

Made to Order Common Specifications



| | | | |
|----|---------|--|--------|
| 1 | -XB5 | Oversized rod cylinder | P.1445 |
| 2 | -XB6 | Heat resistant cylinder (-10 to 150°C) | P.1446 |
| 3 | -XB7 | Cold resistant cylinder (-40 to 70°C) | P.1448 |
| 4 | -XB9 | Low speed cylinder (10 to 50 mm/s) | P.1449 |
| 5 | -XB10 | Intermediate stroke (Using exclusive body) | P.1450 |
| 6 | -XB10A | Intermediate stroke (Spacer-installed type) | P.1455 |
| 7 | -XB11 | Long stroke type | P.1456 |
| 8 | -XB12 | External stainless steel cylinder | P.1460 |
| 9 | -XB13 | Low speed cylinder (5 to 50 mm/s) | P.1461 |
| 10 | -XB14 | Cylinder with heat resistant auto switch | P.1462 |
| 11 | -XB19 | High speed type | P.1463 |
| 12 | -XB20 | Stroke adjustment unit with adjustment bolt | P.1464 |
| 13 | -XB22 | Shock absorber soft type RJ series type | P.1468 |
| 14 | -XC2(A) | Rod end length extended 10 mm | P.1472 |
| 15 | -XC3 | Special port location | P.1473 |
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| 17 | -XC5 | Heat resistant cylinder (-10 to 110°C) | P.1484 |
| 18 | -XC6 | Made of stainless steel | P.1485 |
| 19 | -XC7 | Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel | P.1491 |
| 20 | -XC8 | Adjustable stroke cylinder/Adjustable extension type | P.1492 |
| 21 | -XC9 | Adjustable stroke cylinder/Adjustable retraction type | P.1498 |
| 22 | -XC10 | Dual stroke cylinder/Double rod type | P.1503 |
| 23 | -XC11 | Dual stroke cylinder/Single rod type | P.1508 |
| 24 | -XC12 | Tandem cylinder | P.1516 |
| 25 | -XC13 | Auto switch rail mounting type | P.1518 |
| 26 | -XC17 | Pin cylinder with rod quenched | P.1523 |
| 27 | -XC19 | Intermediate stroke (Spacer type) | P.1524 |
| 28 | -XC20 | Head cover axial port | P.1525 |
| 29 | -XC22 | Fluororubber seals | P.1526 |
| 30 | -XC24 | With magnetic shielding plate | P.1528 |
| 31 | -XC25 | No fixed throttle of connection port | P.1528 |
| 32 | -XC26 | With split pins for double clevis pin/double knuckle joint pin and flat washers | P.1529 |
| 33 | -XC26□ | Double clevis width/Double knuckle width 12.5 mm, 16.5 mm, 19.5 mm: With double clevis, double knuckle joint | P.1531 |
| 34 | -XC27 | Double clevis and double knuckle joint pins made of stainless steel | P.1532 |
| 35 | -XC28 | Compact flange made of SS400 | P.1533 |
| 36 | -XC29 | Double knuckle joint with spring pin | P.1534 |
| 37 | -XC30 | Rod side trunnion | P.1535 |
| 38 | -XC34 | Non-rotating plate with workpiece mounting screw (No extended part on the rod end) | P.1537 |
| 39 | -XC35 | With coil scraper | P.1538 |
| 40 | -XC36 | With boss in rod side | P.1544 |
| 41 | -XC37 | Larger throttle diameter of connection port | P.1544 |
| 42 | -XC38 | Vacuum (Rod through-hole) | P.1545 |
| 43 | -XC42 | Built-in shock absorber in head cover side | P.1546 |
| 44 | -XC51 | With hose nipple | P.1547 |
| 45 | -XC52 | Mounting nut with set screw | P.1547 |
| 46 | -XC56 | With knock pin holes | P.1548 |
| 47 | -XC57 | Rodless cylinder with floating joint | P.1552 |
| 48 | -XC65 | Made of Stainless Steel (Combination of XC7 and XC68) | P.1554 |
| 49 | -XC67 | Dust seal band NBR lining specifications | P.1555 |
| 50 | -XC68 | Made of stainless steel (with hard chrome plated piston rod) | P.1555 |
| 51 | -XC69 | MGP series with shock absorber | P.1556 |
| 52 | -XC71 | Helical insert thread specifications | P.1558 |
| 53 | -XC72 | Without built-in auto switch magnet | P.1558 |
| 54 | -XC73 | Built-in cylinder with lock (CDNG) | P.1559 |
| 55 | -XC74 | With front plate for MGG cylinder | P.1562 |
| 56 | -XC78 | Auto switch mounting special dimensions at stroke end | P.1563 |
| 57 | -XC82 | Bottom mounting type | P.1564 |

Made to Order Common Specifications

| | | | |
|----|---------------|---|----------|
| 58 | -XC83 | Built-in cylinder with lock (MDNB)..... | P.1565 |
| 59 | -XC85 | Grease for food processing equipment..... | P.1568 |
| 60 | -XC86 | With rod end bracket..... | P.1569 |
| 61 | -XC87 | Cylinder with one-way lock/heavy duty specifications..... | P.1570 |
| 62 | -XC88 | Spatter resistant coil scraper, Lube-retainer, Grease for welding (Piston rod: Stainless steel 304) ... | P.1571 |
| 63 | -XC89 | Spatter resistant coil scraper, Lube-retainer, Grease for welding (Piston rod: S45C)..... | P.1571 |
| 64 | -XC91 | Spatter resistant coil scraper, Grease for welding (Piston rod: S45C)..... | P.1572 |
| 65 | -XC92 | Dust resistant actuator..... | P.1580 |
| 66 | -XC93 | With greater water resistance + stable lubrication function..... | P.1583 |
| 67 | -XC102 | Lock release specification..... | P.1584 |
| 68 | -XC103 | Cylinder for the foot type or the rod flange type mounting bracket..... | P.1585 |
| 69 | -XC104 | Built-in cylinder with lock (MWB)..... | P.1585-1 |

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 |
|------------|-------------------------|
| XA7 | Change of rod end shape |
| XB6 | 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 |
|------------|-------------------------|
| XC4 | With heavy duty scraper |
| XC6 | Made of stainless steel |

* When combining special order options, the symbols should be listed in alphabetical or numerical order. However, due to product-specific production restrictions, it may not be possible to easily combine them. Contact SMC if you require a custom combination.

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

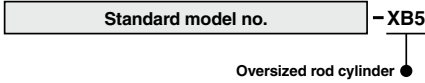


1 Oversized Rod Cylinder

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

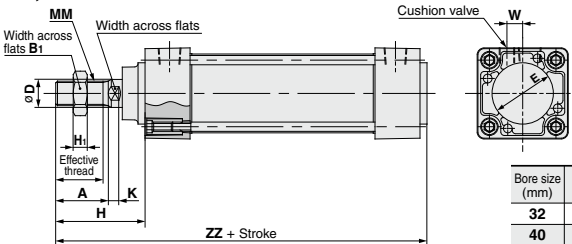


Applicable Series

| Series | Description | Model | Action | Note | Vol. no. (for std model) |
|--------|--------------|-------|---|----------------------------|--------------------------|
| MB | Air cylinder | MB | Double acting, Single rod | | Web Catalog |
| MB1 | Air cylinder | MB1 | Double acting, Single rod | | |
| CA2 | Air cylinder | CA2 | Double acting, Single rod | | |
| CS1 | Air cylinder | CS1 | Double acting, Single rod | | |
| CS2 | Air cylinder | CS2 | Double acting, Single rod/Double acting, Double rod | Applicable to ø160 to ø320 | |

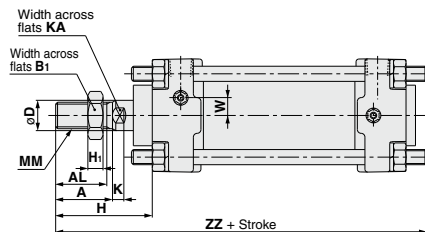
Dimensions (Dimensions other than below are the same as standard type.)

MB, MB1 series



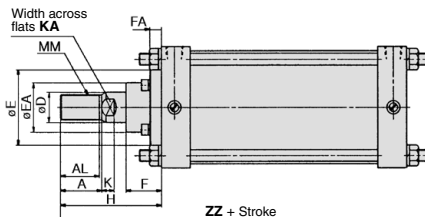
| Bore size (mm) | A | Effective thread length | B1 | øD | H | H1 | K | Width across flats | MM | W | ZZ |
|----------------|----|-------------------------|----|----|----|----|----|--------------------|-----------|------|-----|
| 32 | 30 | 27 | 22 | 16 | 51 | 8 | 6 | 14 | M14 x 1.5 | 7.2 | 139 |
| 40 | 35 | 32 | 27 | 20 | 58 | 11 | 7 | 18 | M18 x 1.5 | 9.7 | 146 |
| 50 | 40 | 37 | 32 | 25 | 68 | 13 | 10 | 22 | M22 x 1.5 | 10.5 | 166 |
| 63 | 40 | 37 | 32 | 25 | 68 | 13 | 10 | 22 | M22 x 1.5 | 12 | 166 |
| 80 | 40 | 37 | 41 | 30 | 74 | 16 | 10 | 26 | M26 x 1.5 | 14 | 192 |
| 100 | 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 |
|----------------|----|----|----|----|----|----|----|----|-----------|---|-----|
| 40 | 35 | 32 | 27 | 20 | 58 | 11 | 7 | 18 | M18 x 1.5 | 9 | 153 |
| 50 | 40 | 37 | 32 | 25 | 71 | 13 | 11 | 22 | M22 x 1.5 | 9 | 172 |
| 63 | 40 | 37 | 32 | 25 | 71 | 13 | 11 | 22 | M22 x 1.5 | 9 | 183 |
| 80 | 40 | 37 | 41 | 30 | 72 | 16 | 11 | 26 | M26 x 1.5 | 0 | 205 |
| 100 | 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 |
|----------------|----|----|----|-----|----|----|----|-----|----|----|-----------|-------|
| 125 | 63 | 60 | 50 | 115 | 74 | 48 | 17 | 135 | 20 | 46 | M45 x 1.5 | 260 |
| 140 | 71 | 67 | 60 | 140 | 86 | 60 | 20 | 160 | 25 | 56 | M56 x 2.0 | 285 |
| 160 | 71 | 67 | 60 | 140 | 86 | 60 | 20 | 160 | 25 | 56 | M56 x 2.0 | 296.5 |
| 180 | 80 | 76 | 70 | 140 | 96 | 60 | 20 | 175 | 30 | 65 | M64 x 2.0 | 325 |
| 200 | 80 | 76 | 70 | 140 | 96 | 60 | 20 | 175 | 30 | 65 | M64 x 2.0 | 325 |

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



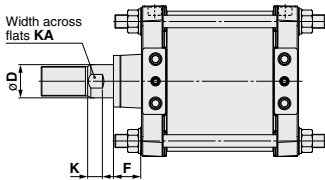
1 Oversized Rod Cylinder

Symbol
-XB5

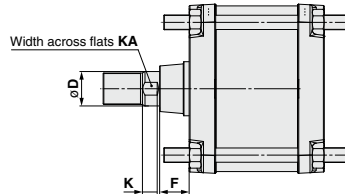
Dimensions (Dimensions other than below are the same as standard type.)

