shipment.

### MGG□B series ø32 to ø50

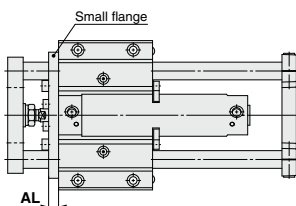


| Bore size (mm) | (mm) |
|----------------|------|
| 32             | 9    |
| 40             | 12   |
| 50             | 12   |

### Specifications: Same as standard type

- Note 1) Except ø20 and ø25
- Note 2) Heavy duty scrapers are attached to the piston rod and guide rods (front and back).
- Note 3) Rod side heavy duty scrapers for ø32 to ø50 are press-fit to large and small flanges.

### MGC□B series ø32 to ø50



| Bore size (mm) | (mm) |
|----------------|------|
| 32             | 9    |
| 40             | 12   |
| 50             | 12   |

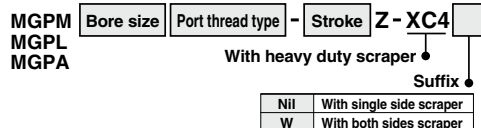


# Made to Order Common Specifications: -XC4: With Heavy Duty Scraper



## 16 With Heavy Duty Scraper

### How to Order/MGP

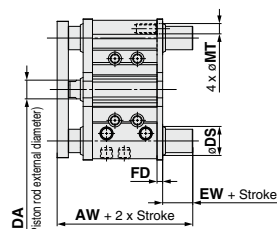
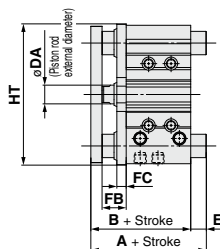


### Specifications

| Applicable series          |                  | MGPM                            | MGPL/MGPA            |
|----------------------------|------------------|---------------------------------|----------------------|
| Bearing type               |                  | Slide bearing                   | Ball bushing bearing |
| Bore size (mm)             |                  | 20, 25, 32, 40, 50, 63, 80, 100 |                      |
| Minimum operating pressure | With single side | 0.12 MPa                        |                      |
|                            | With both sides  | 0.14 MPa                        |                      |

Specifications other than above are the same as standard type.

### Dimensions (Dimensions other than below are the same as standard type.)



For cylinder with both sides scraper

### Common Dimensions:

MGPM, MGPL, MGPA (mm)

| Bore size (mm) | B     | DA | FB | FC   |           |
|----------------|-------|----|----|------|-----------|
|                |       |    |    | MGPM | MGPL/MGPA |
| 20             | 63    | 10 | 18 | 9    | 5         |
| 25             | 63.5  | 10 | 17 | 9    | 5         |
| 32             | 69.5  | 14 | 22 | 9    | 5         |
| 40             | 76    | 14 | 22 | 9    | 5         |
| 50             | 82    | 20 | 26 | 10   | 8         |
| 63             | 87    | 20 | 26 | 10   | 5         |
| 80             | 106.5 | 25 | 34 | 15   | 6         |
| 100            | 126   | 30 | 41 | 15   | 6         |

### With Both Sides Scraper

Dimensions: AW, EW, FD, MT, DS (mm)

| Bore size (mm) | AW    | EW | FD | MT  | DS <sup>*</sup> |           |
|----------------|-------|----|----|-----|-----------------|-----------|
|                |       |    |    |     | MGPM            | MGPL/MGPA |
| 20             | 74    | 6  | 5  | 6   | 17              | 15        |
| 25             | 74.5  | 6  | 5  | 7   | 21              | 19        |
| 32             | 82.5  | 7  | 6  | 8.5 | 26              | 21        |
| 40             | 89    | 7  | 6  | 8.5 | 26              | 21        |
| 50             | 95    | 7  | 6  | 11  | 31              | 26        |
| 63             | 100   | 7  | 6  | 11  | 31              | 26        |
| 80             | 120.5 | 8  | 6  | 14  | 36              | 31        |
| 100            | 143   | 8  | 9  | 16  | 44              | 36        |

\* Bypass port size for guide rod with bottom mounting

### MGPM (Slide bearing) A, E, HT Dimensions (mm)

| Bore size (mm) | A             |                      |             | E             |                      |             | HT    |
|----------------|---------------|----------------------|-------------|---------------|----------------------|-------------|-------|
|                | 50 st or less | Over 50 st to 200 st | Over 200 st | 50 st or less | Over 50 st to 200 st | Over 200 st |       |
| 20             | 63            | 87.5                 | 120         | 0             | 24.5                 | 57          | 80    |
| 25             | 63.5          | 87.5                 | 119.5       | 0             | 24                   | 56          | 93    |
| 32             | 85            | 103.5                | 139.5       | 15.5          | 34                   | 70          | 111.5 |
| 40             | 85            | 103.5                | 139.5       | 9             | 27.5                 | 63.5        | 119   |
| 50             | 98.5          | 119.5                | 160.5       | 16.5          | 37.5                 | 78.5        | 151   |
| 63             | 98.5          | 119.5                | 160.5       | 11.5          | 32.5                 | 73.5        | 165   |
| 80             | 114.5         | 141.5                | 190.5       | 8             | 35                   | 84          | 202   |
| 100            | 136.5         | 161.5                | 200.5       | 10.5          | 35.5                 | 74.5        | 240   |

### MGPL, MGPA (Ball bushing bearing) A, E, HT Dimensions (mm)

| Bore size (mm) | A             |                      |                       | E             |                      |                       | HT |
|----------------|---------------|----------------------|-----------------------|---------------|----------------------|-----------------------|----|
|                | 50 st or less | Over 50 st to 100 st | Over 100 st to 200 st | 50 st or less | Over 50 st to 100 st | Over 100 st to 200 st |    |
| 20             | 69            | 86                   | 110.5                 | 6             | 23                   | 47                    | 80 |
| 25             | 75.5          | 91.5                 | 127.5                 | 12            | 28                   | 64                    | 93 |

| Bore size<br>(mm) | A             |                         |                          |             | E             |                         |                          |             | HT  |
|-------------------|---------------|-------------------------|--------------------------|-------------|---------------|-------------------------|--------------------------|-------------|-----|
|                   | 50 st or less | Over 50 st<br>to 100 st | Over 100 st<br>to 200 st | Over 200 st | 50 st or less | Over 50 st<br>to 100 st | Over 100 st<br>to 200 st | Over 200 st |     |
| 32                | 89.5          | 106.5                   | 126.5                    | 148.5       | 20            | 37                      | 57                       | 79          | 110 |
| 40                | 89.5          | 106.5                   | 126.5                    | 148.5       | 13.5          | 30.5                    | 50.5                     | 72.5        | 118 |
| 50                | 101.5         | 122.5                   | 142.5                    | 169.5       | 19.5          | 40.5                    | 60.5                     | 87.5        | 146 |
| 63                | 101.5         | 122.5                   | 142.5                    | 169.5       | 14.5          | 35.5                    | 55.5                     | 82.5        | 160 |

| Bore size<br>(mm) | A             |                        |                         |             | E             |                        |                         |             | HT  |
|-------------------|---------------|------------------------|-------------------------|-------------|---------------|------------------------|-------------------------|-------------|-----|
|                   | 25 st or less | Over 25 st<br>to 50 st | Over 50 st<br>to 200 st | Over 200 st | 25 st or less | Over 25 st<br>to 50 st | Over 50 st<br>to 200 st | Over 200 st |     |
| 80                | 114.5         | 138.5                  | 168.5                   | 201.5       | 8             | 32                     | 62                      | 95          | 199 |
| 100               | 129.5         | 155.5                  | 188.5                   | 211.5       | 3.5           | 29.5                   | 62.5                    | 85.5        | 236 |

## How to Order/MK

MKB Bore size Port thread type - Clamp stroke Rotary direction Body option Z - Auto switch - **XC4**  
 MKF  
 MKG With heavy duty scraper

## Specifications

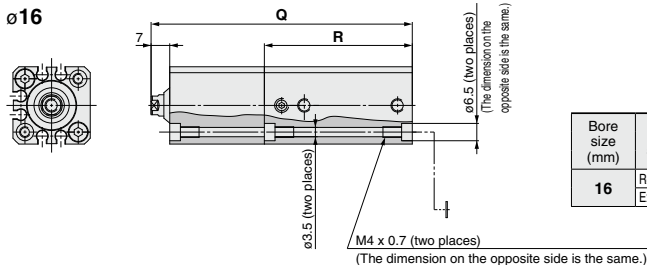
| Bore size                  | 16       | 20 | 25 | 32        | 40 | 50 | 63 |
|----------------------------|----------|----|----|-----------|----|----|----|
| Minimum operating pressure | 0.15 MPa |    |    | (0.1 MPa) |    |    |    |

\* Specifications other than above are the same as standard type.

\* The dimensions in ( ) are the same as standard type.

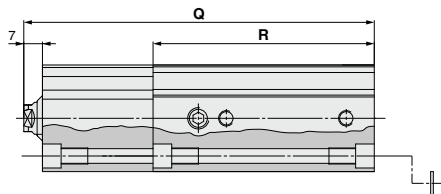
## Dimensions (Dimensions other than below are the same as standard type.)

ø16



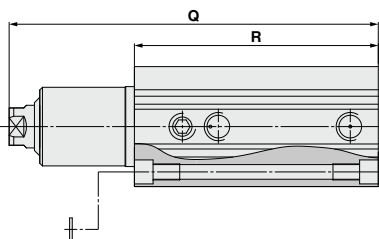
| Bore size (mm) | Rod state | Clamp stroke |      |       |      |       |      |
|----------------|-----------|--------------|------|-------|------|-------|------|
|                |           | 10 mm        |      | 20 mm |      | 30 mm |      |
|                |           | Q            | R    | Q     | R    | Q     | R    |
| 16             | Retracted | 78           | 45.5 | 98    | 55.5 | 118   | 65.5 |
|                | Extended  | 95.5         |      | 125.5 |      | 155.5 |      |

ø20, ø25



| Bore size (mm) | Rod state | Clamp stroke |    |       |    |       |    |
|----------------|-----------|--------------|----|-------|----|-------|----|
|                |           | 10 mm        |    | 20 mm |    | 30 mm |    |
|                |           | Q            | R  | Q     | R  | Q     | R  |
| 20             | Retracted | 99           | 72 | 119   | 82 | 139   | 92 |
|                | Extended  | 118.5        |    | 148.5 |    | 178.5 |    |
| 25             | Retracted | 111.5        | 73 | 131.5 | 83 | 151.5 | 93 |
|                | Extended  | 131          |    | 161   |    | 191   |    |

ø32 to ø63



| Bore size (mm) | Rod state | Clamp stroke |      |       |      |       |       |       |       |
|----------------|-----------|--------------|------|-------|------|-------|-------|-------|-------|
|                |           | 10 mm        |      | 20 mm |      | 30 mm |       | 50 mm |       |
|                |           | Q            | R    | Q     | R    | Q     | R     | Q     | R     |
| 32             | Retracted | 118.5        | 81.5 | 138.5 | 91.5 | 158.5 | 101.5 | 198.5 | 121.5 |
|                | Extended  | 143.5        |      | 173.5 |      | 203.5 |       | 263.5 |       |
| 40             | Retracted | 119          | 75   | 139   | 85   | 159   | 95    | 199   | 115   |
|                | Extended  | 144          |      | 174   |      | 204   |       | 264   |       |
| 50             | Retracted | 137          | 86.5 | 157   | 96.5 | 177   | 106.5 | 217   | 126.5 |
|                | Extended  | 166          |      | 196   |      | 226   |       | 286   |       |
| 63             | Retracted | 140          | 90   | 160   | 100  | 180   | 110   | 220   | 130   |
|                | Extended  | 169          |      | 199   |      | 229   |       | 289   |       |



# Made to Order Common Specifications: -XC5: Heat Resistant Cylinder (−10 to 110°C)



## 17 Heat Resistant Cylinder (−10 to 110°C)

Symbol

**-XC5**

Cylinder which changed the seal material for heat resistance (up to 110°C) in order to use under the severe ambient temperature condition which exceeds the standard specifications of −10 to 70°C (0 to 70°C for CS1, CS2 series).

### Applicable Series

| Series | Description       | Model  | Action                    | Note                                              | Vol. no. (for std model) |
|--------|-------------------|--------|---------------------------|---------------------------------------------------|--------------------------|
| CM2    | Air cylinder      | CM2-Z  | Double acting, Single rod |                                                   | ②-1 From P. 172          |
|        |                   | CM2W-Z | Double acting, Double rod |                                                   |                          |
|        | Direct mount type | CM2R-Z | Double acting, Single rod |                                                   |                          |
| MB     | Air cylinder      | MB-Z   | Double acting, Single rod | Except ø125, with rubber bumper, with auto switch | ②-1 From P. 392          |
|        |                   | MBW-Z  | Double acting, Double rod | Except ø125, with rubber bumper, with auto switch |                          |
| MB1    | Air cylinder      | MB1-Z  | Double acting, Single rod | Except with rubber bumper, with auto switch       | ②-1 From P. 440          |
|        |                   | MB1W-Z | Double acting, Double rod | Except ø125, with rubber bumper, with auto switch |                          |
| CA2    | Air cylinder      | CA2-Z  | Double acting, Single rod |                                                   | ②-1 From P. 470          |
|        |                   | CA2W-Z | Double acting, Double rod |                                                   |                          |
| CS1 *  | Air cylinder      | CS1    | Double acting, Single rod |                                                   | ②-1 From P. 530          |
|        |                   | CS1W   | Double acting, Double rod |                                                   |                          |
| CS2    | Air cylinder      | CS2    | Double acting, Single rod |                                                   | ②-1 P. 568               |
|        |                   | CS2W   | Double acting, Double rod |                                                   |                          |

### How to Order

Standard model no.

**-XC5**

Heat resistant cylinder ●

### Specifications

|                                                         |                                                                          |
|---------------------------------------------------------|--------------------------------------------------------------------------|
| Ambient temperature range                               | −10 to 110°C (0 to 110°C for CS1, CS2 series)                            |
| Seal material                                           | Fluororubber (In the case of CS1 cylinder, cushion seal is made of NBR.) |
| With auto switch                                        | Unavailable <sup>(2)</sup>                                               |
| Specifications other than above and external dimensions | Same as standard type                                                    |

Note 1) Please contact SMC for details on the maintenance intervals for this cylinder, which differ from those of the standard cylinder.

Note 2) Manufacturing built-in magnet type and the one with auto switch is impossible.

Note 3) Material of rod boot is heat resistant tarpaulin.

Note 4) Applicable bore size of the CS1 series Lube type: ø125 to ø300  
Non-lube type: ø125 to ø200

# Made to Order Common Specifications: -XC6: Made of Stainless Steel



## 18 Made of Stainless Steel

Suitable for the cases it is likely to generate rust by being immersed in the water and corrosion.

### Applicable Series

| Series             | Description                         | Model                 | Action                                                     | Vol. no. (for std model) |
|--------------------|-------------------------------------|-----------------------|------------------------------------------------------------|--------------------------|
| CM2                | Air cylinder                        | CM2-Z                 | Double acting, Single rod<br>Single acting (Spring return) | ②-1 From P. 172          |
|                    |                                     | CM2W-Z                | Double acting, Double rod                                  |                          |
|                    | Non-rotating rod type               | CM2K-Z                | Double acting, Single rod<br>Single acting (Spring return) |                          |
|                    |                                     | CM2KW-Z               | Double acting, Double rod                                  |                          |
|                    | Direct mount type                   | CM2R-Z                | Double acting, Single rod                                  |                          |
|                    | Non-rotating rod, Direct mount type | CM2RK-Z               | Double acting, Single rod                                  |                          |
|                    | Centralized piping type             | CM2□□P                | Double acting, Single rod                                  |                          |
|                    | Smooth cylinder                     | CM2Y-Z                | Double acting, Single rod                                  |                          |
|                    | Air-hydro type                      | CM2H-Z                | Double acting, Single rod                                  |                          |
|                    | Direct mount type, air-hydro type   | CM2RH-Z               | Double acting, Single rod                                  |                          |
|                    | End lock cylinder                   | CBM2                  | Double acting, Single rod                                  |                          |
| CG1                | Air cylinder                        | CG1-Z                 | Double acting, Single rod<br>Single acting (Spring return) | ②-1 From P. 292          |
|                    | Double rod type                     | CG1W-Z                | Double acting, Double rod                                  |                          |
|                    | Direct mount type                   | CG1R-Z                | Double acting, Single rod                                  |                          |
|                    | Smooth cylinder                     | CG1Y-Z                | Double acting, Single rod                                  |                          |
| MB <sup>(2)</sup>  | Air cylinder                        | MB-Z <sup>(4)</sup>   | Double acting, Single rod                                  | ②-1 From P. 392          |
|                    |                                     | MBW-Z <sup>(4)</sup>  | Double acting, Double rod                                  |                          |
| MB1 <sup>(2)</sup> | Air cylinder                        | MB1-Z <sup>(4)</sup>  | Double acting, Single rod                                  | ②-1 From P. 440          |
|                    |                                     | MB1W-Z <sup>(4)</sup> | Double acting, Double rod                                  |                          |
| CA2 <sup>(2)</sup> | Air-hydro type                      | CA2□H                 | Double acting, Single rod                                  | ②-1 From P. 470          |
|                    |                                     | CA2W□H                | Double acting, Double rod                                  |                          |
| CS1 <sup>(2)</sup> | Air cylinder                        | CS1                   | Double acting, Single rod                                  | ②-1 From P. 530          |
|                    |                                     | CS1W                  | Double acting, Double rod                                  |                          |
| CS1 <sup>(2)</sup> | Air-hydro type                      | CS1□H                 | Double acting, Single rod                                  | ②-1 From P. 530          |
|                    |                                     | CS1W□H                | Double acting, Double rod                                  |                          |

| Series | Description                                 | Model   | Action                                                     | Vol. no. (for std model) |
|--------|---------------------------------------------|---------|------------------------------------------------------------|--------------------------|
| CQS    | Compact cylinder                            | CQS     | Double acting, Single rod<br>Single acting (Spring return) | ②-1 From P. 693          |
|        |                                             | CQSW    | Double acting, Double rod                                  |                          |
|        | Non-rotating rod type                       | CQSK    | Double acting, Single rod                                  |                          |
|        | Lateral load resisting type                 | CQS□S   | Double acting, Single rod                                  |                          |
| CQ2    | Compact cylinder                            | CQ2-Z   | Double acting, Single rod                                  | ②-1 From P. 773          |
|        |                                             | CQ2W-Z  | Double acting, Double rod                                  |                          |
|        | Axial piping type (Centralized piping type) | CQP2    | Double acting, Single rod<br>Single acting (Spring return) |                          |
|        |                                             | CQ2-Z   | Double acting, Single rod                                  |                          |
|        | Lateral load resisting type                 | CQ2□S-Z | Double acting, Single rod                                  |                          |
|        | Water-resistant compact cylinder            | CQ2□□-Z | Double acting, Single rod                                  |                          |
|        | Water resistant, axial piping               | CQP2□□  | Double acting, Single rod                                  |                          |
|        | Plate cylinder                              | MU-Z    | Double acting, Single rod                                  |                          |
| CV     | Valve mounted air cylinder                  | CVM5    | Double acting, Single rod                                  | ②-3 From P. 771          |
|        |                                             | CVM5K   | Double acting, Single rod                                  |                          |
|        |                                             | CV3     | Double acting, Single rod                                  |                          |
|        |                                             | CVS1    | Double acting, Single rod                                  |                          |
| MGP    | Compact guide cylinder                      | MGP-Z   | Double acting                                              | ②-2 From P. 432          |
| MGG    | Guide cylinder                              | MGG     | Double acting                                              | ②-2 From P. 538          |
| MGC    | Guide cylinder                              | MGC     | Double acting                                              | ②-2 From P. 578          |
| CXS    | Dual rod cylinder                           | CXSM    | Double acting                                              | ②-2 From P. 749          |
| CXSJ   | Dual rod cylinder compact type              | CXSJM   | Double acting                                              | ②-2 From P. 737          |
| RHC    | High power cylinder                         | RHC     | Double acting                                              | ②-3 From P. 351          |

Note 1) Head side locking type only

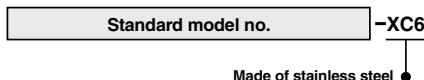
Note 2) There is a maximum stroke limit for CA2, MB, MB1 (ø100) and CS1 cylinders.

Note 3) The CS2 series, made of stainless steel, is applicable as "-XC68".

Note 4) Only available for ø125 type.

### How to Order

CM2, CG1, MB, MB1, CA2, CS1,  
CQS, CQ2, MU, CV



### Mounting brackets, accessories, and nut material: Stainless steel

The following accessories need to be prepared separately. (Please order separately.)  
Refer to the "Accessories" page of each series for details.

| Series | Bore size (mm)                  | Foot | Flange | Single knuckle joint | Double knuckle joint | Mounting nut | Rod end nut | Accessories page                 |
|--------|---------------------------------|------|--------|----------------------|----------------------|--------------|-------------|----------------------------------|
| CM2    | 20, 25, 32, 40                  | ○    | ○      | ○                    | ○                    | ○            | ○           | Best Pneumatics No. 2-1 p. 190   |
| CG1    | 20, 25, 32, 40, 50, 63, 80, 100 | ○*   | ○*     | ○                    | ○                    | —            | ○           | Best Pneumatics No. 2-1 p. 309-1 |
| CQ2    | 20, 25, 32, 40, 50, 63, 80, 100 | —    | —      | ○                    | ○                    | —            | ○           | Best Pneumatics No. 2-1 p. 796   |

\* Except bore size 20 and 25.

### Maximum Stroke

(mm)

| Series                                                              | Double acting, Single rod  | Double acting single rod with rod boot |
|---------------------------------------------------------------------|----------------------------|----------------------------------------|
| CA2, MB, MB1<br>(Bore size 100)<br>Others same as the standard type | 1500<br>(Same as standard) | 1000                                   |
| CS1                                                                 | 1200                       | 1200                                   |

### Specifications

| Parts changed to stainless steel                        | Piston rod, Rod end nut |
|---------------------------------------------------------|-------------------------|
| Specifications other than above and external dimensions | Same as standard        |

Note 1) In the case of CS1 cylinder, the piston rod is only made of stainless steel. Rod end nut is not attached.

Note 2) In the case of CQ cylinder, its snap ring and piston rod are made of stainless steel.  
Rod end nut is also made of stainless steel for rod end male thread type.

## CQ (P) 2<sup>RD</sup> series

Piston rod and rod end nut (male thread only) have been changed to stainless steel specification "-XC6". Also, the materials for hexagon socket head cap screws to fix ø20 to ø32 rod covers have been changed to stainless steel.

### Applicable Series

| Series |                                  | Model            | Action                    | Note                         | Vol. no.<br>(for std model) |
|--------|----------------------------------|------------------|---------------------------|------------------------------|-----------------------------|
| CQ2    | Water-resistant compact cylinder | CQ2□ $\nabla$ -Z | Double acting, Single rod | Applicable to ø20, ø25, ø32. | ②-1 From P. 949             |
|        | Water resistant, axial piping    | CQP2□ $\nabla$   | Double acting, Single rod | Applicable to ø32.           | ②-1 From P. 893             |

### Specifications

| Parts changed to stainless steel | Piston rod, Rod end nut (male thread only), Rod cover holding hexagon socket head cap screw |
|----------------------------------|---------------------------------------------------------------------------------------------|
|----------------------------------|---------------------------------------------------------------------------------------------|

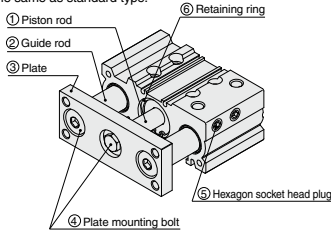
| Specifications other than above and external dimensions | Same as standard |
|---------------------------------------------------------|------------------|
|---------------------------------------------------------|------------------|

## MGP series

### Stainless Steel Modified Parts

|      |             |
|------|-------------|
| XC6A | ① ② ③ ④ ⑤ ⑥ |
| XC6B | ① ② ⑤ ⑥     |

Specifications and external dimensions other than above are the same as standard type.



## CXSJM series

### How to Order

**CXSJM** Standard model no. **-XC6**  
 Made of stainless steel

### Specifications

| Parts changed to stainless steel                        | Piston rod, retaining ring, hexagon socket head bolt, hexagon socket head set screw, dumper bolt, hexagon nut |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Specifications other than above and external dimensions | Same as standard                                                                                              |

## CXSM series

### How to Order

**CXSM** Standard model no. **-XC6**  
 Made of stainless steel

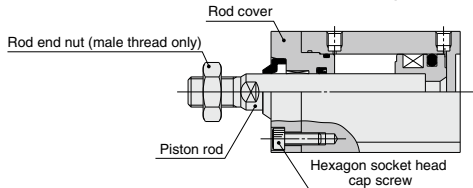
### Specifications

| Parts changed to stainless steel                        | Piston rod, retaining ring, hexagon socket head bolt, hexagon socket head set screw, dumper bolt, hexagon nut, hexagon socket head plug |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Specifications other than above and external dimensions | Same as standard                                                                                                                        |

### How to Order

**C□Q2□<sup>R</sup>** Standard model no. **-XC6A**  
**C□QP2□<sup>R</sup>**

Stainless steel used on all standard iron parts



### How to Order

**MGP<sup>M</sup><sub>L</sub>** Standard model no. **-XC6 A**

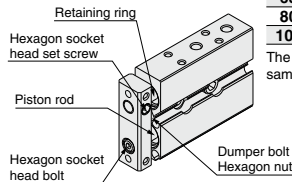
Made of stainless steel      Suffix

|   |                                                 |
|---|-------------------------------------------------|
| A | Stainless steel used on all standard iron parts |
| B | Stainless steel rod parts                       |

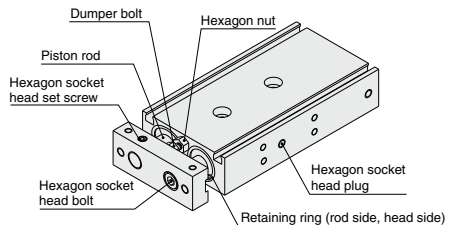
### Dimensions

|  | (mm)           |      |    |      |
|--|----------------|------|----|------|
|  | Bore size (mm) | XC6A |    | XC6B |
|  |                | DA   | FA | FB   |
|  | 12             | (6)  | 8  | 5    |
|  | 16             | (8)  | 8  | 5    |
|  | 20             | (10) | 9  | 7    |
|  | 25             | (10) | 10 | 6    |
|  | 32             | (14) | 12 | 10   |
|  | 40             | (14) | 12 | 10   |
|  | 50             | 20   | 16 | 12   |
|  | 63             | 20   | 16 | 12   |
|  | 80             | 25   | 19 | 21   |
|  | 100            | 30   | 22 | 28   |

The dimensions in ( ) are the same as standard type.



Note) The head cover retaining ring for ø6 is made of special steel.



# Made to Order Common Specifications: -XC6: Made of Stainless Steel



## 18 Made of Stainless Steel

Symbol  
-XC6

Suitable for the cases it is likely to generate rust by being immersed in the water and corrosion.

### MGG series How to Order

MGG Standard model no. -XC6  

Made of stainless steel

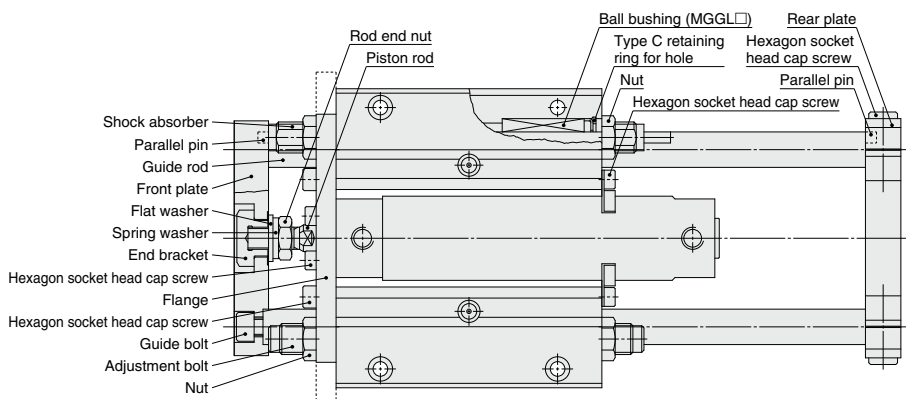
Suffix

| Nil | Piston rod, rod end nut made of stainless steel |
|-----|-------------------------------------------------|
| A   | Stainless steel used on all standard iron parts |
| B   | Stainless steel rod end moving parts            |
| C   | Stainless steel rod parts                       |

### Parts Changed to Stainless Steel

| Symbol | Basic cylinder                                                                                                         | Guide unit                                                                                                                                                                                                                                    |
|--------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -XC6   |                                                                                                                        | —                                                                                                                                                                                                                                             |
| -XC6A  | CDG1Z $\square$ N20 to 63- $\square$ Z-XC6<br>CDG1B $\square$ N80 to 100- $\square$ Z-XC6<br>(Piston rod, Rod end nut) | Flange, Front plate, Rear plate,<br>Ball bushing (MGG $\square$ ), Guide rod,<br>End bracket, Flat washer, Spring washer,<br>Type C retaining ring for hole, Adjustment bolt, Nut,<br>Parallel pin, Hexagon socket head cap screw, Guide bolt |
| -XC6B  |                                                                                                                        | Front plate, Guide rod, End bracket, Flat washer,<br>Spring washer, Parallel pin (for front plate), Guide bolt                                                                                                                                |
| -XC6C  |                                                                                                                        | Guide rod                                                                                                                                                                                                                                     |

\* Specifications other than the above are the same as the standard type.  
Note) RBL (coolant resistant) type shock absorbers are used for -XC6A.

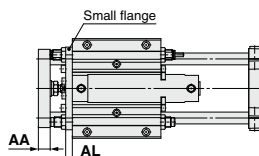


### Dimensions (Dimensions other than below are the same as standard type.)

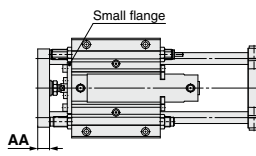
MGG $\square$ B20 to 50- $\square$ -XC6A

MGG $\square$ B20 to 50- $\square$ -XC6B  
MGG $\square$ B20 to 50- $\square$ -XC6C

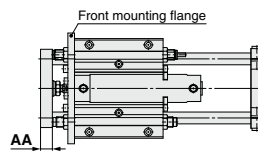
MGG $\square$ F20 to 50- $\square$ -XC6A  
MGG $\square$ F20 to 50- $\square$ -XC6B  
MGG $\square$ F20 to 50- $\square$ -XC6C



| (mm)           |    |    |
|----------------|----|----|
| Bore size (mm) | AA | AL |
| 20             | 12 | 9  |
| 25             | 16 | 9  |
| 32             | 16 | 9  |
| 40             | 19 | 12 |
| 50             | 25 | 12 |



| (mm)           |    |
|----------------|----|
| Bore size (mm) | AA |
| 20             | 12 |
| 25             | 16 |
| 32             | 16 |
| 40             | 19 |
| 50             | 25 |



| (mm)           |    |
|----------------|----|
| Bore size (mm) | AA |
| 20             | 12 |
| 25             | 16 |
| 32             | 16 |
| 40             | 19 |
| 50             | 25 |

# Made to Order Common Specifications: -XC6: Made of Stainless Steel



## 18 Made of Stainless Steel

Symbol

**-XC6**

Suitable for the cases it is likely to generate rust by being immersed in the water and corrosion.

### MGC series

#### How to Order

MGC Bearing type Mounting type Bore size Stroke Equipped/Not equipped back plate Auto switch C XC6

Note) For the XC6A, XC6B, and XC6C, this symbol is displayed when the D-A9□ or M9□ type auto switch is specified. It does not apply to other auto switches (such as the D-C7□ and H7□), (Nil)

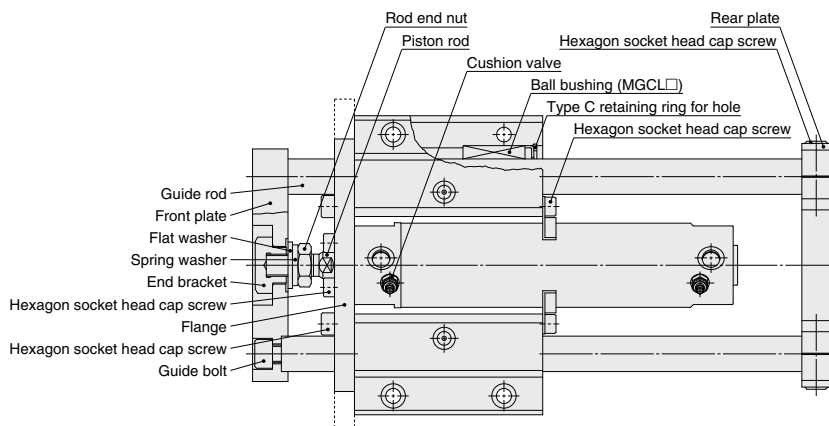
| Nil | Piston rod, rod end nut made of stainless steel |
|-----|-------------------------------------------------|
| A   | Stainless steel used on all standard iron parts |
| B   | Stainless steel rod end moving parts            |
| C   | Stainless steel rod parts                       |

Made of stainless steel  
Suffix

#### Parts Changed to Stainless Steel

| Symbol | Basic cylinder                                                     | Guide unit                                                                                                                                                                           |
|--------|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -XC6   | CDG1ZA20 to 50-□-XC6<br>(Piston rod, Rod end nut)                  | —                                                                                                                                                                                    |
| -XC6A  | CDG1BA20 to 50-□-X1057<br>(Piston rod, Rod end nut, Cushion valve) | Flange, Front plate, Rear plate, Ball bushing (MGCL□), Guide rod, End bracket, Flat washer, Spring washer, Type C retaining ring for hole, Hexagon socket head cap screw, Guide bolt |
| -XC6B  |                                                                    | Front plate, Guide rod, End bracket, Flat washer, Spring washer, Guide bolt                                                                                                          |
| -XC6C  |                                                                    | Guide rod                                                                                                                                                                            |

\* Specifications other than the above are the same as the standard type.



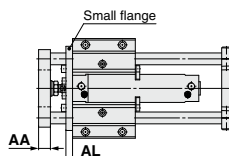
### Dimensions (Dimensions other than below are the same as standard type.)

MGC□B20 to 50-□-XC6A

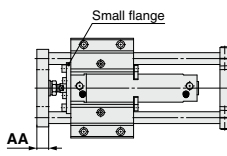
MGC□B20 to 50-□-XC6B

MGC□F20 to 50-□-XC6A

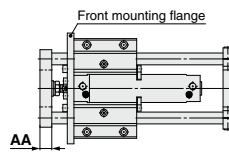
MGC□F20 to 50-□-XC6B



|                | (mm) |    |
|----------------|------|----|
| Bore size (mm) | AA   | AL |
| 20             | 12   | 9  |
| 25             | 16   | 9  |
| 32             | 16   | 9  |
| 40             | 19   | 12 |
| 50             | 25   | 12 |



|                | (mm) |
|----------------|------|
| Bore size (mm) | AA   |
| 20             | 12   |
| 25             | 16   |
| 32             | 16   |
| 40             | 19   |
| 50             | 25   |



|                | (mm) |
|----------------|------|
| Bore size (mm) | AA   |
| 20             | 12   |
| 25             | 16   |
| 32             | 16   |
| 40             | 19   |
| 50             | 25   |





# Made to Order Common Specifications:

## -XC7: Tie-rod, Cushion Valve, Tie-rod Nut, etc. Made of Stainless Steel



### 19 Tie-rod, Cushion Valve, Tie-rod Nut, etc. Made of Stainless Steel

Symbol

**-XC7**

When using in locations where the rust generation or corrosion likelihood exists, the standard parts material have been partly changed to the stainless steel.

#### Applicable Series

| Series     | Description                | Model  | Action                    | Note        | Vol. no. (for std. model) |
|------------|----------------------------|--------|---------------------------|-------------|---------------------------|
| <b>MB</b>  | Standard type              | MB-Z   | Double acting, Single rod | Except ø125 | ②-1 From P. 392           |
|            |                            | MBW-Z  | Double acting, Double rod | Except ø125 |                           |
|            | Non-rotating rod type      | MBK-Z  | Double acting, Single rod |             |                           |
|            |                            | MBKW-Z | Double acting, Double rod |             |                           |
|            | Cylinder with end locke    | MBB    | Double acting, Single rod |             |                           |
| <b>MB1</b> | Standard type              | MB1-Z  | Double acting, Single rod | Except ø125 | ②-1 From P. 440           |
|            |                            | MB1W-Z | Double acting, Double rod | Except ø125 |                           |
|            | Non-rotating rod type      | MB1K-Z | Double acting, Single rod |             |                           |
|            |                            |        |                           |             |                           |
| <b>CA2</b> | Standard type              | CA2-Z  | Double acting, Single rod |             | ②-1 From P. 470           |
|            |                            | CA2W-Z | Double acting, Double rod |             |                           |
|            | Non-rotating rod type      | CA2K   | Double acting, Single rod |             |                           |
|            |                            | CA2KW  | Double acting, Double rod |             |                           |
|            | End lock cylinder          | CBA2   | Double acting, Single rod |             |                           |
|            | Smooth cylinder            | CA2Y-Z | Double acting, Single rod |             |                           |
| <b>CV</b>  | Valve mounted air cylinder | CV3    | Double acting, Single rod |             | ②-3 From P. 812           |
|            |                            | CVS1   | Double acting, Single rod |             |                           |
|            |                            | CV3K   | Double acting, Single rod |             |                           |
|            |                            | CVS1K  | Double acting, Single rod |             |                           |

#### How to Order

Standard model no. **-XC7**

Tie-rod, Cushion valve, Tie-rod nut, etc. made of stainless steel

#### Specifications

|                                            |                                                                                    |
|--------------------------------------------|------------------------------------------------------------------------------------|
| Component parts changed to stainless steel | Tie-rod, Tie-rod nut, Mounting bracket nut, Spring washer, Cushion valve, Lock nut |
| Additional specifications                  | Same as standard type                                                              |
| Dimensions                                 | Same as standard type                                                              |

# Made to Order Common Specifications: -XC8: Adjustable Stroke Cylinder/Adjustable Extension Type



## 20 Adjustable Stroke Cylinder/Adjustable Extension Type

It adjusts the extending stroke by the stroke adjustable mechanism equipped in the head side. (After the stroke is adjusted, with cushion on both sides is altered to single-sided, with cushion.)

### Applicable Series

| Series | Description                         | Model   | Action        | Note                                                                                 | Vol. no. (for std model) |
|--------|-------------------------------------|---------|---------------|--------------------------------------------------------------------------------------|--------------------------|
| CJ2    | Air cylinder                        | CJ2-Z   | Double acting | Except double clevis type and with air cushion                                       | ②-1 From P. 46           |
| CM2    | Air cylinder                        | CM2-Z   | Double acting | Except boss-cut and clevis types                                                     | ②-1 From P. 172          |
|        | Non-rotating rod type               | CM2K-Z  | Double acting | Except boss-cut and clevis types                                                     |                          |
|        | Direct mount type                   | CM2R-Z  | Double acting | Head cover is equipped with boss.                                                    |                          |
|        | End lock cylinder                   | CBM2    | Double acting | Except clevis type Head side locking type only, Except with air cushion              |                          |
|        | Air-hydro type                      | CM2H-Z  | Double acting | Except clevis type                                                                   |                          |
| CG1    | Direct mount type, air-hydro type   | CM2HR-Z | Double acting | Head cover is equipped with boss.                                                    | ②-1 From P. 292          |
|        | Air cylinder                        | CG1-Z   | Double acting | Except head side flange and clevis types, ø80, and ø100                              |                          |
|        | Non-rotating rod type               | CG1K-Z  | Double acting | Except head side flange, clevis types and with air cushion                           |                          |
|        | Direct mount type                   | CG1R-Z  | Double acting | Except with air cushion                                                              |                          |
|        | Direct mount, Non-rotating rod type | CG1KR-Z | Double acting | Except with air cushion                                                              |                          |
| MB     | Air cylinder                        | MB-Z    | Double acting | Except ø125, with rubber bumper, with auto switch, head side flange and clevis types | ②-1 From P. 392          |
|        | Non-rotating rod type               | MBK-Z   | Double acting | Except ø125, with rubber bumper, with auto switch, head side flange and clevis types |                          |
| MB1    | Air cylinder                        | MB1-Z   | Double acting | Except ø125, with rubber bumper, with auto switch, head side flange and clevis types | ②-1 From P. 440          |
|        | Non-rotating rod type               | MB1K-Z  | Double acting | Except head side flange and clevis types                                             |                          |
| CA2    | Air cylinder                        | CA2-Z   | Double acting | Except head side flange and clevis types                                             | ②-1 From P. 470          |
|        | Non-rotating rod type               | CA2K    | Double acting | Except head side flange and clevis types                                             |                          |
|        | End lock cylinder                   | CBA2    | Double acting | Except head side flange and clevis types, Locking in head side only                  |                          |
| CS1    | Air cylinder                        | CS1     | Double acting | Except head side flange and clevis types                                             | ②-1 From P. 530          |
|        | Air-hydro type                      | CS1H    | Double acting | Except head side flange and clevis types                                             |                          |
| CQS    | Compact cylinder                    | CQS     | Double acting | Except with rubber bumper and with mounting bracket                                  | ②-1 From P. 693          |
|        | Non-rotating rod                    | CQSK    | Double acting | Except with rubber bumper and with mounting bracket                                  |                          |
| CQ2    | Compact cylinder                    | CQ2-Z   | Double acting | Except with rubber bumper and with mounting bracket                                  | ②-1 From P. 773          |
|        | Non-rotating rod type               | CQ2K-Z  | Double acting | Except with rubber bumper and with mounting bracket                                  |                          |
|        | Air-hydro type                      | CQ2H-Z  | Double acting | Except with mounting bracket                                                         |                          |
| MTS    | Precision cylinder                  | MTS     | Double acting |                                                                                      | ②-2 From P. 384          |
|        |                                     | MGPM-Z  | Double acting |                                                                                      |                          |
|        |                                     | MGPL-Z  | Double acting |                                                                                      |                          |
| MGP    | Compact guide cylinder              | MGPA-Z  | Double acting |                                                                                      | ②-2 From P. 432          |
|        |                                     |         |               |                                                                                      |                          |
| MGG    | Guide cylinder                      | MGG     | Double acting |                                                                                      | ②-2 From P. 538          |
| MGC    | Guide cylinder                      | MGC     | Double acting |                                                                                      | ②-2 From P. 578          |

### How to Order

|                                            |               |                 |           |                  |                          |                          |                                  |                                |        |
|--------------------------------------------|---------------|-----------------|-----------|------------------|--------------------------|--------------------------|----------------------------------|--------------------------------|--------|
| CJ2                                        | Mounting type |                 | Bore size |                  |                          | -                        | Stroke                           |                                | Z- XC8 |
| CM2                                        | Mounting type | Bore size       | -         | Stroke           | Cushion                  | Rod end type symbol      | Z- XC8                           | Stroke adjustment symbol       |        |
| CG1                                        | Mounting type | Type            | Bore size | -                | Stroke                   | Rod end type symbol      | Stroke adjustment symbol         | Z- XC8                         |        |
| CBM2                                       | Mounting type | Bore size       | -         | Stroke           | Stroke adjustment symbol | -H                       | Manual release type              | XC8                            |        |
| CBA2                                       |               |                 |           |                  |                          |                          |                                  |                                |        |
| MB                                         | Mounting type | Bore size       | -         | Stroke           | Suffix                   | Stroke adjustment symbol | Z- XC8                           |                                |        |
| MB1                                        |               |                 |           |                  |                          |                          |                                  |                                |        |
| * Except head side flange and clevis types |               |                 |           |                  |                          |                          |                                  |                                |        |
| CA2                                        | Mounting type | Bore size       | -         | Stroke           | Suffix                   | Stroke adjustment symbol | Z- XC8                           |                                |        |
| * Except head side flange and clevis types |               |                 |           |                  |                          |                          |                                  |                                |        |
| CA2K                                       | Mounting type | Bore size       | -         | Stroke           | Suffix                   | Stroke adjustment symbol | - XC8                            |                                |        |
| * Except head side flange and clevis types |               |                 |           |                  |                          |                          |                                  |                                |        |
| CS1                                        | Mounting type | Tubing material | Type      | Bore size        | -                        | Stroke                   | Suffix                           | Stroke adjustment symbol - XC8 |        |
| * Except head side flange and clevis types |               |                 |           |                  |                          |                          |                                  |                                |        |
| CQSB                                       | Bore size     | -               | Stroke    | D(M)             |                          |                          |                                  | XC8                            |        |
| CQ2B(H)                                    | Bore size     | -               | Stroke    | D(M) (Z)         |                          |                          |                                  | XC8                            |        |
| MTS                                        | Bore size     | -               | Stroke    | (R)              |                          |                          |                                  | XC8                            |        |
| MGP                                        | Bearing type  | Bore size       | -         | Stroke           | Stroke adjustment symbol |                          | Z- XC8                           |                                |        |
| MGG                                        | Bearing type  | Mounting type   | Bore size | Port thread type | -                        | Stroke                   | Stroke adjustment symbol         | - XC8                          |        |
| MGC                                        | Bearing type  | Mounting type   | Bore size | Port thread type | -                        | Stroke                   | Stroke adjustment symbol         | - XC8                          |        |
|                                            |               |                 |           |                  |                          |                          | Equipped/Not equipped back plate | - XC8                          |        |

Adjustable stroke cylinder/Adjustable extend type

# Made to Order Common Specifications: Adjustable Stroke Cylinder/Adjustable Extension Type

Symbol  
**-XC8**

## Specifications

| Series                                                                          | Stroke adjustment symbol | Stroke adjustment range (mm) |
|---------------------------------------------------------------------------------|--------------------------|------------------------------|
| <b>CJ2</b>                                                                      | —                        | 0 to 15                      |
| <b>CM2</b><br><b>CG1</b><br><b>MB</b><br><b>MB1</b><br><b>CA2</b><br><b>CS1</b> | A                        | 0 to 25                      |
|                                                                                 | B                        | 0 to 50                      |

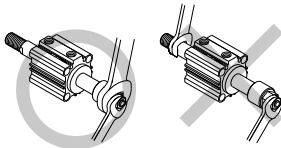
Note) Specifications other than above are the same as standard type.

| Series                   | Stroke adjustment symbol | Stroke adjustment range (mm)         |
|--------------------------|--------------------------|--------------------------------------|
| <b>CQ2</b><br><b>CQS</b> | —                        | 0 to 10                              |
| <b>MGG</b><br><b>MGC</b> | A                        | 0 to 25                              |
|                          | B                        | 0 to 50                              |
| <b>MGP</b>               | A                        | 0 to 10                              |
|                          | B                        | 0 to 25                              |
| <b>MTS</b>               | —                        | 0 to 10 (ø8)<br>0 to 25 (ø12 to ø40) |

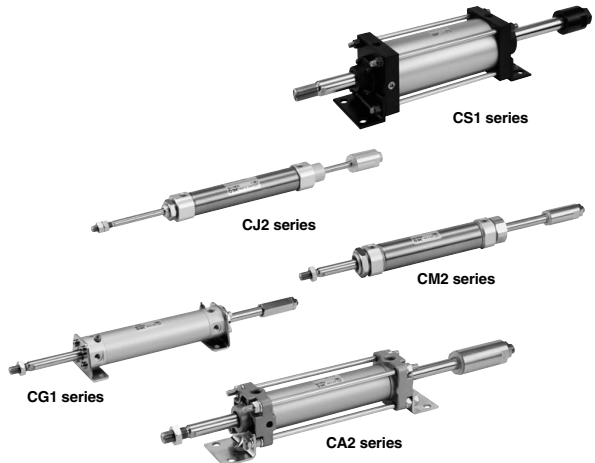
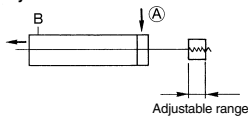
## Precautions

### ⚠ Warning

- When the cylinder is operating, if something gets caught between the stopper bracket for adjusting the stroke and the cylinder body, it could cause bodily injury or damage the peripheral equipment. Therefore, take preventive measures as necessary, such as installing a protective cover.
- To adjust the stroke, make sure to secure the wrench flats of the stopper bracket by a wrench, etc. before loosening the lock nut. If the lock nut is loosened without securing the stopper bracket, be aware that the area that joins the load to the piston rod or the area in which the piston rod is joined with the load side and the stopper bracket side could loosen first. It may cause an accident or malfunction.



### Symbol



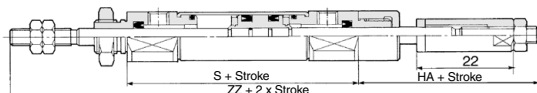
# Made to Order Common Specifications: -XC8: Adjustable Stroke Cylinder/Adjustable Extension Type



## 20 Adjustable Stroke Cylinder/Adjustable Extension Type

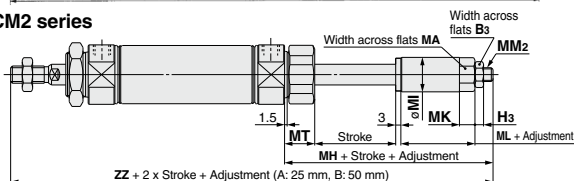
**Dimensions** (Dimensions other than below are the same as standard type.)

### CJ2 series



| (mm)           |    |    |     |
|----------------|----|----|-----|
| Bore size (mm) | HA | S  | ZZ  |
| 10             | 37 | 49 | 114 |
| 16             | 37 | 50 | 115 |

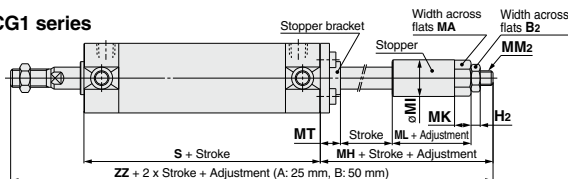
### CM2 series



#### CM2 Series

| (mm)           |                |                |    |    |    |                 |      |    |    |     |
|----------------|----------------|----------------|----|----|----|-----------------|------|----|----|-----|
| Bore size (mm) | B <sub>3</sub> | H <sub>3</sub> | MA | MI | MK | MM <sub>2</sub> | MT   | MH | ML | ZZ  |
| 20             | 10             | 3.6            | 12 | 14 | 7  | M6 x 1          | 16.5 | 47 | 18 | 150 |
| 25             | 13             | 5              | 17 | 20 | 9  | M8 x 1.25       | 17.5 | 49 | 18 | 156 |
| 32             | 13             | 5              | 17 | 20 | 9  | M8 x 1.25       | 17.5 | 49 | 18 | 158 |
| 40             | 17             | 6              | 19 | 25 | 10 | M10 x 1.25      | 21.5 | 60 | 24 | 198 |

### CG1 series

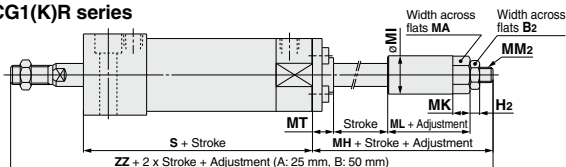


#### CG1 Series

| (mm)           |                |                |    |    |    |    |    |                 |    |     |     |
|----------------|----------------|----------------|----|----|----|----|----|-----------------|----|-----|-----|
| Bore size (mm) | B <sub>2</sub> | H <sub>2</sub> | MA | MH | MI | MK | ML | MM <sub>2</sub> | MT | S   | ZZ  |
| 20             | 10             | 3.6            | 12 | 38 | 14 | 7  | 18 | M6 x 1          | 9  | 77  | 150 |
| 25             | 13             | 5              | 17 | 41 | 20 | 9  | 18 | M8 x 1.25       | 11 | 77  | 158 |
| 32             | 13             | 5              | 17 | 41 | 20 | 9  | 18 | M8 x 1.25       | 11 | 79  | 160 |
| 40             | 17             | 6              | 19 | 47 | 25 | 10 | 24 | M10 x 1.25      | 11 | 87  | 184 |
| 50             | 19             | 8              | 24 | 60 | 32 | 13 | 32 | M14 x 1.5       | 11 | 102 | 220 |
| 63             | 19             | 8              | 24 | 60 | 32 | 13 | 32 | M14 x 1.5       | 13 | 102 | 220 |

\* On the axial foot type, the foot bracket is wedged and bolted between the cylinder and the stopper bracket at the time of shipment. On other types, it is placed in the same package (not assembled).

### CG1(K)R series



#### CG1(K)R Series

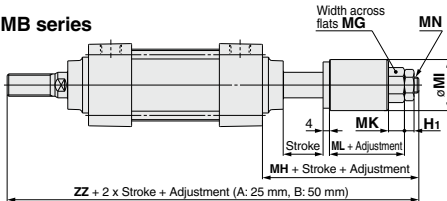
| (mm)           |                |                |    |    |    |    |    |                 |    |     |     |
|----------------|----------------|----------------|----|----|----|----|----|-----------------|----|-----|-----|
| Bore size (mm) | B <sub>2</sub> | H <sub>2</sub> | MA | MH | MI | MK | ML | MM <sub>2</sub> | MT | S   | ZZ  |
| 20             | 10             | 3.6            | 12 | 38 | 14 | 7  | 18 | M6 x 1          | 9  | 83  | 148 |
| 25             | 13             | 5              | 17 | 41 | 20 | 9  | 18 | M8 x 1.25       | 11 | 85  | 158 |
| 32             | 13             | 5              | 17 | 41 | 20 | 9  | 18 | M8 x 1.25       | 11 | 91  | 164 |
| 40             | 17             | 6              | 19 | 47 | 25 | 10 | 24 | M10 x 1.25      | 11 | 103 | 189 |
| 50             | 19             | 8              | 24 | 60 | 32 | 13 | 32 | M14 x 1.5       | 11 | 120 | 225 |
| 63             | 19             | 8              | 24 | 60 | 32 | 13 | 32 | M14 x 1.5       | 13 | 126 | 231 |

# Made to Order Common Specifications: Adjustable Stroke Cylinder/Adjustable Extension Type

Symbol  
**-XC8**

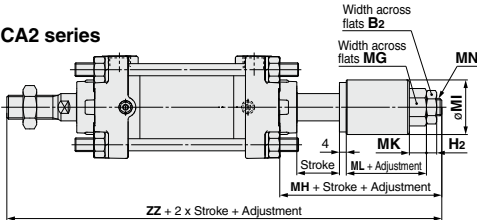
## Dimensions (Dimensions other than below are the same as standard type.)

### MB series



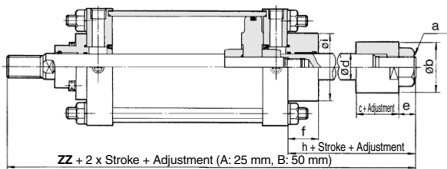
| Bore size (mm) | MG | MH | MI | MK | ML | MN         | ZZ  |
|----------------|----|----|----|----|----|------------|-----|
| 32             | 17 | 44 | 23 | 9  | 20 | M8 x 1.25  | 175 |
| 40             | 19 | 48 | 32 | 10 | 22 | M10 x 1.25 | 183 |
| 50             | 24 | 53 | 38 | 13 | 24 | M14 x 1.5  | 205 |
| 63             | 24 | 53 | 38 | 13 | 24 | M14 x 1.5  | 205 |
| 80             | 27 | 72 | 45 | 14 | 32 | M16 x 1.5  | 258 |
| 100            | 32 | 75 | 55 | 17 | 35 | M20 x 1.5  | 261 |

### CA2 series



| Bore size (mm) | H2 | MG | MH | MI | MK | ML | MN         | ZZ  |
|----------------|----|----|----|----|----|----|------------|-----|
| 40             | 6  | 19 | 45 | 32 | 10 | 22 | M10 x 1.25 | 180 |
| 50             | 8  | 24 | 49 | 38 | 13 | 24 | M14 x 1.5  | 197 |
| 63             | 8  | 24 | 49 | 38 | 13 | 24 | M14 x 1.5  | 205 |
| 80             | 10 | 27 | 66 | 45 | 14 | 32 | M16 x 1.5  | 253 |
| 100            | 12 | 32 | 69 | 55 | 17 | 35 | M20 x 1.5  | 267 |

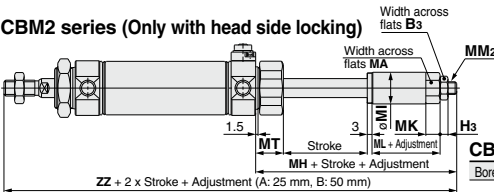
### CS1 series



| Bore size (mm) | a         | ob  | c  | od | e    | f  | h     | oi  | ZZ     |
|----------------|-----------|-----|----|----|------|----|-------|-----|--------|
| 125            | M30 x 1.5 | 70  | 43 | 36 | 27   | 40 | 110   | 90  | 318    |
| 140            | M30 x 1.5 | 70  | 43 | 36 | 27   | 40 | 110   | 90  | 318    |
| 160            | M30 x 1.5 | 70  | 43 | 36 | 27   | 40 | 110   | 90  | 336    |
| 180            | M42 x 1.5 | 80  | 50 | 45 | 37.5 | 45 | 132.5 | 115 | 378.5* |
| 200            | M42 x 1.5 | 80  | 50 | 50 | 37.5 | 45 | 132.5 | 115 | 378.5* |
| 250            | M56 x 2   | 110 | 70 | 60 | 50   | 55 | 175   | 140 | 476    |
| 300            | M56 x 2   | 110 | 70 | 70 | 50   | 55 | 175   | 140 | 496    |

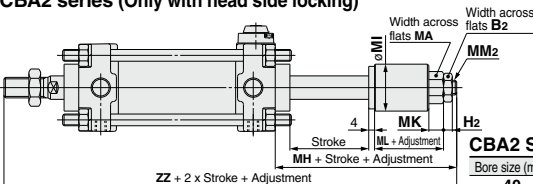
\* With auto switch ø180: 382.5, ø200: 387.5

### CBM2 series (Only with head side locking)



| Bore size (mm) | B3 | H3  | MA | MI | MK | MM2        | MT   | MH | ML | ZZ  |
|----------------|----|-----|----|----|----|------------|------|----|----|-----|
| 20             | 10 | 3.6 | 12 | 14 | 7  | M6 x 1     | 16.5 | 47 | 18 | 150 |
| 25             | 13 | 5   | 17 | 20 | 9  | M8 x 1.25  | 17.5 | 49 | 18 | 156 |
| 32             | 13 | 5   | 17 | 20 | 9  | M8 x 1.25  | 17.5 | 49 | 18 | 158 |
| 40             | 17 | 6   | 19 | 25 | 10 | M10 x 1.25 | 21.5 | 60 | 24 | 198 |

### CBA2 series (Only with head side locking)



| Bore size (mm) | B2 | H2 | MA | MI | MK | MM2        | MH | ML | ZZ  |
|----------------|----|----|----|----|----|------------|----|----|-----|
| 40             | 17 | 6  | 19 | 32 | 10 | M10 x 1.25 | 45 | 22 | 180 |
| 50             | 22 | 8  | 24 | 38 | 13 | M14 x 1.5  | 51 | 24 | 199 |
| 63             | 22 | 8  | 24 | 38 | 13 | M14 x 1.5  | 49 | 24 | 205 |
| 80             | 24 | 10 | 27 | 45 | 14 | M16 x 1.5  | 66 | 32 | 253 |
| 100            | 30 | 12 | 32 | 55 | 17 | M20 x 1.5  | 69 | 35 | 267 |

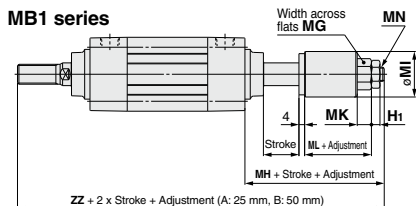
# Made to Order Common Specifications: -XC8: Adjustable Stroke Cylinder/Adjustable Extension Type



## 20 Adjustable Stroke Cylinder/Adjustable Extension Type

**Dimensions** (Dimensions other than below are the same as standard type.)

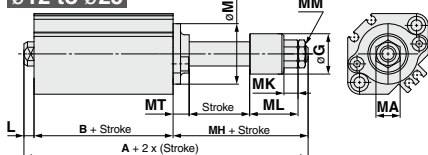
### MB1 series



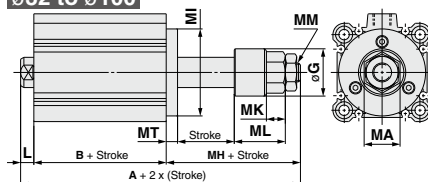
| Bore size | MG | MH | MI | MK | ML | MN         | ZZ  |
|-----------|----|----|----|----|----|------------|-----|
| 32        | 17 | 44 | 23 | 9  | 20 | M8 x 1.25  | 175 |
| 40        | 19 | 48 | 32 | 10 | 22 | M10 x 1.25 | 183 |
| 50        | 24 | 53 | 38 | 13 | 24 | M14 x 1.5  | 205 |
| 63        | 24 | 53 | 38 | 13 | 24 | M14 x 1.5  | 205 |
| 80        | 27 | 72 | 45 | 14 | 32 | M16 x 1.5  | 258 |
| 100       | 32 | 75 | 55 | 17 | 35 | M20 x 1.5  | 261 |

### CQ2, CQ2H series

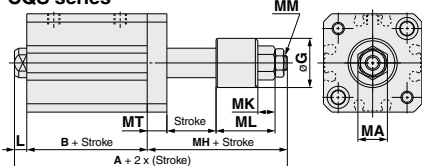
ø12 to ø25



ø32 to ø100

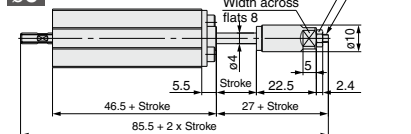


### CQS series

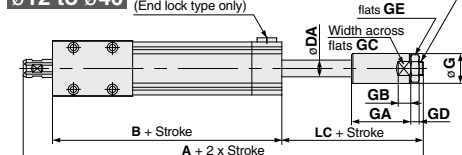


### MTS series

ø8



ø12 to ø40



| Bore size | A             | B           | L   | MH | MT | MA | MI        | MM         | MK  | ML   | oG | Stroke adjustment range |
|-----------|---------------|-------------|-----|----|----|----|-----------|------------|-----|------|----|-------------------------|
| 12        | 57.7 (64.9)   | 25.2 (32.4) | 3.5 | 29 | 5  | 8  | □25 (ø15) | M4 x 0.7   | 5.5 | 20   | 14 | 5 to 30                 |
| 16        | 58.5 (68.5)   | 26 (36)     | 3.5 | 29 | 5  | 10 | □28 (ø20) | M5 x 0.8   | 5.5 | 20   | 14 | 5 to 30                 |
| 20        | 67.5 (79.5)   | 26 (38)     | 4.5 | 37 | 8  | 12 | □36 (ø25) | M6 x 1     | 7   | 24   | 20 | 5 to 50                 |
| 25        | 71 (81)       | 29 (39)     | 5   | 37 | 8  | 12 | □40 (ø30) | M6 x 1     | 7   | 24   | 20 | 5 to 50                 |
| 32        | 78.5 (88.5)   | 30.5 (40.5) | 7   | 41 | 6  | 17 | ø38       | M8 x 1.25  | 9   | 28.5 | 25 | 5 to 50                 |
| 40        | 88 (98)       | 40 (50)     | 7   | 41 | 6  | 19 | ø46       | M10 x 1.25 | 10  | 27   | 25 | 5 to 50                 |
| 50        | 100.5 (110.5) | 40.5 (50.5) | 8   | 52 | 8  | 24 | ø57       | M14 x 1.5  | 13  | 31   | 35 | 10 to 50                |
| 63        | 102 (112)     | 42 (52)     | 8   | 52 | 10 | 24 | ø68       | M14 x 1.5  | 13  | 31   | 35 | 10 to 50                |
| 80        | 125 (135)     | 51 (61)     | 10  | 64 | 12 | 32 | ø90       | M20 x 1.5  | 16  | 40   | 45 | 10 to 50                |
| 100       | 138.5 (148.5) | 60.5 (70.5) | 12  | 66 | 14 | 32 | ø110      | M20 x 1.5  | 16  | 40   | 45 | 10 to 50                |

Note 1) ( ) : Denotes the dimensions with auto switch.

Note 2) Applicable stroke available in 5 mm increments.

| Bore size | A           | B       | L   | MH   | MT | MA | MM       | MK  | ML | oG | Stroke adjustment range |
|-----------|-------------|---------|-----|------|----|----|----------|-----|----|----|-------------------------|
| 12        | 56.1 (61.1) | 22 (27) | 3.5 | 30.6 | 5  | 8  | M4 x 0.7 | 5.5 | 20 | 14 | 5 to 30                 |
| 16        | 56.5 (61.5) | 22 (27) | 3.5 | 31   | 5  | 10 | M5 x 0.8 | 5.5 | 20 | 14 | 5 to 30                 |
| 20        | 67.5 (77.5) | 26 (36) | 4.5 | 37   | 8  | 12 | M6 x 1   | 7   | 24 | 20 | 5 to 50                 |
| 25        | 71 (81)     | 29 (39) | 5   | 37   | 8  | 12 | M6 x 1   | 7   | 24 | 20 | 5 to 50                 |

Note 1) ( ) : Denotes the dimensions with auto switch.

Note 2) Applicable stroke available in 5 mm increments.

### Basic Type

| Bore size (mm) | A     | B     | LC   | DA | G    | GA   | GB   | GC | GD | GE | GF         |
|----------------|-------|-------|------|----|------|------|------|----|----|----|------------|
| 12             | 145   | 80.5  | 49.5 | 6  | 13.5 | 42.5 | 6    | 11 | 4  | 8  | M5 x 0.8   |
| 16             | 149.5 | 83    | 50.5 | 8  | 15.5 | 42.5 | 7    | 13 | 5  | 10 | M6 x 1.0   |
| 20             | 175   | 106.5 | 50.5 | 10 | 19.5 | 42.5 | 8.5  | 17 | 5  | 13 | M8 x 1.25  |
| 25             | 187   | 114.5 | 51.5 | 12 | 21.5 | 42.5 | 9    | 19 | 6  | 17 | M10 x 1.25 |
| 32             | 222.5 | 142.5 | 56   | 16 | 27.5 | 45   | 10.5 | 24 | 8  | 22 | M14 x 1.5  |
| 40             | 240   | 155   | 59   | 20 | 32.5 | 45   | 11.5 | 27 | 11 | 27 | M18 x 1.5  |

### With End Lock

| Bore size (mm) | A     | B     |
|----------------|-------|-------|
| 12             | 163   | 98.5  |
| 16             | 165.5 | 99    |
| 20             | 191.5 | 123   |
| 25             | 201.5 | 129   |
| 32             | 238.5 | 158.5 |
| 40             | 258.5 | 173.5 |

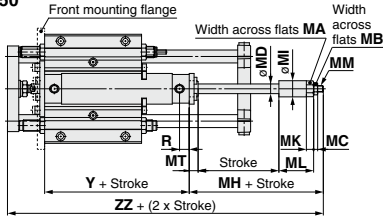
# Made to Order Common Specifications: Adjustable Stroke Cylinder/Adjustable Extension Type

Symbol  
**-XC8**

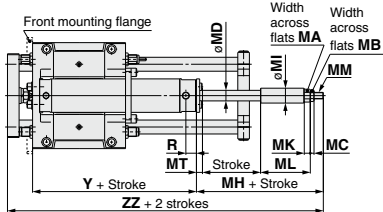
## Dimensions (Dimensions other than below are the same as standard type.)

### MGG series

ø20 to ø50

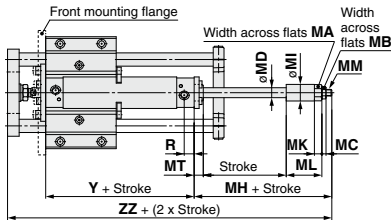


ø63

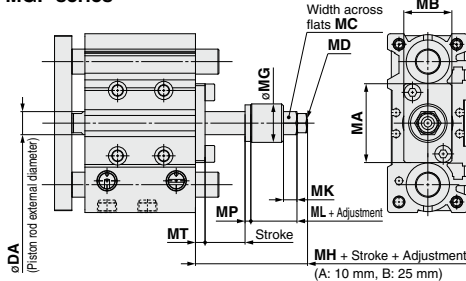


### MGC series

ø20 to ø50



### MGP series



### MGG Series

(mm)

| Bore size (mm) | R  | Y   | MA | MB | MC  | MD | MI | MK | MM         | MT |
|----------------|----|-----|----|----|-----|----|----|----|------------|----|
| 20             | 12 | 77  | 12 | 10 | 3.6 | 8  | 14 | 7  | M6 x 1     | 9  |
| 25             | 12 | 77  | 17 | 13 | 5   | 10 | 20 | 9  | M8 x 1.25  | 11 |
| 32             | 12 | 79  | 17 | 13 | 5   | 12 | 20 | 9  | M8 x 1.25  | 11 |
| 40             | 13 | 87  | 19 | 17 | 6   | 16 | 25 | 10 | M10 x 1.25 | 11 |
| 50             | 14 | 102 | 24 | 19 | 8   | 20 | 32 | 13 | M14 x 1.5  | 11 |
| 63             | 14 | 117 | 24 | 19 | 8   | 20 | 32 | 13 | M14 x 1.5  | 13 |

| Bore size (mm) | Adjustment 0 to 25 mm |    |     | Adjustment 0 to 50 mm |    |     |
|----------------|-----------------------|----|-----|-----------------------|----|-----|
|                | MH                    | ML | ZZ  | MH                    | ML | ZZ  |
| 20             | 63                    | 43 | 179 | 88                    | 68 | 204 |
| 25             | 66                    | 43 | 189 | 91                    | 68 | 214 |
| 32             | 66                    | 43 | 191 | 91                    | 68 | 216 |
| 40             | 72                    | 49 | 215 | 97                    | 74 | 240 |
| 50             | 85                    | 57 | 254 | 110                   | 82 | 279 |
| 63             | 85                    | 57 | 256 | 110                   | 82 | 281 |

\* The piston speed for the extension side is 50 to 500 mm/s.

### MGC Series

(mm)

| Bore size (mm) | R  | Y   | MA | MB | MC  | MD | MI | MK | MM         | MT |
|----------------|----|-----|----|----|-----|----|----|----|------------|----|
| 20             | 12 | 77  | 12 | 10 | 3.6 | 8  | 14 | 7  | M6 x 1     | 9  |
| 25             | 12 | 77  | 17 | 13 | 5   | 10 | 20 | 9  | M8 x 1.25  | 11 |
| 32             | 12 | 79  | 17 | 13 | 5   | 12 | 20 | 9  | M8 x 1.25  | 11 |
| 40             | 13 | 87  | 19 | 17 | 6   | 16 | 25 | 10 | M10 x 1.25 | 11 |
| 50             | 14 | 102 | 24 | 19 | 8   | 20 | 32 | 13 | M14 x 1.5  | 11 |

| Bore size (mm) | Adjustment 0 to 25 mm |    |     | Adjustment 0 to 50 mm |    |     |
|----------------|-----------------------|----|-----|-----------------------|----|-----|
|                | MH                    | ML | ZZ  | MH                    | ML | ZZ  |
| 20             | 63                    | 43 | 179 | 88                    | 68 | 204 |
| 25             | 66                    | 43 | 189 | 91                    | 68 | 214 |
| 32             | 66                    | 43 | 191 | 91                    | 68 | 216 |
| 40             | 72                    | 49 | 215 | 97                    | 74 | 240 |
| 50             | 85                    | 57 | 254 | 110                   | 82 | 279 |

\* The piston speed for the extension side is 50 to 500 mm/s.

### Common Dimensions: MGPM-Z, MGPL-Z, MGPA-Z

(mm)

| Bore size (mm) | DA | MA  | MB | MC | MD         | øMG | MH | MK  | ML   | MP | MT |
|----------------|----|-----|----|----|------------|-----|----|-----|------|----|----|
| 12             | 6  | 27  | 13 | 8  | M4 x 0.7   | 14  | 20 | 5.5 | 10   | 3  | 3  |
| 16             | 8  | 28  | 16 | 10 | M5 x 0.8   | 14  | 20 | 5.5 | 10   | 3  | 3  |
| 20             | 10 | 33  | 22 | 12 | M6 x 1     | 20  | 26 | 7   | 14   | 3  | 4  |
| 25             | 12 | 41  | 25 | 12 | M6 x 1     | 20  | 27 | 7   | 14   | 3  | 5  |
| 32             | 16 | 51  | 32 | 17 | M8 x 1.25  | 25  | 35 | 9   | 18.5 | 4  | 6  |
| 40             | 16 | 60  | 32 | 19 | M10 x 1.25 | 25  | 35 | 10  | 17   | 4  | 6  |
| 50             | 20 | 71  | 38 | 24 | M14 x 1.5  | 35  | 46 | 13  | 21   | 4  | 8  |
| 63             | 20 | 84  | 50 | 24 | M14 x 1.5  | 35  | 46 | 13  | 21   | 4  | 8  |
| 80             | 25 | 114 | 50 | 32 | M20 x 1.5  | 45  | 55 | 16  | 30   | 4  | 9  |
| 100            | 30 | 140 | 65 | 32 | M20 x 1.5  | 45  | 58 | 16  | 30   | 4  | 12 |

# Made to Order Common Specifications: -XC9: Adjustable Stroke Cylinder/Adjustable Retraction Type



## 21 Adjustable Stroke Cylinder/Adjustable Retraction Type

The retract stroke of the cylinder can be adjusted by the adjustment bolt.

### Applicable Series

| Series | Description                        | Model   | Action                    | Note                                                                                 | Vol. no. (for std model) |
|--------|------------------------------------|---------|---------------------------|--------------------------------------------------------------------------------------|--------------------------|
| CJ2    | Air cylinder                       | CJ2-Z   | Double acting, Single rod | Except double clevis type and with air cushion                                       | 2-1 From P. 46           |
|        | Non-rotating rod                   | CJ2K-Z  | Double acting, Single rod | Except double clevis type                                                            |                          |
|        | Direct mount type                  | CJ2R-Z  | Double acting, Single rod |                                                                                      |                          |
|        | Non-rotating rod/Direct mount type | CJ2RK-Z | Double acting, Single rod |                                                                                      |                          |
|        | Smooth cylinder                    | CJ2Y-Z  | Double acting, Single rod |                                                                                      |                          |
| CM2    | Air cylinder                       | CM2-Z   | Double acting, Single rod | Except boss-cut and clevis types                                                     | 2-1 From P. 172          |
|        | Non-rotating rod                   | CM2K-Z  | Double acting, Single rod | Except boss-cut and clevis types                                                     |                          |
|        | Direct mount type                  | CM2R-Z  | Double acting, Single rod | Except the head cover with boss                                                      |                          |
|        | Non-rotating rod/Direct mount type | CM2RK-Z | Double acting, Single rod | Except the head cover with boss                                                      |                          |
|        | Smooth cylinder                    | CM2Y-Z  | Double acting, Single rod | Except boss-cut and clevis types                                                     |                          |
| CG1    | Air cylinder                       | CG1-Z   | Double acting, Single rod | Except head side flange and clevis types, ø80, and ø100                              | 2-1 From P. 292          |
|        | Non-rotating rod                   | CG1K-Z  | Double acting, Single rod | Except head side flange, clevis types and with air cushion                           |                          |
|        | Direct mount type                  | CG1R-Z  | Double acting, Single rod | Except with air cushion                                                              |                          |
|        | Non-rotating rod/Direct mount type | CG1KR-Z | Double acting             | Except with air cushion                                                              |                          |
| MB     | Air cylinder                       | MB-Z    | Double acting, Single rod | Except ø125, with rubber bumper, with auto switch, head side flange and clevis types | 2-1 From P. 392          |
|        | Non-rotating rod                   | MBK-Z   | Double acting, Single rod | Except ø125, with rubber bumper, with auto switch, head side flange and clevis types |                          |
| MB1    | Air cylinder                       | MB1-Z   | Double acting, Single rod | Except ø125, with rubber bumper, with auto switch, head side flange and clevis types | 2-1 From P. 440          |
|        | Non-rotating rod                   | MB1K-Z  | Double acting, Single rod | Except head side flange and clevis types                                             |                          |
| CA2    | Air cylinder                       | CA2-Z   | Double acting, Single rod | Except head side flange and clevis types                                             | 2-1 From P. 470          |
|        | Non-rotating rod                   | CA2K    | Double acting, Single rod | Except head side flange and clevis types                                             |                          |
|        | End lock cylinder                  | CBA2    | Double acting, Single rod | Except head side flange and clevis types                                             |                          |
| CS1    | Air cylinder                       | CS1     | Double acting, Single rod | Except head side flange and clevis types, ø125 to ø160                               | 2-1 From P. 530          |
| CS2    | Air cylinder                       | CS2     | Double acting, Single rod | Except head side flange and clevis types                                             | 2-1 From P. 568          |
|        | Smooth cylinder                    | CS2Y    | Double acting, Single rod | Except head side flange and clevis types                                             |                          |
| CQS    | Compact cylinder                   | CQS     | Double acting, Single rod | Except with rubber bumper and with mounting bracket                                  | 2-1 From P. 693          |
| CQ2    | Compact cylinder                   | CQ2-Z   | Double acting, Single rod | Except with rubber bumper and with mounting bracket                                  | 2-1 From P. 773          |
|        | Non-rotating rod                   | CQ2K-Z  | Double acting, Single rod | Except with rubber bumper and with mounting bracket                                  |                          |
| MGP    | Compact guide cylinder             | MGPM-Z  | Double acting             |                                                                                      | 2-2 From P. 432          |
|        |                                    | MGPL-Z  | Double acting             |                                                                                      |                          |
|        |                                    | MGPA-Z  | Double acting             |                                                                                      |                          |
| MGG    | Guide cylinder                     | MGG     | Double acting             |                                                                                      | 2-2 From P. 538          |
| MGC    | Guide cylinder                     | MGC     | Double acting             |                                                                                      | 2-2 From P. 578          |

### How to Order

|      |                                            |                 |             |                  |         |                          |                                |                                          |         |
|------|--------------------------------------------|-----------------|-------------|------------------|---------|--------------------------|--------------------------------|------------------------------------------|---------|
| CJ2  | Mounting type                              |                 | Bore size   |                  |         | -                        | Stroke                         |                                          | Z - XC9 |
|      | * Except clevis type                       |                 |             |                  |         |                          |                                |                                          |         |
| CM2  | Mounting type                              | Bore size       | -           | Stroke           | Cushion | Rod end type symbol      | Z - XC9                        | Stroke adjustment symbol                 |         |
|      | * Except boss-cut and clevis types         |                 |             |                  |         |                          |                                |                                          |         |
| CM2R | Mounting type                              | Bore size       | -           | Stroke           |         | Rod end type symbol      | Z - XC9                        | Stroke adjustment symbol                 |         |
| CG1  | Mounting type                              | Type            | Bore size   | -                | Stroke  | Rod end type symbol      | Stroke adjustment symbol       | Z - XC9                                  |         |
|      | * Except clevis type                       |                 |             |                  |         |                          |                                |                                          |         |
| MB   |                                            |                 |             |                  |         |                          |                                |                                          |         |
| MB1  | Mounting type                              | Bore size       |             | -                | Stroke  | Suffix                   | Stroke adjustment symbol       | Z - XC9                                  |         |
|      | * Except head side flange and clevis types |                 |             |                  |         |                          |                                |                                          |         |
| CA2  | Mounting type                              | Type            | Bore size   | -                | Stroke  | Suffix                   | Stroke adjustment symbol       | Z - XC9                                  |         |
|      | * Except head side flange and clevis types |                 |             |                  |         |                          |                                |                                          |         |
| CA2K | Mounting type                              | Type            | Bore size   | -                | Stroke  | Suffix                   | Stroke adjustment symbol       | - XC9                                    |         |
|      | * Except head side flange and clevis types |                 |             |                  |         |                          |                                |                                          |         |
| CBA2 | Mounting type                              | Type            | Bore size   | -                | Stroke  | Stroke adjustment symbol | R                              | Manual release type - XC9                |         |
|      | * Except head side flange and clevis types |                 |             |                  |         |                          |                                |                                          |         |
| CS1  | Mounting type                              | Tubing material | Type        | Bore size        | -       | Stroke                   | Suffix                         | Stroke adjustment symbol - XC9           |         |
|      | * Except head side flange and clevis types |                 |             |                  |         |                          |                                |                                          |         |
| CS2  | Mounting type                              | Bore size       | Port suffix | -                | Stroke  | Suffix                   | Stroke adjustment symbol       | - XC9                                    |         |
|      | * Except head side flange and clevis types |                 |             |                  |         |                          |                                |                                          |         |
| CS2Y | Mounting type                              | Bore size       | Port suffix | -                | Stroke  | Suffix                   | Stroke adjustment symbol       | - XC9                                    |         |
|      | * Except head side flange and clevis types |                 |             |                  |         |                          |                                |                                          |         |
| CQ2B | Bore size                                  |                 |             | -                | Stroke  | D (M) (Z)                |                                | - XC9                                    |         |
| CQSB | Bore size                                  |                 |             | -                | Stroke  | D (M)                    |                                | - XC9                                    |         |
| MGP  | Bearing type                               |                 | Bore size   | -                | Stroke  | Stroke adjustment symbol |                                | Z - XC9                                  |         |
| MGG  | Bearing type                               | Mounting type   | Bore size   | Port thread type | -       | Stroke                   | Stroke adjustment symbol - XC9 |                                          |         |
| MGC  | Bearing type                               | Mounting type   | Bore size   | Port thread type | -       | Stroke                   | Stroke adjustment symbol       | - Equipped/not equipped back plate - XC9 |         |

Adjustable stroke cylinder/Adjustable retract type ●

(After adjusting stroke, both-side cushion type is changed into single side cushion type. CQ2 is without cushion.)

# Made to Order Common Specifications: Adjustable Stroke Cylinder/Adjustable Retraction Type

Symbol  
**-XC9**

## Specifications

| Series                                       | Stroke adjustment symbol | Stroke adjustment range (mm) |
|----------------------------------------------|--------------------------|------------------------------|
| CJ2                                          | —                        | 0 to 15                      |
| CM2<br>CG1<br>MB<br>MB1<br>CA2<br>CS1<br>CS2 | A                        | 0 to 25                      |
|                                              | B                        | 0 to 50                      |

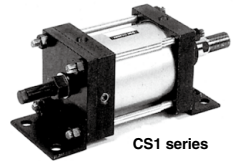
| Series     | Stroke adjustment symbol | Stroke adjustment range (mm) |
|------------|--------------------------|------------------------------|
| CQ2<br>CQS | —                        | 0 to 10                      |
| MGP        | A                        | 0 to 10                      |
|            | B                        | 0 to 25                      |
| MGG<br>MGC | A                        | 0 to 25                      |
|            | B                        | 0 to 50                      |

Note) Specifications other than above are the same as standard type.

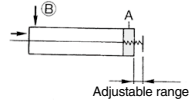
## Precautions

### ⚠ Caution

- When air is supplied to the cylinder, if the stroke adjustment bolt is loosened in excess of the allowable stroke adjustment amount, be aware that the stroke adjustment bolt could fly out or air could be discharged, which could injure personnel or damage the peripheral equipment.
- Adjust the stroke when the cylinder is not pressurized.  
If it is adjusted in the pressurized state, the seal of the adjustment section could become deformed, leading to air leakage.

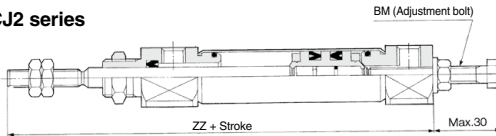


### Symbol



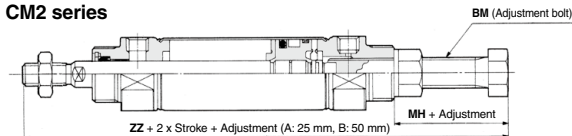
## Dimensions (Dimensions other than below are the same as standard type.)

### CJ2 series



| Bore size (mm) | BM       | ZZ (mm) |
|----------------|----------|---------|
| 10             | M5 x 0.8 | 74      |
| 16             | M5 x 0.8 | 75      |

### CM2 series



| Bore size (mm) | BM         | MH   | ZZ (mm) |
|----------------|------------|------|---------|
| 20             | M10 x 1.25 | 26.5 | 142.5   |
| 25             | M14 x 1.5  | 29   | 149     |
| 32             | M14 x 1.5  | 29   | 151     |
| 40             | M16 x 1.5  | 32   | 186     |

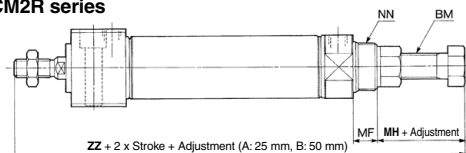
# Made to Order Common Specifications: -XC9: Adjustable Stroke Cylinder/Adjustable Retraction Type



## 21 Adjustable Stroke Cylinder/Adjustable Retraction Type

**Dimensions** (Dimensions other than below are the same as standard type.)

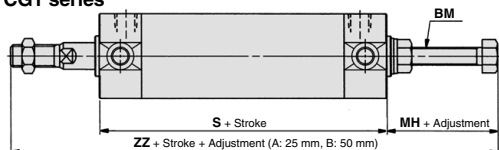
### CM2R series



### CM2R

| Bore size (mm) | BM         | MF | MH   | NN        | ZZ    |
|----------------|------------|----|------|-----------|-------|
| 20             | M10 x 12.5 | 13 | 26.5 | M20 x 1.5 | 142.5 |
| 25             | M14 x 1.5  | 13 | 29   | M26 x 1.5 | 149   |
| 32             | M14 x 1.5  | 13 | 29   | M26 x 1.5 | 151   |
| 40             | M16 x 1.5  | 16 | 32   | M32 x 2   | 186   |

### CG1 series



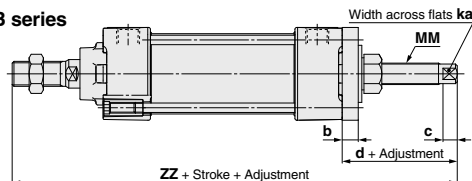
### CG1

| CG1               |            |     | (mm)          |     |             |     |
|-------------------|------------|-----|---------------|-----|-------------|-----|
| Bore size<br>(mm) | BM         | S   | Rubber bumper |     | Air cushion |     |
|                   |            |     | MH            | ZZ  | MH          | ZZ  |
| 20                | M6 x 1     | 77  | 23            | 135 | 21          | 133 |
| 25                | M6 x 1     | 77  | 23            | 140 | 21          | 138 |
| 32                | M8 x 1.25  | 79  | 25            | 144 | 25          | 144 |
| 40                | M12 x 1.75 | 87  | 40            | 177 | 39          | 176 |
| 50                | M12 x 1.75 | 102 | 33            | 193 | 37          | 197 |
| 63                | M16 x 2    | 102 | 40            | 200 | 44          | 204 |

\* In the case of axial foot type, the cushion is shipped after mounting. On other types, it is placed in the same package (not assembled).

\* Dimensions other than above are the same as the CG1 series, long stroke type.

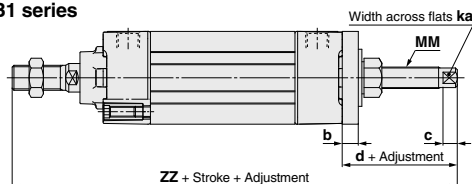
### MB series



### MB, MB1 Common

| Bore size (mm) | b  | c  | d    | ka | MM         | ZZ    |
|----------------|----|----|------|----|------------|-------|
| 32             | 9  | 8  | 40   | 8  | M12 x 1.25 | 171   |
| 40             | 9  | 8  | 39.5 | 8  | M12 x 1.25 | 174.5 |
| 50             | 11 | 8  | 46   | 13 | M16 x 1.5  | 198   |
| 63             | 11 | 8  | 52   | 17 | M20 x 1.5  | 204   |
| 80             | 15 | 10 | 61   | 19 | M24 x 1.5  | 247   |
| 100            | 15 | 10 | 61.5 | 19 | M24 x 1.5  | 247.5 |

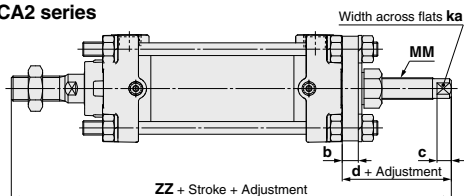
### MB1 series



### CA2

| Bore size (mm) | b  | c  | d    | ka | MM         | ZZ    |
|----------------|----|----|------|----|------------|-------|
| 40             | 9  | 8  | 36   | 8  | M12 x 1.25 | 171   |
| 50             | 11 | 8  | 42   | 13 | M16 x 1.5  | 190   |
| 63             | 11 | 8  | 44   | 17 | M20 x 1.5  | 200   |
| 80             | 15 | 10 | 54   | 19 | M24 x 1.5  | 241   |
| 100            | 15 | 10 | 55.5 | 19 | M24 x 1.5  | 253.5 |

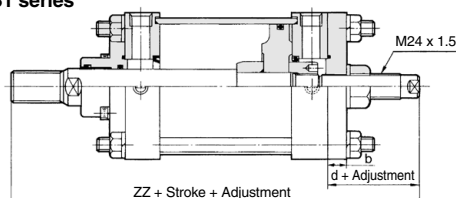
### CA2 series



### CA2K, CBA2 (With lock on rod side only)

| Bore size (mm) | b  | c  | d  | ka | MM        | ZZ  |
|----------------|----|----|----|----|-----------|-----|
| 40             | 9  | 8  | 44 | 11 | M16 x 1.5 | 179 |
| 50             | 11 | 8  | 42 | 11 | M16 x 1.5 | 190 |
| 63             | 11 | 8  | 48 | 14 | M20 x 1.5 | 204 |
| 80             | 15 | 10 | 55 | 19 | M24 x 1.5 | 242 |
| 100            | 15 | 10 | 57 | 19 | M24 x 1.5 | 255 |

### CS1 series



### CS1

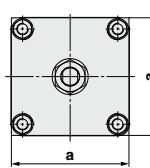
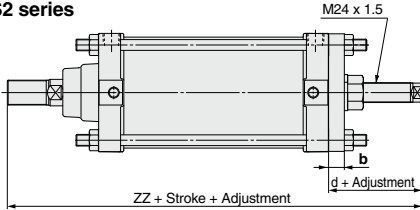
| Bore size (mm) | b  | d  | ZZ  |
|----------------|----|----|-----|
| 125            | 19 | 66 | 274 |
| 140            | 19 | 66 | 274 |
| 160            | 22 | 62 | 288 |

# Made to Order Common Specifications: Adjustable Stroke Cylinder/Adjustable Retraction Type

Symbol  
**-XC9**

## Dimensions (Dimensions other than below are the same as standard type.)

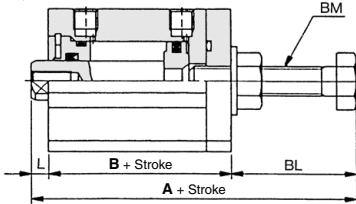
### CS2 series



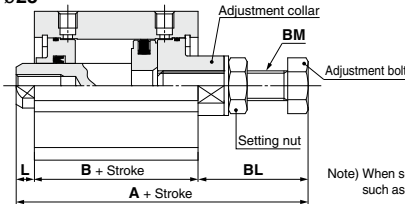
| Bore size (mm) | a   | b  | d  | ZZ  |
|----------------|-----|----|----|-----|
| 125            | 142 | 19 | 63 | 271 |
| 140            | 155 | 19 | 63 | 271 |
| 160            | 174 | 19 | 59 | 285 |

### CQS series

ø12, ø16



ø20, ø25



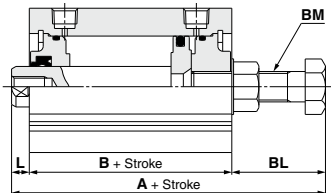
| Bore size (mm) | A           | B       | L   | BL      | BM        | Manufacturable stroke |
|----------------|-------------|---------|-----|---------|-----------|-----------------------|
| 12             | 50.5 (54.5) | 22 (27) | 3.5 | 25 (29) | M5 x 0.8  | 5 to 30               |
| 16             | 51 (56)     | 22 (27) | 3.5 | 25.5    | M6 x 1    |                       |
| 20             | 61 (71)     | 26 (36) | 4.5 | 30.5    | M8 x 1.25 |                       |
| 25             | 63.5 (73.5) | 29 (39) | 5   | 29.5    | M8 x 1.25 | 5 to 50               |

Note 1) ( ): Denotes the dimensions with auto switch.

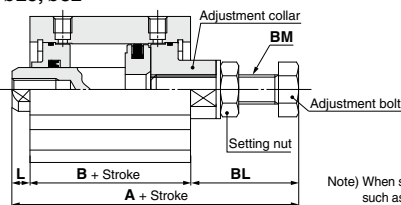
Note 2) Applicable stroke available in 5 mm increments.

Note) When securing the adjustment bolt, clamp the width across flats of the adjustment collar with a tool, such as a spanner and tighten the setting nut with a tool, such as other spanner to secure the bolt firmly.

### CQ2 series



ø20, ø25, ø32



| Bore size (mm) | A             | B           | L   | BL   | BM        | Manufacturable stroke |
|----------------|---------------|-------------|-----|------|-----------|-----------------------|
| 12             | 52 (59.2)     | 25.2 (32.4) | 3.5 | 23.3 | M5 x 0.8  | 5 to 30               |
| 16             | 53 (63)       | 26 (36)     | 3.5 | 23.5 | M6 x 1    |                       |
| 20             | 61 (73)       | 26 (38)     | 4.5 | 30.5 | M8 x 1.25 |                       |
| 25             | 63.5 (73.5)   | 29 (39)     | 5   | 29.5 | M8 x 1.25 | 5 to 50               |
| 32             | 65.5 (75.5)   | 30.5 (40.5) | 7   | 28   | M8 x 1.25 | 5 to 50               |
| 40             | 84 (94)       | 40 (50)     | 7   | 37   | M12 x 1.5 | 75, 100               |
| 50             | 84.5 (94.5)   | 40.5 (50.5) | 8   | 36   | M12 x 1.5 |                       |
| 63             | 88.5 (98.5)   | 42 (52)     | 8   | 38.5 | M16 x 1.5 | 10 to 50              |
| 80             | 109.5 (119.5) | 51 (61)     | 10  | 48.5 | M20 x 1.5 | 75, 100               |
| 100            | 125 (135)     | 60.5 (70.5) | 12  | 52.5 | M24 x 1.5 |                       |

Note 1) ( ): Denotes the dimensions with auto switch.

Note 2) Applicable stroke available in 5 mm increments.

Note) When securing the adjustment bolt, clamp the width across flats of the adjustment collar with a tool, such as a spanner and tighten the setting nut with a tool, such as other spanner to secure the bolt firmly.

# Made to Order Common Specifications: -XC9: Adjustable Stroke Cylinder/Adjustable Retraction Type



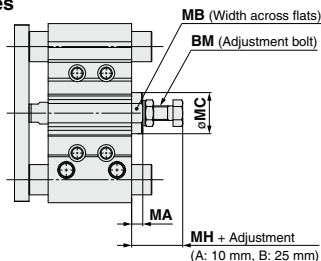
## 21 Adjustable Stroke Cylinder/Adjustable Retraction Type

Symbol

**-XC9**

**Dimensions** (Dimensions other than below are the same as standard type.)

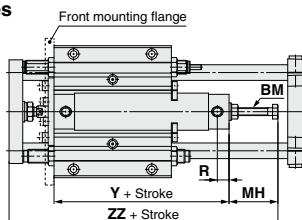
### MGP series



### Common Dimensions: MGPM, MGPL, MGPA (mm)

| Bore size (mm) | BM        | MA  | MB | MC   | MH   |
|----------------|-----------|-----|----|------|------|
| 12             | M5 x 0.8  | 5   | 8  | 12.5 | 17   |
| 16             | M6 x 1    | 5   | 10 | 14   | 19   |
| 20             | M8 x 1.25 | 6.5 | 13 | 16   | 25   |
| 25             | M8 x 1.25 | 6.5 | 13 | 16   | 24   |
| 32             | M8 x 1.25 | 6.5 | 19 | 21   | 25   |
| 40             | M12 x 1.5 | 9   | 27 | 30   | 32.5 |
| 50             | M12 x 1.5 | 9   | 30 | 34   | 32.5 |
| 63             | M16 x 1.5 | 10  | 36 | 40   | 37   |
| 80             | M20 x 1.5 | 15  | 41 | 46   | 48.5 |
| 100            | M24 x 1.5 | 18  | 46 | 52   | 55.5 |

### MG series ø20 to ø50

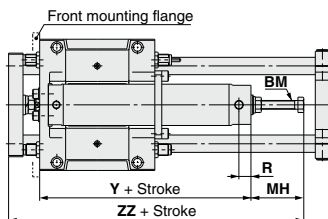


### MG Series (mm)

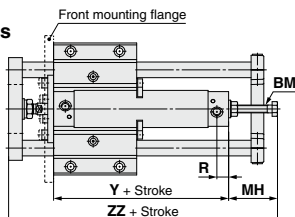
| Bore size (mm) | R  | Y   | BM         | Adjustment 0 to 25 mm |     | Adjustment 0 to 50 mm |     |
|----------------|----|-----|------------|-----------------------|-----|-----------------------|-----|
|                |    |     |            | MH                    | ZZ  | MH                    | ZZ  |
| 20             | 12 | 77  | M6 x 1     | 48                    | 164 | 73                    | 189 |
| 25             | 12 | 77  | M6 x 1     | 48                    | 171 | 73                    | 196 |
| 32             | 12 | 79  | M8 x 1.25  | 50                    | 175 | 75                    | 200 |
| 40             | 13 | 87  | M12 x 1.75 | 65                    | 208 | 90                    | 233 |
| 50             | 14 | 102 | M12 x 1.75 | 58                    | 227 | 83                    | 252 |
| 63             | 14 | 117 | M16 x 2    | 65                    | 236 | 90                    | 261 |

\* The piston speed for the retraction side is 50 to 500 mm/s.

### ø63



### MGC series ø20 to ø50



### MGC Series (mm)

| Bore size (mm) | R  | Y   | BM         | Adjustment 0 to 25 mm |     | Adjustment 0 to 50 mm |     |
|----------------|----|-----|------------|-----------------------|-----|-----------------------|-----|
|                |    |     |            | MH                    | ZZ  | MH                    | ZZ  |
| 20             | 12 | 77  | M6 x 1     | 46                    | 162 | 71                    | 187 |
| 25             | 12 | 77  | M6 x 1     | 46                    | 169 | 71                    | 194 |
| 32             | 12 | 79  | M8 x 1.25  | 50                    | 175 | 75                    | 200 |
| 40             | 13 | 87  | M12 x 1.75 | 64                    | 207 | 89                    | 232 |
| 50             | 14 | 102 | M12 x 1.75 | 62                    | 231 | 87                    | 256 |

\* The piston speed for the retraction side is 50 to 500 mm/s.

# Made to Order Common Specifications: -XC10: Dual Stroke Cylinder/Double Rod Type



## 22 Dual Stroke Cylinder/Double Rod Type

Symbol

-XC10

Two cylinders are constructed as one cylinder in a back-to-back configuration allowing the cylinder stroke to be controlled in three steps.

### Applicable Series

| Series | Description           | Model  | Action                    | Note                                     | Vol. no. (for std model) |
|--------|-----------------------|--------|---------------------------|------------------------------------------|--------------------------|
| CJ2    | Air cylinder          | CJ2-Z  | Double acting, Single rod | Except with air cushion                  | ②-1 From P. 46           |
|        | Non-rotating rod type | CJ2K-Z | Double acting, Single rod |                                          |                          |
| CM2    | Air cylinder          | CM2-Z  | Double acting, Single rod | Except with air cushion                  | ②-1 From P. 172          |
|        | Non-rotating rod type | CM2K-Z | Double acting, Single rod | Except with air cushion                  |                          |
|        | Smooth cylinder       | CM2Y-Z | Double acting, Single rod |                                          |                          |
| CG1    | Air cylinder          | CG1-Z  | Double acting, Single rod |                                          | ②-1 From P. 292          |
|        | Non-rotating rod type | CG1K-Z | Double acting, Single rod | Except with air cushion                  |                          |
| MB     | Air cylinder          | MB-Z   | Double acting, Single rod | * Except ø125, clevis and trunnion types | ②-1 From P. 392          |
|        | Non-rotating rod type | MBK-Z  | Double acting, Single rod | * Except clevis and trunnion types       |                          |
|        | With end lock type    | MBB    | Double acting, Single rod | * Except clevis and trunnion types       |                          |
| MB1    | Air cylinder          | MB1-Z  | Double acting, Single rod | * Except ø125, clevis and trunnion types | ②-1 From P. 440          |
|        | Non-rotating rod type | MB1K-Z | Double acting, Single rod | * Except clevis and trunnion types       |                          |
| CA2    | Air cylinder          | CA2-Z  | Double acting, Single rod | * Except clevis and trunnion types       | ②-1 From P. 470          |
|        | Non-rotating rod type | CA2K   | Double acting, Single rod | * Except clevis and trunnion types       |                          |
|        | End lock cylinder     | CBA2   | Double acting, Single rod | * Except clevis and trunnion types       |                          |
| CS1    | Air cylinder          | CS1    | Double acting, Single rod | * Except clevis and trunnion types       | ②-1 From P. 530          |
|        | Air-hydro cylinder    | CS1H   | Double acting, Single rod | * Except clevis and trunnion types       |                          |
| CS2    | Air cylinder          | CS2    | Double acting, Single rod | * Except clevis and trunnion types       | ②-1 From P. 568          |
|        | Smooth cylinder       | CS2Y   | Double acting, Single rod | * Except clevis and trunnion types       |                          |
| CQS    | Compact cylinder      | CQS    | Double acting, Single rod | Except with bracket                      | ②-1 From P. 693          |
| CQ2    | Compact cylinder      | CQ2-Z  | Double acting, Single rod | Except with bracket                      | ②-1 From P. 773          |
|        | Air-hydro cylinder    | CQ2H-Z | Double acting, Single rod | Except with bracket                      |                          |

### How to Order

|      |                                    |                 |                       |               |                          |               |               |                     |                     |        |      |      |
|------|------------------------------------|-----------------|-----------------------|---------------|--------------------------|---------------|---------------|---------------------|---------------------|--------|------|------|
| CJ2  | Mounting type                      | Bore size       | —                     | Stroke A      | +                        | Stroke B      | Z —           | XC10                |                     |        |      |      |
| CM2  | Mounting type                      | Bore size       | —                     | Stroke A      | Suffix                   | +             | Stroke B      | Suffix              | Z —                 | XC10   |      |      |
| CG1  | Mounting type                      | Type            | Bore size             | —             | Stroke A                 | Suffix        | +             | Stroke B            | Suffix              | Z —    | XC10 |      |
| MB   | Mounting type                      | Bore size       | —                     | Stroke A      | Suffix                   | +             | Stroke B      | Suffix              | Z —                 | XC10   |      |      |
| MB1  | * Except clevis and trunnion types |                 |                       |               |                          |               |               |                     |                     |        |      |      |
| MBB  | Mounting type                      | Bore size       | —                     | Stroke A      | Suffix                   | —             | Lock position | Manual release type | +                   |        |      |      |
|      | Stroke B                           | Suffix          | —                     | Lock position | Symbol of manual release |               |               |                     |                     | XC10   |      |      |
|      | * Except clevis and trunnion types |                 |                       |               |                          |               |               |                     |                     |        |      |      |
| CA2  | Mounting type                      | Type            | Bore size             | —             | Stroke A                 | Suffix        | +             | Stroke B            | Suffix              | Z —    | XC10 |      |
|      | * Except clevis and trunnion types |                 |                       |               |                          |               |               |                     |                     |        |      |      |
| CA2K | Mounting type                      | Type            | Bore size             | —             | Stroke A                 | Suffix        | +             | Stroke B            | Suffix              | —      | XC10 |      |
|      | * Except clevis and trunnion types |                 |                       |               |                          |               |               |                     |                     |        |      |      |
| CBA2 | Mounting type                      | Type            | Bore size             | —             | Stroke A                 | Suffix        | —             | Lock position       | Manual release type | +      |      |      |
|      | Stroke B                           | Suffix          | —                     | Lock position | Symbol of manual release |               |               |                     |                     | XC10   |      |      |
|      | * Except clevis and trunnion types |                 |                       |               |                          |               |               |                     |                     |        |      |      |
| CS1  | Mounting type                      | Tubing material | Type                  | Bore size     | —                        | Stroke A      | Suffix        | +                   | Stroke B            | Suffix | —    | XC10 |
|      | * Except clevis and trunnion types |                 |                       |               |                          |               |               |                     |                     |        |      |      |
| CS2  | Mounting type                      | Bore size       | Port suffix           | —             | Stroke A                 | Suffix        | +             | Stroke B            | Suffix              | —      | XC10 |      |
|      | * Except clevis and trunnion types |                 |                       |               |                          |               |               |                     |                     |        |      |      |
| CQ2B | Bore size                          | —               | Stroke S <sub>1</sub> | +             | Stroke S <sub>2</sub>    | D (C)(M)(Z) — |               |                     | XC10                |        |      |      |
| CQSB | Bore size                          | —               | Stroke S <sub>1</sub> | +             | Stroke S <sub>2</sub>    | D (C)(M) —    |               |                     | XC10                |        |      |      |

Dual stroke cylinder

# Made to Order Common Specifications: -XC10: Dual Stroke Cylinder/Double Rod Type



## 22 Dual Stroke Cylinder/Double Rod Type

### Specifications

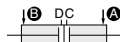
| Series                  | Bore size (mm) | Maximum manufacturable stroke (mm) |
|-------------------------|----------------|------------------------------------|
| <b>CJ2</b>              | 10, 16         | 300 (Maximum 150 on one side)      |
| <b>CM2</b>              | 20 to 40       | 1000 (A + B stroke)                |
| <b>CG1</b>              | 20             | 1500 (A + B stroke)                |
|                         | 25             | 1500 (A + B stroke)                |
|                         | 32             | 1500 (A + B stroke)                |
|                         | 40             | 1500 (A + B stroke)                |
|                         | 50, 63         | 1500 (A + B stroke)                |
| <b>MB</b><br><b>MB1</b> | 32 to 100      | 1000 (A + B stroke)                |

| Series                   | Bore size (mm) | Maximum manufacturable stroke (mm) |
|--------------------------|----------------|------------------------------------|
| <b>CA2</b>               | 40 to 100      | 1000 (A + B stroke)                |
| <b>CS1</b>               | 125, 140       | 1000 (A + B stroke)                |
|                          | 160 to 300     | 1200 (A + B stroke)                |
| <b>CS2</b>               | 125, 140       | 1000 (A + B stroke)                |
|                          | 160            | 1200 (A + B stroke)                |
| <b>CQS</b><br><b>CQ2</b> | 12, 16         | 60 (Maximum 30 on one side)        |
|                          | 20, 25         | 100 (Maximum 50 on one side)       |
| <b>CQ2</b>               | 32, 40         | 200 (Maximum 100 on one side)      |
|                          | 50 to 100      | 200 (Maximum 100 on one side)      |

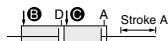
\* Specifications other than above are the same as standard type.

### Symbol

#### Function



When air pressure is supplied to ports **A** and **B**, both A and B strokes retract.



When air pressure is supplied to ports **B** and **C**, A out strokes.



When air pressure is supplied to ports **A** and **B**, B out strokes.



When air pressure is supplied to ports **C** and **D**, both strokes A and B out strokes.



CJ2 series



CS1 series



CG1 series

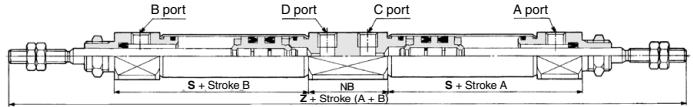


CA2 series

**Dimensions** (Dimensions other than below are the same as standard type.)

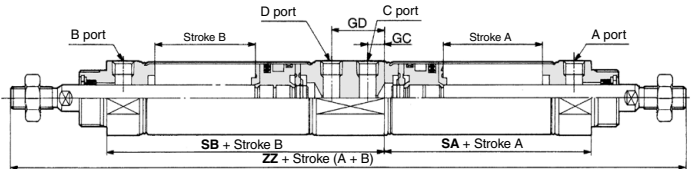
**CJ2 series**

| Bore size (mm) | NB | S    | Z   |
|----------------|----|------|-----|
| 10             | 21 | 36.5 | 150 |
| 16             | 21 | 37.5 | 152 |

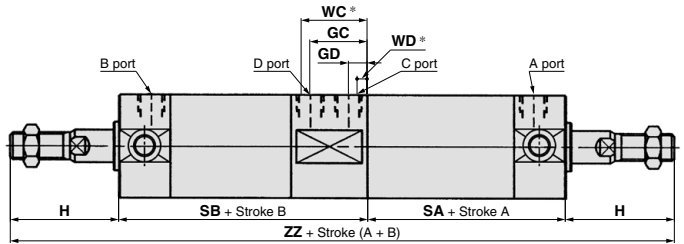
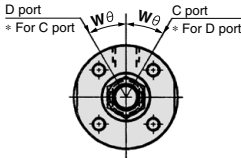


**CM2 series**

| Bore size (mm) | GC   | GD   | SA   | SB    | ZZ  |
|----------------|------|------|------|-------|-----|
| 20             | 7    | 24   | 47   | 78    | 207 |
| 25             | 7    | 24   | 47   | 78    | 215 |
| 32             | 7    | 24   | 49   | 80    | 219 |
| 40             | 10.5 | 33.5 | 66.5 | 110.5 | 277 |



**CG1 series**

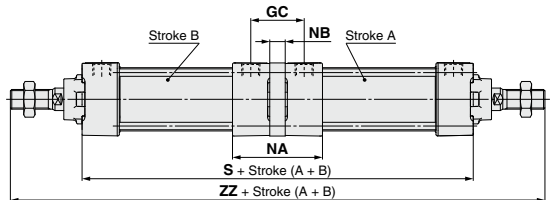


| Bore size | GC        | GD      | H  | SA        | SB        | Wθ  | Air cushion |     | ZZ  |
|-----------|-----------|---------|----|-----------|-----------|-----|-------------|-----|-----|
|           |           |         |    |           |           |     | WC          | WD  |     |
| 20        | 20.5 (21) | 8.5 (9) | 35 | 56.5 (56) | 85.5 (86) | 30° | (25)        | (5) | 212 |
| 25        | 21 (21.5) | 9 (8.5) | 40 | 56        | 86        | 30° | (25)        | (5) | 222 |
| 32        | 23        | 9       | 40 | 58        | 90        | 30° | (27)        | (5) | 228 |
| 40        | 23.5 (25) | 7.5 (9) | 50 | 66.5 (65) | 97.5 (99) | 20° | (29)        | (5) | 264 |
| 50        | 29        | 13      | 58 | 75        | 117       | 20° | (33)        | (9) | 308 |
| 63        | 28        | 12      | 58 | 76        | 116 (116) | 20° | (32)        | (8) | 308 |

\* ( ): With air cushion

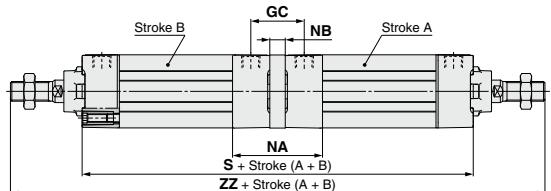
**MB series**

| Bore size | GC | NA | NB   | S   | ZZ  |
|-----------|----|----|------|-----|-----|
| 32        | 36 | 64 | 10.6 | 178 | 272 |
| 40        | 38 | 64 | 10.6 | 178 | 280 |
| 50        | 41 | 73 | 10.6 | 198 | 314 |
| 63        | 43 | 73 | 10.6 | 198 | 314 |
| 80        | 52 | 90 | 14.6 | 242 | 386 |
| 100       | 52 | 90 | 14.6 | 242 | 386 |



**MB1 series**

| Bore size | GC | NA | NB   | S   | ZZ  |
|-----------|----|----|------|-----|-----|
| 32        | 36 | 62 | 10.6 | 178 | 272 |
| 40        | 38 | 62 | 10.6 | 178 | 280 |
| 50        | 41 | 71 | 10.6 | 198 | 314 |
| 63        | 43 | 71 | 10.6 | 198 | 314 |
| 80        | 52 | 88 | 14.6 | 242 | 386 |
| 100       | 52 | 88 | 14.6 | 242 | 386 |



# Made to Order Common Specifications: -XC10: Dual Stroke Cylinder/Double Rod Type

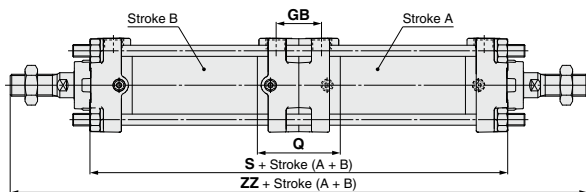


## 22 Dual Stroke Cylinder/Double Rod Type

**Dimensions** (Dimensions other than below are the same as standard type.)

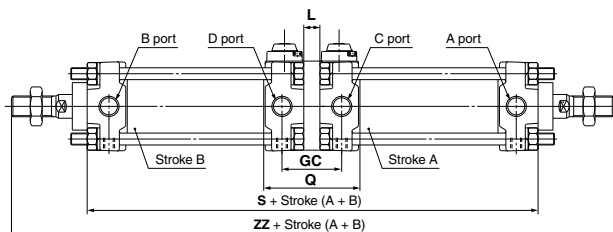
### CA2 series

| Bore size | GB | Q  | S   | ZZ  |
|-----------|----|----|-----|-----|
| 40        | 29 | 53 | 167 | 269 |
| 50        | 33 | 59 | 179 | 295 |
| 63        | 33 | 61 | 195 | 311 |
| 80        | 41 | 73 | 231 | 373 |
| 100       | 41 | 79 | 251 | 395 |



### CBA2 series

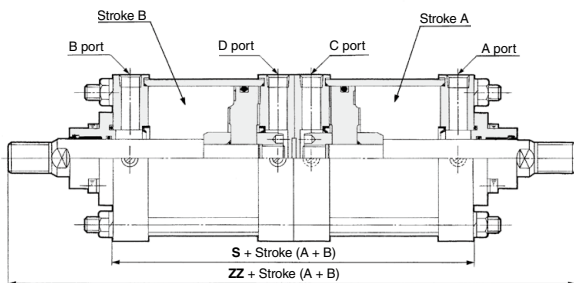
| Bore size (mm) | GC | L  | Q  | S   | ZZ  |
|----------------|----|----|----|-----|-----|
| 40             | 42 | 12 | 66 | 180 | 282 |
| 50             | 48 | 14 | 74 | 194 | 310 |
| 63             | 48 | 14 | 76 | 210 | 326 |
| 80             | 58 | 16 | 90 | 248 | 390 |
| 100            | 60 | 18 | 98 | 270 | 414 |



\* The above diagram shows head side lock type and manual releasing non-locking type. Dimensions of rod side locking type, both-side lock type and manual releasing lock type are the same as dimensions in the above table.

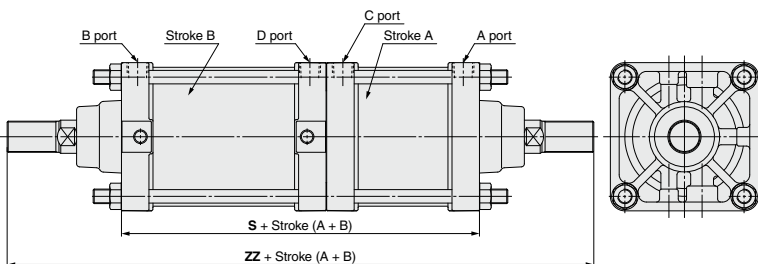
### CS1 series

| Bore size (mm) | Without auto switch |     | With auto switch |     |
|----------------|---------------------|-----|------------------|-----|
|                | S                   | ZZ  | S                | ZZ  |
| 125            | 196                 | 416 | 196              | 416 |
| 140            | 196                 | 416 | 196              | 416 |
| 160            | 212                 | 452 | 212              | 452 |
| 180            | 222                 | 492 | 230              | 500 |
| 200            | 222                 | 492 | 240              | 510 |
| 250            | 282                 | 602 | —                | —   |
| 300            | 292                 | 642 | —                | —   |



### CS2 series

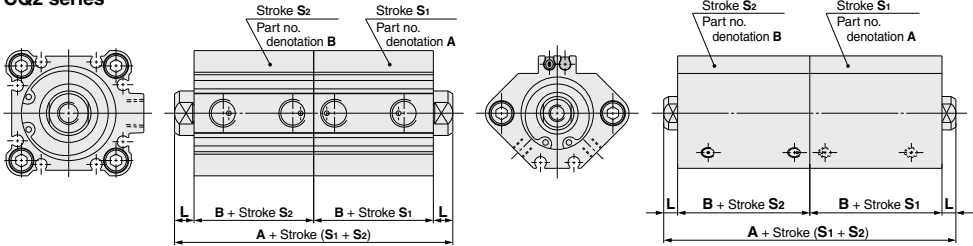
| Bore size (mm) | S   | ZZ  |
|----------------|-----|-----|
| 125            | 196 | 416 |
| 140            | 196 | 416 |
| 160            | 212 | 452 |



\* For rod side flange type "F", the flange bracket will be attached to the stroke A side.

Construction/Dimensions (Other dimensions are the same as standard.)

CQ2 series

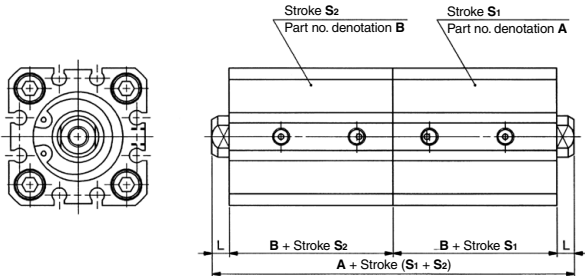


Note) In the case of bore sizes  $\phi 12$  to  $\phi 25$  with auto switch, port directions are different.  
(mm)

| Bore size<br>(mm) | A                                                                    |                                                                |                                                                   | B                        |                       | L   | Stroke<br>Both of S <sub>1</sub> , S <sub>2</sub> |
|-------------------|----------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------|--------------------------|-----------------------|-----|---------------------------------------------------|
|                   | 50 <sup>st</sup> or less for both of S <sub>1</sub> , S <sub>2</sub> | Combination of 50 <sup>st</sup> or less, 75, 100 <sup>st</sup> | 75, 100 <sup>st</sup> for both of S <sub>1</sub> , S <sub>2</sub> | 50 <sup>st</sup> or less | 75, 100 <sup>st</sup> |     |                                                   |
| 12                | 41 (63)                                                              | —                                                              | —                                                                 | 17 (28)                  | —                     | 3.5 | 5 to 30                                           |
| 16                | 44 (68)                                                              | —                                                              | —                                                                 | 18.5 (30.5)              | —                     | 3.5 |                                                   |
| 20                | 48 (72)                                                              | —                                                              | —                                                                 | 19.5 (31.5)              | —                     | 4.5 |                                                   |
| 25                | 55 (75)                                                              | —                                                              | —                                                                 | 22.5 (32.5)              | —                     | 5   | 5 to 50                                           |
| 32                | 60 (80)                                                              | 70 (80)                                                        | 80 (80)                                                           | 23 (33)                  | 33 (33)               | 7   |                                                   |
| 40                | 73 (93)                                                              | 83 (93)                                                        | 93 (93)                                                           | 29.5 (39.5)              | 39.5 (39.5)           | 7   |                                                   |
| 50                | 77 (97)                                                              | 87 (97)                                                        | 97 (97)                                                           | 30.5 (40.5)              | 40.5 (40.5)           | 8   | 10 to 100                                         |
| 63                | 88 (108)                                                             | 98 (108)                                                       | 108 (108)                                                         | 36 (46)                  | 46 (46)               | 8   |                                                   |
| 80                | 107 (127)                                                            | 117 (127)                                                      | 127 (127)                                                         | 43.5 (53.5)              | 53.5 (53.5)           | 10  |                                                   |
| 100               | 130 (150)                                                            | 140 (150)                                                      | 150 (150)                                                         | 53 (63)                  | 63 (63)               | 12  |                                                   |

Note 1) ( ): Denotes the dimensions with auto switch.  
Note 2) Applicable stroke available in 5 mm increments.

CQS series



(mm)

| Bore size<br>(mm) | A       | B           | L   | Stroke<br>Both of S <sub>1</sub> , S <sub>2</sub> |
|-------------------|---------|-------------|-----|---------------------------------------------------|
| 12                | 41 (51) | 17 (22)     | 3.5 | 5 to 30                                           |
| 16                | 41 (51) | 17 (22)     | 3.5 |                                                   |
| 20                | 48 (68) | 19.5 (29.5) | 4.5 |                                                   |
| 25                | 55 (75) | 22.5 (32.5) | 5   | 5 to 50                                           |

Note 1) ( ): Denotes the dimensions with auto switch.  
Note 2) Applicable stroke available in 5 mm increments.

# Made to Order Common Specifications: -XC11: Dual Stroke Cylinder/Single Rod Type



## 23 Dual Stroke Cylinder/Single Rod Type

Two cylinders can be integrated by connecting them in line, and the cylinder stroke can be controlled in two stages in both directions. Do not operate the CS1 series at twice the output.

### Applicable Series

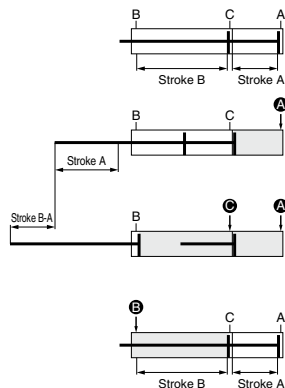
| Series | Description                         | Model   | Action                    | Note                            | Vol. no. (for std model) |
|--------|-------------------------------------|---------|---------------------------|---------------------------------|--------------------------|
| CJ2    | Air cylinder                        | CJ2-Z   | Double acting, Single rod | Except with air cushion         | ②-1 From P. 46           |
| CM2    | Air cylinder                        | CM2-Z   | Double acting, Single rod |                                 | ②-1 From P. 172          |
|        | Non-rotating rod                    | CM2K-Z  | Double acting, Single rod | Except with air cushion         |                          |
|        | Direct mount                        | CM2R-Z  | Double acting, Single rod |                                 |                          |
|        | Non-rotating rod, Direct mount type | CM2RK-Z | Double acting, Single rod |                                 |                          |
| CG1    | Air cylinder                        | CG1-Z   | Double acting, Single rod |                                 | ②-1 From P. 292          |
|        | Non-rotating rod                    | CG1K-Z  | Double acting, Single rod | Except with air cushion         |                          |
| MB     | Air cylinder                        | MB-Z    | Double acting, Single rod | * Except ø125 and trunnion type | ②-1 From P. 392          |
| MB1    | Air cylinder                        | MB1-Z   | Double acting, Single rod | * Except ø125 and trunnion type | ②-1 From P. 440          |
| CA2    | Air cylinder                        | CA2-Z   | Double acting, Single rod | * Except trunnion type          | ②-1 From P. 470          |
|        | Non-rotating rod                    | CA2K    | Double acting, Single rod | * Except trunnion type          |                          |
| CS1    | Air cylinder                        | CS1     | Double acting, Single rod | * Except trunnion type          | ②-1 From P. 530          |
| CS2    | Air cylinder                        | CS2     | Double acting, Single rod | * Except trunnion type          | ②-1 From P. 568          |
| CQS    | Compact cylinder                    | CQS     | Double acting, Single rod | Except with bracket             | ②-1 From P. 693          |
| CQ2    | Compact cylinder                    | CQ2-Z   | Double acting, Single rod | Except with bracket             | ②-1 From P. 773          |
|        | Air-hydro cylinder                  | CQ2H-Z  | Double acting, Single rod | Except with bracket             |                          |
| CNA2   | Cylinder with lock                  | CNA2    | Double acting, Single rod | * Except trunnion type          | ②-2 From P. 922          |
| MGG    | Guide cylinder                      | MGG     | Double acting             |                                 | ②-2 From P. 538          |
| MGC    | Guide cylinder                      | MGC     | Double acting             |                                 | ②-2 From P. 578          |

### How to Order

|                                 |               |                 |                       |          |                                       |                   |                 |                 |                   |
|---------------------------------|---------------|-----------------|-----------------------|----------|---------------------------------------|-------------------|-----------------|-----------------|-------------------|
| CJ2                             | Mounting type | Bore size       | -                     | Stroke A | +                                     | Stroke B-A        | Z - XC11        |                 |                   |
| CM2                             | Mounting type | Bore size       | -                     | Stroke A | +                                     | Stroke B-A        | Suffix Z - XC11 |                 |                   |
| CG1                             | Mounting type | Type            | Bore size             | -        | Stroke A                              | +                 | Stroke B-A      | Suffix Z - XC11 |                   |
| MB<br>MB1                       | Mounting type | Bore size       | -                     | Stroke A | Suffix                                | +                 | Stroke B-A      | Suffix Z - XC11 |                   |
| * Except trunnion type          |               |                 |                       |          |                                       |                   |                 |                 |                   |
| CA2                             | Mounting type | Type            | Bore size             | -        | Stroke A                              | Suffix            | +               | Stroke B-A      | Suffix Z - XC11   |
| * Except trunnion type          |               |                 |                       |          |                                       |                   |                 |                 |                   |
| CA2K                            | Mounting type | Type            | Bore size             | -        | Stroke A                              | Suffix            | +               | Stroke B-A      | Suffix - XC11     |
| * Except trunnion type          |               |                 |                       |          |                                       |                   |                 |                 |                   |
| CS1                             | Mounting type | Tubing material | Bore size             | -        | Stroke A                              | Suffix            | +               | Stroke B-A      | Suffix - XC11     |
| * Except trunnion type          |               |                 |                       |          |                                       |                   |                 |                 |                   |
| CS2                             | Mounting type | Bore size       | Port suffix           | -        | Stroke A                              | Suffix            | +               | Stroke B-A      | Suffix - XC11     |
| * Except trunnion type          |               |                 |                       |          |                                       |                   |                 |                 |                   |
| CQSB                            | Bore size     | -               | Stroke S <sub>1</sub> | +        | Stroke S <sub>2</sub> -S <sub>1</sub> | D(C)(M) - XC11    |                 |                 |                   |
| CQ2B                            | Bore size     | -               | Stroke S <sub>1</sub> | +        | Stroke S <sub>2</sub> -S <sub>1</sub> | D(C)(M)(Z) - XC11 |                 |                 |                   |
| CNA2                            | Mounting type | Type            | Bore size             | -        | Stroke A                              | Suffix            | +               | Stroke B-A      | Suffix - D - XC11 |
| Dual stroke cylinder/Single rod |               |                 |                       |          |                                       |                   |                 |                 |                   |

**Specifications: Same as standard type** (Please contact SMC for each manufacturable stroke length.)

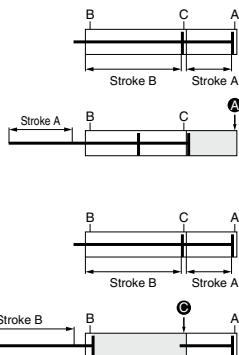
**Functional description of dual stroke cylinder**



- 1) Initial state  
(0 stroke position)
- 2) 1st stage Stroke A operation  
When the air pressure is supplied from the A port, the rod operates the stroke A.
- 3) 2nd stage Stroke B-A operation  
Following the 1st stage, when the air pressure is supplied from the C port, the rod operates the stroke B-A.
- 4) Cylinder retraction  
When the air pressure is supplied from the B port, the rod retracts completely.



**Stroke A or stroke B operation can be made individually.**



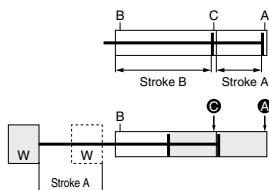
**Stroke A operation**

- 1) Initial state  
(0 stroke position)
- 2) Operation  
When the air pressure is supplied from the A port, the rod operates the stroke A.

**Stroke B operation**

- 1) Initial state  
(0 stroke position)
- 2) Operation  
When the air pressure is supplied from the C port, the rod operates the stroke B.

**Double output is possible.**



- 1) Initial state  
(0 stroke position)
- 2) Double output  
When the air pressure is supplied to the A and C ports at the same time, the double output can be obtained in the stroke A range.

**Precautions**

**⚠ Caution**

1. Do not supply air until the cylinder is fixed with the attached bolt.
2. If air is supplied without securing the cylinder, the cylinder could lurch, posing the risk of bodily injury or damage to the peripheral equipment.

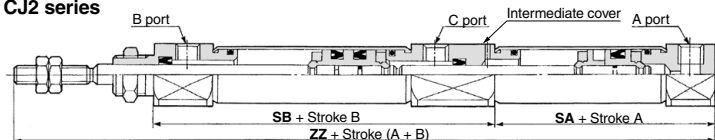
# Made to Order Common Specifications: -XC11: Dual Stroke Cylinder/Single Rod Type



## 23 Dual Stroke Cylinder/Single Rod Type

**Dimensions** (Dimensions other than below are the same as standard type.)

### CJ2 series



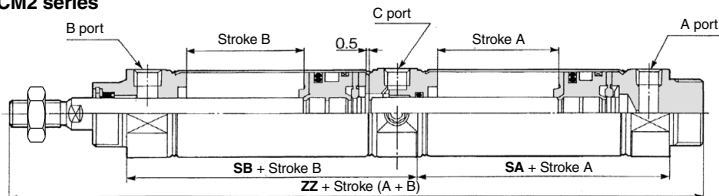
| (mm)           |      |      |       |
|----------------|------|------|-------|
| Bore size (mm) | SA   | SB   | Z     |
| 10             | 31   | 53.5 | 112.5 |
| 16             | 31.5 | 54.5 | 114   |

Note) When mounting an auto switch at the extended piston rod A side, the following auto switches interfere with the intermediate cover. In this case, please mount on the stroke B side. Please be aware that the auto switch defects and temporarily turns ON/OFF when passing the intermediate position of the B stroke.

Solid state auto switch : D-H7□, D-H7C, D-H7□W, D-H7NF, D-H7BA

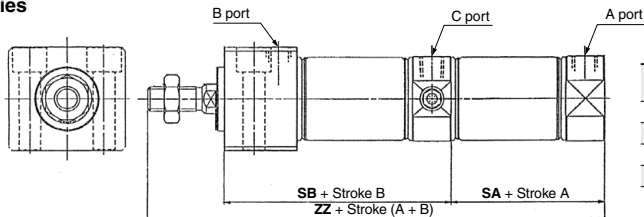
Reed auto switch : D-C7□, D-C80, D-C73C, D-C80C, D-A80, D-A9□, D-A9□V, D-A79W, D-A73

### CM2 series



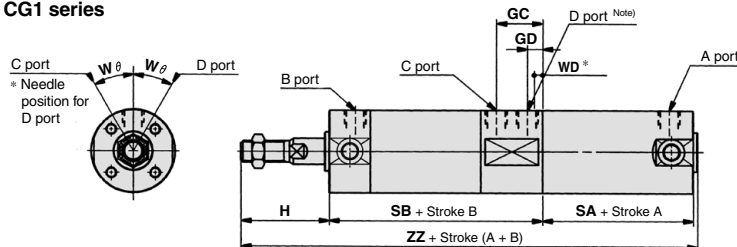
| (mm)           |      |      |     |
|----------------|------|------|-----|
| Bore size (mm) | SA   | SB   | ZZ  |
| 20             | 48   | 62   | 164 |
| 25             | 48   | 62   | 168 |
| 32             | 50   | 64   | 172 |
| 40             | 67.5 | 88.5 | 222 |

### CM2R series



| (mm)           |      |       |     |
|----------------|------|-------|-----|
| Bore size (mm) | SA   | SB    | ZZ  |
| 20             | 48   | 76    | 151 |
| 25             | 48   | 76    | 155 |
| 32             | 50   | 78    | 159 |
| 40             | 67.5 | 104.5 | 206 |

### CG1 series



Note) D port type Type N: Rubber bumper, Plug with fixed orifice;

Type A: Air cushion, element non-installation (Release to atmospheric pressure)

### CG1, CG1K

| (mm)      |           |         |    |    |     |     |     |             |    |                   |
|-----------|-----------|---------|----|----|-----|-----|-----|-------------|----|-------------------|
| Bore size | GC        | GD      | H  | SA | SB  | Wθ  | ZZ  | Air cushion |    | Long stroke Note) |
|           |           |         |    |    |     |     |     | WD          | SA | ZZ                |
| 20        | 21        | 9       | 35 | 48 | 87  | 30° | 172 | 5           | 56 | 180               |
| 25        | 21 (21.5) | 9 (8.5) | 40 | 48 | 87  | 30° | 177 | 6.5         | 56 | 185               |
| 32        | 23        | 9       | 40 | 50 | 91  | 30° | 183 | 5           | 58 | 191               |
| 40        | 25        | 9       | 50 | 56 | 100 | 20° | 208 | 5           | 65 | 217               |
| 50        | 29        | 13      | 58 | 63 | 118 | 20° | 241 | 9           | 75 | 253               |
| 63        | 28        | 12      | 58 | 64 | 117 | 20° | 241 | 8           | 76 | 253               |

( ) : With air cushion

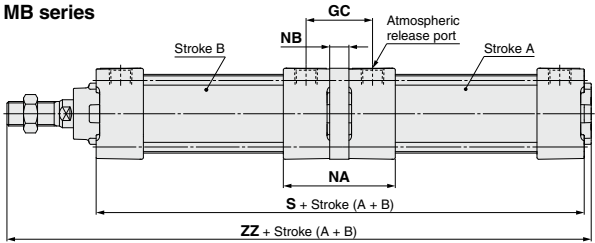
Note) When the stroke A is a long stroke (ø20: 201 mm or more, ø25 to ø63: 301 mm or more)

Symbol

-XC11

Construction/Dimensions

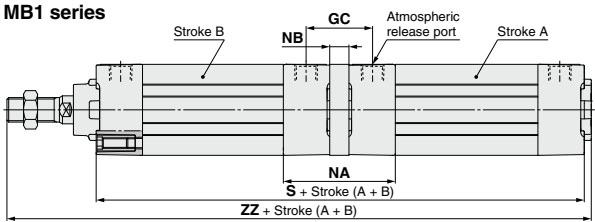
MB series



(mm)

| Bore size | GC | NA | NB   | S   | ZZ  |
|-----------|----|----|------|-----|-----|
| 32        | 36 | 64 | 10.6 | 179 | 230 |
| 40        | 38 | 64 | 10.6 | 179 | 234 |
| 50        | 41 | 73 | 10.6 | 199 | 261 |
| 63        | 43 | 73 | 10.6 | 199 | 261 |
| 80        | 52 | 90 | 14.6 | 243 | 319 |
| 100       | 52 | 90 | 14.6 | 243 | 319 |

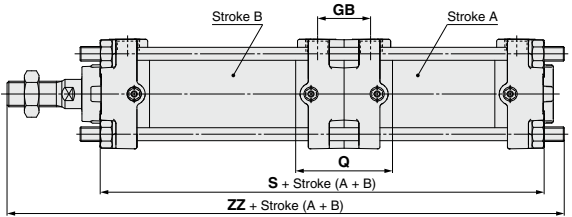
MB1 series



(mm)

| Bore size | GC | NA | NB   | S   | ZZ  |
|-----------|----|----|------|-----|-----|
| 32        | 36 | 62 | 10.6 | 179 | 230 |
| 40        | 38 | 62 | 10.6 | 179 | 234 |
| 50        | 41 | 71 | 10.6 | 199 | 261 |
| 63        | 43 | 71 | 10.6 | 199 | 261 |
| 80        | 52 | 88 | 14.6 | 243 | 319 |
| 100       | 52 | 88 | 14.6 | 243 | 319 |

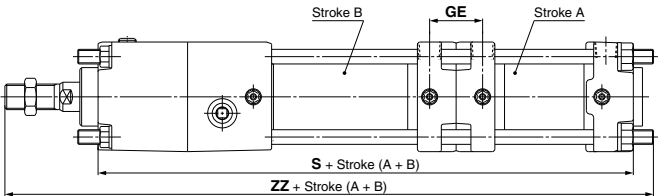
CA2 series



(mm)

| Bore size | GB | Q  | S   | ZZ  |
|-----------|----|----|-----|-----|
| 40        | 29 | 53 | 168 | 230 |
| 50        | 33 | 59 | 180 | 249 |
| 63        | 33 | 61 | 196 | 268 |
| 80        | 41 | 73 | 232 | 320 |
| 100       | 41 | 79 | 252 | 341 |

CNA2 series



(mm)

| Bore size | GE | S   | ZZ  |
|-----------|----|-----|-----|
| 40        | 29 | 237 | 299 |
| 50        | 33 | 258 | 327 |
| 63        | 33 | 280 | 352 |
| 80        | 41 | 334 | 422 |
| 100       | 41 | 372 | 461 |

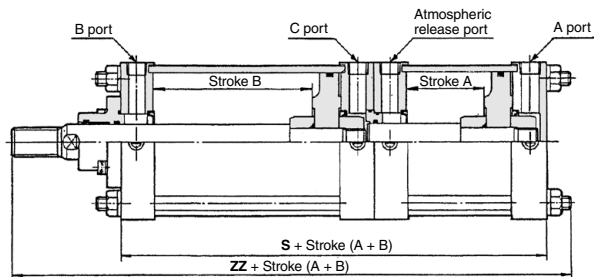
# Made to Order Common Specifications: -XC11: Dual Stroke Cylinder/Single Rod Type



## 23 Dual Stroke Cylinder/Single Rod Type

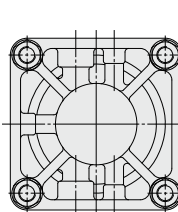
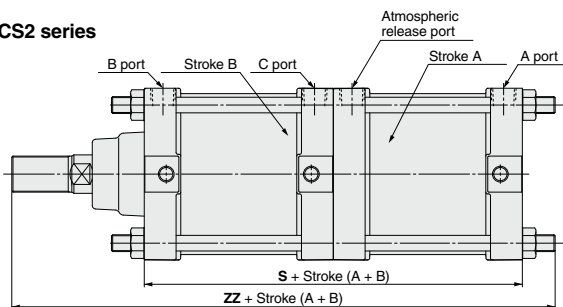
### Construction/Dimensions

#### CS1 series



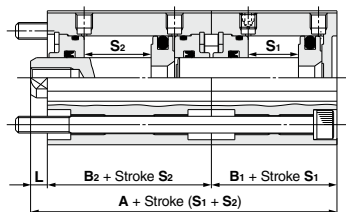
| Bore size<br>(mm) | Without auto switch |       | With auto switch |       |
|-------------------|---------------------|-------|------------------|-------|
|                   | S                   | ZZ    | S                | ZZ    |
| 125               | 197                 | 334   | 197              | 334   |
| 140               | 197                 | 334   | 197              | 334   |
| 160               | 213                 | 363.5 | 213              | 363.5 |
| 180               | 223                 | 393   | 231              | 401   |
| 200               | 223                 | 393   | 241              | 411   |
| 250               | 283                 | 484.5 | —                | —     |
| 300               | 293                 | 519.5 | —                | —     |

#### CS2 series



| Bore size<br>(mm) | S   | ZZ    |
|-------------------|-----|-------|
| 125               | 197 | 334   |
| 140               | 197 | 334   |
| 160               | 213 | 363.5 |

#### CQS series



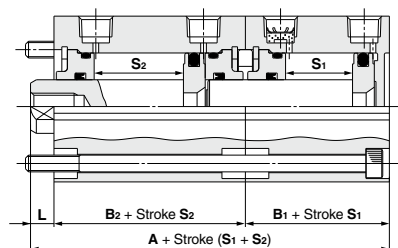
| Bore size<br>(mm) | A           | B <sub>1</sub> | B <sub>2</sub> | L   | Stroke<br>Both of S <sub>1</sub> , S <sub>2</sub> |
|-------------------|-------------|----------------|----------------|-----|---------------------------------------------------|
| 12                | 42.5 (52.5) | 17 (22)        | 22 (27)        | 3.5 | 5 to 30                                           |
| 16                | 42.5 (52.5) | 17 (22)        | 22 (27)        | 3.5 | 5 to 30                                           |
| 20                | 50 (70)     | 19.5 (29.5)    | 26 (36)        | 4.5 | 5 to 50                                           |
| 25                | 56.5 (76.5) | 22.5 (32.5)    | 29 (39)        | 5   | 5 to 50                                           |

Note 1) ( ) : Denotes the dimensions with auto switch.

Note 2) Applicable stroke available in 5 mm increments.

Note 3) Please contact SMC for long stroke type.

#### CQ2 series



| Bore size<br>(mm) | A             | B <sub>1</sub> | B <sub>2</sub> | L   | Stroke<br>Both of S <sub>1</sub> , S <sub>2</sub> |
|-------------------|---------------|----------------|----------------|-----|---------------------------------------------------|
| 12                | 45.7 (63.9)   | 17 (28)        | 25.2 (32.4)    | 3.5 | 5 to 30                                           |
| 16                | 48 (70)       | 18.5 (30.5)    | 26 (36)        | 3.5 | 5 to 30                                           |
| 20                | 50 (74)       | 19.5 (31.5)    | 26 (36)        | 4.5 | 5 to 50                                           |
| 25                | 56.5 (76.5)   | 22.5 (32.5)    | 29 (39)        | 5   | 5 to 50                                           |
| 32                | 60.5 (80.5)   | 23 (33)        | 30.5 (40.5)    | 7   | 5 to 50                                           |
| 40                | 76.5 (96.5)   | 29.5 (39.5)    | 40 (50)        | 7   | 5 to 50                                           |
| 50                | 79 (99)       | 30.5 (40.5)    | 40.5 (50.5)    | 8   | 5 to 50                                           |
| 63                | 86 (106)      | 36 (46)        | 42 (52)        | 8   | 5 to 50                                           |
| 80                | 104.5 (124.5) | 43.5 (53.5)    | 51 (61)        | 10  | 10 to 50                                          |
| 100               | 125.5 (145.5) | 53 (63)        | 60.5 (70.5)    | 12  | 10 to 50                                          |

Note 1) ( ) : Denotes the dimensions with auto switch.

Note 2) Applicable stroke available in 5 mm increments.

Note 3) Please contact SMC for long stroke type.

Made to Order Common Specifications:  
Dual Stroke Cylinder/Single Rod Type

Symbol

-XC11

MGG series

How to Order

MGG Bearing type Mounting type Bore size - Stroke A + Stroke B-A - Auto switch - C <sup>Note</sup> - XC11

Note) This symbol is indicated when the D-A9□ or M9□ type auto switch is specified.  
It does not apply to other auto switches (D-C7□ and H7□, etc.) (Nil)

Dual stroke cylinder/Single rod type ●

Specifications

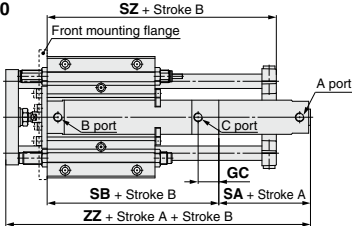
| Bore size                       | 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 25 | 32 | 40 | 50 | 63 |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|
| Basic cylinder                  | ø20 to ø50*: CDG1BN <span style="border: 1px solid black; padding: 0 2px;">Bore size</span> - <span style="border: 1px solid black; padding: 0 2px;">Stroke A</span> + <span style="border: 1px solid black; padding: 0 2px;">Stroke B-A</span> - <span style="border: 1px solid black; padding: 0 2px;">Auto switch</span> - <span style="border: 1px solid black; padding: 0 2px;">C <sup>Note</sup></span> - X428<br>ø63: CDG1ZN <span style="border: 1px solid black; padding: 0 2px;">Bore size</span> - <span style="border: 1px solid black; padding: 0 2px;">Stroke A</span> + <span style="border: 1px solid black; padding: 0 2px;">Stroke B-A</span> Z - <span style="border: 1px solid black; padding: 0 2px;">Auto switch</span> - XC11 |    |    |    |    |    |
| Dimensions                      | Refer to the table below.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |    |    |    |    |    |
| Piston speed                    | The piston speed for the stroke B retraction side is 50 to 500 mm/s.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |    |    |    |    |    |
| Specifications other than above | Same as standard type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |    |    |    |    |

\* The cylinder has the shape before model change.

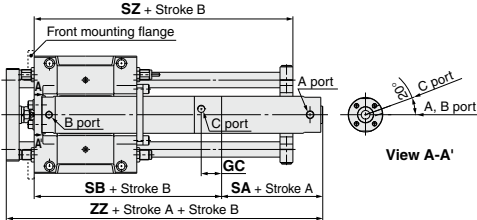
Dimensions (Dimensions other than below are the same as standard type.)

MGG series

ø20 to ø50



ø63



MGG Series

(mm)

| Bore size<br>(mm) | GC | SA | SB  | SZ  | ZZ  | Bracket mounting<br>stroke<br>(Stroke A +<br>Stroke B) | Long<br>stroke <sup>Note</sup> |     |
|-------------------|----|----|-----|-----|-----|--------------------------------------------------------|--------------------------------|-----|
|                   |    |    |     |     |     |                                                        | SA                             | ZZ  |
| 20                | 21 | 50 | 87  | 118 | 176 | 35 st or more                                          | 50                             | 176 |
| 25                | 21 | 50 | 87  | 129 | 183 | 60 st or more                                          | 50                             | 183 |
| 32                | 23 | 52 | 91  | 155 | 189 | 80 st or more                                          | 52                             | 189 |
| 40                | 24 | 59 | 99  | 182 | 214 | 125 st or more                                         | 68                             | 223 |
| 50                | 28 | 66 | 117 | 218 | 250 | 160 st or more                                         | 78                             | 262 |
| 63                | 28 | 66 | 132 | 254 | 252 | 210 st or more                                         | 78                             | 264 |

Note) When the stroke A is a long stroke (ø20: 201 mm or more, ø25 to ø63: 301 mm or more)

-XC□

# Made to Order Common Specifications: -XC11: Dual Stroke Cylinder/Single Rod Type



## 23 Dual Stroke Cylinder/Single Rod Type

Symbol

**-XC11**

MGC series

How to Order

MGC Bearing type Mounting type Bore size — Stroke A + Stroke B-A — Equipped/Not equipped back plate — Auto switch — **XC11**

Dual stroke cylinder/Single rod type ●

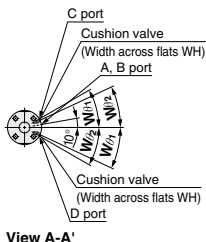
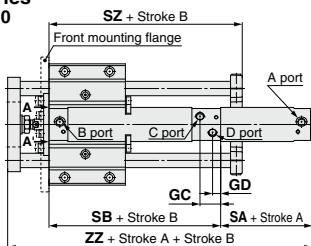
### Specifications

| Bore size                       | 20                                                                                                                                                                                                                                                                                                              | 25 | 32 | 40 | 50 |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|
| Basic cylinder                  | CDG1ZA <span style="border: 1px solid black; padding: 2px;">Bore size</span> — <span style="border: 1px solid black; padding: 2px;">Stroke A</span> + <span style="border: 1px solid black; padding: 2px;">Stroke B-A</span> Z — <span style="border: 1px solid black; padding: 2px;">Auto switch</span> — XC11 |    |    |    |    |
| Dimensions                      | Refer to the table below.                                                                                                                                                                                                                                                                                       |    |    |    |    |
| Piston speed                    | The piston speed for the stroke B retraction side is 50 to 500 mm/s.                                                                                                                                                                                                                                            |    |    |    |    |
| Specifications other than above | Same as standard type                                                                                                                                                                                                                                                                                           |    |    |    |    |

### Dimensions (Dimensions other than below are the same as standard type.)

MGC series

ø20 to ø50



### MGC Series

(mm)

| Bore size (mm) | GC   | GD  | SA | SB  | W <sub>1/1</sub> | W <sub>1/2</sub> | Long stroke <sup>Note</sup> |
|----------------|------|-----|----|-----|------------------|------------------|-----------------------------|
| 20             | 21   | 9   | 50 | 87  | 25°              | 30°              | 58 184                      |
| 25             | 21.5 | 8.5 | 50 | 87  | 25°              | 30°              | 58 191                      |
| 32             | 23   | 9   | 52 | 91  | 25°              | 30°              | 60 197                      |
| 40             | 25   | 9   | 58 | 100 | 20°              | 20°              | 67 223                      |
| 50             | 29   | 13  | 65 | 118 | 20°              | 20°              | 77 262                      |

| Bore size (mm) | SZ     |           | ZZ  | Bracket mounting stroke (Stroke A + Stroke B) |
|----------------|--------|-----------|-----|-----------------------------------------------|
|                | With R | Without R |     |                                               |
| 20             | 101    | 80        | 176 | 35 st or more                                 |
| 25             | 107    | 85        | 183 | 60 st or more                                 |
| 32             | 115    | 90        | 189 | 80 st or more                                 |
| 40             | 132    | 100       | 214 | 125 st or more                                |
| 50             | 174    | 135       | 250 | 160 st or more                                |

Note) When the stroke A is a long stroke (ø20: 201 mm or more, ø25 to ø50: 301 mm or more)



# Made to Order Common Specifications: -XC12: Tandem Cylinder



## 24 Tandem Cylinder

This is a cylinder produced with two air cylinders in line allowing double the output force.

### Applicable Series

| Series     | Description           | Model  | Action                    | Note                    | Vol. no. (for std. model) |
|------------|-----------------------|--------|---------------------------|-------------------------|---------------------------|
| <b>CM2</b> | Air cylinder          | CM2-Z  | Double acting, Single rod | Except with air cushion | ②-1 From P. 172           |
|            | Direct mount type     | CM2R   | Double acting, Single rod | Except with air cushion |                           |
| <b>CG1</b> | Air cylinder          | CG1-Z  | Double acting, Single rod | Except with air cushion | ②-1 From P. 292           |
|            | Non-rotating rod type | CG1K-Z | Double acting, Single rod | Except with air cushion |                           |
| <b>MB</b>  | Air cylinder          | MB-Z   | Double acting, Single rod | Except ø125             | ②-1 From P. 392           |
| <b>MB1</b> | Air cylinder          | MB1-Z  | Double acting, Single rod | Except ø125             | ②-1 From P. 440           |
| <b>CA2</b> | Air cylinder          | CA2-Z  | Double acting, Single rod |                         | ②-1 From P. 470           |

### How to Order

Standard model no.

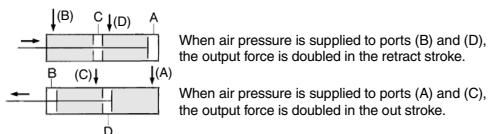
-XC12

Tandem cylinder



CG1 series

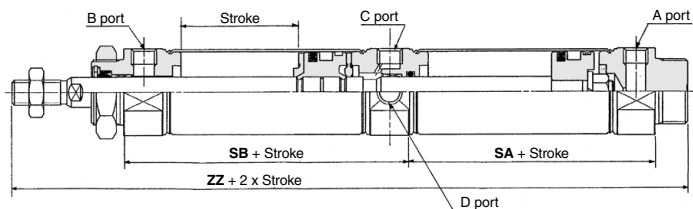
#### Symbol



Specifications: Same as standard type

### Dimensions (Dimensions other than below are the same as standard type.)

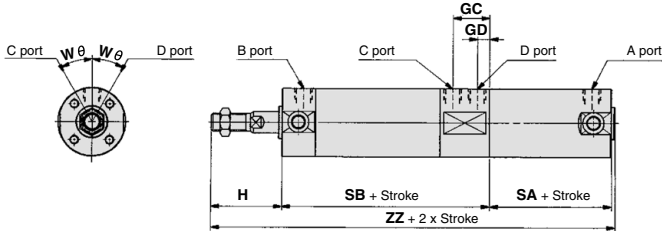
#### CM2 series



|           | (mm) |      |     |  |
|-----------|------|------|-----|--|
| Bore size | SA   | SB   | ZZ  |  |
| 20        | 48   | 62   | 164 |  |
| 25        | 48   | 62   | 168 |  |
| 32        | 50   | 64   | 172 |  |
| 40        | 67.5 | 88.5 | 222 |  |

**Dimensions** (Dimensions other than below are the same as standard type.)

**CG1 series**



**CG1**

| Bore size | GC | GD | H  | SA | SB  | Wθ  | ZZ  | (mm)        |       |
|-----------|----|----|----|----|-----|-----|-----|-------------|-------|
|           |    |    |    |    |     |     |     | Long stroke | Note) |
| 20        | 21 | 9  | 35 | 48 | 87  | 30° | 172 | 56          | 180   |
| 25        | 21 | 9  | 40 | 48 | 87  | 30° | 177 | 56          | 185   |
| 32        | 23 | 9  | 40 | 50 | 91  | 30° | 183 | 58          | 191   |
| 40        | 25 | 9  | 50 | 56 | 100 | 20° | 208 | 65          | 217   |
| 50        | 29 | 13 | 58 | 63 | 118 | 20° | 241 | 75          | 253   |
| 63        | 28 | 12 | 58 | 64 | 117 | 20° | 241 | 76          | 253   |

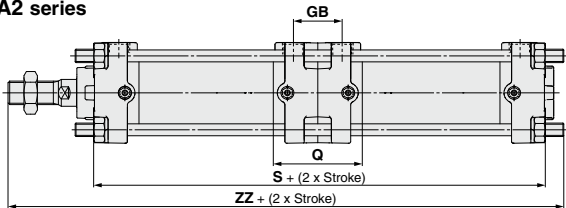
Note) When the stroke is a long stroke (ø20: 201 mm or more, ø25 to ø63: 301 mm or more)

**CG1K**

| Bore size | GC | GD | H  | SA | SB  | Wθ  | ZZ  | (mm)        |       |
|-----------|----|----|----|----|-----|-----|-----|-------------|-------|
|           |    |    |    |    |     |     |     | Long stroke | Note) |
| 20        | 21 | 9  | 35 | 48 | 87  | 30° | 172 | 56          | 180   |
| 25        | 21 | 9  | 40 | 48 | 87  | 30° | 177 | 56          | 185   |
| 32        | 23 | 9  | 40 | 50 | 91  | 30° | 183 | 58          | 191   |
| 40        | 24 | 8  | 50 | 57 | 99  | 20° | 208 | 65          | 217   |
| 50        | 28 | 12 | 58 | 64 | 117 | 20° | 241 | 75          | 253   |
| 63        | 28 | 12 | 58 | 64 | 117 | 20° | 241 | 76          | 253   |

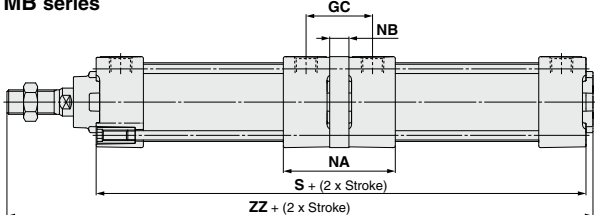
\* Please contact SMC for long stroke (301 mm or more) since SA-dimensions and ZZ-dimensions are different from those in the above table.

**CA2 series**



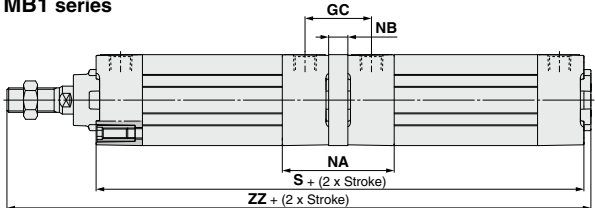
| Bore size | GB | Q  | S   | ZZ  | (mm)        |       |
|-----------|----|----|-----|-----|-------------|-------|
|           |    |    |     |     | Long stroke | Note) |
| 40        | 29 | 53 | 169 | 231 | 56          | 180   |
| 50        | 33 | 59 | 181 | 250 | 58          | 191   |
| 63        | 33 | 61 | 197 | 269 | 65          | 217   |
| 80        | 41 | 73 | 233 | 321 | 75          | 253   |
| 100       | 41 | 79 | 253 | 342 | 76          | 253   |

**MB series**



| Bore size | GC | NA | NB   | S   | ZZ  | (mm)        |       |
|-----------|----|----|------|-----|-----|-------------|-------|
|           |    |    |      |     |     | Long stroke | Note) |
| 32        | 36 | 64 | 10.6 | 180 | 231 | 56          | 180   |
| 40        | 38 | 64 | 10.6 | 180 | 235 | 58          | 191   |
| 50        | 41 | 73 | 10.6 | 200 | 262 | 65          | 217   |
| 63        | 43 | 73 | 10.6 | 200 | 262 | 75          | 253   |
| 80        | 52 | 90 | 14.6 | 244 | 320 | 76          | 253   |
| 100       | 52 | 90 | 14.6 | 244 | 320 | 76          | 253   |

**MB1 series**



| Bore size | GC | NA | NB   | S   | ZZ  | (mm)        |       |
|-----------|----|----|------|-----|-----|-------------|-------|
|           |    |    |      |     |     | Long stroke | Note) |
| 32        | 36 | 62 | 10.6 | 180 | 231 | 56          | 180   |
| 40        | 38 | 62 | 10.6 | 180 | 235 | 58          | 191   |
| 50        | 41 | 71 | 10.6 | 200 | 262 | 65          | 217   |
| 63        | 43 | 71 | 10.6 | 200 | 262 | 75          | 253   |
| 80        | 52 | 88 | 14.6 | 244 | 320 | 76          | 253   |
| 100       | 52 | 88 | 14.6 | 244 | 320 | 76          | 253   |

# Made to Order Common Specifications: -XC13: Auto Switch Rail Mounting Type



## 25 Auto Switch Rail Mounting Type

A cylinder on which a rail is mounted to enable auto switches, in addition to the standard method for mounting auto switches (Band mounting type).