CS2 series

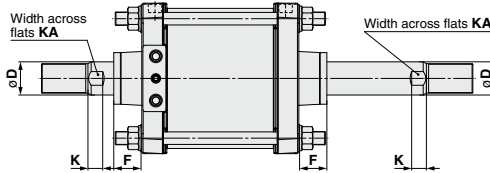
Single rod type
ø180 to ø250



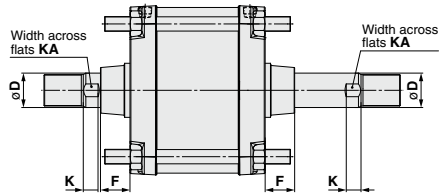
ø320



Double rod type
ø180 to ø250



ø320



| | D | F | K | KA |
|------|----|----|----|----|
| ø180 | 45 | 37 | 20 | 41 |
| ø200 | 50 | 41 | 20 | 46 |
| ø250 | 60 | 52 | 25 | 56 |
| ø320 | 70 | 60 | 30 | 65 |

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) |
|-------------------------------------|---|---------------------------|---|---|--------------------------|
| CJP2 | Pin cylinder | CJP2 | Double acting, Single rod | Except clevis, trunnion type, with auto switch, ø4. Packing set (6) | |
| CJ2 | Air cylinder | CJ2-Z | Double acting, Single rod | Except with air cushion and auto switch, rod end bracket T, U | |
| | | CJ2W-Z | Double acting, Double rod | Except with air cushion and auto switch, rod end bracket T, U | |
| CM2 | Air cylinder | CM2-Z | Double acting, Single rod | Except with rod boot and with auto switch | |
| | | 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 | | |
| | End lock cylinder | CBM2 | Double acting, Single rod | Except with rod boot and with auto switch | |
| CG1 | Air cylinder | CG1-Z | Double acting, Single rod | Except with auto switch. Without a bumper for cylinders with rubber bumper | |
| | | 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 | |
| MB | Air cylinder | MB-Z | Double acting, Single rod | Except without air cushion and with auto switch | |
| | | MBW-Z | Double acting, Double rod | Except without air cushion and with auto switch | |
| MB1 | Air cylinder | MB1-Z | Double acting, Single rod | Except without air cushion and with auto switch | |
| | | MB1W-Z | Double acting, Double rod | Except without air cushion and with auto switch | |
| CA2 | Air cylinder | CA2-Z | Double acting, Single rod | Except with auto switch | |
| | | CA2W-Z | Double acting, Double rod | Except with auto switch | |
| | End lock cylinder | CBA2 | Double acting, Single rod | Except with auto switch | |
| CS1 | Air cylinder | CS1□N | Double acting, Single rod | Except with auto switch. Applicable bore size (ø125 to ø200) | |
| | | CS1W□N | Double acting, Double rod | | |
| CS2 | Air cylinder | CS2 | Double acting, Single rod | Except with auto switch | Web Catalog |
| | | CS2W | Double acting, Double rod | Except with auto switch | |
| CUJ | Mini free mount cylinder | CUJ | Double acting, Single rod | Except with auto switch and ø4 | |
| CU | Free mount cylinder | CU | Double acting, Single rod | Except with auto switch | |
| | 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 | |
| CQS | Compact cylinder | CQS | Double acting, Single rod | Except with rubber bumper and auto switch | |
| | | CQSW | Double acting, Double rod | Except with rubber bumper and auto switch | |
| CQ2 | Compact cylinder | CQ2-Z | Double acting, Single rod | Except with rubber bumper and auto switch, air-hydro type | |
| | | CQ2W-Z | Double acting, Double rod | Except with rubber bumper and auto switch, air-hydro type | |
| | Axial piping type (Centralized piping type) | CQP2 | Double acting, Single rod | Except with rubber bumper and auto switch, air-hydro type | |
| | | CQ2K-Z | Double acting, Single rod | Except with rubber bumper and auto switch | |
| Non-rotating rod type | CQ2KW-Z | Double acting, Double rod | Except with rubber bumper and auto switch | | |
| CG5 | 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.) | |
| CY3 | Magnetically coupled rodless cylinder | CY3B-Z | Basic type | Without a bumper | |
| | | CY3B | | Without a bumper | |
| MK | Rotary clamp | MK-Z | Double acting | Except with auto switch, ø12 and ø16 | |
| MGP | Compact guide cylinder | MGPM-Z | Double acting | Except with auto switch. No rubber bumper is equipped. | |
| MGQ | Compact guide cylinder | MGQ | Double acting | Except with auto switch, ø12 to ø25 of MGQL (Ball bushing type) | |
| MGG | Guide cylinder | MGG | Double acting | Except with auto switch. No shock absorber and rubber bumper are equipped. | |
| MGC | Guide cylinder | MGC | Double acting | Except with auto switch | |
| CXSJ | Dual rod cylinder | CXSJ | Compact type | Except with auto switch | |
| CXS | | CXS | Basic type | Except with auto switch | |

How to Order

| | |
|-------------------------|------|
| Standard model no. | -XB6 |
| Heat resistant cylinder | |

Specifications

| | |
|---|---|
| Ambient temperature range | -10 to 150°C (0 to 150°C for CS1, CS2 series) |
| Seals materials | Fluororubber |
| Grease | 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.

- 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 MGQ□30, 100, it will be 50 to 400 mm/s; 50 to 200 mm/s for the MK series. The piston speed for the CY3B and CY3B-Z series is 50 to 400 mm/s. Note that the max. piston speed changes depending on the ambient temperature.
 Note 5) Please contact SMC for the CQ2, CQS, MGP and MGQ series with rubber bumper.
 Note 6) As for the ambient temperature range of the CY3B and CY3B-Z 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 and CY3B-Z 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.

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

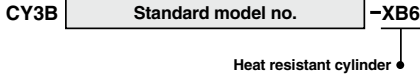


2 Heat Resistant Cylinder (-10 to 150°C)

Symbol
-XB6

CY3B series

How to Order



Specifications

| | |
|-------------------------------|-----------------|
| Model | CY3B-Z, 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 the temperature is in the less than 100°C range, operate at 200 mm/s or less.
* External dimensions are identical to the standard model.

Operating Pressure Limit for Intermediate Stop and Vertical Operation

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

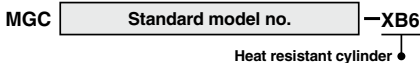
- * Use caution that the magnet coupling will be removed, if it is used to stop in an intermediate stroke by an external stopper with the operating pressure over 0.4 MPa.

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 |

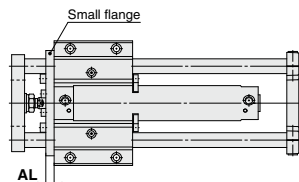
MGC series

How to Order



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

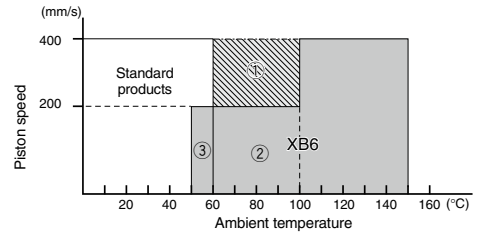
MGCLB series



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

Temperature Range for Operating Cylinder and Piston Speed

- For piston speeds of more than 200 mm/s when the operating temperature is within the 60 to 100°C range, a special order product is available 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 the operating temperature fluctuates between 50°C or less and 100°C or more, this may result in an unstable operating speed and a reduced service life.

<Reference>

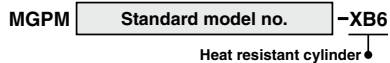
Maintenance cycle for XB6 could vary substantially, depending on the operating condition and the ambient temperature. Even if using in our recommended range, as a guide, conduct it in around 1/2 intervals, compared to the standard products.

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

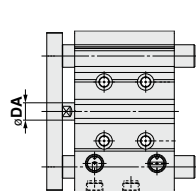
| Bore size (mm) | (mm) | |
|----------------|------|-----|
| | BA | BL |
| 6 | — | — |
| 10 | — | — |
| 15 | — | — |
| 20 | — | — |
| 25 | 37 | 0.3 |
| 32 | — | — |
| 40 | — | — |
| 50 | 68.5 | 0.6 |
| 63 | — | — |

MGP series

How to Order



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

-XB7

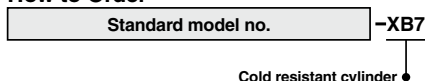
3 Cold Resistant Cylinder (-40 to 70°C)

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) |
|--------|---|--------|---------------------------|--|--------------------------|
| CJP2 | Pin cylinder | CJP2 | Double acting, Single rod | Except clevis, trunnion type, with auto switch, ø4. Packing set (7) | Web Catalog |
| CJ2 | Air cylinder | CJ2-Z | Double acting, Single rod | Except with air cushion and auto switch, rod end bracket, pivot bracket | |
| CM2 | Air cylinder | CM2-Z | Double acting, Single rod | Except with rod boot, with air cushion, with auto switch, rod end bracket, pivot bracket | |
| | | CM2W-Z | Double acting, Double rod | Except with rod boot, with air cushion, with auto switch, rod end bracket, pivot bracket | |
| | Direct mount type | CM2R-Z | Double acting, Single rod | Except with air cushion, auto switch | |
| CG1 | Air cylinder | CG1-Z | Double acting, Single rod | Except with air cushion, auto switch. Cylinders with a rubber bumper have no bumper. | |
| | | 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. | |
| CU | Free mount cylinder | CU | Double acting, Single rod | Except with auto switch | |
| | 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 | |
| CQS | Compact cylinder | CQS | Double acting, Single rod | Except with auto switch, with rubber bumper, with bracket | |
| | | CQSW | Double acting, Double rod | Except with auto switch, with rubber bumper, with bracket | |
| CQ2 | Compact cylinder | CQ2-Z | Double acting, Single rod | ø12 to ø40. Except with auto switch magnet, with rubber bumper, with bracket | |
| | | CQ2W-Z | Double acting, Double rod | ø12 to ø40. Except with auto switch magnet, with rubber bumper, with bracket | |
| | Axial piping type (Centralized piping type) | CQP2 | Double acting, Single rod | ø12 to ø40. Except with auto switch magnet, 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)