### Applicable Series

| Series | Description                         | Model   | Action                               | Note                     | Vol. no. (for std model) |
|--------|-------------------------------------|---------|--------------------------------------|--------------------------|--------------------------|
| CM2    | Air cylinder                        | CM2-Z   | Double acting, Single rod            |                          | ②-1 From P. 172          |
|        |                                     |         | Single acting (Spring return/extend) |                          |                          |
|        | Non-rotating rod type               | CM2W-Z  | Double acting, Double rod            |                          |                          |
|        |                                     | CM2K-Z  | Double acting, Single rod            |                          |                          |
|        |                                     |         | Single acting (Spring return/extend) |                          |                          |
|        |                                     | CM2KW   | Double acting, Double rod            |                          |                          |
|        | Direct mount type                   | CM2R-Z  | Double acting, Single rod            |                          |                          |
|        | Non-rotating rod, Direct mount type | CM2RK-Z | Double acting, Single rod            |                          |                          |
| CG1    | Smooth cylinder                     | CM2Y-Z  | Double acting, Single rod            |                          | ②-1 From P. 292          |
|        | End lock cylinder                   | CBM2    | Double acting, Single rod            | For XC13A and XC13C only |                          |
|        | Air cylinder                        | CG1-Z   | Double acting, Single rod            | Except the trunnion type |                          |
|        | Double rod type                     | CG1W-Z  | Double acting, Double rod            | Except the trunnion type |                          |
|        | Non-rotating rod type               | CG1K-Z  | Double acting, Single rod            | Except the trunnion type |                          |
|        | Direct mount type                   | CG1R-Z  | Double acting, Single rod            | Except with air cushion  |                          |
| MGG    | Guide cylinder                      | MGG     | Double acting                        | For XC13A only           | ②-1 From P. 343          |
| MGC    | Guide cylinder                      | MGC     | Double acting                        |                          | ②-2 From P. 538          |
|        |                                     |         |                                      |                          | ②-2 From P. 578          |

### How to Order

CDM2  Standard model no. - XC13A

CDG1  Standard model no. - XC13A

\* Trunnion type of the CDG1 series cannot be mounted.

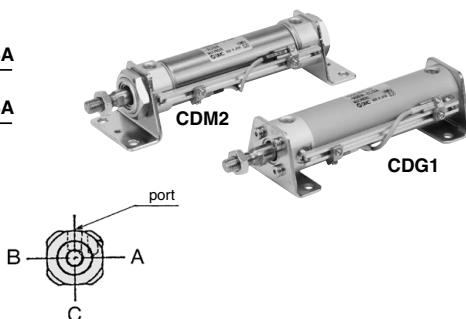
#### Rail mounting direction \*

|                                   |                                                                                   |
|-----------------------------------|-----------------------------------------------------------------------------------|
| XC13A                             | Mounted on the right side when viewed from the rod with the ports facing upwards. |
| XC13B <sup>*2</sup> <sup>*3</sup> | Mounted on the left side when viewed from the rod.                                |
| XC13C <sup>*1</sup> <sup>*2</sup> | Mounted on the underside when viewed from the rod.                                |

\* 1 Not available for CDG1.

\* 2 Not available for CBG1.

\* 3 Not available for CBM2.



### CDM2 Applicable Auto Switches

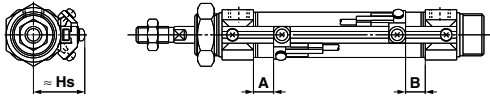
|                            |             |                                                                                           |
|----------------------------|-------------|-------------------------------------------------------------------------------------------|
| Rail mounting type         | Solid state | D-F7□, D-F7□V, D-F7BA, D-F79F, D-F79W, D-F7□WV, D-J79, D-J79C, D-J79W                     |
|                            | Reed        | D-A9□/A9□V, D-A7/A8, D-A7□H/A80H, D-A73C/A80C, D-A79W                                     |
| Auto switch specifications |             | For detailed specifications about an auto switch for itself, refer to pages 1575 to 1701. |

### CDG1 Applicable Auto Switches

|                            |             |                                                                                                               |
|----------------------------|-------------|---------------------------------------------------------------------------------------------------------------|
| Rail mounting type         | Solid state | D-M9□/M9□V, D-M9□W/M9□WV, D-M9□A/M9□AV, D-F7□, D-F7□V, D-F7BA, D-F79F, D-F79W, D-F7□WV, D-J79, D-J79C, D-J79W |
|                            | Reed        | D-A7/A8, D-A7□H/A80H, D-A73C/A80C, D-A79W                                                                     |
| Auto switch specifications |             | For detailed specifications about an auto switch for itself, refer to pages 1575 to 1701.                     |

## Proper Auto Switch Mounting Position (Detection at stroke end) and Mounting Height

### CDM2 series



#### Proper Auto Switch Mounting Position

| Auto switch model | D-F7□/F79F/F7□V<br>D-J79/J79C<br>D-F7□W/J79W/F7□WV<br>D-F7BA/F7BAV<br>D-A72/A7□H/A80H<br>D-A73C/A80C |         | D-F7NT    |           | D-A9□<br>D-A9□V<br>D-A79W |         | D-A7□<br>D-A80 |         |
|-------------------|------------------------------------------------------------------------------------------------------|---------|-----------|-----------|---------------------------|---------|----------------|---------|
|                   | A                                                                                                    | B       | A         | B         | A                         | B       | A              | B       |
| 20                | 8 (5.5)                                                                                              | 7 (4.5) | 13 (10.5) | 12 (9.5)  | 5 (2.5)                   | 4 (1.5) | 7.5 (5)        | 6.5 (4) |
| 25                | 8 (5.5)                                                                                              | 7 (4.5) | 13 (10.5) | 12 (9.5)  | 5 (2.5)                   | 4 (1.5) | 7.5 (5)        | 6.5 (4) |
| 32                | 9 (6.5)                                                                                              | 8 (5.5) | 14 (11.5) | 13 (10.5) | 6 (3.5)                   | 5 (2.5) | 8.5 (6)        | 7.5 (5) |
| 40                | 15                                                                                                   | 13      | 19        | 18        | 12                        | 10      | 14.5           | 12.5    |

Note 1) ( ): With air cushion

Note 2) Adjust the auto switch after confirming the operating conditions in the actual setting.

Note 3) For the dimensions other than the proper auto switch mounting position and its mounting height, refer to standard type for CM2 series.

#### Auto Switch Mounting Height

| D-F7□/F79F<br>D-J79/F7NT<br>D-F7□W/J79W<br>D-F7BA<br>D-A9□/A9□V<br>A7□H/A80H | D-F7□V<br>D-F7□WV<br>D-F7BAV | D-J79C | D-A7□<br>D-A80 | D-A73C<br>D-A80C | D-A79W |
|------------------------------------------------------------------------------|------------------------------|--------|----------------|------------------|--------|
| Hs                                                                           | Hs                           | Hs     | Hs             | Hs               | Hs     |
| 23.5                                                                         | 26                           | 29     | 22.5           | 29.5             | 25     |
| 26.5                                                                         | 29                           | 32     | 25.5           | 32.5             | 28     |
| 30                                                                           | 32.5                         | 35.5   | 29             | 35               | 31.5   |
| 34                                                                           | 36.5                         | 39.5   | 33             | 40               | 35.5   |

### Minimum Auto Switch Mounting Stroke

| Auto switch model                       | No. of auto switch mounted |                   |                                              |
|-----------------------------------------|----------------------------|-------------------|----------------------------------------------|
|                                         | 1                          | 2<br>Same surface | n (n: No. of auto switches)<br>Same surface  |
| D-F7□V<br>D-J79C                        | 5                          | 5                 | 10 + 10 (n-2) <sup>Note</sup><br>(n=4, 6···) |
| D-F7□<br>D-J79                          | 5                          | 5                 | 15 + 15 (n-2) <sup>Note</sup><br>(n=4, 6···) |
| D-F7□WV<br>D-F7BAV<br>D-A79W            | 10                         | 15                | 10 + 15 (n-2) <sup>Note</sup><br>(n=4, 6···) |
| D-F7□W/J79W<br>D-F7BA<br>D-F79F/F7NT    | 10                         | 15                | 15 + 20 (n-2) <sup>Note</sup><br>(n=4, 6···) |
| D-A9□<br>D-A9□V                         | 5                          | 10                | 10 + 15 (n-2) <sup>Note</sup><br>(n=4, 6···) |
| D-A7□/A80<br>D-A7□H/A80H<br>D-A73C/A80C | 5                          | 10                | 15 + 10 (n-2) <sup>Note</sup><br>(n=4, 6···) |
| D-A7□H<br>D-A80H                        | 5                          | 10                | 15 + 15 (n-2) <sup>Note</sup><br>(n=4, 6···) |

Note) When "n" is an odd number, an even number that is one larger than this odd number is used for the calculation. However, the minimum even number is 4. So, 4 is used for the calculation when "n" is 1 to 3.

### Auto Switch Mounting Bracket: Part No.

| Auto switch model | Bore size (mm) |
|-------------------|----------------|
|                   | ø20 to ø40     |
| D-A9□/A9□V        | BQ2-012        |

Note 1) When adding D-A9□(V), order a set of auto switch mounting brackets BQ-1 and BQ2-012 for the CDQ2 series (ø12 to ø25) separately.

When adding the auto switches other than D-A9□(V) mentioned on the left and D-F7BA(V), order auto switch mounting brackets BQ-1 separately.

Note 2) When adding the auto switch D-F7BA(V), order a stainless steel screw set BBA2 separately.

### Operating range

| Auto switch model                                                             | Bore size (mm) |      |      |      |
|-------------------------------------------------------------------------------|----------------|------|------|------|
|                                                                               | 20             | 25   | 32   | 40   |
| D-F7□/F79F/F7□V<br>D-J79/J79C<br>D-F7□W/J79W/F7□WV<br>D-F7BA/F7BAV<br>D-F7NTL | 3.5            | 3.5  | 4    | 3.5  |
| D-A9□/D-A9□V                                                                  | 5.5            | 6    | 6.5  | 6.5  |
| D-A7□/A80<br>D-A7□H/A80H<br>D-A73C/A80C                                       | 7.5            | 8    | 8.5  | 8.5  |
| D-A79W                                                                        | 10             | 10.5 | 12.5 | 12.5 |

\* Since the operating range is provided as a guideline including hysteresis, it cannot be guaranteed (assuming approximately ±30% dispersion). It may vary substantially depending on an ambient environment.

# Made to Order Common Specifications: -XC13: Auto Switch Rail Mounting Type



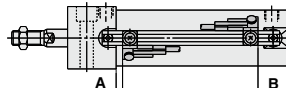
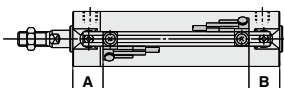
## 25 Auto Switch Rail Mounting Type

### Proper Auto Switch Mounting Position (Detection at stroke end) and Mounting Height

#### CDG1 series

#### CDG1R series

(ø20 to ø63)



### Proper Auto Switch Mounting Position (Detection at stroke end)

#### Applicable Cylinder Series: CDG1-XC13

(mm)

| Auto switch model | D-M9□/D-M9□V<br>D-M9□W/D-M9□WV<br>D-M9□A/D-M9□AV |             | D-F7□/F79□/F7□V<br>D-J79/J79C D-A72/AT□H/A80H<br>D-F7□W/J79W/F7□WV D-A73C/A80C |             | D-F7NT |             | D-A7□<br>D-A80 |             | D-A79W |             |
|-------------------|--------------------------------------------------|-------------|--------------------------------------------------------------------------------|-------------|--------|-------------|----------------|-------------|--------|-------------|
|                   | A                                                | B           | A                                                                              | B           | A      | B           | A              | B           | A      | B           |
| 20                | 31.5                                             | 22.5 (30.5) | 30.5                                                                           | 21.5 (29.5) | 35.5   | 26.5 (34.5) | 30             | 21 (29)     | 27.5   | 18.5 (26.5) |
| 25                | 31                                               | 23 (31)     | 30                                                                             | 22 (30)     | 35     | 27 (35)     | 29.5           | 21.5 (29.5) | 27     | 19 (27)     |
| 32                | 32.5                                             | 23.5 (31.5) | 31.5                                                                           | 22.5 (30.5) | 36.5   | 27.5 (35.5) | 31             | 22 (30)     | 28.5   | 19.5 (27.5) |
| 40                | 37.5                                             | 25.5 (34.5) | 36.5                                                                           | 24.5 (33.5) | 41.5   | 29.5 (38.5) | 36             | 24 (33)     | 33.5   | 21.5 (30.5) |
| 50                | 44.5                                             | 30.5 (42.5) | 43.5                                                                           | 29.5 (41.5) | 49     | 34.5 (46.5) | 43             | 29 (41)     | 40.5   | 26.5 (38.5) |
| 63                | 43                                               | 32 (44)     | 42                                                                             | 31 (43)     | 47     | 36 (48)     | 41.5           | 30.5 (42.5) | 39     | 28 (40)     |
| 80                | 56                                               | 37 (51)     | 55                                                                             | 36 (50)     | 60     | 41 (55)     | 54.5           | 35.5 (49.5) | 52     | 33 (47)     |
| 100               | 55                                               | 38 (52)     | 54                                                                             | 37 (51)     | 59     | 42 (56)     | 53.5           | 36.5 (50.5) | 51     | 34 (48)     |

Note 1) ( ): For long stroke type

Note 2) Adjust the auto switch after confirming the operating conditions in the actual setting.

### Proper Auto Switch Mounting Position (Detection at stroke end)

#### Applicable Cylinder Series: CDG1R-XC13

(mm)

| Auto switch model | D-M9□/D-M9□V<br>D-M9□W/D-M9□WV<br>D-M9□A/D-M9□AV |      | D-F7□/F79□/F7□V<br>D-J79/J79C D-A72/AT□H/A80H<br>D-F7□W/J79W/F7□WV D-A73C/A80C |      | D-F7NT |      | D-A7□<br>D-A80 |      | D-A79W |      |
|-------------------|--------------------------------------------------|------|--------------------------------------------------------------------------------|------|--------|------|----------------|------|--------|------|
|                   | A                                                | B    | A                                                                              | B    | A      | B    | A              | B    | A      | B    |
| 20                | 10.5                                             | 22.5 | 9.5                                                                            | 21.5 | 14.5   | 26.5 | 9              | 21   | 6.5    | 18.5 |
| 25                | 10                                               | 23   | 9                                                                              | 22   | 14     | 27   | 8.5            | 21.5 | 6      | 19   |
| 32                | 11.5                                             | 23.5 | 10.5                                                                           | 22.5 | 15.5   | 27.5 | 10             | 22   | 7.5    | 19.5 |
| 40                | 16.5                                             | 25.5 | 15.5                                                                           | 24.5 | 20.5   | 29.5 | 15             | 24   | 12.5   | 21.5 |
| 50                | 18.5                                             | 30.5 | 17.5                                                                           | 29.5 | 22.5   | 34.5 | 17             | 29   | 14.5   | 26.5 |
| 63                | 17                                               | 32   | 16                                                                             | 31   | 21     | 36   | 15.5           | 30.5 | 13     | 28   |

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

### Proper Auto Switch Mounting Position/Applicable Cylinder Series: CDBG1-XC13 (mm)

| Lock position | H<br>(Head side) |           | R<br>(Rod side) |      | W<br>(Both sides) |           |
|---------------|------------------|-----------|-----------------|------|-------------------|-----------|
|               | A                | B Note 2) | A               | B    | A                 | B Note 2) |
| 20            | +0               | +12       | +11             | +0   | +11               | +12       |
| 25            | +0.5             | +11.5     | +11.5           | -0.5 | +11.5             | +11.5     |
| 32            | +0               | +10       | +10             | +0   | +10               | +10       |
| 40            | +0               | +14       | +9              | +0   | +9                | +14       |
| 50            | +0               | +17       | +12             | +0   | +12               | +17       |
| 63            | +1.5             | +15.5     | +13.5           | -1.5 | +13.5             | +15.5     |
| 80            | -1.5             | +23.5     | +14.5           | +1.5 | +14.5             | +23.5     |
| 100           | -0.5             | +23.5     | +15.5           | +0.5 | +15.5             | +22.5     |

Note 1) For end lock cylinders, add the above values to those listed in the table for CG1-XC13.  
Note 2) For the head side and both sides lock, add the above values to CG1-XC13 (long stroke) to find B.

Note 3) Adjust the auto switch after confirming the operating conditions in the actual setting.

Note 4) For the dimensions other than the proper auto switch mounting position and mounting height, refer to standard type for CDBG1 series.

### Auto Switch Mounting Height

(mm)

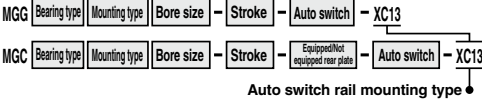
| Auto switch model | D-M9□/M9□V<br>D-M9□W/M9□WV<br>D-F7□/F79□<br>D-J79/F7NT<br>D-F7□W/J79W/F7BA |      | D-F79C | D-A7□<br>D-A80 | D-A73C<br>D-A80C | D-A79W |
|-------------------|----------------------------------------------------------------------------|------|--------|----------------|------------------|--------|
|                   | Hs                                                                         | Hs   | Hs     | Hs             | Hs               | Hs     |
| 20                | 26.5                                                                       | 29   | 32     | 25.5           | 32.5             | 28     |
| 25                | 29                                                                         | 31.5 | 34.5   | 28             | 35               | 30.5   |
| 32                | 32.5                                                                       | 35   | 38     | 31.5           | 38.5             | 34     |
| 40                | 36.5                                                                       | 39   | 42     | 35.5           | 42.5             | 38     |
| 50                | 42                                                                         | 44.5 | 47.5   | 41             | 48               | 43.5   |
| 63                | 49                                                                         | 51.5 | 54.5   | 48             | 55               | 50.5   |
| 80                | 59                                                                         | 61.5 | 64.5   | 58             | 65               | 60.5   |
| 100               | 69.5                                                                       | 72   | 75     | 68.5           | 75.5             | 71     |

# Made to Order Common Specifications: Auto Switch Rail Mounting Type

Symbol

**-XC13**

## How to Order

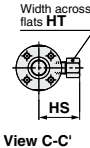
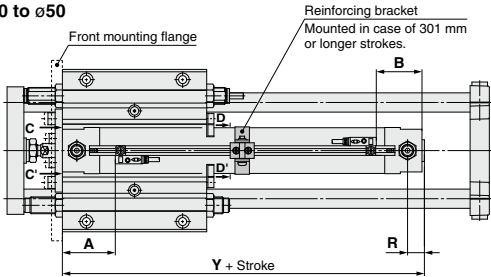


## MGG/MGC Applicable Auto Switches

| Rail mounting type         | Solid state switch                                                                        | D-M9□/M9□V, D-M9□W/M9□WV, D-M9□A/M9□AV, D-F7□, D-F7□V, D-F7BA, D-F79F, D-F79W, D-F7□WV, D-J79, D-J79C, D-J79W |
|----------------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
|                            | Reed switch                                                                               | D-A7/A8, D-A7□H/A80H, D-A73C/A80C, D-A79W                                                                     |
| Auto switch specifications | For detailed specifications about an auto switch for itself, refer to pages 1575 to 1701. |                                                                                                               |

## Dimensions (Dimensions other than below are the same as standard type.)

### MGG series ø20 to ø50



View C-C'

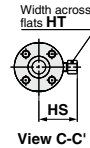
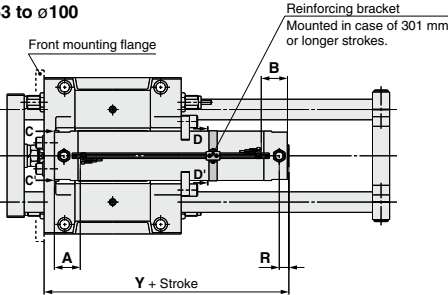


View D-D'

### MGG Series (mm)

| Bore size (mm) | R  | Y   | HS   | HT | HU   |
|----------------|----|-----|------|----|------|
| 20             | 14 | 99  | 28.5 | 14 | 30.7 |
| 25             | 14 | 99  | 31   | 14 | 33.2 |
| 32             | 14 | 101 | 34.5 | 14 | 36.5 |
| 40             | 15 | 109 | 39   | 14 | 41   |
| 50             | 16 | 124 | 49.5 | 17 | 46.2 |
| 63             | 16 | 139 | 56.5 | 17 | 53.2 |
| 80             | 23 | 165 | 75.5 | 23 | 62.2 |
| 100            | 23 | 165 | 86   | 26 | 72.7 |

### ø63 to ø100



View C-C'

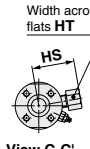
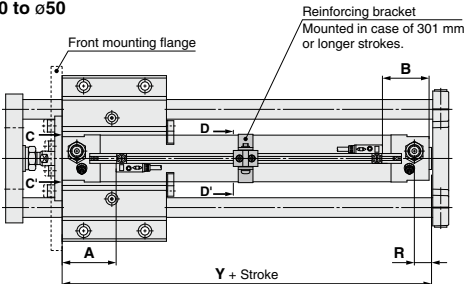


View D-D'

### MGC Series (mm)

| Bore size (mm) | R  | Y   | HS   | HT | HU   |
|----------------|----|-----|------|----|------|
| 20             | 14 | 99  | 26   | 7  | 30.7 |
| 25             | 14 | 99  | 28.5 | 7  | 33.2 |
| 32             | 14 | 101 | 34.5 | 14 | 36.5 |
| 40             | 15 | 109 | 39   | 14 | 41   |
| 50             | 16 | 124 | 49.5 | 17 | 46.2 |

### MGC series ø20 to ø50



View C-C'



View D-D'

# Made to Order Common Specifications: -XC13: Auto Switch Rail Mounting Type



## 25 Auto Switch Rail Mounting Type

Symbol  
**-XC13**

### Proper Auto Switch Mounting Position (Detection at stroke end) and Mounting Height

#### Proper Auto Switch Mounting Position/Applicable Cylinder MGG, MGC Series (mm)

| Auto switch model | D-M9□/M9□V<br>D-M9□W/M9□WV<br>D-M9□A/M9□AV |      | D-F7□/F79F/F7□V<br>D-J79/J79C<br>D-F7□W/J79W/F7□WV<br>D-F7BA/F7BAV<br>D-A72/A7□H/A80H<br>D-A73C/A80C |    | D-F7NT |    | D-A7□<br>D-A80 |      | D-A79W |    |
|-------------------|--------------------------------------------|------|------------------------------------------------------------------------------------------------------|----|--------|----|----------------|------|--------|----|
|                   | A                                          | B    | A                                                                                                    | B  | A      | B  | A              | B    | A      | B  |
| 20                | 45.5                                       | 39.5 | 43                                                                                                   | 37 | 48     | 42 | 42.5           | 36.5 | 40     | 34 |
| 25                | 45.5                                       | 39.5 | 43                                                                                                   | 37 | 48     | 42 | 42.5           | 36.5 | 40     | 34 |
| 32                | 46.5                                       | 40.5 | 44                                                                                                   | 38 | 49     | 43 | 43.5           | 37.5 | 41     | 35 |
| 40                | 51.5                                       | 43.5 | 49                                                                                                   | 41 | 54     | 46 | 48.5           | 40.5 | 46     | 38 |
| 50                | 58.5                                       | 51.5 | 56                                                                                                   | 49 | 61     | 54 | 55.5           | 48.5 | 53     | 46 |
| 63                | 58.5                                       | 51.5 | 56                                                                                                   | 49 | 61     | 54 | 55.5           | 48.5 | 53     | 46 |
| 80                | 68.5                                       | 61.5 | 66                                                                                                   | 59 | 71     | 64 | 65.5           | 58.5 | 63     | 56 |
| 100               | 68.5                                       | 61.5 | 66                                                                                                   | 59 | 71     | 64 | 65.5           | 58.5 | 63     | 56 |

#### Auto Switch Mounting Height (mm)

| D-M9□/M9□V<br>D-M9□W/M9□WV<br>D-M9□A/M9□AV<br>D-F7□/F79F<br>D-J79/F7NT<br>D-F7□W/J79W/F7BA | D-F7□V<br>D-F7□WV<br>D-F7BAV | D-J79C | D-A7□<br>D-A80 | D-A73C<br>D-A80C | D-A79W |
|--------------------------------------------------------------------------------------------|------------------------------|--------|----------------|------------------|--------|
| Hs                                                                                         | Hs                           | Hs     | Hs             | Hs               | Hs     |
| 26.5                                                                                       | 29                           | 31     | 26.5           | 32.5             | 30     |
| 29                                                                                         | 31.5                         | 33.5   | 29             | 35               | 32.5   |
| 32.5                                                                                       | 34.5                         | 36.5   | 32             | 38.5             | 35.5   |
| 37                                                                                         | 39                           | 41     | 36.5           | 43               | 40     |
| 42                                                                                         | 44.5                         | 46.5   | 42             | 48               | 45.5   |
| 49                                                                                         | 51.5                         | 53.5   | 49             | 55               | 52.5   |
| 58                                                                                         | 60.5                         | 62.5   | 58             | 64               | 61.5   |
| 69                                                                                         | 71                           | 73     | 68.5           | 74.5             | 72     |

Note 1) Adjust the auto switch after confirming the operating conditions in the actual setting.

Note 2) For dimensions other than the proper auto switch mounting position and height, refer the standard type for MGG and MGC series.

### Minimum Auto Switch Mounting Stroke/CDG1, MGG, MGC

| Auto switch model                                  | No. of auto switch mounted (mm) |    |                                                  |
|----------------------------------------------------|---------------------------------|----|--------------------------------------------------|
|                                                    | 1                               | 2  | n (n: No. of auto switches)<br>Same surface      |
| D-M9□/M9□V<br>D-F7□V<br>D-J79C                     | 5                               | 5  | 10 + 10 (n-2) <sup>(Note)</sup><br>(n=4, 6, ...) |
| D-M9□WV<br>D-M9□AV<br>D-F7□WV<br>D-F7BAV<br>D-A79W | 10                              | 15 | 10 + 15 (n-2) <sup>(Note)</sup><br>(n=4, 6, ...) |
| D-M9□W<br>D-M9□A                                   | 10                              | 15 | 15 + 15 (n-2) <sup>(Note)</sup><br>(n=4, 6, ...) |
| D-F7□<br>D-J79                                     | 5                               | 5  | 15 + 15 (n-2) <sup>(Note)</sup><br>(n=4, 6, ...) |
| D-F7□W/J79W<br>D-F7BA<br>D-F79F/F7NT               | 10                              | 15 | 15 + 20 (n-2) <sup>(Note)</sup><br>(n=4, 6, ...) |
| D-A7□/A80<br>D-A7□H/A80H<br>D-A73C/A80C            | 5                               | 10 | 15 + 10 (n-2) <sup>(Note)</sup><br>(n=4, 6, ...) |
| D-A7□H<br>D-A80H                                   | 5                               | 10 | 15 + 15 (n-2) <sup>(Note)</sup><br>(n=4, 6, ...) |

Note) When "n" is an odd number, an even number that is one larger than this odd number is used for the calculation. However, the minimum even number is 4. So, 4 is used for the calculation when "n" is 1 to 3.

### Operating Range/CDG1, MGG, MGC

| Auto switch model                                                            | Bore size (mm) |    |     |    |     |      |     |      |
|------------------------------------------------------------------------------|----------------|----|-----|----|-----|------|-----|------|
|                                                                              | 20             | 25 | 32  | 40 | 50  | 63   | 80  | 100  |
| D-M9□/M9□V<br>D-M9□W/M9□WV<br>D-M9□A/M9□AV                                   | 4              | 4  | 5   | 4  | 5.5 | 6.5  | 7.5 | 7    |
| D-F7□/F79F/F7□V<br>D-J79/J79C<br>D-F7□W/J79W/F7□WV<br>D-F7BA/F7BAV<br>D-F7NT | 4.5            | 4  | 4.5 | 5  | 5   | 6    | 6   | 6    |
| D-A7□/A80<br>D-A7□H/A80H<br>D-A73C/A80C                                      | 9              | 9  | 10  | 11 | 11  | 13.5 | 13  | 13.5 |
| D-A79W                                                                       | 11             | 11 | 13  | 14 | 14  | 16.5 | 16  | 16.5 |

\* Since the operating range is provided as a guideline including hysteresis, it cannot be guaranteed. (Assuming approximately ±30% dispersion.) It may vary substantially depending on an ambient environment.

### Auto Switch Mounting Bracket: Part No./CDG1, MGG, MGC

| Auto switch model          | Bore size (mm) |
|----------------------------|----------------|
|                            | ø20 to ø100    |
| D-M9□/M9□V<br>D-M9□W/M9□WV | BQ2-012        |
| D-A9□A/A9□AV               | BQ2-012S       |

Note 1) When adding D-M9□(V) and D-A9□W(V), order a set of auto switch mounting brackets BQ-1 and BQ2-012 for the CDQ2 series (ø12 to ø25) separately.

When ordering the auto switches other than D-M9□□□ mentioned on the left and D-F7BA(V), order auto switch mounting brackets BQ-1 separately.

Note 2) When adding D-M9□A(V), order a stainless steel screw set BBA2 together with BQ2-012S separately.

When adding the auto switch D-F7BA(V), order a stainless steel screw set BBA2 separately.

# Made to Order Common Specifications: -XC17: Pin Cylinder with Rod Quenched



## 26 Pin Cylinder with Rod Quenched

Symbol

-XC17

The piston rod material is changed and the rod end is quenched.

### Applicable Series

| Series | Description  | Model | Action                      | Note      | Vol. no. (for std model) |
|--------|--------------|-------|-----------------------------|-----------|--------------------------|
| CJP    | Pin cylinder | CJPB  | Single acting (Panel mount) | Except ø4 | 2-1 From P. 35           |
|        |              | CJPS  | Single acting (Embedded)    | Except ø4 |                          |

### How to Order

CJP Standard model no. -XC17

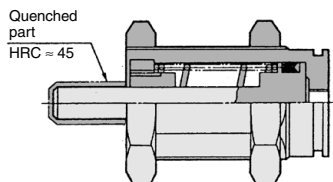
(Note) Additional symbol for "-B" (without thread) is unnecessary when indicating the model no.

Rod quenched specifications

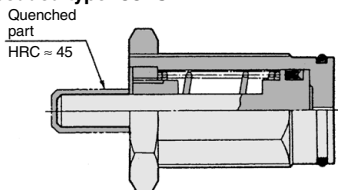
Specifications: Same as standard type

### Construction (Dimensions are the same as standard.)

#### Panel mount type: CJPB



#### Embedded type: CJPS



# Made to Order Common Specifications: -XC19: Intermediate Stroke (Spacer Type)



## 27 Intermediate Stroke (Spacer type)

Symbol

**-XC19**

Dealing with the intermediate stroke by installing a spacer with the standard stroke cylinder.

### Applicable Series

| Series      | Description                    | Model                            | Action                    | Note                  | Vol. no. (for std model) |
|-------------|--------------------------------|----------------------------------|---------------------------|-----------------------|--------------------------|
| <b>CU</b>   | Free mount cylinder            | CU                               | Double acting, Single rod | 5 mm spacer only      | ②-1 From P. 623          |
|             | Non-rotating rod type          | CUK                              | Double acting, Single rod | 5 mm spacer only      |                          |
|             | Long stroke                    | CU                               | Double acting, Single rod | 5 mm spacer only      |                          |
|             | Long stroke, Non-rotating      | CUK                              | Double acting, Single rod | 5 mm spacer only      |                          |
| <b>CJP2</b> | Pin cylinder                   | CJP2                             | Double acting, Single rod | Except ø4             | ②-1 From P. 23           |
| <b>MGP</b>  | Compact guide cylinder         | MGP <sup>M</sup> <sub>A</sub> AZ | Double acting             | Air cushion type only | ②-2 From P. 452          |
| <b>MXH</b>  | Compact slide                  | MXH-Z                            | Double acting             | 5 mm spacer only      | ②-2 From P. 19           |
| <b>CXS</b>  | Dual rod cylinder              | CXS <sup>M</sup>                 | Double acting             | 5 mm spacer only      | ②-2 From P. 749          |
| <b>CXSJ</b> | Dual rod cylinder compact type | CXSJ <sup>M</sup>                | Double acting             | 5 mm spacer only      | ②-2 From P. 737          |

### How to Order

Standard model no.

**-XC19**

Intermediate stroke (Spacer type) ↓

#### CU

##### Applicable Stroke

(mm)

|               |                            |
|---------------|----------------------------|
| ø6, ø10, ø16  | 35, 45, 55                 |
| ø20, ø25, ø32 | 35, 45, 55, 65, 75, 85, 95 |

- Dealing with it by installing a 5 mm width spacer with the standard stroke cylinder.
- Specifications other than above are the same as standard type.
- External dimensions are the same as standard stroke products added by 5 mm for the required stroke.
- Please consult with SMC when stroke other than applicable stroke is required.

#### CJP2

##### Applicable Stroke

(mm)

|          |                                  |
|----------|----------------------------------|
| ø6       | 1 mm increments in 24 st or less |
| ø10, ø16 | 1 mm increments in 39 st or less |

- Dealing with it by installing a 1 to 4 mm width spacer with the standard stroke cylinder.
- Specifications other than above are the same as standard type.
- External dimensions are the same as standard stroke products which is closed to the required intermediate stroke.  
Example: For 11 ST, to b-e dealt with 4 mm spacer for 15 st body
- As for the one with switch, 5 st or less will not be available.

#### MGP(Air Cushion Type)

##### Applicable Stroke

|                        |                                                                                                                                                                                                                                                                                 |           |  |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--|
| Description            | Dealing with the stroke in 1 mm increments by changing a collar of the standard stroke cylinder.<br>Minimum manufacturable stroke ø16 to ø63: 15 mm<br>ø80, ø100: 20 mm<br>Select a rubber bumper type, because the cushion effect is not obtainable for less than this stroke. |           |  |
| Part no.               | Suffix "-XC19" to the end of standard part number.                                                                                                                                                                                                                              |           |  |
| Applicable stroke (mm) | ø16                                                                                                                                                                                                                                                                             | 15 to 249 |  |
|                        | ø20 to ø63                                                                                                                                                                                                                                                                      | 15 to 399 |  |
|                        | ø80, ø100                                                                                                                                                                                                                                                                       | 20 to 399 |  |
| Example                | Part no. MGPM20-35AZ-XC19<br>15 mm width collar is installed in MGPM20-50AZ. C dimension is 112 mm.                                                                                                                                                                             |           |  |

Note) Intermediate strokes (in 1 mm increments) with a special body are available by made-to-order.

#### CXS

##### Applicable Stroke

(mm)

|     |                |
|-----|----------------|
| ø6  | 15, 25, 35, 45 |
| ø10 | 55, 65         |
| ø15 | 55, 65, 85, 95 |
| ø20 |                |
| ø25 |                |
| ø32 |                |

- Dealing with it by installing a 5 mm width spacer with the standard stroke cylinder.
- Specifications other than above are the same as standard type.
- External dimensions are the same as standard stroke products added by 5 mm for the required stroke.
- Please consult with SMC when stroke other than applicable stroke is required.

#### MXH

##### Applicable Stroke

(mm)

|                   |            |
|-------------------|------------|
| ø6, ø10, ø16, ø20 | 35, 45, 55 |
|-------------------|------------|

- Dealing with it by installing a 5 mm width spacer with the standard stroke cylinder.
- Specifications other than above are the same as standard type.
- External dimensions are the same as standard stroke products added by 5 mm for the required stroke.
- Please consult with SMC when stroke other than applicable stroke is required.

#### CXSJ

##### Applicable Stroke

(mm)

|     |                        |
|-----|------------------------|
| ø6  | 15, 25, 35, 45         |
| ø10 | 15, 25, 35, 45, 70     |
| ø15 | 15, 25, 35, 45, 70, 95 |
| ø20 |                        |
| ø25 |                        |
| ø32 |                        |

- Dealing with it by installing a 5 mm width spacer with the standard stroke cylinder.
- Specifications other than above are the same as standard type.
- External dimensions are the same as standard stroke products added by 5 mm for the required stroke.
- Please consult with SMC when stroke other than applicable stroke is required.

# Made to Order Common Specifications: -XC20: Head Cover Axial Port



## 28 Head Cover Axial Port

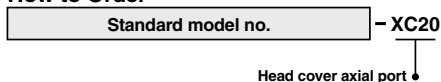
Symbol  
**-XC20**

Head side port position is changed to the axial direction. (Standard head side port is plugged with hexagon socket head screw.)

### Applicable Series

| Series | Description                         | Model   | Action                                                            | Note                    | Vol. no. (for std model) |
|--------|-------------------------------------|---------|-------------------------------------------------------------------|-------------------------|--------------------------|
| CM2    | Air cylinder                        | CM2-Z   | Double acting, Single rod<br>Single acting (Spring return/extend) | Except with air cushion | ② - 1 From P. 172        |
|        | Non-rotating rod type               | CM2K-Z  | Double acting, Single rod<br>Single acting (Spring return/extend) | Except with air cushion |                          |
|        | Direct mount type                   | CM2R-Z  | Double acting, Single rod                                         | Except with air cushion |                          |
|        | Non-rotating rod, Direct mount type | CM2RK-Z | Double acting, Single rod                                         | Except with air cushion |                          |
|        | Smooth cylinder                     | CM2Y-Z  | Double acting, Single rod                                         |                         |                          |
| CG1    | Air cylinder                        | CG1-Z   | Double acting, Single rod<br>Single acting (Spring return/extend) | Except with air cushion | ② - 1 From P. 292        |
|        | Non-rotating rod type               | CG1K-Z  | Double acting, Single rod                                         | Except with air cushion |                          |
|        | Direct mount type                   | CG1R-Z  | Double acting, Single rod                                         | Except with air cushion |                          |
|        | Non-rotating rod, Direct mount type | CG1KR-Z | Double acting, Single rod                                         | Except with air cushion |                          |
|        | Smooth cylinder                     | CG1Y-Z  | Double acting, Single rod                                         |                         |                          |

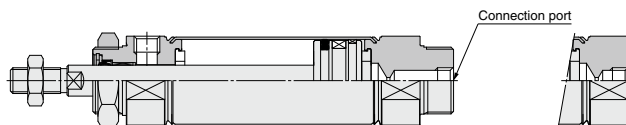
### How to Order



### Specifications: Same as standard type

\* Be sure to use the speed controller since head side port has no throttle.

### Construction



#### CM2 Series

| Bore size (mm) | Port size |
|----------------|-----------|
| 20, 25, 32     | Rc 1/8    |
| 40             | Rc 1/4    |

#### CG1 Series

| Bore size (mm) | Port size |
|----------------|-----------|
| 20, 25, 32, 40 | Rc 1/8    |
| 50, 63         | Rc 1/4    |

\* Same dimensions as standard type except port size.

# Made to Order Common Specifications: -XC22: Fluororubber Seals



## 29 Fluororubber Seals

### Applicable Series

| Series      | Description                            | Model   | Action                               | Note                                                                                          | Vol. no. (for std model) |
|-------------|----------------------------------------|---------|--------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------|
| <b>CJP</b>  | Pin cylinder                           | CJP2    | Double acting, Single rod            | Except ø4. Packing set (7)                                                                    | ②-1 From P. 23           |
|             |                                        | CJPB    | Single acting (Panel mounting)       | Except ø4                                                                                     |                          |
|             |                                        | CJPS    | Single acting (Embedded)             | Except ø4                                                                                     |                          |
| <b>CJ2</b>  | Air cylinder                           | CJ2-Z   | Double acting, Single rod            | Except with air cushion                                                                       | ②-1 From P. 46           |
|             |                                        |         | Single acting (Spring return/extend) |                                                                                               |                          |
|             |                                        | CJ2W-Z  | Double acting, Double rod            |                                                                                               |                          |
|             | Non-rotating rod type                  | CJ2K-Z  | Double acting, Single rod            | Except with air cushion                                                                       |                          |
|             | Direct mount type                      | CJ2R-Z  | Double acting, Single rod            |                                                                                               |                          |
| <b>CM2</b>  | Air cylinder                           | CM2-Z   | Double acting, Single rod            |                                                                                               | ②-1 From P. 172          |
|             |                                        | CM2W-Z  | Double acting, Double rod            |                                                                                               |                          |
|             |                                        | CM2K-Z  | Double acting, Single rod            |                                                                                               |                          |
|             | Non-rotating rod type                  | CM2KW-Z | Double acting, Double rod            |                                                                                               |                          |
|             | Direct mount type                      | CM2R-Z  | Double acting, Single rod            |                                                                                               |                          |
|             | Non-rotating rod, Direct mount type    | CM2RK-Z | Double acting, Single rod            |                                                                                               |                          |
|             | End lock cylinder                      | CBM2    | Double acting, Single rod            |                                                                                               |                          |
| <b>CG1</b>  | Air cylinder                           | CG1-Z   | Double acting, Single rod            | Without a bumper for cylinders with a rubber bumper                                           | ②-1 From P. 292 (5)      |
|             | Double rod type                        | CG1W-Z  | Double acting, Double rod            | Without a bumper for cylinders with a rubber bumper                                           |                          |
|             | Direct mount type                      | CG1R-Z  | Double acting, Single rod            | Without a bumper for cylinders with a rubber bumper                                           |                          |
| <b>MB</b>   | Air cylinder                           | MB-Z    | Double acting, Single rod            | Except ø125                                                                                   | ②-1 From P. 392          |
|             |                                        | MBW-Z   | Double acting, Double rod            | Except ø125                                                                                   |                          |
| <b>MB1</b>  | Air cylinder                           | MB1-Z   | Double acting, Single rod            | Air cushion only                                                                              | ②-1 From P. 440          |
|             |                                        | MB1W-Z  | Double acting, Double rod            | Air cushion only                                                                              |                          |
| <b>CA2</b>  | Air cylinder                           | CA2-Z   | Double acting, Single rod            |                                                                                               | ②-1 From P. 470          |
|             |                                        | CA2W-Z  | Double acting, Double rod            |                                                                                               |                          |
|             | End lock cylinder                      | CBA2    | Double acting, Single rod            |                                                                                               |                          |
| <b>CS1</b>  | Air cylinder                           | CS1     | Double acting, Single rod            | Applicable bore: Lube type 125 to 300, Non-lube type 125 to 200                               | ②-1 From P. 530          |
| <b>CS2</b>  | Air cylinder                           | CS2     | Double acting, Single rod            |                                                                                               | ②-1 From P. 568          |
|             |                                        | CS2W    | Double acting, Double rod            |                                                                                               |                          |
| <b>CUJ</b>  | Mini free mount cylinder               | CUJ     | Double acting, Single rod            | Except ø4, and single acting, spring return type. ø12 to ø20: A bumper is a standard product. | ②-1 From P. 596          |
| <b>CU</b>   | Free mount cylinder                    | CU      | Double acting, Single rod            |                                                                                               | ②-1 From P. 623          |
|             |                                        |         | Single acting (Spring return/extend) |                                                                                               |                          |
|             | Non-rotating rod type                  | CUK     | Double acting, Single rod            |                                                                                               |                          |
|             |                                        |         | Single acting (Spring return/extend) |                                                                                               |                          |
|             | Long stroke                            | CU      | Double acting, Single rod            |                                                                                               |                          |
| <b>MG</b>   | Long stroke, Non-rotating              | CUK     | Double acting, Single rod            |                                                                                               | ②-2 From P. 432          |
|             |                                        |         |                                      |                                                                                               |                          |
| <b>MGP</b>  | Compact guide cylinder                 | MGPM-Z  | Double acting                        | Slide bearing only                                                                            | ②-2 From P. 520 (6)      |
| <b>MGQ</b>  | Compact guide cylinder                 | MGQM    | Double acting                        | Slide bearing only                                                                            | ②-2 From P. 538          |
| <b>MGG</b>  | Guide cylinder                         | MGG     | Double acting                        | Without rubber bumper                                                                         | ②-2 From P. 578          |
| <b>MGC</b>  | Guide cylinder                         | MGC     | Double acting                        |                                                                                               | ②-3 From P. 612          |
| <b>CV</b>   | Valve mounted air cylinder             | CV3     | Double acting, Single rod            |                                                                                               | ②-3 From P. 647          |
| <b>CEP1</b> | High precision stroke reading cylinder | CEP1    | Double acting, Single rod            |                                                                                               | ②-2 From P. 19           |
| <b>MXH</b>  | Compact slide                          | MXH-Z   | Double acting                        |                                                                                               | ②-2 From P. 749          |
| <b>CXS</b>  | Dual rod cylinder                      | CXS     | Double acting                        |                                                                                               | ②-2 From P. 737          |
| <b>CXSJ</b> | Dual rod cylinder compact type         | CXSJ    | Double acting                        |                                                                                               | ②-2 From P. 650          |
| <b>CX2</b>  | Slide unit                             | CX2     | Double acting                        |                                                                                               | ②-2 From P. 659          |
| <b>CXW</b>  | Slide unit                             | CXW     | Double acting                        |                                                                                               | ②-3 From P. 389          |
| <b>MK</b>   | Rotary clamp cylinder                  | MK      | Double acting                        | The bumper is a standard product.                                                             |                          |

### How to Order

Standard model no. **-XC22**

Fluororubber seals

### Specifications

|                                                         |                                                                                                                                         |                          |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Seal material                                           | Fluororubber                                                                                                                            |                          |
| Ambient temperature range                               | With auto switch : -10 to 60°C (0°C to 60°C for CS1, CS2 series)<br>Without auto switch : -10 to 70°C (0°C to 70°C for CS1, CS2 series) | Note 1)<br>(No freezing) |
| Specifications other than above and external dimensions | Same as standard type for each series                                                                                                   |                          |

Note 1) Please confirm with SMC, as the type of chemical and the operating temperature may not allow the use of this product.

Note 2) Cylinders with auto switches can also be produced; however, auto switch related parts (auto switch units, mounting brackets, built-in magnets) are the same as standard products. Before using these, please contact SMC regarding their suitability for the operating environment.

Note 3) It is only applicable for the cylinder main body section as to CV3, CVS1 series.

Note 4) The MGG series is using a shock absorber RBL type.

Note 5) No cushion is equipped for N type. Piston speed is ranged from 50 to 500 mm/s.

Note 6) The MGP and MGQ series are without a cushion. Confirm the kinetic energy.

Note 7) Refer to the construction of the standard type for the details of the packing set for CJP2□6,10 and 16.

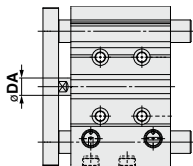
Symbol

**-XC22**

How to Order

MGPM Standard model no. **-XC22**  
Fluororubber seals ●

Dimensions



| (mm)           |      |                |      |
|----------------|------|----------------|------|
| Bore size (mm) | DA   | Bore size (mm) | DA   |
| 12             | (6)  | 40             | (14) |
| 16             | (8)  | 50             | 20   |
| 20             | (10) | 63             | 20   |
| 25             | (10) | 80             | 25   |
| 32             | (14) | 100            | 30   |

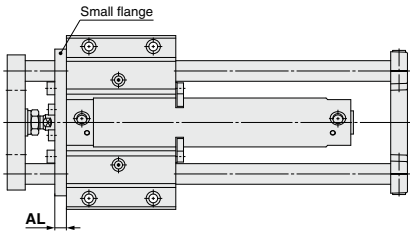
The dimensions in ( ) are the same as standard type.

How to Order

MGC Standard model no. **-XC22**  
Fluororubber seals ●

Dimensions (Dimensions other than below are the same as standard type.)

MGCLB series



| (mm)           |    |
|----------------|----|
| Bore size (mm) | AL |
| 20             | 9  |
| 25             | 9  |
| 32             | 9  |
| 40             | 12 |
| 50             | 12 |

**-X□**

# Made to Order Common Specifications:

## -XC24: With Magnetic Shielding Plate

## -XC25: No Fixed Throttle of Connection Port



### 30 With Magnetic Shielding Plate -XC24

Symbol

Shields against the magnetic leaked from external slider.

#### Applicable Series

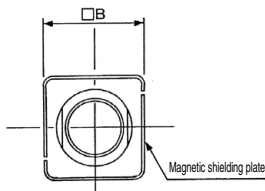
| Series | Description                           | Model | Action        | Vol. no. (for std model) |
|--------|---------------------------------------|-------|---------------|--------------------------|
| CY3    | Magnetically coupled rodless cylinder | CY3B  | Double acting | ②-1 From P. 1468         |
| REA    | Sine rodless cylinder                 | REA   | Double acting | ②-3 From P. 25           |

#### How to Order

CY3B  
REA Standard model no. -XC24  
With magnetic shielding plate

Specifications: Same as standard type

#### Dimensions



| Dimensions             | Bore size (mm) |     |     |     |     |     |     |     |     |  |
|------------------------|----------------|-----|-----|-----|-----|-----|-----|-----|-----|--|
|                        | ø6             | ø10 | ø15 | ø20 | ø25 | ø32 | ø40 | ø50 | ø63 |  |
| □B                     | 19             | 27  | 37  | 38  | 48  | 62  | 72  | 88  | 102 |  |
| Standard external (□B) | 17             | 25  | 35  | 36  | 46  | 60  | 70  | 86  | 100 |  |

\* Dimensions except mentioned above are the same as standard type.  
\* REA is ø25 to ø63.

### 31 No Fixed Throttle of Connection Port -XC25

Symbol

Type with no restrictor on the port, since it's using air-hydro type on the rod cover and the head cover of air cylinder CM2 series.

#### Applicable Series

| Series | Description                         | Model   | Action                               | Vol. no. (for std model) |
|--------|-------------------------------------|---------|--------------------------------------|--------------------------|
| CM2    | Air cylinder                        | CM2-Z   | Double acting, Single rod            | ②-1 From P. 172          |
|        |                                     |         | Single acting (Spring return/extend) |                          |
|        | Non-rotating rod type               | CM2W-Z  | Double acting, Double rod            |                          |
|        |                                     | CM2K-Z  | Double acting, Single rod            |                          |
|        |                                     | CM2KW-Z | Double acting, Double rod            |                          |
|        |                                     |         | Single acting (Spring return/extend) |                          |
|        | Direct mount type                   | CM2R-Z  | Double acting, Single rod            |                          |
|        | Non-rotating rod, Direct mount type | CM2RK-Z | Double acting, Single rod            |                          |
|        | Smooth cylinder                     | CM2Y-Z  | Double acting, Single rod            |                          |

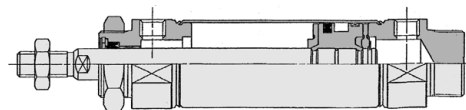
\* Except with air cushion (Standard equipment)

#### How to Order

CM2 Standard model no. -XC25  
No fixed throttle in connection port

Specifications: Same as standard type

#### Construction



\* External dimensions are the same as standard CM2 series.

#### ⚠ Caution

##### 1. Use a shock absorber, etc.

When the piston speed exceed 750 mm/s, make sure that direct impact does not apply on the cylinder cover by using an external stopper (shock absorber, etc).

# Made to Order Common Specifications: -XC26: With Split Pins for Double Clevis Pin and Double Knuckle Joint Pin and Flat Washers



## 32 With Split Pins for Double Clevis Pin/Double Knuckle Joint Pin and Flat Washers

Symbol

**-XC26**

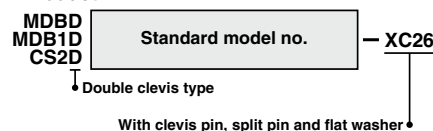
Flat washer is added for the double clevis (one of the mounting types) or double knuckle joint (one of the accessories).

### Applicable Series

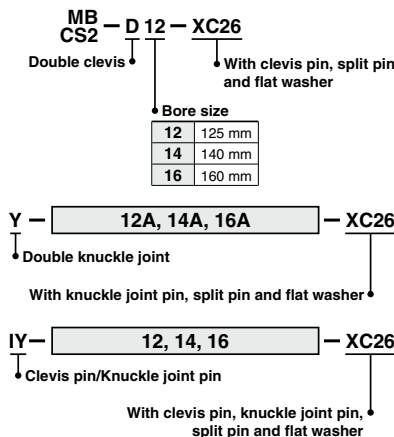
| Series | Description                      | Model  | Action                    | Note      | Vol. no. (for std model) |
|--------|----------------------------------|--------|---------------------------|-----------|--------------------------|
| MB     | Air cylinder                     | MB     | Double acting, Single rod | ø125 only | ②-1 From P. 392          |
|        |                                  | MB1    | Double acting, Single rod | ø125 only |                          |
| MB1    | Air cylinder                     | MB1W   | Double acting, Double rod | ø125 only | ②-1 From P. 440          |
|        |                                  | CS2-Z  | Double acting, Single rod |           |                          |
| CS2    | Standard type<br>Smooth cylinder | CS2Y-Z | Double acting, Single rod |           | ②-1 From P. 568          |

### How to Order

#### • Product



#### • Parts assembly

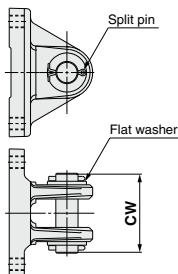


### Specifications

|                                 |                                                   |
|---------------------------------|---------------------------------------------------|
| Mounting type                   | Only double clevis type (D), Double knuckle joint |
| Changed parts                   | Clevis pin, knuckle joint pin, flat washer        |
| Specifications other than above | Same as standard type                             |

### Dimensions (Dimensions other than below are the same as standard type.)

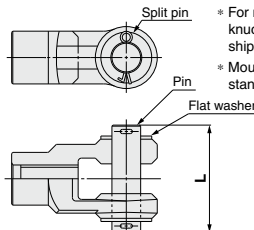
#### Double clevis



- \* For mounting bracket, split pin, clevis pin and flat washer are shipped together, (but not assembled).
- \* Mounting method is the same as standard type.

| Bore size (mm) | CW  |
|----------------|-----|
| ø125           | 90  |
| ø140           | 104 |
| ø160           | 113 |

#### Double knuckle joint



- \* For mounting bracket, split pin, knuckle joint pin and flat washer are shipped together, (but not assembled).
- \* Mounting method is the same as standard type.

| Bore size (mm) | L   |
|----------------|-----|
| ø125           | 90  |
| ø140           | 104 |
| ø160           | 113 |

# Made to Order Common Specifications: -XC26: With Split Pins for Double Clevis Pin and Double Knuckle Joint Pin and Flat Washers



## 32 With Split Pins for Double Clevis Pin/Double Knuckle Joint Pin and Flat Washers -XC26

A pin for double clevis (one of the mounting types) or double knuckle joint (one of the accessories) has been changed for a split pin, and split pins and flat washers have been added.

### Applicable Series

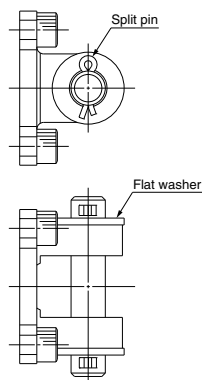
| Series | Model                         | Action     | Vol. no. (for std model)                                   |
|--------|-------------------------------|------------|------------------------------------------------------------|
| CQS    | Standard type                 | CQS        | Double acting, Single rod<br>Single acting (Spring return) |
|        | Long stroke                   | CQS        | Double acting, Single rod ②-1 From P. 693                  |
|        | Non-rotating rod type         | CQSK       | Double acting, Single rod                                  |
|        | Anti-lateral load type        | CQS□S      | Double acting, Single rod                                  |
| CQ2    | Standard type                 | CQ2-Z      | Double acting, Single rod<br>Single acting (Spring return) |
|        | Long stroke                   | CQ2-Z      | Double acting, Single rod ②-1 From P. 773                  |
|        | Non-rotating rod type         | CQ2K-Z     | Double acting, Single rod                                  |
|        | Anti-lateral load type        | CQ2□S-Z    | Double acting, Single rod                                  |
|        | With end lock                 | CBQ2       | Double acting, Single rod                                  |
|        | Magnetic field resistant      | CDQ2□P     | Double acting, Single rod                                  |
|        | Copper-free compact           | 20-CQ2-Z   | Double acting, Single rod<br>Single acting (Spring return) |
|        | Copper-free long stroke       | 20-CQ2□-Z  | Double acting, Single rod                                  |
|        | Copper-free anti-lateral load | 20-CQ2□S-Z | Double acting, Single rod                                  |

### Specifications

|                                 |                                                |
|---------------------------------|------------------------------------------------|
| Mounting                        | Double clevis (D) only                         |
| Changed parts                   | Clevis pin/Knuckle pin, Split pin, Flat washer |
| Specifications other than above | Same as standard                               |

### Dimensions: Same as Standard

#### Double clevis



### How to Order

#### • Product

CQSD  
CQ2D

Standard model no.

-XC26

• Double clevis

With double clevis pin,  
split pins and flat washers

#### • Parts assembly

CQ - D 032 -XC26

• Double clevis

• Bore size

|     |        |
|-----|--------|
| 012 | 12 mm  |
| 016 | 16 mm  |
| 020 | 20 mm  |
| 025 | 25 mm  |
| 032 | 32 mm  |
| 040 | 40 mm  |
| 050 | 50 mm  |
| 063 | 63 mm  |
| 080 | 80 mm  |
| 100 | 100 mm |

• Double clevis pin

Y -

G012, Z015A, G02, G03  
G04, G05, G08, G10

-XC26

• Double knuckle joint

With double knuckle joint pin,  
split pins and flat washers

IY -

G012, J015, G02, G03  
G04, G05, G08, G10

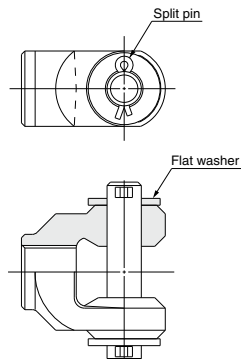
-XC26

• Clevis pin/Knuckle pin

With clevis pin/knuckle pin,  
split pins and flat washers

- \* For mounting bracket, split pins, clevis pin and flat washers are shipped together, (but not assembled).
- \* Mounting method is the same as standard.

#### Double knuckle joint



- \* For mounting bracket, split pins, knuckle pin and flat washers are shipped together, (but not assembled).
- \* Mounting method is the same as standard.

# Made to Order Common Specifications:

**-XC26** Double Clevis Width 12.5 mm, 16.5 mm, 19.5 mm: With Double Clevis and Double Knuckle Joint



**33**

Double Clevis Width 12.5 mm, 16.5 mm, 19.5 mm: With Double Clevis and Double Knuckle Joint

Symbol

**-XC26**

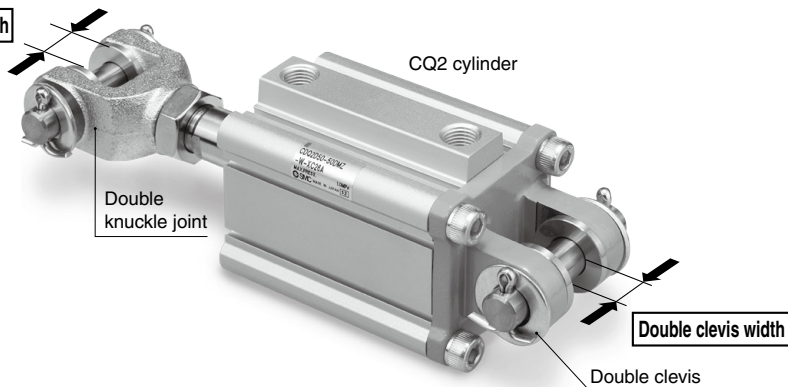
3 types of double clevis width and double knuckle joint width: 12.5 mm, 16.5 mm, 19.5 mm

Made to order -XC35, -XC88/-XC89, and -XC91 are available.

## Applicable Series

| Series     | Description       | Model   | Action         | Bore size (mm) | Made to Order                    |                                                                     |                                                                | Vol. no. (for std model) |
|------------|-------------------|---------|----------------|----------------|----------------------------------|---------------------------------------------------------------------|----------------------------------------------------------------|--------------------------|
|            |                   |         |                |                | With coil scraper<br><b>XC35</b> | Spatter resistant specification for arc welding<br><b>XC88/XC89</b> | Spatter resistant specification for arc welding<br><b>XC91</b> |                          |
| <b>CQ2</b> | Standard          | CQ2-Z   | Double acting. | 32, 40, 50, 63 | ○                                | ○                                                                   | ○                                                              | ②-1 From P. 773          |
|            | Long stroke       | CQ2-Z   |                |                | ○                                | ○                                                                   | —                                                              |                          |
|            | Anti-lateral load | CQ2□S-Z | Single rod     |                | —                                | ○                                                                   | —                                                              |                          |

Double knuckle width



# Made to Order Common Specifications:

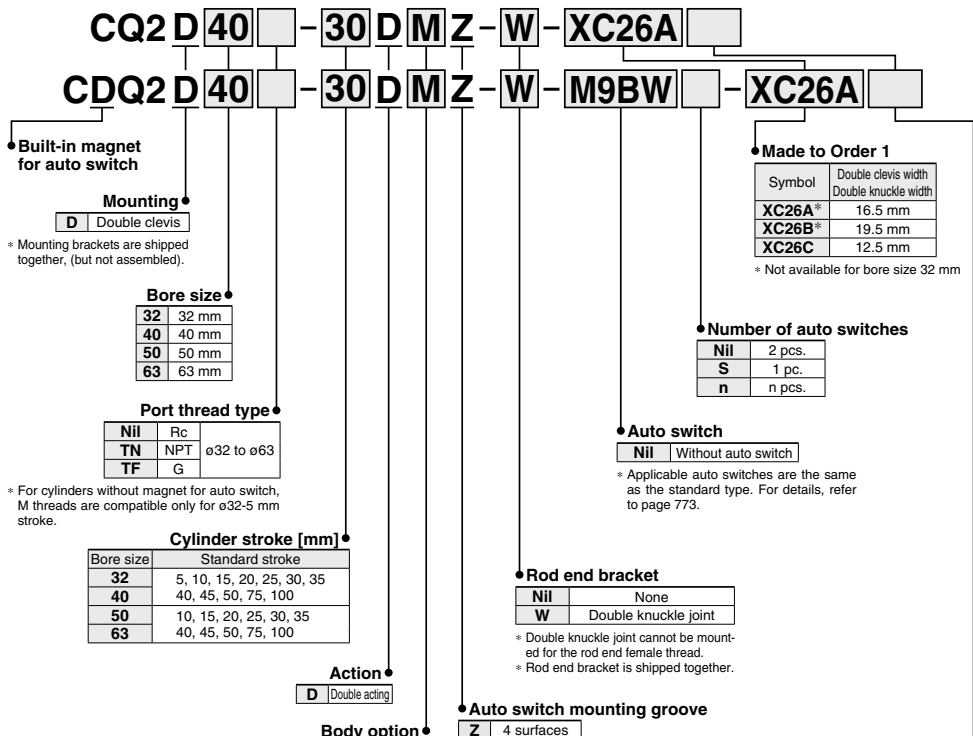
-XC26□: Double Clevis Width 12.5 mm, 16.5 mm, 19.5 mm: With Double Clevis and Double Knuckle Joint



**33** Double Clevis Width 12.5 mm, 16.5 mm, 19.5 mm: With Double Clevis and Double Knuckle Joint

**CQ2 series: Standard**

## How to Order



\* For cylinders without magnet for auto switch, M threads are compatible only for ø32-5 mm stroke.

\* Applicable auto switches are the same as the standard type. For details, refer to page 773.

\* Double knuckle joint cannot be mounted for the rod end female thread.  
\* Rod end bracket is shipped together.

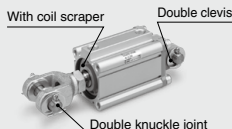
## Made to Order 2

| Symbol       | Specification                              | Piston rod material<br>(Hard chrome plated) |                        | Coil<br>scraper | Lube-<br>retainer | Grease<br>for<br>welding |
|--------------|--------------------------------------------|---------------------------------------------|------------------------|-----------------|-------------------|--------------------------|
|              |                                            | S45C                                        | Stainless<br>steel 304 |                 |                   |                          |
| <b>Nil</b>   | None                                       | —                                           | —                      | —               | —                 | —                        |
| <b>XC35</b>  | With coil<br>scraper                       | ●                                           | —                      | ●               | —                 | —                        |
| <b>XC88*</b> | Spatter resistant spec.<br>for arc welding | —                                           | ●                      | ●               | ●                 | ●                        |
| <b>XC89*</b> | Spatter resistant spec.<br>for arc welding | ●                                           | —                      | ●               | ●                 | ●                        |
| <b>XC91*</b> | Spatter resistant spec.<br>for arc welding | ●                                           | —                      | ●               | —                 | ●                        |

\* Only available for cylinders with built-in magnet for auto switch

## Ordering Example of Cylinder Assembly

When arranging Made to Order 1 and 2 at the same time  
Cylinder model: **CDQ2D40-30DMZ-W-M9BW-XC26AC35**

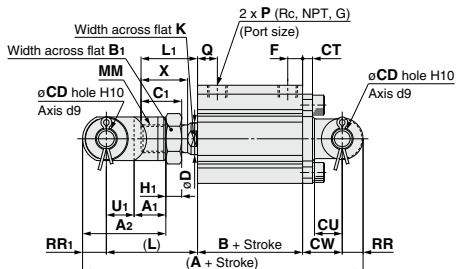
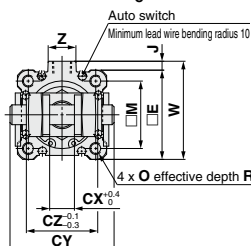


**Mounting** **D**: Double clevis  
**Rod end bracket W**: Double knuckle joint  
**Made to Order 1** : XC26A  
(Double clevis/knuckle width: 16.5 mm)  
**Made to Order 2** : XC35  
(With coil scraper)  
**Auto switch D-M9BW**: 2 pcs.

**Bore Size**

**Ø32 to Ø63** Standard

**C(D)Q2D-XC26**



Note 1) Intermediate strokes (1 to 99 mm) are available in 1 mm increments.

For intermediate strokes, the dimensions are the same as a standard stroke one size larger than this intermediate stroke.

Note 2) For 5 mm stroke with bore size 32 and without magnet for auto switch, F dimension is 5.5 and P dimension is M5 x 0.8.

Note 3) For models with a rubber bumper, the stroke length tolerance does not include the deflection of the bumper.

Note 4) Flat washers and split pins are included with the double clevis and double knuckle joint of this cylinder.

Note 5) Double clevis and double knuckle joint are shipped together with the product.

|           |              |                                |      |                                 |      |      |    |    |     |       |       |       |      |    |    |      |      |      | [mm]      |           |      |
|-----------|--------------|--------------------------------|------|---------------------------------|------|------|----|----|-----|-------|-------|-------|------|----|----|------|------|------|-----------|-----------|------|
| Bore size | Stroke range | Without magnet for auto switch |      | Built-in magnet for auto switch |      | CD   | CT | CU | CW  | CX    |       |       | CY   | CZ | D  | E    | F    | J    |           |           |      |
|           |              | A                              | B    | A                               | B    |      |    |    |     | XC26A | XC26B | XC26C |      |    |    |      |      |      |           |           |      |
| 32        | 50 or less   | 111                            | 23   | 121                             | 33   | 10   | 5  | 14 | 20  | —     | —     | 12.5  | 52.5 | 36 | 16 | 45   | 7.5  | 4.5  |           |           |      |
|           | 75, 100      | 121                            | 33   |                                 |      |      |    |    |     |       |       |       |      |    |    |      |      |      |           |           |      |
| 40        | 50 or less   | 119.5                          | 29.5 | 129.5                           | 39.5 | 10   | 6  | 14 | 22  | 16.5  | 19.5  | 12.5  | 52.5 | 36 | 16 | 52   | 7.5  | 5    |           |           |      |
|           | 75, 100      | 129.5                          | 39.5 |                                 |      |      |    |    |     |       |       |       |      |    |    |      |      |      |           |           |      |
| 50        | 50 or less   | 147.5                          | 30.5 | 157.5                           | 40.5 | 14   | 7  | 20 | 28  | 16.5  | 19.5  | 12.5  | 66   | 44 | 20 | 64   | 10.5 | 7    |           |           |      |
|           | 75, 100      | 157.5                          | 40.5 |                                 |      |      |    |    |     |       |       |       |      |    |    |      |      |      |           |           |      |
| 63        | 50 or less   | 155                            | 36   | 165                             | 46   | 14   | 8  | 20 | 30  | 16.5  | 19.5  | 12.5  | 66   | 44 | 20 | 77   | 10.5 | 7    |           |           |      |
|           | 75, 100      | 165                            | 46   |                                 |      |      |    |    |     |       |       |       |      |    |    |      |      |      |           |           |      |
| Bore size | K            | L                              | M    | O                               | P    | Q    | R  | RR | RR1 | U1    | W     | Z     | A1   | A2 | B1 | C1   | H1   | L1   | MM        | X         |      |
| 32        | 14           | 46                             | 34   | M6 x 1.0                        | 1/8  | 10   | 10 | 10 | 10  | 12    | 14    | 49.5  | 14   | 16 | 42 | 22   | 20.5 | 8    | 28.5      | M14 x 1.5 | 23.5 |
| 40        | 14           | 46                             | 40   | M6 x 1.0                        | 1/8  | 12.5 | 10 | 10 | 12  | 14    | 57    | 15    | 16   | 42 | 22 | 20.5 | 8    | 28.5 | M14 x 1.5 | 23.5      |      |
| 50        | 17           | 59                             | 50   | M8 x 1.25                       | 1/4  | 10.5 | 14 | 14 | 16  | 20    | 71    | 19    | 20   | 56 | 27 | 26   | 11   | 33.5 | M18 x 1.5 | 28.5      |      |
| 63        | 17           | 59                             | 60   | M10 x 1.5                       | 1/4  | 15   | 18 | 14 | 16  | 20    | 84    | 19    | 20   | 56 | 27 | 26   | 11   | 33.5 | M18 x 1.5 | 28.5      |      |

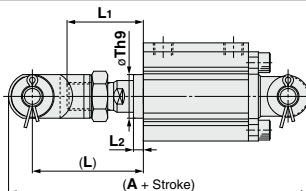
**Made to Order** (Dimensions other than those shown below are the same as those shown above.)

**With coil scraper:**

C(D)Q2D-XC26-C35

**Spatter resistant specification for arc welding:**

CDQ2D-XC26-C88/C89/C91



| Bore size | Stroke range | XC35/XC91                      |                                 |    |      |    |                                   | XC88/XC89                      |                                 |      |    |                                   |                                   |
|-----------|--------------|--------------------------------|---------------------------------|----|------|----|-----------------------------------|--------------------------------|---------------------------------|------|----|-----------------------------------|-----------------------------------|
|           |              | A                              |                                 | L  | L1   | L2 | Th9                               | A                              |                                 | L    | L1 | L2                                | Th9                               |
|           |              | Without magnet for auto switch | Built-in magnet for auto switch |    |      |    |                                   | Without magnet for auto switch | Built-in magnet for auto switch |      |    |                                   |                                   |
| 32        | 50 or less   | 116                            | 126                             | 51 | 33.5 | 5  | 23 <sup>0</sup> <sub>-0.052</sub> | 131                            | 56                              | 38.5 | 10 | 23 <sup>0</sup> <sub>-0.052</sub> | 23 <sup>0</sup> <sub>-0.052</sub> |
|           | 75, 100      | 126                            |                                 |    |      |    |                                   |                                |                                 |      |    |                                   |                                   |
| 40        | 50 or less   | 124.5                          | 134.5                           | 51 | 33.5 | 5  | 28 <sup>0</sup> <sub>-0.052</sub> | 139.5                          | 56                              | 38.5 | 10 | 28 <sup>0</sup> <sub>-0.052</sub> | 28 <sup>0</sup> <sub>-0.052</sub> |
|           | 75, 100      | 134.5                          |                                 |    |      |    |                                   |                                |                                 |      |    |                                   |                                   |
| 50        | 50 or less   | 152.5                          | 162.5                           | 64 | 38.5 | 5  | 35 <sup>0</sup> <sub>-0.062</sub> | 167.5                          | 69                              | 43.5 | 10 | 35 <sup>0</sup> <sub>-0.062</sub> | 35 <sup>0</sup> <sub>-0.062</sub> |
|           | 75, 100      | 162.5                          |                                 |    |      |    |                                   |                                |                                 |      |    |                                   |                                   |
| 63        | 50 or less   | 160                            | 170                             | 64 | 38.5 | 5  | 35 <sup>0</sup> <sub>-0.062</sub> | 175                            | 69                              | 43.5 | 10 | 35 <sup>0</sup> <sub>-0.062</sub> | 35 <sup>0</sup> <sub>-0.062</sub> |
|           | 75, 100      | 170                            |                                 |    |      |    |                                   |                                |                                 |      |    |                                   |                                   |

\* XC88, XC89 and XC91 are only available for cylinders with built-in magnet for auto switch.

# Made to Order Common Specifications:

-XC26□: Double Clevis Width 12.5 mm, 16.5 mm, 19.5 mm: With Double Clevis and Double Knuckle Joint



**33** Double Clevis Width 12.5 mm, 16.5 mm, 19.5 mm: With Double Clevis and Double Knuckle Joint

CQ2 series: Long stroke

## How to Order

**CQ2 D 40** - **200 D C M Z** - **W** - **XC26A**

**CDQ2 D 40** - **200 D C M Z** - **W** - **M9BW** - **XC26A**

- Built-in magnet for auto switch
- Mounting
 

|   |               |
|---|---------------|
| D | Double clevis |
|---|---------------|

\* Mounting brackets are shipped together, (but not assembled).
- Bore size
 

|    |       |
|----|-------|
| 32 | 32 mm |
| 40 | 40 mm |
| 50 | 50 mm |
| 63 | 63 mm |
- Port thread type
 

|     |     |
|-----|-----|
| Nil | Rc  |
| TN  | NPT |
| TF  | G   |
- Cylinder stroke [mm]
 

| Bore size | Standard stroke |
|-----------|-----------------|
| 32        |                 |
| 40        | 125, 150, 175,  |
| 50        | 200, 250, 300   |
| 63        |                 |
- Action
 

|   |               |
|---|---------------|
| D | Double acting |
|---|---------------|
- Cushion
 

|   |               |
|---|---------------|
| C | Rubber bumper |
|---|---------------|
- Body option
 

|     |                                  |
|-----|----------------------------------|
| Nil | Standard (Rod end female thread) |
| M   | Rod end male thread              |
- Made to Order 1
 

| Symbol | Double clevis width<br>Double knuckle width |
|--------|---------------------------------------------|
| XC26A* | 16.5 mm                                     |
| XC26B* | 19.5 mm                                     |
| XC26C  | 12.5 mm                                     |

\* Not available for bore size 32 mm
- Number of auto switches
 

|     |        |
|-----|--------|
| Nil | 2 pcs. |
| S   | 1 pc.  |
| n   | n pcs. |
- Auto switch
 

|     |                     |
|-----|---------------------|
| Nil | Without auto switch |
|-----|---------------------|

\* Applicable auto switches are the same as the standard type. For details, refer to page 856.
- Rod end bracket
 

|     |                      |
|-----|----------------------|
| Nil | None                 |
| W   | Double knuckle joint |

\* Double knuckle joint cannot be mounted for the rod end female thread.
- Auto switch mounting groove
 

|   |            |
|---|------------|
| Z | 4 surfaces |
|---|------------|

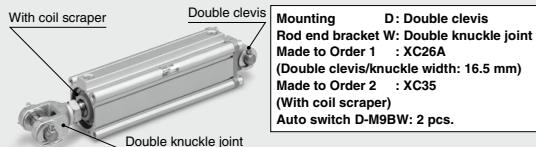
**Made to Order 2**

| Symbol | Specification                              | Piston rod material<br>(Hard chrome plated) | Coil<br>scraper | Lube-<br>retainer | Grease<br>for<br>welding |
|--------|--------------------------------------------|---------------------------------------------|-----------------|-------------------|--------------------------|
| Nil    | None                                       | S45C                                        | —               | —                 | —                        |
| XC35   | With coil<br>scraper                       | Stainless<br>steel 304                      | ●               | —                 | —                        |
| XC88*  | Spatter resistant spec.<br>for arc welding | —                                           | ●               | ●                 | ●                        |
| XC89*  | Spatter resistant spec.<br>for arc welding | —                                           | ●               | ●                 | ●                        |

\* Only available for cylinders with built-in magnet for auto switch

## Ordering Example of Cylinder Assembly

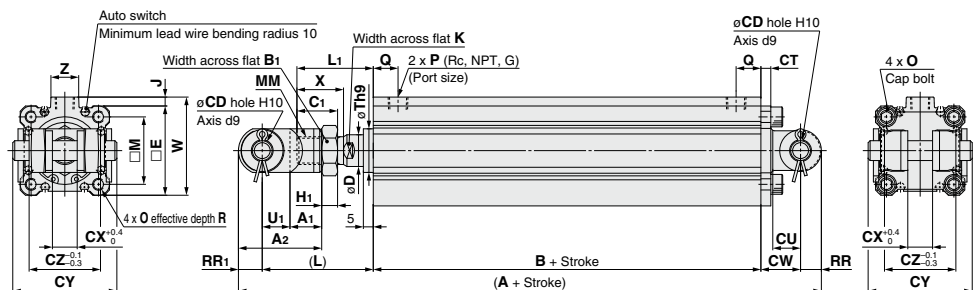
When arranging Made to Order 1 and 2 at the same time  
Cylinder model: CDQ2D40-200DCMZ-W-M9BW-XC26AC35



Bore Size

Ø32 to Ø63 Long Stroke

C(D)Q2D-XC26



Note 1) Intermediate strokes (101 to 299 mm) are available in 1 mm increments.

For intermediate strokes, the dimensions are the same as a standard stroke one size larger than this intermediate stroke.

Note 2) Stroke length tolerance does not include the deflection of the bumper.

Note 3) Flat washers and split pins are included with the double clevis and double knuckle joint of this cylinder.

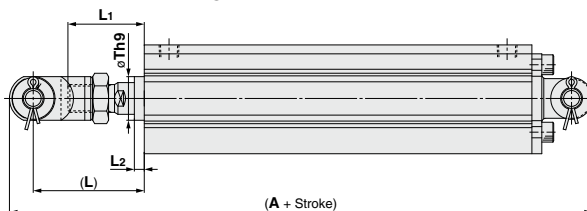
Note 4) Double clevis and double knuckle joint are shipped together with the product.

| Bore size | Stroke range   | A     | B    | CD | CT | CU | CW | CX    |       |       | CY   | CZ | D  | E  | J   | K  | L  | M  |
|-----------|----------------|-------|------|----|----|----|----|-------|-------|-------|------|----|----|----|-----|----|----|----|
|           |                |       |      |    |    |    |    | XC26A | XC26B | XC26C |      |    |    |    |     |    |    |    |
| 32        |                | 143.5 | 45.5 | 10 | 5  | 14 | 20 | —     | —     | 12.5  | 52.5 | 36 | 16 | 45 | 4.5 | 14 | 56 | 34 |
| 40        | 125, 150, 175, | 155   | 55   | 10 | 6  | 14 | 22 | 16.5  | 19.5  | 12.5  | 52.5 | 36 | 16 | 52 | 5   | 14 | 56 | 40 |
| 50        | 200, 250, 300  | 182.5 | 55.5 | 14 | 7  | 20 | 28 | 16.5  | 19.5  | 12.5  | 66   | 44 | 20 | 64 | 7   | 17 | 69 | 50 |
| 63        |                | 186   | 57   | 14 | 8  | 20 | 30 | 16.5  | 19.5  | 12.5  | 66   | 44 | 20 | 77 | 7   | 17 | 69 | 60 |

Made to Order (Dimensions other than those shown below are the same as those shown above.)