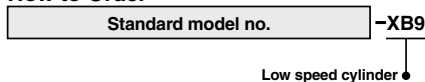
Symbol
-XB9

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) |
|--------|---------------------------------------|--------|---------------------------|---|--------------------------|
| CJ2 | Air cylinder | CJ2-Z | Double acting, Single rod | Except with air cushion | Web Catalog |
| | Air cylinder | CM2-Z | Double acting, Single rod | Except air-hydro, with air cushion, with rod boot | |
| CM2 | Direct mount type | CM2R-Z | Double acting, Single rod | Except with air cushion | |
| | End lock cylinder | CBM2 | Double acting, Single rod | Except with rod boot, with air cushion | |
| CG1 | Air cylinder | CG1-Z | Double acting, Single rod | Except with rod boot, with air cushion | |
| | Direct mount type | CG1R-Z | Double acting, Single rod | Except with air cushion | |
| CU | Free mount cylinder | CU | Double acting, Single rod | | |
| | 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 | | |
| CQS | Compact cylinder | CQS | Double acting, Single rod | Except long stroke | |
| | | CQSW | Double acting, Double rod | | |
| CQ2 | Compact cylinder | CQ2-Z | Double acting, Single rod | Except long stroke and large bore type | |
| | | CQ2W-Z | Double acting, Double rod | | |
| | | CQP2 | Double acting, Single rod | | |
| MGQ | Compact guide cylinder | MGQ | Double acting | | |
| CXS | Dual rod cylinder | CXS | Basic type | | |
| CY | Magnetically coupled rodless cylinder | CY3B-Z | Double acting | | |
| | | CY3B | Double acting | | |
| | | CY1S-Z | Double acting | | |
| | | CY1L | Double acting | | |

How to Order



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

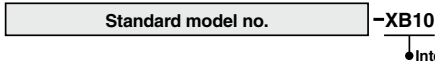
Cylinder which can reduce the mounting space by using an exclusive body which does not use a spacer to achieve that the full length dimension could be shortened when an intermediate stroke other than the standard stroke is required.

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. | |
| | | CQSW | Single acting (Spring return) | | |
| | Anti-lateral load | CQ2□S | Double acting, Double rod | | |
| CQ2 | Compact cylinder | CQ2-Z | Double acting, Single rod | Except $\phi 12$ to $\phi 32$ | Web Catalog |
| | | CQ2W-Z | Single acting (Spring return) | | |
| | | CQ2K-Z | Double acting, Double rod | | |
| | Non-rotating rod type | CQ2K-Z | Double acting, Single rod | | |
| | | CQ2KW | Double acting, Double rod | | |
| | Large bore size | CQ2-Z | Double acting, Single rod | | |
| | | CQ2W-Z | Double acting, Double rod | | |
| | Long stroke | CQ2-Z | Double acting, Single rod | | |
| | | CQ2□S-Z | Double acting, Single rod | | |
| Anti-lateral load | CQ2-R/V | Double acting, Single rod | Applicable to $\phi 40$ to $\phi 100$ | | |
| Water resistant | CQ2W-R/V | Double acting, Double rod | | | |
| With end lock | CBO2 | Double acting, Single rod | | | |
| MGP | Compact guide cylinder | MGP-Z | Double acting | | |
| MGQ | Compact guide cylinder | MGQ | Double acting | | |
| CY1 | Magnetically coupled rodless cylinder | CY1H | Linear guide type | | |
| | | CY1F | Low profile guide type | | |
| REA | Sine rodless cylinder | REAH | Linear guide type | | |
| REB | | REBH | | | |

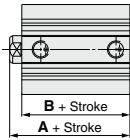
How to Order

Specifications: Same as standard type

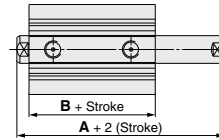


Dimensions: CQ2 Series The A and B dimensions shown below are the same as those of the standard type. (Shown for reference purposes)

Double acting, Single rod



Double acting, Double rod



| Bore size (mm) | Single rod type | | | | Applicable stroke 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) | 6 to 99 |
| 40 | 36.5 (46.5) | 46.5 (46.5) | 29.5 (39.5) | 39.5 (39.5) | |
| 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 (mm) | Double rod type | | | | Applicable stroke 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) | |

Single acting, Spring return

| Bore size (mm) | Single rod type (Single acting/Return) | | Applicable stroke range (mm) |
|----------------|--|-------------|------------------------------|
| | A | B | |
| | 12 | 20.5 (31.5) | |
| 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 9 |
| 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) | |

* () : 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)

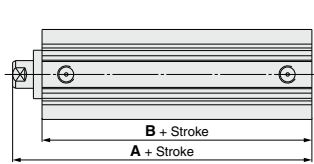


5 Intermediate Stroke (Using exclusive body)

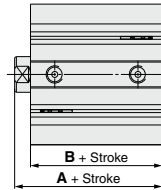
Symbol
-XB10

Dimensions: CQ2 Series

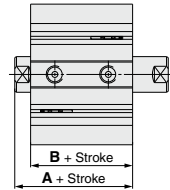
Double acting, Single rod/Long stroke



Double acting, Single rod/Large bore



Double acting, Double rod/Large bore



| Bore size (mm) | Single rod type (Long stroke) | | Applicable stroke 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.

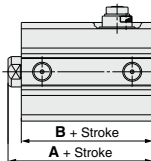
| Bore size (mm) | Single rod type | | Applicable stroke range(mm) |
|----------------|-----------------|-----|-----------------------------|
| | A | B | |
| 125 | 99 | 83 | 11 to 299 |
| 140 | 99 | 83 | |
| 160 | 108 | 91 | |
| 180 | 119 | 102 | |
| 200 | 126 | 109 | |

* Dimensions other than listed above are the same as standard type.
Note) Applicable stroke available in 1 mm increments.

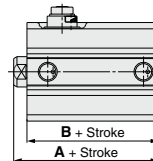
| Bore size (mm) | Double rod type | | Applicable stroke range(mm) |
|----------------|-----------------|-----|-----------------------------|
| | A | B | |
| 125 | 115 | 83 | 11 to 299 |
| 140 | 115 | 83 | |
| 160 | 125 | 91 | |
| 180 | 136 | 102 | |
| 200 | 143 | 109 | |

* 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

| Bore size (mm) | A | | B | | Applicable stroke 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 (mm) | A | | B | | Applicable stroke 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

| Bore size (mm) | A | | B | | Applicable stroke 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 (mm) | A | | B | | Applicable stroke 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 | |

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

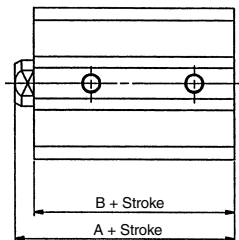


5 Intermediate Stroke (Using exclusive body)

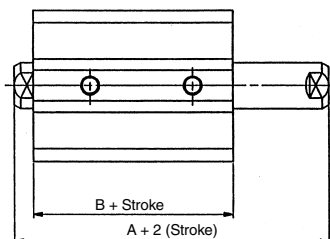
Symbol
-XB10

Dimensions: CQS Series

Double acting,
Single rod/Long stroke



Double acting, Double rod



| Bore size (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 (mm) | Single rod type (Anti-lateral load) | | Applicable stroke |
|----------------|-------------------------------------|-------------|-------------------|
| | A | B | |
| 12 | 25.5 (30.5) | 22 (27) | 6 to 29 |
| 16 | 25.5 (30.5) | 22 (27) | |
| 20 | 29 (39) | 24.5 (34.5) | 6 to 49 |
| 25 | 32.5 (42.5) | 27.5 (37.5) | |

(mm)

| Bore size (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 (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 | |

(mm)

| Bore size (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) | |

(mm)

- * (): 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.

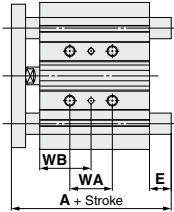
Made to Order Common Specifications: -XB10: Intermediate Stroke (Using exclusive body)



5 Intermediate Stroke (Using exclusive body)

Symbol
-XB10

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 299 st | 301 to 399 st | 21 to 39 st | 41 to 124 st | 126 to 199 st | 201 to 299 st | 301 to 399 st |
| 20 | 21 to 399 | 24 | 44 | 120 | 200 | 300 | 29 | 39 | 77 | 117 | 167 |
| 25 | | 24 | 44 | 120 | 200 | 300 | 29 | 39 | 77 | 117 | 167 |

| Bore size (mm) | Stroke range (mm) | WA | | | | | WB | | | | |
|----------------|-------------------|-------------|--------------|---------------|---------------|---------------|-------------|--------------|---------------|---------------|---------------|
| | | 26 to 49 st | 51 to 124 st | 126 to 199 st | 201 to 299 st | 301 to 399 st | 26 to 49 st | 51 to 124 st | 126 to 199 st | 201 to 299 st | 301 to 399 st |
| 32 | 26 to 399 | 24 | 48 | 124 | 200 | 300 | 33 | 45 | 83 | 121 | 171 |
| 40 | | 24 | 48 | 124 | 200 | 300 | 34 | 46 | 84 | 122 | 172 |
| 50 | | 24 | 48 | 124 | 200 | 300 | 36 | 48 | 86 | 124 | 174 |
| 63 | | 28 | 52 | 128 | 200 | 300 | 38 | 50 | 88 | 124 | 174 |
| 80 | | 28 | 52 | 128 | 200 | 300 | 42 | 54 | 92 | 128 | 178 |
| 100 | | 48 | 72 | 148 | 220 | 320 | 35 | 47 | 85 | 121 | 171 |