■With coil scraper: C(D)Q2D-XC26-CX35

■Spatter resistant specification for arc welding: CDQ2D-XC26-CX88/C89



| Bore size | Stroke range   | XC35  |    |      |    |          | XC88/XC89 |    |      |    |          |
|-----------|----------------|-------|----|------|----|----------|-----------|----|------|----|----------|
|           |                | A     | L  | L1   | L2 | Th9      | A         | L  | L1   | L2 | Th9      |
| 32        |                | 143.5 | 56 | 38.5 | 5  | 23.0.052 | 148.5     | 56 | 38.5 | 10 | 23.0.052 |
| 40        | 125, 150, 175, | 155   | 56 | 38.5 | 5  | 28.0.052 | 160       | 56 | 38.5 | 10 | 28.0.052 |
| 50        | 200, 250, 300  | 182.5 | 69 | 43.5 | 5  | 35.0.052 | 187.5     | 69 | 43.5 | 10 | 35.0.052 |
| 63        |                | 186   | 69 | 43.5 | 5  | 35.0.052 | 191       | 69 | 43.5 | 10 | 35.0.052 |

\* XC88 and XC89 are only available for cylinders with built-in magnet for auto switch.

# Made to Order Common Specifications:

-XC26□: Double Clevis Width 12.5 mm, 16.5 mm, 19.5 mm: With Double Clevis and Double Knuckle Joint



**33** Double Clevis Width 12.5 mm, 16.5 mm, 19.5 mm: With Double Clevis and Double Knuckle Joint

CQ2□S series: Anti-lateral load

## How to Order

**CQ2DS40-30DCMZ-W-XC26A**

**CDQ2DS40-30DCMZ-W-M9BW-XC26A**

- Built-in magnet for auto switch
- Mounting
 

|   |               |
|---|---------------|
| D | Double clevis |
|---|---------------|

\* Mounting brackets are shipped together, (but not assembled).
- Type
 

|   |                   |
|---|-------------------|
| S | Anti-lateral load |
|---|-------------------|
- Bore size
 

|    |       |
|----|-------|
| 32 | 32 mm |
| 40 | 40 mm |
| 50 | 50 mm |
| 63 | 63 mm |
- Port thread type
 

|     |     |
|-----|-----|
| Nil | Rc  |
| TN  | NPT |
| TF  | G   |
- Cylinder stroke [mm]
 

| Bore size | Standard stroke           |
|-----------|---------------------------|
| 32        | 5, 10, 15, 20, 25, 30, 35 |
| 40        | 40, 45, 50, 75, 100       |
| 50        | 10, 15, 20, 25, 30, 35    |
| 63        | 40, 45, 50, 75, 100       |
- Action
 

|   |               |
|---|---------------|
| D | Double acting |
|---|---------------|
- Cushion
 

|   |               |
|---|---------------|
| C | Rubber bumper |
|---|---------------|
- Made to Order 1
 

| Symbol | Double clevis width<br>Double knuckle width |
|--------|---------------------------------------------|
| XC26A* | 16.5 mm                                     |
| XC26B* | 19.5 mm                                     |
| XC26C  | 12.5 mm                                     |

\* Not available for bore size 32 mm
- Number of auto switches
 

|     |        |
|-----|--------|
| Nil | 2 pcs. |
| S   | 1 pc.  |
| n   | n pcs. |
- Auto switch
 

|     |                     |
|-----|---------------------|
| Nil | Without auto switch |
|-----|---------------------|

\* Applicable auto switches are the same as the standard type.  
For details, refer to page 917.
- Rod end bracket
 

|     |                      |
|-----|----------------------|
| Nil | None                 |
| W   | Double knuckle joint |

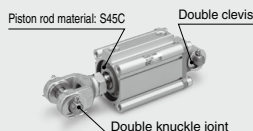
\* Double knuckle joint cannot be mounted for the rod end female thread.
- Auto switch mounting groove
 

|   |            |
|---|------------|
| Z | 4 surfaces |
|---|------------|
- Body option
 

|     |                                  |
|-----|----------------------------------|
| Nil | Standard (Rod end female thread) |
| M   | Rod end male thread              |

## Ordering Example of Cylinder Assembly

When arranging Made to Order 1 and 2 at the same time  
Cylinder model: CDQ2DS40-30DCMZ-W-M9BW-XC26AC89



Mounting D: Double clevis  
Rod end bracket W: Double knuckle joint  
Made to Order 1 : XC26A  
(Double clevis/knuckle width: 16.5 mm)  
Made to Order 2 : XC89  
(Piston rod material: S45C)  
Auto switch D-M9BW: 2 pcs.

## Made to Order 2

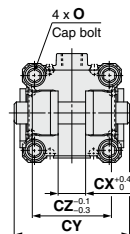
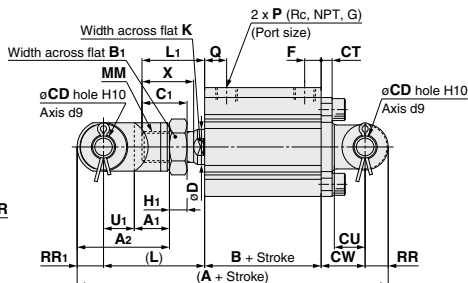
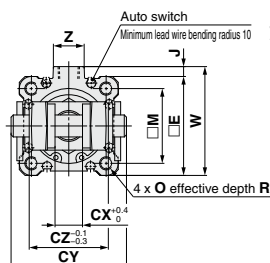
| Symbol | Specification                              | Piston rod material<br>(Hard chrome plated) | Coil scraper           | Lube-<br>retainer | Grease<br>for<br>welding |
|--------|--------------------------------------------|---------------------------------------------|------------------------|-------------------|--------------------------|
| Nil    | None                                       | S45C                                        | Stainless<br>steel 304 | —                 | —                        |
| XC88*  | Spatter resistant spec.<br>for arc welding | —                                           | —                      | ●                 | ●                        |
| XC89*  | Spatter resistant spec.<br>for arc welding | ●                                           | —                      | ●                 | ●                        |

\* Only available for cylinders with built-in magnet for auto switch

Bore Size

ø32 to ø63 Anti-lateral Load

C(D)Q2DS-XC26



Note 1) Intermediate strokes (1 to 99 mm) are available in 1 mm increments.

For intermediate strokes, the dimensions are the same as a standard stroke one size larger than this intermediate stroke.

Note 2) Stroke length tolerance does not include the deflection of the bumper.

Note 3) Flat washers and split pins are included with the double clevis and double knuckle joint of this cylinder.

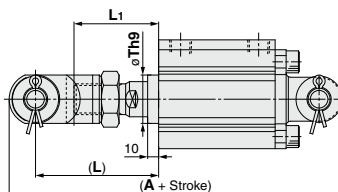
Note 4) Double clevis and double knuckle joint are shipped together with the product.

| Bore size | Stroke range | Without magnet for auto switch |      | Built-in magnet for auto switch |      | CD | CT | CU | CW | CX    |       |       | CY   | CZ | D  | E  | F    | J   |
|-----------|--------------|--------------------------------|------|---------------------------------|------|----|----|----|----|-------|-------|-------|------|----|----|----|------|-----|
|           |              | A                              | B    | A                               | B    |    |    |    |    | XC26A | XC26B | XC26C |      |    |    |    |      |     |
| 32        | 50 or less   | 121                            | 33   | 131                             | 43   | 10 | 5  | 14 | 20 | —     | —     | 12.5  | 52.5 | 36 | 16 | 45 | 7.5  | 4.5 |
|           | 75, 100      | 131                            | 43   | 139.5                           | 49.5 | 10 | 6  | 14 | 22 | 16.5  | 19.5  | 12.5  | 52.5 | 36 | 16 | 52 | 7.5  | 5   |
| 40        | 50 or less   | 129.5                          | 39.5 | 139.5                           | 49.5 | 10 | 6  | 14 | 22 | 16.5  | 19.5  | 12.5  | 52.5 | 36 | 16 | 52 | 7.5  | 5   |
|           | 75, 100      | 139.5                          | 49.5 | 167.5                           | 50.5 | 14 | 7  | 20 | 28 | 16.5  | 19.5  | 12.5  | 66   | 44 | 20 | 64 | 10.5 | 7   |
| 50        | 50 or less   | 157.5                          | 40.5 | 167.5                           | 50.5 | 14 | 7  | 20 | 28 | 16.5  | 19.5  | 12.5  | 66   | 44 | 20 | 64 | 10.5 | 7   |
|           | 75, 100      | 167.5                          | 50.5 | 175                             | 56   | 14 | 8  | 20 | 30 | 16.5  | 19.5  | 12.5  | 66   | 44 | 20 | 77 | 10.5 | 7   |
| 63        | 50 or less   | 165                            | 46   | 175                             | 56   | 14 | 8  | 20 | 30 | 16.5  | 19.5  | 12.5  | 66   | 44 | 20 | 77 | 10.5 | 7   |
|           | 75, 100      | 175                            | 56   | 175                             | 56   | 14 | 8  | 20 | 30 | 16.5  | 19.5  | 12.5  | 66   | 44 | 20 | 77 | 10.5 | 7   |

| Bore size | K  | L  | M  | O         | P   | Q    | R  | RR | RR1 | U1 | W    | Z  | A1 | A2 | B1 | C1   | H1 | L1   | MM        | X    |
|-----------|----|----|----|-----------|-----|------|----|----|-----|----|------|----|----|----|----|------|----|------|-----------|------|
| 32        | 14 | 46 | 34 | M6 x 1.0  | 1/8 | 10   | 10 | 10 | 12  | 14 | 49.5 | 14 | 16 | 42 | 22 | 20.5 | 8  | 28.5 | M14 x 1.5 | 23.5 |
| 40        | 14 | 46 | 40 | M6 x 1.0  | 1/8 | 12.5 | 10 | 10 | 12  | 14 | 57   | 15 | 16 | 42 | 22 | 20.5 | 8  | 28.5 | M14 x 1.5 | 23.5 |
| 50        | 17 | 59 | 50 | M8 x 1.25 | 1/4 | 10.5 | 14 | 14 | 16  | 20 | 71   | 19 | 20 | 56 | 27 | 26   | 11 | 33.5 | M18 x 1.5 | 28.5 |
| 63        | 17 | 59 | 60 | M10 x 1.5 | 1/4 | 15   | 18 | 14 | 16  | 20 | 84   | 19 | 20 | 56 | 27 | 26   | 11 | 33.5 | M18 x 1.5 | 28.5 |

Made to Order (Dimensions other than those shown below are the same as those shown above.)

■Spatter resistant specification for arc welding: CDQ2DS-XC26-C88/C89



| Bore size | Stroke range            | XC88/XC89 |    |      |                       |
|-----------|-------------------------|-----------|----|------|-----------------------|
|           |                         | A         | L  | L1   | Th9                   |
| 32        | 5, 10, 15, 20, 25, 30,  | 141       | 56 | 38.5 | 23.0 <sup>0.052</sup> |
| 40        | 35, 40, 45, 50, 75, 100 | 149.5     | 56 | 38.5 | 28.0 <sup>0.052</sup> |
| 50        | 10, 15, 20, 25, 30, 35, | 177.5     | 69 | 43.5 | 35.0 <sup>0.052</sup> |
| 63        | 40, 45, 50, 75, 100     | 185       | 69 | 43.5 | 35.0 <sup>0.052</sup> |

# Made to Order Common Specifications:

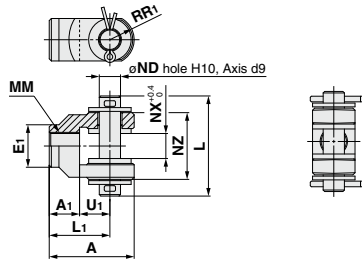
-XC26□: Double Clevis Width 12.5 mm, 16.5 mm, 19.5 mm: With Double Clevis and Double Knuckle Joint



**33** Double Clevis Width 12.5 mm, 16.5 mm, 19.5 mm: With Double Clevis and Double Knuckle Joint **-XC26□** Symbol

## Accessories

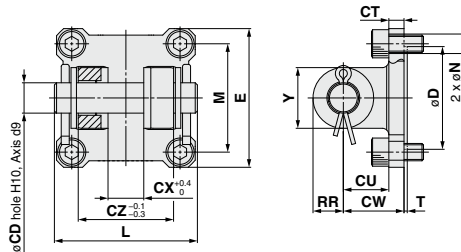
### Double knuckle joint



| Part no.    | Applicable bore size | A  | A1 | E1  | L1 | MM        | RR1 | U1 | ND | NX   | NZ | L    |
|-------------|----------------------|----|----|-----|----|-----------|-----|----|----|------|----|------|
| Y-G04-XC26A | 32, 40               | 42 | 16 | ø22 | 30 | M14 x 1.5 | 12  | 14 | 10 | 16.5 | 36 | 52.5 |
| Y-G04-XC26B |                      |    |    |     |    |           |     |    |    | 19.5 |    |      |
| Y-G04-XC26C |                      |    |    |     |    |           |     |    |    | 12.5 |    |      |
| Y-G05-XC26A | 50, 63               | 56 | 20 | ø28 | 40 | M18 x 1.5 | 16  | 20 | 14 | 16.5 | 44 | 66   |
| Y-G05-XC26B |                      |    |    |     |    |           |     |    |    | 19.5 |    |      |
| Y-G05-XC26C |                      |    |    |     |    |           |     |    |    | 12.5 |    |      |

Note) A knuckle joint pin, 2 flat washers and 2 split pins are included.

### Double clevis



| Part no.      | Applicable bore size | D    | E  | M  | N   | T   | CD | CT | CU | CW | CX   | CZ | RR | L    | Y  |
|---------------|----------------------|------|----|----|-----|-----|----|----|----|----|------|----|----|------|----|
| CQ-D032-XC26C | 32                   | 30.7 | 45 | 34 | 6.6 | 1   | 10 | 5  | 14 | 20 | 12.5 | 36 | 10 | 52.5 | 20 |
| CQ-D040-XC26A |                      |      |    |    |     |     |    |    |    |    | 16.5 |    |    |      |    |
| CQ-D040-XC26B | 40                   | 39.1 | 52 | 40 | 6.6 | 1   | 10 | 6  | 14 | 22 | 19.5 | 36 | 10 | 52.5 | 20 |
| CQ-D040-XC26C |                      |      |    |    |     |     |    |    |    |    | 12.5 |    |    |      |    |
| CQ-D050-XC26A |                      |      |    |    |     |     |    |    |    |    | 16.5 |    |    |      |    |
| CQ-D050-XC26B | 50                   | 48.5 | 64 | 50 | 9   | 1.5 | 14 | 7  | 20 | 28 | 19.5 | 44 | 14 | 66   | 28 |
| CQ-D050-XC26C |                      |      |    |    |     |     |    |    |    |    | 12.5 |    |    |      |    |
| CQ-D063-XC26A |                      |      |    |    |     |     |    |    |    |    | 16.5 |    |    |      |    |
| CQ-D063-XC26B | 63                   | 61.3 | 77 | 60 | 11  | 2   | 14 | 8  | 20 | 30 | 19.5 | 44 | 14 | 66   | 28 |
| CQ-D063-XC26C |                      |      |    |    |     |     |    |    |    |    | 12.5 |    |    |      |    |

Note) A clevis pin, 2 flat washers, 2 split pins and 4 hexagon socket head cap screws are included.

# Made to Order Common Specifications: -XC27: Double Clevis and Double Knuckle Joint Pins Made of Stainless Steel



## 34 Double Clevis and Double Knuckle Joint Pins Made of Stainless Steel

Symbol

**-XC27**

To prevent the oscillating portion of the double clevis or the double knuckle joint from rusting, the material of the pin and the retaining ring has been changed to stainless steel.

### Applicable Series

| Series | Description           | Model                 | Action                                                                                          | Vol. no. (for std model) |
|--------|-----------------------|-----------------------|-------------------------------------------------------------------------------------------------|--------------------------|
| CM2    | Standard type         | CM2-Z                 | Double acting, Single rod <sup>(1)</sup><br>Single acting (Spring return/extend) <sup>(1)</sup> | ②-1 From P. 172          |
|        | Non-rotating rod type | CM2K-Z                | Double acting, Single rod <sup>(1)</sup><br>Single acting (Spring return/extend) <sup>(1)</sup> |                          |
|        | End lock cylinder     | CBM2                  | Double acting, Single rod                                                                       |                          |
|        | Smooth cylinder       | CM2Y-Z                | Double acting, Single rod                                                                       |                          |
| CG1    | Standard type         | CG1-Z                 | Double acting, Single rod <sup>(1)</sup><br>Single acting (Spring return/extend) <sup>(1)</sup> | ②-1 From P. 292          |
|        | Non-rotating rod type | CG1K-Z <sup>(2)</sup> | Double acting, Single rod <sup>(1)</sup>                                                        |                          |
| MB     | Standard type         | MB-Z                  | Double acting, Double rod <sup>(1)</sup>                                                        | ②-1 From P. 392          |
|        | Non-rotating rod type | MBK-Z                 | Double acting, Single rod <sup>(1)</sup>                                                        |                          |
|        | With end lock         | MBB                   | Double acting, Single rod                                                                       |                          |
|        | Smooth cylinder       | MBY-Z                 | Double acting, Single rod <sup>(1)</sup>                                                        |                          |
| MB1    | Standard type         | MB1-Z                 | Double acting, Single rod <sup>(1)</sup>                                                        | ②-1 From P. 440          |
|        | Non-rotating rod type | MB1K-Z                | Double acting, Single rod <sup>(1)</sup>                                                        |                          |
| CA2    | Standard type         | CA2-Z                 | Double acting, Single rod <sup>(1)</sup>                                                        | ②-1 From P. 470          |
|        | Non-rotating rod type | CA2K                  | Double acting, Single rod                                                                       |                          |
|        | End lock cylinder     | CBA2                  | Double acting, Single rod                                                                       |                          |
|        | Smooth cylinder       | CA2Y-Z                | Double acting, Single rod                                                                       |                          |
| CS1    | Standard type         | CS1                   | Double acting, Single rod                                                                       | ②-1 From P. 530          |
|        | Low friction          | CS1Q                  | Double acting, Single rod                                                                       |                          |
| CS2    | Standard type         | CS2                   | Double acting, Single rod                                                                       | ②-1 From P. 568          |
|        | Smooth cylinder       | CS2Y                  | Double acting, Single rod                                                                       |                          |

| Series | Description                | Model   | Action                                                                                          | Vol. no. (for std model) |
|--------|----------------------------|---------|-------------------------------------------------------------------------------------------------|--------------------------|
| CV     | Valve mounted air cylinder | CVS1    | Double acting, Single rod                                                                       | ②-3 From P. 832          |
|        |                            | CVS1K   | Double acting, Single rod                                                                       |                          |
| CQS    | Standard type              | CQS     | Double acting, Single rod<br>Single acting (Spring return/extend) <sup>(1)</sup>                | ②-1 From P. 693          |
|        | Long stroke                | CQS     | Double acting, Single rod                                                                       |                          |
|        | Anti-lateral load type     | CQS□S   | Double acting, Single rod                                                                       |                          |
|        | Non-rotating rod type      | CQSK    | Double acting, Single rod                                                                       |                          |
| CQ2    | Standard type              | CQ2-Z   | Double acting, Single rod <sup>(1)</sup><br>Single acting (Spring return/extend) <sup>(1)</sup> | ②-1 From P. 773          |
|        | Long stroke                | CQ2-Z   | Double acting, Single rod                                                                       |                          |
|        | Anti-lateral load type     | CQ2□S-Z | Double acting, Single rod                                                                       |                          |
|        | Non-rotating rod type      | CQ2K-Z  | Double acting, Single rod                                                                       |                          |
|        | Magnetic field resistant   | CDQ2□P  | Double acting, Single rod                                                                       |                          |

Note 1) Except cylinders with double knuckle joint bracket in How to Order

Note 2) Except ø80 and ø100 with rubber bumper

Except ø20, ø25, ø32, ø80, and ø100 with air cushion

### How to Order

CQSD  Standard model no. **-XC27**

CQ2D  Standard model no. **-XC27**

CG1D  Standard model no. **-XC27**

CM2D  Standard model no. **-XC27**

CA2D  Standard model no. **-XC27**

CS1D  Standard model no. **-XC27**

CS2D  Standard model no. **-XC27**

• Double clevis type

Double clevis pin  
made of stainless steel

Y -  G012, Z015A, G02, G03, G04, G05, G08, G10 **-XC27**

Y -  020B, 032B, 040B **-XC27**

Y -  04D, 05D, 08D, 10D **-XC27**

Y -  12, 14, 16, 18, 20, 25, 30 **-XC27**

Y -  12A, 14A, 16A **-XC27**

• Double knuckle joint

Double knuckle joint pin  
made of stainless steel

### Specifications

|                                 |                                                        |
|---------------------------------|--------------------------------------------------------|
| Mounting type                   | Only double clevis type (D), Double knuckle joint only |
| Pin and retaining ring material | Stainless steel 304                                    |
| Specifications other than above | Same as standard type                                  |

IY -  12, 14, 16, 18, 20, 25, 30 **-XC27**

IY -  G012 (J015)\*, G02, G03, G04, G05, G08, G10 **-XC27**

CD -  M03, M05, M08 **-XC27**

CD -  G02, G25, G03, G04, G05, G06 **-XC27**

CDP -  1, 2, 3 **-XC27**

CDP -  2A, 3A, 4A, 5A, 6A, 7A **-XC27**

Clevis pin  
Knuckle pin made of stainless steel

• Clevis pin  
Knuckle pin

\* Stainless steel specification for IY-J015 is IY-J015SUS.

### Mounting brackets, accessories, and nut material: Stainless steel

The following accessories need to be prepared separately. (Please order separately.)

Refer to the "Accessories" page of each series for details.

| Series | Bore size (mm)                  | Foot | Flange | Single knuckle joint | Double knuckle joint | Mounting nut | Rod end nut | Accessories page                 |
|--------|---------------------------------|------|--------|----------------------|----------------------|--------------|-------------|----------------------------------|
| CM2    | 20, 25, 32, 40                  | ○    | ○      | ○                    | ○                    | ○            | ○           | Best Pneumatics No. 2-1 p. 190   |
| CG1    | 20, 25, 32, 40, 50, 63, 80, 100 | ○*   | ○*     | ○                    | ○                    | —            | ○           | Best Pneumatics No. 2-1 p. 309-1 |
| CQ2    | 20, 25, 32, 40, 50, 63, 80, 100 | —    | —      | ○                    | ○                    | —            | ○           | Best Pneumatics No. 2-1 p. 796   |

\* Except bore size 20 and 25.

# Made to Order Common Specifications: -XC28: Compact Flange Made of SS400



## 35 Compact Flange Made of SS400

Symbol

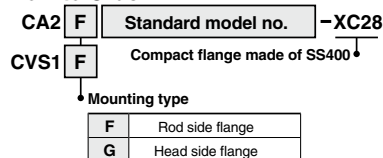
-XC28

Width of a flange bracket on the rod and head side has the same dimensions as the cylinder's rod cover to save the mounting space. (Flange shape and FV-dimensions are only different from the standard type.)

### Applicable Series

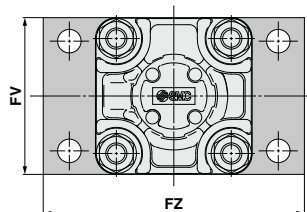
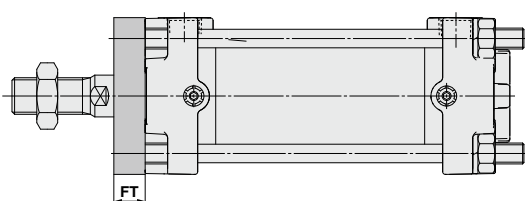
| Series | Description                | Model  | Action                    | Vol. no. (for std model) |
|--------|----------------------------|--------|---------------------------|--------------------------|
| CA2    | Air cylinder               | CA2-Z  | Double acting, Single rod | ②-1 From P. 470          |
|        |                            | CA2W-Z | Double acting, Double rod |                          |
|        | Non-rotating rod type      | CA2K   | Double acting, Single rod |                          |
|        |                            | CA2KW  | Double acting, Double rod |                          |
|        | With end lock              | CBA2   | Double acting, Single rod |                          |
| CV     | Smooth cylinder            | CA2Y-Z | Double acting, Single rod | ②-3 From P. 832          |
|        |                            | CVS1   | Double acting, Single rod |                          |
|        | Valve mounted air cylinder | CVS1K  | Double acting, Single rod |                          |

### How to Order



Specifications: Same as standard type

### Dimensions



| (mm)           |    |     |     |
|----------------|----|-----|-----|
| Bore size (mm) | FT | FV  | FZ  |
| 40             | 12 | 60  | 100 |
| 50             | 12 | 70  | 110 |
| 63             | 15 | 85  | 130 |
| 80             | 18 | 102 | 160 |
| 100            | 18 | 116 | 180 |

\* Other dimensions are the same as flange on the rod side and head side of standard type.  
(Figure is the case of flange on the rod side.)

# Made to Order Common Specifications: -XC29: Double Knuckle Joint with Spring Pin



## 36 Double Knuckle Joint with Spring Pin

Symbol  
-XC29

To prevent loosening of the double knuckle joint of standard air cylinder (CM2/CA2 series)

### Applicable Series

| Series | Description             | Model  | Action                                           | Vol. no. (for std model) |
|--------|-------------------------|--------|--------------------------------------------------|--------------------------|
| CM2    | Air cylinder            | CM2-Z  | Double acting, Single rod <sup>(1)</sup>         | ②-1 From P. 172          |
|        |                         | CM2W-Z | Single acting (Spring return) <sup>(1)</sup>     |                          |
|        | Direct mount type       | CM2R-Z | Double acting, Double rod                        |                          |
|        | Centralized piping type | CM2□□P | Double acting, Single rod                        |                          |
|        | End lock cylinder       | CBM2   | Double acting, Single rod                        |                          |
| CG1    | Air cylinder            | CM2Y-Z | Double acting, Single rod                        | ②-1 From P. 292          |
|        |                         | CG1-Z  | Single acting (Spring return) <sup>(1) (2)</sup> |                          |

Note 1) Except cylinders with rod end bracket in How to Order  
Note 2) Compatible with rubber bumper only

| Series | Description                | Model              | Action                                   | Vol. no. (for std model) |
|--------|----------------------------|--------------------|------------------------------------------|--------------------------|
| MB     | Air cylinder               | MB-Z <sup>*</sup>  | Double acting, Single rod <sup>(1)</sup> | ②-1 From P. 392          |
|        | Cylinder with end lock     | MBB                | Double acting, Single rod                |                          |
|        | Smooth cylinder            | MBY-Z              | Double acting, Single rod                |                          |
| MB1    | Air cylinder               | MB1-Z <sup>*</sup> | Double acting, Single rod <sup>(1)</sup> | ②-1 From P. 440          |
| CA2    | Air cylinder               | CA2-Z              | Double acting, Single rod <sup>(1)</sup> | ②-1 From P. 470          |
|        | End lock cylinder          | CBA2               | Double acting, Single rod                |                          |
|        | Smooth cylinder            | CA2Y-Z             | Double acting, Single rod                |                          |
| CV     | Valve mounted air cylinder | CV3                | Double acting, Single rod                | ②-3 From P. 812          |
|        |                            | CVS1               | Double acting, Single rod                |                          |

\* Except ø125

### How to Order

Standard model no.

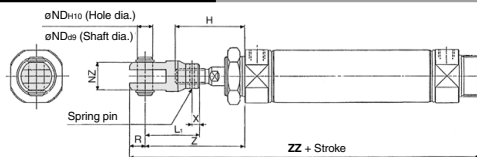
-XC29

Double knuckle joint with spring pin

Specifications: Same as standard type

### Dimensions (For mounting bracket, pin is shipped together.)

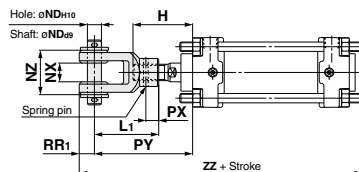
#### CM2 series



| Bore size (mm) | H  | L1 | NDH10                             | NZ | R  | Z  | ZZ  | Spring pin |
|----------------|----|----|-----------------------------------|----|----|----|-----|------------|
| 20             | 41 | 36 | 9 <sup>+0.058</sup> <sub>0</sub>  | 18 | 10 | 61 | 146 | ø3 x 16L   |
| 25             | 45 | 38 | 9 <sup>+0.058</sup> <sub>0</sub>  | 18 | 10 | 65 | 150 | ø3 x 16L   |
| 32             | 45 | 38 | 9 <sup>+0.058</sup> <sub>0</sub>  | 18 | 10 | 65 | 152 | ø3 x 16L   |
| 40             | 50 | 55 | 12 <sup>+0.070</sup> <sub>0</sub> | 38 | 13 | 83 | 200 | ø4 x 24L   |

\* Other dimensions are the same as standard type.

#### CA2 series CV series



| Bore size (mm) | H  | L1 | PX | PY  | ZZ  | RR1 | øND | H10         | dø               | NX                                 | NZ | Spring pin |
|----------------|----|----|----|-----|-----|-----|-----|-------------|------------------|------------------------------------|----|------------|
| 40             | 51 | 55 | 11 | 84  | 192 | 13  | 12  | +0.070<br>0 | -0.050<br>-0.093 | 16 <sup>+0.3</sup> <sub>-0.1</sub> | 38 | ø4 x 24L   |
| 50             | 58 | 60 | 12 | 91  | 207 | 15  | 12  | +0.070<br>0 | -0.050<br>-0.093 | 16 <sup>+0.3</sup> <sub>-0.1</sub> | 38 | ø4 x 25L   |
| 63             | 58 | 60 | 12 | 91  | 218 | 15  | 12  | +0.070<br>0 | -0.050<br>-0.093 | 16 <sup>+0.3</sup> <sub>-0.1</sub> | 38 | ø4 x 25L   |
| 80             | 71 | 71 | 16 | 105 | 257 | 19  | 18  | +0.070<br>0 | -0.050<br>-0.093 | 28 <sup>+0.3</sup> <sub>-0.1</sub> | 55 | ø4 x 36L   |
| 100            | 72 | 83 | 16 | 118 | 282 | 21  | 20  | +0.084<br>0 | -0.065<br>-0.117 | 30 <sup>+0.3</sup> <sub>-0.1</sub> | 61 | ø4 x 40L   |

\* Dimensions except mentioned above are the same as standard type.

# Made to Order Common Specifications: -XC30: Rod Side Trunnion



## 37 Rod Side Trunnion

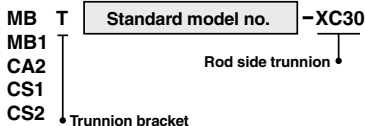
This cylinder shortens the distance between the fulcrum and the rod end by installing a trunnion bracket in front of the rod side cover.

### Applicable Series

| Series | Description            | Model   | Action                    | Vol. no. (for std model) |
|--------|------------------------|---------|---------------------------|--------------------------|
| MB     | Standard type          | MB-Z*   | Double acting, Single rod | ②-1 From P. 392          |
|        |                        | MBW-Z*  | Double acting, Double rod |                          |
|        | Non-rotating rod type  | MBK-Z   | Double acting, Single rod |                          |
|        |                        | MBKW-Z  | Double acting, Double rod |                          |
|        | Cylinder with end lock | MBB     | Double acting, Single rod |                          |
|        | Smooth cylinder        | MBY-Z   | Double acting, Single rod |                          |
| MB1    | Standard type          | MB1-Z*  | Double acting, Single rod | ②-1 From P. 440          |
|        | Non-rotating rod type  | MB1W-Z* | Double acting, Double rod |                          |
| CA2    | Air cylinder           | CA2-Z   | Double acting, Single rod | ②-1 From P. 470          |
|        | Smooth cylinder        | CA2Y-Z  | Double acting, Single rod |                          |
| CS1    | Standard type          | CS1     | Double acting, Single rod | ②-1 From P. 530          |
|        |                        | CS1W    | Double acting, Double rod |                          |
|        | Low friction           | CS1Q    | Double acting, Single rod |                          |
| CS2    | Standard type          | CS2     | Double acting, Single rod | ②-1 From P. 568          |
|        |                        | CS2W    | Double acting, Double rod |                          |
|        | Smooth cylinder        | CS2Y    | Double acting, Single rod |                          |

\* Except  $\phi 125$

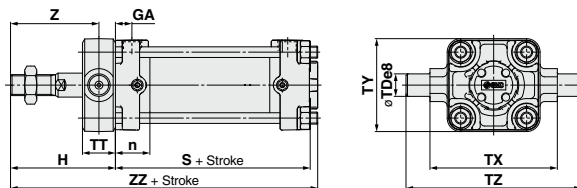
### How to Order



Specifications: Same as standard type

### Dimensions (Dimensions other than below are the same as standard type.)

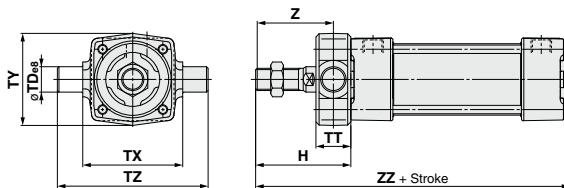
#### CA2 series



(mm)

| Symbol<br>Bore size | n  | GA | H    | S   | TDø8                                   | TT | TX  | TY  | TZ  | Z    | ZZ    |
|---------------------|----|----|------|-----|----------------------------------------|----|-----|-----|-----|------|-------|
| 40                  | 23 | 11 | 66   | 80  | 15 <sup>+0.032</sup> <sub>-0.059</sub> | 22 | 85  | 62  | 117 | 55   | 151   |
| 50                  | 26 | 13 | 71   | 86  | 15 <sup>+0.032</sup> <sub>-0.059</sub> | 22 | 95  | 74  | 127 | 60   | 163   |
| 63                  | 27 | 13 | 79   | 94  | 18 <sup>+0.032</sup> <sub>-0.059</sub> | 28 | 110 | 90  | 148 | 65   | 179   |
| 80                  | 32 | 16 | 94.5 | 111 | 25 <sup>+0.040</sup> <sub>-0.073</sub> | 34 | 140 | 110 | 192 | 77.5 | 212.5 |
| 100                 | 35 | 16 | 100  | 121 | 25 <sup>+0.040</sup> <sub>-0.073</sub> | 40 | 162 | 130 | 214 | 80   | 229   |

#### MB series



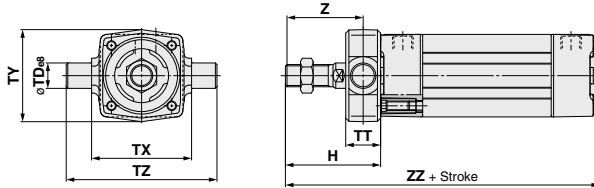
(mm)

| Bore size | H  | TDø8                                   | TT | TX  | TY  | TZ  | Z    | ZZ  |
|-----------|----|----------------------------------------|----|-----|-----|-----|------|-----|
| 32        | 47 | 12 <sup>+0.032</sup> <sub>-0.059</sub> | 17 | 50  | 49  | 74  | 38.5 | 135 |
| 40        | 60 | 16 <sup>+0.032</sup> <sub>-0.059</sub> | 22 | 63  | 58  | 95  | 49   | 148 |
| 50        | 66 | 16 <sup>+0.032</sup> <sub>-0.059</sub> | 22 | 75  | 71  | 107 | 55   | 164 |
| 63        | 72 | 20 <sup>+0.040</sup> <sub>-0.073</sub> | 28 | 90  | 87  | 130 | 58   | 170 |
| 80        | 86 | 20 <sup>+0.040</sup> <sub>-0.073</sub> | 34 | 110 | 110 | 150 | 69   | 204 |
| 100       | 92 | 25 <sup>+0.040</sup> <sub>-0.073</sub> | 40 | 132 | 136 | 182 | 72   | 210 |

\* Dimensions except mentioned above are the same as standard type.

**Dimensions** (Dimensions other than below are the same as standard type.)

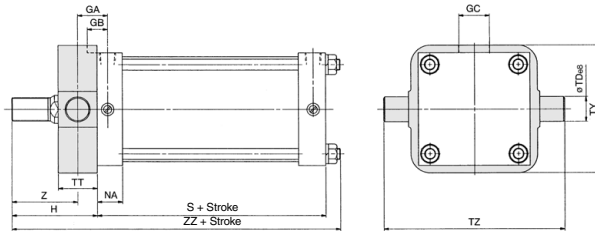
**MB1 series**



| Bore size | H  | $\phi TD_{e8}$                         | TT | TX  | TY  | TZ  | Z    | ZZ  |
|-----------|----|----------------------------------------|----|-----|-----|-----|------|-----|
| 32        | 47 | 12 <sup>+0.032</sup> <sub>-0.059</sub> | 17 | 50  | 49  | 74  | 38.5 | 135 |
| 40        | 60 | 16 <sup>+0.032</sup> <sub>-0.059</sub> | 22 | 63  | 58  | 95  | 49   | 148 |
| 50        | 66 | 16 <sup>+0.032</sup> <sub>-0.059</sub> | 22 | 75  | 71  | 107 | 55   | 164 |
| 63        | 72 | 20 <sup>+0.040</sup> <sub>-0.073</sub> | 28 | 90  | 87  | 130 | 58   | 170 |
| 80        | 86 | 20 <sup>+0.040</sup> <sub>-0.073</sub> | 34 | 110 | 110 | 150 | 69   | 204 |
| 100       | 92 | 25 <sup>+0.040</sup> <sub>-0.073</sub> | 40 | 132 | 136 | 182 | 72   | 210 |

\* Dimensions except mentioned above are the same as standard type.

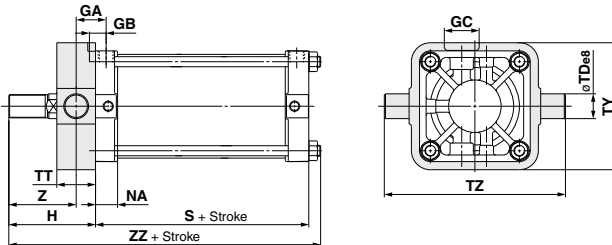
**CS1 series**



| Bore size (mm) | Symbol | GA   | GB   | GC | NA | S   | $\phi TD_{e8}$                         | TT | TY  | TZ  | H   | Z     | ZZ  |
|----------------|--------|------|------|----|----|-----|----------------------------------------|----|-----|-----|-----|-------|-----|
| 125            |        | 38   | 23   | 45 | 32 | 95  | 32 <sup>+0.050</sup> <sub>-0.089</sub> | 50 | 164 | 234 | 113 | 88.0  | 227 |
| 140            |        | 40.5 | 23   | 45 | 32 | 95  | 36 <sup>+0.050</sup> <sub>-0.089</sub> | 55 | 184 | 262 | 113 | 85.5  | 227 |
| 160            |        | 45.5 | 25.5 | 50 | 36 | 103 | 40 <sup>+0.050</sup> <sub>-0.089</sub> | 60 | 204 | 292 | 123 | 93.0  | 248 |
| 180            |        | 45   | 25.5 | 50 | 36 | 108 | 45 <sup>+0.050</sup> <sub>-0.089</sub> | 59 | 228 | 326 | 138 | 108.5 | 272 |
| 200            |        | 45   | 25.5 | 50 | 36 | 108 | 45 <sup>+0.050</sup> <sub>-0.089</sub> | 59 | 257 | 355 | 138 | 108.5 | 272 |
| 250            |        | 54.5 | 30   | 60 | 46 | 138 | 56 <sup>+0.060</sup> <sub>-0.106</sub> | 69 | 325 | 447 | 163 | 128.5 | 331 |
| 300            |        | 59.5 | 30   | 70 | 46 | 143 | 67 <sup>+0.060</sup> <sub>-0.106</sub> | 79 | 390 | 534 | 178 | 138.5 | 357 |

\* Dimensions except mentioned above are the same as standard type.

**CS2 series**



| Bore size (mm) | GA   | GB | GC | NA   | S   | TD <sub>e8</sub>                       | TT | TY  | TZ  | H   | Z    | ZZ  |
|----------------|------|----|----|------|-----|----------------------------------------|----|-----|-----|-----|------|-----|
| 125            | 38   | 23 | 45 | 28.5 | 96  | 32 <sup>+0.050</sup> <sub>-0.089</sub> | 50 | 164 | 234 | 112 | 87   | 221 |
| 140            | 40.5 | 23 | 45 | 28.5 | 96  | 36 <sup>+0.050</sup> <sub>-0.089</sub> | 55 | 184 | 262 | 112 | 84.5 | 221 |
| 160            | 46   | 26 | 50 | 32.5 | 104 | 40 <sup>+0.050</sup> <sub>-0.089</sub> | 60 | 204 | 292 | 122 | 92   | 241 |

# Made to Order Common Specifications: -XC34: Non-rotating Plate with Workpiece Mounting Screw (No extended part on the rod end)



## 38 Non-rotating Plate with Workpiece Mounting Screw (No extended part on the rod end)

Symbol

**-XC34**

The plate has workpiece mounting screws.

The dimension FL, the distance between a non-rotating plate to piston rod end, has been eliminated.

The piston rod does not protrude from the plate.

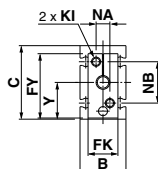
Applicable model no. **- XC34**

### Applicable Series

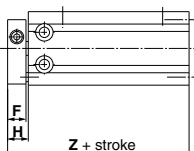
| Series | Description                  | Model | Action                                           | Vol. no. (for std model) |
|--------|------------------------------|-------|--------------------------------------------------|--------------------------|
| CU     | Non-rotating rod             | CUK   | Double acting, Single rod                        | 2-1 From P. 666          |
|        | Non-rotating rod             | CUK   | Single acting, Single rod (Spring return/extend) |                          |
|        | Non-rotating rod/Long stroke | CUK   | Double acting, Single rod                        |                          |

### Dimensions

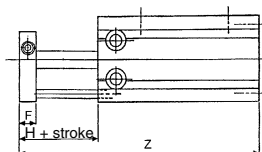
Double acting, Single rod



Single acting, Spring return



Single acting, Spring extend



(mm)

| Bore size (mm) | B  | C  | FK | FY   | KI       | NA | NB | Y    |
|----------------|----|----|----|------|----------|----|----|------|
| 6              | 13 | 22 | 11 | 20.5 | M3 x 0.5 | 6  | 14 | 10.5 |
| 10             | 15 | 24 | 12 | 22   | M3 x 0.5 | 7  | 15 | 11.5 |
| 16             | 20 | 32 | 13 | 28   | M4 x 0.7 | 6  | 18 | 15.5 |
| 20             | 26 | 40 | 16 | 33   | M4 x 0.7 | 8  | 20 | 19.5 |
| 25             | 32 | 50 | 20 | 43.5 | M5 x 0.8 | 10 | 28 | 24.5 |
| 32             | 40 | 62 | 24 | 51.5 | M5 x 0.8 | 12 | 32 | 30.5 |

(mm)

| Action<br>Bore size (mm) | F  | H  | Double acting  |             | Single acting (Spring return) |      |      |             |      |      | Single acting (Spring extend) |      |      |             |      |      |
|--------------------------|----|----|----------------|-------------|-------------------------------|------|------|-------------|------|------|-------------------------------|------|------|-------------|------|------|
|                          |    |    | Z              |             | Z                             |      |      |             |      |      | Z                             |      |      |             |      |      |
|                          |    |    | Without switch | With switch | Without switch                |      |      | With switch |      |      | Without switch                |      |      | With switch |      |      |
|                          |    |    |                |             | 5st                           | 10st | 15st | 5st         | 10st | 15st | 5st                           | 10st | 15st | 5st         | 10st | 15st |
| 6                        | 8  | 9  | 42             | 42          | 47                            | 52   | 57   | 47          | 52   | 57   | 52                            | 62   | 67   | 52          | 62   | 67   |
| 10                       | 8  | 9  | 45             | 45          | 50                            | 55   | 65   | 50          | 55   | 65   | 55                            | 65   | 80   | 55          | 65   | 80   |
| 16                       | 8  | 9  | 39             | 49          | 44                            | 49   | 59   | 54          | 59   | 69   | 59                            | 69   | 84   | 69          | 79   | 94   |
| 20                       | 8  | 9  | 45             | 55          | 50                            | 55   | 65   | 60          | 65   | 75   | 55                            | 65   | 80   | 65          | 75   | 90   |
| 25                       | 10 | 11 | 51             | 61          | 56                            | 61   | 71   | 66          | 71   | 81   | 61                            | 71   | 86   | 71          | 81   | 96   |
| 32                       | 12 | 13 | 55             | 65          | 60                            | 65   | 75   | 70          | 75   | 85   | 65                            | 75   | 90   | 75          | 85   | 100  |

\* Dimensions except mentioned above are the same as standard type.

# Made to Order Common Specifications: -XC35: With Coil Scraper



## 39 With Coil Scraper

Symbol  
**-XC35**

It gets rid of frost, ice, weld spatter, cutting chips adhered to the piston rod, and protects the seals, etc.

### Applicable Series

| Series | Description                       | Model  | Action                    | Note                                                  | Vol. no. (for std model) |
|--------|-----------------------------------|--------|---------------------------|-------------------------------------------------------|--------------------------|
| CM2    | Air cylinder                      | CM2-Z  | Double acting, Single rod | Except with air cushion                               | ②-1 From P. 172          |
|        |                                   | CM2W-Z | Double acting, Double rod | Except with air cushion                               |                          |
| CG1    | Air cylinder                      | CBM2   | Double acting, Single rod | Lock in head end only (Except with air cushion)       | ②-1 From P. 292          |
|        |                                   | CG1-Z  | Double acting, Single rod |                                                       |                          |
| MB     | Air cylinder                      | MB-Z   | Double acting, Single rod | Except ø125                                           | ②-1 From P. 392          |
|        |                                   | MBW-Z  | Double acting, Double rod | Except ø125                                           |                          |
| MB1    | Air cylinder                      | MB1-Z  | Double acting, Single rod |                                                       | ②-1 From P. 440          |
|        |                                   | MBW-Z  | Double acting, Double rod |                                                       |                          |
| CA2    | Air cylinder                      | CA2-Z  | Double acting, Single rod |                                                       | ②-1 From P. 470          |
|        |                                   | CA2W-Z | Double acting, Double rod |                                                       |                          |
| CS1    | Air cylinder                      | CBA2   | Double acting, Single rod |                                                       | ②-1 From P. 530          |
|        |                                   | CS1    | Double acting, Single rod |                                                       |                          |
| CS2    | Air cylinder                      | CS1W   | Double acting, Double rod |                                                       | ②-1 From P. 568          |
|        |                                   | CS2    | Double acting, Single rod |                                                       |                          |
| CQ2    | Compact cylinder                  | CS2W   | Double acting, Double rod |                                                       | ②-1 From P. 773          |
|        |                                   | CQ2-Z  | Double acting, Single rod | Applicable to ø32 to ø100                             |                          |
|        |                                   | CQ2W-Z | Double acting, Double rod | Applicable to ø32 to ø100                             |                          |
|        | Long stroke                       | CQP2   | Double acting, Single rod | Applicable to ø32 to ø100, Except with bracket        |                          |
| RQ     | Compact cylinder with air cushion | CQ2-Z  | Double acting, Single rod | Applicable to ø32 to ø100                             | ②-1 From P. 985          |
|        |                                   | RQ     | Double acting, Single rod | Applicable to ø32 to ø100                             |                          |
| MWB    | Cylinder with lock                | MWB    | Double acting, Single rod |                                                       | ES20-246                 |
|        |                                   | MWBW   | Double acting, Double rod |                                                       |                          |
|        | Lock unit                         | MWB-UT | —                         | Both sides are equipped with a coil scraper           |                          |
| MNB    | Cylinder with lock                | MNB    | Double acting, Single rod |                                                       | ②-2 From P. 890          |
| CNA2   | Cylinder with lock                | CNA2   | Double acting, Single rod |                                                       | ②-2 From P. 922          |
| CNG    | Cylinder with lock                | CNG    | Double acting, Single rod |                                                       | ②-2 From P. 866          |
| CLS    | Cylinder with lock                | CLS    | Double acting, Single rod | Applicable to ø125 to ø160 (ø180 to ø250 as standard) | ②-2 From P. 982          |
| CLQ    | Compact cylinder with lock        | CLQ    | Double acting, Single rod | Applicable to ø40 to ø100                             | ②-2 From P. 1008         |
| CV     | Valve mounted cylinder            | CVS1   | Double acting, Single rod |                                                       | ②-3 From P. 832          |
| MGP    | Compact guide cylinder            | MGPM-Z | Double acting             | Applicable to ø20 to ø100                             | ②-2 From P. 432          |
|        |                                   | MGPL-Z | Double acting             | Applicable to ø20 to ø100                             |                          |
|        |                                   | MGPA-Z | Double acting             | Applicable to ø20 to ø100                             |                          |
| MGG    | Guide cylinder                    | MGG    | Double acting             | Applicable to ø32 to ø100                             | ②-2 From P. 538          |
| MGC    | Guide cylinder                    | MGC    | Double acting             | Applicable to ø32 to ø50                              | ②-2 From P. 578          |

### How to Order

Standard model no.

-XC35

With coil scraper

\* For MGP series, refer to page 1827.

Specifications: Same as standard type

# Made to Order Common Specifications: -XC35: With Coil Scraper

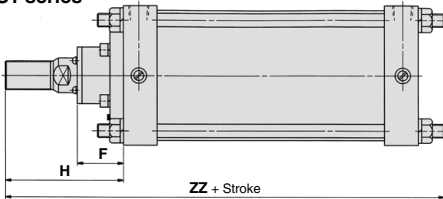


## 39 With Coil Scraper

### Dimensions (Dimensions other than below are the same as standard type.)

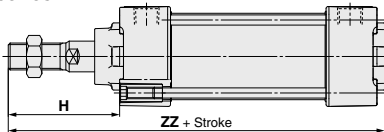
The dimensions of the CS2 series are the same as the standard type.

#### CS1 series



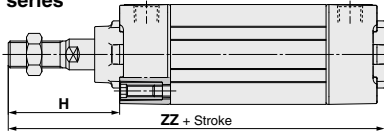
| Bore size<br>(mm) | Without auto switch |     |       | With auto switch |     |       |
|-------------------|---------------------|-----|-------|------------------|-----|-------|
|                   | F                   | H   | ZZ    | F                | H   | ZZ    |
| 125               | 50                  | 120 | 245   | 50               | 120 | 245   |
| 140               | 50                  | 120 | 245   | 50               | 120 | 245   |
| 160               | 50                  | 130 | 266.5 | 50               | 130 | 266.5 |
| 180               | 55                  | 145 | 291   | 55               | 145 | 295   |
| 200               | 55                  | 145 | 291   | 55               | 145 | 300   |
| 250               | 69                  | 175 | 357.5 | —                | —   | —     |
| 300               | 69                  | 190 | 387.5 | —                | —   | —     |

#### MB series



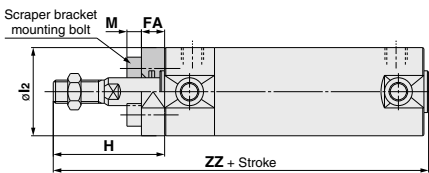
| (mm)      |    |     |
|-----------|----|-----|
| Bore size | H  | ZZ  |
| 32        | 47 | 135 |
| 40        | 58 | 146 |
| 50        | 67 | 165 |
| 63        | 67 | 165 |
| 80        | 81 | 199 |
| 100       | 81 | 199 |

#### MB1 series



| (mm)      |    |     |
|-----------|----|-----|
| Bore size | H  | ZZ  |
| 32        | 47 | 135 |
| 40        | 58 | 146 |
| 50        | 67 | 165 |
| 63        | 67 | 165 |
| 80        | 81 | 199 |
| 100       | 81 | 199 |

#### CG1 series

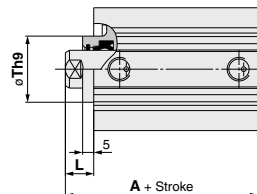


| Bore size | Stroke range |             | FA | H           |               | I <sub>2</sub> | M   | ZZ          |               |
|-----------|--------------|-------------|----|-------------|---------------|----------------|-----|-------------|---------------|
|           | Standard     | Long stroke |    | Male thread | Female thread |                |     | Male thread | Female thread |
| 20        | Up to 200    | 201 to 1500 | 6  | 39          | 27            | 27             | 4   | 110 (118)   | 98 (106)      |
| 25        | Up to 300    | 301 to 1500 | 6  | 44          | 28            | 32             | 5   | 115 (123)   | 99 (107)      |
| 32        | Up to 300    | 301 to 1500 | 6  | 44          | 28            | 38             | 5   | 117 (125)   | 101 (109)     |
| 40        | Up to 300    | 301 to 1500 | 7  | 54          | 29            | 47             | 3.5 | 134 (143)   | 109 (118)     |
| 50        | Up to 300    | 301 to 1500 | 7  | 62          | 30            | 58             | 4.5 | 154 (166)   | 122 (134)     |
| 63        | Up to 300    | 301 to 1500 | 7  | 62          | 30            | 72             | 5.5 | 154 (166)   | 122 (134)     |

Note) ( ): Long stroke

- \* Other dimensions are the same as the double acting, single rod type.
- \* On the axial foot and rod side flange types, the mounting bracket is wedged and bolted between the cylinder and the scraper at the time of shipment. Others are shipped together (but not assembled).
- \* The long stroke shows the maximum manufacturable stroke. For details about maximum stroke that can be used for each mounting bracket, refer to the stroke selection table on front matter pages.

#### CG2 series

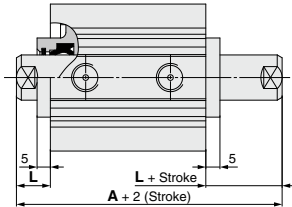


| Bore size | A                                |                |                   | L                                |                   | T                                  |
|-----------|----------------------------------|----------------|-------------------|----------------------------------|-------------------|------------------------------------|
|           | Standard type, Axial piping type |                | Long stroke       | Standard type, Axial piping type | Long stroke       |                                    |
|           | 50 stroke or less                | 75, 100 stroke | 125 to 300 stroke | 100 stroke or less               | 125 to 300 stroke |                                    |
| 32        | 35 (45)                          | 45             | 62.5              | 12                               | 17                | 23 <sup>+0.052</sup> <sub>-0</sub> |
| 40        | 41.5 (51.5)                      | 51.5           | 72                | 12                               | 17                | 28 <sup>+0.062</sup> <sub>-0</sub> |
| 50        | 43.5 (53.5)                      | 53.5           | 73.5              | 13                               | 18                | 35 <sup>+0.062</sup> <sub>-0</sub> |
| 63        | 49 (59)                          | 59             | 75                | 13                               | 18                | 35 <sup>+0.062</sup> <sub>-0</sub> |
| 80        | 58.5 (68.5)                      | 68.5           | 86                | 15                               | 20                | 43 <sup>+0.062</sup> <sub>-0</sub> |
| 100       | 70 (80)                          | 80             | 97.5              | 17                               | 22                | 59 <sup>+0.074</sup> <sub>-0</sub> |

\* ( ): Denotes the dimensions with auto switch magnet.

**Dimensions** (Dimensions other than below are the same as standard type.)

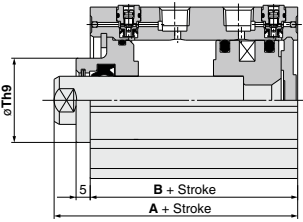
**CQ2W series**



| Bore size  | A                 |                | L  |
|------------|-------------------|----------------|----|
|            | 50 stroke or less | 75, 100 stroke |    |
| <b>32</b>  | 54.5 (64.5)       | 64.5           | 12 |
| <b>40</b>  | 64 (74)           | 74             | 12 |
| <b>50</b>  | 66.5 (76.5)       | 76.5           | 13 |
| <b>63</b>  | 68 (78)           | 78             | 13 |
| <b>80</b>  | 81 (91)           | 91             | 15 |
| <b>100</b> | 94.5 (104.5)      | 104.5          | 17 |

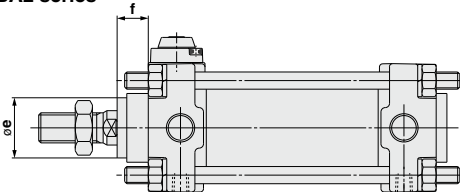
\* ( ) : Denotes the dimensions with auto switch magnet.

**RQ series**



| Bore size (mm) | A    | B    | Th9                               |
|----------------|------|------|-----------------------------------|
| <b>32</b>      | 49   | 37   | 23 <sup>0</sup> <sub>-0.052</sub> |
| <b>40</b>      | 56   | 44   | 28 <sup>0</sup> <sub>-0.052</sub> |
| <b>50</b>      | 62.5 | 49.5 | 35 <sup>0</sup> <sub>-0.062</sub> |
| <b>63</b>      | 68   | 55   | 35 <sup>0</sup> <sub>-0.062</sub> |
| <b>80</b>      | 78.5 | 63.5 | 43 <sup>0</sup> <sub>-0.062</sub> |
| <b>100</b>     | 93   | 76   | 59 <sup>0</sup> <sub>-0.074</sub> |

**CBA2 series**



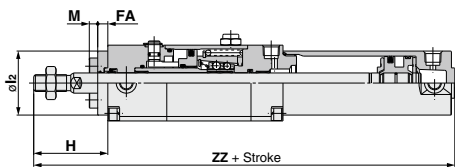
| Bore size (mm) | ae | f                                             |
|----------------|----|-----------------------------------------------|
|                |    | With rod side locking. With both-side locking |
| <b>40</b>      | 28 | 14.5                                          |
| <b>50</b>      | 32 | 16.5                                          |
| <b>63</b>      | 32 | 14                                            |
| <b>80</b>      | 37 | 16                                            |
| <b>100</b>     | 44 | 17.5                                          |

The above diagram shows the rod side locking and manual releasing non-locking types.

The CBA2 series head side locking type is the same as the standard type.

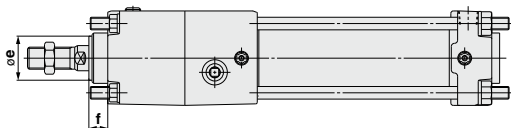
The dimensions of the manual releasing non-locking type are the same as indicated above.

**CNG series**



| Bore size (mm) | FA | M | I <sub>2</sub> | H  | ZZ        |
|----------------|----|---|----------------|----|-----------|
| <b>20</b>      | 6  | 4 | 27             | 39 | 182       |
| <b>25</b>      | 6  | 5 | 32             | 44 | 197       |
| <b>32</b>      | 6  | 5 | 38             | 44 | 200       |
| <b>40</b>      | 7  | 6 | 48             | 54 | 225       |
| Long stroke    |    |   |                |    | <b>ZZ</b> |
|                |    |   |                |    | 190       |
|                |    |   |                |    | 205       |
|                |    |   |                |    | 208       |
|                |    |   |                |    | 234       |

**CNA2 series**



| Bore size (mm) | e  | f    |
|----------------|----|------|
| <b>40</b>      | 28 | 12   |
| <b>50</b>      | 32 | 12.5 |
| <b>63</b>      | 32 | 12.5 |
| <b>80</b>      | 37 | 16.5 |
| <b>100</b>     | 44 | 17   |

\* Other dimensions are the same as the standard type. (The figure shows a type with a rubber bumper.)

\* On the axial foot and rod side flange types, the mounting bracket is wedged and bolted between the cylinder and the scraper at the time of shipment.

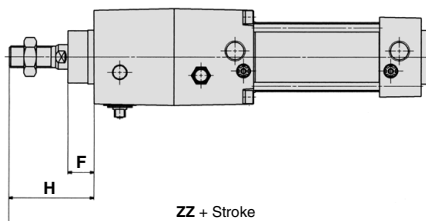
# Made to Order Common Specifications: -XC35: With Coil Scraper



## 39 With Coil Scraper

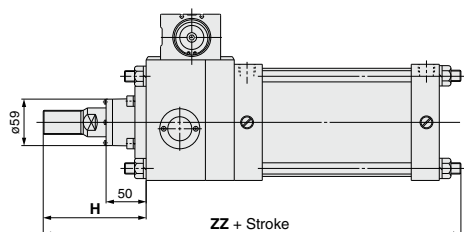
**Dimensions** (Dimensions other than below are the same as standard type.)

### MNB series



| Bore size (mm) | F  | H  | ZZ  |
|----------------|----|----|-----|
| 32             | 16 | 47 | 205 |
| 40             | 18 | 56 | 221 |
| 50             | 19 | 63 | 250 |
| 63             | 19 | 63 | 264 |
| 80             | 25 | 77 | 326 |
| 100            | 25 | 77 | 346 |

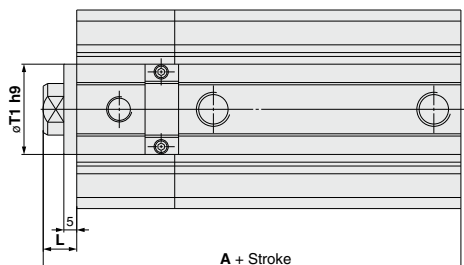
### CLS series



| Bore size (mm) | H   | ZZ    |
|----------------|-----|-------|
| 125            | 120 | 355   |
| 140            | 120 | 355   |
| 160            | 130 | 398.5 |

\* ø180 to ø250: A coil scraper is attached as standard.

### CLQ series



| Bore size (mm) | Stroke range (mm) | A                   |                  | L  | T1 h9                             |
|----------------|-------------------|---------------------|------------------|----|-----------------------------------|
|                |                   | Without auto switch | With auto switch |    |                                   |
| 40             | 10 to 50          | 75.5                | 85.5             | 12 | 28 <sup>0</sup> <sub>-0.052</sub> |
|                | 75,100            | 85.5                |                  |    |                                   |
| 50             | 10 to 50          | 78.5                | 88.5             | 13 | 35 <sup>0</sup> <sub>-0.062</sub> |
|                | 75,100            | 88.5                |                  |    |                                   |
| 63             | 10 to 50          | 87                  | 97               | 13 | 35 <sup>0</sup> <sub>-0.062</sub> |
|                | 75,100            | 97                  |                  |    |                                   |
| 80             | 10 to 50          | 101.5               | 111.5            | 15 | 43 <sup>0</sup> <sub>-0.062</sub> |
|                | 75,100            | 111.5               |                  |    |                                   |
| 100            | 10 to 50          | 120                 | 130              | 17 | 59 <sup>0</sup> <sub>-0.074</sub> |
|                | 75,100            | 130                 |                  |    |                                   |

# Made to Order Common Specifications: With Coil Scraper

Symbol

**-XC35**

## How to Order

**MGPM** **MGPL** **MGPA**

**Bore size** **Port thread type** - **Stroke** **Z - XC35**

With coil scraper

Suffix

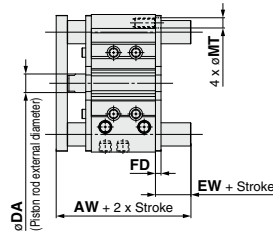
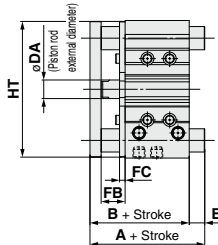
|            |                            |
|------------|----------------------------|
| <b>Nil</b> | With scraper on single end |
| <b>W</b>   | With scrapers on both ends |

## Specifications

| Applicable series          |                 | MGPM                            | MGPL, MGPA           |
|----------------------------|-----------------|---------------------------------|----------------------|
| Bearing type               |                 | Slide bearing                   | Ball bushing bearing |
| Bore size (mm)             |                 | 20, 25, 32, 40, 50, 63, 80, 100 |                      |
| Minimum operating pressure | With single end | 0.12 MPa                        |                      |
|                            | With both ends  | 0.14 MPa                        |                      |

\* Specifications other than above are the same as standard type.

## Dimensions (Dimensions other than below are the same as standard type.)



For cylinder with both sides scraper

### Common Dimensions:

| Bore size (mm) | B     | DA | FB | FC   |            |
|----------------|-------|----|----|------|------------|
|                |       |    |    | MGPM | MGPL, MGPA |
| 20             | 63    | 10 | 18 | 5    | 5          |
| 25             | 63.5  | 10 | 17 | 6    | 5          |
| 32             | 69.5  | 14 | 22 | 6    | 5          |
| 40             | 76    | 14 | 22 | 6    | 5          |
| 50             | 82    | 20 | 26 | 6    | 5          |
| 63             | 87    | 20 | 26 | 6    | 5          |
| 80             | 106.5 | 25 | 34 | 8    | 6          |
| 100            | 126   | 30 | 41 | 9    | 6          |

### With Both Sides Scraper

Dimensions:  
AW, EW, FD, MT (mm)

| Bore size (mm) | AW    | EW | FD | MT  |
|----------------|-------|----|----|-----|
| 20             | 74    | 6  | 5  | 6   |
| 25             | 74.5  | 6  | 5  | 7   |
| 32             | 82.5  | 7  | 6  | 9   |
| 40             | 89    | 7  | 6  | 8.5 |
| 50             | 95    | 7  | 6  | 11  |
| 63             | 100   | 7  | 6  | 11  |
| 80             | 120.5 | 8  | 6  | 14  |
| 100            | 143   | 8  | 9  | 16  |

### MGPM (Slide bearing) A, E, HT Dimensions

| Bore size (mm) | A             |                      |             | E             |                      |             | HT  |
|----------------|---------------|----------------------|-------------|---------------|----------------------|-------------|-----|
|                | 50 st or less | Over 50 st to 200 st | Over 200 st | 50 st or less | Over 50 st to 200 st | Over 200 st |     |
| 20             | 63            | 87.5                 | 120         | 0             | 24.5                 | 57          | 80  |
| 25             | 63.5          | 87.5                 | 119.5       | 0             | 24                   | 56          | 93  |
| 32             | 85            | 103.5                | 139.5       | 15.5          | 34                   | 70          | 110 |
| 40             | 85            | 103.5                | 139.5       | 9             | 27.5                 | 63.5        | 118 |
| 50             | 98.5          | 119.5                | 160.5       | 16.5          | 37.5                 | 78.5        | 146 |
| 63             | 98.5          | 119.5                | 160.5       | 11.5          | 32.5                 | 73.5        | 160 |
| 80             | 114.5         | 141.5                | 190.5       | 8             | 35                   | 84          | 199 |
| 100            | 136.5         | 161.5                | 200.5       | 10.5          | 35.5                 | 74.5        | 236 |

### MGPL, MGPA (Ball bushing bearing) A, E, HT Dimensions

| Bore size (mm) | A             |                      |                       |             | E             |                      |                       |             | HT |
|----------------|---------------|----------------------|-----------------------|-------------|---------------|----------------------|-----------------------|-------------|----|
|                | 30 st or less | Over 30 st to 100 st | Over 100 st to 200 st | Over 200 st | 30 st or less | Over 30 st to 100 st | Over 100 st to 200 st | Over 200 st |    |
| 20             | 69            | 86                   | 110                   | 127.5       | 6             | 23                   | 47                    | 64.5        | 80 |
| 25             | 75.5          | 91.5                 | 110.5                 | 127.5       | 12            | 28                   | 47                    | 64          | 93 |

| Bore size (mm) | A             |                      |                       |             | E             |                      |                       |             | HT  |
|----------------|---------------|----------------------|-----------------------|-------------|---------------|----------------------|-----------------------|-------------|-----|
|                | 50 st or less | Over 50 st to 100 st | Over 100 st to 200 st | Over 200 st | 50 st or less | Over 50 st to 100 st | Over 100 st to 200 st | Over 200 st |     |
| 32             | 89.5          | 106.5                | 126.5                 | 148.5       | 20            | 37                   | 57                    | 79          | 110 |
| 40             | 89.5          | 106.5                | 126.5                 | 148.5       | 13.5          | 30.5                 | 50.5                  | 72.5        | 118 |
| 50             | 101.5         | 122.5                | 142.5                 | 169.5       | 19.5          | 40.5                 | 60.5                  | 87.5        | 146 |
| 63             | 101.5         | 122.5                | 142.5                 | 169.5       | 14.5          | 35.5                 | 55.5                  | 82.5        | 160 |

| Bore size (mm) | A             |                     |                      |             | E             |                     |                      |             | HT  |
|----------------|---------------|---------------------|----------------------|-------------|---------------|---------------------|----------------------|-------------|-----|
|                | 25 st or less | Over 25 st to 50 st | Over 50 st to 200 st | Over 200 st | 25 st or less | Over 25 st to 50 st | Over 50 st to 200 st | Over 200 st |     |
| 80             | 114.5         | 138.5               | 168.5                | 201.5       | 8             | 32                  | 62                   | 95          | 199 |
| 100            | 129.5         | 155.5               | 188.5                | 211.5       | 3.5           | 29.5                | 62.5                 | 85.5        | 236 |

# Made to Order Common Specifications: -XC35: With Coil Scraper



## 39 With Coil Scraper

Symbol

**-XC35**

### How to Order

MGG Standard model no. **-XC35**  
MGC Standard model no. **-XC35**  
With coil scraper ●

**Specifications: Same as the standard type of each series**

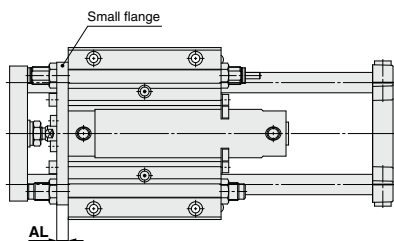
Note 1) Except  $\phi 20$  and  $\phi 25$

Note 2) Coil scrapers are attached to the piston rod and guide rods (front and back).

**Dimensions** (Dimensions other than below and the MGG□B series ( $\phi 63$  to  $\phi 100$ ) are the same as standard type.)

### MGG□B series

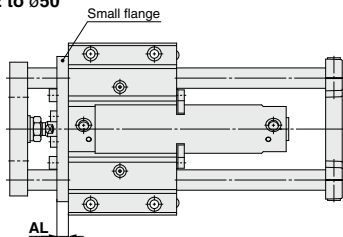
$\phi 32$  to  $\phi 50$



| (mm)           |    |
|----------------|----|
| Bore size (mm) | AL |
| 32             | 9  |
| 40             | 12 |
| 50             | 12 |

### MGC□B series

$\phi 32$  to  $\phi 50$



| (mm)           |    |
|----------------|----|
| Bore size (mm) | AL |
| 32             | 9  |
| 40             | 12 |
| 50             | 12 |

# Made to Order Common Specifications:

## -XC36: With Boss in Rod Side

## -XC37: Larger Throttle Dia. of Connection Port



### 40 With Boss in Rod Side

Symbol

**-XC36**

Cylinder with boss in rod side

#### Applicable Series

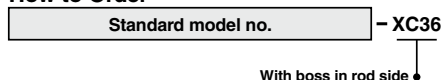
| Series      | Description                                    | Model  | Action                              | Vol. no. (for std model) |
|-------------|------------------------------------------------|--------|-------------------------------------|--------------------------|
| <b>CQS</b>  | Compact cylinder                               | CQS    | Double acting, Single rod           | ②-1 From P. 693          |
|             |                                                | CQSW   | Double acting, Double rod           |                          |
| <b>CQ2</b>  | Compact cylinder                               | CQ2-Z  | Double acting, Single rod           | ②-1 From P. 773          |
|             |                                                |        | Single acting (Spring return/bleed) |                          |
|             |                                                | CQ2W-Z | Double acting, Double rod           |                          |
|             |                                                |        | Double acting, Double rod           |                          |
| <b>CQP2</b> | Axial piping type<br>(Centralized piping type) | CQP2   | Double acting, Single rod           |                          |
|             |                                                |        | Single acting (Spring return/bleed) |                          |

Note 1) For the double rod type, it comes with boss for both sides.

Note 2) Except with bracket

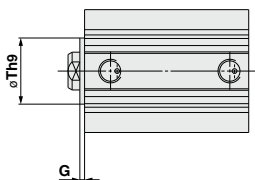
Note 3) ø125 or more is excluded in CQ2.

#### How to Order



Specifications: Same as standard type

#### Dimensions



| Series         | <b>CQ2</b>                        |     | <b>CQS</b>                        |     |
|----------------|-----------------------------------|-----|-----------------------------------|-----|
|                | Th9                               | G   | Th9                               | G   |
| Bore size (mm) |                                   |     |                                   |     |
| 12             | 15 <sup>0</sup> <sub>-0.043</sub> | 1.5 | 15 <sup>0</sup> <sub>-0.043</sub> | 1.5 |
| 16             | 20 <sup>0</sup> <sub>-0.052</sub> | 1.5 | 20 <sup>0</sup> <sub>-0.052</sub> | 1.5 |
| 20             | 13 <sup>0</sup> <sub>-0.043</sub> | 2   | 13 <sup>0</sup> <sub>-0.043</sub> | 2   |
| 25             | 15 <sup>0</sup> <sub>-0.043</sub> | 2   | 15 <sup>0</sup> <sub>-0.043</sub> | 2   |
| 32             | 21 <sup>0</sup> <sub>-0.052</sub> | 2   | —                                 | —   |
| 40             | 28 <sup>0</sup> <sub>-0.052</sub> | 2   | —                                 | —   |
| 50             | 35 <sup>0</sup> <sub>-0.062</sub> | 2   | —                                 | —   |
| 63             | 35 <sup>0</sup> <sub>-0.062</sub> | 2   | —                                 | —   |
| 80             | 43 <sup>0</sup> <sub>-0.062</sub> | 2   | —                                 | —   |
| 100            | 59 <sup>0</sup> <sub>-0.074</sub> | 2   | —                                 | —   |

\* Dimensions except mentioned above are the same as standard type.

### 41 Larger Throttle Diameter of Connection Port

Symbol

**-XC37**

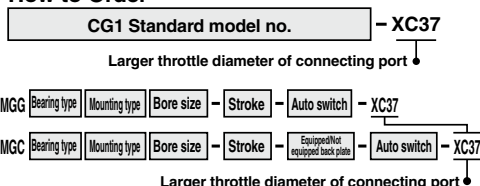
This is a cylinder with a piping port larger than the standard type.

#### Applicable Series

| Series     | Description     | Model  | Action                    | Vol. no. (for std model) |
|------------|-----------------|--------|---------------------------|--------------------------|
| <b>CG1</b> | Air cylinder    | CG1-Z  | Double acting, Single rod | ②-1 From P. 292          |
|            | Double rod type | CG1W-Z | Double acting, Double rod |                          |
| <b>MGG</b> | Guide Cylinder  | MGG    | Double acting             | ②-2 From P. 538          |
| <b>MGC</b> | Guide Cylinder  | MGC    | Double acting             | ②-2 From P. 578          |

Note 1) Except ø80, 100

#### How to Order



Specifications: Same as standard type

#### Dimensions (Throttle diameter of connection port)

Dimensions other than below are the same as standard type.

| <b>CG1 Series</b> |                    | (mm)             |               |
|-------------------|--------------------|------------------|---------------|
| Bore size (mm)    | With rubber bumper | With air cushion | Standard type |
| 20                | 5                  | 3                | (2.1)         |
| 25                | 5                  | 3.5              | (2.5)         |
| 32                | 6                  | 6                | (3.3)         |
| 40                | 7                  | 7                | (3.9)         |
| 50                | 9                  | 9                | (4.5)         |
| 63                | 9                  | 9                | (5.7)         |

\* Use external stopper, etc. not to be damaged with cylinder cover directly if exceeding the range of kinetic energy absorption.

#### MGG Series (mm)

| Bore size (mm) | Throttle dia. (ø) |
|----------------|-------------------|
| 20             | 5                 |
| 25             | 5                 |
| 32             | 6                 |
| 40             | 7                 |
| 50             | 9                 |
| 63             | 9                 |

#### MGC Series (mm)

| Bore size (mm) | Throttle dia. (ø) |
|----------------|-------------------|
| 20             | 3                 |
| 25             | 3.5               |
| 32             | 6                 |
| 40             | 7                 |
| 50             | 9                 |

# Made to Order Common Specifications: -XC38: Vacuum (Rod through-hole)



## 42 Vacuum (Rod through-hole)

Symbol

-XC38

Through-hole of hollow rod can be used as the passage of vacuum air.

### Applicable Series

| Series | Description                | Model  | Action                    | Note                                | Vol. no. (for std model) |
|--------|----------------------------|--------|---------------------------|-------------------------------------|--------------------------|
| CM2    | Air cylinder/Standard type | CM2W-Z | Double acting, Double rod |                                     | ②-1 From P. 193          |
| MTS    | Precision cylinder         | MTS    | Double acting, Single rod | Available only for ø8 female thread | ②-2 From P. 384          |

### How to Order

CM2 Standard model no.

-XC38

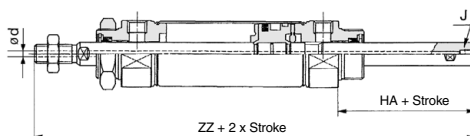
Vacuum (Rod through-hole)



### Construction/Dimensions

(Other dimensions are the same as standard.)

#### CM2W series



| Bore size (mm) | d | J        | HA | ZZ  |
|----------------|---|----------|----|-----|
| 20             | 3 | M5 x 0.8 | 32 | 135 |
| 25             | 3 | M5 x 0.8 | 32 | 139 |
| 32             | 3 | M5 x 0.8 | 32 | 141 |
| 40             | 4 | Rc1/8    | 36 | 174 |

Specifications: Same as standard type

### MTS8 - Stroke (P) -XC38

Axial piping type

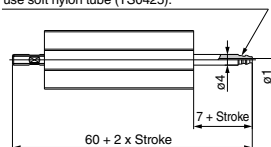
Vacuum (Rod through-hole)



### Dimensions

#### MTS8 series

Use ø4/ø2.5 urethane tube (TU0425) or use soft nylon tube (TS0425).



### ⚠ Caution

#### 1. Blow air for through-hole.

Flush the through-hole which is a passage for air pressure and vacuum to prevent dust.

### Specifications

|                       |                                         |
|-----------------------|-----------------------------------------|
| Bore size (mm)        | 8                                       |
| Piping direction      | Standard piping type, Axial piping type |
| Rod end configuration | Female thread                           |

# Made to Order Common Specifications: -XC42: Built-in Shock Absorber in Head Cover Side



## 43 Built-in Shock Absorber in Head Cover Side

Symbol

-XC42

A type of the CG1 series air cylinder in which a special shock absorber is enclosed in the head portion so that its ability to absorb energy during the retraction of the cylinder is considerably greater than the current air cushion.

### Applicable Series

| Series | Description  | Model | Action                    | Note                                       | Vol. no. (for std model) |
|--------|--------------|-------|---------------------------|--------------------------------------------|--------------------------|
| CG1    | Air cylinder | CG1-Z | Double acting, Single rod | Except head side trunnion and clevis types | ②-1 From P. 292          |

### How to Order

CG1 Standard model no. -XC42

Built-in shock absorber in head cover side

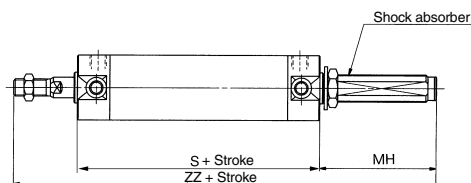


### Specifications

|                           |                       |
|---------------------------|-----------------------|
| Piston speed              | 50 to 1000 mm/s       |
| Additional specifications | Same as standard type |

\* On the axial foot and head side flange types, the bracket is mounted at the time of shipment. Others are shipped together (but not assembled).

### Construction/Dimensions (Other dimensions are the same as CG1 long stroke cylinder.)



The shock absorber service life is different from that of the CG1 cylinder. Refer to the RB series Specific Product Precautions for the replacement period.

| (mm)      |              |                |     |      |       |
|-----------|--------------|----------------|-----|------|-------|
| Bore (mm) | Stroke range | Shock absorber | S   | MH   | ZZ    |
| 20        | 10 to 350    | RBAC0806       | 77  | 23.5 | 135.5 |
| 25        | 10 to 400    | RBAC1007       | 77  | 31   | 148   |
| 32        | 15 to 450    | RBAC1412       | 79  | 55   | 174   |
| 40        | 15 to 800    | RBAC2015       | 87  | 62.5 | 199.5 |
| 50        | 15 to 1200   | RBAC2015       | 102 | 55.5 | 215.5 |
| 63        | 25 to 1200   | RBAC2725       | 102 | 92.5 | 252.5 |

\* Shock absorbers are consumables.

The specifications for shock absorbers are the same as RBC□□□□, but use RBAC□□□□ when an external pressure is applied such as for a built-in cylinder.

The maximum absorption energy may decrease depending on the operating conditions.

# Made to Order Common Specifications:

## -XC51: With Hose Nipple

## -XC52: Mounting Nut with Set Screw



### 44 With Hose Nipple

Symbol

**-XC51**

The one with hose nipple attached in order to save time for assembly at the time of shipment.

#### Applicable Series

| Series | Description                         | Model    | Action                                    | Vol. no. (for std model) |
|--------|-------------------------------------|----------|-------------------------------------------|--------------------------|
| CJ2    | Air cylinder                        | CJ2-Z    | Double acting, Single rod                 | ②-1 From P. 46           |
|        |                                     | CJ2W-Z   | Single acting (Spring return), Double rod |                          |
|        | Non-rotating rod type               | CJ2K-Z   | Double acting, Single rod                 |                          |
|        |                                     | CJ2K-Z   | Single acting (Spring return), Double rod |                          |
|        | With speed controller               | CJ2Z-Z   | Double acting, Single rod                 |                          |
|        |                                     | CJ2Z-W-Z | Double acting, Double rod                 |                          |
|        | Low friction type                   | CJ2□Q    | Double acting, Single rod                 |                          |
|        |                                     | CJ2□Q    | Double acting, Double rod                 |                          |
|        | Direct mount type                   | CJ2RA-Z  | Double acting, Single rod                 |                          |
|        |                                     | CJ2RA-Z  | Single acting (Spring return), Double rod |                          |
|        | Non-rotating rod, Direct mount type | CJ2RK-Z  | Double acting, Single rod                 |                          |
|        |                                     | CJ2RK-Z  | Single acting (Spring return), Double rod |                          |

### 45 Mounting Nut with Set Screw

Symbol

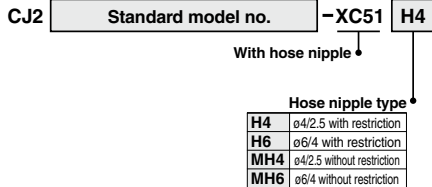
**-XC52**

In order to prevent the mounting nut from being loosen, set screw should be tighten from the two directions to fix the mounting nut.

#### Applicable Series

| Series | Description             | Action  | Action                                    | Vol. no. (for std model) |
|--------|-------------------------|---------|-------------------------------------------|--------------------------|
| CM2    | Air cylinder            | CM2-Z   | Double acting, Single rod                 | ②-1 From P. 172          |
|        |                         | CM2W-Z  | Single acting (Spring return), Double rod |                          |
|        | Non-rotating rod type   | CM2K-Z  | Double acting, Double rod                 |                          |
|        |                         | CM2K-Z  | Double acting, Single rod                 |                          |
|        | Centralized piping type | CM2□P-Z | Double acting, Double rod                 |                          |
|        |                         | CM2□P-Z | Double acting, Single rod                 |                          |
|        | End lock cylinder       | CBM2    | Double acting, Single rod                 |                          |
|        | Smooth cylinder         | CM2Y-Z  | Double acting, Single rod                 |                          |
|        | Low speed cylinder      | CM2X-Z  | Double acting, Single rod                 |                          |
|        |                         | CM2X-Z  | Double acting, Double rod                 |                          |

#### How to Order



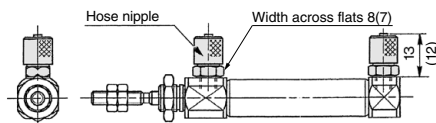
Specifications: Same as standard type

#### Applicable Hose Nipple Type

| Symbol     | Applicable bore size (mm) | Function                    | Hose nipple part no. |
|------------|---------------------------|-----------------------------|----------------------|
| <b>H4</b>  | ø4/2.5                    | With a fixed orifice (ø0.8) | CJ-5H-4              |
| <b>H6</b>  | ø6/4                      |                             | CJ-5H-6              |
| <b>MH4</b> | ø4/2.5                    | Without fixed orifice       | M-5H-4               |
| <b>MH6</b> | ø6/4                      |                             | M-5H-6               |

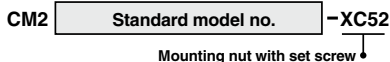
#### Dimensions

(Dimensions other than below are the same as standard type.)



\* The above figure shows the ø6/4 hose nipple mounting dimensions. The dimensions in ( ) show those for the ø4/2.5 hose nipple.

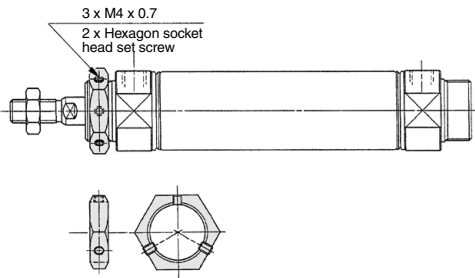
#### How to Order



Specifications: Same as standard type

#### Dimensions

(Dimensions other than below are the same as standard type.)



# Made to Order Common Specifications: -XC56: With Knock Pin Holes



## 46 With Knock Pin Holes

Symbol  
**-XC56**

Cylinder with knock positioning pin hole.

### Applicable Series

| Series      | Description                           | Model              | Action                          | Note                | Vol. no. (for std. model) |
|-------------|---------------------------------------|--------------------|---------------------------------|---------------------|---------------------------|
| <b>MGPW</b> | Compact guide cylinder                | MGPW               | Double acting                   |                     | ②-2 From P. 498           |
| <b>MGG</b>  | Guide cylinder                        | MGG <sup>M</sup> B | Double acting                   | For basic type only | ②-2 From P. 538           |
| <b>MGC</b>  | Guide cylinder                        | MGC <sup>M</sup> B | Double acting                   | For basic type only | ②-2 From P. 578           |
| <b>MGQ</b>  | Compact guide cylinder                | MGQ                | Double acting                   | For basic type only | ②-2 From P. 520           |
| <b>MY</b>   | Mechanically jointed rodless cylinder | MY1H-Z             | Linear guide                    |                     |                           |
|             |                                       | MY1C               | Cam follower guide              |                     | ②-1 From P. 1208          |
|             |                                       | MY1H               | Linear guide                    |                     |                           |
|             |                                       | MY2H               | Linear guide type (Single axis) |                     |                           |
|             |                                       | MY2HT              | Linear guide type (Double axis) |                     | ②-1 From P. 1388          |

### How to Order

Standard model no.

**-XC56**

With knock pin holes

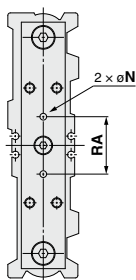
Specifications: Same as standard type

### Dimensions (Dimensions other than below are the same as standard type.)

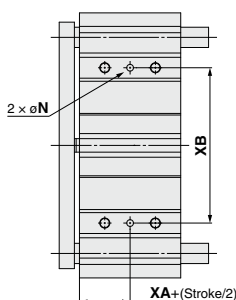
#### MGPW series

ø20 to ø63

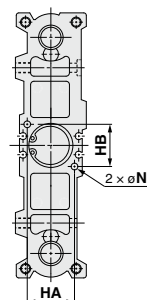
Upper view of plate



Side view (lower surface) of cylinder



Bottom view of cylinder



#### MGPW Series

(mm)

| Bore size (mm) | HA      | HB      | N                                             | RA      | XA | XB       |
|----------------|---------|---------|-----------------------------------------------|---------|----|----------|
| <b>20</b>      | 25±0.02 | 25±0.02 | 3 <sup>H7</sup> $+0.010$ <sub>0</sub> depth 6 | 28±0.02 | 17 | 76±0.03  |
| <b>25</b>      | 28±0.02 | 28±0.02 | 4 <sup>H7</sup> $+0.012$ <sub>0</sub> depth 6 | 34±0.02 | 18 | 92±0.03  |
| <b>32</b>      | 34±0.02 | 34±0.02 | 4 <sup>H7</sup> $+0.012$ <sub>0</sub> depth 6 | 42±0.02 | 19 | 112±0.03 |
| <b>40</b>      | 38±0.02 | 38±0.02 | 4 <sup>H7</sup> $+0.012$ <sub>0</sub> depth 6 | 50±0.02 | 21 | 128±0.04 |
| <b>50</b>      | 49±0.02 | 49±0.02 | 5 <sup>H7</sup> $+0.012$ <sub>0</sub> depth 8 | 66±0.03 | 21 | 168±0.04 |
| <b>63</b>      | 58±0.03 | 58±0.03 | 5 <sup>H7</sup> $+0.012$ <sub>0</sub> depth 8 | 80±0.03 | 25 | 196±0.04 |

-XC

# Made to Order Common Specifications: -XC56: With Knock Pin Holes

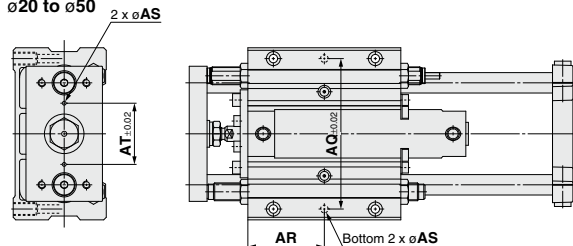


## 46 With Knock Pin Holes

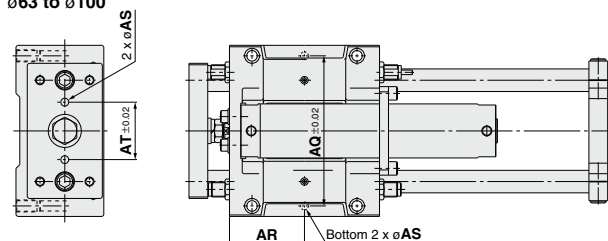
**Dimensions** (Dimensions other than below are the same as standard type.)

### MGJ series

ø20 to ø50

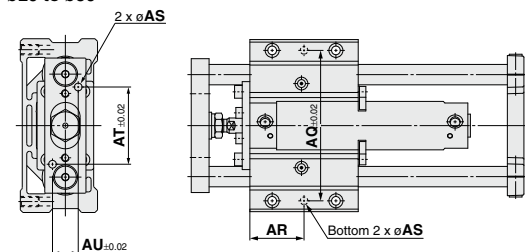


ø63 to ø100

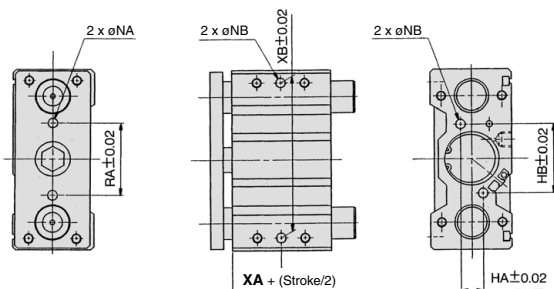


### MGC series

ø20 to ø50



### MGQ series



### MGJ Series

(mm)

| Bore size (mm) | AQ  | AR  | AS                                          | AT  |
|----------------|-----|-----|---------------------------------------------|-----|
| 20             | 92  | 45  | 5 <sup>+0.012</sup> <sub>-0</sub> depth 6   | 36  |
| 25             | 113 | 50  | 6 <sup>+0.012</sup> <sub>-0</sub> depth 8   | 45  |
| 32             | 118 | 60  | 6 <sup>+0.012</sup> <sub>-0</sub> depth 8   | 48  |
| 40             | 150 | 70  | 8 <sup>+0.015</sup> <sub>-0</sub> depth 11  | 56  |
| 50             | 170 | 85  | 10 <sup>+0.015</sup> <sub>-0</sub> depth 13 | 68  |
| 63             | 200 | 100 | 10 <sup>+0.015</sup> <sub>-0</sub> depth 13 | 74  |
| 80             | 234 | 115 | 12 <sup>+0.018</sup> <sub>-0</sub> depth 15 | 92  |
| 100            | 274 | 140 | 12 <sup>+0.018</sup> <sub>-0</sub> depth 15 | 106 |

### MGC Series

(mm)

| Bore size (mm) | AQ  | AR   | AS                                         | AT | AU |
|----------------|-----|------|--------------------------------------------|----|----|
| 20             | 90  | 37.5 | 5 <sup>+0.012</sup> <sub>-0</sub> depth 6  | 45 | 15 |
| 25             | 103 | 40   | 6 <sup>+0.012</sup> <sub>-0</sub> depth 8  | 55 | 20 |
| 32             | 118 | 42.5 | 6 <sup>+0.012</sup> <sub>-0</sub> depth 8  | 60 | 20 |
| 40             | 140 | 47.5 | 8 <sup>+0.015</sup> <sub>-0</sub> depth 11 | 70 | 22 |
| 50             | 170 | 65   | 8 <sup>+0.015</sup> <sub>-0</sub> depth 11 | 85 | 30 |

### MGQ Series

(mm)

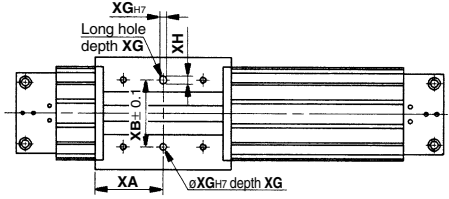
| Bore size (mm) | HA | HB  | NA                                         | NB                                          | RA  | XA   | XB  |
|----------------|----|-----|--------------------------------------------|---------------------------------------------|-----|------|-----|
| 12             | 0  | 19  | 3 <sup>+0.010</sup> <sub>-0</sub> depth 4  | 3 <sup>+0.010</sup> <sub>-0</sub> depth 4   | 21  | 14.5 | 50  |
| 16             | 7  | 22  | 3 <sup>+0.010</sup> <sub>-0</sub> depth 4  | 3 <sup>+0.010</sup> <sub>-0</sub> depth 4   | 22  | 16.5 | 54  |
| 20             | 9  | 26  | 4 <sup>+0.010</sup> <sub>-0</sub> depth 5  | 4 <sup>+0.010</sup> <sub>-0</sub> depth 5   | 28  | 18   | 64  |
| 25             | 12 | 30  | 4 <sup>+0.010</sup> <sub>-0</sub> depth 5  | 4 <sup>+0.010</sup> <sub>-0</sub> depth 5   | 34  | 19   | 76  |
| 32             | 14 | 44  | 6 <sup>+0.012</sup> <sub>-0</sub> through  | 6 <sup>+0.012</sup> <sub>-0</sub> depth 8   | 46  | 18.5 | 100 |
| 40             | 14 | 54  | 6 <sup>+0.012</sup> <sub>-0</sub> through  | 6 <sup>+0.012</sup> <sub>-0</sub> depth 8   | 50  | 22   | 110 |
| 50             | 20 | 62  | 8 <sup>+0.015</sup> <sub>-0</sub> through  | 8 <sup>+0.015</sup> <sub>-0</sub> depth 11  | 56  | 22   | 124 |
| 63             | 30 | 74  | 8 <sup>+0.015</sup> <sub>-0</sub> through  | 8 <sup>+0.015</sup> <sub>-0</sub> depth 11  | 66  | 24   | 132 |
| 80             | 36 | 94  | 10 <sup>+0.018</sup> <sub>-0</sub> through | 10 <sup>+0.018</sup> <sub>-0</sub> depth 13 | 84  | 28.5 | 166 |
| 100            | 40 | 116 | 10 <sup>+0.018</sup> <sub>-0</sub> through | 10 <sup>+0.018</sup> <sub>-0</sub> depth 13 | 110 | 32.5 | 200 |

Symbol

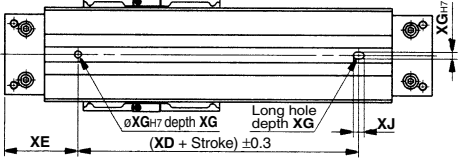
-XC56

**Dimensions** (Dimensions other than below are the same as standard type.)

**MY1C series**



Mounting surface of a workpiece for the slide table



Mounting surface of cylinder tube

(mm)

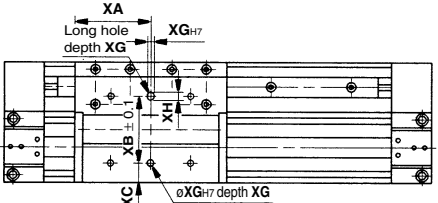
| Bore size (mm) | XA  | XB  | XD  | XE | XG | XH | XJ |
|----------------|-----|-----|-----|----|----|----|----|
| 16             | 40  | 40  | 80  | 40 | 4  | 5  | 9  |
| 20             | 50  | 40  | 100 | 50 | 4  | 5  | 9  |
| 25             | 51  | 50  | 110 | 55 | 5  | 6  | 10 |
| 32             | 66  | 60  | 140 | 70 | 6  | 7  | 11 |
| 40             | 81  | 80  | 180 | 80 | 6  | 7  | 11 |
| 50             | 100 | 90  | 230 | 85 | 8  | 9  | 13 |
| 63             | 115 | 110 | 280 | 90 | 10 | 10 | 15 |

**MY1H-Z series**

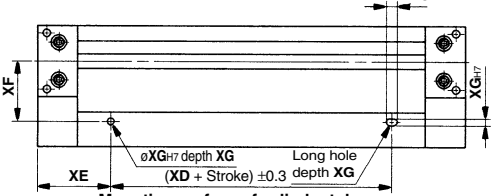
ø25, ø32, ø40

**MY1H series**

ø10, ø16, ø20



Mounting surface of a workpiece for the slide table



Mounting surface of cylinder tube

(mm)

| Bore size (mm) | XA | XB | XC   | XD  | XE |
|----------------|----|----|------|-----|----|
| 10             | 25 | 33 | 3.5  | 70  | 20 |
| 16             | 40 | 40 | 7.5  | 80  | 40 |
| 20             | 50 | 40 | 14.5 | 100 | 50 |
| 25             | 57 | 50 | 14.5 | 110 | 55 |
| 32             | 70 | 60 | 15   | 140 | 70 |
| 40             | 85 | 80 | 20.5 | 180 | 80 |

| Bore size (mm) | XF   | XG | XH | XJ |
|----------------|------|----|----|----|
| 10             | 21.5 | 3  | 4  | 5  |
| 16             | 30   | 4  | 5  | 7  |
| 20             | 39   | 4  | 5  | 7  |
| 25             | 45   | 5  | 6  | 8  |
| 32             | 60   | 6  | 7  | 9  |
| 40             | 60.5 | 6  | 7  | 9  |

# Made to Order Common Specifications: -XC56: With Knock Pin Holes



## 46 With Knock Pin Holes

Symbol

-XC56

**Dimensions** (Dimensions other than below are the same as standard type.)

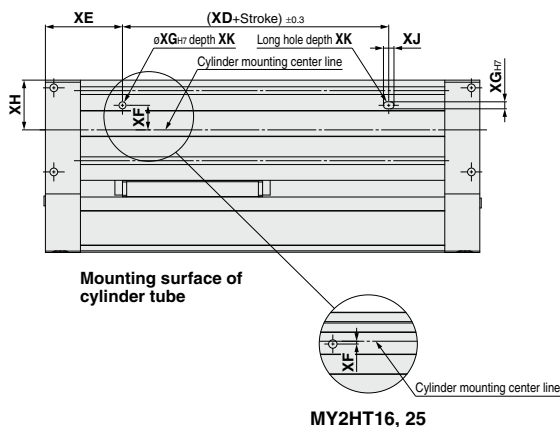
### MY2H series

ø16, ø25, ø40

### MY2HT series

ø16, ø25, ø40

\* The workpiece mounting surface of the slide table supports knock pin holes as standard.



### MY2H series

(mm)

| Bore size (mm) | XD  | XE | XF   | XG | XH   | XJ  | XK |
|----------------|-----|----|------|----|------|-----|----|
| 16             | 80  | 40 | 11.5 | 4  | 23.5 | 6   | 5  |
| 25             | 100 | 55 | 17.5 | 5  | 35.5 | 7.5 | 5  |
| 40             | 170 | 80 | 25.5 | 6  | 45.5 | 9   | 8  |

### MY2HT series

(mm)

| Bore size (mm) | XD  | XE | XF  | XG | XH | XJ  | XK |
|----------------|-----|----|-----|----|----|-----|----|
| 16             | 80  | 40 | 3.5 | 5  | 43 | 7.5 | 5  |
| 25             | 100 | 55 | 2   | 6  | 61 | 9   | 8  |
| 40             | 170 | 80 | 3   | 8  | 75 | 12  | 12 |



# Made to Order Common Specifications: -XC57: Rodless Cylinder with Floating Joint



## 47 Rodless Cylinder with Floating Joint

A special floating joint has been added to the CY3B series, which reduces the amount of labor that is required for connecting the cylinder to the guide of another shaft (load side).

The bolts used for joining the floating joint to the load can be secured either from above or below. (CY1B with a  $\phi 6$  or  $\phi 10$  bore must be secured from above.)

### Applicable Series

| Series | Description                           | Model | Action        | Vol. no. (for std model) |
|--------|---------------------------------------|-------|---------------|--------------------------|
| CY3    | Magnetically coupled rodless cylinder | CY3B  | Double acting | ②-1 From P. 1468         |
|        |                                       | CY3R  | Double acting |                          |
| REA    | Sine rodless cylinder                 | REA   | Double acting | ②-3 From P. 25           |
|        |                                       | REAR  | Double acting |                          |
| REB    | Sine rodless cylinder                 | REBR  | Double acting |                          |

### How to Order

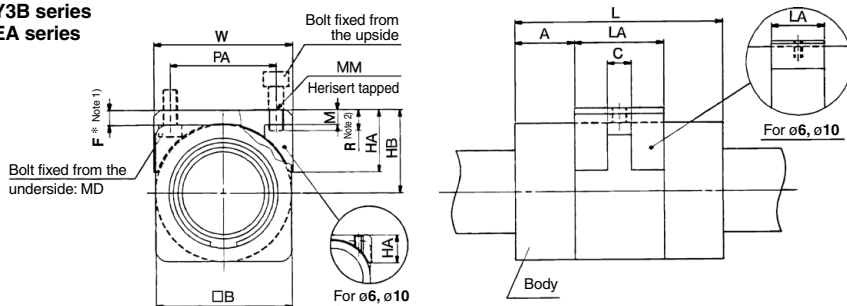
|                                      |       |
|--------------------------------------|-------|
| Standard model no.                   | -XC57 |
| Rodless cylinder with floating joint |       |

Note) The body of this cylinder is for connecting to the floating joint so that it cannot be connected to the body of the standard type. Therefore, please contact SMC for this.

Specifications: Same as standard type

### Construction/Dimensions (Other dimensions are the same as standard.)

#### CY3B series REA series



| Bore size (mm) | A    | □B  | C   | F <sup>(1)</sup> | HA   | HB   | L   | LA | MM            | MD | M  | PA | R <sup>(2)</sup> | W   |
|----------------|------|-----|-----|------------------|------|------|-----|----|---------------|----|----|----|------------------|-----|
| 6              | 10   | 17  | —   | 2.5              | 6.3  | 11   | 35  | 15 | M3 x 0.5 x 3L | —  | —  | 12 | —                | 18  |
| 10             | 10   | 25  | —   | 2.5              | 9.5  | 15   | 38  | 18 | M3 x 0.5 x 3L | —  | —  | 17 | —                | 26  |
| 15             | 16   | 35  | 6.5 | 5.5              | 16.5 | 23   | 57  | 25 | M4 x 0.7      | M3 | 4  | 25 | 6                | 36  |
| 20             | 18   | 36  | 6.5 | 5.5              | 17   | 23.5 | 66  | 30 | M4 x 0.7      | M3 | 4  | 27 | 6                | 37  |
| 25             | 20   | 46  | 8.0 | 5.5              | 21   | 28.5 | 70  | 30 | M5 x 0.8      | M4 | 5  | 36 | 7                | 47  |
| 32             | 22.5 | 60  | 9.5 | 6.0              | 27.5 | 36   | 80  | 35 | M6 x 1.0      | M5 | 6  | 47 | 8                | 61  |
| 40             | 26   | 70  | 9.5 | 6.0              | 28.5 | 41   | 92  | 40 | M6 x 1.0      | M5 | 6  | 55 | 8                | 71  |
| 50             | 35   | 86  | 11  | 6.0              | 35   | 49   | 110 | 40 | M8 x 1.25     | M6 | 8  | 65 | 11               | 87  |
| 63             | 36   | 100 | 18  | 7.0              | 42   | 57   | 122 | 50 | M8 x 1.25     | M6 | 10 | 80 | 11               | 101 |

Note 1) With dimension F<sup>\*</sup>, the amount of clearance between the body and the floating joint is 1 mm. The self weight deflection of the cylinder tube is not taken into account. Before operating the cylinder, determine the proper value by taking the amount of self weight deflection and the amount of off-centering from the other shaft into consideration.

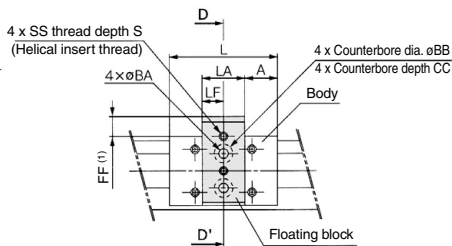
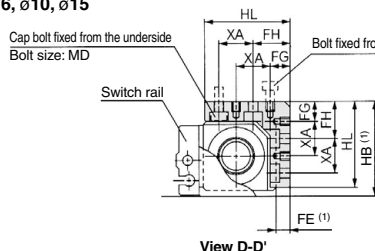
Note 2) When the bolts are secured from above, be aware that if the cylinder is operated when dimension R (on  $\phi 6$  and  $\phi 10$ , 3 mm or over) is exceeded, the end of the bolt could come in contact with the body, without being able to achieve the floating effect.

## Construction/Dimensions

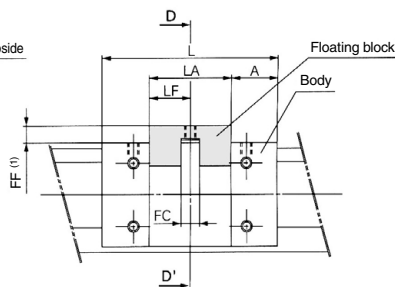
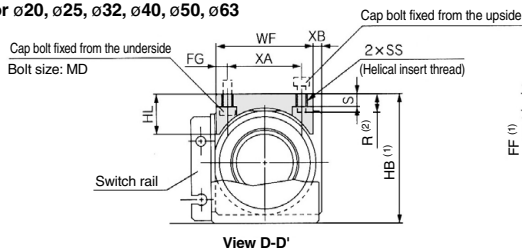
### CY3R series

### REAR, REBR series

For  $\phi 6$ ,  $\phi 10$ ,  $\phi 15$



For  $\phi 20$ ,  $\phi 25$ ,  $\phi 32$ ,  $\phi 40$ ,  $\phi 50$ ,  $\phi 63$



| Bore size (mm) | A    | BA  | BB  | CC  | FC  | FE <sup>(1)</sup> | FF <sup>(1)</sup> | FG  | FH   | HB <sup>(1)</sup> | HL   | L   | LA | LF   | MD | R <sup>(2)</sup> | S   | SS        | WF | XA | XB |
|----------------|------|-----|-----|-----|-----|-------------------|-------------------|-----|------|-------------------|------|-----|----|------|----|------------------|-----|-----------|----|----|----|
| 6              | 9.5  | 3.4 | 6.5 | 3.3 | —   | 5                 | 7                 | 5.5 | 10.5 | 26                | 23   | 34  | 15 | 7.5  | M3 | —                | 3.5 | M3 x 0.5  | —  | 10 | —  |
| 10             | 11.5 | 3.4 | 6.5 | 3.3 | —   | 5                 | 7                 | 7   | 13   | 33                | 30   | 38  | 15 | 7.5  | M3 | —                | 3.5 | M3 x 0.5  | —  | 12 | —  |
| 15             | 18   | 4.5 | 8   | 4.4 | —   | 4.5               | 6.5               | 7.5 | 14.5 | 38.5              | 35.5 | 53  | 17 | 8.5  | M4 | —                | 4.5 | M4 x 0.7  | —  | 14 | —  |
| 20             | 16.5 | —   | —   | —   | 6.5 | —                 | 6                 | 4   | —    | 45                | 14   | 62  | 29 | 14.5 | M3 | 7                | 4.5 | M4 x 0.7  | 34 | 26 | 3  |
| 25             | 20.5 | —   | —   | —   | 8   | —                 | 7                 | 4   | —    | 51                | 17   | 70  | 29 | 14.5 | M4 | 8                | 5.5 | M5 x 0.8  | 39 | 31 | 3  |
| 32             | 21   | —   | —   | —   | 9.5 | —                 | 7.5               | 4.5 | —    | 62.5              | 22   | 76  | 34 | 17   | M5 | 10               | 6.5 | M6 x 1    | 50 | 41 | 3  |
| 40             | 25.5 | —   | —   | —   | 9.5 | —                 | 7.5               | 7.5 | —    | 74.5              | 28   | 90  | 39 | 19.5 | M5 | 10               | 6.5 | M6 x 1    | 60 | 45 | 3  |
| 50             | 35.5 | —   | —   | —   | 11  | —                 | 7.5               | 9   | —    | 92.5              | 38   | 110 | 39 | 19.5 | M6 | 15               | 10  | M8 x 1.25 | 78 | 60 | 3  |
| 63             | 34.5 | —   | —   | —   | 18  | —                 | 7.5               | 10  | —    | 104.5             | 39   | 118 | 49 | 24.5 | M6 | 15               | 10  | M8 x 1.25 | 90 | 70 | 3  |

Note 1) With dimension FE, FF, and HB, the amount of clearance between the body and the floating joint is 1 mm. The self weight deflection of the cylinder tube is not taken into account. Before operating the cylinder, determine the proper value by taking the amount of self weight deflection and the amount of off-centering with the other shaft into consideration.

Note 2) When the bolts are secured from above, be aware that if the cylinder is operated when dimension R is exceeded, the end of the bolt could come in contact with the body, without being able to achieve the floating effect.

# Made to Order Common Specifications: -XC65: Made of Stainless Steel (Combination of XC7 and XC68)



## 48 Made of Stainless Steel (Combination of XC7 and XC68)

Symbol

-XC65

Suitable for the cases it is likely to generate rust by being immersed in the water and corrosion.

### Applicable Series

| Series | Description     | Model  | Action                    | Note                        | Vol. no. (for std model) |
|--------|-----------------|--------|---------------------------|-----------------------------|--------------------------|
| MB     | Air cylinder    | MB-Z   | Double acting, Single rod | Except ø125                 | ②-1 From P.392           |
|        |                 | MBW-Z  | Double acting, Double rod | Except ø125 and air cushion |                          |
|        | Smooth cylinder | MBY-Z  | Double acting, Single rod |                             | ②-3 From P.183           |
| MB1    | Air cylinder    | MB1-Z  | Double acting, Single rod | Except ø125                 | ②-1 From P.440           |
|        |                 | MB1W-Z | Double acting, Double rod | Except ø125                 |                          |
| CA2    | Smooth cylinder | CA2Y-Z | Double acting, Single rod |                             | ②-1 From P.470           |

### Specifications

|                                                         |                                                                                        |
|---------------------------------------------------------|----------------------------------------------------------------------------------------|
| Parts changed to stainless steel                        | Tie-rod, Tie-rod nut, Cushion valve, Piston rod (with hard chrome plated), Rod end nut |
| Maximum manufacturable stroke (mm)                      | Double acting, Single rod: 1600<br>Double acting single rod with rod boot: 1000        |
| Specifications other than above and external dimensions | Same as standard type                                                                  |

### How to Order

Standard model no.

- XC65

Made of stainless steel  
(Combination of XC7 and XC68)

# Made to Order Common Specifications:

- XC67: Dust Seal Band NBR Lining Specifications
- XC68: Made of Stainless Steel (With Hard Chrome Plated Piston Rod)



## 49 Dust Seal Band NBR Lining Specifications

Symbol

-XC67

The standard vinyl chloride lining specification is changed to NBR lining

Oil resistance and peeling resistance are improved.

Note) Please consult with SMC for specific details on oil resistance.

MY1 **B** **Bore size** - **Stroke** **Stroke adjustment unit** - **Auto switch** **Suffix** -XC67

Series: Bore size

|             |                                      | 10 | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|-------------|--------------------------------------|----|----|----|----|----|----|----|----|----|-----|
| <b>B</b>    | Basic type                           | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●   |
| <b>M(W)</b> | Slide bearing type (With cover)      | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●   |
| <b>C(W)</b> | Cam follower guide type (With cover) | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●   |
| <b>H</b>    | Linear guide type                    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●   |
| <b>HT</b>   | High rigidity/Linear guide type      | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●   |

ø10, ø80 and ø100 are available only in stainless steel plate and the NBR lining specification is not available.

Example) MY1B40G-300L-Z73-XC67

For ordering dust seal band (NBR lining) only

MY **Bore size** - 16 **B N** **Stroke**

Dust seal band NBR lining

Dust seal band Hexagon socket head set screw thread treatment

|           |                      |
|-----------|----------------------|
| <b>Ni</b> | Black zinc chromated |
| <b>W</b>  | Nickel plated        |

Example) MY25-16BNW-300

For details, refer to "Dust seal band" in the construction of each series.

### Applicable Series

| Series | Description                           | Model   | Type                                 | Vol. no. (for std model) |
|--------|---------------------------------------|---------|--------------------------------------|--------------------------|
| MY     | Mechanically jointed rodless cylinder | MY1B    | Basic type                           | ②-1 From P. 1238         |
|        |                                       | MY1M(W) | Slide bearing type (With cover)      |                          |
|        |                                       | MY1C(W) | Cam follower guide type (With cover) |                          |
|        |                                       | MY1H    | Linear guide type                    |                          |
|        |                                       | MY1HT   | High rigidity/Linear guide type      |                          |

## 50 Made of Stainless Steel (With Hard Chrome Plated Piston Rod)

Symbol

-XC68

Suitable for the cases it is likely to generate rust by being immersed in the water and corrosion.

### Applicable Series

| Series     | Description     | Model         | Action                    | Vol. no. (for std model) |
|------------|-----------------|---------------|---------------------------|--------------------------|
| <b>MB</b>  | Standard type   | <b>MB-Z</b>   | Double acting, Single rod | ②-1 From P. 392          |
|            |                 | <b>MBW-Z</b>  | Double acting, Double rod |                          |
|            | Smooth cylinder | <b>MBY-Z</b>  | Double acting, Single rod | ②-3 From P. 183          |
| <b>MB1</b> | Standard type   | <b>MB1-Z</b>  | Double acting, Single rod | ②-1 From P. 440          |
|            |                 | <b>MB1W-Z</b> | Double acting, Double rod |                          |
|            |                 | <b>CA2-Z</b>  | Double acting, Single rod | ②-1 From P. 470          |
| <b>CA2</b> | Standard type   | <b>CA2W-Z</b> | Double acting, Double rod |                          |
|            |                 | <b>CA2Y-Z</b> | Double acting, Single rod | ②-3 From P. 198          |
|            | Smooth cylinder | <b>CS1</b>    | Double acting, Single rod | ②-1 From P. 530          |
| <b>CS1</b> | Standard type   | <b>CS2</b>    | Double acting, Single rod |                          |
| <b>CS2</b> | Standard type   | <b>CS2W</b>   | Double acting, Double rod | ②-1 From P. 568          |
|            |                 | <b>CS2Y</b>   | Double acting, Single rod |                          |
| <b>MWB</b> | Lock unit       | <b>MWB-UT</b> | —                         | ES20-246                 |

### How to Order

Standard model no. -XC68

Made of stainless steel  
(With hard chrome plated piston rod)

### Specifications

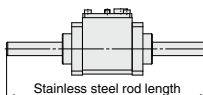
| Parts changed to stainless steel                        | Piston rod       |
|---------------------------------------------------------|------------------|
| Specifications other than above and external dimensions | Same as standard |

### Maximum stroke

| Series               | Double acting, Single rod | Double acting single rod with rod boot |
|----------------------|---------------------------|----------------------------------------|
| <b>MB, MB1</b>       | 1600                      | 1000                                   |
| <b>CA2, CS1, CS2</b> | 1600                      | 1400                                   |

### MWB-UT (Lock unit) Stainless Steel Rod Length

| Model      | Min. length | Max. length | Note                                                                |
|------------|-------------|-------------|---------------------------------------------------------------------|
| <b>32</b>  | 250 mm      | 1800 mm     | Can be manufactured in increments of 1 mm up to the maximum length. |
| <b>40</b>  | 250 mm      | 2500 mm     |                                                                     |
| <b>50</b>  | 300 mm      |             |                                                                     |
| <b>63</b>  | 300 mm      |             |                                                                     |
| <b>80</b>  | 300 mm      |             |                                                                     |
| <b>100</b> | 300 mm      |             |                                                                     |



\* Rod is shipped together with the product.





# Made to Order Common Specifications: -XC69: MGP Series with Shock Absorber



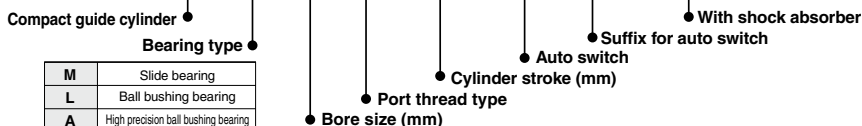
## 51 MGP Series with Shock Absorber

Symbol  
-XC69

### Applicable Series

| Series | Description            | Model | Action        | Note | Vol. no. (for std model) |
|--------|------------------------|-------|---------------|------|--------------------------|
| MGP    | Compact guide cylinder | MGPM  | Double acting |      | ②-2 From P. 432          |
|        |                        | MGPL  | Double acting |      |                          |
|        |                        | MGPA  | Double acting |      |                          |

### How to Order **MGP M 32 50 Z73 XC69**



### Specifications of Extension Adjusting Mechanism

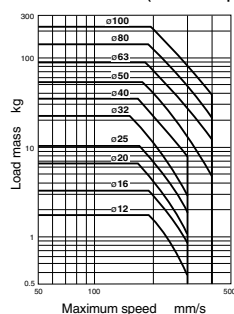
| Bore size (mm)                | 12, 16                   | 20, 25 | 32, 40   | 50, 63 | 80, 100  |
|-------------------------------|--------------------------|--------|----------|--------|----------|
| Shock absorber model          | RB0806                   | RB1007 | RB1412   | RB2015 | RB2725   |
| Maximum energy absorption (J) | 2.94                     | 5.88   | 19.6     | 58.8   | 147      |
| Stroke adjustment range (mm)  | 0 to -15                 |        | 0 to -25 |        | 0 to -30 |
| Piston speed                  | Refer to the graph below |        |          |        |          |

Soft type RJ series type (-XB22) is also available.  
For details, refer to -XB22.

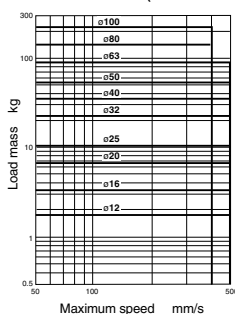
### Allowable Kinetic Energy

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

Stroke retracted side (Rubber bumper)



Stroke extended side (Shock absorber)



The shock absorber service life is different from that of the MGP cylinder. Refer to the RB series Specific Product Precautions for the replacement period.

### Mounting

**Do not allow hands or fingers near the cylinder during its operation.**

If finger, etc. were to get caught between shock absorber and body, it might damage on the human body and the peripheral equipment. Take protective measures by mounting a protective cover, etc. as necessary.

**Basically, avoid bottom-mounting a cylinder.**

Mounting space is limited owing to the guide rod and the end plate, etc. Mount a cylinder by the top mounting or side mounting.

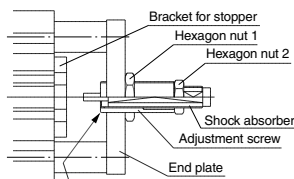
### Adjustment

#### 1. How to adjust an adjustment screw (Stroke adjustment)

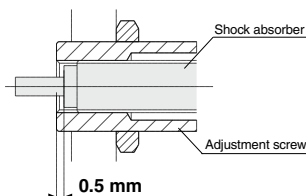
Loosen only the hexagon nut 1, then turn the adjustment screw to adjust the stroke. After adjusting, lock it with the hexagon nut 1. Fix it at the position ejected from the end plate, so that the end face of an adjustment screw could hit the bracket for stopper directly. (Refer to the figure right above.)

#### 2. How to replace shock absorbers

Loosen hexagon nut 2, and turn a shock absorber counterclockwise for removal. For installing a new shock absorber, fix it at the position that the end face of an adjustment screw sticks out by 0.5 mm from a shock absorber. (Refer to the figure on the right.) After adjusting the position of shock absorber, be sure to secure with hexagon nut 2.



\* Adjust it so that the end of an adjustment screw hit directly on the stopper bracket.



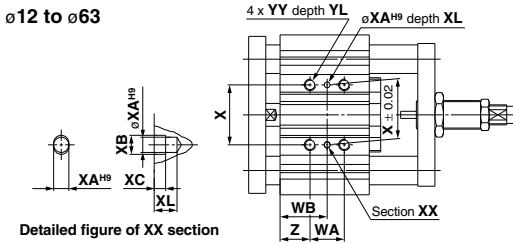
# Made to Order Common Specifications: -XC69: MGP Series with Shock Absorber



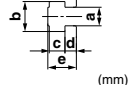
## 51 MGP Series with Shock Absorber

### Dimensions

ø12 to ø63

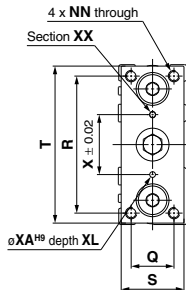


T-slot dimensions

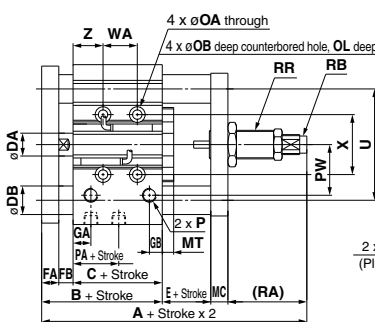


| Bore size (mm) | a   | b    | c   | d   | e    |
|----------------|-----|------|-----|-----|------|
| 12             | 4.4 | 7.4  | 3.7 | 2   | 6.2  |
| 16             | 4.4 | 7.4  | 3.7 | 2.5 | 6.7  |
| 20             | 5.4 | 8.4  | 4.5 | 2.8 | 7.8  |
| 25             | 5.4 | 8.4  | 4.5 | 3   | 8.2  |
| 32             | 6.5 | 10.5 | 5.5 | 3.5 | 9.5  |
| 40             | 6.5 | 10.5 | 5.5 | 4   | 11   |
| 50             | 8.5 | 13.5 | 7.5 | 4.5 | 13.5 |
| 63             | 11  | 17.8 | 10  | 7   | 18.5 |

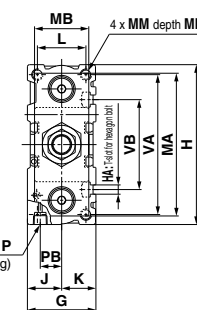
Detailed figure of XX section



Bottom view



For ø12, ø16



### Common Dimensions

| Bore size (mm) | Standard stroke (mm)                                            | A     | B    | C    | DA | DB | E  | FA | FB | G  | GA | GB   | H    | HA  | J   | K  | L  | MA | MB  | MC | MT | MM | ML        | NN        |
|----------------|-----------------------------------------------------------------|-------|------|------|----|----|----|----|----|----|----|------|------|-----|-----|----|----|----|-----|----|----|----|-----------|-----------|
| 12             | 10, 20, 30, 40, 50, 75, 100, 125, 150, 175, 200, 250            | 90    | 42   | 29   | 6  | 8  | 6  | 7  | 8  | 5  | 26 | 11   | 7.5  | 58  | M4  | 13 | 13 | 18 | 51  | 19 | 8  | 6  | M4 x 0.7  | M4 x 0.7  |
| 16             | 125, 150, 175, 200, 250                                         | 94    | 46   | 33   | 8  | 10 | 8  | 7  | 8  | 5  | 30 | 11   | 8    | 64  | M4  | 15 | 15 | 22 | 58  | 19 | 8  | 6  | M5 x 0.8  | M5 x 0.8  |
| 20             | 20, 30, 40, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400 | 109   | 53   | 37   | 10 | 12 | 10 | 9  | 10 | 6  | 36 | 10.5 | 8.5  | 83  | M5  | 18 | 18 | 24 | 68  | 30 | 10 | 8  | M5 x 0.8  | M5 x 0.8  |
| 25             |                                                                 | 109.5 | 53.5 | 37.5 | 12 | 16 | 13 | 9  | 10 | 6  | 42 | 11.5 | 9    | 93  | M5  | 21 | 21 | 30 | 82  | 30 | 10 | 8  | M6 x 1.0  | M6 x 1.0  |
| 32             |                                                                 | 135.5 | 59.5 | 37.5 | 16 | 20 | 16 | 9  | 12 | 10 | 48 | 12.5 | 9    | 112 | M6  | 24 | 24 | 34 | 100 | 38 | 12 | 8  | M8 x 1.25 | M8 x 1.25 |
| 40             | 25, 50, 75, 100                                                 | 142   | 66   | 44   | 16 | 20 | 16 | 9  | 12 | 10 | 54 | 14   | 10   | 120 | M6  | 27 | 27 | 40 | 108 | 38 | 12 | 8  | M8 x 1.25 | M8 x 1.25 |
| 50             | 125, 150, 175, 200                                              | 155   | 72   | 44   | 20 | 25 | 20 | 10 | 16 | 12 | 64 | 14   | 11   | 148 | M8  | 32 | 32 | 46 | 139 | 60 | 16 | 9  | M10 x 1.5 | M10 x 1.5 |
| 63             | 250, 300, 350, 400                                              | 160   | 77   | 49   | 20 | 25 | 20 | 10 | 16 | 12 | 78 | 16.5 | 13.5 | 162 | M10 | 39 | 39 | 58 | 153 | 60 | 16 | 9  | M10 x 1.5 | M10 x 1.5 |

| Bore size (mm) | OA  | OB  | OL  | P        |        |      | PA   | PB   | PW   | Q  | R   | RA | RB     | RR        | S  | T   | U   | VA  | VB  | X  | XA | XB  | XC | XL | YY        | YL | Z  |
|----------------|-----|-----|-----|----------|--------|------|------|------|------|----|-----|----|--------|-----------|----|-----|-----|-----|-----|----|----|-----|----|----|-----------|----|----|
|                |     |     |     | NII      | N      | TF   |      |      |      |    |     |    |        |           |    |     |     |     |     |    |    |     |    |    |           |    |    |
|                |     |     |     |          |        |      |      |      |      |    |     |    |        |           |    |     |     |     |     |    |    |     |    |    |           |    |    |
| 12             | 4.3 | 8   | 4.5 | M5 x 0.8 | —      | —    | 13   | 8    | 18   | 14 | 48  | 33 | RB0806 | M12 x 1.5 | 22 | 56  | 41  | 50  | 37  | 23 | 3  | 3.5 | 3  | 6  | M5 x 0.8  | 10 | 5  |
| 16             | 4.3 | 8   | 4.5 | M5 x 0.8 | —      | —    | 15   | 10   | 19   | 16 | 54  | 33 | RB0806 | M12 x 1.5 | 25 | 62  | 46  | 56  | 38  | 24 | 3  | 3.5 | 3  | 6  | M5 x 0.8  | 10 | 5  |
| 20             | 5.4 | 9.5 | 5.5 | Rc1/8    | NPT1/8 | G1/8 | 12.5 | 10.5 | 25   | 18 | 70  | 37 | RB1007 | M14 x 1.5 | 30 | 81  | 54  | 72  | 44  | 28 | 3  | 3.5 | 3  | 6  | M6 x 1.0  | 12 | 17 |
| 25             | 5.4 | 9.5 | 5.5 | Rc1/8    | NPT1/8 | G1/8 | 12.5 | 13.5 | 30   | 26 | 78  | 37 | RB1007 | M14 x 1.5 | 38 | 91  | 64  | 82  | 50  | 34 | 4  | 4.5 | 3  | 6  | M6 x 1.0  | 12 | 17 |
| 32             | 6.6 | 11  | 7.5 | Rc1/8    | NPT1/8 | G1/8 | 7    | 15   | 35.5 | 30 | 96  | 55 | RB1412 | M20 x 1.5 | 44 | 110 | 78  | 98  | 63  | 42 | 4  | 4.5 | 3  | 6  | M8 x 1.25 | 16 | 21 |
| 40             | 6.6 | 11  | 7.5 | Rc1/8    | NPT1/8 | G1/8 | 13   | 18   | 39.5 | 30 | 104 | 55 | RB1412 | M20 x 1.5 | 44 | 118 | 86  | 106 | 72  | 50 | 4  | 4.5 | 3  | 6  | M8 x 1.25 | 16 | 22 |
| 50             | 8.6 | 14  | 9   | Rc1/4    | NPT1/4 | G1/4 | 9    | 21.5 | 47   | 40 | 130 | 57 | RB2015 | M27 x 1.5 | 60 | 146 | 110 | 130 | 92  | 66 | 5  | 6   | 4  | 8  | M10 x 1.5 | 20 | 24 |
| 63             | 8.6 | 14  | 9   | Rc1/4    | NPT1/4 | G1/4 | 14   | 28   | 58   | 50 | 130 | 57 | RB2015 | M27 x 1.5 | 70 | 158 | 124 | 142 | 110 | 80 | 5  | 6   | 4  | 8  | M10 x 1.5 | 20 | 24 |

### MGP12 to 25 WA, WB Dimensions

| Bore size (mm) | WA | WB |
|----------------|----|----|
| 12             | 20 | 40 |
| 16             | 24 | 44 |
| 20             | 24 | 44 |
| 25             | 24 | 44 |

### MGP32 to 63 WA, WB Dimensions

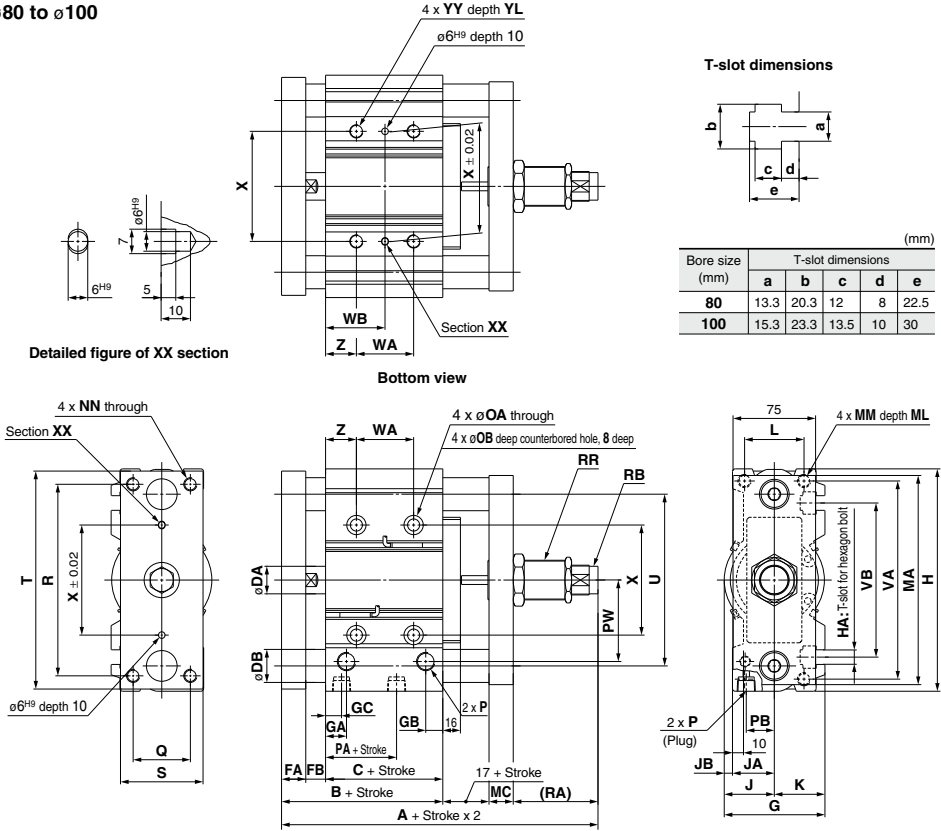
| Bore size (mm) | WA | WB |
|----------------|----|----|
| 32             | 24 | 48 |
| 40             | 24 | 48 |
| 50             | 24 | 48 |
| 63             | 28 | 52 |

Note) Refer to the Manufacture of Intermediate Strokes in Best Pneumatics No. 2-2 for intermediate strokes excluding the standard strokes.

- Bore size 12 and 16: M5 x 0.8 port only
- Bore size over 20: Rc, NPT or G ports selectable (Refer to Best Pneumatics No. 2-2.)

Dimensions

ø80 to ø100



Common Dimensions

| Bore size (mm) | Standard stroke (mm)           | A     | B    | C    | DA | DB    |              | FA | FB | G     | GA | GB   | GC   | H   | HA  | J    | JA | JB   | K  | L  | MA  | MC |
|----------------|--------------------------------|-------|------|------|----|-------|--------------|----|----|-------|----|------|------|-----|-----|------|----|------|----|----|-----|----|
|                |                                |       |      |      |    | Slide | Ball bushing |    |    |       |    |      |      |     |     |      |    |      |    |    |     |    |
| 80             | 25, 50, 75, 100, 125, 150, 175 | 212.5 | 96.5 | 56.5 | 25 | 30    | 25           | 22 | 18 | 91.5  | 19 | 15.5 | 14.5 | 202 | M12 | 45.5 | 38 | 7.5  | 46 | 54 | 190 | 22 |
| 100            | 200, 250, 300, 350, 400        | 232   | 116  | 66   | 30 | 36    | 30           | 25 | 25 | 111.5 | 23 | 19   | 18   | 240 | M14 | 55.5 | 45 | 10.5 | 56 | 62 | 228 | 25 |

| Bore size (mm) | MM         | ML | NN         | OA   | OB   | P     |        |      | PA   | PB   | PW | Q  | R   | RA | RB     | RR        | S  | T   | U   | VA  | VB  |
|----------------|------------|----|------------|------|------|-------|--------|------|------|------|----|----|-----|----|--------|-----------|----|-----|-----|-----|-----|
|                |            |    |            |      |      | Nil   | N      | TF   |      |      |    |    |     |    |        |           |    |     |     |     |     |
| 80             | M12 x 1.75 | 25 | M12 x 1.75 | 10.6 | 17.5 | Rc3/8 | NPT3/8 | G3/8 | 14.5 | 25.5 | 74 | 52 | 174 | 77 | RB2725 | M36 x 1.5 | 75 | 198 | 156 | 180 | 140 |
| 100            | M14 x 2.0  | 31 | M14 x 2.0  | 12.5 | 20   | Rc3/8 | NPT3/8 | G3/8 | 17.5 | 32.5 | 89 | 64 | 210 | 74 | RB2725 | M36 x 1.5 | 90 | 236 | 188 | 210 | 166 |

| Bore size (mm) | WA            |                      |                       |                       |             | WB            |                      |                       |                       |             | X   | YY         | YL | Z  |
|----------------|---------------|----------------------|-----------------------|-----------------------|-------------|---------------|----------------------|-----------------------|-----------------------|-------------|-----|------------|----|----|
|                | 25 st or less | Over 25 st to 100 st | Over 100 st to 200 st | Over 200 st to 300 st | Over 300 st | 25 st or less | Over 25 st to 100 st | Over 100 st to 200 st | Over 200 st to 300 st | Over 300 st |     |            |    |    |
| 80             | 28            | 52                   | 128                   | 200                   | 300         | 42            | 54                   | 92                    | 128                   | 178         | 100 | M12 x 1.75 | 24 | 28 |
| 100            | 48            | 72                   | 148                   | 220                   | 320         | 35            | 47                   | 85                    | 121                   | 171         | 124 | M14 x 2.0  | 28 | 11 |

Note) Refer to the Manufacture of Intermediate Strokes in Best Pneumatics No. 2-2 for the intermediate strokes excluding the standard strokes.

• Rc, NPT or G ports selectable (Refer to Best Pneumatics No. 2-2.)

# Made to Order Common Specifications:

## -XC71: Helical Insert Thread Specifications

## -XC72: Without Built-in Auto Switch Magnet



### 52 Helical Insert Thread Specifications

Symbol

**-XC71**

The guide body mounting threads are helical insert threads.

#### Applicable Series

| Series | Description    | Model | Action        | Note | Vol. no. (for std model) |
|--------|----------------|-------|---------------|------|--------------------------|
| MGG    | Guide cylinder | MGG   | Double acting |      | ②-2 From P. 538          |

#### How to Order

MGG Bearing type **B** Bore size Port thread type — Stroke — Auto switch — **XC71**

↓ Basic type

↓ Helical insert thread specifications

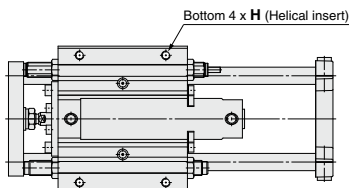
#### Specifications

| Applicable series     | MGG□B              |
|-----------------------|--------------------|
| <b>Bore size (mm)</b> | 20, 25, 32, 40, 50 |
| <b>Mounting type</b>  | Basic type         |

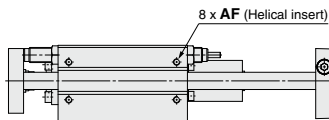
\* Specifications other than above are the same as standard type.

#### Dimensions (Dimensions other than below are the same as standard type.)

ø20 to ø50



| Bore size (mm) | H                   | AF                 |
|----------------|---------------------|--------------------|
| 20             | M6 x 1 depth 12     | M5 x 0.8 depth 7.5 |
| 25             | M8 x 1.25 depth 16  | M6 x 1 depth 9     |
| 32             | M8 x 1.25 depth 16  | M6 x 1 depth 9     |
| 40             | M10 x 1.5 depth 20  | M8 x 1.25 depth 12 |
| 50             | M12 x 1.75 depth 24 | M10 x 1.5 depth 15 |



### 53 Without Built-in Auto Switch Magnet

Symbol

**-XC72**

This cylinder type does not have built-in auto switch magnet.

#### Applicable Series

| Series | Description    | Model | Action        | Note | Vol. no. (for std model) |
|--------|----------------|-------|---------------|------|--------------------------|
| MGG    | Guide cylinder | MGG   | Double acting |      | ②-2 From P. 538          |

#### How to Order

MGG Standard model no. — **XC72**

↓ Without built-in auto switch magnet

#### Specifications

| Applicable series     | MGG                |
|-----------------------|--------------------|
| <b>Bore size (mm)</b> | 20, 25, 32, 40, 50 |
| <b>Auto switch</b>    | Not mountable      |

\* Specifications and external dimensions other than above are the same as standard type.

# Made to Order Common Specifications: -XC73: Built-in Cylinder with Lock (CDNG)



Symbol

**-XC73**

## 54 Built-in Cylinder with Lock (CDNG)

This type has a built-in cylinder with lock, which accommodates intermediate stops, emergency stops and drop prevention, etc.

### Applicable Series

| Series | Description    | Model | Action        | Note | Vol. no. (for std model) |
|--------|----------------|-------|---------------|------|--------------------------|
| MGG    | Guide cylinder | MGG   | Double acting |      | ②-2 From P. 538          |

### How to Order

MGG **Bearing type** **Mounting type** **Bore size** — **Stroke** — **Auto switch** — **C (Note 1)** — **-XC73**

### Cylinder Specifications

| Applicable series                                                          | MGG                               |           |        |                              |
|----------------------------------------------------------------------------|-----------------------------------|-----------|--------|------------------------------|
| Bore size (mm)                                                             | 20                                | 25        | 32     | 40                           |
| Basic cylinder                                                             | CDNGBN                            | Bore size | Stroke | D — Auto switch — C (Note 1) |
| Minimum operating pressure                                                 | 0.2 MPa (Horizontal with no load) |           |        |                              |
| Piston speed                                                               | 50 to 1000 mm/s (Note 2)          |           |        |                              |
| Stroke adjustment range (One side)<br>[Built-in adjustment bolts (2 pcs.)] | 0 to 15 mm                        |           |        |                              |
| Non-rotating accuracy *2                                                   | Slide bearing<br>±0.06°           | ±0.05°    | ±0.04° | ±0.04°                       |
|                                                                            | Ball bushing bearing<br>±0.04°    | ±0.04°    | ±0.04° | ±0.04°                       |
| Shock absorber model                                                       | RB1412 RB2015                     |           |        |                              |

• Built-in cylinder with lock

Note 1) This symbol is indicated when the D-A9□ or M9□ type auto switch is specified. It does not apply to other auto switches (D-C7□ and H7□, etc.) (Nil)

Note 2) When the piston is locked, the load mass is limited by the mounting orientation and the operating pressure. For details about the lock specifications, etc., refer to the cylinders with lock (Best Pneumatics No. 2-2).

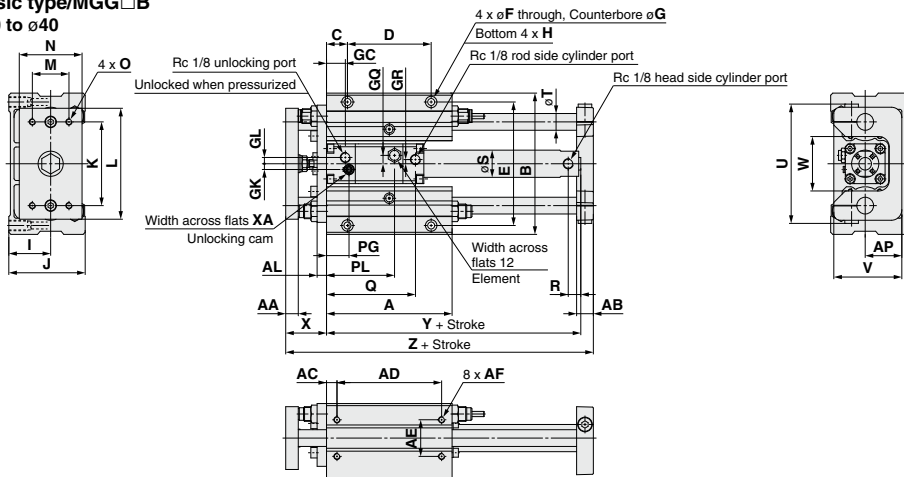
\*1 Specifications other than shown on the left are the same as the standard type.

\*2 Non-rotating rod accuracy must be below the values shown in the table at the retraction of the cylinder (initial value), and without loads or the conditions excluding the deflection of the guide rods.

### Dimensions

#### Basic type/MGG□B

ø20 to ø40



### Standard Stroke

| Bore size (mm) | Stroke range (mm)      | A   | AA | AB | AC | AD  | AE | AF                 | AL | AP | B   | C  | D   | E   | F   | G           | GC | GK  | GL | GQ | GR | H                   | I  | J   |
|----------------|------------------------|-----|----|----|----|-----|----|--------------------|----|----|-----|----|-----|-----|-----|-------------|----|-----|----|----|----|---------------------|----|-----|
| 20             | 75, 100, 125, 150, 200 | 120 | 12 | 16 | 10 | 100 | 35 | M6 x 1 depth 12    | 9  | 35 | 135 | 20 | 80  | 118 | 6.6 | 11 depth 8  | 18 | 5.5 | 6  | 8  | 4  | M10 x 1.5 depth 18  | 40 | 73  |
| 25             | 75, 100, 125           | 140 | 16 | 19 | 10 | 120 | 40 | M6 x 1.25 depth 16 | 9  | 45 | 170 | 20 | 100 | 150 | 9   | 14 depth 10 | 25 | 6.5 | 9  | 10 | 7  | M12 x 1.75 depth 21 | 50 | 93  |
| 32             | 150, 200               | 140 | 16 | 19 | 10 | 120 | 40 | M6 x 1.25 depth 16 | 9  | 45 | 170 | 20 | 100 | 150 | 9   | 14 depth 10 | 25 | 6.5 | 9  | 10 | 7  | M12 x 1.75 depth 21 | 50 | 93  |
| 40             | 250, 300               | 170 | 19 | 21 | 10 | 150 | 45 | M10 x 1.5 depth 20 | 12 | 50 | 194 | 25 | 120 | 170 | 11  | 17 depth 12 | 26 | 7   | 11 | 12 | 7  | M14 x 2 depth 25    | 55 | 103 |

### Long Stroke

| Bore size (mm) | K   | L   | M  | N  | O                  | PG   | PL | Q   | R  | S  | T  | U   | V  | W  | X  | XA | Y   | Z   | Bore size (mm) | Stroke range (mm) | R  | Y   |
|----------------|-----|-----|----|----|--------------------|------|----|-----|----|----|----|-----|----|----|----|----|-----|-----|----------------|-------------------|----|-----|
| 20             | 80  | 106 | 35 | 60 | M6 x 1 depth 9     | 21.5 | 65 | 85  | 12 | 26 | 16 | 114 | 65 | 52 | 39 | 3  | 143 | 194 | 20             | 250 to 400        | 14 | 151 |
| 25             | 95  | 134 | 50 | 75 | M8 x 1.25 depth 13 | 26.5 | 73 | 96  | 12 | 31 | 20 | 138 | 84 | 62 | 46 | 3  | 153 | 228 | 25             | 350 to 500        | 14 | 161 |
| 32             | 95  | 134 | 50 | 75 | M8 x 1.25 depth 13 | 26.5 | 73 | 97  | 12 | 38 | 20 | 138 | 84 | 62 | 46 | 3  | 156 | 228 | 32             | 350 to 600        | 14 | 164 |
| 40             | 115 | 152 | 56 | 90 | M10 x 1.5 depth 16 | 28   | 81 | 104 | 12 | 47 | 25 | 164 | 94 | 75 | 56 | 4  | 171 | 274 | 40             | 350 to 800        | 15 | 180 |

# Made to Order Common Specifications: -XC73: Built-in Cylinder with Lock (CDNG)

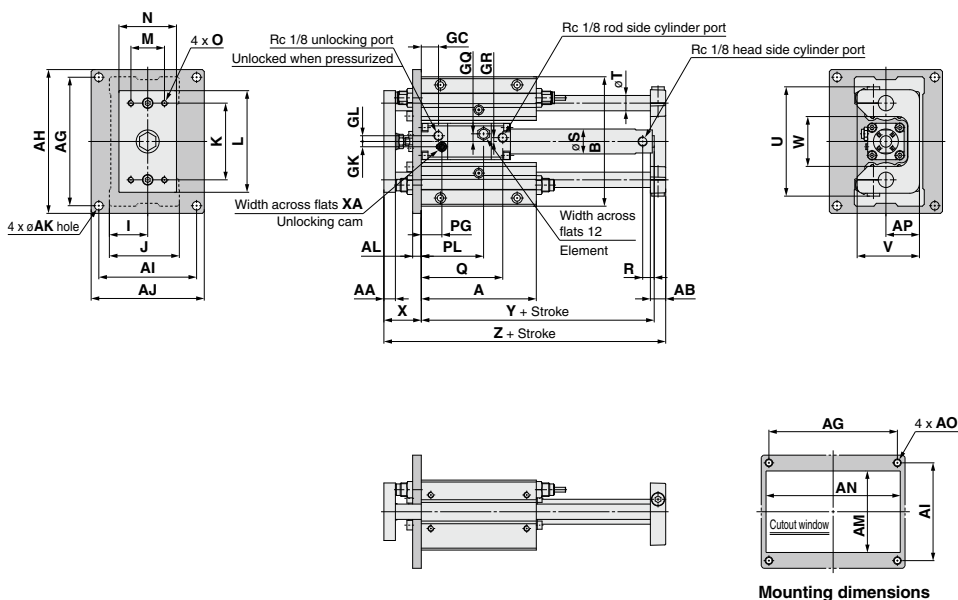


## 54 Built-in Cylinder with Lock (CDNG)

### Dimensions

Front mounting flange type/MGG□F

ø20 to ø40



Mounting dimensions

### Standard Stroke

| Bore size (mm) | Stroke range (mm)      | A   | AA | AB | AG  | AH  | AI  | AJ  | AK | AL | AM  | AN  | AO  | AP | B   | GC | GK  | GL | GQ | GR | I  | J   | K   | L   | M  | N  |
|----------------|------------------------|-----|----|----|-----|-----|-----|-----|----|----|-----|-----|-----|----|-----|----|-----|----|----|----|----|-----|-----|-----|----|----|
| 20             | 75, 100, 125, 150, 200 | 120 | 12 | 16 | 134 | 150 | 102 | 118 | 9  | 9  | 85  | 140 | M8  | 35 | 135 | 18 | 5.5 | 6  | 8  | 4  | 40 | 73  | 80  | 106 | 35 | 60 |
| 25             | 75, 100, 125           | 140 | 16 | 19 | 170 | 186 | 134 | 150 | 9  | 9  | 105 | 175 | M8  | 45 | 170 | 25 | 6.5 | 9  | 10 | 7  | 50 | 93  | 95  | 134 | 50 | 75 |
| 32             | 150, 200               | 140 | 16 | 19 | 170 | 186 | 134 | 150 | 9  | 9  | 105 | 175 | M8  | 45 | 170 | 25 | 6.5 | 9  | 10 | 7  | 50 | 93  | 95  | 134 | 50 | 75 |
| 40             | 250, 300               | 170 | 19 | 21 | 190 | 210 | 140 | 160 | 11 | 12 | 115 | 200 | M10 | 50 | 194 | 26 | 7   | 11 | 12 | 7  | 55 | 103 | 115 | 152 | 56 | 90 |

### Long Stroke

| Bore size (mm) | O                  | PG   | PL | Q   | R  | S  | T  | U   | V  | W  | X  | XA | Y   | Z   | Bore size (mm) | Stroke range (mm) | R  | Y   |
|----------------|--------------------|------|----|-----|----|----|----|-----|----|----|----|----|-----|-----|----------------|-------------------|----|-----|
| 20             | M6 x 1 depth 9     | 21.5 | 65 | 85  | 12 | 26 | 16 | 114 | 65 | 52 | 39 | 3  | 143 | 194 | 20             | 250 to 400        | 14 | 151 |
| 25             | M8 x 1.25 depth 13 | 26.5 | 73 | 96  | 12 | 31 | 20 | 138 | 84 | 62 | 46 | 3  | 153 | 228 | 25             | 350 to 500        | 14 | 161 |
| 32             | M8 x 1.25 depth 13 | 26.5 | 73 | 97  | 12 | 38 | 20 | 138 | 84 | 62 | 46 | 3  | 156 | 228 | 32             | 350 to 600        | 14 | 164 |
| 40             | M10 x 1.5 depth 16 | 28   | 81 | 104 | 12 | 47 | 25 | 164 | 94 | 75 | 56 | 4  | 171 | 274 | 40             | 350 to 800        | 15 | 180 |



# Made to Order Common Specifications:

## -XC73: Built-in Cylinder with Lock (CDNG)

## -XC74: With Front Plate for MGG Cylinder



### 54 Built-in Cylinder with Lock (CDNG)

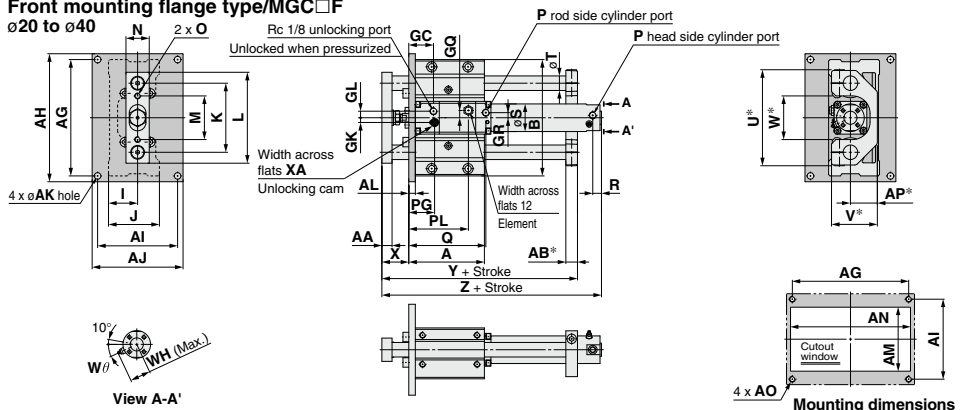
Symbol

**-XC73**

#### Dimensions

##### Front mounting flange type/MGC□F

ø20 to ø40



#### Standard Stroke

| Bore size (mm) | Stroke range (mm)      | A   | AA | AB* | AG  | AH  | AI  | AJ  | AK | AL | AM | AN  | AO  | AP* | B   | GC | GK  | GL | GQ | GR | I  | J    | K   | L   | M  | N  |
|----------------|------------------------|-----|----|-----|-----|-----|-----|-----|----|----|----|-----|-----|-----|-----|----|-----|----|----|----|----|------|-----|-----|----|----|
| 20             | 75, 100, 125, 150, 200 | 94  | 11 | 13  | 134 | 150 | 92  | 108 | 9  | 9  | 75 | 140 | M8  | 32  | 135 | 27 | 5.5 | 6  | 8  | 4  | 35 | 60   | 80  | 105 | 50 | 25 |
| 25             | 75, 100, 125           | 104 | 14 | 16  | 160 | 176 | 110 | 125 | 9  | 9  | 88 | 165 | M8  | 37  | 160 | 34 | 6.5 | 9  | 10 | 7  | 40 | 70   | 95  | 125 | 60 | 32 |
| 32             | 150, 200, 250          | 104 | 14 | 16  | 160 | 176 | 110 | 125 | 9  | 9  | 88 | 165 | M8  | 37  | 160 | 34 | 6.5 | 9  | 10 | 7  | 40 | 70   | 95  | 125 | 60 | 32 |
| 40             | 300                    | 142 | 17 | 19  | 190 | 210 | 115 | 135 | 11 | 12 | 96 | 200 | M10 | 42  | 194 | 38 | 7   | 11 | 12 | 7  | 45 | 82.5 | 115 | 150 | 75 | 38 |

#### Long Stroke

| Bore size (mm) | O         | P        | PG   | PL | Q   | R  | S  | T  | U*  | V* | W* | WH   | Wβ  | X  | XA | Y   | Z   |
|----------------|-----------|----------|------|----|-----|----|----|----|-----|----|----|------|-----|----|----|-----|-----|
| 20             | M6 x 1    | M5 x 0.8 | 30.5 | 74 | 96  | 12 | 26 | 16 | 112 | 53 | 50 | 23   | 30° | 30 | 3  | 148 | 182 |
| 25             | M8 x 1.25 | M5 x 0.8 | 35.5 | 82 | 106 | 12 | 31 | 20 | 132 | 63 | 60 | 25   | 30° | 37 | 3  | 169 | 199 |
| 32             | M8 x 1.25 | Rc 1/8   | 35.5 | 82 | 106 | 12 | 38 | 20 | 132 | 63 | 60 | 28.5 | 25° | 37 | 3  | 169 | 202 |
| 40             | M8 x 1.25 | Rc 1/8   | 40   | 93 | 116 | 12 | 47 | 25 | 162 | 73 | 70 | 33   | 20° | 44 | 4  | 210 | 227 |

Note) Without rear plate: Dimensions with an asterisk (\*) mark is not needed.

### 55 With Front Plate for MGG Cylinder

Symbol

**-XC74**

This type uses a front plate equivalent to the MGG series.

#### How to Order

MGC **Standard model no.** **-XC74**

With front plate for MGG

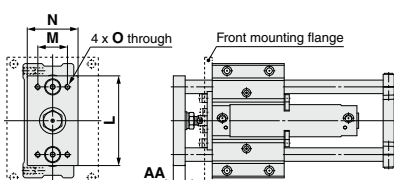
#### Specifications

| Applicable series          | MGC                                 |
|----------------------------|-------------------------------------|
| Bore size (mm)             | 20, 25, 32, 40, 50                  |
| Fluid                      | Air                                 |
| Minimum operating pressure | 0.15 MPa (Horizontal, With no load) |
| Piston speed               | 50 to 750mm/s                       |
| Auto switch                | Mountable                           |

\* Specifications other than above are the same as standard type.

#### Dimensions (Dimensions other than below are the same as standard type.)

ø20 to ø50



| Bore size (mm) | L   | M  | N  | O         | AA |
|----------------|-----|----|----|-----------|----|
| 20             | 80  | 25 | 45 | M6 x 1    | 11 |
| 25             | 100 | 35 | 54 | M6 x 1    | 14 |
| 32             | 106 | 35 | 60 | M6 x 1    | 14 |
| 40             | 134 | 50 | 75 | M8 x 1.25 | 17 |
| 50             | 152 | 56 | 90 | M10 x 1.5 | 23 |

# Made to Order Common Specifications: -XC78: Auto Switch Mounting Special Dimensions at Stroke End



## 56 Auto Switch Mounting Special Dimensions at Stroke End

Symbol  
-XC78

Auto switch mounting position at stroke end is assembled like below.