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 | 47 | 64.5 |
| 25 | 65.5 | 81.5 | 100.5 | 117.5 | 12 | 28 | 47 | 64 |

| Bore size (mm) | A | | | E | | | | |
|----------------|-------------|--------------|---------------|---------------|-------------|--------------|---------------|---------------|
| | 26 to 74 st | 76 to 124 st | 126 to 199 st | 201 to 399 st | 26 to 74 st | 76 to 124 st | 126 to 199 st | 201 to 399 st |
| 32 | 79.5 | 96.5 | 116.5 | 138.5 | 20 | 37 | 57 | 79 |
| 40 | 79.5 | 96.5 | 116.5 | 138.5 | 13.5 | 30.5 | 50.5 | 72.5 |
| 50 | 91.5 | 112.5 | 132.5 | 159.5 | 19.5 | 40.5 | 60.5 | 87.5 |
| 63 | 91.5 | 112.5 | 132.5 | 159.5 | 14.5 | 35.5 | 55.5 | 82.5 |

| Bore size (mm) | A | | | E | | | | |
|----------------|-------------|-------------|--------------|---------------|-------------|-------------|--------------|---------------|
| | 26 to 49 st | 51 to 74 st | 76 to 199 st | 201 to 399 st | 26 to 49 st | 51 to 74 st | 76 to 199 st | 201 to 399 st |
| 80 | 104.5 | 128.5 | 158.5 | 191.5 | 8 | 32 | 62 | 95 |
| 100 | 119.5 | 145.5 | 178.5 | 201.5 | 3.5 | 29.5 | 62.5 | 85.5 |

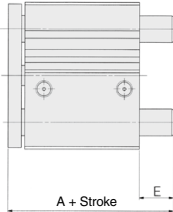
Made to Order Common Specifications: -XB10: Intermediate Stroke (Using exclusive body)



5 Intermediate Stroke (Using exclusive body)

Symbol
-XB10

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 | 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_AB series

REAH Bore size – Stroke – XB10
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 ₅ H15 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| REAH20 | / | / | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| RE ₅ H25 | / | / | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| RE ₅ HT25 | / | / | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| RE ₅ 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

A spacer is installed on the exclusive body (● indication). The overall length is shorter than that of the spacer-installed type 1. The ⊙ indicates the selectable stroke range. (Strokes with the ● indication are not selectable.) The — indicates strokes supported by the spacer-installed type 1.

| Bore size [mm] | Stroke range | Stroke | | | | | | | | | | | | | |
|----------------|--------------|--------|----|----|----|----|----|----|----|----|---|---|---|---|---|
| | | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 95 | | | | | |
| 32 to 100 | 51 to 94 | ⊙ | ● | ⊙ | ● | ⊙ | ● | — | ● | ⊙ | ● | ⊙ | ● | ⊙ | ● |

Ordering example

| | | |
|-------------|--|--|
| Part no. | CQ2B50-57DZ-XB10A | |
| Description | <ul style="list-style-type: none"> ● Uses an exclusive tube (60 mm stroke) in "3". ● Makes 57 mm stroke with 3 mm spacer inside. ● The B dimension is 100.5 mm. B = 40.5 + 60 | |

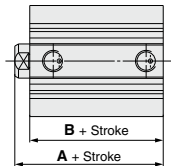
Specifications: Same as standard type

How to Order Q2 Standard model no. — XB10 A

Intermediate stroke ●
 Spacer-installed type ●

Dimensions: CQ2 Series (Dimensions other than those below are the same as those of the standard type.)

Double acting, Single rod



| Symbol 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) |
|-------------|--|----------------------|---------------------------|--------------------------|--------------------------|
| CX2 | Slide unit | CX2 | Slide bearing type | | Web Catalog |
| CXW | Slide unit | CXWM | Slide bearing type | | |
| | | CXWL | Ball bushing bearing type | | |
| CXSJ | | CXSJ | Standard type | Except ø6, Axial type | |
| CXS | Dual rod cylinder | CXS ^{Note)} | Standard type | | |
| | | CXSW | Double rod type | | |
| | | CY3B-Z | Basic type | | |
| CY | Magnetically coupled rodless cylinder | CY3B | Basic type | | |
| | | CY1H | Linear guide type | | |
| | | CY1F | Low profile guide type | | |
| ML1 | Hy-rodless cylinder | ML1C | Cam follower guide type | | |
| REA | Sine rodless cylinder | REA | Basic type | | |
| RSQ | Stopper cylinder/ Fixed mounting height | RSQ-Z | Double acting | Round bar type only | |
| | | 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 1459 for specifications and dimensions of the RSQ.

Stroke Range

| Model | Bore size (mm) | Standard stroke (mm) | Long stroke (mm) | Model | Bore size (mm) | Standard stroke (mm) | Long stroke (mm) |
|------------------|----------------|----------------------|--------------------------------------|-------------|--------------------|-----------------------------|--|
| CY3B (-Z) | 25, 32 | 100 to 800 | 2001 to 3000 (ø25 to ø40) | CXSJ | 10 | 10 to 75 | 80, 90, 100, 110, 120, 125, 150 |
| | 40, 50, 63 | 100 to 1000 | 2001 to 5000 (ø50, ø63) | | 15 | 10 to 100 | 110, 120, 125, 150 |
| CY1H | 10 | 100 to 300 | 301 to 500 | CXS | 20, 25, 32 | 10 to 100 | 110, 120, 125, 150, 175, 200 |
| | 15 | 100 to 500 | 501 to 750 | | 10 | 10 to 75 | 80, 90, 100, 110, 120, 125, 150 |
| | 20 | 100 to 600 | 601 to 1000 | | 15 | 10 to 100 | 110, 120, 125, 150 |
| | 25 | 100 to 800 | 801 to 1200 | | 20, 25, 32 | 10 to 100 | 110, 120, 125, 150, 175, 200 |
| CY1HT | 25 | | 1001 to 1200 | CXSW | 10, 15 | 10, 20, 30, 40, 50 | 75, 100, 125, 150 |
| | 32 | 100 to 1000 | 1001 to 1500 | | 20, 25, 32 | 10, 20, 30, 40, 50, 75, 100 | 125, 150, 175, 200 |
| CX2 | 15, 25 | 25 to 200 | 225, 250, 275, 300 | ML1 | 25, 32, 40 | 100 to 1000 | 1001 to 2000 |
| CXWM | 16, 20, 25, 32 | 25 to 200 | 225, 250, 275, 300 (CXWM16 to 25) | REA | 25, 32, 40, 50, 63 | 200 to 1000 | 2001 to 3000 (ø25, ø32, ø40) 2001 to 5000 (ø50, ø63) |
| CXWL | | | 225, 250, 275 (CXWL16 to 25) | RSQ | 12 | 10 | 15, 20 |
| | | | 225 (CXWL32) | | 16 | 10, 15 | 20, 30 |
| | | | 20, 32 | 10, 15, 20 | 30, 40 | | |
| | | | 40, 50 | 20, 25, 30 | 40, 50 | | |

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

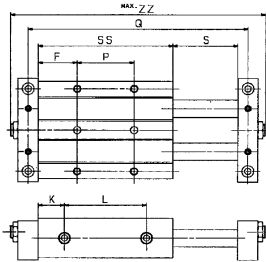


7 Long Stroke Type

Symbol
-XB11

Dimensions

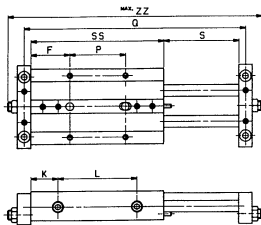
CX2 series: $\phi 15, \phi 25$



| 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 |

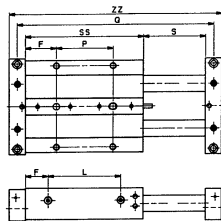
CXWM series: $\phi 16, \phi 25$



| 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 |

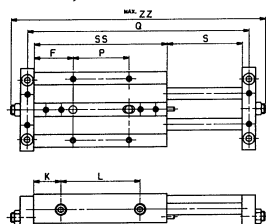
$\phi 20, \phi 32$



| 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 |

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

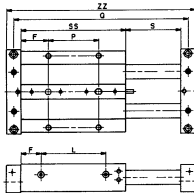


7 Long Stroke Type

Symbol
-XB11

Dimensions

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

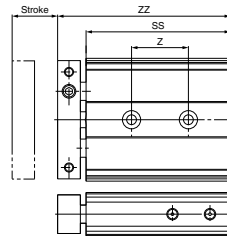
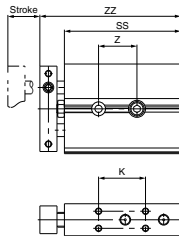


| Model | F | L | K | P | Q | S | SS | Z | ZZ |
|------------|-------|-----|----|----|-----|-----|-----|-----|-----|
| CXWL20-225 | 116.5 | 239 | 42 | 90 | 564 | 227 | 323 | 550 | 578 |
| CXWL20-250 | 129 | 264 | 42 | 90 | 614 | 252 | 348 | 600 | 628 |
| CXWL20-275 | 141.5 | 289 | 42 | 90 | 664 | 277 | 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_L^M series: $\varnothing 10$

CXSJ_L^M series: $\varnothing 15$, $\varnothing 20$, $\varnothing 25$, $\varnothing 32$

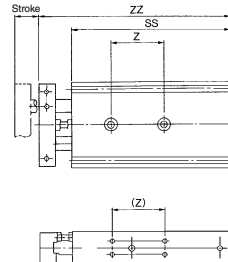
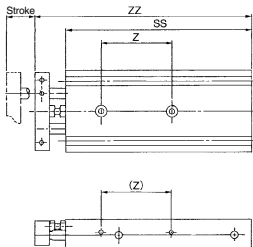


| Model | CXSJ ^M $\varnothing 10$ | | | | | | CXSJ ^M $\varnothing 15$ | | | | CXSJ ^M $\varnothing 20$ | | | | | | CXSJ ^M $\varnothing 25$ | | | | | CXSJ ^M $\varnothing 32$ | | | | | | | |
|--------|------------------------------------|-------|-------|-------|-------|-------|------------------------------------|-------|-------|-------|------------------------------------|-------|-------|-------|-------|-------|------------------------------------|-------|-------|-------|-------|------------------------------------|-------|-------|-------|-------|-------|-------|-------|
| 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 |
| 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 |
| 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 |
| Z | 88 | 98 | 108 | 118 | 128 | 133 | 158 | 65 | 75 | | | 80 | 100 | | | | | 80 | 100 | | | | | 90 | | | | | |
| 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_L^M series: $\varnothing 10$, $\varnothing 15$

CXS_L^M series: $\varnothing 20$, $\varnothing 25$, $\varnothing 32$



| Model | CXS ^M $\varnothing 10$ | | | | | | CXS ^M $\varnothing 15$ | | | | CXS ^M $\varnothing 20$ | | | | | | CXS ^M $\varnothing 25$ | | | | | CXS ^M $\varnothing 32$ | | | | | | | |
|--------|-----------------------------------|-----|-----|-----|-----|-----|-----------------------------------|-----|-----|-----|-----------------------------------|-----|-----|-----|-----|-----|-----------------------------------|-----|-----|-----|-----|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|
| 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 |
| 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 |
| 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 |
| Z | 50 | 60 | | | | 70 | 80 | 65 | 75 | | | 80 | 100 | | | | | 80 | 100 | | | | | 90 | | | | | |