### Applicable Series

| Series | Description    | Model | Action        | Note | Vol. no. (for std model) |
|--------|----------------|-------|---------------|------|--------------------------|
| MGC    | Guide cylinder | MGC   | Double acting |      | ②-2 From P. 578          |

### How to Order

MGC Standard model no. -XC78

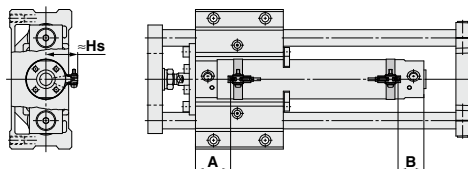
Auto switch mounting special dimensions at stroke end

### Specifications

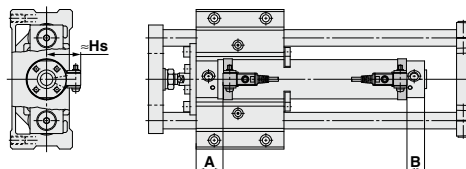
| Applicable series               | MGC                   |
|---------------------------------|-----------------------|
| Bore size (mm)                  | 20, 25, 32, 40, 50    |
| Applicable cylinder             | Guide cylinder        |
| Specifications other than above | Same as standard type |

### Dimensions (Dimensions other than below are the same as standard type.)

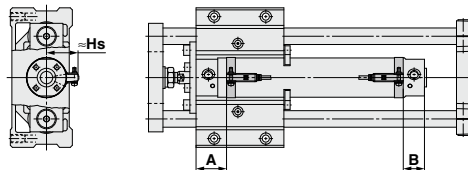
D-M9□(V)/M9□W(V)/M9□A(V)  
D-A9□(V)



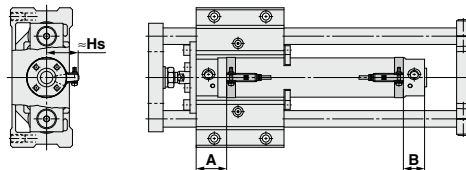
D-B5/B6  
D-G5/K5



D-C7/C8  
D-H7



D-B7/B8  
D-G7/K7



### Proper Auto Switch Mounting Position

(mm)

| Auto switch model | D-M9□(V)<br>D-M9□W(V)<br>D-M9□A(V) |            | D-A9□(V) |            | D-B7/B8<br>D-B73C<br>D-B80C<br>D-G7/K7<br>D-K79C |                | D-C7□<br>D-C80<br>D-C73C<br>D-C80C |                | D-B5□<br>D-B64 |                | D-B59W |                | D-H7□<br>D-H7C<br>D-H7NF<br>D-H7□W<br>D-H7BA |                | D-G59F/G5<br>D-K59<br>D-G5□W<br>D-K59W<br>D-G5NT<br>D-G5BA |            |
|-------------------|------------------------------------|------------|----------|------------|--------------------------------------------------|----------------|------------------------------------|----------------|----------------|----------------|--------|----------------|----------------------------------------------|----------------|------------------------------------------------------------|------------|
|                   | A                                  | B          | A        | B          | A                                                | B              | A                                  | B              | A              | B              | A      | B              | A                                            | B              | A                                                          | B          |
| 20                | 33                                 | 24<br>(32) | 29       | 20<br>(28) | 30.5                                             | 21.5<br>(29.5) | 29.5                               | 20.5<br>(28.5) | 23.5           | 15.5<br>(22.5) | 26.5   | 17.5<br>(25.5) | 28.5                                         | 19.5<br>(27.5) | 25                                                         | 16<br>(24) |
| 25                | 33                                 | 24<br>(32) | 29       | 20<br>(28) | 30.5                                             | 21.5<br>(29.5) | 29.5                               | 20.5<br>(28.5) | 23.5           | 15.5<br>(22.5) | 26.5   | 17.5<br>(25.5) | 28.5                                         | 19.5<br>(27.5) | 25                                                         | 16<br>(24) |
| 32                | 34                                 | 25<br>(33) | 30       | 21<br>(29) | 31.5                                             | 22.5<br>(30.5) | 30.5                               | 21.5<br>(29.5) | 24.5           | 15.5<br>(23.5) | 27.5   | 18.5<br>(26.5) | 29.5                                         | 20.5<br>(28.5) | 26                                                         | 17<br>(25) |
| 40                | 39                                 | 27<br>(36) | 35       | 23<br>(32) | 36.5                                             | 24.5<br>(32.5) | 35.5                               | 23.5<br>(31.5) | 29.5           | 19<br>(26.5)   | 32     | 20.5<br>(28.5) | 34.5                                         | 22.5<br>(30.5) | 31                                                         | 19<br>(28) |
| 50                | 46                                 | 32<br>(40) | 42       | 28<br>(40) | 43.5                                             | 29.5<br>(41.5) | 42.5                               | 28.5<br>(40.5) | 36.5           | 22.5<br>(34.5) | 39.5   | 25.5<br>(37.5) | 41.5                                         | 27.5<br>(39.5) | 38                                                         | 24<br>(36) |

### Proper Auto Switch Mounting Height

(mm)

| Auto switch model | D-M9□(V)<br>D-M9□W(V)<br>D-M9□A(V)<br>D-A9□(V) | D-C7□/C80<br>D-H7□<br>D-H7□W<br>D-H7BA | D-C73C<br>D-C80C | D-B7/B80<br>D-B73C<br>D-B80C<br>D-G79/K79<br>D-K79C<br>D-H7C<br>D-G5BA<br>D-G5NT<br>D-G59F |
|-------------------|------------------------------------------------|----------------------------------------|------------------|--------------------------------------------------------------------------------------------|
| Bore size (mm)    | Hs                                             | Hs                                     | Hs               | Hs                                                                                         |
| 20                | 25                                             | 24.5                                   | 27               | 27.5                                                                                       |
| 25                | 27.5                                           | 27                                     | 29.5             | 30                                                                                         |
| 32                | 31                                             | 30.5                                   | 33               | 33.5                                                                                       |
| 40                | 35.5                                           | 35                                     | 37.5             | 38                                                                                         |
| 50                | 41                                             | 40.5                                   | 43               | 43.5                                                                                       |

\* ( ) : Long stroke, double rod

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

# Made to Order Common Specifications: -XC82: Bottom Mounting Type



## 57 Bottom Mounting Type

Symbol

-XC82

Since the guide rod does not protrude from the bottom at the retraction of the rod, relief holes for guide rods are not required.

### Applicable Series

| Series | Description            | Model | Action        | Note | Vol. no. (for std model) |
|--------|------------------------|-------|---------------|------|--------------------------|
| MGP    | Compact guide cylinder | MGPM  | Double acting |      | ②-2 From P. 432          |

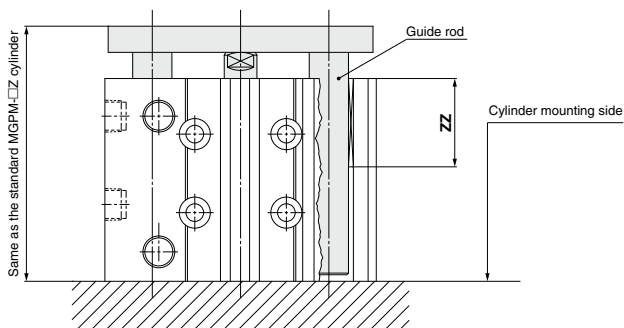
### How to Order

**MGP M 32 - 50 Z - -XC82**

- Compact guide cylinder
- Bearing Type
  - M Slide bearing
- Bore size (mm)
 

|     |        |
|-----|--------|
| 12  | 12 mm  |
| 16  | 16 mm  |
| 20  | 20 mm  |
| 25  | 25 mm  |
| 32  | 32 mm  |
| 40  | 40 mm  |
| 50  | 50 mm  |
| 63  | 63 mm  |
| 80  | 80 mm  |
| 100 | 100 mm |
- Port thread type
- Cylinder stroke (mm)
 

| Bore size (mm) | Applicable stroke (mm) |
|----------------|------------------------|
| 12 to 25       | 75, 100                |
| 32 to 100      | 25, 50, 75, 100        |
- Auto switch
- Suffix for auto switch
- Bottom mounting type



Note) The total length (ZZ) of the guide rod bushing is shorter than the standard type.

# Made to Order Common Specifications: -XC83: Built-in Cylinder with Lock (MDNB)



## 58 Built-in Cylinder with Lock (MDNB)

Symbol

-XC83

This type has a built-in cylinder with lock, which accommodates intermediate stops, emergency stops and drop prevention, etc.

### Applicable Series

| Series | Description    | Model | Action        | Note | Vol. no. (for std model) |
|--------|----------------|-------|---------------|------|--------------------------|
| MGG    | Guide cylinder | MGG   | Double acting |      | 2-2 From P. 538          |

### How to Order

MGG Bearing type Mounting type Bore size — Stroke — Auto switch —XC83

### Specifications

| Applicable series                                                      | MGG                               |           |                |        |             |
|------------------------------------------------------------------------|-----------------------------------|-----------|----------------|--------|-------------|
| Bore size (mm)                                                         | 50                                | 63        | 80             | 100    |             |
| Basic cylinder                                                         | MDNBB                             | Bore size | Stroke         | D      | Auto switch |
|                                                                        |                                   |           |                |        | X1189       |
| Minimum operating pressure                                             | 0.2 MPa (Horizontal with no load) |           |                |        |             |
| Piston speed <sup>Note</sup>                                           | 50 to 1000 mm/s                   |           | 50 to 700 mm/s |        |             |
| Stroke adjustment range (One side) [Built-in adjusting bolts (2 pcs.)] | 0 to -15 mm                       |           |                |        |             |
| Non-rotating accuracy <sup>*2</sup>                                    | Slide bearing                     | ±0.04°    |                | ±0.03° |             |
|                                                                        | Ball bushing bearing              | ±0.03°    |                | ±0.02° |             |
| Shock absorber model                                                   | RB2015                            |           | RB2725         |        |             |

Note) When the piston is locked, the load mass is limited by the mounting orientation and the operating pressure.

For details about the lock specifications, etc., refer to the cylinders with lock (Best Pneumatics No. 2-2).

\*1 Specifications other than shown above are the same as the standard type.

\*2 Non-rotating rod accuracy must be below the values shown in the table at the retraction of the cylinder (initial value), and without loads or the conditions excluding the deflection of the guide rods.

### Applicable Auto Switches

Refer to pages 1575 to 1701 for the detailed specifications of auto switches.

| Type                    | Special function                    | Electrical entry | Indicator light | Wiring (output)         | Load voltage |      | Auto switch part no. |               | Lead wire length (m) |       |       |       |   | Pre-wired connector | Applicable load |  |  |  |
|-------------------------|-------------------------------------|------------------|-----------------|-------------------------|--------------|------|----------------------|---------------|----------------------|-------|-------|-------|---|---------------------|-----------------|--|--|--|
|                         |                                     |                  |                 |                         | DC           | AC   | Tie-rod mounting     | Band mounting | 0.5 (Nil)            | 1 (M) | 3 (L) | 5 (Z) |   |                     |                 |  |  |  |
| Solid state auto switch | —                                   | Grommet          | No              | 3-wire (NPN)            | 5 V, 12 V    | —    | M9N                  | —             | ●                    | ●     | ●     | ○     | ○ | IC circuit          | Relay, PLC      |  |  |  |
|                         |                                     |                  |                 | 3-wire (PNP)            |              |      | M9P                  | —             | ●                    | ●     | ●     | ○     | ○ |                     |                 |  |  |  |
|                         |                                     | Terminal conduit | No              | 2-wire                  | 12 V         |      | M9B                  | —             | ●                    | ●     | ●     | ○     | ○ |                     |                 |  |  |  |
|                         |                                     |                  |                 | 3-wire (NPN)            |              |      | —                    | G39           | —                    | —     | —     | —     |   |                     |                 |  |  |  |
|                         | Diagnostic indication (2-color)     | Grommet          | Yes             | 2-wire                  | 5 V, 12 V    | —    | —                    | K39           | —                    | —     | —     | —     | — |                     |                 |  |  |  |
|                         |                                     |                  |                 | 3-wire (NPN)            |              |      | M9NW                 | —             | ●                    | ●     | ●     | ○     | ○ |                     |                 |  |  |  |
|                         |                                     |                  |                 | 3-wire (PNP)            |              |      | M9PW                 | —             | ●                    | ●     | ●     | ○     | ○ |                     |                 |  |  |  |
|                         |                                     |                  |                 | 2-wire                  |              |      | M9BW                 | —             | ●                    | ●     | ●     | ○     | ○ |                     |                 |  |  |  |
|                         |                                     |                  |                 | 3-wire (NPN)            |              |      | M9NA                 | —             | ○                    | ○     | ●     | ○     | ○ |                     |                 |  |  |  |
|                         |                                     |                  |                 | 3-wire (PNP)            |              |      | M9PA                 | —             | ○                    | ○     | ●     | ○     | ○ |                     |                 |  |  |  |
|                         | Water resistant (2-color indicator) |                  |                 | 2-wire                  |              |      | M9BA                 | —             | ○                    | ○     | ●     | ○     | ○ | —                   |                 |  |  |  |
|                         |                                     |                  |                 | 2-wire                  |              |      | M9BA                 | —             | ○                    | ○     | ●     | ○     | ○ | —                   |                 |  |  |  |
| Reed auto switch        | —                                   | Grommet          | Yes             | 3-wire (NPN equivalent) | —            | 5 V  | A96                  | —             | ●                    | —     | ●     | —     | — | IC circuit          | Relay, PLC      |  |  |  |
|                         |                                     |                  | No              | 2-wire                  | 24 V         | 12 V | 100 V                | A93           | —                    | ●     | ●     | ●     | ● | —                   |                 |  |  |  |
|                         |                                     | Terminal conduit | No              |                         |              |      | 100 V or less        | A90           | —                    | ●     | —     | ●     | — | IC circuit          |                 |  |  |  |
|                         |                                     |                  |                 |                         |              |      | —                    | A33           | —                    | —     | —     | —     | — | —                   |                 |  |  |  |
|                         |                                     | Din terminal     | Yes             |                         |              |      | 100 V                | A34           | —                    | —     | —     | —     | — | —                   |                 |  |  |  |
|                         |                                     |                  |                 |                         |              |      | 100 V, 200 V         | A44           | —                    | —     | —     | —     | — | —                   |                 |  |  |  |

\* 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 switch with ○: Manufactured upon receipt of order.

\* Refer to page 1852 since there are applicable auto switches other than listed above.

\* Refer to pages 1648 and 1649 for the details of auto switches with a pre-wired connector.

\* D-A9□/M9□/M9□W/M9□A/M9□AV auto switches are shipped together (not assembled).

(Auto switch mounting brackets for the models above are mounted when shipped.)

### Auto Switch Mounting Bracket: Part No.

| Auto switch model                                                | Bore size (mm) |          |          |          |
|------------------------------------------------------------------|----------------|----------|----------|----------|
|                                                                  | ø50            | ø63      | ø80      | ø100     |
| D-A9□/A9□V<br>D-M9□/M9□V<br>D-M9□W/M9□WV<br>D-M9□A/M9□AV         | BA7-040        | BA7-040  | BA7-063  | BA7-063  |
| D-A3□/A44<br>D-G39/K39                                           | BMB1-050       | BMB1-063 | BMB1-080 | BMB1-100 |
| D-Z7□/Z80<br>D-Y59□/Y69□<br>D-Y7P/Y7PV<br>D-Y7□W/Y7□WV<br>D-Y7BA | BMB4-050       | BMB4-050 | BA4-063  | BA4-063  |

#### [Mounting screw set made of stainless steel]

The following set of mounting screws made of stainless steel (including nuts) is available. Use it in accordance with the operating environment. (Please order the auto switch mounting bracket separately, since it is not included.)

BBA1: Stainless steel screw set for D-A5/A6/F5/J5 types

Note) Refer to page 1689 for the details of BBA1.

When shipping cylinders with D-M9□A/M9□AV/Y7BA auto switches, the stainless steel screws above are used to secure auto switch mounting brackets.

-XC

# Made to Order Common Specifications: -XC83: Built-in Cylinder with Lock (MDNB)



## 58 Built-in Cylinder with Lock (MDNB)

Besides the models listed on the previous page, the following auto switches are applicable.  
Refer to pages 1575 and 1701 for details.

| Auto switch type | Part no.              | Electrical entry (Fetcing direction) | Features                            |
|------------------|-----------------------|--------------------------------------|-------------------------------------|
| Reed             | D-A93V, A96V          | Grommet (Perpendicular)              | —                                   |
|                  | D-A90V                |                                      | Without indicator light             |
|                  | D-Z73, Z76            | Grommet (In-line)                    | —                                   |
|                  | D-Z80                 |                                      | Without indicator light             |
| Solid state      | D-M9NV, M9PV, M9BV    | Grommet (Perpendicular)              | —                                   |
|                  | D-Y69A, Y69B, Y7PV    |                                      | —                                   |
|                  | D-M9NWV, M9PWV, M9BWV |                                      | Diagnostic indication (2-color)     |
|                  | D-Y7NWW, Y7PWV, Y7BWV |                                      | Water resistant (2-color indicator) |
|                  | D-M9NAV, M9PAV, M9BAV | Grommet (In-line)                    | —                                   |
|                  | D-Y59A, Y59B, Y7P     |                                      | Diagnostic indication (2-color)     |
|                  | D-Y7NW, Y7PW, Y7BW    |                                      | Water resistant (2-color indicator) |
|                  | D-Y7BA                |                                      | Water resistant (2-color indicator) |

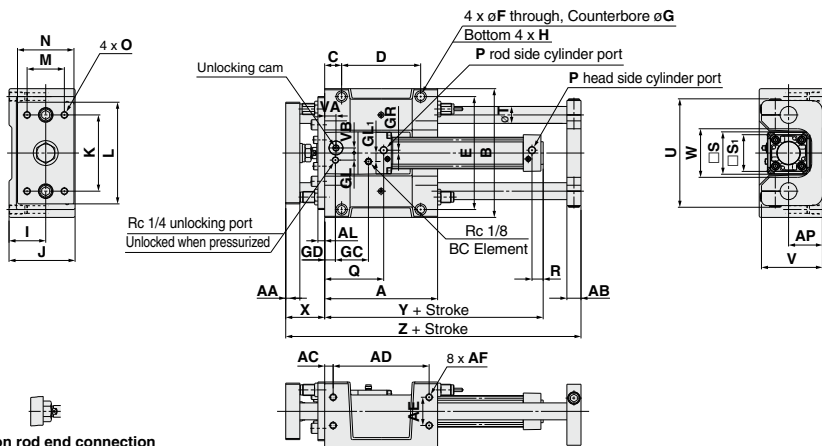
\* For solid state switches, auto switches with a pre-wired connector are also available. Refer to pages 1648 and 1649 for details.

\* Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H/Y7G/Y7H types) are also available. Refer to pages 1593 and 1595 for details.

Refer to the MNB series in Best Pneumatics No.2-2 for the minimum auto switch mounting stroke, proper auto switch mounting position and operating range.

## Dimensions

### Basic type ø50 to ø100



### Standard Stroke

| Bore size (mm) | Stroke range (mm) | A   | AA | AB | AC   | AD  | AE | AF                  | AL | AP | B   | C  | D   | E   | F    | G             | GC   | GD   | GL   | GL <sub>1</sub> | GR   | H                  | I  |
|----------------|-------------------|-----|----|----|------|-----|----|---------------------|----|----|-----|----|-----|-----|------|---------------|------|------|------|-----------------|------|--------------------|----|
| 50             | 75, 100, 125      | 200 | 25 | 25 | 15   | 170 | 50 | M12 x 1.75 depth 24 | 12 | 60 | 228 | 30 | 140 | 200 | 13.5 | 20 depth 14.5 | 58.5 | 19   | 12.5 | 15              | 5    | M16 x 2 depth 28   | 65 |
| 63             | 150, 200          | 230 | 25 | 27 | 15   | 200 | 55 | M12 x 1.75 depth 24 | 12 | 70 | 262 | 30 | 170 | 234 | 13.5 | 20 depth 14.5 | 68   | 23   | 17.5 | 12              | 9    | M16 x 2 depth 28   | 75 |
| 80             | 250, 300          | 280 | 30 | 30 | 17.5 | 245 | 70 | M14 x 2 depth 28    | 16 | 80 | 304 | 35 | 210 | 274 | 15   | 23 depth 17   | 81   | 33   | 22   | 18              | 11.5 | M18 x 2.5 depth 32 | 85 |
| 100            |                   | 280 | 32 | 30 | 17.5 | 245 | 70 | M14 x 2 depth 28    | 16 | 80 | 304 | 35 | 210 | 274 | 15   | 23 depth 17   | 96   | 37.5 | 25   | 20              | 17   | M18 x 2.5 depth 32 | 85 |

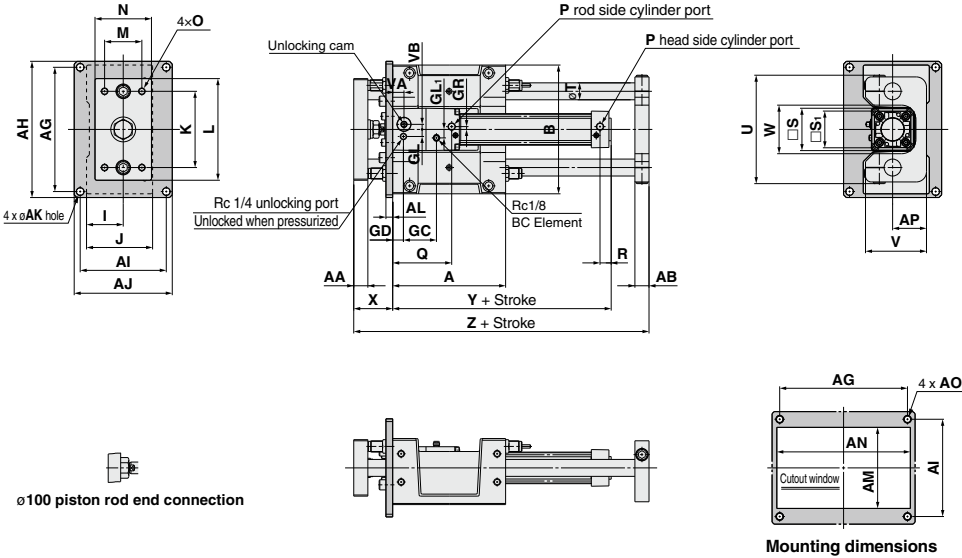
| Bore size (mm) | J   | K   | L   | M  | N   | O                   | P      | Q     | R    | S   | S <sub>1</sub> | T  | U   | V   | VA   | VB   | W   | X  | Y   | Z   |
|----------------|-----|-----|-----|----|-----|---------------------|--------|-------|------|-----|----------------|----|-----|-----|------|------|-----|----|-----|-----|
| 50             | 117 | 135 | 180 | 66 | 100 | M12 x 1.75 depth 23 | Rc 1/4 | 104.5 | 19.5 | 75  | 65             | 30 | 192 | 108 | 20   | 9    | 86  | 69 | 187 | 323 |
| 63             | 138 | 160 | 214 | 76 | 115 | M12 x 1.75 depth 23 | Rc 3/8 | 119.5 | 20.5 | 90  | 75             | 35 | 224 | 128 | 23   | 8.5  | 104 | 69 | 201 | 358 |
| 80             | 153 | 190 | 245 | 80 | 125 | M14 x 2 depth 28    | Rc 3/8 | 150   | 23   | 102 | 95             | 40 | 262 | 143 | 33   | 10.5 | 128 | 87 | 249 | 431 |
| 100            | 153 | 190 | 245 | 80 | 125 | M14 x 2 depth 30    | Rc 1/2 | 170   | 23   | 116 | 114            | 40 | 262 | 143 | 37.5 | 10.5 | 128 | 87 | 269 | 431 |

### Long Stroke

| Bore size (mm) | Stroke range (mm) |
|----------------|-------------------|
| 50             | 350 to 1000       |
| 63             | 350 to 1000       |
| 80             | 350 to 1000       |
| 100            | 350 to 1000       |

Dimensions

Front mounting flange type  
ø50 to ø100



Standard Stroke

| Bore size (mm) | Stroke range (mm)                    | A   | AA | AB | AG  | AH  | AI  | AJ  | AK | AL | AM  | AN  | AO  | AP | B   | GC   | GD   | GL   | GL <sub>1</sub> | GR   | I  | J   | K   | L   | M  | N   |
|----------------|--------------------------------------|-----|----|----|-----|-----|-----|-----|----|----|-----|-----|-----|----|-----|------|------|------|-----------------|------|----|-----|-----|-----|----|-----|
| 50             | 75, 100, 125<br>150, 200<br>250, 300 | 200 | 25 | 25 | 228 | 250 | 158 | 180 | 14 | 12 | 135 | 234 | M12 | 60 | 228 | 58.5 | 19   | 12.5 | 15              | 5    | 65 | 117 | 135 | 180 | 66 | 100 |
| 63             |                                      | 230 | 25 | 27 | 262 | 284 | 178 | 200 | 14 | 12 | 155 | 268 | M12 | 70 | 262 | 68   | 23   | 17.5 | 12              | 9    | 75 | 138 | 160 | 214 | 76 | 115 |
| 80             |                                      | 280 | 30 | 30 | 300 | 326 | 200 | 226 | 16 | 16 | 175 | 310 | M14 | 80 | 304 | 81   | 33   | 22   | 18              | 11.5 | 85 | 153 | 190 | 245 | 80 | 125 |
| 100            |                                      | 280 | 32 | 30 | 300 | 326 | 200 | 226 | 16 | 16 | 175 | 310 | M14 | 80 | 304 | 96   | 37.5 | 25   | 20              | 17   | 85 | 153 | 190 | 245 | 80 | 125 |

| Bore size (mm) | O                   | P      | Q     | R    | S   | S <sub>1</sub> | T  | U   | V   | VA   | VB   | W   | X  | Y   | Z   |
|----------------|---------------------|--------|-------|------|-----|----------------|----|-----|-----|------|------|-----|----|-----|-----|
| 50             | M12 x 1.75 depth 23 | Rc 1/4 | 104.5 | 19.5 | 75  | 65             | 30 | 192 | 108 | 20   | 9    | 86  | 69 | 187 | 323 |
| 63             | M12 x 1.75 depth 23 | Rc 3/8 | 119.5 | 20.5 | 90  | 75             | 35 | 224 | 128 | 23   | 8.5  | 104 | 69 | 201 | 358 |
| 80             | M14 x 2 depth 28    | Rc 3/8 | 150   | 23   | 102 | 95             | 40 | 262 | 143 | 33   | 10.5 | 128 | 87 | 249 | 431 |
| 100            | M14 x 2 depth 30    | Rc 1/2 | 170   | 23   | 116 | 114            | 40 | 262 | 143 | 37.5 | 10.5 | 128 | 87 | 269 | 431 |

Long Stroke

| Bore size (mm) | Stroke range (mm) |
|----------------|-------------------|
| 50             | 350 to 1000       |
| 63             | 350 to 1000       |
| 80             | 350 to 1000       |
| 100            | 350 to 1000       |

# Made to Order Common Specifications: -XC85: Grease for Food Processing Equipment



## 59 Grease for Food Processing Equipment

Symbol  
-XC85

Food grade grease (certified by NSF-H1) is used as lubricant.

### Applicable Series

| Series | Description                                 | Model   | Action                    | Note                 | Vol. no. (for std model) |
|--------|---------------------------------------------|---------|---------------------------|----------------------|--------------------------|
| CM2    | Air cylinder                                | CM2-Z   | Double acting, Single rod |                      | ②-1 From P. 172          |
|        |                                             | CM2W-Z  | Double acting, Double rod |                      |                          |
|        | Direct mount type                           | CM2R-Z  | Double acting, Single rod |                      |                          |
|        | Centralized piping type                     | CM2□P   | Double acting, Single rod | Except with rod boot |                          |
| CG1    | Air cylinder                                | CG1-Z   | Double acting, Single rod |                      | ②-1 From P. 292          |
|        |                                             | CG1W-Z  | Double acting, Double rod |                      |                          |
|        | Direct mount type                           | CG1R-Z  | Double acting, Single rod |                      |                          |
| CA2    | Air cylinder                                | CA2-Z   | Double acting, Single rod |                      | ②-1 From P. 470          |
|        |                                             | CA2W-Z  | Double acting, Double rod |                      |                          |
| CQS    | Compact cylinder                            | CQS     | Double acting, Single rod |                      | ②-1 From P. 693          |
|        |                                             | CQS     | Single acting, Single rod |                      |                          |
|        |                                             | CQSW    | Double acting, Double rod |                      |                          |
|        | Long stroke                                 | CQS     | Double acting, Single rod |                      |                          |
|        | Anti-lateral load                           | CQS□S   | Double acting, Single rod |                      |                          |
| CQ2    | Compact cylinder                            | CQ2-Z   | Double acting, Single rod |                      | ②-1 From P. 773          |
|        |                                             | CQ2-Z   | Single acting, Single rod |                      |                          |
|        |                                             | CQ2W-Z  | Double acting, Double rod |                      |                          |
|        | Large bore size                             | CQ2B-Z  | Double acting, Single rod |                      |                          |
|        |                                             | CQ2WB-Z | Double acting, Double rod |                      |                          |
|        | Long stroke                                 | CQ2-Z   | Double acting, Single rod |                      |                          |
|        | Non-rotating rod                            | CQ2K-Z  | Double acting, Single rod |                      |                          |
|        |                                             | CQ2KW-Z | Double acting, Double rod |                      |                          |
|        | Axial piping type (Centralized piping type) | CQP2    | Double acting, Single rod |                      |                          |
|        |                                             | CQP2    | Single acting, Single rod |                      |                          |
| MGP    | Anti-lateral load                           | CQ2□S-Z | Double acting, Single rod |                      | ②-2 From P. 432          |
|        | With end lock                               | CBQ2    | Double acting, Single rod |                      |                          |
|        | Compact guide cylinder                      | MGP-Z   | Double acting, Single rod |                      |                          |
|        | With air cushion                            | MGP-□AZ | Double acting, Single rod |                      |                          |
|        | With end lock                               | MGP     | Double acting, Single rod |                      |                          |
|        | Heavy duty guide rod type                   | MGPS    | Double acting, Single rod |                      |                          |
|        | High precision ball bushing type            | MGPA-Z  | Double acting, Single rod |                      |                          |
| CXSJ   | Dual rod cylinder                           | CXSJ    | Double acting             |                      | ②-2 From P. 737          |
| CXS    |                                             | CXS     | Double acting             |                      | ②-2 From P. 749          |

### How to Order

Standard model no. —XC85

Grease for food processing equipment

### Specifications

|                                 |                        |
|---------------------------------|------------------------|
| Seal material                   | Nitrile rubber         |
| Grease                          | Grease for food        |
| Auto switch                     | Mountable              |
| Dimensions                      | Same as standard model |
| Specifications other than above | Same as standard model |

### Warning

#### Precautions

Be aware that smoking cigarettes, etc. after your hands have come into contact with the grease used in this cylinder can create a gas that is hazardous to humans.

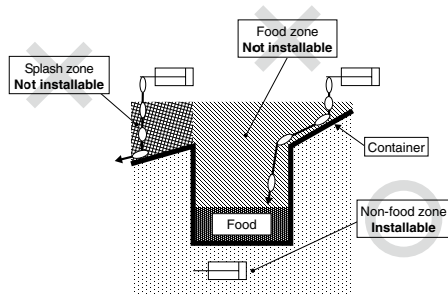
<Not installable>

Food zone.....An environment where food which will be sold as merchandise, directly touches the cylinder's components.

Splash zone.....An environment where food which will not be sold as merchandise, directly touches the cylinder's components.

<Installable>

Non-food zone.....An environment where there is no contact with food.



Note 1) Avoid using this product in the food zone. (Refer to the figure above.)

Note 2) When the product is used in an area of liquid splash, or a water resistant function is required for the product, please consult SMC.

Note 3) Operate without lubrication from a pneumatic system lubricator.

Note 4) Use the following grease pack for the maintenance work.  
GR-H-010 (Grease: 10 g)

Note 5) Please contact SMC for details on the maintenance intervals for this cylinder, which differ from those of the standard cylinder.

# Made to Order Common Specifications: -XC86: With Rod End Bracket



## 60 With Rod End Bracket

Symbol  
-XC86

With rod end bracket type to simplify the order process.

### Applicable Series

| Series | Description       | Model | Action                    | Vol. no. (for std model) |
|--------|-------------------|-------|---------------------------|--------------------------|
| CS1    | Standard type     | CS1   | Double acting, Single rod | ②-1 From P. 530          |
|        | Low friction type | CS1Q  | Double acting, Single rod |                          |
| CS2    | Standard type     | CS2   | Double acting, Single rod | ②-1 From P. 568          |
|        | Smooth cylinder   | CS2Y  | Double acting, Single rod |                          |

### How to Order

Standard model no.

-XC86 A

With rod end bracket

Suffix

|   |                                           |
|---|-------------------------------------------|
| A | With rod end nut                          |
| B | With double knuckle joint                 |
| C | With single knuckle joint                 |
| D | With double knuckle joint and rod end nut |
| E | With single knuckle joint and rod end nut |
| F | With rod end nut (For knuckle joint)      |

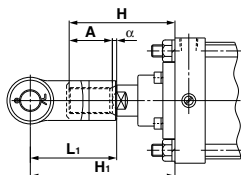
Note 1) Rod end brackets are shipped together.

Note 2) A pin and two split pins are attached for double knuckle joint.

Note 3) XC86A to C: Standard type, XC86D to F: Standard type except for rod end thread length (A and H dimensions)

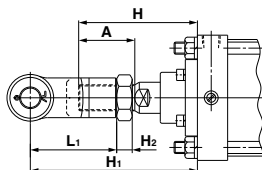
### Dimensions (Dimensions other than below are the same as standard type.)

#### CS1, CS2 series XC86B, XC86C

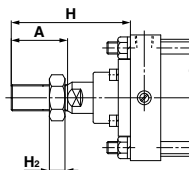


| Series     | Symbol            | H   | A  | $\alpha$ | L <sub>1</sub> | H <sub>1</sub> | CS1                               |                       | CS2                   |                       |
|------------|-------------------|-----|----|----------|----------------|----------------|-----------------------------------|-----------------------|-----------------------|-----------------------|
|            | Bore size<br>(mm) |     |    |          |                |                | Applicable knuckle joint part no. |                       |                       |                       |
|            |                   |     |    |          |                |                | I type single knuckle             | Y type double knuckle | I type single knuckle | Y type double knuckle |
| CS1<br>CS2 | 125               | 110 | 50 | 3.5      | 100            | 156.5          | I-12                              | Y-12                  | I-12A                 | Y-12A                 |
|            | 140               | 110 | 50 | 3.5      | 105            | 161.5          | I-14                              | Y-14                  | I-14A                 | Y-14A                 |
|            | 160               | 120 | 56 | 3.5      | 110            | 170.5          | I-16                              | Y-16                  | I-16A                 | Y-16A                 |
| CS1        | 180, 200          | 135 | 63 | 3.5      | 125            | 193.5          | I-18, I-20                        | Y-18, Y-20            |                       |                       |
|            | 250               | 160 | 71 | 3.5      | 160            | 245.5          | I-25                              | Y-25                  |                       |                       |
|            | 300               | 175 | 80 | 3.5      | 175            | 266.5          | I-30                              | Y-30                  |                       |                       |

#### CS1, CS2 series XC86D, XC86E



XC86F



| Series     | Symbol<br>Bore size<br>(mm) | H   | A   | L <sub>1</sub> | H <sub>1</sub> | H <sub>2</sub> | CS1                               |                       | CS2                   |                       | CS1, CS2 common<br>Applicable rod end nut |  |  |
|------------|-----------------------------|-----|-----|----------------|----------------|----------------|-----------------------------------|-----------------------|-----------------------|-----------------------|-------------------------------------------|--|--|
|            |                             |     |     |                |                |                | Applicable knuckle joint part no. |                       |                       |                       |                                           |  |  |
|            |                             |     |     |                |                |                | I type single knuckle             | Y type double knuckle | I type single knuckle | Y type double knuckle |                                           |  |  |
| CS1<br>CS2 | 125                         | 125 | 65  | 100            | 181            | 18             | I-12                              | Y-12                  | I-12A                 | Y-12A                 | NT-12                                     |  |  |
|            | 140                         | 125 | 65  | 105            | 186            | 18             | I-14                              | Y-14                  | I-14A                 | Y-14A                 | NT-12                                     |  |  |
|            | 160                         | 140 | 76  | 110            | 198            | 21             | I-16                              | Y-16                  | I-16A                 | Y-16A                 | NT-16                                     |  |  |
| CS1        | 180                         | 155 | 83  | 125            | 223            | 23             | I-18                              | Y-18                  |                       |                       | NT-18                                     |  |  |
|            | 200                         | 160 | 88  | 125            | 227            | 27             | I-20                              | Y-20                  |                       |                       | NT-20                                     |  |  |
|            | 250                         | 195 | 106 | 160            | 287            | 34             | I-25                              | Y-25                  |                       |                       | NT-25                                     |  |  |
|            | 300                         | 210 | 115 | 175            | 312            | 38             | I-30                              | Y-30                  |                       |                       | NT-30                                     |  |  |

# Made to Order Common Specifications:

## -XC86: With Rod End Bracket

## -XC87: Cylinder with One-way Lock/Heavy Duty Specifications



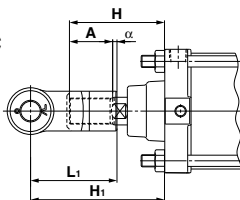
### 60 With Rod End Bracket

Symbol

**-XC86**

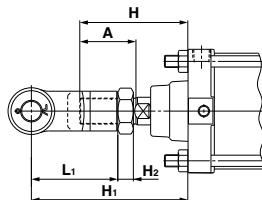
**Dimensions** (Dimensions other than below are the same as standard type.)

CS2 series  
XC86B, XC86C



| Symbol     | H   | A  | α   | L1  | H1    | Applicable knuckle joint part no. |                       |
|------------|-----|----|-----|-----|-------|-----------------------------------|-----------------------|
|            |     |    |     |     |       | I type single knuckle             | Y type double knuckle |
| <b>125</b> | 110 | 50 | 3.5 | 100 | 156.5 | <b>I-12A</b>                      | <b>Y-12A</b>          |
| <b>140</b> | 110 | 50 | 3.5 | 105 | 161.5 | <b>I-14A</b>                      | <b>Y-14A</b>          |
| <b>160</b> | 120 | 56 | 3.5 | 110 | 170.5 | <b>I-16A</b>                      | <b>Y-16A</b>          |

CS2 series  
XC86D, XC86E



| Symbol     | H   | A  | L1  | H1  | H2 | Applicable knuckle joint part no. |                       | Applicable rod end nut |
|------------|-----|----|-----|-----|----|-----------------------------------|-----------------------|------------------------|
|            |     |    |     |     |    | I type single knuckle             | Y type double knuckle |                        |
| <b>125</b> | 125 | 65 | 100 | 181 | 18 | <b>I-12A</b>                      | <b>Y-12A</b>          | <b>NT-12</b>           |
| <b>140</b> | 125 | 65 | 105 | 186 | 18 | <b>I-14A</b>                      | <b>Y-14A</b>          | <b>NT-12</b>           |
| <b>160</b> | 140 | 76 | 110 | 198 | 21 | <b>I-16A</b>                      | <b>Y-16A</b>          | <b>NT-16</b>           |

### 61 Cylinder with One-way Lock/Heavy Duty Specifications

Symbol

**-XC87**

Piston rods are heat treated. Even when an external force exceeding the specification range acts temporarily on the piston rod in the locked state, it is resistant to damage and an unlocking failure is unlikely to occur.

#### Applicable Series

| Series      | Description                                | Model | Action                    | Note                       | Vol. no. (for std model) |
|-------------|--------------------------------------------|-------|---------------------------|----------------------------|--------------------------|
| <b>CLQ</b>  | Compact cylinder with lock                 | CLQ   | Double acting, Single rod | Applicable to ø40 to ø100. | ②-2 From P. 1008         |
| <b>RLQ</b>  | Compact cylinder with air cushion and lock | RLQ   | Double acting, Single rod | Applicable to ø40 to ø63.  | ②-2 From P. 1034         |
| <b>MLGP</b> | Compact guide cylinder with lock           | MLGP  | Double acting             | Applicable to ø40 to ø100. | ②-2 From P. 1090         |
| <b>CLK2</b> | Clamp cylinder with lock                   | CLK2  | Double acting, Single rod | Applicable to ø40 to ø63.  | ②-3 From P. 448          |
| <b>MLU</b>  | Plate cylinder with lock                   | MLU   | Double acting, Single rod | Applicable to ø40 and ø50. | ②-2 From P. 1060         |

#### How to Order

Standard model no.

**-XC87**

Heavy duty specifications ●

**Specifications: Same as standard type**

**Dimensions: Same as the standard type**

## Made to Order Common Specifications:

- XC88: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)
- XC89: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)
- XC91: Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)



**62** Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304) **-XC88** **Symbol**

**63** Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C) **-XC89**

Reduces spatter adhesion and improves durability by the use of the coil scraper, Lube-retainer and grease for welding.

**64** Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C) **-XC91**

With coil scraper and grease for welding

### Applicable Series

| Series      | Description            | Model   | Action                    | XC88 | XC89 | XC91 | Vol. no. (for std model) |
|-------------|------------------------|---------|---------------------------|------|------|------|--------------------------|
| <b>MB</b>   | Air cylinder           | MB-Z    | Double acting, Single rod | ●    | ●    | ●    | ②-1 From P. 392          |
| <b>CA2</b>  | Air cylinder           | CA2-Z   | Double acting, Single rod | ●    | ●    | ●    | ②-1 From P. 470          |
| <b>CQ2</b>  | Compact cylinder       | CQ2-Z   | Double acting, Single rod | ●    | ●    | ●    | ②-1 From P. 773          |
|             | Long stroke            | CQ2-Z   | Double acting, Single rod | ●    | ●    | —    |                          |
|             | Anti-lateral load      | CQ2□S-Z | Double acting, Single rod | ●    | ●    | —    |                          |
| <b>MGP</b>  | Compact guide cylinder | MGPM-Z  | Double acting             | ●    | ●    | ●    | ②-2 From P. 432          |
| <b>MK2T</b> | Rotary clamp cylinder  | MK2T    | Double acting             | —    | ●    | ●    | ②-3 From P. 406          |
| <b>CKG1</b> | Clamp cylinder         | CKG1-Z  | Double acting, Single rod | ●    | ●    | ●    | ②-3 From P. 421          |

### Common Specifications: MB, CA2, CQ2, MK2T, CKG1

| Part no.     | Piston rod material<br>(Hard chrome plating) |                     | Coil<br>scraper | Lube-retainer | Grease<br>for welding |
|--------------|----------------------------------------------|---------------------|-----------------|---------------|-----------------------|
|              | S45C                                         | Stainless steel 304 |                 |               |                       |
| <b>-XC88</b> | —                                            | ●                   | ●               | ●             | ●                     |
| <b>-XC89</b> | ●                                            | —                   | ●               | ●             | ●                     |
| <b>-XC91</b> | ●                                            | —                   | ●               | —             | ●                     |

Note) Use the -XC91 in a place where the distance from the welding portion is far and the spatter scattering is minimized.

### Specifications: MGP

| Part no.      | Piston rod/Guide rod material<br>(Hard chrome plating) |                     | Coil scraper |           | Lube-retainer |           | Grease for<br>welding |
|---------------|--------------------------------------------------------|---------------------|--------------|-----------|---------------|-----------|-----------------------|
|               | S45C                                                   | Stainless steel 304 | Rod side     | Head side | Rod side      | Head side |                       |
| <b>-XC88</b>  | —                                                      | ●                   | ●            | —         | ●             | —         | ●                     |
| <b>-XC91</b>  | ●                                                      | —                   | ●            | —         | ●             | —         | ●                     |
| <b>-XC88W</b> | —                                                      | ●                   | ●            | ●         | ●             | ●         | ●                     |
| <b>-XC89W</b> | ●                                                      | —                   | ●            | ●         | ●             | ●         | ●                     |
| <b>-XC91W</b> | ●                                                      | —                   | ●            | ●         | ●             | —         | ●                     |

\* The current product MGP-XC89 is equivalent to -XC91.

# Made to Order Common Specifications:

- XC88: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)
- XC89: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)
- XC91: Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)



## MB Series

**62** Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304) **-XC88**

**63** Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C) **-XC89**

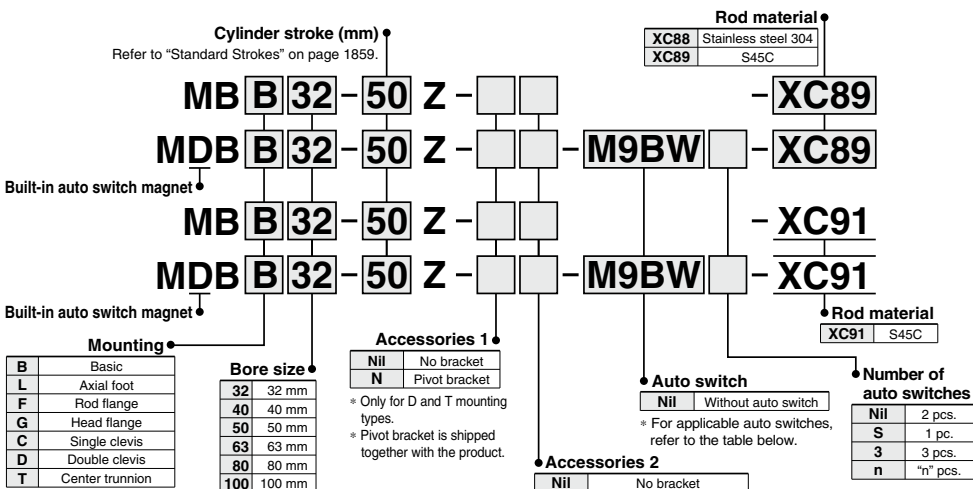
Reduces spatter adhesion and improves durability by the use of the coil scraper, Lube-retainer and grease for welding.

**64** Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C) **-XC91**

With coil scraper and grease for welding

## MB Series

## How to Order



## Made to Order

| Part no. | Piston rod material<br>(Hard chrome plated) |                     | Coil<br>scraper | Lube-<br>retainer | Grease for<br>welding |
|----------|---------------------------------------------|---------------------|-----------------|-------------------|-----------------------|
|          | S45C                                        | Stainless steel 304 |                 |                   |                       |
| -XC88    | —                                           | ●                   | ●               | ●                 | ●                     |
| -XC89    | ●                                           | —                   | ●               | ●                 | ●                     |
| -XC91    | ●                                           | —                   | ●               | —                 | ●                     |

Note) Use the -XC91 in a place where the distance from the welding portion is far and the spatter scattering is minimized.

## Built-in Auto Switch Magnet Cylinder Model

If a built-in auto switch magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch. (Example) MDBB40-100Z-XC89

## Applicable Auto Switches

Refer to pages 1575 to 1701 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        |                   | 0.5 (Nil)            | 1 (M) | 3 (L) | 5 (Z)      |   |                     |                 |            |
| Solid state auto switch | —                                            | Grommet          | Yes             | 3-wire (NPN)            | 24 V         | 5 V, 12 V | —                 | M9N                  | ●     | ●     | ●          | ○ | ○                   | IC circuit      | Relay, PLC |
|                         | 3-wire (PNP)                                 |                  |                 | 12 V                    |              | M9P       |                   | ●                    | ●     | ●     | ○          | ○ |                     |                 |            |
|                         | 2-wire                                       |                  |                 | 12 V                    |              | M9B       |                   | ●                    | ●     | ●     | ○          | ○ |                     |                 |            |
|                         | 3-wire (NPN)                                 |                  |                 | 5 V, 12 V               |              | M9NW      |                   | ●                    | ●     | ●     | ○          | ○ |                     |                 |            |
|                         | 3-wire (PNP)                                 |                  |                 | 12 V                    | M9PW         | ●         | ●                 | ●                    | ○     | ○     | IC circuit |   |                     |                 |            |
|                         | 2-wire                                       |                  |                 | —                       | M9BW         | ●         | ●                 | ●                    | ○     | ○     |            |   |                     |                 |            |
|                         | Magnetic field resistant (2-color indicator) |                  |                 | 2-wire (Non-polar)      | —            | P3DWA     | ●                 | —                    | ●     | ●     | ●          | — |                     |                 |            |
|                         |                                              |                  |                 |                         |              | P4DW      | —                 | —                    | ●     | ●     | ●          |   |                     |                 |            |
| Reed auto switch        | —                                            | Grommet          | Yes             | 3-wire (NPN equivalent) | —            | 5 V       | —                 | A96                  | ●     | —     | ●          | — | —                   | IC circuit      | —          |
|                         |                                              |                  |                 | No                      | 2-wire       | 24 V      | 12 V              | 100 V or less        | A93   | ●     | ●          | ● | —                   | —               | Relay, PLC |
|                         |                                              |                  |                 |                         |              |           |                   |                      | A90   | ●     | —          | ● | —                   | —               |            |
|                         |                                              |                  |                 |                         |              |           |                   |                      |       |       |            |   |                     |                 |            |

\* 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.  
\* For D-P3DWA/P4DW, ø40 to ø100 are available.  
\* For details about auto switches with pre-wired connector, refer to pages 1648 and 1649.

\* Please contact SMC for auto switches, auto switch proper mounting positions and operating ranges other than the above.

\* The D-A9C/M9C/P3DWA auto switches are shipped together, (but not assembled).  
(However, auto switch mounting brackets are assembled for the D-A9C/M9C before shipment.)

**Made to Order Common Specifications: *MB Series***  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)**  
**Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)**

## Specifications



| Bore size (mm)                | 32                                                                                  | 40  | 50 | 63  | 80 | 100 |
|-------------------------------|-------------------------------------------------------------------------------------|-----|----|-----|----|-----|
| Action                        | Double acting, Single rod                                                           |     |    |     |    |     |
| Fluid                         | Air                                                                                 |     |    |     |    |     |
| Proof pressure                | 1.5 MPa                                                                             |     |    |     |    |     |
| Max. operating pressure       | 1.0 MPa                                                                             |     |    |     |    |     |
| Min. operating pressure       | 0.05 MPa                                                                            |     |    |     |    |     |
| Ambient and fluid temperature | Without auto switch: -10 to 70°C (No freezing)                                      |     |    |     |    |     |
|                               | With auto switch: -10 to 60°C (No freezing)                                         |     |    |     |    |     |
| Lubrication                   | Not required (Non-lube)                                                             |     |    |     |    |     |
| Operating piston speed        | 50 to 1000 mm/s                                                                     |     |    |     |    |     |
| Stroke length tolerance       | Up to 250: $^{+1.0}_0$ , 251 to 1000: $^{+1.4}_0$ , 1001 to 1500: $^{+1.8}_0$       |     |    |     |    |     |
| Cushion                       | Air cushion                                                                         |     |    |     |    |     |
| Port size (Rc)                | 1/8                                                                                 | 1/4 |    | 3/8 |    | 1/2 |
| Mounting                      | Basic, Foot, Rod flange, Head flange, Single clevis, Double clevis, Center trunnion |     |    |     |    |     |

## Standard Strokes

| Bore size (mm) | Standard stroke (mm)                                                             | Max. stroke |
|----------------|----------------------------------------------------------------------------------|-------------|
| <b>32</b>      | 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500                | 700         |
| <b>40</b>      | 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500                | 800         |
| <b>50</b>      | 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600           | 1000        |
| <b>63</b>      | 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600           | 1000        |
| <b>80</b>      | 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800 | 1000        |
| <b>100</b>     | 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800 | 1000        |

Manufacture of intermediate strokes is possible. (Spacers are not used.) Produced upon receipt of order.

The specifications of the cylinder with auto switch are the same as those of the standard model.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Auto switch mounting brackets/Part no.
- Operating range

## Accessories

|          | Mounting                        | Basic | Axial foot | Rod flange | Head flange | Single clevis | Double clevis | Center trunnion |
|----------|---------------------------------|-------|------------|------------|-------------|---------------|---------------|-----------------|
| Standard | Rod end nut                     | ●     | ●          | ●          | ●           | ●             | ●             | ●               |
|          | Clevis pin                      | —     | —          | —          | —           | —             | ●             | —               |
| Option   | Single knuckle joint            | ●     | ●          | ●          | ●           | ●             | ●             | ●               |
|          | Double knuckle joint (with pin) | ●     | ●          | ●          | ●           | ●             | ●             | ●               |

## Mounting Brackets/Part No.

| Bore size (mm)                | 32     | 40     | 50     | 63     | 80     | 100    |
|-------------------------------|--------|--------|--------|--------|--------|--------|
| Axial foot <sup>Note 1)</sup> | MB-L03 | MB-L04 | MB-L05 | MB-L06 | MB-L08 | MB-L10 |
| Flange                        | MB-F03 | MB-F04 | MB-F05 | MB-F06 | MB-F08 | MB-F10 |
| Single clevis                 | MB-C03 | MB-C04 | MB-C05 | MB-C06 | MB-C08 | MB-C10 |
| Double clevis                 | MB-D03 | MB-D04 | MB-D05 | MB-D06 | MB-D08 | MB-D10 |

Note 1) Order two axial foot brackets per cylinder.

Note 2) Accessories for each mounting bracket are as follows:

Axial foot, flange, single clevis/body mounting bolt, double clevis/body mounting bolt, clevis pin, flat washers and split pins.

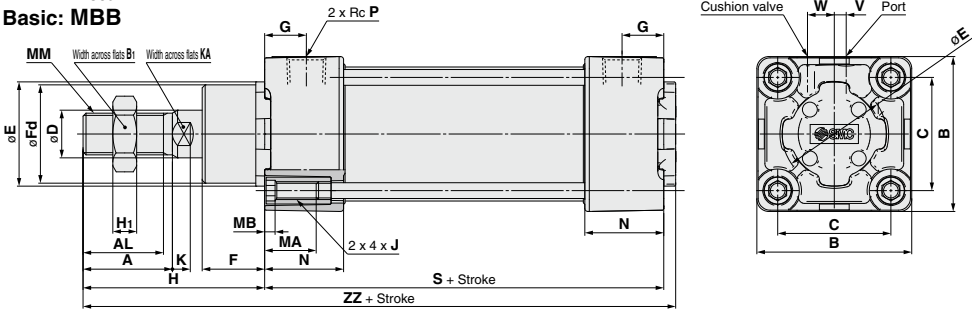
MB-XC88/XC89/XC91

Bore Size  
ø32 to ø100

Dimensions with mounting bracket are the same as standard type. For details, refer to page 397.

M□B□-XC88  
-XC89

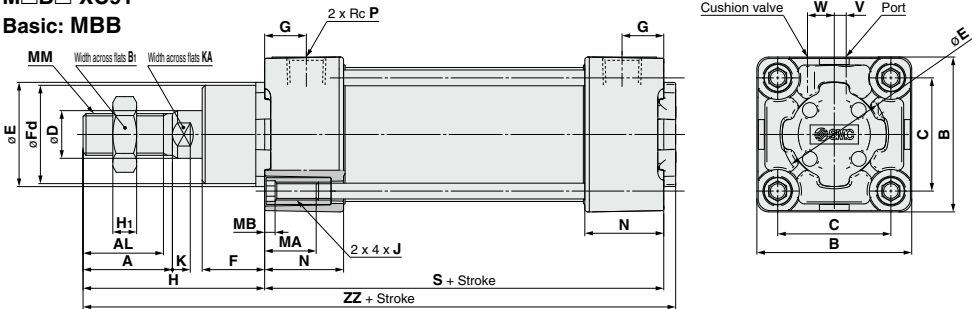
Basic: MBB



| Dimensions     |    | (mm) |     |    |      |    |    |      |      |      |    |    |           |    |    |    |    |            |      |     |     |      |      |     |  |
|----------------|----|------|-----|----|------|----|----|------|------|------|----|----|-----------|----|----|----|----|------------|------|-----|-----|------|------|-----|--|
| Bore size (mm) | A  | AL   | B   | B1 | C    | D  | E  | F    | Fd   | G    | H  | H1 | J         | K  | KA | MA | MB | MM         | N    | P   | S   | V    | W    | ZZ  |  |
| 32             | 22 | 19.5 | 46  | 17 | 32.5 | 12 | 30 | 21   | 28   | 13   | 50 | 6  | M6 x 1    | 6  | 10 | 16 | 4  | M10 x 1.25 | 27   | 1/8 | 84  | 4    | 6.5  | 138 |  |
| 40             | 30 | 27   | 52  | 22 | 38   | 16 | 35 | 23.5 | 33   | 14   | 61 | 8  | M6 x 1    | 6  | 14 | 16 | 4  | M14 x 1.5  | 27   | 1/4 | 84  | 4    | 9    | 149 |  |
| 50             | 35 | 32   | 65  | 27 | 46.5 | 20 | 40 | 23   | 39.5 | 15.5 | 67 | 11 | M8 x 1.25 | 7  | 18 | 16 | 4  | M18 x 1.5  | 31.5 | 1/4 | 94  | 5    | 10.5 | 165 |  |
| 63             | 35 | 32   | 75  | 27 | 56.5 | 20 | 45 | 23   | 39.5 | 16.5 | 67 | 11 | M8 x 1.25 | 7  | 18 | 16 | 4  | M18 x 1.5  | 31.5 | 3/8 | 94  | 9    | 12   | 165 |  |
| 80             | 40 | 37   | 95  | 32 | 72   | 25 | 45 | 29   | 44.5 | 19   | 82 | 13 | M10 x 1.5 | 10 | 22 | 16 | 5  | M22 x 1.5  | 38   | 3/8 | 114 | 11.5 | 14   | 200 |  |
| 100            | 40 | 37   | 114 | 41 | 89   | 30 | 55 | 29   | 54   | 19   | 82 | 16 | M10 x 1.5 | 10 | 26 | 16 | 5  | M26 x 1.5  | 38   | 1/2 | 114 | 17   | 15   | 200 |  |

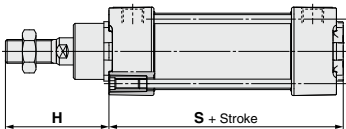
M□B□-XC91

Basic: MBB



| Dimensions     |              | (mm) |      |     |    |      |    |    |    |      |      |    |    |           |    |    |    |    |            |      |     |     |      |      |     |
|----------------|--------------|------|------|-----|----|------|----|----|----|------|------|----|----|-----------|----|----|----|----|------------|------|-----|-----|------|------|-----|
| Bore size (mm) | Stroke range | A    | AL   | B   | B1 | C    | D  | E  | F  | Fd   | G    | H  | H1 | J         | K  | KA | MA | MB | MM         | N    | P   | S   | V    | W    | ZZ  |
| 32             | Up to 1000   | 22   | 19.5 | 46  | 17 | 32.5 | 12 | 30 | 13 | 28   | 13   | 47 | 6  | M6 x 1    | 6  | 10 | 16 | 4  | M10 x 1.25 | 27   | 1/8 | 84  | 4    | 6.5  | 135 |
| 40             | Up to 1000   | 30   | 27   | 52  | 22 | 38   | 16 | 35 | 13 | 33   | 14   | 58 | 8  | M6 x 1    | 6  | 14 | 16 | 4  | M14 x 1.5  | 27   | 1/4 | 84  | 4    | 9    | 146 |
| 50             | Up to 1000   | 35   | 32   | 65  | 27 | 46.5 | 20 | 40 | 14 | 39.5 | 15.5 | 67 | 11 | M8 x 1.25 | 7  | 18 | 16 | 5  | M18 x 1.5  | 31.5 | 1/4 | 94  | 5    | 10.5 | 165 |
| 63             | Up to 1000   | 35   | 32   | 75  | 27 | 56.5 | 20 | 45 | 14 | 39.5 | 16.5 | 67 | 11 | M8 x 1.25 | 7  | 18 | 16 | 5  | M18 x 1.5  | 31.5 | 3/8 | 94  | 9    | 12   | 165 |
| 80             | Up to 1000   | 40   | 37   | 95  | 32 | 72   | 25 | 45 | 20 | 44.5 | 19   | 81 | 13 | M10 x 1.5 | 10 | 22 | 16 | 5  | M22 x 1.5  | 38   | 3/8 | 114 | 11.5 | 14   | 199 |
| 100            | Up to 1000   | 40   | 37   | 114 | 41 | 89   | 30 | 55 | 20 | 54   | 19   | 81 | 16 | M10 x 1.5 | 10 | 26 | 16 | 5  | M26 x 1.5  | 38   | 1/2 | 114 | 17   | 15   | 199 |

Comparison of the Dimensions of Each Series



| Bore size (mm) | XC88, 89 |     | XC91 |     | XC35 |     | Standard |     |
|----------------|----------|-----|------|-----|------|-----|----------|-----|
|                | H        | S   | H    | S   | H    | S   | H        | S   |
| 32             | 50       | 88  | 47   | 88  | 47   | 88  | 47       | 88  |
| 40             | 61       | 88  | 58   | 88  | 58   | 88  | 51       | 88  |
| 50             | 67       | 98  | 67   | 98  | 67   | 98  | 58       | 98  |
| 63             | 67       | 98  | 67   | 98  | 67   | 98  | 58       | 98  |
| 80             | 82       | 118 | 81   | 118 | 81   | 118 | 72       | 118 |
| 100            | 82       | 118 | 81   | 118 | 81   | 118 | 72       | 118 |

\* At 0 stroke

# Made to Order Common Specifications:

- XC88: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)
- XC89: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)
- XC91: Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)



## CA2 Series

**62** Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304) **-XC88**

**63** Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C) **-XC89**

Reduces spatter adhesion and improves durability by the use of the coil scraper, Lube-retainer and grease for welding.

**64** Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C) **-XC91**

With coil scraper and grease for welding

## CA2 Series

## How to Order

**Cylinder stroke (mm)**  
For details, refer to page 1862.

**Rod material**

|      |                     |
|------|---------------------|
| XC88 | Stainless steel 304 |
| XC89 | S45C                |

**CA2 B 50 - 100 Z - [ ] [ ] - XC89**

**CDA2 B 50 - 100 Z - [ ] [ ] - M9BW [ ] - XC89**

**CA2 B 50 - 100 Z - [ ] [ ] - XC91**

**CDA2 B 50 - 100 Z - [ ] [ ] - M9BW [ ] - XC91**

**Built-in auto switch magnet**

**Mounting**

|   |                 |
|---|-----------------|
| B | Basic           |
| L | Axial foot      |
| F | Rod flange      |
| G | Head flange     |
| C | Single clevis   |
| D | Double clevis   |
| T | Center trunnion |

**Bore size**

|     |        |
|-----|--------|
| 40  | 40 mm  |
| 50  | 50 mm  |
| 63  | 63 mm  |
| 80  | 80 mm  |
| 100 | 100 mm |

**Accessories 1**

|     |                 |
|-----|-----------------|
| Nil | Without bracket |
| N   | Pivot bracket   |

\* Only for D and T mounting types.  
\* Pivot bracket is shipped together with the product, but not assembled.

**Accessories 2**

|     |                      |
|-----|----------------------|
| Nil | Without bracket      |
| V   | Single knuckle joint |
| W   | Double knuckle joint |

\* A knuckle joint pin is not provided with the single knuckle joint.  
\* Rod end bracket is shipped together with the product.

**Rod material**

|      |      |
|------|------|
| XC91 | S45C |
|------|------|

**Number of auto switches**

|     |          |
|-----|----------|
| Nil | 2 pcs.   |
| S   | 1 pc.    |
| 3   | 3 pcs.   |
| n   | "n" pcs. |

**Auto switch**

|     |                     |
|-----|---------------------|
| Nil | Without auto switch |
|-----|---------------------|

\* For applicable auto switches, refer to the table below.

## Made to Order

| Part no. | Piston rod material<br>(Hard chrome plated) |                     | Coil scraper | Lube-retainer | Grease for welding |
|----------|---------------------------------------------|---------------------|--------------|---------------|--------------------|
|          | S45C                                        | Stainless steel 304 |              |               |                    |
| -XC88    | —                                           | ●                   | ●            | ●             | ●                  |
| -XC89    | ●                                           | —                   | ●            | ●             | ●                  |
| -XC91    | ●                                           | —                   | ●            | —             | ●                  |

Note) Use the -XC91 in a place where the distance from the welding portion is far and the spatter scattering is minimized.

## Built-in Auto Switch Magnet Cylinder Model

If a built-in auto switch magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch. (Example) CDA2L40-100Z-XC89

## Applicable Auto Switches

Refer to pages 1575 to 1701 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        |                   | Tie-rod mounting     | 0.5 (Nil) | 1 (M) | 3 (L) | 5 (Z) |                     |                 |            |   |            |            |
|                         |                    |                  |                 |                         |              |           |                   |                      |           |       |       |       |                     |                 |            |   |            |            |
| Solid state auto switch | —                  | Grommet          | Yes             | 3-wire (NPN)            | 24 V         | 5 V, 12 V | —                 | M9N                  | ●         | ●     | ●     | ○     | ○                   | IC circuit      | Relay, PLC |   |            |            |
|                         | 3-wire (PNP)       |                  |                 | 12 V                    |              | M9P       |                   | ●                    | ●         | ●     | ○     | ○     |                     |                 |            |   |            |            |
|                         | 2-wire             |                  |                 | 5 V, 12 V               |              | M9B       |                   | ●                    | ●         | ●     | ○     | ○     |                     |                 |            |   |            |            |
|                         | 3-wire (NPN)       |                  |                 | 12 V                    |              | M9NW      |                   | ●                    | ●         | ●     | ○     | ○     |                     |                 |            |   |            |            |
|                         | 3-wire (PNP)       |                  |                 | —                       |              | M9PW      |                   | ●                    | ●         | ●     | ○     | ○     |                     |                 |            |   |            |            |
|                         | 2-wire             |                  |                 | —                       |              | M9BW      |                   | ●                    | ●         | ●     | ○     | ○     |                     |                 |            |   |            |            |
|                         | 2-wire (Non-polar) |                  |                 | —                       |              | P3DWA     |                   | ●                    | —         | ●     | ●     | ●     |                     |                 |            |   |            |            |
|                         | P4DW               |                  |                 | —                       |              | —         |                   | ●                    | ●         | ●     | ●     |       |                     |                 |            |   |            |            |
| Reed auto switch        | —                  | Grommet          | Yes             | 3-wire (NPN equivalent) | 24 V         | 5 V       | —                 | A96                  | ●         | —     | ●     | —     | —                   | IC circuit      | —          |   |            |            |
|                         | No                 |                  |                 | 2-wire                  |              | 12 V      |                   | 100 V or less        | A93       | ●     | ●     | ●     | ●                   | —               |            | — |            |            |
|                         |                    |                  |                 |                         |              |           |                   |                      |           | A90   | ●     | —     | —                   | —               |            | — | IC circuit | Relay, PLC |
|                         |                    |                  |                 |                         |              |           |                   |                      |           |       |       |       |                     |                 |            |   |            |            |

\* 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.

\* Please contact SMC for auto switches, auto switch proper mounting positions and operating ranges other than the above.

\* For details about auto switches with pre-wired connector, refer to pages 1648 and 1649.

\* The D-A9□/M9□□/P3DWA auto switches are shipped together, (but not assembled). (However, auto switch mounting brackets are assembled for the D-A9□/M9□□ before shipment.)



# CA2-XC88/XC89/XC91



## Specifications

| Bore size (mm)                                  |                                   | 40                                                                                                      | 50   | 63   | 80   | 100  |
|-------------------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------|------|------|------|------|
| Fluid                                           |                                   | Air                                                                                                     |      |      |      |      |
| Action                                          |                                   | Double acting                                                                                           |      |      |      |      |
| Proof pressure                                  |                                   | 1.5 MPa                                                                                                 |      |      |      |      |
| Maximum operating pressure                      |                                   | 1.0 MPa                                                                                                 |      |      |      |      |
| Ambient and fluid temperature                   |                                   | Without auto switch: -10 to 70°C <sup>Note 1)</sup><br>With auto switch: -10 to 60°C <sup>Note 1)</sup> |      |      |      |      |
| Minimum operating pressure                      |                                   | 0.05 MPa                                                                                                |      |      |      |      |
| Piston speed                                    |                                   | 50 to 500 mm/s                                                                                          |      |      |      |      |
| Cushion                                         |                                   | Air cushion                                                                                             |      |      |      |      |
| Stroke length tolerance                         |                                   | Up to 250 <sup>±1.0</sup> 251 to 1000 <sup>±1.4</sup>                                                   |      |      |      |      |
| Lubrication                                     |                                   | Not required (Non-lube)                                                                                 |      |      |      |      |
| Mounting                                        |                                   | Basic, Foot, Rod flange, Head flange<br>Single clevis, Double clevis, Center trunnion                   |      |      |      |      |
| Allowable kinetic energy (J) <sup>Note 2)</sup> | When air cushion is activated     | 2.8                                                                                                     | 4.6  | 7.8  | 16   | 29   |
|                                                 | When air cushion is not activated | 0.33                                                                                                    | 0.56 | 0.91 | 1.50 | 2.68 |

Note 1) With no freezing

Note 2) Activate the air cushion when operating the cylinder. If this is not done, the rod parts assembly or the tie-rods will be damaged when the allowable kinetic energy exceeds the values shown in the table above.

## Standard Strokes

|           |                                                                             | (mm)                                          |  |
|-----------|-----------------------------------------------------------------------------|-----------------------------------------------|--|
| Bore size | Standard stroke <sup>Note 1)</sup>                                          | Max. manufacturable stroke <sup>Note 2)</sup> |  |
| 40        | 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500           | 1000                                          |  |
| 50, 63    | 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600      | 1000                                          |  |
| 80, 100   | 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700 | 1000                                          |  |

Note 1) Intermediate strokes not listed above are produced upon receipt of order.

Note 2) For details about applicable maximum stroke, refer to the model selection table on front matter pages.

### Minimum Stroke for Auto Switch Mounting

## ⚠ Caution

1. The minimum stroke for mounting varies with the auto switch type and cylinder mounting type. In particular, the center trunnion type needs careful attention. (For details, refer to pages 521 and 522.)

The specifications of the cylinder with auto switch are the same as those of the standard model.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Auto switch mounting brackets/Part no.
- Operating range

## Accessories

| Mounting |                                 | Basic | Axial foot | Rod flange | Head flange | Single clevis | Double clevis | Center trunnion |
|----------|---------------------------------|-------|------------|------------|-------------|---------------|---------------|-----------------|
| Standard | Rod end nut                     | ●     | ●          | ●          | ●           | ●             | ●             | ●               |
|          | Clevis pin                      | —     | —          | —          | —           | —             | ●             | —               |
| Option   | Single knuckle joint            | ●     | ●          | ●          | ●           | ●             | ●             | ●               |
|          | Double knuckle joint (With pin) | ●     | ●          | ●          | ●           | ●             | ●             | ●               |

**Made to Order Common Specifications: CA2 Series**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)**  
**Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)**

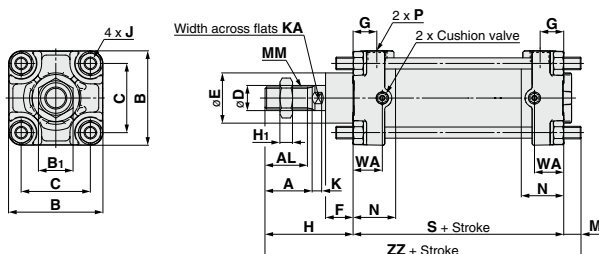
Bore Size

**ø40 to ø100**

Dimensions with mounting bracket are the same as standard type. For details, refer to pages 476 to 483.

CA2-XC88  
XC89

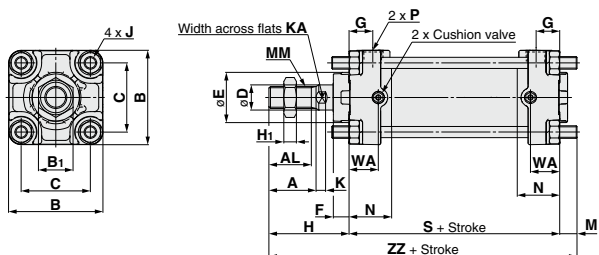
Basic: CA2B



| Bore size (mm) | A  | AL | B   | B <sub>1</sub> | C  | D  | E  | F    | G  | H <sub>1</sub> | J          | K  | KA | M  | MM        | N  | P   | S   | WA   | H  | ZZ  |
|----------------|----|----|-----|----------------|----|----|----|------|----|----------------|------------|----|----|----|-----------|----|-----|-----|------|----|-----|
| 40             | 30 | 27 | 60  | 22             | 44 | 16 | 32 | 17.5 | 15 | 8              | M8 x 1.25  | 6  | 14 | 11 | M14 x 1.5 | 27 | 1/4 | 84  | 18.5 | 56 | 151 |
| 50             | 35 | 32 | 70  | 27             | 52 | 20 | 40 | 15   | 17 | 11             | M8 x 1.25  | 7  | 18 | 11 | M18 x 1.5 | 30 | 3/8 | 90  | 18.5 | 60 | 161 |
| 63             | 35 | 32 | 85  | 27             | 64 | 20 | 40 | 15   | 17 | 11             | M10 x 1.25 | 7  | 18 | 14 | M18 x 1.5 | 31 | 3/8 | 98  | 23   | 60 | 172 |
| 80             | 40 | 37 | 102 | 32             | 78 | 25 | 52 | 19   | 21 | 13             | M12 x 1.75 | 10 | 22 | 17 | M22 x 1.5 | 37 | 1/2 | 116 | 28.5 | 73 | 206 |
| 100            | 40 | 37 | 116 | 41             | 92 | 30 | 52 | 19   | 21 | 16             | M12 x 1.75 | 10 | 26 | 17 | M26 x 1.5 | 40 | 1/2 | 126 | 28.5 | 74 | 217 |

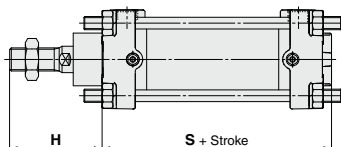
CA2B-XC91 \* Dimensions are the same as the standard product (CA2 series).

Basic: CA2B



| Bore size (mm) | A  | AL | B   | B <sub>1</sub> | C  | D  | E  | F  | G  | H <sub>1</sub> | J          | K  | KA | M  | MM        | N  | P   | S   | WA   | H  | ZZ  |
|----------------|----|----|-----|----------------|----|----|----|----|----|----------------|------------|----|----|----|-----------|----|-----|-----|------|----|-----|
| 40             | 30 | 27 | 60  | 22             | 44 | 16 | 32 | 10 | 15 | 8              | M8 x 1.25  | 6  | 14 | 11 | M14 x 1.5 | 27 | 1/4 | 84  | 18.5 | 51 | 146 |
| 50             | 35 | 32 | 70  | 27             | 52 | 20 | 40 | 10 | 17 | 11             | M8 x 1.25  | 7  | 18 | 11 | M18 x 1.5 | 30 | 3/8 | 90  | 18.5 | 58 | 159 |
| 63             | 35 | 32 | 85  | 27             | 64 | 20 | 40 | 10 | 17 | 11             | M10 x 1.25 | 7  | 18 | 14 | M18 x 1.5 | 31 | 3/8 | 98  | 23   | 58 | 170 |
| 80             | 40 | 37 | 102 | 32             | 78 | 25 | 52 | 14 | 21 | 13             | M12 x 1.75 | 10 | 22 | 17 | M22 x 1.5 | 37 | 1/2 | 116 | 28.5 | 71 | 204 |
| 100            | 40 | 37 | 116 | 41             | 92 | 30 | 52 | 14 | 21 | 16             | M12 x 1.75 | 10 | 26 | 17 | M26 x 1.5 | 40 | 1/2 | 126 | 28.5 | 72 | 215 |

## Comparison of the Dimensions of Each Series



| Bore size (mm) | XC88, 89 |     | XC91 |     | XC35 |     | Standard |     |
|----------------|----------|-----|------|-----|------|-----|----------|-----|
|                | H        | S   | H    | S   | H    | S   | H        | S   |
| 40             | 56       | 95  | 51   | 95  | 51   | 95  | 51       | 95  |
| 50             | 60       | 101 | 58   | 101 | 58   | 101 | 58       | 101 |
| 63             | 60       | 112 | 58   | 112 | 58   | 112 | 58       | 112 |
| 80             | 73       | 133 | 71   | 133 | 71   | 133 | 71       | 133 |
| 100            | 74       | 143 | 72   | 143 | 72   | 143 | 72       | 143 |

\* At 0 stroke

# Made to Order Common Specifications:

- XC88: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)
- XC89: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)
- XC91: Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)



## CDQ2 Series

**62** Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304) **-XC88**

**63** Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C) **-XC89**

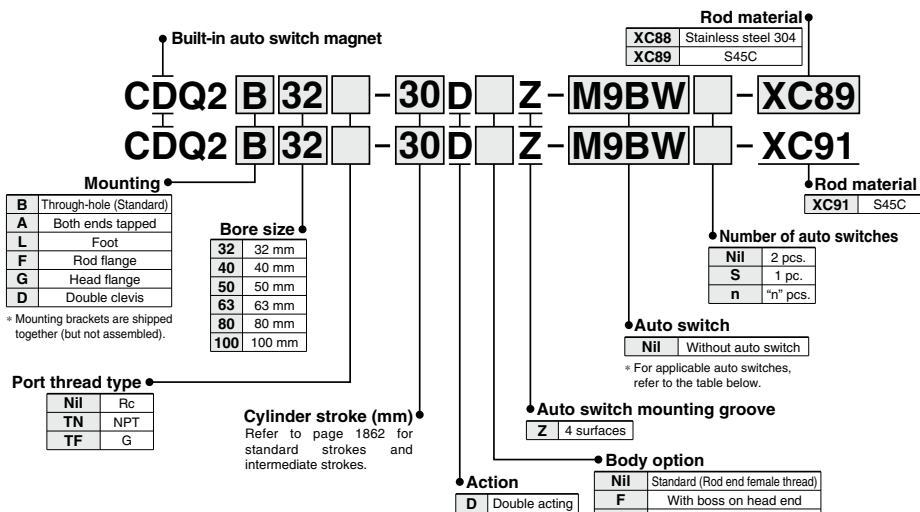
Reduces spatter adhesion and improves durability by the use of the coil scraper, Lube-retainer and grease for welding.

**64** Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C) **-XC91**

With coil scraper and grease for welding

### CDQ2 Series: Standard

### How to Order



### Made to Order

| Part no. | Piston rod material<br>(Hard chrome plated) |                     | Coil<br>scraper | Lube-<br>retainer | Grease for<br>welding |
|----------|---------------------------------------------|---------------------|-----------------|-------------------|-----------------------|
|          | S45C                                        | Stainless steel 304 |                 |                   |                       |
| -XC88    | —                                           | ●                   | ●               | ●                 | ●                     |
| -XC89    | ●                                           | —                   | ●               | ●                 | ●                     |
| -XC91    | ●                                           | —                   | ●               | —                 | ●                     |

Note) Use the -XC91 in a place where the distance from the welding portion is far and the spatter scattering is minimized.

### Built-in Auto Switch Magnet Cylinder Model

If a built-in auto switch magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.  
(Example) CDQ2L32-25DZ-XC89

### Applicable Auto Switches/Refer to pages 1575 to 1701 for further information on auto switches.

| Type                       | Special function                                | Electrical<br>entry | Indicator<br>light | Wiring<br>(Output)      | Load voltage |    | Auto switch model |         | Lead wire length (m) |          |          |          |             | Pre-wired<br>connector | Applicable load |            |
|----------------------------|-------------------------------------------------|---------------------|--------------------|-------------------------|--------------|----|-------------------|---------|----------------------|----------|----------|----------|-------------|------------------------|-----------------|------------|
|                            |                                                 |                     |                    |                         | DC           | AC | Perpendicular     | In-line | 0.5<br>(Nil)         | 1<br>(M) | 3<br>(L) | 5<br>(Z) | None<br>(N) |                        |                 |            |
|                            |                                                 |                     |                    |                         |              |    |                   |         | Nil                  | 1        | 3        | 5        | None        |                        |                 |            |
| Solid state<br>auto switch | Diagnostic indication<br>(2-color indicator)    | Grommet             | Yes                | 3-wire (NPN)            | 24 V         | —  | M9NV              | M9N     | ●                    | ●        | ○        | —        | —           | —                      | IC circuit      | Relay, PLC |
|                            |                                                 |                     |                    | 3-wire (PNP)            |              |    |                   |         | ●                    | ●        | ○        | —        | —           |                        |                 |            |
|                            |                                                 |                     |                    | 2-wire                  |              |    |                   |         | ●                    | ●        | ○        | —        | —           |                        |                 |            |
|                            |                                                 |                     |                    | 3-wire (NPN)            |              |    | M9NV              | M9NW    | ●                    | ●        | ○        | —        | —           |                        |                 |            |
|                            |                                                 |                     |                    | 3-wire (PNP)            |              |    |                   |         | ●                    | ●        | ○        | —        | —           |                        |                 |            |
|                            |                                                 |                     |                    | 2-wire                  |              |    | M9PV              | M9B     | ●                    | ●        | ○        | —        | —           |                        |                 |            |
| Reed<br>auto switch        | Magnetic field resistant<br>(2-color indicator) | Grommet             | Yes                | 2-wire (Non-polar)      | —            | —  | M9BWV             | M9BW    | ●                    | ●        | ○        | —        | —           | —                      | IC circuit      | Relay, PLC |
|                            |                                                 |                     |                    | 3-wire (NPN equivalent) |              |    |                   |         | ●                    | ●        | ○        | —        | —           |                        |                 |            |
|                            |                                                 |                     |                    | 2-wire                  |              |    |                   |         | ●                    | ●        | ○        | —        | —           |                        |                 |            |
|                            |                                                 |                     |                    | 3-wire (NPN equivalent) |              |    | A96V              | A96     | ●                    | ●        | ○        | —        | —           |                        |                 |            |
|                            |                                                 |                     |                    | 2-wire                  |              |    |                   |         | ●                    | ●        | ○        | —        | —           |                        |                 |            |
|                            |                                                 |                     |                    | 2-wire                  |              |    | A93V              | A93     | ●                    | ●        | ○        | —        | —           |                        |                 |            |
|                            |                                                 |                     |                    | 2-wire                  |              |    |                   |         | ●                    | ●        | ○        | —        | —           |                        |                 |            |
|                            |                                                 |                     |                    | 2-wire                  |              |    | A90V              | A90     | ●                    | ●        | ○        | —        | —           |                        |                 |            |
|                            |                                                 |                     |                    | 2-wire                  |              |    |                   |         | ●                    | ●        | ○        | —        | —           |                        |                 |            |

\* Lead wire length symbols: 0.5 m ..... Nil  
1 m ..... M  
3 m ..... L  
5 m ..... Z

(Example) M9NV  
(Example) M9NWM  
(Example) M9NWL  
(Example) M9NWX

\* Solid state auto switches marked with "○" are produced upon receipt of order.  
\* The D-P3DW is mountable on ø32 to ø100.

\* Please contact SMC for auto switches, auto switch proper mounting positions and operating ranges other than the above.  
\* For details about auto switches with pre-wired connector, refer to pages 1648 and 1649.

**Made to Order Common Specifications: *CDQ2 Series***  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)**  
**Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)**

## Specifications



### Pneumatic type

| Bore size (mm)                | 32                        | 40   | 50   | 63   | 80   | 100  |
|-------------------------------|---------------------------|------|------|------|------|------|
| Action                        | Double acting, Single rod |      |      |      |      |      |
| Fluid                         | Air                       |      |      |      |      |      |
| Proof pressure                | 1.5 MPa                   |      |      |      |      |      |
| Maximum operating pressure    | 1.0 MPa                   |      |      |      |      |      |
| Minimum operating pressure    | 0.05 MPa                  |      |      |      |      |      |
| Ambient and fluid temperature | -10 to 60°C (No freezing) |      |      |      |      |      |
| Lubrication                   | Not required (Non-lube)   |      |      |      |      |      |
| Piston speed                  | 50 to 500 mm/s            |      |      |      |      |      |
| Allowable kinetic energy (J)  | Standard                  | 0.15 | 0.26 | 0.46 | 0.77 | 1.36 |
|                               | With rubber bumper        | 0.29 | 0.52 | 0.91 | 1.54 | 2.71 |
| Stroke length tolerance       | ±1.0 mm (Note)            |      |      |      |      |      |
|                               | 0                         |      |      |      |      |      |

Note) Stroke length tolerance does not include the amount of bumper change.

## Standard Strokes

| Pneumatic type | Standard stroke (mm)                           |
|----------------|------------------------------------------------|
| Bore size      |                                                |
| 32, 40         | 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100 |
| 50 to 100      | 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100    |

- For long strokes exceeding the standard stroke range, refer to page 1871.
- For intermediate strokes, refer below.

## Mounting Brackets/Part No.

| Bore size (mm) | Model      | Foot (Note 1) | Flange       | Double clevis |
|----------------|------------|---------------|--------------|---------------|
| 32             | CDQ2□□-□DZ | CQ-L032-XC35  | CQ-F032-XC35 | CQ-D032       |
| 40             | CDQ2□□-□DZ | CQ-L040       | CQ-F040      | CQ-D040       |
| 50             | CDQ2□□-□DZ | CQ-L050       | CQ-F050      | CQ-D050       |
| 63             | CDQ2□□-□DZ | CQ-L063       | CQ-F063      | CQ-D063       |
| 80             | CDQ2□□-□DZ | CQ-L080       | CQ-F080      | CQ-D080       |
| 100            | CDQ2□□-□DZ | CQ-L100       | CQ-F100      | CQ-D100       |

Note 1) Order two foot brackets per cylinder. (except ø32)

For ø32 type, order 1 piece per cylinder. (Part number for a set of 2 foot brackets)

Note 2) Parts belonging to each bracket are as follows.

Foot or Flange: Body mounting bolts

Double clevis: Clevis pin, Type C retaining rings for axis, Body mounting bolts

The specifications of the cylinder with auto switch are the same as those of the standard model.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Auto switch mounting brackets/Part no.
- Operating range

## Manufacture of Intermediate Strokes

### Spacer-installed type: Standard model number

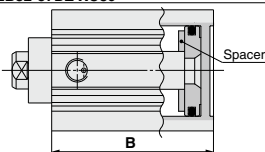
- A spacer is installed on the standard strokes.
- Available in 1 mm increments
- A spacer is installed on tubes with a stroke longer than the specified stroke (◆).

◆: Standard stroke

| Bore size (mm) | Stroke range | Type                    | Stroke                              |
|----------------|--------------|-------------------------|-------------------------------------|
| 32, 40         | 1 to 99      | Spacer-installed type 1 | 5 10 15 20 25 30 35 40 45 50 75 100 |
| 50 to 100      | 1 to 99      | type 1                  | 5 10 15 20 25 30 35 40 45 50 75 100 |

Ordering example: ø32-57 mm stroke, with through-hole and without auto switch

|             |                                                                                                                                                                                        |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type        | Spacer-installed type 1                                                                                                                                                                |
| Part no.    | Standard model number                                                                                                                                                                  |
| Order no.   | CDQ2B32-57DZ-XC89                                                                                                                                                                      |
| Description | <ul style="list-style-type: none"> <li>• Uses a standard stroke (75 mm) tube.</li> <li>• Makes 57 mm stroke with 18 mm spacer inside.</li> <li>• The B dimension is 108 mm.</li> </ul> |



# CDQ2-XC88/XC89/XC91

Bore Size

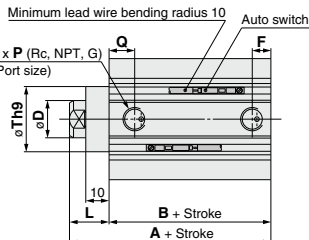
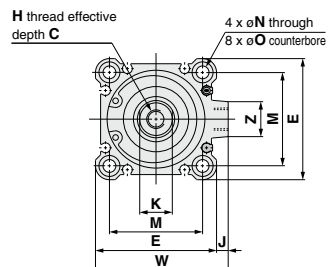
ø32 to ø50

Dimensions with mounting bracket are the same as standard type. For details, refer to pages 790 to 792.

CDQ2□XC88  
XC89

Both ends tapped: CDQ2A

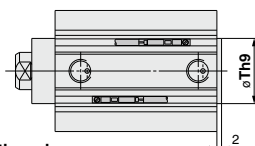
Through-hole (Standard): CDQ2B



Both Ends Tapped (mm)

| Bore size (mm) | O <sub>1</sub> | R  |
|----------------|----------------|----|
| 32             | M6 x 1.0       | 10 |
| 40             | M6 x 1.0       | 10 |
| 50             | M8 x 1.25      | 14 |

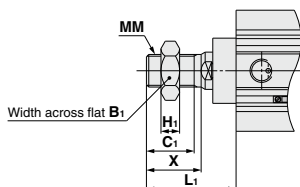
With boss on head end



With Boss on Head End (mm)

| Bore size (mm) | Th9                               |
|----------------|-----------------------------------|
| 32             | 21 <sup>0</sup> <sub>-0.052</sub> |
| 40             | 28 <sup>0</sup> <sub>-0.052</sub> |
| 50             | 35 <sup>0</sup> <sub>-0.052</sub> |

Rod end male thread



Rod End Male Thread (mm)

| Bore size (mm) | B <sub>1</sub> | C <sub>1</sub> | H <sub>1</sub> | L <sub>1</sub> | MM        | X    |
|----------------|----------------|----------------|----------------|----------------|-----------|------|
| 32             | 22             | 20.5           | 8              | 38.5           | M14 x 1.5 | 23.5 |
| 40             | 22             | 20.5           | 8              | 38.5           | M14 x 1.5 | 23.5 |
| 50             | 27             | 26             | 11             | 43.5           | M18 x 1.5 | 28.5 |

Standard

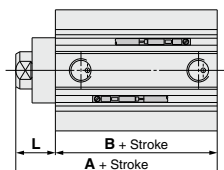
| Bore size (mm) | Stroke range (mm) | A    | B    | C  | D  | E  | F    | H         | J   | K  | L  | M  | N   | O          | P   | Q    | Th9                               | W    | Z  |
|----------------|-------------------|------|------|----|----|----|------|-----------|-----|----|----|----|-----|------------|-----|------|-----------------------------------|------|----|
| 32             | 5 to 50, 75, 100  | 50   | 33   | 13 | 16 | 45 | 7.5  | M8 x 1.25 | 4.5 | 14 | 17 | 34 | 5.5 | 9 depth 7  | 1/8 | 10   | 23 <sup>0</sup> <sub>-0.052</sub> | 49.5 | 14 |
| 40             | 5 to 50, 75, 100  | 56.5 | 39.5 | 13 | 16 | 52 | 7.5  | M8 x 1.25 | 5   | 14 | 17 | 40 | 5.5 | 9 depth 7  | 1/8 | 12.5 | 28 <sup>0</sup> <sub>-0.052</sub> | 57   | 15 |
| 50             | 10 to 50, 75, 100 | 58.5 | 40.5 | 15 | 20 | 64 | 10.5 | M10 x 1.5 | 7   | 17 | 18 | 50 | 6.6 | 11 depth 8 | 1/4 | 10.5 | 35 <sup>0</sup> <sub>-0.052</sub> | 71   | 19 |

Note 1) The external dimensions with rubber bumper are same as those of the standard, as shown above.

\* For details about the rod end nut and accessory brackets, refer to pages 796 to 798.

Note 2) For calculation on the longitudinal dimension of intermediate strokes, refer to page 1865.

## Comparison of the Dimensions of Each Series



| Bore size (mm) | XC88, 89 |      |    | XC91 |      |    | XC35 |      |    | Standard |      |    |
|----------------|----------|------|----|------|------|----|------|------|----|----------|------|----|
|                | A        | B    | L  | A    | B    | L  | A    | B    | L  | A        | B    | L  |
| 32             | 50       | 33   | 17 | 45   | 33   | 12 | 45   | 33   | 12 | 40       | 33   | 7  |
| 40             | 56.5     | 39.5 | 17 | 51.5 | 39.5 | 12 | 51.5 | 39.5 | 12 | 46.5     | 39.5 | 7  |
| 50             | 58.5     | 40.5 | 18 | 53.5 | 40.5 | 13 | 53.5 | 40.5 | 13 | 48.5     | 40.5 | 8  |
| 63             | 64       | 46   | 18 | 59   | 46   | 13 | 59   | 46   | 13 | 54       | 46   | 8  |
| 80             | 73.5     | 53.5 | 20 | 68.5 | 53.5 | 15 | 68.5 | 53.5 | 15 | 63.5     | 53.5 | 10 |
| 100            | 85       | 63   | 22 | 80   | 63   | 17 | 80   | 63   | 17 | 75       | 63   | 12 |

\* At 0 stroke

**Made to Order Common Specifications: CDQ2 Series**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)**  
**Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)**

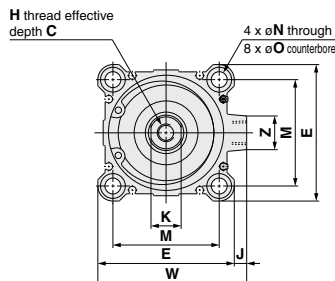
Bore Size

**ø63 to ø100**

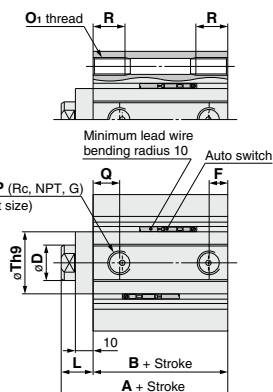
Dimensions with mounting bracket are the same as standard type. For details, refer to pages 793 to 795.

CDQ2 □ XC88  
 □ XC89

**Through-hole (Standard): CDQ2B**



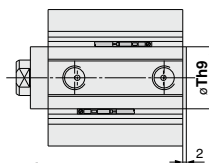
**Both ends tapped: CDQ2A**



**Both Ends Tapped**

| Bore size (mm) | O <sub>1</sub> | R  |
|----------------|----------------|----|
| 63             | M10 x 1.5      | 18 |
| 80             | M12 x 1.75     | 22 |
| 100            | M12 x 1.75     | 22 |

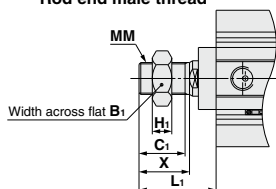
**With boss on head end**



**With Boss on Head End**

| Bore size (mm) | Th9                               |
|----------------|-----------------------------------|
| 63             | 35 <sup>0</sup> <sub>-0.062</sub> |
| 80             | 43 <sup>0</sup> <sub>-0.062</sub> |
| 100            | 59 <sup>0</sup> <sub>-0.074</sub> |

**Rod end male thread**



**Rod End Male Thread**

| Bore size (mm) | B <sub>1</sub> | C <sub>1</sub> | H <sub>1</sub> | L <sub>1</sub> | MM        | X    |
|----------------|----------------|----------------|----------------|----------------|-----------|------|
| 63             | 27             | 26             | 11             | 43.5           | M18 x 1.5 | 28.5 |
| 80             | 32             | 32.5           | 13             | 53.5           | M22 x 1.5 | 35.5 |
| 100            | 41             | 32.5           | 16             | 53.5           | M26 x 1.5 | 35.5 |

**Standard**

| Bore size (mm) | Stroke range (mm) | A    | B    | C  | D  | E   | F    | H         | J   | K  | L  | M  | N  | O               | P   | Q  | Th9                               | W     | Z  |
|----------------|-------------------|------|------|----|----|-----|------|-----------|-----|----|----|----|----|-----------------|-----|----|-----------------------------------|-------|----|
| 63             | 10 to 50, 75, 100 | 64   | 46   | 15 | 20 | 77  | 10.5 | M10 x 1.5 | 7   | 17 | 18 | 60 | 9  | 14 depth 10.5   | 1/4 | 15 | 35 <sup>0</sup> <sub>-0.062</sub> | 84    | 19 |
| 80             | 10 to 50, 75, 100 | 73.5 | 53.5 | 21 | 25 | 98  | 12.5 | M16 x 2.0 | 6   | 22 | 20 | 77 | 11 | 17.5 depth 13.5 | 3/8 | 16 | 43 <sup>0</sup> <sub>-0.062</sub> | 104   | 25 |
| 100            | 10 to 50, 75, 100 | 85   | 63   | 27 | 30 | 117 | 13   | M20 x 2.5 | 6.5 | 27 | 22 | 94 | 11 | 17.5 depth 13.5 | 3/8 | 23 | 59 <sup>0</sup> <sub>-0.074</sub> | 123.5 | 25 |

Note 1) The external dimensions with rubber bumper are same as those of the standard, as shown above.

\* For details about the rod end nut and accessory brackets, refer to pages 796 to 798.

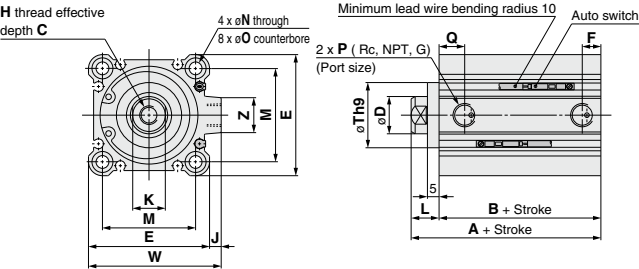
Note 2) For calculation on the longitudinal dimension of intermediate strokes, refer to page 1865.

# CDQ2-XC88/XC89/XC91

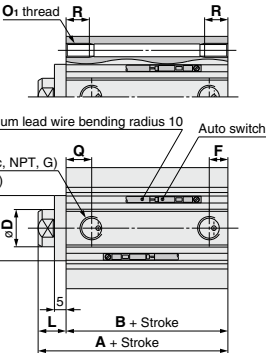
Bore Size  
**ø32 to ø50**

CDQ2--XC91

Through-hole (Standard): CDQ2B



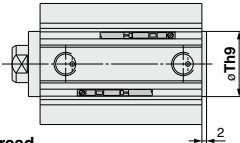
Both ends tapped: CDQ2A



Both Ends Tapped (mm)

| Bore size (mm) | O <sub>1</sub> | R  |
|----------------|----------------|----|
| 32             | M6 x 1.0       | 10 |
| 40             | M6 x 1.0       | 10 |
| 50             | M8 x 1.25      | 14 |

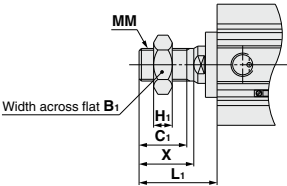
With boss on head end



With Boss on Head End (mm)

| Bore size (mm) | Th9                               |
|----------------|-----------------------------------|
| 32             | 21 <sup>0</sup> <sub>-0.052</sub> |
| 40             | 28 <sup>0</sup> <sub>-0.052</sub> |
| 50             | 35 <sup>0</sup> <sub>-0.052</sub> |

Rod end male thread



Rod End Male Thread (mm)

| Bore size (mm) | B <sub>1</sub> | C <sub>1</sub> | H <sub>1</sub> | L <sub>1</sub> | MM        | X    |
|----------------|----------------|----------------|----------------|----------------|-----------|------|
| 32             | 22             | 20.5           | 8              | 33.5           | M14 x 1.5 | 23.5 |
| 40             | 22             | 20.5           | 8              | 33.5           | M14 x 1.5 | 23.5 |
| 50             | 27             | 26             | 11             | 38.5           | M18 x 1.5 | 28.5 |

Standard

| Bore size (mm) | Stroke range (mm) | A    | B    | C  | D  | E  | F    | H         | J   | K  | L  | M  | N   | O          | P   | Q    | Th9                               | W    | Z  |
|----------------|-------------------|------|------|----|----|----|------|-----------|-----|----|----|----|-----|------------|-----|------|-----------------------------------|------|----|
| 32             | 5 to 50, 75, 100  | 45   | 33   | 13 | 16 | 45 | 7.5  | M8 x 1.25 | 4.5 | 14 | 12 | 34 | 5.5 | 9 depth 7  | 1/8 | 10   | 23 <sup>0</sup> <sub>-0.052</sub> | 49.5 | 14 |
| 40             | 5 to 50, 75, 100  | 51.5 | 39.5 | 13 | 16 | 52 | 7.5  | M8 x 1.25 | 5   | 14 | 12 | 40 | 5.5 | 9 depth 7  | 1/8 | 12.5 | 28 <sup>0</sup> <sub>-0.052</sub> | 57   | 15 |
| 50             | 10 to 50, 75, 100 | 53.5 | 40.5 | 15 | 20 | 64 | 10.5 | M10 x 1.5 | 7   | 17 | 13 | 50 | 6.6 | 11 depth 8 | 1/4 | 10.5 | 35 <sup>0</sup> <sub>-0.052</sub> | 71   | 19 |

Note 1) The external dimensions with rubber bumper are same as those of the standard, as shown above.

\* For details about the rod end nut and accessory brackets, refer to pages 796 to 798.

Note 2) For calculation on the longitudinal dimension of intermediate strokes, refer to page 1865.

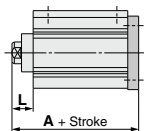
**Made to Order Common Specifications: *CDQ2 Series***  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)**  
**Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)**

Bore Size

**ø32 to ø50**

Dimensions other than those listed below and other dimensions for the model with mounting bracket are the same as the standard type. For details, refer to pages 791 and 792.

**Head flange: CDQ2G**



**Head Flange**

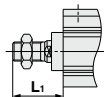
(mm)

| Bore Size<br>(mm) | A    | L  | L <sub>1</sub> |
|-------------------|------|----|----------------|
| <b>32</b>         | 53   | 12 | 33.5           |
| <b>40</b>         | 59.5 | 12 | 33.5           |
| <b>50</b>         | 62.5 | 13 | 38.5           |

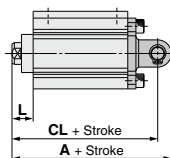
(\* The dimensions except A are the same as those of the rod flange.)

Flange bracket material: Carbon steel  
 Surface treatment: Nickel plating

**Rod end male thread**



**Double clevis: CDQ2D**



**Double Clevis**

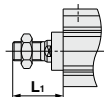
(mm)

| Bore Size<br>(mm) | A    | CL   | L  | L <sub>1</sub> |
|-------------------|------|------|----|----------------|
| <b>32</b>         | 75   | 65   | 12 | 33.5           |
| <b>40</b>         | 83.5 | 73.5 | 12 | 33.5           |
| <b>50</b>         | 95.5 | 81.5 | 13 | 38.5           |

\* A double clevis pin and retaining rings are included.

Double clevis bracket material: Cast iron  
 Surface treatment: Painted

**Rod end male thread**





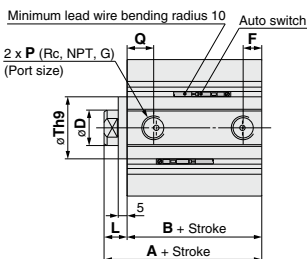
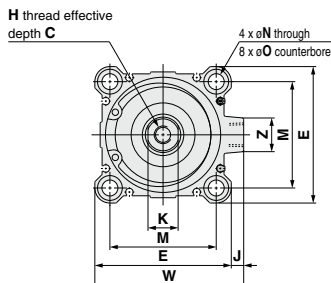
**Made to Order Common Specifications: *CDQ2 Series***  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)**  
**Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)**

Bore Size

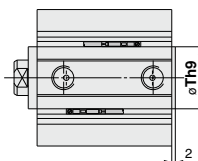
**ø63 to ø100**

**CDQ2□-XC91**

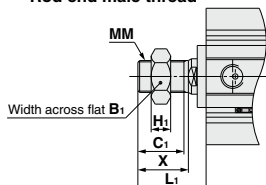
**Through-hole (Standard): CDQ2B**



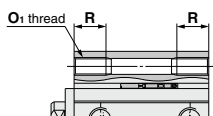
**With boss on head end**



**Rod end male thread**



**Both ends tapped: CDQ2A**



**Both Ends Tapped (mm)**

| Bore size (mm) | O1         | R  |
|----------------|------------|----|
| 63             | M10 x 1.5  | 18 |
| 80             | M12 x 1.75 | 22 |
| 100            | M12 x 1.75 | 22 |

**With Boss on Head End (mm)**

| Bore size (mm) | Th9                               |
|----------------|-----------------------------------|
| 63             | 35 <sup>0</sup> <sub>-0.062</sub> |
| 80             | 43 <sup>0</sup> <sub>-0.062</sub> |
| 100            | 59 <sup>0</sup> <sub>-0.074</sub> |

**Rod End Male Thread (mm)**

| Bore size (mm) | B1 | C1   | H1 | L1   | MM        | X    |
|----------------|----|------|----|------|-----------|------|
| 63             | 27 | 26   | 11 | 38.5 | M18 x 1.5 | 28.5 |
| 80             | 32 | 32.5 | 13 | 48.5 | M22 x 1.5 | 35.5 |
| 100            | 41 | 32.5 | 16 | 48.5 | M26 x 1.5 | 35.5 |

**Standard**

| Bore size (mm) | Stroke range (mm) | A    | B    | C  | D  | E   | F    | H         | J   | K  | L  | M  | N  | O               | P   | Q  | Th9                               | W     | Z  |
|----------------|-------------------|------|------|----|----|-----|------|-----------|-----|----|----|----|----|-----------------|-----|----|-----------------------------------|-------|----|
| 63             | 10 to 50, 75, 100 | 59   | 46   | 15 | 20 | 77  | 10.5 | M10 x 1.5 | 7   | 17 | 13 | 60 | 9  | 14 depth 10.5   | 1/4 | 15 | 35 <sup>0</sup> <sub>-0.062</sub> | 84    | 19 |
| 80             | 10 to 50, 75, 100 | 68.5 | 53.5 | 21 | 25 | 98  | 12.5 | M16 x 2.0 | 6   | 22 | 15 | 77 | 11 | 17.5 depth 13.5 | 3/8 | 16 | 43 <sup>0</sup> <sub>-0.062</sub> | 104   | 25 |
| 100            | 10 to 50, 75, 100 | 80   | 63   | 27 | 30 | 117 | 13   | M20 x 2.5 | 6.5 | 27 | 17 | 94 | 11 | 17.5 depth 13.5 | 3/8 | 23 | 59 <sup>0</sup> <sub>-0.074</sub> | 123.5 | 25 |

Note 1) The external dimensions with rubber bumper are same as those of the standard, as shown above.

\* For details about the rod end nut and accessory brackets, refer to pages 796 to 798.

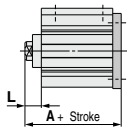
Note 2) For calculation on the longitudinal dimension of intermediate strokes, refer to page 1865.

# CDQ2-XC88/XC89/XC91

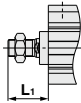
Bore Size  
**ø63 to ø100**

Dimensions other than those listed below and other dimensions for the model with mounting bracket are the same as the standard type. For details, refer to pages 794 and 795.

## Head flange: CDQ2G



### Rod end male thread



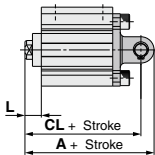
## Head Flange (mm)

| Bore Size (mm) | A    | L  | L1   |
|----------------|------|----|------|
| 63             | 68   | 13 | 38.5 |
| 80             | 79.5 | 15 | 48.5 |
| 100            | 91   | 17 | 48.5 |

(\* The dimensions except A are the same as those of the rod flange.)

Flange bracket material: Carbon steel  
Surface treatment: Nickel plating

## Double clevis: CDQ2D



### Rod end male thread



## Double Clevis (mm)

| Bore Size (mm) | A     | CL    | L  | L1   |
|----------------|-------|-------|----|------|
| 63             | 103   | 89    | 13 | 38.5 |
| 80             | 124.5 | 106.5 | 15 | 48.5 |
| 100            | 147   | 125   | 17 | 48.5 |

\* A double clevis pin and retaining rings are included.  
Double clevis bracket material: Cast iron  
Surface treatment: Painted



## Made to Order Common Specifications:

- XC88: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)
- XC89: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)



## CDQ2 series: Long Stroke

|           |                                                                                                     |              |
|-----------|-----------------------------------------------------------------------------------------------------|--------------|
| <b>62</b> | Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304) | <b>-XC88</b> |
| <b>63</b> | Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)                | <b>-XC89</b> |

Reduces spatter adhesion and improves durability by the use of the coil scraper, Lube-retainer and grease for welding.

### CDQ2 Series: Long Stroke

### How to Order

**CDQ2 A 32 [ ] - 200 DC [ ] Z - M9BW [ ] - XC89**

**Built-in auto switch magnet**

**Mounting**

|   |                  |
|---|------------------|
| A | Both ends tapped |
| L | Foot             |
| F | Rod flange       |
| G | Head flange      |
| D | Double clevis    |

\* Mounting brackets are shipped together, (but not assembled).

**Bore size**

|     |        |
|-----|--------|
| 32  | 32 mm  |
| 40  | 40 mm  |
| 50  | 50 mm  |
| 63  | 63 mm  |
| 80  | 80 mm  |
| 100 | 100 mm |

**Port thread type**

|     |     |
|-----|-----|
| Nil | Rc  |
| TN  | NPT |
| TF  | G   |

**Cylinder stroke (mm)**  
Refer to page 1871 for standard strokes.

**Action**

|   |               |
|---|---------------|
| D | Double acting |
|---|---------------|

**Rod material**

|      |                     |
|------|---------------------|
| XC88 | Stainless steel 304 |
| XC89 | S45C                |

**Number of auto switches**

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

**Auto switch**

|     |                     |
|-----|---------------------|
| Nil | Without auto switch |
|-----|---------------------|

\* Refer to the below table for applicable auto switches.

**Auto switch mounting groove**

|   |            |
|---|------------|
| Z | 4 surfaces |
|---|------------|

**Body option**

|     |                                  |
|-----|----------------------------------|
| Nil | Standard (Rod end female thread) |
| M   | Rod end male thread              |

**Cushion**

|   |               |
|---|---------------|
| C | Rubber bumper |
|---|---------------|

### Made to Order

| Part no. | Piston rod material<br>(Hard chrome plated) |                     | Coil<br>scraper | Lube-<br>retainer | Grease for<br>welding |
|----------|---------------------------------------------|---------------------|-----------------|-------------------|-----------------------|
|          | S45C                                        | Stainless steel 304 |                 |                   |                       |
| -XC88    | —                                           | ●                   | ●               | ●                 | ●                     |
| -XC89    | ●                                           | —                   | ●               | ●                 | ●                     |

### Built-in Auto Switch Magnet Cylinder Model

If a built-in auto switch magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch. (Example) CDQ2L40-200DC-Z-NC89

### Applicable Auto Switches/Refer to pages 1575 to 1701 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) | None (N) |                     |                 |            |
|                         |                                                                                           |                  |                 |                         |              |    |                   |         | (Nil)                | (M)   | (L)   | (Z)   | (N)      |                     |                 |            |
| Solid state auto switch | Diagnostic indication (2-color indicator)<br>Magnetic field resistant (2-color indicator) | Grommet          | Yes             | 3-wire (NPN)            | 24 V         | —  | M9NV              | M9N     | ●                    | ●     | ●     | ○     | —        | ○                   | IC circuit      | Relay, PLC |
|                         |                                                                                           |                  |                 | 3-wire (PNP)            |              |    | M9PV              | M9P     | ●                    | ●     | ●     | ○     | —        | ○                   |                 |            |
|                         |                                                                                           |                  |                 | 2-wire                  |              |    | M9BV              | M9B     | ●                    | ●     | ●     | ○     | —        | ○                   |                 |            |
|                         |                                                                                           |                  |                 | 3-wire (NPN)            |              |    | M9NWV             | M9NW    | ●                    | ●     | ●     | ○     | —        | ○                   |                 |            |
|                         |                                                                                           |                  |                 | 3-wire (PNP)            |              |    | M9PWV             | M9PW    | ●                    | ●     | ●     | ○     | —        | ○                   |                 |            |
|                         |                                                                                           |                  |                 | 2-wire                  |              |    | M9BWV             | M9BW    | ●                    | ●     | ●     | ○     | —        | ○                   |                 |            |
| Reed auto switch        | —                                                                                         | Grommet          | Yes             | 2-wire (Non-polar)      | 24 V         | —  | —                 | P3DWA   | —                    | ●     | ●     | ●     | —        | —                   | —               | —          |
|                         |                                                                                           |                  |                 | 3-wire (NPN equivalent) |              |    | A96V              | A96     | ●                    | —     | ●     | —     | —        | —                   |                 |            |
|                         |                                                                                           |                  |                 | 2-wire                  |              |    | A93V              | A93     | ●                    | ●     | ●     | —     | —        | —                   |                 |            |
|                         |                                                                                           |                  |                 | 2-wire (Non-polar)      |              |    | A90V              | A90     | ●                    | —     | ●     | —     | —        | —                   |                 |            |

\* 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.

\* Please contact SMC for auto switches, auto switch proper mounting positions and operating ranges other than the above.

\* For details about auto switches with pre-wired connector, refer to pages 1648 and 1649.

**Made to Order Common Specifications: *CDQ2 Series/Long Stroke***  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)**

## Specifications

| Bore size (mm)                | 32                        | 40   | 50   | 63   | 80   | 100  |
|-------------------------------|---------------------------|------|------|------|------|------|
| Action                        | Double acting, Single rod |      |      |      |      |      |
| Fluid                         | Air                       |      |      |      |      |      |
| Proof pressure                | 1.5 MPa                   |      |      |      |      |      |
| Maximum operating pressure    | 1.0 MPa                   |      |      |      |      |      |
| Minimum operating pressure    | 0.05 MPa                  |      |      |      |      |      |
| Ambient and fluid temperature | -10 to 60°C (No freezing) |      |      |      |      |      |
| Lubrication                   | Not required (Non-lube)   |      |      |      |      |      |
| Piston speed                  | 50 to 500 mm/s            |      |      |      |      |      |
| Allowable kinetic energy (J)  | 0.29                      | 0.52 | 0.91 | 1.54 | 2.71 | 4.54 |
| Stroke length tolerance       | +1.4 mm (Note)<br>0       |      |      |      |      |      |

(Note) Stroke length tolerance does not include the amount of bumper change.

## Standard Strokes

| Bore size                 | Standard stroke (mm)         |
|---------------------------|------------------------------|
| 32, 40, 50<br>63, 80, 100 | 125, 150, 175, 200, 250, 300 |

## Manufacture of Intermediate Strokes

|              |                                                                                                                    |              |
|--------------|--------------------------------------------------------------------------------------------------------------------|--------------|
| Type         | A spacer is installed in the standard stroke body.                                                                 |              |
| Part no.     | Refer to "How to Order" for the standard model number. (Page 1870)                                                 |              |
| Description  | Strokes in 1 mm increments are available by installing a spacer in the standard stroke cylinder.                   |              |
| Stroke range | Bore size                                                                                                          | Stroke range |
|              | 32 to 100                                                                                                          | 101 to 299   |
| Example      | Part no.: CDQ2A50-166DCZ-XC89<br>CDQ2A50-175DCZ-XC89 with 9 mm width spacer inside<br>The B dimension is 235.5 mm. |              |

## Type

The specifications of the cylinder with auto switch are the same as those of the standard model.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Auto switch mounting brackets/Part no.
- Operating range

| Bore size (mm) |                                 |             | 32 | 40     | 50     | 63     | 80     | 100    |        |
|----------------|---------------------------------|-------------|----|--------|--------|--------|--------|--------|--------|
| Pneumatic      | Built-in magnet for auto switch |             | ●  | ●      | ●      | ●      | ●      | ●      |        |
|                | Piping                          | Pipe thread | —  | Rc1/8  | Rc1/8  | Rc1/4  | Rc1/4  | Rc3/8  | Rc3/8  |
|                |                                 |             | TN | NPT1/8 | NPT1/8 | NPT1/4 | NPT1/4 | NPT3/8 | NPT3/8 |
|                | Rod end male thread             |             | TF | G1/8   | G1/8   | G1/4   | G1/4   | G3/8   | G3/8   |

# CDQ2-XC88/XC89

Long Stroke

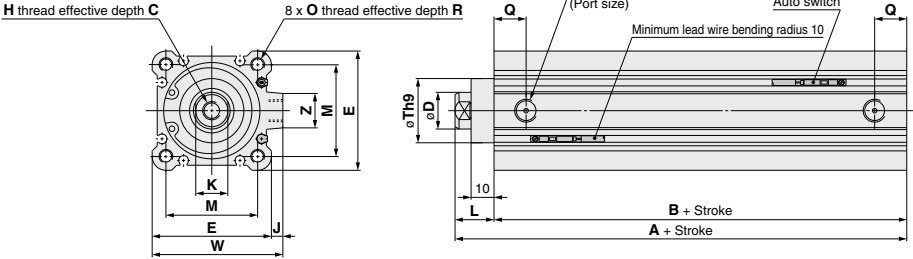
Bore Size

ø32 to ø50

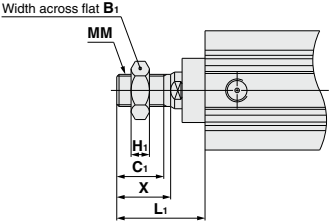
Dimensions with mounting bracket are the same as standard type. For details, refer to pages 790 to 792.

CDQ2□XC88  
XC89

## Both ends tapped: CDQ2A



### Rod end male thread



### Rod End Male Thread

| Bore size (mm) | B <sub>1</sub> | C <sub>1</sub> | H <sub>1</sub> | L <sub>1</sub> | MM        | X    |
|----------------|----------------|----------------|----------------|----------------|-----------|------|
| 32             | 22             | 20.5           | 8              | 38.5           | M14 x 1.5 | 23.5 |
| 40             | 22             | 20.5           | 8              | 38.5           | M14 x 1.5 | 23.5 |
| 50             | 27             | 26             | 11             | 43.5           | M18 x 1.5 | 28.5 |

## Both Ends Tapped

| Bore size (mm) | Stroke range (mm)   | A    | B    | C  | D  | E  | H         | J   | K  | L  | M  | O         | P   | Q    | R  | Th9                                  | W    | Z  |
|----------------|---------------------|------|------|----|----|----|-----------|-----|----|----|----|-----------|-----|------|----|--------------------------------------|------|----|
| 32             | 125 to 200 (Note 1) | 67.5 | 50.5 | 13 | 16 | 45 | M8 x 1.25 | 4.5 | 14 | 17 | 34 | M6 x 1.0  | 1/8 | 10   | 10 | 23 <sup>0.002</sup> <sub>0.002</sub> | 49.5 | 14 |
| 40             | 250, 300            | 77   | 60   | 13 | 16 | 52 | M8 x 1.25 | 5   | 14 | 17 | 40 | M6 x 1.0  | 1/8 | 12.5 | 10 | 28 <sup>0.002</sup> <sub>0.002</sub> | 57   | 15 |
| 50             |                     | 78.5 | 60.5 | 15 | 20 | 64 | M10 x 1.5 | 7   | 17 | 18 | 50 | M8 x 1.25 | 1/4 | 14   | 14 | 35 <sup>0.002</sup> <sub>0.002</sub> | 71   | 19 |

Note 1) For 125 to 200 strokes, strokes are available in 25 mm increments.

Note 2) For calculation on the longitudinal dimension of intermediate strokes, refer to page 1865.

## Comparison of the Dimensions of Each Series

| Bore size (mm) | XC88, 89 |      |    | Standard |      |    |
|----------------|----------|------|----|----------|------|----|
|                | A        | B    | L  | A        | B    | L  |
| 32             | 67.5     | 50.5 | 17 | 62.5     | 45.5 | 17 |
| 40             | 77       | 60   | 17 | 72       | 55   | 17 |
| 50             | 78.5     | 60.5 | 18 | 73.5     | 55.5 | 18 |
| 63             | 80       | 62   | 18 | 75       | 57   | 18 |
| 80             | 91       | 71   | 20 | 86       | 66   | 20 |
| 100            | 102.5    | 80.5 | 22 | 97.5     | 75.5 | 22 |

\* At 0 stroke

**Made to Order Common Specifications: *CDQ2 Series/Long Stroke***  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)**

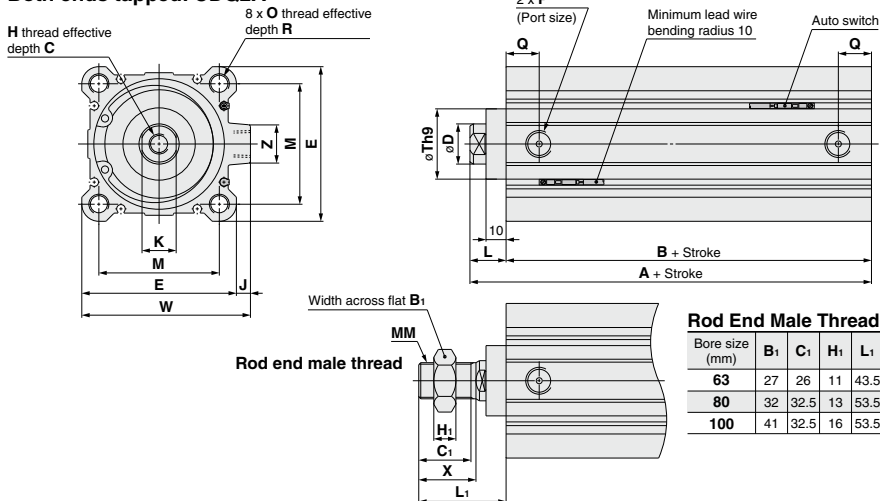
**Bore Size**

**ø63 to ø100**

Dimensions with mounting bracket are the same as standard type. For details, refer to pages 793 to 795.

**CDQ2** □ **XC88**  
□ **XC89**

**Both ends tapped: CDQ2A**



**Rod End Male Thread**

| Bore size (mm) | B <sub>1</sub> | C <sub>1</sub> | H <sub>1</sub> | L <sub>1</sub> | MM        | X    |
|----------------|----------------|----------------|----------------|----------------|-----------|------|
| <b>63</b>      | 27             | 26             | 11             | 43.5           | M18 x 1.5 | 28.5 |
| <b>80</b>      | 32             | 32.5           | 13             | 53.5           | M22 x 1.5 | 35.5 |
| <b>100</b>     | 41             | 32.5           | 16             | 53.5           | M26 x 1.5 | 35.5 |

**Both Ends Tapped**

| Bore size (mm) | Stroke range (mm)                 | A     | B    | C  | D  | E   | H         | J   | K  | L  | M  | O          | P   | Q    | R  | Th9                                | W     | Z  |
|----------------|-----------------------------------|-------|------|----|----|-----|-----------|-----|----|----|----|------------|-----|------|----|------------------------------------|-------|----|
| <b>63</b>      | 125 to 200 <small>Note 1)</small> | 80    | 62   | 15 | 20 | 77  | M10 x 1.5 | 7   | 17 | 18 | 60 | M10 x 1.5  | 1/4 | 16.5 | 18 | 35 <sup>0</sup> / <sub>0.063</sub> | 84    | 19 |
| <b>80</b>      | 250, 300                          | 91    | 71   | 21 | 25 | 98  | M16 x 2.0 | 6   | 22 | 20 | 77 | M12 x 1.75 | 3/8 | 19   | 22 | 43 <sup>0</sup> / <sub>0.063</sub> | 104   | 25 |
| <b>100</b>     |                                   | 102.5 | 80.5 | 27 | 30 | 117 | M20 x 2.5 | 6.5 | 27 | 22 | 94 | M12 x 1.75 | 3/8 | 23   | 22 | 59 <sup>0</sup> / <sub>0.074</sub> | 123.5 | 25 |

Note 1) For 125 to 200 strokes, strokes are available in 25 mm increments.

Note 2) For calculation on the longitudinal dimension of intermediate strokes, refer to page 1865.

# Made to Order Common Specifications:

- XC88: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)
- XC89: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)



## CDQ2 S series: Anti-lateral Load

Symbol

**62** Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)

**-XC88**

**63** Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)

**-XC89**

Reduces spatter adhesion and improves durability by the use of the coil scraper, Lube-retainer and grease for welding.

### CDQ2 S Series: Anti-lateral Load

### How to Order

**CDQ2 B S 32 - 30 D C Z - M9BW - XC89**

**Built-in auto switch magnet**

**Mounting**

|   |                         |
|---|-------------------------|
| B | Through-hole (Standard) |
| A | Both ends tapped        |
| L | Foot                    |
| F | Rod flange              |
| G | Head flange             |
| D | Double clevis           |

\* Mounting brackets are shipped together, (but not assembled).

**Type**

|   |                   |
|---|-------------------|
| S | Anti-lateral load |
|---|-------------------|

**Bore size**

|     |        |
|-----|--------|
| 32  | 32 mm  |
| 40  | 40 mm  |
| 50  | 50 mm  |
| 63  | 63 mm  |
| 80  | 80 mm  |
| 100 | 100 mm |

**Port thread type**

|     |     |
|-----|-----|
| Nil | Rc  |
| TN  | NPT |
| TF  | G   |

**Cylinder stroke (mm)**

Refer to page 1875 for standard strokes.

**Action**

|   |               |
|---|---------------|
| D | Double acting |
|---|---------------|

**Rod material**

|      |                     |
|------|---------------------|
| XC88 | Stainless steel 304 |
| XC89 | S45C                |

**Number of auto switches**

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

**Auto switch**

|     |                     |
|-----|---------------------|
| Nil | Without auto switch |
|-----|---------------------|

\* Refer to the below table for applicable auto switches.

**Auto switch mounting groove**

|   |            |
|---|------------|
| Z | 4 surfaces |
|---|------------|

**Body option 2**

|     |                                  |
|-----|----------------------------------|
| Nil | Standard (Rod end female thread) |
| M   | Rod end male thread              |

**Cushion**

|   |               |
|---|---------------|
| C | Rubber bumper |
|---|---------------|

**Body option 1**

|     |                       |
|-----|-----------------------|
| Nil | Standard              |
| F   | With boss on head end |

### Made to Order

| Part no. | Piston rod material<br>(Hard chrome plated) |                     | Coil<br>scraper | Lube-<br>retainer | Grease for<br>welding |
|----------|---------------------------------------------|---------------------|-----------------|-------------------|-----------------------|
|          | S45C                                        | Stainless steel 304 |                 |                   |                       |
| -XC88    | —                                           | ●                   | ●               | ●                 | ●                     |
| -XC89    | —                                           | —                   | ●               | ●                 | ●                     |

### Built-in Auto Switch Magnet Cylinder Model

If a built-in auto switch magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.  
(Example) CDQ2LS40-30DCZ-XC89

### Applicable Auto Switches/Refer to pages 1575 to 1701 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) | None (N) |                     |                 |            |
| Solid state auto switch | Diagnostic indication (2-color indicator)    | Grommet          | Yes             | 3-wire (NPN)            | 24 V         | 5 V, 12 V | M9NV              | M9N     | ●                    | ●     | ○     | —     | —        | ○                   | IC circuit      | Relay, PLC |
|                         |                                              |                  |                 | 3-wire (PNP)            |              |           |                   |         | ●                    | ●     | ○     | —     | —        | ○                   |                 |            |
|                         |                                              |                  |                 | 2-wire                  |              |           |                   |         | ●                    | ●     | ○     | —     | —        | ○                   |                 |            |
|                         |                                              |                  |                 | 3-wire (NPN)            |              |           |                   |         | ●                    | ●     | ○     | —     | —        | ○                   |                 |            |
|                         |                                              |                  |                 | 3-wire (PNP)            |              |           |                   |         | ●                    | ●     | ○     | —     | —        | ○                   |                 |            |
|                         |                                              |                  |                 | 2-wire                  |              |           |                   |         | ●                    | ●     | ○     | —     | —        | ○                   |                 |            |
| Reed auto switch        | Magnetic field resistant (2-color indicator) | Grommet          | Yes             | 2-wire (Non-polar)      | 24 V         | 5 V, 12 V | M9NWW             | M9NW    | ●                    | ●     | ○     | —     | —        | ○                   | IC circuit      | Relay, PLC |
|                         |                                              |                  |                 | 3-wire (NPN equivalent) |              |           |                   |         | ●                    | ●     | ○     | —     | —        | ○                   |                 |            |
|                         |                                              |                  |                 | 2-wire                  |              |           |                   |         | ●                    | ●     | ○     | —     | —        | ○                   |                 |            |
| Reed auto switch        | —                                            | Grommet          | No              | 3-wire (NPN equivalent) | 24 V         | 5 V, 12 V | A96V              | A96     | ●                    | ●     | ○     | —     | —        | ○                   | IC circuit      | Relay, PLC |
|                         |                                              |                  |                 | 2-wire                  |              |           |                   |         | ●                    | ●     | ○     | —     | —        | ○                   |                 |            |
|                         |                                              |                  |                 | 2-wire                  |              |           |                   |         | ●                    | ●     | ○     | —     | —        | ○                   |                 |            |

\* 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.

\* Please contact SMC for auto switches, auto switch proper mounting positions and operating ranges other than the above.  
\* For details about auto switches with pre-wired connector, refer to pages 1648 and 1649.

**Made to Order Common Specifications: *CDQ2□S* Series/Anti-lateral Load**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)**

## Specifications

| Bore size (mm)                | 32                        | 40   | 50   | 63   | 80   | 100  |
|-------------------------------|---------------------------|------|------|------|------|------|
| Action                        | Double acting, Single rod |      |      |      |      |      |
| Fluid                         | Air                       |      |      |      |      |      |
| Proof pressure                | 1.5 MPa                   |      |      |      |      |      |
| Maximum operating pressure    | 1.0 MPa                   |      |      |      |      |      |
| Minimum operating pressure    | 0.05 MPa                  |      |      |      |      |      |
| Ambient and fluid temperature | -10 to 60°C (No freezing) |      |      |      |      |      |
| Lubrication                   | Not required (Non-lube)   |      |      |      |      |      |
| Piston speed                  | 50 to 500 mm/s            |      |      |      |      |      |
| Allowable kinetic energy (J)  | 0.29                      | 0.52 | 0.91 | 1.54 | 2.71 | 4.54 |
| Stroke length tolerance       | +1.0 mm (Note)<br>0       |      |      |      |      |      |

(Note) Stroke length tolerance does not include the amount of dumper change.

## Standard Strokes

| Bore size       | Standard stroke (mm)                           |
|-----------------|------------------------------------------------|
| 32, 40          | 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100 |
| 50, 63, 80, 100 | 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100    |

## Manufacture of Intermediate Strokes

|              |                                                                                                                     |              |
|--------------|---------------------------------------------------------------------------------------------------------------------|--------------|
| Type         | A spacer is installed in the standard stroke body.                                                                  |              |
| Part no.     | Refer to "How to Order" for the standard model number. (Page 1874)                                                  |              |
| Description  | Strokes in 1 mm increments are available by installing a spacer in the standard stroke cylinder.                    |              |
| Stroke range | Bore size                                                                                                           | Stroke range |
|              | 32 to 100                                                                                                           | 1 to 99      |
| Example      | Part no.: CDQ2BS50-57DCZ-XC89<br>CDQ2BS50-75DCZ-XC89 with 18 mm width spacer inside<br>The B dimension is 125.5 mm. |              |

## Type

The specifications of the cylinder with auto switch are the same as those of the standard model.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Auto switch mounting brackets/Part no.
- Operating range

| Bore size (mm) |                               | 32                              | 40     | 50     | 63     | 80     | 100    |        |
|----------------|-------------------------------|---------------------------------|--------|--------|--------|--------|--------|--------|
| Pneumatic      | Mounting                      | Through-hole (Standard)         | ●      | ●      | ●      | ●      | ●      |        |
|                |                               | Both ends tapped                | ●      | ●      | ●      | ●      | ●      |        |
|                |                               | Built-in magnet for auto switch | ●      | ●      | ●      | ●      | ●      |        |
|                | Piping                        | Pipe thread                     | Rc1/8  | Rc1/8  | Rc1/4  | Rc1/4  | Rc3/8  | Rc3/8  |
|                |                               |                                 | NPT1/8 | NPT1/8 | NPT1/4 | NPT1/4 | NPT3/8 | NPT3/8 |
|                |                               | G1/8                            | G1/8   | G1/4   | G1/4   | G3/8   | G3/8   |        |
|                | Rod end male thread           |                                 | ●      | ●      | ●      | ●      | ●      |        |
|                | With rubber bumper (Standard) |                                 | ●      | ●      | ●      | ●      | ●      |        |
|                | With boss on head end         |                                 | ●      | ●      | ●      | ●      | ●      |        |

# CDQ2□S-XC88/XC89

Anti-lateral Load

Bore Size

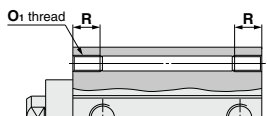
ø32 to ø50

Dimensions with mounting bracket are the same as standard type. For details, refer to pages 790 to 792.

CDQ2□S-XC88  
XC89

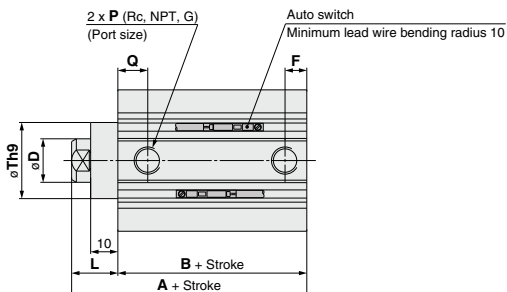
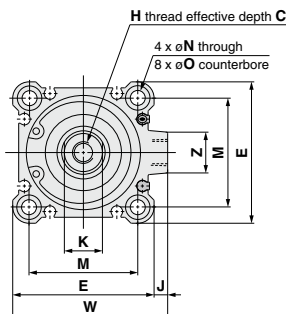
Both ends tapped: CDQ2AS

Through-hole (Standard): CDQ2BS

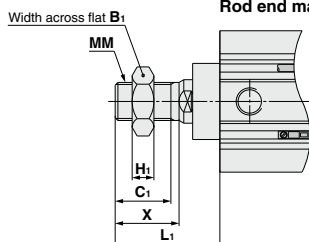


Both Ends  
Tapped

| Bore size (mm) | O1        | R  |
|----------------|-----------|----|
| 32             | M6 x 1.0  | 10 |
| 40             | M6 x 1.0  | 10 |
| 50             | M8 x 1.25 | 14 |



Rod end male thread



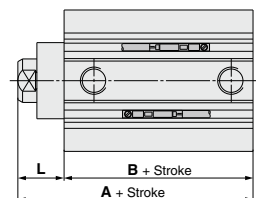
Rod End Male Thread

| Bore size (mm) | B1 | C1   | H1 | L1   | MM        | X    |
|----------------|----|------|----|------|-----------|------|
| 32             | 22 | 20.5 | 8  | 38.5 | M14 x 1.5 | 23.5 |
| 40             | 22 | 20.5 | 8  | 38.5 | M14 x 1.5 | 23.5 |
| 50             | 27 | 26   | 11 | 43.5 | M18 x 1.5 | 28.5 |

The dimensions with boss on head end are equivalent to those of the CDQ2 series, double acting, single rod. Refer to page 1866.

| Bore size (mm) | Stroke range (mm) | A    | B    | C  | D  | E  | F    | H         | J   | K  | L  | M  | N   | O          | Th9                                    | P   | Q    | W    | Z  |
|----------------|-------------------|------|------|----|----|----|------|-----------|-----|----|----|----|-----|------------|----------------------------------------|-----|------|------|----|
| 32             | 5 to 50, 75, 100  | 60   | 43   | 13 | 16 | 45 | 7.5  | M8 x 1.25 | 4.5 | 14 | 17 | 34 | 5.5 | 9 depth 7  | 23 <sup>+0.052</sup> <sub>-0.052</sub> | 1/8 | 10   | 49.5 | 14 |
| 40             | 5 to 50, 75, 100  | 66.5 | 49.5 | 13 | 16 | 52 | 7.5  | M8 x 1.25 | 5   | 14 | 17 | 40 | 5.5 | 9 depth 7  | 28 <sup>+0.052</sup> <sub>-0.052</sub> | 1/8 | 12.5 | 57   | 15 |
| 50             | 10 to 50, 75, 100 | 68.5 | 50.5 | 15 | 20 | 64 | 10.5 | M10 x 1.5 | 7   | 17 | 18 | 50 | 6.6 | 11 depth 8 | 35 <sup>+0.062</sup> <sub>-0.062</sub> | 1/4 | 10.5 | 71   | 19 |

## Comparison of the Dimensions of Each Series



| Bore size (mm) | XC88, 89 |      |    | Standard |      |    |
|----------------|----------|------|----|----------|------|----|
|                | A        | B    | L  | A        | B    | L  |
| 32             | 60       | 43   | 17 | 50       | 43   | 17 |
| 40             | 66.5     | 49.5 | 17 | 56.5     | 49.5 | 17 |
| 50             | 68.5     | 50.5 | 18 | 58.5     | 50.5 | 18 |
| 63             | 74       | 56   | 18 | 64       | 56   | 18 |
| 80             | 83.5     | 63.5 | 20 | 73.5     | 63.5 | 20 |
| 100            | 95       | 73   | 22 | 85       | 73   | 22 |

\* At 0 stroke

**Made to Order Common Specifications: *CDQ2□S Series/Anti-lateral Load***  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)**

Bore Size

**ø63 to ø100**

Dimensions with mounting bracket are the same as standard type. For details, refer to pages 793 to 795.

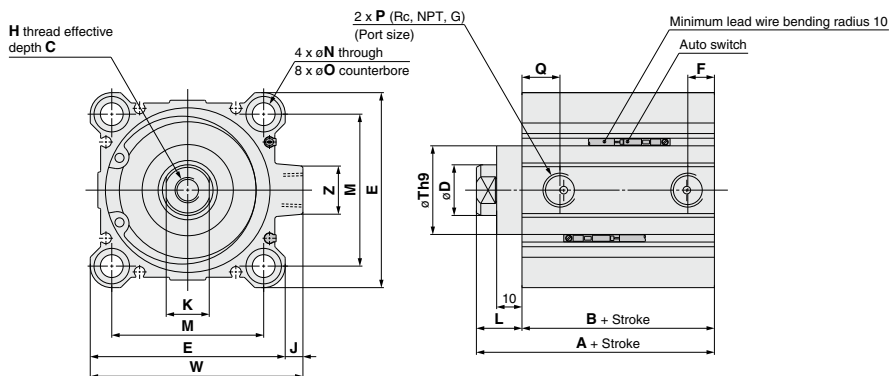
**CDQ2□S-XC88**  
**-XC89**

**Both ends tapped: CDQ2AS**

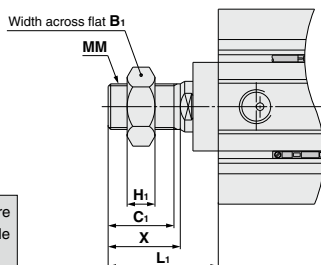
**Through-hole (Standard): CDQ2BS**

**Both Ends Tapped**

| Bore size (mm) | O <sub>1</sub> | R  |
|----------------|----------------|----|
| <b>63</b>      | M10 x 1.5      | 18 |
| <b>80</b>      | M12 x 1.75     | 22 |
| <b>100</b>     | M12 x 1.75     | 22 |



**Rod end male thread**



**Rod End Male Thread**

| Bore size (mm) | B <sub>1</sub> | C <sub>1</sub> | H <sub>1</sub> | L <sub>1</sub> | MM        | X    |
|----------------|----------------|----------------|----------------|----------------|-----------|------|
| <b>63</b>      | 27             | 26             | 11             | 43.5           | M18 x 1.5 | 28.5 |
| <b>80</b>      | 32             | 32.5           | 13             | 53.5           | M22 x 1.5 | 35.5 |
| <b>100</b>     | 41             | 32.5           | 16             | 53.5           | M26 x 1.5 | 35.5 |

The dimensions with boss on head end are equivalent to those of the CDQ2 series, double acting, single rod. Refer to page 1867.

| Bore size (mm) | Stroke range (mm) | A    | B    | C  | D  | E   | F    | H         | J   | K  | L  | M  | N  | O               | P   | Q  | Th9                              | W     | Z  |
|----------------|-------------------|------|------|----|----|-----|------|-----------|-----|----|----|----|----|-----------------|-----|----|----------------------------------|-------|----|
| <b>63</b>      | 10 to 50, 75, 100 | 74   | 56   | 15 | 20 | 77  | 10.5 | M10 x 1.5 | 7   | 17 | 18 | 60 | 9  | 14 depth 10.5   | 1/4 | 15 | 35 <sup>0</sup> <sub>0.062</sub> | 84    | 19 |
| <b>80</b>      | 10 to 50, 75, 100 | 83.5 | 63.5 | 21 | 25 | 98  | 12.5 | M16 x 2.0 | 6   | 22 | 20 | 77 | 11 | 17.5 depth 13.5 | 3/8 | 16 | 43 <sup>0</sup> <sub>0.062</sub> | 104   | 25 |
| <b>100</b>     | 10 to 50, 75, 100 | 95   | 73   | 27 | 30 | 117 | 13   | M20 x 2.5 | 6.5 | 27 | 22 | 94 | 11 | 17.5 depth 13.5 | 3/8 | 23 | 59 <sup>0</sup> <sub>0.074</sub> | 123.5 | 25 |

# Made to Order Common Specifications:

- XC88: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)
- XC89: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)
- XC91: Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)



## MGP Series

**62** Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304) **-XC88**

**63** Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C) **-XC89**

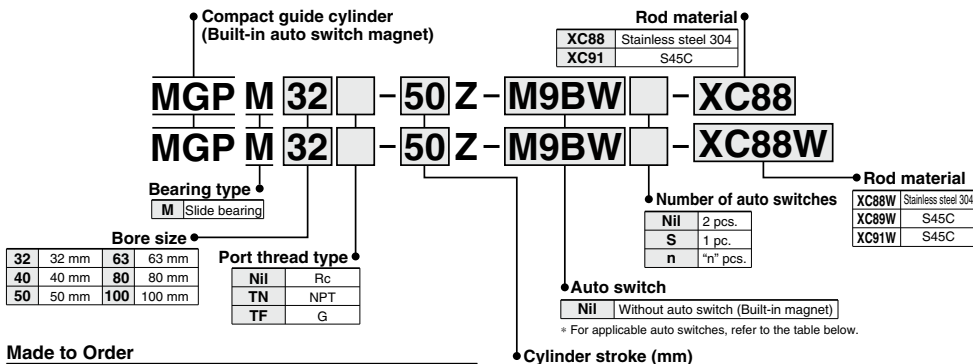
Reduces spatter adhesion and improves durability by the use of the coil scraper, Lube-retainer and grease for welding.

**64** Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C) **-XC91**

With coil scraper and grease for welding

## MGP Series

## How to Order



## Made to Order

| Part no. | Piston rod/<br>Guide rod material<br>(Hard chrome plating) |                     | Coil scraper |           | Lube-retainer |           | Grease for<br>welding |
|----------|------------------------------------------------------------|---------------------|--------------|-----------|---------------|-----------|-----------------------|
|          | S45C                                                       | Stainless steel 304 | Rod side     | Head side | Rod side      | Head side |                       |
| -XC88    | ●                                                          | ●                   | ●            | —         | ●             | —         | ●                     |
| -XC91    | —                                                          | —                   | ●            | —         | ●             | —         | ●                     |
| -XC88W   | —                                                          | ●                   | ●            | ●         | ●             | ●         | ●                     |
| -XC89W   | —                                                          | —                   | ●            | ●         | ●             | ●         | ●                     |
| -XC91W   | ●                                                          | —                   | ●            | ●         | —             | —         | ●                     |

\* The current product MGP-XC89 is equivalent to -XC91.

The specifications of the cylinder with auto switch are the same as those of the standard model.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Auto switch mounting brackets/Part no.
- Operating range

## Specifications

| Bore size                     |                             | ø32      | ø40 | ø50 | ø63 | ø80 | ø100 |
|-------------------------------|-----------------------------|----------|-----|-----|-----|-----|------|
| Action                        | Double acting               |          |     |     |     |     |      |
| Fluid                         | Air                         |          |     |     |     |     |      |
| Proof pressure                | 1.5 MPa                     |          |     |     |     |     |      |
| Maximum operating pressure    | 1.0 MPa                     |          |     |     |     |     |      |
| Minimum operating pressure    | XC88, XC91                  | 0.12 MPa |     |     |     |     |      |
|                               | XC88W, XC89W, XC91W         | 0.14 MPa |     |     |     |     |      |
| Ambient and fluid temperature | -10°C to 60°C (No freezing) |          |     |     |     |     |      |
| Cushion                       | Rubber bumper on both ends  |          |     |     |     |     |      |
| Lubrication                   | Not required (Non-lube)     |          |     |     |     |     |      |
| Stroke length tolerance       | +1.5<br>0 mm                |          |     |     |     |     |      |

## Applicable Auto Switches/Refer to pages 1575 to 1701 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)            |              | 12 V      | M9PV              | M9P           | ●                    | ●     | ●     | ○     |                     |                 |            |   |            |
|                         | 2-wire                                       |                  |                    | M9BV                    |              |           | M9B               | ●             | ●                    | ●     | ○     | ○     |                     |                 |            |   |            |
|                         | Diagnostic indication (2-color indicator)    |                  |                    | 3-wire (NPN)            | 24 V         | 5 V, 12 V | M9NVW             | M9NW          | ●                    | ●     | ●     | ○     | ○                   | IC circuit      |            |   |            |
|                         |                                              |                  |                    | 3-wire (PNP)            |              | 12 V      | M9PVW             | M9PW          | ●                    | ●     | ●     | ○     | ○                   |                 |            |   |            |
|                         | Magnetic field resistant (2-color indicator) |                  |                    | 2-wire                  | —            | 12 V      | M9BWV             | M9BW          | ●                    | ●     | ●     | ○     | ○                   | —               |            |   |            |
|                         |                                              |                  | 2-wire (Non-polar) | —                       |              | —         | P3DWA             | ●             | —                    | ●     | ●     | ●     | —                   |                 |            |   |            |
|                         |                                              |                  |                    | —                       |              | —         | —                 | P4DW          | —                    | —     | ●     | ●     | —                   |                 | —          |   |            |
| Reed auto switch        | —                                            | Grommet          | Yes                | 3-wire (NPN equivalent) | 24 V         | 5 V       | A96V              | A96           | ●                    | —     | ●     | —     | —                   | IC circuit      | Relay, PLC |   |            |
|                         |                                              |                  |                    | 2-wire                  |              | 12 V      | A93V              | A93           | ●                    | ●     | ●     | —     | —                   |                 |            |   |            |
|                         |                                              |                  |                    | No                      | 2-wire       | 24 V      | 12 V              | 100 V         | A90V                 | A90   | ●     | —     | ●                   | —               |            | — | IC circuit |
|                         |                                              |                  |                    |                         |              |           |                   | 100 V or less | A90V                 | A90   | ●     | —     | ●                   | —               |            | — |            |

\* 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

\* Auto switches are shipped together, (but not assembled).

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

\* Auto switches other than D-P3DWA/D-P4DW cannot be used under the magnetic field environment.

\* Please contact SMC for auto switches, auto switch proper mounting positions and operating ranges other than the above.

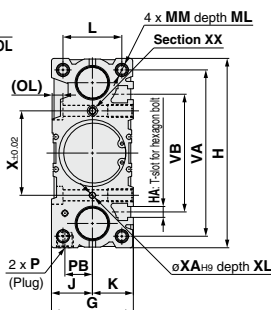
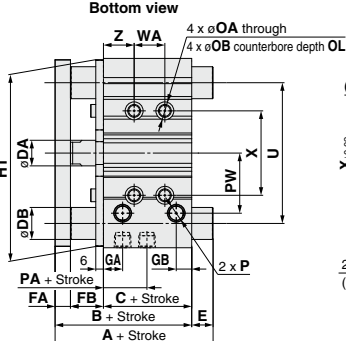
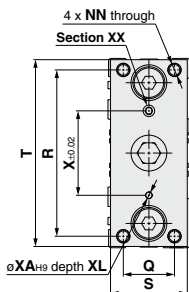
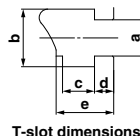
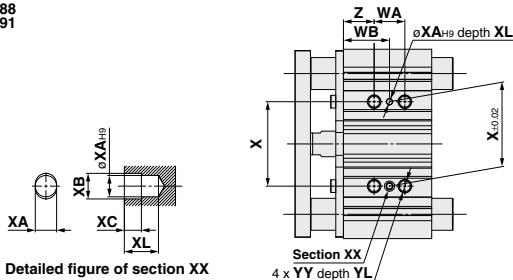
\* For details about auto switches with pre-wired connector, refer to pages 1648 and 1649.

**Made to Order Common Specifications: *MGP Series***  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)**  
**Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)**

Bore Size

**ø32 to ø63**

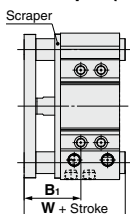
MGPM-XC88  
-XC91



|                   |                                                             |                              |                               |                               |             |               |    |     |                  |                              |             |     |      |      |      |           |     |     |     | (mm)                         |                               |                               |             |
|-------------------|-------------------------------------------------------------|------------------------------|-------------------------------|-------------------------------|-------------|---------------|----|-----|------------------|------------------------------|-------------|-----|------|------|------|-----------|-----|-----|-----|------------------------------|-------------------------------|-------------------------------|-------------|
| Bore size<br>(mm) | Standard stroke                                             | A                            |                               |                               | B           | C             | DA | DB  | E                |                              |             | FA  | FB   | G    | GA   | GB        | H   | HA  | HT  | J                            |                               |                               |             |
|                   |                                                             | 50 st<br>or less             | Over 50 st<br>200 st or less  | Over 200 st                   |             |               |    |     | 50 st<br>or less | Over 50 st<br>200 st or less | Over 200 st |     |      |      |      |           |     |     |     |                              |                               |                               |             |
| 32                | 25, 50, 75, 100<br>125, 150, 175, 200<br>250, 300, 350, 400 | 85                           | 103.5                         | 139.5                         | 69.5        | 37.5          | 14 | 20  | 15.5             | 34                           | 70          | 10  | 22   | 48   | 12   | 9         | 112 | M6  | 110 | 24                           |                               |                               |             |
| 40                |                                                             | 85                           | 103.5                         | 139.5                         | 76          | 44            | 14 | 20  | 9                | 27.5                         | 63.5        | 10  | 22   | 54   | 15   | 12        | 120 | M6  | 118 | 27                           |                               |                               |             |
| 50                |                                                             | 98.5                         | 119.5                         | 160.5                         | 82          | 44            | 20 | 25  | 16.5             | 37.5                         | 78.5        | 12  | 26   | 64   | 15   | 12        | 148 | M8  | 146 | 32                           |                               |                               |             |
| 63                |                                                             | 98.5                         | 119.5                         | 160.5                         | 87          | 49            | 20 | 25  | 11.5             | 32.5                         | 73.5        | 12  | 26   | 78   | 15.5 | 13.5      | 162 | M10 | 160 | 39                           |                               |                               |             |
|                   |                                                             |                              |                               |                               |             |               |    |     |                  |                              |             |     |      |      |      |           |     |     |     |                              |                               |                               |             |
| Bore size         | K                                                           | L                            | MM                            | ML                            | NN          | OA            | OB | OL  | P                |                              |             | PA  | PB   | PW   | Q    | R         | S   | T   | U   | VA                           | VB                            |                               |             |
|                   |                                                             |                              |                               |                               |             |               |    |     | Nil              | TN                           | TF          |     |      |      |      |           |     |     |     |                              |                               |                               |             |
| 32                | 24                                                          | 34                           | M8 x 1.25                     | 20                            | M8 x 1.25   | 6.7           | 11 | 7.5 | Rc1/8            | NPT1/8                       | G1/8        | 6.5 | 16   | 35.5 | 30   | 96        | 44  | 110 | 78  | 98                           | 63                            |                               |             |
| 40                | 27                                                          | 40                           | M8 x 1.25                     | 20                            | M8 x 1.25   | 6.7           | 11 | 7.5 | Rc1/8            | NPT1/8                       | G1/8        | 13  | 18   | 39.5 | 30   | 104       | 44  | 118 | 86  | 106                          | 72                            |                               |             |
| 50                | 32                                                          | 46                           | M10 x 1.5                     | 22                            | M10 x 1.5   | 8.6           | 14 | 9   | Rc1/4            | NPT1/4                       | G1/4        | 9   | 21.5 | 47   | 40   | 130       | 60  | 146 | 110 | 130                          | 92                            |                               |             |
| 63                | 39                                                          | 58                           | M10 x 1.5                     | 22                            | M10 x 1.5   | 8.6           | —  | 9   | Rc1/4            | NPT1/4                       | G1/4        | 13  | 28   | 58   | 50   | 130       | 70  | 158 | 124 | 142                          | 110                           |                               |             |
|                   |                                                             |                              |                               |                               |             |               |    |     |                  |                              |             |     |      |      |      |           |     |     |     |                              |                               |                               |             |
| Bore size         | WA                                                          |                              |                               | WB                            |             |               | X  | XA  | XB               | XC                           | XL          | YY  | YL   | Z    | a    | b         | c   | d   | e   |                              |                               |                               |             |
|                   | 25 st or less                                               | Over 25 st<br>100 st or less | Over 100 st<br>200 st or less | Over 200 st<br>300 st or less | Over 300 st | 25 st or less |    |     |                  |                              |             |     |      |      |      |           |     |     |     | Over 25 st<br>100 st or less | Over 100 st<br>200 st or less | Over 200 st<br>300 st or less | Over 300 st |
| 32                | 24                                                          | 48                           | 124                           | 200                           | 300         | 33            | 45 | 83  | 121              | 171                          | 42          | 4   | 4.5  | 3    | 6    | M8 x 1.25 | 16  | 21  | 6.5 | 10.5                         | 5.5                           | 3.5                           | 9.5         |
| 40                | 24                                                          | 48                           | 124                           | 200                           | 300         | 34            | 46 | 84  | 122              | 172                          | 50          | 4   | 4.5  | 3    | 6    | M8 x 1.25 | 16  | 22  | 6.5 | 10.5                         | 5.5                           | 4                             | 11          |
| 50                | 24                                                          | 48                           | 124                           | 200                           | 300         | 36            | 48 | 86  | 124              | 174                          | 66          | 5   | 6    | 4    | 8    | M10 x 1.5 | 20  | 24  | 8.5 | 13.5                         | 7.5                           | 4.5                           | 13.5        |
| 63                | 28                                                          | 52                           | 128                           | 200                           | 300         | 38            | 50 | 88  | 124              | 174                          | 80          | 5   | 6    | 4    | 8    | M10 x 1.5 | 20  | 24  | 11  | 17.8                         | 10                            | 7                             | 18.5        |

## Comparison of the Dimensions of Each Series

### Single side scraper (-XC88, -XC91)



| Bore size (mm) | XC88           |          | XC91           |          | XC35           |          | Standard       |          |
|----------------|----------------|----------|----------------|----------|----------------|----------|----------------|----------|
|                | B <sub>1</sub> | W (Note) | B <sub>1</sub> | W (Note) | B <sub>1</sub> | W (Note) | B <sub>1</sub> | W (Note) |
| 32             | 53             | 85       | 53             | 85       | 53             | 85       | 43             | 75       |
| 40             | 54             | 85       | 54             | 85       | 54             | 85       | 44             | 75       |
| 50             | 62             | 98.5     | 62             | 98.5     | 62             | 98.5     | 52             | 88.5     |
| 63             | 62             | 98.5     | 62             | 98.5     | 62             | 98.5     | 52             | 88.5     |
| 80             | 78             | 114.5    | 78             | 114.5    | 78             | 114.5    | 68             | 104.5    |
| 100            | 71             | 136.5    | 71             | 136.5    | 71             | 136.5    | 61             | 126.5    |

\* At 0 stroke  
 Note) W dimensions are for 50 stroke or less.