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 $\phi 50$

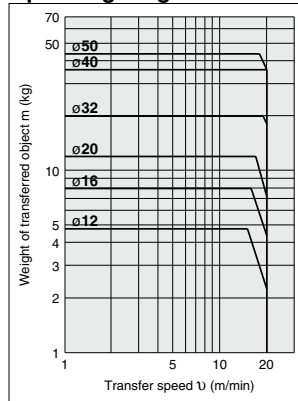
RS(D)Q Mounting bracket Bore size - Stroke DZ - Auto switch Suffix -XB11
 • Refer to the below for specifications. • Long stroke type

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 |

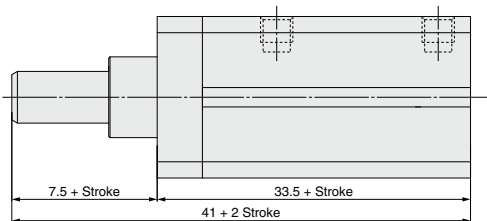
| Model | Bore size (mm) | Standard stroke (mm) | Long stroke (mm) |
|-------|----------------|----------------------|------------------|
| RSQ | 12 | 10 | 15, 20 |
| | 16 | 10, 15 | 20, 30 |
| RSQ-Z | 20, 32 | 10, 15, 20 | 30, 40 |
| | 40, 50 | 20, 25, 30 | 40, 50 |

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

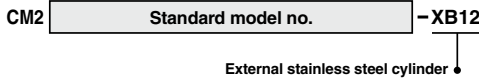
Symbol
-XB12

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 Single acting (Spring return/extend) | Web Catalog |
| | | CM2W | Double acting, Double rod | |
| | Non-rotating rod type | CM2K | Double acting, Single rod Single acting (Spring return/extend) | |

How to Order



Specifications

| Series | CM2, CM2K | CM2W |
|--|---|---------------------------|
| Material | The rod cover, head cover, cylinder tube, piston rod, mounting nut, rod end nut, seal retainer, and retaining ring are all made of stainless steel 304. | |
| 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 (2 foot brackets + 1 mounting nut) | CM-L020B-XB12 | CM-L032B-XB12 | | CM-L040B-XB12 |
| Foot (1 foot bracket) | CM-L020BSUS | CM-L032BSUS | CM-L040BSUS | |
| Flange | CM-F020BSUS | CM-F032BSUS | CM-F040BSUS | |
| Mounting nut | SN-020BSUS | SN-032BSUS | SN-040BSUS | |
| Rod end nut | NT-02SUS | NT-03SUS | NT-04SUS | |
| Single knuckle joint | I-020BSUS | I-032BSUS | I-040BSUS | |
| Double knuckle joint (1) | Y-020BSUS | Y-032BSUS | Y-040BSUS | |
| Pin for double knuckle joint (2) | CDP-1-XC27 | | | CDP-3-XC27 |

Note 1) With pin, retaining ring

Note 2) 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

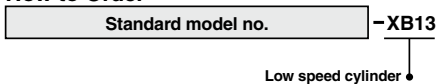
Even if driving at lower speeds 5 to 50 mm/s (CY: 7 to 50 mm/s), there would be no stick-slip phenomenon and it can run smoothly.

Applicable Series

| Series | Description | Model | Action | Note | Vol. no. (for std model) |
|-------------|---------------------------------------|-------------------------------|---------------------------|---|--------------------------|
| CJ2 | Air cylinder | CJ2 | Double acting, Single rod | ø6 only | |
| CG1 | Air cylinder | CG1-Z | Double acting, Single rod | Except with rod boot and with air cushion | |
| | Direct mount type | CG1R-Z | Double acting, Single rod | Except with air cushion | |
| CU | Free mount cylinder | CU | Double acting, Single rod | | |
| | 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 | | |
| CQS | Compact cylinder | CQS | Double acting, Single rod | Except long stroke | |
| | | CQSW | Double acting, Double rod | | |
| CQ2 | Compact cylinder | CQ2-Z | Double acting, Single rod | Except long stroke and large bore type | |
| | | CQ2W-Z | Double acting, Double rod | | |
| | | CQP2 | Double acting, Single rod | | |
| CX2 | Slide unit | CX2 | Slide bearing type | | |
| CXW | Slide unit | CXWM | Slide bearing type | | |
| | | CXWL | Ball bushing bearing type | | |
| MXH | Compact slide | MXH-Z | Double acting, Single rod | | |
| CXSJ | Dual rod cylinder | CXSJ | Standard type | | |
| CXS | | CXS | Standard type | | |
| MGP | Compact guide cylinder | MGP-Z | Double acting | | |
| | With end lock | MGP ^M _L | Double acting | | |
| | Heavy duty guide rod type | MGPS | Double acting | | |
| MGG | Guide cylinder | MGGM | Double acting | Shock absorber cannot be mounted. | |
| MGC | Guide cylinder | MGCM | Double acting | With rubber bumper. Port size Rc1/8 is applicable to ø20, 25. | |
| CY | Magnetically coupled rodless cylinder | CY3B-Z | Basic type | | |
| | | CY3B | Basic type | | |
| | | CY1S-Z | Slide bearing type | | |
| | | CY1L | Ball bushing bearing type | | |
| CXT | Platform cylinder | CXT | Double acting | Except long stroke. Shock absorber cannot be mounted. | |

Web Catalog

How to Order



- 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

Symbol
-XB14

A heat-resistant, compact cylinder which can mount a heat-resistant auto switch (Max. 150°C)

Applicable Series

| Description | Model | Action | Note | Vol. no. (for std model) |
|------------------|-------|---------------------------|---|--------------------------|
| Compact cylinder | CQ2 | Double acting, Single rod | Applicable to ø16 to ø63 Excludes models with a rubber bumper Excludes the air-hydro type | Web Catalog |

Specifications

| | |
|---|-------------------------------------|
| Ambient and fluid temperature range | 0 to 150°C |
| Seal material | Fluororubber |
| Grease | Heat-resistant grease |
| Min. stroke for auto switch mounting | 15 (Same for both 1 pc. and 2 pcs.) |
| Specifications other than the above | Same as the standard type |

For the detailed specifications of auto switches, refer to pages 1346 and 1347.

How to Order

Standard model no. - **M9NJL** - **XB14**

| Symbol | Output |
|-------------|--------|
| M9NJ | NPN |
| M9PJ | PNP |
| F7NJ | NPN |

Number of auto switches

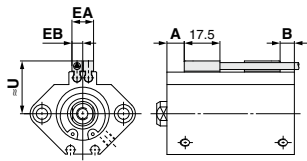
Cylinder with heat-resistant auto switch

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

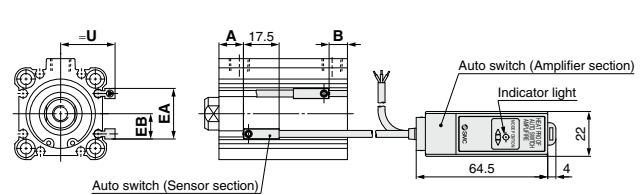
Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height

D-M9□J

ø16 to ø25

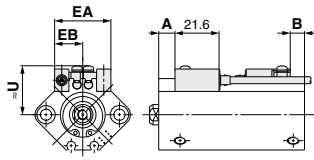


ø32 to ø63

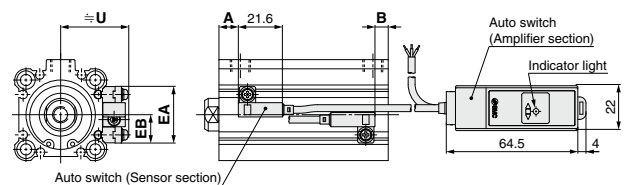


D-F7NJ

ø16 to ø25



ø32 to ø63



| Auto switch model | D-M9□J | | | | | | | | D-F7NJ | | | | | | | |
|-------------------|--------|------|------|----|------|------|-----|------|--------|------|---|---|---|----|----|--|
| | A | B | U | EA | EB | A | B | U | EA | EB | A | B | U | EA | EB | |
| 16 | 9.5 | 7 | 21 | 11 | 5.5 | 8 | 5.5 | 22.5 | 28 | 14 | | | | | | |
| 20 | 9.5 | 8.5 | 23.5 | 11 | 5.5 | 8 | 7 | 25.5 | 28 | 14 | | | | | | |
| 25 | 9.5 | 9 | 27 | 11 | 5.5 | 8 | 7.5 | 28 | 28 | 14 | | | | | | |
| 32 | 11 | 8 | 29 | 25 | 12.5 | 9.5 | 6.5 | 36 | 28 | 14 | | | | | | |
| 40 | 15 | 10.5 | 31 | 30 | 15 | 13.5 | 9 | 38 | 33 | 16.5 | | | | | | |
| 50 | 13 | 13.5 | 36 | 34 | 17 | 11.5 | 12 | 43.5 | 37 | 18.5 | | | | | | |
| 63 | 15.5 | 16.5 | 41.5 | 43 | 21.5 | 14 | 15 | 48.5 | 46 | 23 | | | | | | |

[mm]

Operating Range

| Auto switch model | Bore size [mm] | | | | | | | | | | |
|-------------------|----------------|-----|-----|----|-----|----|----|-----|-----|-----|----|
| | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 16 | 20 | 25 | 32 |
| D-M9□J | 4.5 | 4.5 | 4.5 | 5 | 4.5 | 5 | 5 | 4.5 | 4.5 | 4.5 | 5 |
| D-F7NJ | 4.5 | 4.5 | 4.5 | 5 | 4.5 | 5 | 5 | 4.5 | 4.5 | 4.5 | 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.

Auto Switch Mounting Bracket Part Nos.

| Auto switch model | Bore size [mm] | | | | |
|-------------------|----------------|----|----|----------|----------|
| | 16 | 20 | 25 | 32 | 40 50 63 |
| D-F7NJ(L)Z | BQ4-012 | | | BQJ2-032 | |

Auto Switch Mounting Bracket Weight

| Mounting bracket part no. | Weight [g] |
|---------------------------|------------|
| BQ4-012 | 1.5 |
| BQJ2-032 | 3.6 |

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

* The dimensions of the cylinder body are equivalent to those of the standard type, double acting, single rod of the CDQ2 series.

* Auto switches are shipped in the same package as the product but do not come assembled for protection purposes. Assemble them by referring to the A and B dimensions for mounting position shown above.

* The tightening torque for the auto switch mounting M2.5 screw is 0.25 to 0.35 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 | Web Catalog |

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 | | | F _c 1/8 | | |
| Stroke adjustable range | 0 to -5 mm compared to the standard stroke | | | | | |
| Bearing type | Slide bearing, Ball bushing bearing | | | | | |
| Cushion | Rubber bumper | | | | | |

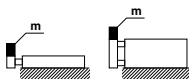
How to Order

CXS Standard model no. -XB19
High speed type

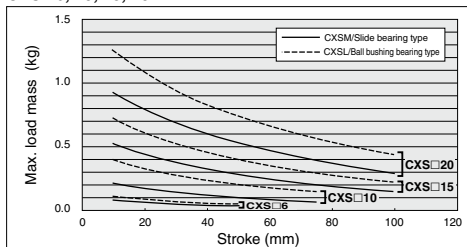
Operating Conditions

Maximum Load Mass

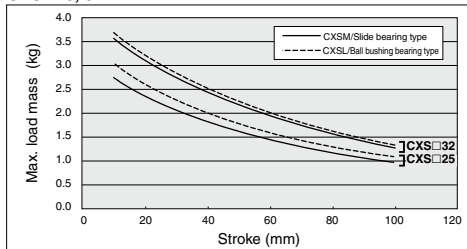
When the cylinder is mounted as shown in the diagrams on the right, the maximum load mass (m) should not exceed the values indicated in the graph below.



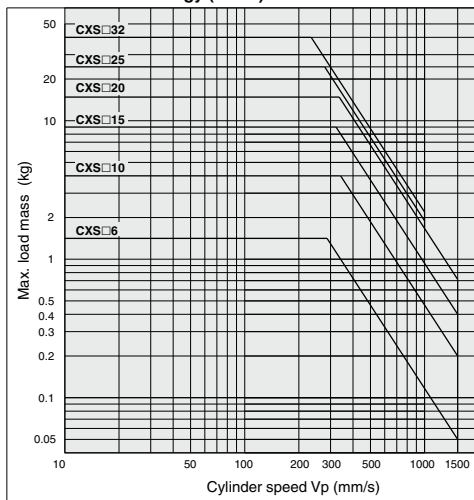
CXS □ 6, 10, 15, 20



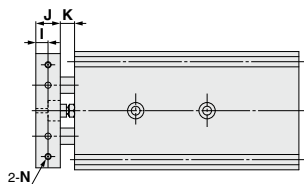
CXS □ 25, 32



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 |

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



12 Stroke Adjustment Unit with Adjustment Bolt

Symbol
-XB20

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) | Web Catalog |
| | | MY2HT | Linear guide (Double axes) | |

How to Order

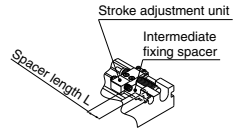
MY2H
MY2HT Standard model no. -XB20

Stroke Adjustment Unit Specifications

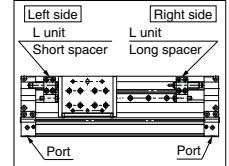
| Bore size (mm) | | 16 | | 25 | | 40 | |
|--|-------------------|----------------|--------|--------------|--------|------------|--------|
| Unit symbol | | L | H | L | H | L | H |
| Shock absorber model | MY2H | RB0806 | RB1007 | RB1007 | RB1412 | RB1412 | RB2015 |
| | MY2HT | RB1007 | RB1412 | RB1412 | 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 |

With adjustment bolt

Intermediate fixing spacer

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

Unit part no.

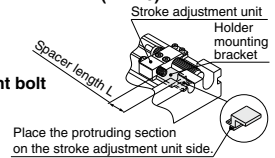
| Symbol | Stroke adjustment unit | Mounting position |
|--------|------------------------|-------------------|
| L1 | L unit | For left |
| L2 | | For right |
| H1 | H unit | For left |
| H2 | | For right |

Spacer shipping method

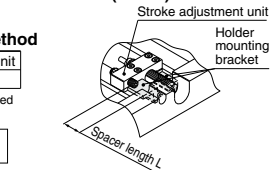
| | |
|-----|---------------------|
| Nil | Assembled as a unit |
| N | Spacer only |

* 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)

Stroke adjustment unit

Nut

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

Stroke adjustment unit

Nut

Holder mounting bracket

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

Stroke adjustment unit

Nut

Holder mounting bracket

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

Short spacer

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

Long spacer

* Nuts are installed onto the cylinder body.

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

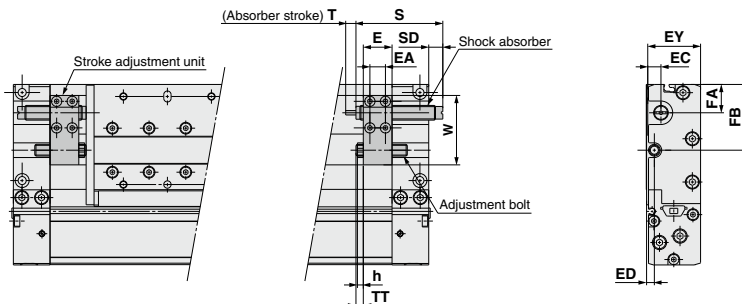


12 Stroke Adjustment Unit with Adjustment Bolt

Symbol
-XB20

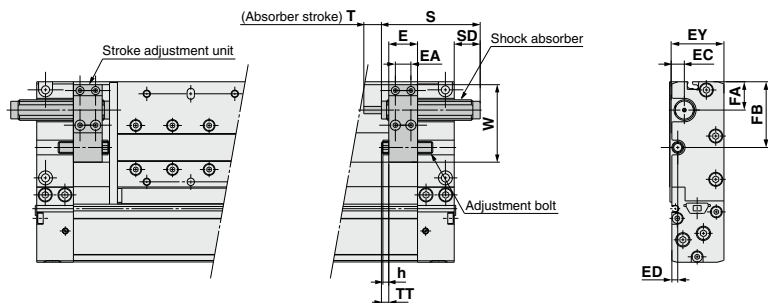
Dimensions (Dimensions other than below are the same as standard type.)

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

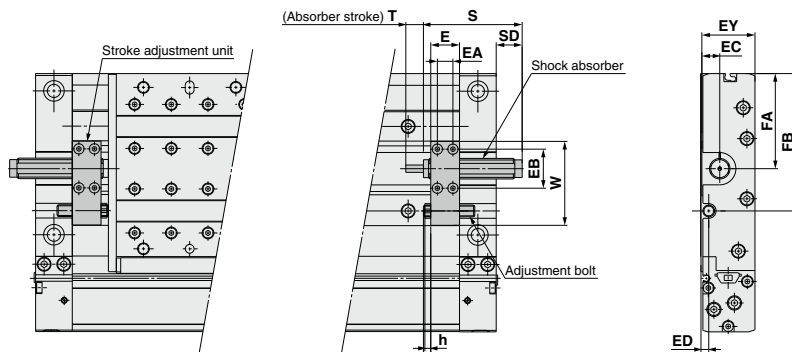


12 Stroke Adjustment Unit with Adjustment Bolt

Symbol
-XB20

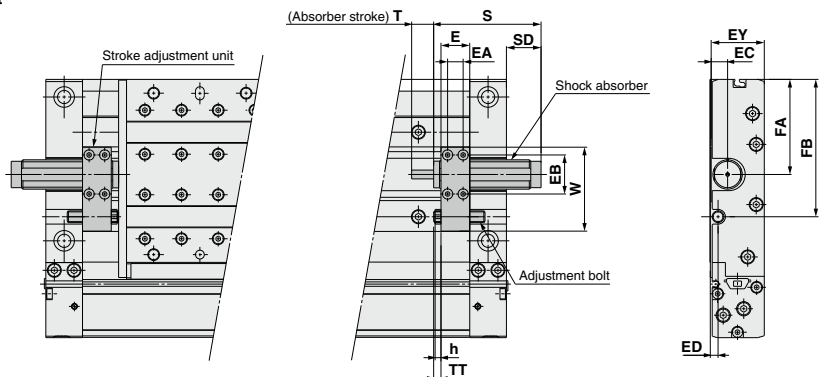
Dimensions (Dimensions other than below are the same as standard type.)

MY2HT L unit

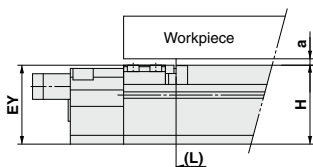


| Applicable cylinder | E | EA | EB | EC | ED | EY | FA | FB | h | S | SD | T | TT | W | Shock absorber model | Adjustment bolt | Adjustment range |
|---------------------|------|------|------|------|-----|----|------|-------|-----|------|------|----|----------------|------|----------------------|-----------------|------------------|
| 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 side 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: -XB20: Stroke Adjustment Unit with Adjustment Bolt



12 Stroke Adjustment Unit with Adjustment Bolt

Symbol
-XB20

XB20 (Stroke Adjustment Unit with Adjustment Bolt)

⚠ Caution

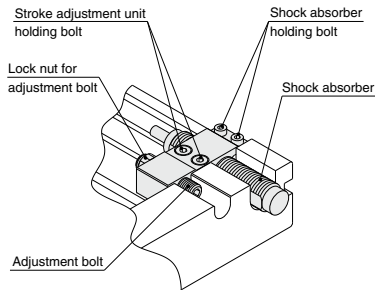
<Stroke adjustment with adjusting bolt>

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

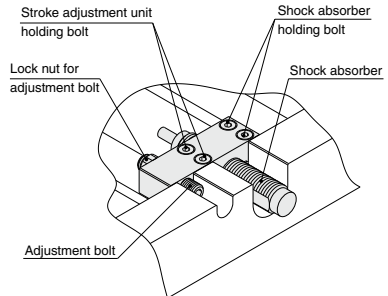
After adjusting the stroke, secure the adjustment bolt by tightening the lock nut.

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

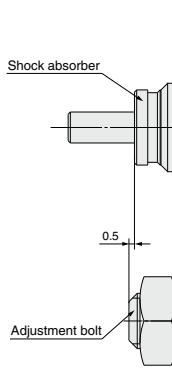
(N·m)

| Bore size (mm) | MY2H | | MY2HT | |
|----------------|--------|--------|--------|--------|
| | L unit | H unit | L unit | H unit |
| 16 | | 0.6 | | |
| 25 | | 1.5 | | |
| 40 | | 5.0 | | |

Tightening Torque for Shock Absorber Holding Bolt

(N·m)

| Bore size (mm) | MY2H | | MY2HT | |
|----------------|--------|--------|--------|--------|
| | 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.