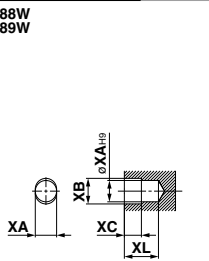


**Made to Order Common Specifications: *MGP Series***  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)**  
**Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)**

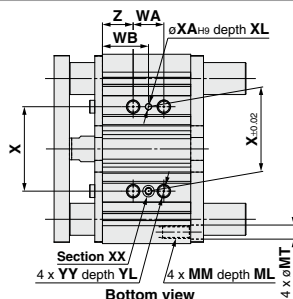
Bore Size

**ø32 to ø63**

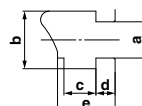
MGPM-**XC88W**  
 -**XC89W**



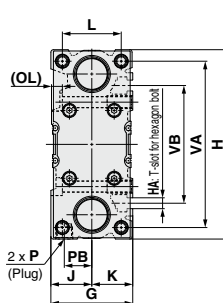
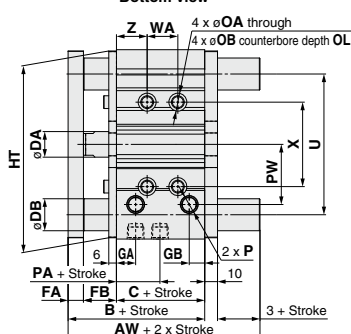
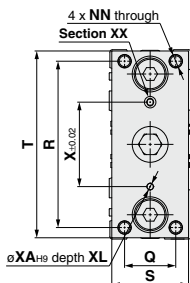
Detailed figure of section XX



Bottom view



T-slot dimensions



(mm)

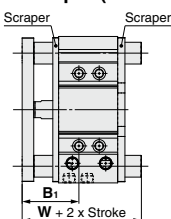
| Bore size | Standard stroke       | AW   | B    | C    | DA | DB | FA | FB | G  | GA   | GB   | H   | HA  | HT  | J  | K  | L  | MM        | ML | MT  | NN        |
|-----------|-----------------------|------|------|------|----|----|----|----|----|------|------|-----|-----|-----|----|----|----|-----------|----|-----|-----------|
| <b>32</b> | 25, 50, 75, 100, 125, | 82.5 | 69.5 | 37.5 | 14 | 20 | 10 | 22 | 48 | 12   | 9    | 112 | M6  | 110 | 24 | 24 | 34 | M8 x 1.25 | 20 | 9   | M8 x 1.25 |
| <b>40</b> | 150, 175, 200, 250,   | 89   | 76   | 44   | 14 | 20 | 10 | 22 | 54 | 15   | 12   | 120 | M6  | 118 | 27 | 27 | 40 | M8 x 1.25 | 20 | 8.5 | M8 x 1.25 |
| <b>50</b> | 300, 350, 400         | 95   | 82   | 44   | 20 | 25 | 12 | 26 | 64 | 15   | 12   | 148 | M8  | 146 | 32 | 32 | 46 | M10 x 1.5 | 22 | 11  | M10 x 1.5 |
| <b>63</b> |                       | 100  | 87   | 49   | 20 | 25 | 12 | 26 | 78 | 15.5 | 13.5 | 162 | M10 | 160 | 39 | 39 | 58 | M10 x 1.5 | 22 | 11  | M10 x 1.5 |

| Bore size | OA  | OB | OL  | P     |        |      | PA  | PB   | PW   | Q  | R   | S  | T   | U   | VA  | VB  | WA            |                           |                            |                            |             |
|-----------|-----|----|-----|-------|--------|------|-----|------|------|----|-----|----|-----|-----|-----|-----|---------------|---------------------------|----------------------------|----------------------------|-------------|
|           |     |    |     | Nil   | TN     | TF   |     |      |      |    |     |    |     |     |     |     | 25 st or less | Over 25 st 100 st or less | Over 100 st 200 st or less | Over 200 st 300 st or less | Over 300 st |
| <b>32</b> | 6.7 | 11 | 7.5 | Rc1/8 | NPT1/8 | G1/8 | 6.5 | 16   | 35.5 | 30 | 96  | 44 | 110 | 78  | 98  | 63  | 24            | 48                        | 124                        | 200                        | 300         |
| <b>40</b> | 6.7 | 11 | 7.5 | Rc1/8 | NPT1/8 | G1/8 | 13  | 18   | 39.5 | 30 | 104 | 44 | 118 | 86  | 106 | 72  | 24            | 48                        | 124                        | 200                        | 300         |
| <b>50</b> | 8.6 | 14 | 9   | Rc1/4 | NPT1/4 | G1/4 | 9   | 21.5 | 47   | 40 | 130 | 60 | 146 | 110 | 130 | 92  | 24            | 48                        | 124                        | 200                        | 300         |
| <b>63</b> | 8.6 | —  | 9   | Rc1/4 | NPT1/4 | G1/4 | 13  | 28   | 58   | 50 | 130 | 70 | 158 | 124 | 142 | 110 | 28            | 52                        | 128                        | 200                        | 300         |

| Bore size | WB            |                           |                            |                            |             | X  | XA | XB  | XC | XL | YY        | YL | Z  | a   | b    | c   | d   | e    |
|-----------|---------------|---------------------------|----------------------------|----------------------------|-------------|----|----|-----|----|----|-----------|----|----|-----|------|-----|-----|------|
|           | 25 st or less | Over 25 st 100 st or less | Over 100 st 200 st or less | Over 200 st 300 st or less | Over 300 st |    |    |     |    |    |           |    |    |     |      |     |     |      |
| <b>32</b> | 33            | 45                        | 83                         | 121                        | 171         | 42 | 4  | 4.5 | 3  | 6  | M8 x 1.25 | 16 | 21 | 6.5 | 10.5 | 5.5 | 3.5 | 9.5  |
| <b>40</b> | 34            | 46                        | 84                         | 122                        | 172         | 50 | 4  | 4.5 | 3  | 6  | M8 x 1.25 | 16 | 22 | 6.5 | 10.5 | 5.5 | 4   | 11   |
| <b>50</b> | 36            | 48                        | 86                         | 124                        | 174         | 66 | 5  | 6   | 4  | 8  | M10 x 1.5 | 20 | 24 | 8.5 | 13.5 | 7.5 | 4.5 | 13.5 |
| <b>63</b> | 38            | 50                        | 88                         | 124                        | 174         | 80 | 5  | 6   | 4  | 8  | M10 x 1.5 | 20 | 24 | 11  | 17.8 | 10  | 7   | 18.5 |

## Comparison of the Dimensions of Each Series

Both sides scraper (-XC88W, -XC89W, -XC91W)



| Bore size (mm) | XC88W<br>XC89W |       | XC91W          |       | XC35W          |       |
|----------------|----------------|-------|----------------|-------|----------------|-------|
|                | B <sub>1</sub> | W     | B <sub>1</sub> | W     | B <sub>1</sub> | W     |
| <b>32</b>      | 53             | 82.5  | 53             | 82.5  | 53             | 82.5  |
| <b>40</b>      | 54             | 89    | 54             | 89    | 54             | 89    |
| <b>50</b>      | 62             | 95    | 62             | 95    | 62             | 95    |
| <b>63</b>      | 62             | 100   | 62             | 100   | 62             | 100   |
| <b>80</b>      | 78             | 120.5 | 78             | 120.5 | 78             | 120.5 |
| <b>100</b>     | 71             | 143   | 71             | 143   | 71             | 143   |

\* At 0 stroke

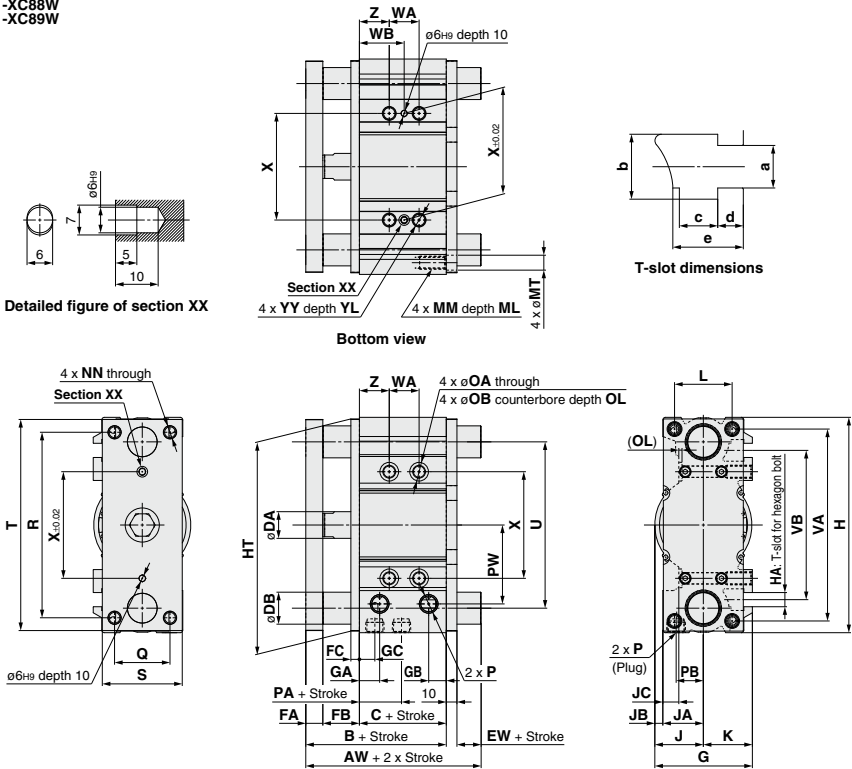


# MGP-XC88/XC89/XC91

Bore Size

ø80, ø100

MGPM-XC88W  
-XC89W



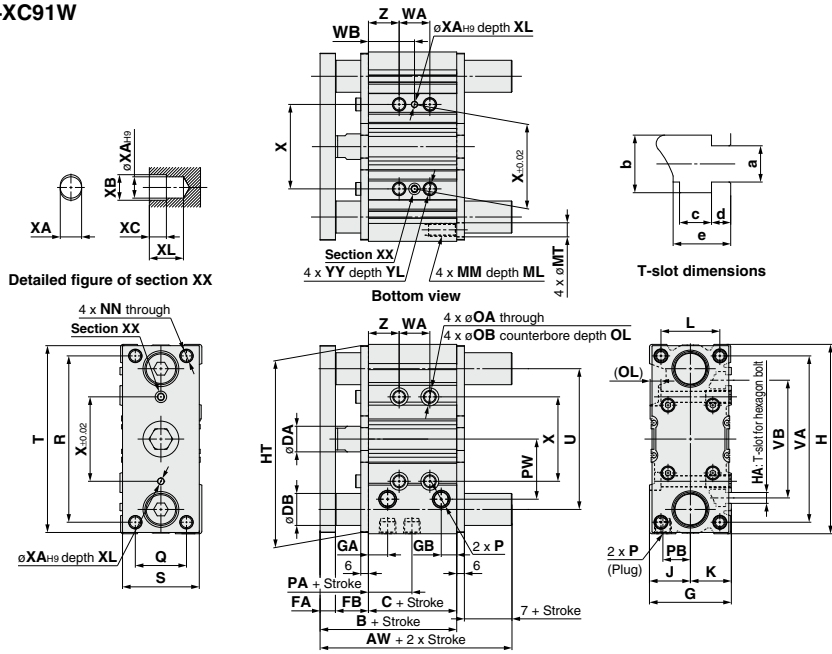
| Bore size |                                | Standard stroke |                           |                            |                            |             | AW            | B                         | C                          | DA                         | DB          | EW     | FA         | FB   | FC   | G    | GA   | GB   | GC   | H    | HA  | HT  | J | JA | JB | (mm) |
|-----------|--------------------------------|-----------------|---------------------------|----------------------------|----------------------------|-------------|---------------|---------------------------|----------------------------|----------------------------|-------------|--------|------------|------|------|------|------|------|------|------|-----|-----|---|----|----|------|
| 80        | 25, 50, 75, 100, 125, 150, 175 | 120.5           | 106.5                     | 56.5                       | 25                         | 30          | 4             | 16                        | 34                         | 8                          | 9           | 91.5   | 19         | 16.5 | 14.5 | 202  | M12  | 199  | 45.5 | 38   | 7.5 |     |   |    |    |      |
| 100       | 200, 250, 300, 350, 400        | 143             | 126                       | 66                         | 30                         | 36          | 7             | 19                        | 41                         | 9                          | 111.5       | 22.5   | 20.5       | 18   | 240  | M14  | 236  | 55.5 | 45   | 10.5 |     |     |   |    |    |      |
| Bore size | JC                             | K               | L                         | MM                         | ML                         | MT          | NN            | OA                        | OB                         | OL                         | P           |        |            | PA   | PB   | PW   | Q    | R    | S    | T    | U   | VA  |   |    |    |      |
|           |                                |                 |                           |                            |                            |             |               |                           |                            |                            | Nil         | TN     | TF         |      |      |      |      |      |      |      |     |     |   |    |    |      |
|           |                                |                 |                           |                            |                            |             |               |                           |                            |                            |             |        |            |      |      |      |      |      |      |      |     |     |   |    |    |      |
| 80        | 15                             | 46              | 54                        | M12 x 1.75                 | 25                         | 14          | M12 x 1.75    | 10.6                      | 17.5                       | 3                          | Rc3/8       | NPT3/8 | G3/8       | 14.5 | 25.5 | 74   | 52   | 174  | 75   | 198  | 156 | 180 |   |    |    |      |
| 100       | 10                             | 56              | 62                        | M14 x 2                    | 31                         | 16          | M14 x 2       | 12.5                      | 20                         | 8                          | Rc3/8       | NPT3/8 | G3/8       | 17.5 | 32.5 | 89   | 64   | 210  | 90   | 236  | 188 | 210 |   |    |    |      |
| Bore size | VB                             | WA              |                           |                            |                            |             | WB            |                           |                            |                            |             | X      | YL         | Z    | a    | b    | c    | d    | e    |      |     |     |   |    |    |      |
|           |                                | 25 st or less   | Over 25 st 100 st or less | Over 100 st 200 st or less | Over 200 st 300 st or less | Over 300 st | 25 st or less | Over 25 st 100 st or less | Over 100 st 200 st or less | Over 200 st 300 st or less | Over 300 st |        |            |      |      |      |      |      |      |      |     |     |   |    |    |      |
|           |                                |                 |                           |                            |                            |             |               |                           |                            |                            |             |        |            |      |      |      |      |      |      |      |     |     |   |    |    |      |
| 80        | 140                            | 28              | 52                        | 128                        | 200                        | 300         | 42            | 54                        | 92                         | 128                        | 178         | 100    | M12 x 1.75 | 24   | 28   | 13.3 | 20.3 | 12   | 8    | 22.5 |     |     |   |    |    |      |
| 100       | 166                            | 48              | 72                        | 148                        | 220                        | 320         | 35            | 47                        | 85                         | 121                        | 171         | 124    | M14 x 2    | 28   | 11   | 15.3 | 23.3 | 13.5 | 10   | 30   |     |     |   |    |    |      |

**Made to Order Common Specifications: *MGP Series***  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)**  
**Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)**

Bore Size

**ø32 to ø63**

**MGPM-XC91W**



(mm)

| Bore size | Standard stroke       | AW   | B    | C    | DA | DB | FA | FB | G  | GA   | GB   | H   | HA  | HT  | J  | K  | L  | MM        | ML | MT  | NN        |
|-----------|-----------------------|------|------|------|----|----|----|----|----|------|------|-----|-----|-----|----|----|----|-----------|----|-----|-----------|
| 32        | 25, 50, 75, 100, 125, | 82.5 | 69.5 | 37.5 | 14 | 20 | 10 | 22 | 48 | 12   | 9    | 112 | M6  | 110 | 24 | 24 | 34 | M8 x 1.25 | 20 | 9   | M8 x 1.25 |
| 40        | 150, 175, 200, 250,   | 89   | 76   | 44   | 14 | 20 | 10 | 22 | 54 | 15   | 12   | 120 | M6  | 118 | 27 | 27 | 40 | M8 x 1.25 | 20 | 8.5 | M8 x 1.25 |
| 50        | 300, 350, 400         | 95   | 82   | 44   | 20 | 25 | 12 | 26 | 64 | 15   | 12   | 148 | M8  | 146 | 32 | 32 | 46 | M10 x 1.5 | 22 | 11  | M10 x 1.5 |
| 63        |                       | 100  | 87   | 49   | 20 | 25 | 12 | 26 | 78 | 15.5 | 13.5 | 162 | M10 | 160 | 39 | 39 | 58 | M10 x 1.5 | 22 | 11  | M10 x 1.5 |

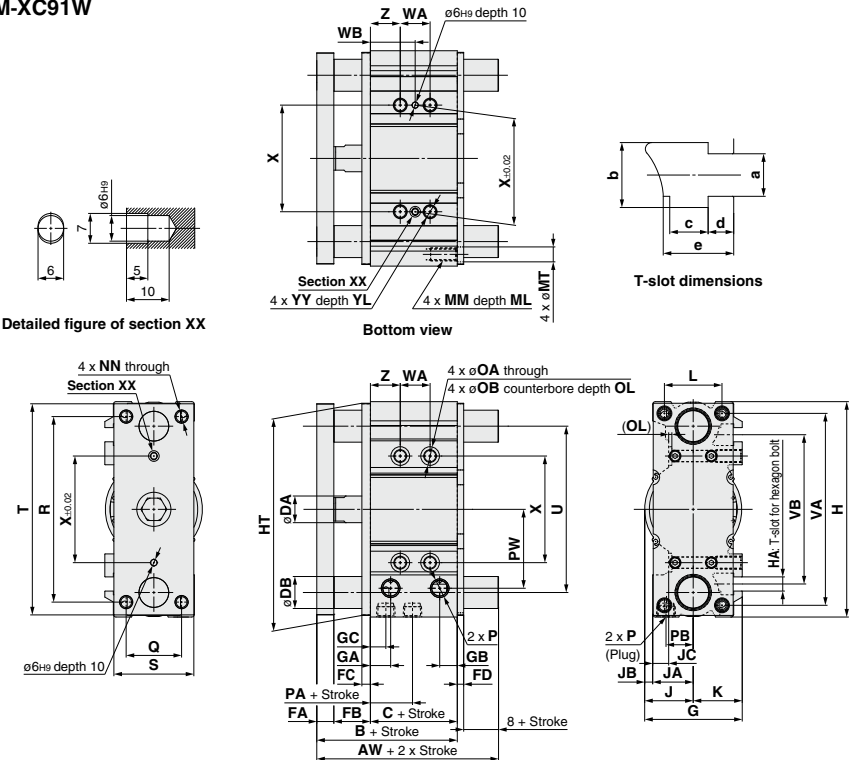
| Bore size | OA  | OB | OL  | P     |        |      | PA  | PB   | PW   | Q  | R   | S  | T   | U   | VA  | VB  | WA            |                    |                     |                     |                     |
|-----------|-----|----|-----|-------|--------|------|-----|------|------|----|-----|----|-----|-----|-----|-----|---------------|--------------------|---------------------|---------------------|---------------------|
|           |     |    |     | Nil   | TN     | TF   |     |      |      |    |     |    |     |     |     |     | 25 st or less | Over 25 st or less | Over 100 st or less | Over 200 st or less | Over 300 st or less |
| 32        | 6.7 | 11 | 7.5 | Rc1/8 | NPT1/8 | G1/8 | 6.5 | 16   | 35.5 | 30 | 96  | 44 | 110 | 78  | 98  | 63  | 24            | 48                 | 124                 | 200                 | 300                 |
| 40        | 6.7 | 11 | 7.5 | Rc1/8 | NPT1/8 | G1/8 | 13  | 18   | 39.5 | 30 | 104 | 44 | 118 | 86  | 106 | 72  | 24            | 48                 | 124                 | 200                 | 300                 |
| 50        | 8.6 | 14 | 9   | Rc1/4 | NPT1/4 | G1/4 | 9   | 21.5 | 47   | 40 | 130 | 60 | 146 | 110 | 130 | 92  | 24            | 48                 | 124                 | 200                 | 300                 |
| 63        | 8.6 | —  | 9   | Rc1/4 | NPT1/4 | G1/4 | 13  | 28   | 58   | 50 | 130 | 70 | 158 | 124 | 142 | 110 | 28            | 52                 | 128                 | 200                 | 300                 |

| Bore size | WB            |                    |                     |                     |                     | X  | XA | XB  | XC | XL | YY        | YL | Z  | a   | b    | c   | d   | e    |
|-----------|---------------|--------------------|---------------------|---------------------|---------------------|----|----|-----|----|----|-----------|----|----|-----|------|-----|-----|------|
|           | 25 st or less | Over 25 st or less | Over 100 st or less | Over 200 st or less | Over 300 st or less |    |    |     |    |    |           |    |    |     |      |     |     |      |
| 32        | 33            | 45                 | 83                  | 121                 | 171                 | 42 | 4  | 4.5 | 3  | 6  | M8 x 1.25 | 16 | 21 | 6.5 | 10.5 | 5.5 | 3.5 | 9.5  |
| 40        | 34            | 46                 | 84                  | 122                 | 172                 | 50 | 4  | 4.5 | 3  | 6  | M8 x 1.25 | 16 | 22 | 6.5 | 10.5 | 5.5 | 4   | 11   |
| 50        | 36            | 48                 | 86                  | 124                 | 174                 | 66 | 5  | 6   | 4  | 8  | M10 x 1.5 | 20 | 24 | 8.5 | 13.5 | 7.5 | 4.5 | 13.5 |
| 63        | 38            | 50                 | 88                  | 124                 | 174                 | 80 | 5  | 6   | 4  | 8  | M10 x 1.5 | 20 | 24 | 11  | 17.8 | 10  | 7   | 18.5 |

MGP-XC88/XC89/XC91

Bore Size  
ø80, ø100

MGPM-XC91W



| Bore size |  | Standard stroke                |  |  |  | AW    | B     | C    | DA | DB | FA | FB | FC | FD | G     | GA   | GB   | GC   | H   | HA  | HT  | J    | JA | JB   | JC |
|-----------|--|--------------------------------|--|--|--|-------|-------|------|----|----|----|----|----|----|-------|------|------|------|-----|-----|-----|------|----|------|----|
| 80        |  | 25, 50, 75, 100, 125, 150, 175 |  |  |  | 120.5 | 106.5 | 56.5 | 25 | 30 | 16 | 34 | 8  | 6  | 91.5  | 19   | 16.5 | 14.5 | 202 | M12 | 199 | 45.5 | 38 | 7.5  | 15 |
| 100       |  | 200, 250, 300, 350, 400        |  |  |  | 143   | 126   | 66   | 30 | 36 | 19 | 41 | 9  | 9  | 111.5 | 22.5 | 20.5 | 18   | 240 | M14 | 236 | 55.5 | 45 | 10.5 | 10 |

| Bore size | K  | L  | MM         | ML | MT | NN         | OA   | OB   | OL | P     |        |      | PA   | PB   | PW | Q  | R   | S  | T   | U   | VA  |
|-----------|----|----|------------|----|----|------------|------|------|----|-------|--------|------|------|------|----|----|-----|----|-----|-----|-----|
|           |    |    |            |    |    |            |      |      |    | Nil   | TN     | TF   |      |      |    |    |     |    |     |     |     |
| 80        | 46 | 54 | M12 x 1.75 | 25 | 14 | M12 x 1.75 | 10.6 | 17.5 | 3  | Rc3/8 | NPT3/8 | G3/8 | 14.5 | 25.5 | 74 | 52 | 174 | 75 | 198 | 156 | 180 |
| 100       | 56 | 62 | M14 x 2    | 31 | 16 | M14 x 2    | 12.5 | 20   | 8  | Rc3/8 | NPT3/8 | G3/8 | 17.5 | 32.5 | 89 | 64 | 210 | 90 | 236 | 188 | 210 |

| Bore size | VB  | WA            |                           |                            |                            | WB            |                           |                            |                            | X   | YY  | YL  | Z          | a  | b  | c    | d    | e    |    |      |
|-----------|-----|---------------|---------------------------|----------------------------|----------------------------|---------------|---------------------------|----------------------------|----------------------------|-----|-----|-----|------------|----|----|------|------|------|----|------|
|           |     | 25 st or less | Over 25 st 100 st or less | Over 100 st 200 st or less | Over 200 st 300 st or less | 25 st or less | Over 25 st 100 st or less | Over 100 st 200 st or less | Over 200 st 300 st or less |     |     |     |            |    |    |      |      |      |    |      |
| 80        | 140 | 28            | 52                        | 128                        | 200                        | 300           | 42                        | 54                         | 92                         | 128 | 178 | 100 | M12 x 1.75 | 24 | 28 | 13.3 | 20.3 | 12   | 8  | 22.5 |
| 100       | 166 | 48            | 72                        | 148                        | 220                        | 320           | 35                        | 47                         | 85                         | 121 | 171 | 124 | M14 x 2    | 28 | 11 | 15.3 | 23.3 | 13.5 | 10 | 30   |

# Made to Order Common Specifications:

-XC89: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)

-XC91: Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)



## MK2T Series

**63 Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)**

Symbol

**-XC89**

Reduces spatter adhesion and improves durability by the use of the coil scraper, Lube-retainer and grease for welding.

**64 Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)**

**-XC91**

With coil scraper and grease for welding

### MK2T Series

### How to Order

**MK2T B 32 -10 R -M9BW -XC89**  
**MK2T B 32 -10 R -M9BW -XC91**

**Rotary clamp cylinder**  
**Double guide type**  
**(Built-in auto switch magnet)**

**Mounting bracket**

|   |                                                   |
|---|---------------------------------------------------|
| B | Through-hole (Both ends tapped common) (Standard) |
| G | Head flange                                       |

**Bore size**

|    |       |    |       |
|----|-------|----|-------|
| 32 | 32 mm | 50 | 50 mm |
| 40 | 40 mm | 63 | 63 mm |

**Cylinder port**

|     |     |
|-----|-----|
| Nil | Rc  |
| TN  | NPT |
| TF  | G   |

**Clamp stroke**

|    | Clamp stroke | Rotary stroke | Applicable bore size |
|----|--------------|---------------|----------------------|
| 10 | 10 mm        | 29 mm         | ø32, ø40             |
| 20 | 20 mm        |               |                      |
| 20 | 20 mm        | 33 mm         | ø50, ø63             |
| 50 | 50 mm        |               |                      |

**Number of auto switches**

|     |        |
|-----|--------|
| Nil | 2 pcs. |
| S   | 1 pc.  |

**Auto switch**

|     |                                       |
|-----|---------------------------------------|
| Nil | Without auto switch (Built-in magnet) |
|-----|---------------------------------------|

\* For applicable auto switches, refer to the table below.

**Body option**

|     |                          |
|-----|--------------------------|
| Nil | Standard (Female thread) |
| N   | With arm                 |

\* Arms are included when shipped, (but not assembled).

**Rotary direction (Unclamp → Clamp)**

|   |                  |
|---|------------------|
| R | Clockwise        |
| L | Counterclockwise |

\* Direction of rotation viewed from the rod end when the rod is retracting.

**R type**

During unclamping (Extension end) 85° to 95°  
 During unclamping (Extension end) 85° to 95°  
 During clamping (Retraction end) 85° to 95°

Clamp part Non-rotating accuracy ±0.5° to 1.0°

During clamping (Retraction end)

### Made to Order

| Part no. | Piston rod material<br>(Hard chrome plating) | Coil scraper | Lube-retainer | Grease for welding |
|----------|----------------------------------------------|--------------|---------------|--------------------|
|          | <b>S45C</b>                                  |              |               |                    |
| -XC89    | ●                                            | ●            | ●             | ●                  |
| -XC91    | ●                                            | ●            | —             | ●                  |

(Note) Use the -XC91 in a place where the distance from the welding portion is far and the spatter scattering is minimized.

### Applicable Auto Switches/Refer to pages 1575 to 1701 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) | None (N)            |                 |
| Solid state auto switch | Diagnostic indication (2-color indicator)    | 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)            |              |             | M9NWW             | M9NW    | ●                    | ●     | ●     | —     | ○                   | IC circuit      |
|                         |                                              |                  |                 | 3-wire (PNP)            |              |             | M9PWW             | M9PW    | ●                    | ●     | ●     | —     | ○                   |                 |
|                         |                                              |                  |                 | 2-wire                  |              |             | M9BWW             | M9BW    | ●                    | ●     | ●     | —     | ○                   |                 |
| Reed auto switch        | Magnetic field resistant (2-color indicator) | Grommet          | Yes             | 2-wire (Non-polar)      | 24 V         | 5 V, 12 V   | —                 |         | P3DWA                | ●     | ●     | ●     | ●                   | —               |
|                         |                                              |                  |                 | 3-wire (NPN equivalent) |              |             | —                 |         | P4DW**               | —     | —     | ●     | ●                   |                 |
|                         |                                              |                  |                 | 2-wire                  |              |             | A96V              | A96     | ●                    | —     | ●     | —     | —                   | IC circuit      |
| Reed auto switch        | —                                            | No               | No              | 3-wire (NPN equivalent) | 24 V         | 12 V, 100 V | A93V              | A93     | ●                    | ●     | ●     | —     | —                   | Relay, PLC      |
|                         |                                              |                  |                 | 2-wire                  |              |             | A90V              | A90     | ●                    | —     | ●     | —     | —                   |                 |
|                         |                                              |                  |                 | 2-wire                  |              |             | A90V              | A90     | ●                    | —     | ●     | —     | —                   |                 |

\* Lead wire length symbols: 0.5 m..... Nil (Example) M9NV  
 1 m..... M (Example) M9NWM  
 3 m..... L (Example) M9NWL  
 5 m..... Z (Example) M9NWW

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

\*\* For D-P4DW, ø40 to ø63 are available.

\*\* Only D-P4DW type is assembled at the time of shipment.

\* Please contact SMC for auto switches, auto switch proper mounting positions and operating ranges other than the above.

\* For details about auto switches with pre-wired connector, refer to pages 1648 and 1649.

\* When D-M9C(V)/M9C(W)/M9C(AV)/A9C(V) types are mounted on a side other than the port side, order auto switch mounting brackets separately. Refer to page 1684.

\* Auto switches are shipped together, (but not assembled).





## Specifications

| Bore size (mm)                     | 32                                                    | 40  | 50                  | 63   |
|------------------------------------|-------------------------------------------------------|-----|---------------------|------|
| Action                             | Double acting                                         |     |                     |      |
| Rotation angle                     | 90° ±5°                                               |     |                     |      |
| Rotary direction                   | Clockwise, Counterclockwise                           |     |                     |      |
| Rotary stroke (mm)                 | 29                                                    |     | 33                  |      |
| Clamp stroke (mm)                  | 10, 20                                                |     | 20, 50              |      |
| Theoretical clamp force (N)        | 300                                                   | 525 | 825                 | 1300 |
| Fluid                              | Air                                                   |     |                     |      |
| Proof pressure                     | 1.5 MPa                                               |     |                     |      |
| Operating pressure range           | 0.1 to 1 MPa                                          |     |                     |      |
| Ambient and fluid temperature      | Without auto switch: -10 to 70°C (No freezing)        |     |                     |      |
|                                    | With auto switch: -10 to 60°C (No freezing)           |     |                     |      |
| Lubrication                        | Non-lube                                              |     |                     |      |
| Piping port size                   | Rc1/8, NPT1/8, G1/8                                   |     | Rc1/4, NPT1/4, G1/4 |      |
| Mounting                           | Through-hole/Both ends tapped common, Head end flange |     |                     |      |
| Cushion                            | Rubber bumper                                         |     |                     |      |
| Stroke length tolerance            | +1.0<br>0                                             |     |                     |      |
| Piston speed                       | 50 to 200 mm/s                                        |     |                     |      |
| Non-rotating accuracy (Clamp part) | ±0.5°                                                 |     |                     |      |

Note 1) Refer to "Rotary Angle" figure in Best Pneumatics No.2-3.

Note 2) Direction of rotation viewed from the rod end when rod parts are retracting.

Note 3) At 0.5 MPa.

## Theoretical Output

Unit: N

| Bore size (mm) | Rod size (mm) | Operating direction | Piston area (cm <sup>2</sup> ) | Operating pressure (MPa) |      |      |      |
|----------------|---------------|---------------------|--------------------------------|--------------------------|------|------|------|
|                |               |                     |                                | 0.3                      | 0.5  | 0.7  | 1.0  |
| 32             | 16            | R                   | 6                              | 182                      | 300  | 418  | 600  |
|                |               | H                   | 8                              | 243                      | 400  | 557  | 800  |
| 40             | 16            | R                   | 10.5                           | 319                      | 525  | 731  | 1050 |
|                |               | H                   | 12.5                           | 380                      | 625  | 870  | 1250 |
| 50             | 20            | R                   | 16.5                           | 502                      | 825  | 1149 | 1648 |
|                |               | H                   | 19.6                           | 596                      | 980  | 1365 | 1961 |
| 63             | 25            | R                   | 26                             | 780                      | 1300 | 1820 | 2600 |
|                |               | H                   | 31.2                           | 948                      | 1560 | 2172 | 3121 |

Note) Theoretical output (N) = Pressure (MPa) x Piston area (cm<sup>2</sup>) x 100

Operating direction  
R: Rod end (Clamp)  
H: Head end (Unclamp)

The specifications of the cylinder with auto switch are the same as those of the standard model.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Auto switch mounting brackets/Part no.
- Operating range

**Made to Order Common Specifications: MK2T Series**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)**  
**Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)**

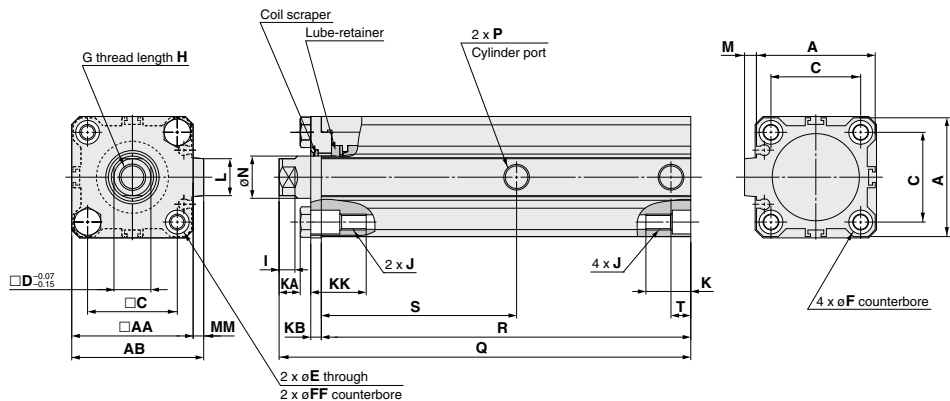
Bore Size

**ø32 to ø63**

Dimensions with mounting bracket are the same as standard type. For details, refer to Best Pneumatics No.2-3.

**MK2T□-XC89**

**Through-hole/Both ends tapped (Standard): MK2TB**



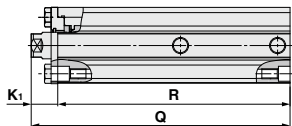
| Bore size | AA | AB | A  | C  | D  | E   | FF            | F             | G          | H  | I | J         | KK   | K    | KA  | KB | L  | MM | M   | øN |
|-----------|----|----|----|----|----|-----|---------------|---------------|------------|----|---|-----------|------|------|-----|----|----|----|-----|----|
| 32        | 46 | 50 | 45 | 34 | 14 | 5.5 | 9 depth 11    | 9 depth 7     | M10 x 1.5  | 12 | 6 | M6 x 1.0  | 21   | 17   | 8   | 4  | 14 | 4  | 4.5 | 16 |
| 40        | 52 | 57 | 52 | 40 | 14 | 5.5 | 9 depth 12    | 9 depth 7     | M10 x 1.5  | 12 | 6 | M6 x 1.0  | 22   | 17   | 7.5 | 5  | 14 | 5  | 5   | 16 |
| 50        | 64 | 71 | 64 | 50 | 17 | 6.6 | 11 depth 14   | 11 depth 8    | M12 x 1.75 | 15 | 7 | M8 x 1.25 | 28   | 22   | 12  | 6  | 19 | 7  | 7   | 20 |
| 63        | 77 | 84 | 77 | 60 | 22 | 9   | 14 depth 16.5 | 14 depth 10.5 | M16 x 2    | 21 | 8 | M10 x 1.5 | 34.5 | 28.5 | 10  | 6  | 19 | 7  | 7   | 25 |

| Bore size | P     |        |      | Clamp stroke: 10 mm |     |    |     | Clamp stroke: 20 mm |     |      |      | Clamp stroke: 50 mm |       |       |    |
|-----------|-------|--------|------|---------------------|-----|----|-----|---------------------|-----|------|------|---------------------|-------|-------|----|
|           | Nil   | TN     | TF   | Q                   | R   | S  | T   | Q                   | R   | S    | T    | Q                   | R     | S     | T  |
| 32        | Rc1/8 | NPT1/8 | G1/8 | 156                 | 140 | 74 | 7.5 | 176                 | 160 | 84   | 7.5  | —                   | —     | —     | —  |
| 40        | Rc1/8 | NPT1/8 | G1/8 | 160.5               | 144 | 75 | 8   | 180.5               | 164 | 85   | 8    | —                   | —     | —     | —  |
| 50        | Rc1/4 | NPT1/4 | G1/4 | —                   | —   | —  | —   | 202.5               | 179 | 91.5 | 12.5 | 266                 | 242.5 | 121.5 | 14 |
| 63        | Rc1/4 | NPT1/4 | G1/4 | —                   | —   | —  | —   | 205                 | 182 | 93   | 10.5 | 269                 | 246   | 123   | 15 |

Note 1) The cylinder rod is retracted.

Note 2) The overall length when the rod is extended is the value that the clamp stroke and rotary stroke are added to the dimension Q.

## Comparison of the Dimensions of Each Series



| Bore size (mm) | XC89           |       |     | XC91           |       |     | Standard       |       |     |
|----------------|----------------|-------|-----|----------------|-------|-----|----------------|-------|-----|
|                | K <sub>1</sub> | Q     | R   | K <sub>1</sub> | Q     | R   | K <sub>1</sub> | Q     | R   |
| 32             | 16             | 176   | 160 | 8              | 168   | 160 | 8              | 168   | 160 |
| 40             | 16.5           | 180.5 | 164 | 7.5            | 171.5 | 164 | 7.5            | 171.5 | 164 |
| 50             | 23.5           | 202.5 | 179 | 12             | 191   | 179 | 12             | 191   | 179 |
| 63             | 23             | 205   | 182 | 10             | 192   | 182 | 10             | 192   | 182 |

\* When the clamp stroke is 20 mm

# MK2T-XC89/XC91

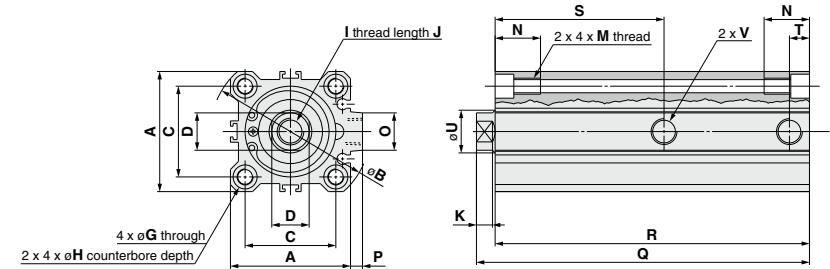
Bore Size

ø32 to ø63

Dimensions with mounting bracket are the same as standard type. For details, refer to Best Pneumatics No.2-3.

MK2T□-XC91 \* Dimensions are the same as the standard product (MK2T series).

Through-hole/Both ends tapped (Standard): MK2TB



Through-hole/Both Ends Tapped Common (Standard)

(mm)

| Bore size | A  | øB  | C  | D                                    | G   | H             | I          | J  | K | M         | N    | O  | P   | øU | V     |        |      |
|-----------|----|-----|----|--------------------------------------|-----|---------------|------------|----|---|-----------|------|----|-----|----|-------|--------|------|
|           |    |     |    |                                      |     |               |            |    |   |           |      |    |     |    | NII   | TN     | TF   |
| 32        | 45 | 60  | 34 | 14 <sup>+0.07</sup> <sub>-0.15</sub> | 5.5 | 9 depth 7     | M10 x 1.5  | 12 | 6 | M6 x 1.0  | 17   | 14 | 4.5 | 16 | Rc1/8 | NPT1/8 | G1/8 |
| 40        | 52 | 69  | 40 | 14 <sup>+0.07</sup> <sub>-0.15</sub> | 5.5 | 9 depth 7     | M10 x 1.5  | 12 | 6 | M6 x 1.0  | 17   | 14 | 5   | 16 | Rc1/8 | NPT1/8 | G1/8 |
| 50        | 64 | 86  | 50 | 17 <sup>+0.07</sup> <sub>-0.15</sub> | 6.6 | 11 depth 8    | M12 x 1.75 | 15 | 7 | M8 x 1.25 | 22   | 19 | 7   | 20 | Rc1/4 | NPT1/4 | G1/4 |
| 63        | 77 | 103 | 60 | 22 <sup>+0.07</sup> <sub>-0.15</sub> | 9   | 14 depth 10.5 | M16 x 2    | 21 | 8 | M10 x 1.5 | 28.5 | 19 | 7   | 25 | Rc1/4 | NPT1/4 | G1/4 |

| Bore size | Clamp stroke 10 mm |     |    |     | Clamp stroke 20 mm |     |      |      | Clamp stroke 50 mm |       |       |    |
|-----------|--------------------|-----|----|-----|--------------------|-----|------|------|--------------------|-------|-------|----|
|           | Q                  | R   | S  | T   | Q                  | R   | S    | T    | Q                  | R     | S     | T  |
| 32        | 148                | 140 | 74 | 7.5 | 168                | 160 | 84   | 7.5  | —                  | —     | —     | —  |
| 40        | 151.5              | 144 | 75 | 8   | 171.5              | 164 | 85   | 8    | —                  | —     | —     | —  |
| 50        | —                  | —   | —  | —   | 191                | 179 | 91.5 | 12.5 | 254.5              | 242.5 | 121.5 | 14 |
| 63        | —                  | —   | —  | —   | 192                | 182 | 93   | 10.5 | 256                | 246   | 123   | 15 |

# Made to Order Common Specifications:

- XC88: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)
- XC89: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)
- XC91: Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)



## CKG1 Series

**62** Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304) **-XC88**

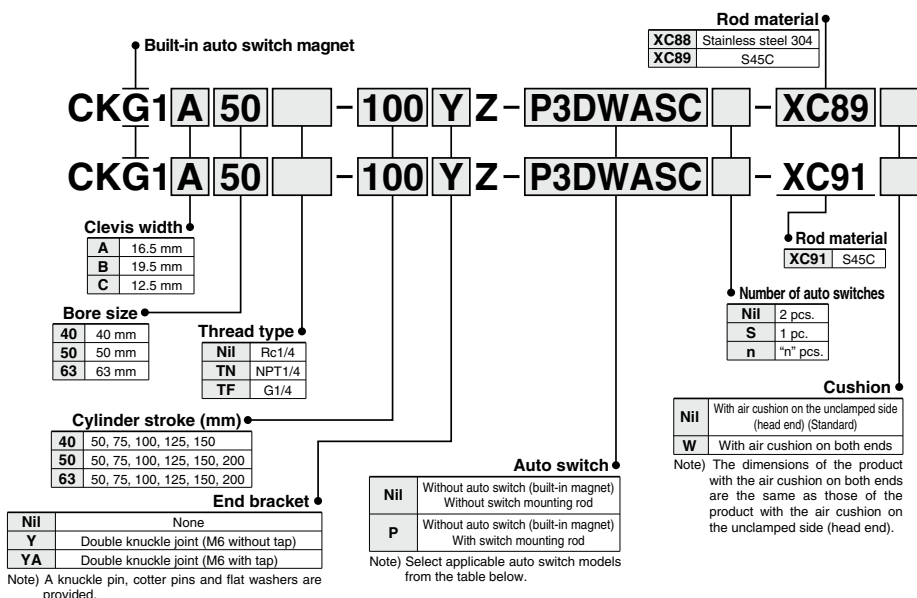
**63** Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C) **-XC89**

Reduces spatter adhesion and improves durability by the use of the coil scraper, Lube-retainer and grease for welding.

**64** Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C) **-XC91**

With coil scraper and grease for welding

### CKG1 Series: Rod Mounting Type How to Order



### Made to Order

| Part no. | Piston rod material<br>(Hard chrome plated) |                     | Coil<br>scraper | Lube-<br>retainer | Grease for<br>welding |
|----------|---------------------------------------------|---------------------|-----------------|-------------------|-----------------------|
|          | S45C                                        | Stainless steel 304 |                 |                   |                       |
| -XC88    | —                                           | ●                   | ●               | ●                 | ●                     |
| -XC89    | ●                                           | —                   | ●               | ●                 | ●                     |
| -XC91    | ●                                           | —                   | ●               | —                 | ●                     |

Note) Use the -XC91 in a place where the distance from the welding portion is far and the spatter scattering is minimized.

### Built-in Auto Switch Magnet Cylinder Part No.

1) Built-in auto switch magnet type without auto switch, without switch mounting rod

Symbol for the auto switch type is "Nil" as shown below.  
(Example) CKG1A50-50YZ-XC89

2) Built-in auto switch magnet type without auto switch, with switch mounting rod

Symbol for the auto switch type is "P" as shown below.  
(Example) CKG1A50-50YZ-P-XC89

### Applicable Auto Switches/Refer to pages 1575 to 1701 for further information on auto switches.

| Type                    | Special function                             | Auto switch model | Applicable magnetic field                                  | Electrical entry    | Indicator light | Wiring (Pin no. in use) | Load voltage | Lead wire length | Applicable load     |  |
|-------------------------|----------------------------------------------|-------------------|------------------------------------------------------------|---------------------|-----------------|-------------------------|--------------|------------------|---------------------|--|
| Solid state auto switch | Magnetic field resistant (2-color indicator) | P3DWASC           | AC magnetic field (Single-phase AC welding magnetic field) | Pre-wired connector | 2-color display | 2-wire (3-4)            | 24 VDC       | 0.3 m            | Relay, PLC (Note 1) |  |
|                         |                                              | P4DWSC            |                                                            |                     |                 | 2-wire (1-4)            |              |                  |                     |  |
|                         |                                              | P3DWASE           |                                                            |                     |                 |                         |              |                  |                     |  |
|                         |                                              | P4DWSE            |                                                            |                     |                 |                         |              |                  |                     |  |
|                         |                                              | P3DWA             |                                                            | Grommet             |                 | 2-wire                  |              | 0.5 m            |                     |  |
|                         |                                              | P3DWAL            |                                                            |                     |                 |                         |              | 3 m              |                     |  |
|                         |                                              | P4DWL             |                                                            |                     |                 |                         |              | 5 m              |                     |  |
|                         |                                              | P3DWAZ            |                                                            |                     |                 |                         |              |                  |                     |  |
|                         |                                              | P4DWZ             |                                                            |                     |                 |                         |              |                  |                     |  |

Note 1) PLC: Programmable Logic Controller

Note 2) Please contact SMC for auto switches, auto switch proper mounting positions and operating ranges other than the above.

Note 3) Refer to page 1692 when ordering the auto switch mounting bracket assembly or switch mounting rod assembly.

Note 4) For the D-P3DWA□, the auto switch and auto switch mounting bracket are packed together, (but not assembled).



# CKG1-XC88/XC89/XC91

## CKG1 Series: Band Mounting/Rod Mounting      How to Order

● Built-in auto switch magnet

CKG1 A 50 - 100 Y Z - M9BW - XC89

CKG1 A 50 - 100 Y Z - M9BW - XC91

● Rod material

|      |                     |
|------|---------------------|
| XC88 | Stainless steel 304 |
| XC89 | S45C                |

● Clevis width

|   |         |
|---|---------|
| A | 16.5 mm |
| B | 19.5 mm |
| C | 12.5 mm |

● Bore size

|    |       |
|----|-------|
| 40 | 40 mm |
| 50 | 50 mm |
| 63 | 63 mm |

● Thread type

|     |        |
|-----|--------|
| Nil | Rc1/4  |
| TN  | NPT1/4 |
| TF  | G1/4   |

● Cylinder stroke (mm)

|    |                            |
|----|----------------------------|
| 40 | 50, 75, 100, 125, 150      |
| 50 | 50, 75, 100, 125, 150, 200 |
| 63 | 50, 75, 100, 125, 150, 200 |

● Rod material

|      |      |
|------|------|
| XC91 | S45C |
|------|------|

● Auto switch mounting type

|     |               |
|-----|---------------|
| Nil | Band mounting |
| P   | Rod mounting  |

● Number of auto switches

|     |        |
|-----|--------|
| Nil | 2 pcs. |
| S   | 1 pc.  |

● Auto switch

|     |                                       |
|-----|---------------------------------------|
| Nil | Without auto switch (Built-in magnet) |
|-----|---------------------------------------|

● End bracket

|     |                                       |
|-----|---------------------------------------|
| Nil | None                                  |
| Y   | Double knuckle joint (M6 without tap) |
| YA  | Double knuckle joint (M6 with tap)    |

\* For applicable auto switches, refer to the table below.

\* Auto switches are shipped together, (but not assembled).

Note 1) YA is equivalent to the current models.

Note 2) A knuckle pin, cotter pins and flat washers are provided as a standard for Y and YA.

### Made to Order

| Part no. | Piston rod material<br>(Hard chrome plated) |                     | Coil<br>scraper | Lube-<br>retainer | Grease<br>for welding |
|----------|---------------------------------------------|---------------------|-----------------|-------------------|-----------------------|
|          | S45C                                        | Stainless steel 304 |                 |                   |                       |
| -XC88    | —                                           | ●                   | ●               | ●                 | ●                     |
| -XC89    | ●                                           | —                   | ●               | ●                 | ●                     |
| -XC91    | ●                                           | —                   | ●               | —                 | ●                     |

Note) Use the -XC91 in a place where the distance from the welding portion is far and the spatter scattering is minimized.

### ⚠ Caution

The standard auto switch cannot be used in a magnetic field environment. For information on our cylinders that can be fitted with a magnetic field resistant auto switch, refer to page 1889.

### Standard Auto Switches (Refer to pages 1575 to 1701 for detailed auto switch specifications.)

| Applicable cylinder series | Type                    | Electrical entry | Indicator light | Wiring (Output) | Load voltage |             |                         | Auto switch model | Lead wire length (m) |       |       |       |   | Applicable load |
|----------------------------|-------------------------|------------------|-----------------|-----------------|--------------|-------------|-------------------------|-------------------|----------------------|-------|-------|-------|---|-----------------|
|                            |                         |                  |                 |                 | DC           | 5 V         | AC                      |                   | 0.5 (Nil)            | 1 (M) | 3 (L) | 5 (Z) |   |                 |
| CKG1                       | Solid state auto switch | Grommet          | Yes             | 2-wire          | 24 V         | 5 V<br>12 V | —                       | M9B               | ●                    | ●     | ●     | ○     | — | Relay, PLC      |
|                            |                         |                  |                 |                 |              |             |                         | M9BW              | ●                    | ●     | ●     | ○     |   |                 |
|                            | Reed auto switch        | Grommet          | Yes             | 2-wire          | 24 V         | 12 V        | 100 V<br>100 V<br>200 V | A93               | ●                    | ●     | ●     | ●     |   |                 |
|                            |                         |                  |                 |                 |              |             |                         | B54               | ●                    | —     | ●     | ●     |   |                 |

Note 1) Lead wire length symbol: 0.5 m..... Nil  
1 m..... M  
3 m..... L  
5 m..... Z

M9BW  
M9BWM  
M9BWL  
M9BWZ

Note 2) Auto switches marked with "○" are produced upon receipt of order.  
Note 3) Refer to pages 1680 and 1681 when ordering the auto switch mounting bracket assembly.

**Made to Order Common Specifications: CKG1 Series**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)**  
**Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)**  
**Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)**

## Specifications



| Bore size (mm)                  | 40                                          | 50 | 63 |
|---------------------------------|---------------------------------------------|----|----|
| Fluid                           | Air                                         |    |    |
| Proof pressure                  | 1.5 MPa                                     |    |    |
| Maximum operating pressure      | 1.0 MPa                                     |    |    |
| Minimum operating pressure      | 0.05 MPa                                    |    |    |
| Ambient and fluid temperature   | -10°C to +60°C (No freezing)                |    |    |
| Piston speed                    | 50 to 500 mm/s                              |    |    |
| Cushion <small>Note 1)</small>  | Unclamped side (head end): With air cushion |    |    |
| Speed controller                | Equipped on both ends                       |    |    |
| Lubrication                     | Non-lube                                    |    |    |
| Stroke length tolerance         | +1.0<br>0                                   |    |    |
| Mounting <small>Note 2)</small> | Double clevis                               |    |    |

Note 1) The model with air cushion on both ends (Symbol: W) is also available.

Note 2) A clevis pin, cotter pins, flat washers are equipped as a standard.

|              |         |       |
|--------------|---------|-------|
| Clevis width | 16.5 mm | CKG1A |
|              | 19.5 mm | CKG1B |
|              | 12.5 mm | CKG1C |

## Standard Strokes

| Bore size (mm) | Standard stroke (mm)       |
|----------------|----------------------------|
| 40             | 50, 75, 100, 125, 150      |
| 50, 63         | 50, 75, 100, 125, 150, 200 |

## End Bracket/Options

| Symbol | Description                                                                      | Part no.     |              |              |
|--------|----------------------------------------------------------------------------------|--------------|--------------|--------------|
|        |                                                                                  | CKG1A series | CKG1B series | CKG1C series |
| Y      | Double knuckle joint<br>(A knuckle pin, cotter pins, flat washers are equipped.) | CKA-Y04      | CKB-Y04      | CKC-Y04      |
| YA     | M6 with tap                                                                      | CKA-YA04     | CKB-YA04     | CKC-YA04     |

## Weight (Basic weight includes the switch mounting rod. At 0 stroke)

Unit: kg

| Bore size (mm)                                                                | 40   | 50   | 63   |
|-------------------------------------------------------------------------------|------|------|------|
| Basic weight                                                                  | 0.76 | 0.98 | 1.18 |
| Additional weight per 25 mm of stroke                                         | 0.11 | 0.12 | 0.14 |
| Double knuckle joint (A knuckle pin, cotter pins, flat washers are equipped.) | 0.34 |      |      |

Calculation

Example) CKG1□50-100YZ-P-XC88

- Basic weight ..... 1.03 (ø50)
- Additional weight ..... 0.12/25 mm
- Cylinder stroke ..... 100 mm
- Double knuckle joint ..... 0.34 (Y)

$$1.03 + 0.12 \times 100/25 + 0.34 = 1.85 \text{ kg}$$

## Theoretical Output

Unit: N

| Bore size (mm) | Rod size (mm) | Operating direction | Piston area (mm <sup>2</sup> ) | Operating pressure (MPa) |      |      |      |
|----------------|---------------|---------------------|--------------------------------|--------------------------|------|------|------|
|                |               |                     |                                | 0.3                      | 0.4  | 0.5  | 0.6  |
| 40             | 20            | OUT                 | 1260                           | 378                      | 504  | 630  | 756  |
|                |               | IN                  | 943                            | 283                      | 377  | 472  | 566  |
| 50             | 20            | OUT                 | 1960                           | 588                      | 784  | 980  | 1180 |
|                |               | IN                  | 1650                           | 495                      | 660  | 825  | 990  |
| 63             | 20            | OUT                 | 3120                           | 934                      | 1250 | 1560 | 1870 |
|                |               | IN                  | 2800                           | 840                      | 1120 | 1400 | 1680 |

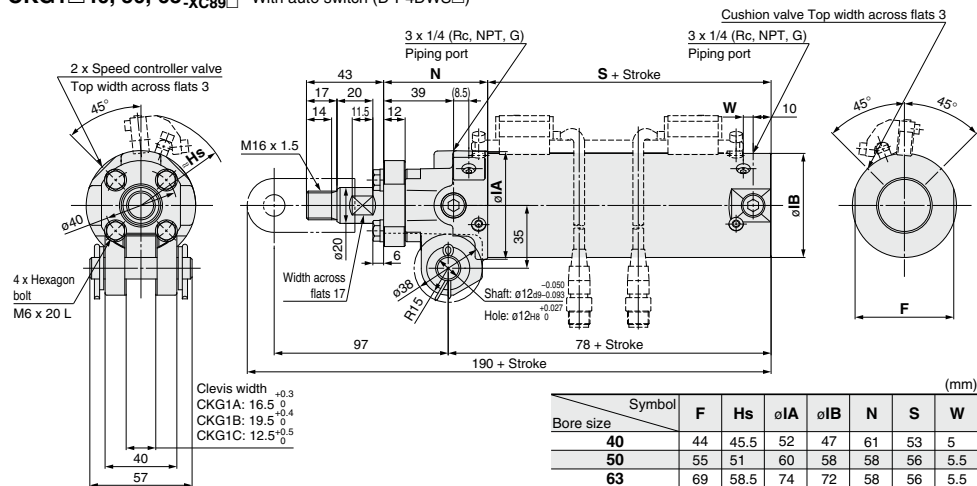
|                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The specifications of the cylinder with auto switch are the same as those of the standard model.                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>· Auto switch proper mounting position (detection at stroke end) and its mounting height</li> <li>· Minimum stroke for auto switch mounting</li> <li>· Auto switch mounting brackets/Part no.</li> <li>· Operating range</li> </ul> |

# CKG1-XC88/XC89/XC91

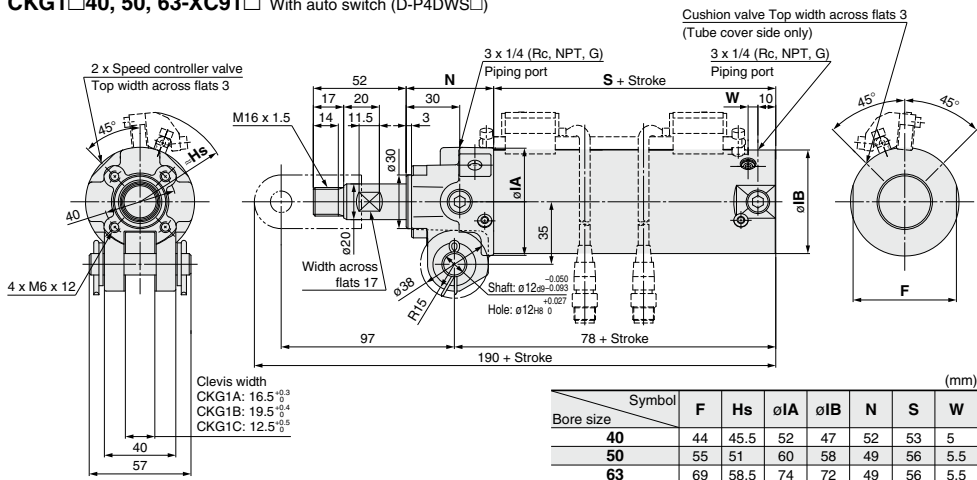
Bore Size

ø40 to ø63

CKG1□40, 50, 63-XC88□ With auto switch (D-P4DWS□)



CKG1□40, 50, 63-XC91□ With auto switch (D-P4DWS□)



The specifications of the end bracket (double knuckle joint with pins) are the same as those of the standard model.

## Comparison of the Dimensions of Each Series

| Bore size (mm) | XC88, 89 |    |    | XC91 |    |    | Standard |    |    |
|----------------|----------|----|----|------|----|----|----------|----|----|
|                | A        | B  | C  | A    | B  | C  | A        | B  | C  |
| 40             | 78       | 97 | 43 | 78   | 97 | 52 | 78       | 97 | 52 |
| 50             | 78       | 97 | 43 | 78   | 97 | 52 | 78       | 97 | 52 |
| 63             | 78       | 97 | 43 | 78   | 97 | 52 | 78       | 97 | 52 |

≡ At 0 stroke

# Made to Order Common Specifications:

- XC88: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304)
- XC89: Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C)
- XC91: Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C)



## CKGA Series

**62** Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: Stainless steel 304) **-XC88**

**63** Spatter Resistant Coil Scraper, Lube-retainer, Grease for Welding (Piston rod: S45C) **-XC89**

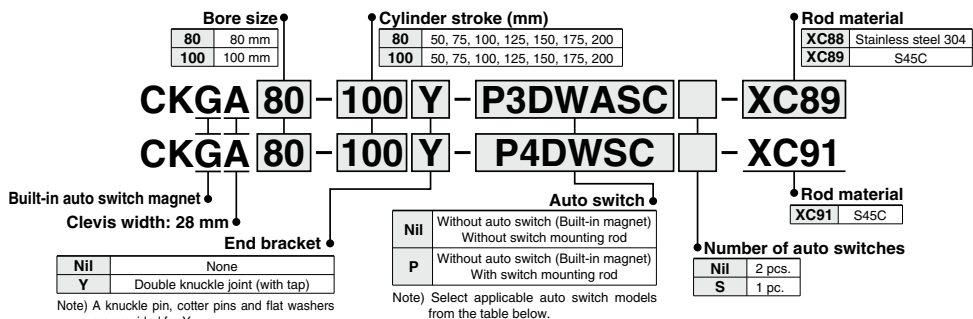
Reduces spatter adhesion and improves durability by the use of the coil scraper, Lube-retainer and grease for welding.

**64** Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C) **-XC91**

With coil scraper and grease for welding

### CKGA Series: Rod Mounting

### How to Order



### Made to Order

| Part no. | Piston rod material<br>(Hard chrome plated) |                     | Coil<br>scraper | Lube-<br>retainer | Grease for<br>welding |
|----------|---------------------------------------------|---------------------|-----------------|-------------------|-----------------------|
|          | S45C                                        | Stainless steel 304 |                 |                   |                       |
| -XC88    | —                                           | ●                   | ●               | ●                 | ●                     |
| -XC89    | —                                           | —                   | ●               | ●                 | ●                     |
| -XC91    | ●                                           | —                   | ●               | —                 | ●                     |

Note) Use the -XC91 in a place where the distance from the welding portion is far and the spatter scattering is minimized.

### Built-in Auto Switch Magnet Cylinder Part No.

- 1) Built-in auto switch magnet type without auto switch, without switch mounting rod  
Symbol for the auto switch type is "Nil" as shown below.  
(Example) CKGA80-50Y-XC89
- 2) Built-in auto switch magnet type without auto switch, with switch mounting rod  
Symbol for the auto switch type is "P" as shown below.  
(Example) CKGA80-50Y-P-XC89

**Applicable Auto Switches**/Refer to pages 1525 to 1701 for further information on auto switches.

| Type                    | Special function                              | Auto switch model | Applicable magnetic field                                  | Electrical entry    | Indicator light | Wiring (Pin no in use) | Load voltage | Lead wire length | Applicable load    |
|-------------------------|-----------------------------------------------|-------------------|------------------------------------------------------------|---------------------|-----------------|------------------------|--------------|------------------|--------------------|
| Solid state auto switch | Magnetic field resistant (2-color indication) | P3DWASC           | AC magnetic field (Single-phase AC welding magnetic field) | Pre-wired connector | 2-color display | 2-wire (3-4)           | 24 VDC       | 0.3 m            | Relay, PLC (Note1) |
|                         |                                               | P4DWSC            |                                                            |                     |                 | 2-wire (1-4)           |              |                  |                    |
|                         |                                               | P3DWASE           |                                                            |                     |                 | Grommet                |              | 2-color display  |                    |
|                         |                                               | P4DWSE            |                                                            | 3 m                 |                 |                        |              |                  |                    |
|                         |                                               | P3DWA             |                                                            | 5 m                 |                 |                        |              |                  |                    |
|                         |                                               | P3DWAL            |                                                            |                     |                 |                        |              |                  |                    |
|                         |                                               | P4DWL             |                                                            |                     |                 |                        |              |                  |                    |
|                         |                                               | P3DWAZ            |                                                            |                     |                 |                        |              |                  |                    |
|                         |                                               | P4DWZ             |                                                            |                     |                 |                        |              |                  |                    |

Note1) PLC: Programmable Logic Controller

Note2) Please contact SMC for auto switches, auto switch proper mounting positions and operating ranges other than the above.

Note3) Refer to page 1692 when ordering the auto switch mounting bracket assembly or switch mounting rod assembly.

Note4) For D-P3DWAL, the auto switch and auto switch mounting bracket are packed together (not assembled).

### Specifications

| Bore size (mm)                | 80                            | 100 |
|-------------------------------|-------------------------------|-----|
| Fluid                         | Air                           |     |
| Proof pressure                | 1.5 MPa                       |     |
| Maximum operating pressure    | 1.0 MPa                       |     |
| Minimum operating pressure    | 0.05 MPa                      |     |
| Ambient and fluid temperature | -10°C to +60°C (No freezing)  |     |
| Piston speed                  | 50 to 500 mm/s                |     |
| Cushion                       | With air cushion on both ends |     |
| Speed controller              | Equipped on both ends         |     |
| Lubrication                   | Non-lube                      |     |
| Stroke length tolerance       | +1.0<br>-0                    |     |
| Mounting                      | Double clevis                 |     |

Note) A clevis pin, cotter pins and flat washers are provided.

|              |       |      |
|--------------|-------|------|
| Clevis width | 28 mm | CKGA |
|--------------|-------|------|



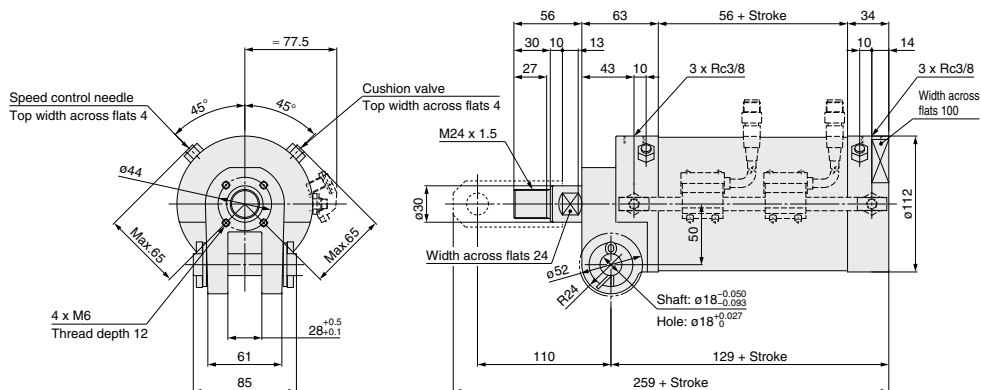
# CKGA-XC88/XC89/XC91

## Rod Mounting

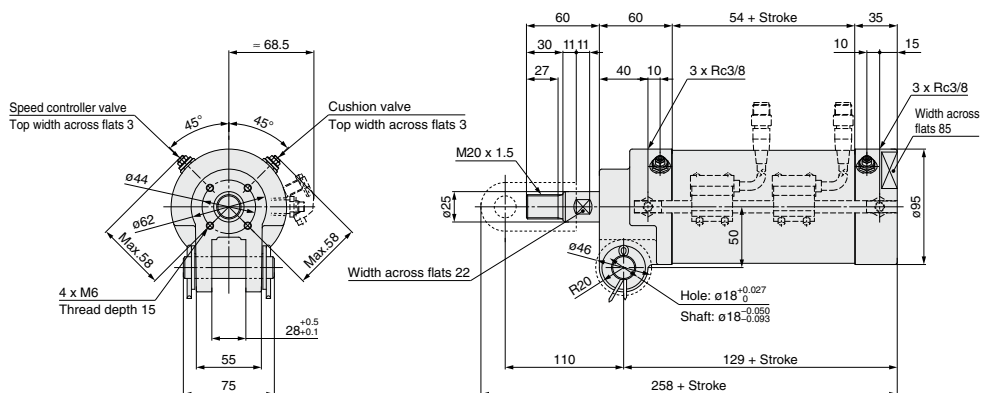
Bore Size

**ø80 to ø100**

**CKGA100-XC88/XC89-XC91** With auto switch (D-P4DWS□).



**CKGA80-XC88/XC89-XC91** With auto switch (D-P4DWS□).



The specifications of the end bracket (double knuckle joint with pins) are the same as those of the standard model.

## Comparison of the Dimensions of Each Series

The -XC88/XC89/XC91 and standard product have the same dimensions.

# Made to Order Common Specifications: -XC92: Dust Resistant Actuator



## 65 Dust Resistant Actuator

Symbol  
-XC92

Applicable for environments with flying micro-powder (20 to 30  $\mu\text{m}$  or less) such as ceramic powder, toner powder, paper powder, and metallic powder (except weld spatter). 4 times stronger than the standard model

### Applicable series

| Series | Description/Type       | Model | Action                    | Remark (s)                                   | Vol. No. (for std model) |
|--------|------------------------|-------|---------------------------|----------------------------------------------|--------------------------|
| CM2    | Air Cylinder           | CM2   | Double acting, Single rod | Compatible with cylinders with rubber bumper | ②-1 P. 172               |
| CQS    | Compact Cylinder       | CQS   | Double acting, Single rod |                                              | ②-1 P. 693               |
| CQ2    | Compact Cylinder       | CQ2-Z | Double acting, Single rod | Applicable to $\phi 32$ to $\phi 100$ .      | ②-1 P. 773               |
| MGP    | Compact Guide Cylinder | MGP   | Double acting, Single rod |                                              | ②-2 P. 432               |

### How to Order

**C(D)M2** **Mounting bracket** **Bore size** — **Stroke** — **Auto switch** **Suffix** — **XC92**  
 \* Auto switch is applicable for CDM2 only. Dust resistant actuator

| Bore size (mm) | Standard stroke                             | Minimum operating pressure |
|----------------|---------------------------------------------|----------------------------|
| 20             | 25, 50, 75, 100, 125,<br>150, 200, 250, 300 | 0.1 MPa                    |
| 25             |                                             |                            |
| 32             |                                             |                            |
| 40             |                                             |                            |

**C(D)QS** **Mounting bracket** **Bore size** — **Stroke** **D** **Body option** — **Auto switch** **Suffix** — **XC92**  
 \* Auto switch is applicable for CDQS only.  
 \* Body option with rear slip fit is not available. Dust resistant actuator

| Bore size (mm) | Standard stroke                       | Minimum operating pressure |
|----------------|---------------------------------------|----------------------------|
| 12, 16         | 5, 10, 15, 20, 25, 30                 | 0.14 MPa                   |
| 20, 25         | 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 | 0.1 MPa                    |

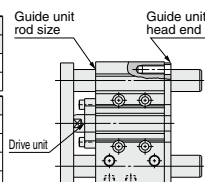
**C(D)Q2** **Mounting bracket** **Bore size** — **Stroke** **D** **Body option** **Z** — **Auto switch** **Suffix** — **XC92**  
 \* Auto switch is applicable for CDQ2 only.  
 \* Body option with rear slip fit is not available. Dust resistant actuator

| Bore size (mm) | Standard stroke                                   | Minimum operating pressure |
|----------------|---------------------------------------------------|----------------------------|
| 32, 40         | 5, 10, 15, 20, 25, 30,<br>35, 40, 45, 50, 75, 100 | 0.1 MPa                    |
| 50 to 100      | 10, 15, 20, 25, 30,<br>35, 40, 45, 50, 75, 100    | 0.1 MPa                    |

**MGPM** **Bore size** — **Stroke** — **Auto switch** **Suffix** — **XC92**  
 Dust resistant actuator

| Bore size (mm) | Standard stroke                             |
|----------------|---------------------------------------------|
| 12, 16         | 10, 20, 30, 40, 50, 75, 100                 |
| 20, 25         | 20, 30, 40, 50, 75, 100, 125, 150, 175, 200 |
| 32 to 100      | 25, 50, 75, 100, 125, 150, 175, 200         |

| Symbol | Type                              | Drive unit |                            | Guide unit |          |
|--------|-----------------------------------|------------|----------------------------|------------|----------|
|        |                                   | Rod side   | Head end                   | Rod side   | Head end |
| Nil    | With lube-retainers on one side   | ○          | ○                          | ○          | —        |
| W      | With lube-retainers on both sides | ○          | ○                          | ○          | ○        |
| XC92   | Bore size                         |            | Minimum operating pressure |            |          |
|        |                                   |            |                            |            |          |
| XC92   | $\phi 12, \phi 16$                |            | 0.2 MPa                    |            |          |
|        | $\phi 20$ to $\phi 100$           |            | 0.15 MPa                   |            |          |
| XC92W  | $\phi 12, \phi 16$                |            | 0.25 MPa                   |            |          |
|        | $\phi 20$ to $\phi 100$           |            | 0.2 MPa                    |            |          |



Specifications other than minimum operating pressure are the same as standard model.

# Made to Order Common Specifications: -XC92: Dust Resistant Actuator



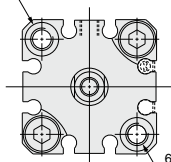
## 65 Dust Resistant Actuator

### Dimensions (Other dimensions are the same as the standard type.)

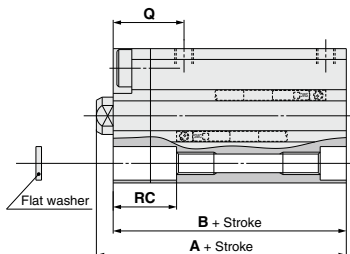
#### CM2 series: The same as the standard type

#### CQS series

6 x  $\phi$ OB counterbore  
4 locations on the  
back side



6 x OA effective  
depth RA (Note 1)  
4 locations on the  
back side (Note 4)



Note 1) For the standard type  $\phi$ 12 and  $\phi$ 16 with 5 strokes,  $\phi$ 20 with 15 strokes or less, and  $\phi$ 25 with 5 or 10 strokes, and for models with an auto switch and built-in magnet of  $\phi$ 20 with 5 strokes, the through-hole is threaded over the entire length.

Note 2) Be sure to use the attached flat washer for mounting cylinder with through-holes.

Note 3) For models with a rubber bumper, the stroke tolerance does not include bumper deflection.

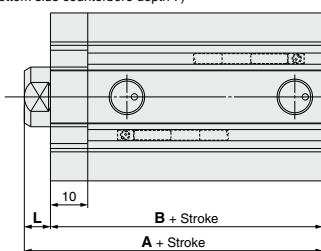
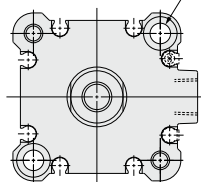
Note 4) 2 locations on the back side for the standard-type  $\phi$ 20 with 15 strokes or less and  $\phi$ 25 with 10 strokes, and for models with an auto switch and built-in magnet of  $\phi$ 20 with 5 strokes.

| Bore size<br>(mm) | A                   |                  | B                   |                  | Q    | OA       | OB  | RA | RC |
|-------------------|---------------------|------------------|---------------------|------------------|------|----------|-----|----|----|
|                   | Without auto switch | With auto switch | Without auto switch | With auto switch |      |          |     |    |    |
| 12                | 30.5                | 35.5             | 27                  | 32               | 17.5 | M4 x 0.7 | 6.5 | 7  | 14 |
| 16                | 30.5                | 35.5             | 27                  | 32               | 17.5 | M4 x 0.7 | 6.5 | 7  | 14 |
| 20                | 34                  | 44               | 29.5                | 39.5             | 19   | M6 x 1.0 | 9   | 10 | 17 |
| 25                | 37.5                | 47.5             | 32.5                | 42.5             | 21   | M6 x 1.0 | 9   | 10 | 17 |

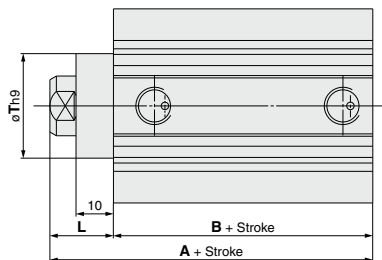
(mm)

#### CQ2 series

2 x  $\phi$ 5.5 through  
2 x 2 x  $\phi$ 9 counterbore depth 17  
(Bottom side counterbore depth 7)



$\phi$ 32



$\phi$ 40 to  $\phi$ 100

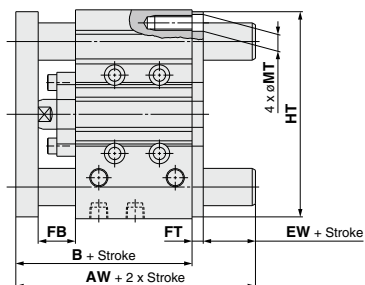
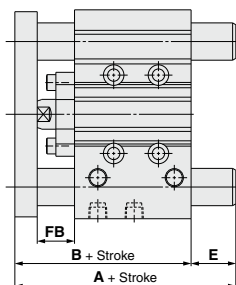
| Bore size<br>(mm) | A                   |                  | B                   |                  | (mm) |    |
|-------------------|---------------------|------------------|---------------------|------------------|------|----|
|                   | Without auto switch | With auto switch | Without auto switch | With auto switch | L    | T  |
| 32                | 40 (50)             | 50               | 33 (43)             | 43               | 7    | —  |
| 40                | 46.5 (56.5)         | 56.5             | 29.5 (39.5)         | 39.5             | 17   | 28 |
| 50                | 48.5 (58.5)         | 58.5             | 30.5 (40.5)         | 40.5             | 18   | 35 |
| 63                | 54 (64)             | 64               | 36 (46)             | 46               | 18   | 35 |
| 80                | 63.5 (73.5)         | 73.5             | 43.5 (53.5)         | 53.5             | 20   | 43 |
| 100               | 75 (85)             | 85               | 53 (63)             | 63               | 22   | 59 |

Note 1) For cylinders with rubber bumper, stroke tolerance does not include the amount of bumper change.

Note 2) Dimensions inside ( ) are for 75, 100st.

**Dimensions** (Other dimensions are the same as the standard type.)

**MGP series**



**With Lube-retainers on one side** (mm)

| Bore size<br>(mm) | A                |                                   | B     | E                |                                   | FB |
|-------------------|------------------|-----------------------------------|-------|------------------|-----------------------------------|----|
|                   | 50 st<br>or less | Over 50 st and<br>200 st or less* |       | 50 st<br>or less | Over 50 st and<br>200 st or less* |    |
| 12                | 52               | 70.5                              | 52    | 0                | 18.5                              | 15 |
| 16                | 56               | 74.5                              | 56    | 0                | 18.5                              | 15 |
| 20                | 63               | 94.5                              | 63    | 0                | 31.5                              | 16 |
| 25                | 63.5             | 95                                | 63.5  | 0                | 31.5                              | 16 |
| 32                | 97               | 112                               | 69.5  | 27.5             | 42.5                              | 20 |
| 40                | 97               | 112                               | 76    | 21               | 36                                | 20 |
| 50                | 106.5            | 128                               | 82    | 24.5             | 46                                | 22 |
| 63                | 106.5            | 128                               | 87    | 19.5             | 41                                | 22 |
| 80                | 125              | 152                               | 106.5 | 18.5             | 45.5                              | 28 |
| 100               | 147              | 172                               | 126   | 21               | 46                                | 35 |

\* The standard stroke for ø12 and ø16 is 100 st.

**With Lube-retainers on both sides** (mm)

| Bore size<br>(mm) | AW    | B     | EW | FB | FT | MT  | HT  |
|-------------------|-------|-------|----|----|----|-----|-----|
| 12                | 63    | 52    | 6  | 15 | 5  | 5   | 57  |
| 16                | 67    | 56    | 6  | 15 | 5  | 6   | 64  |
| 20                | 74    | 63    | 6  | 16 | 5  | 6   | 80  |
| 25                | 74.5  | 63.5  | 6  | 16 | 5  | 7   | 92  |
| 32                | 82.5  | 69.5  | 7  | 20 | 6  | 8.5 | 110 |
| 40                | 89    | 76    | 7  | 20 | 6  | 8.5 | 118 |
| 50                | 95    | 82    | 7  | 22 | 6  | 11  | 146 |
| 63                | 100   | 87    | 7  | 22 | 6  | 11  | 160 |
| 80                | 120.5 | 106.5 | 8  | 28 | 6  | 14  | 200 |
| 100               | 143   | 126   | 8  | 35 | 9  | 16  | 238 |

# Made to Order Common Specifications: -XC93□: With Greater Water Resistance + Stable Lubrication Function



## 66 With Greater Water Resistance + Stable Lubrication Function

Symbol

-XC93

- 5 times stronger against water (liquids) than the standard model
- Equipped with the greater water resistant scraper (Fluororubber). The Lube-retainer creates grease coating around the piston rod, which improves lubrication.
- Stainless steel can be selected for the piston rod and rod end nut.

### Applicable Series

| Series | Description         | Model | Action                    | Note                                           | Vol. no. (for std model) |
|--------|---------------------|-------|---------------------------|------------------------------------------------|--------------------------|
| RHC    | High power cylinder | RHC   | Double acting, Single rod | Applicable bore size: ø32, ø40<br>Rc port only | ②-3 From P. 351          |

### How to Order

Standard model no.

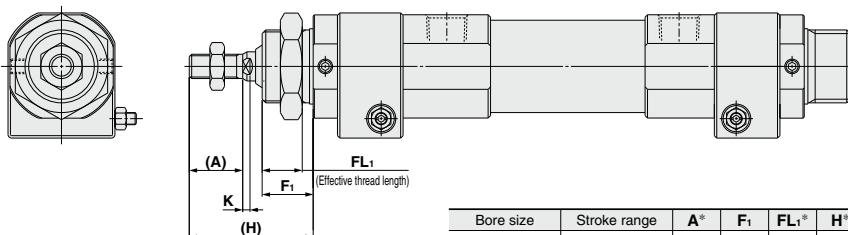
-XC93□

With greater water resistance + stable lubrication function

Piston rod,  
Rod end nut material

|    |                         |
|----|-------------------------|
| Ni | Standard (Carbon steel) |
| S  | Stainless steel         |

### Dimensions (Dimensions other than below are the same as standard type.)



| Bore size | Stroke range | A* | F <sub>1</sub> | FL <sub>1</sub> * | H*   | K |
|-----------|--------------|----|----------------|-------------------|------|---|
| 32        | Up to 1000   | 22 | 21             | 14.5              | 51   | 3 |
| 40        | Up to 1000   | 24 | 22.5           | 16.5              | 54.5 | 3 |

\*: Same as the standard model.