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



13 Shock Absorber Soft Type RJ Series Type

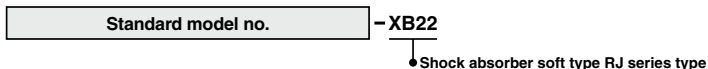
Symbol
-XB22

- 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.

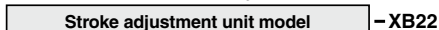
Applicable Series

| Series | Description | Model | Bearing type | Applicable bore size | Vol. no. (for std model) |
|--------|---------------------------------------|-------|---|----------------------|--------------------------|
| MY | Mechanically jointed rodless cylinder | MY1B | Basic type | ø10, ø20 to ø40 | Web Catalog |
| | | MY1M | Slide bearing type | ø16 to ø40 | |
| | | MY1C | Cam follower type | ø16 to ø40 | |
| | | MY1H | Single-axis linear guide type | ø10 to ø40 | |
| | | 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 | Web Catalog |
| | | 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 ø100 | Web Catalog |
| MGG | Guide cylinder | MGG | Slide bearing type, Ball bushing bearing type | ø20 to ø32 | |
| CX2 | Slide unit | CX2N | Slide bearing type | ø10, ø15, ø25 | |
| CXT | Platform cylinder | CXT | Slide bearing type, Ball bushing bearing type | ø12 to ø25 | |

How to Order



How to Order a Stroke Adjustment Unit for MY Itself



Specifications

| | |
|---|--|
| Absorbed energy | For the maximum impact weight graph, refer to page 1470. |
| Specifications other than above and external dimensions | Same as standard type |

* For dimensions of the MGP series, refer to page 1471.

- * For details on shock absorber soft type RJ series, refer to the **Web Catalog**.
- * 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.

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



13 Shock Absorber Soft Type RJ Series Type

Symbol
-XB22

Cylinders

Note) Refer to the **Web Catalog** for the details of the shock absorber RB series.

Mechanically Jointed Rodless Cylinder

| Model | Type | Stroke adjusting unit | Bore size | | | | | | |
|--------------|----------|-----------------------|-----------|-----|----------------|---------|---------|-----|-----|
| | | | ø10 | ø16 | ø20 | ø25 | ø32 | ø40 | ø50 |
| MY1B | -XB22 | L | / | / | RJ0806H | RJ1007H | RJ1412H | | / |
| | | H | | | RJ1007H | RJ1412H | — | — | |
| | Standard | L | | | RB0806 | RB1007 | RB1412 | | |
| | | H | | | RB1007 | RB1412 | RB2015 | | |
| MY1M MY1C | -XB22 | L | / | / | RJ0806H | RJ1007H | RJ1412H | | / |
| | | H | | | RJ1007H | RJ1412H | — | — | |
| | Standard | L | | | RB0806 | RB1007 | RB1412 | | |
| | | H | | | RB1007 | RB1412 | RB2015 | | |
| MY1H | -XB22 | L | / | / | RJ0806H | RJ1007H | RJ1412H | | / |
| | | H | | | RJ1007H | RJ1412H | — | — | |
| | Standard | L | | | RB0806 | RB1007 | RB1412 | | |
| | | H | | | RB1007 | RB1412 | RB2015 | | |
| MY1□W | -XB22 | L | / | / | RJ0806H | RJ1007H | RJ1412H | | / |
| | | H | | | RJ1007H | RJ1412H | — | — | |
| | Standard | L | | | RB0806 | RB1007 | RB1412 | | |
| | | L | | | RB0806 | RB1007 | RB1412 | | |
| MY2C MY2H | -XB22 | L | / | / | RJ0806H | RJ1007H | RJ1412H | | / |
| | | H | | | RJ1007H (Note) | RJ1412H | — | — | |
| | Standard | L | | | RB0806 | RB1007 | RB1412 | | |
| | | H | | | RB1007 (Note) | RB1412 | RB2015 | | |
| MY2HT | -XB22 | L | / | / | RJ1007H | RJ1412H | — | | / |
| | | H | | | RJ1412H | — | — | | |
| | Standard | L | | | RB1007 | RB1412 | RB2015 | | |
| | | H | | | RB1412 | RB2015 | RB2725 | | |
| MY3B | -XB22 | L | / | / | RJ0806H | RJ1007H | RJ1412H | | / |
| | | H | | | RJ1007H | RJ1412H | — | — | |
| | Standard | L | | | RB0806 | RB1007 | RB1412 | | |
| | | H | | | RB1007 | RB1412 | RB2015 | | |
| MY3M | -XB22 | L | / | / | RJ0806H | RJ1007H | RJ1412H | | / |
| | | H | | | RJ1007H | RJ1412H | — | — | |
| | Standard | 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 | RB0806 | RB1006 | RB1411 | |
| CY1HT | -XB22 | / | | | RB1006 | RJ1412H |
| | Standard | / | | | RB1411 | RB1411 |

Guide Cylinder

| Model | Type | Bore size | | | | | | | | | |
|-------|----------|-----------|-----|---------|---------|---------|-----|---------|--------|---------|------|
| | | ø12 | ø16 | ø20 | ø25 | ø32 | ø40 | ø50 | ø63 | ø80 | ø100 |
| MGP-Z | -XB22 | RJ0806H | | RJ1007H | | RJ1412H | | RJ2015H | | RJ2725H | |
| | -XC69 | / | | / | | / | | RB2015 | | RB2725 | |
| MGG | -XB22 | / | | RJ1007H | RJ1412H | | / | | / | | |
| | Standard | / | | RB1007 | RB1412 | / | | RB2015 | RB2725 | | |

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.

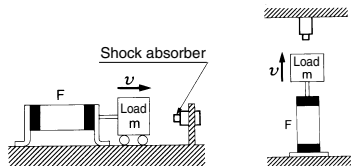
Refer to each cylinder selection calculation for load factors and guide load factors.

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

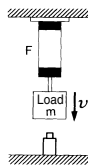
■ Type of collision

Horizontally-applied impact

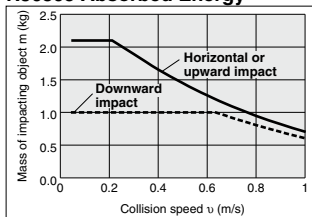
Air cylinder impact (horizontal/upward)



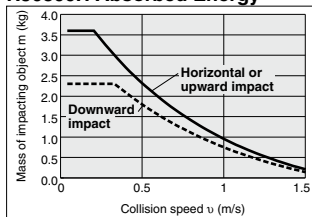
Air cylinder impact (downward)



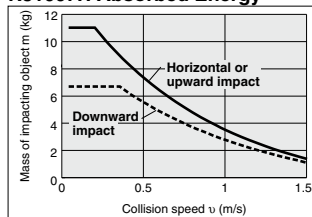
RJ0805 Absorbed Energy



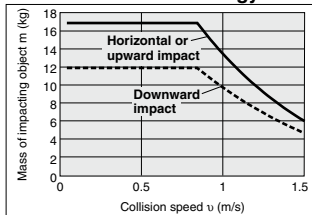
RJ0806H Absorbed Energy



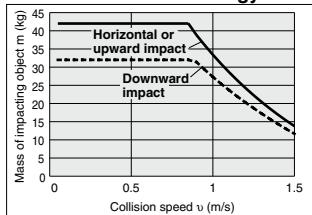
RJ1007H Absorbed Energy



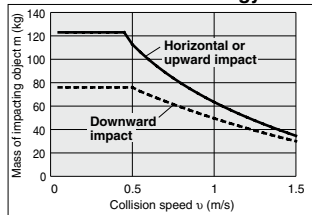
RJ1412H Absorbed Energy



RJ2015H Absorbed Energy



RJ2725H Absorbed Energy



* Be sure to read "Handling Precautions for SMC Products" ([Web Catalog](#)) and "Shock Absorber Soft Type RJ Series" ([Web Catalog](#)) before using.

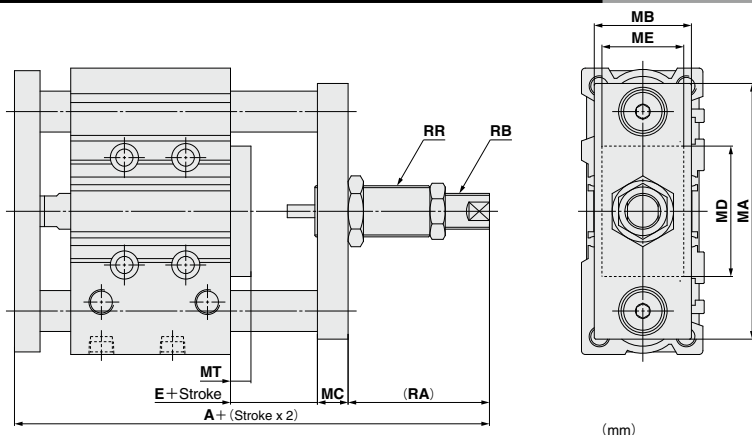
Made to Order Common Specifications: -XB22: Shock Absorber Soft Type RJ Series Type



13 Shock Absorber Soft Type RJ Series Type

Symbol
-XB22

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



| Bore size | A | E | MA | MB | MC | MD | ME | MT | RA | RB | RR |
|------------|-------|----|-----|----|----|-----|----|----|----|---------|-----------|
| 12 | 90 | 7 | 51 | 19 | 8 | 27 | 13 | 6 | 33 | RJ0806H | M12 x 1.5 |
| 16 | 94 | 7 | 58 | 19 | 8 | 28 | 16 | 6 | 33 | RJ0806H | M12 x 1.5 |
| 20 | 109 | 9 | 68 | 30 | 10 | 33 | 22 | 8 | 37 | RJ1007H | M14 x 1.5 |
| 25 | 109.5 | 9 | 82 | 30 | 10 | 41 | 25 | 8 | 37 | RJ1007H | M14 x 1.5 |
| 32 | 135.5 | 9 | 100 | 38 | 12 | 51 | 32 | 8 | 55 | RJ1412H | M20 x 1.5 |
| 40 | 142 | 9 | 108 | 38 | 12 | 60 | 32 | 8 | 55 | RJ1412H | M20 x 1.5 |
| 50 | 155 | 10 | 139 | 60 | 16 | 71 | 38 | 9 | 57 | RJ2015H | M27 x 1.5 |
| 63 | 160 | 10 | 153 | 60 | 16 | 84 | 50 | 9 | 57 | RJ2015H | M27 x 1.5 |
| 80 | 212.5 | 17 | 190 | 75 | 22 | 114 | 50 | 16 | 77 | RJ2725H | M36 x 1.5 |
| 100 | 232 | 17 | 228 | 75 | 25 | 140 | 65 | 16 | 74 | RJ2725H | M36 x 1.5 |

Specifications of Extension Adjusting Mechanism

| Bore size (mm) | 12, 16 | 20, 25 | 32, 40 | 50, 63 | 80, 100 |
|------------------------------|----------|---------|----------|---------|----------|
| Shock absorber model | RJ08006H | RJ1007H | RJ1412H | RJ2015H | RJ2725H |
| Stroke adjustment range [mm] | 0 to -15 | | 0 to -25 | | 0 to -30 |

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.

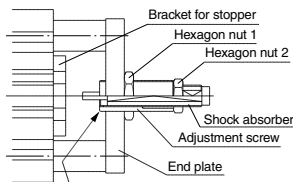
Adjustment

1. How to adjust an adjustment screw (Stroke adjustment)

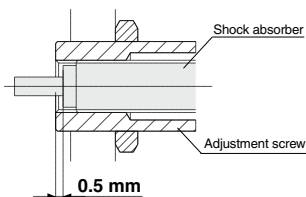
Loosen only the hexagon nut 1, then turn the adjustment screw to adjust the stroke. After adjusting, lock it with the hexagon nut 1. Fix it at the position ejected from the end plate, so that the end face of an adjustment screw could hit the bracket for stopper directly. (Refer to the figure right above.)

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: -XC2(A): Rod End Length Extended 10 mm



14 Rod End Length Extended 10 mm

Symbol

-XC2(A)

-XC2 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 | Web Catalog |
| | | CQ2-Z | Single acting (Spring return/extend) | Foot type, Rod side flange | |
| | | 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 | |
| | | CQ2IS-Z | Double acting, Single rod | Foot type, Rod side flange | |

-XC2A 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 | Web Catalog |
| | Non-rotating rod type | CQ2KW-Z | Double acting, Double rod | Flange only | |

How to Order

C(D)Q2A Standard model no. - **XC2 (A)**

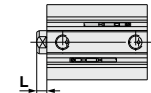
● Rod end length extended 10 mm

Specifications: Same as standard type

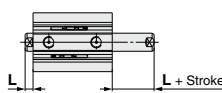
| | |
|-------|---------------------------------|
| -XC2 | Foot type, Rod side flange only |
| -XC2A | For mounting double rod flange |

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

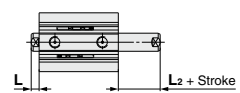
Double acting, Single rod Double acting, Double rod (-XC2) Double acting, Double rod (-XC2A)



Rod end female thread



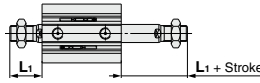
Rod end female thread



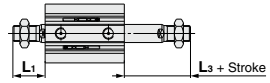
Rod end female thread



Rod end male thread



Rod end male thread



Rod end male thread

XC2: Standard, Anti-lateral load, Non-rotating rod (mm)

| Bore size (mm) | Applicable series | | Dimensions | | |
|----------------|-------------------|-----------------------|---------------|------|-------------|
| | Standard type | Non-rotating rod type | Female thread | | Male thread |
| | | | L | L1 | L1 |
| 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 | — |

XC2A: Standard, Non-rotating rod (mm)

| Bore size (mm) | Applicable series | | Dimensions | | | | |
|----------------|-------------------|-----------------------|---------------|-----|-------------|------|---|
| | Standard type | Non-rotating rod type | Female thread | | Male thread | | |
| | | | L | L2 | L1 | L3 | |
| 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 | — |

XC2: CQ2 Single acting

| Bore size | End shape | Action | Stroke | Female thread | | | | | | Male thread | | | | | |
|-----------|-----------|--------|--------|---------------|------|------|---------------|-------------|------|---------------|------|-------------|---------------|----|----|
| | | | | L | | | | | | L1 | | | | | |
| | | | | Spring return | | | Spring extend | | | Spring return | | | Spring extend | | |
| | | | | All strokes | 5 | 10 | 20 | All strokes | 5 | 10 | 20 | All strokes | 5 | 10 | 20 |
| 12 | | | | 13.5 | 18.5 | 23.5 | — | 24 | 29 | 34 | — | | | | |
| 16 | | | | 13.5 | 18.5 | 23.5 | — | 25.5 | 30.5 | 35.5 | — | | | | |
| 20 | | | | 14.5 | 19.5 | 24.5 | — | 28.5 | 33.5 | 38.5 | — | | | | |
| 25 | | | | 15 | 20 | 25 | — | 32.5 | 37.5 | 42.5 | — | | | | |
| 32 | | | | 17 | 22 | 27 | — | 38.5 | 43.5 | 48.5 | — | | | | |
| 40 | | | | 17 | 22 | 27 | — | 38.5 | 43.5 | 48.5 | — | | | | |
| 50 | | | | 18 | — | 28 | 38 | 43.5 | — | 53.5 | 63.5 | | | | |

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



15 Special Port Location

Symbol
-XC3

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 | |
| | Non-rotating rod type | CJ2K-Z | Double acting, Single rod | | |
| | Smooth cylinder | CJ2Y-Z | Double acting, Single rod | Except w/ rail mounting type auto switches | |
| CM2 | Air cylinder | CM2-Z1 | Double acting, Single rod | | |
| | Standard type | CM2-Z | Double acting, Single rod | | |
| | | CM2W-Z | Double acting, Double rod | | |
| | Air-hydro type | CM2H-Z | Double acting, Single rod | | |
| | | CM2K-Z | Double acting, Single rod | | |
| | Non-rotating rod type | CM2K-Z | Double acting, Single rod | | |
| | | 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 | CM2HR-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 | | |
| | End lock cylinder | CBM2 | Double acting, Single rod | Except with air cushion | |
| Low speed cylinder | CM2X-Z | Double acting, Single rod | | | |
| CG1 | Air cylinder | CG1-Z1 | Double acting, Single rod | | |
| MB | Standard type | MB | Double acting, Single rod | | |
| | | MBW | Double acting, Double rod | | |
| | Non-rotating rod type | MBK | Double acting, Single rod | | |
| MB1 | Standard type | MB1 | Double acting, Single rod | | Web Catalog |
| | | MB1W | Double acting, Double rod | | |
| | Non-rotating rod type | MB1K | Double acting, Single rod | | |
| CA2 | Standard type | CA2 | Double acting, Single rod | | |
| | End lock cylinder | CBA2 | Double acting, Single rod | | |
| CS1 | Standard type | CS1 | Double acting, Single rod | | |
| | Low friction type | CS1□Q | Double acting, Single rod | Applicable to ø125 to ø160 | |
| CS2 | Standard type | CS2 | Double acting, Single rod | | |
| | Smooth cylinder | CS2Y | Double acting, Single rod | Applicable to ø125 to ø160 | |
| RHC | High power cylinder | RHC | Double acting, Single rod | Applicable to ø20 to ø40 | |
| RSQ | Stopper cylinder | RSQ-Z | 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 | | |
| CL1 | Locked up cylinder | CL1 | Double acting, Single rod | | |
| CLS | Cylinder with lock | CLS | Double acting, Single rod | | |
| CNA2 | Cylinder with lock | CNA2 | Double acting, Single rod | Unlocking cams are on the same side as cushion valves. | |
| MXH | Compact slide | MXH-Z | Double acting | | |

* The RSQ, MB, MB1, and CA2 are 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 | <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> |
| CM2 | | |
| CG1 | <p>1. Positional relationships between port and cushion valve cannot be changed.</p> <p>3. The standard product is used for CG1-XC3AA/BB/CC/DD.</p> | <p>2. Cylinder with cushion of CJ2 (CJ2-A) is not available for -XC3.</p> |

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

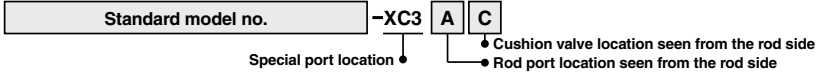


15 Special Port Location

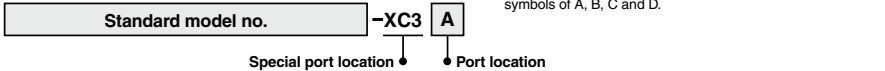
Symbol
-XC3

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 CS1 CNA2 CL1 | Basic type | Foot type | Rod side flange type | Head side flange type | Single clevis type | Double clevis type | Center trunnion type |
| CL1 | <ol style="list-style-type: none"> As shown in the above diagram, the symbols for the positions of the ports and cushion valves are as follows: viewed from the rod side, the top position is rendered A; then, B, C, and D, in the clockwise direction. The type in which the ports and the cushion valves are combined is applicable only when the rod cover and the head cover are changed to the same positions. The symbol indicated as "-XC3[A]B" is the standard specification, and there are no part numbers A or B. Those shown above are the same as standard, other than the symbols that indicate the positions of the ports and the cushion valves. | | | | | | |
| CS2 | Basic type | Foot type | Rod side flange type | Head side flange type | Single clevis type | Double clevis type | Center trunnion type |
| CS2 | <ol style="list-style-type: none"> Symbol of position for port and cushion valve has to be looked from the rod side, as figures above. (In the case of standard cylinders, port must be positioned in the upper side.) Define the upper side to be A, and then B, C, and D in a clockwise order. Model of combination between port and cushion valve is applicable only when the position of a port and a cushion valve on the rod cover and the head cover will be changed to the same position against the support bracket, as a rule. -XC3AA is not available in terms of the position between port and cushion valve, since it is available in the standard products. | | | | | | |
| MB MB1 | Basic type | Foot type | Rod side flange type | Head side flange type | Single clevis type | Double clevis type | Center trunnion type (Except MB1) |
| MB | <ol style="list-style-type: none"> Symbol of position for port and cushion valve has to be looked from the rod side, as figures above. (In the case of standard cylinders, port must be positioned in the upper side.) Define the upper side to be A, and then B, C, and D in a clockwise order. Model of combination between port and cushion valve is applicable only when the position of a port and a cushion valve on the rod cover and the head cover will be changed to the same position against the support bracket, as a rule. -XC3AA is not available in terms of the position between port and cushion valve, since it is available in the standard products. | | | | | | |
| RSQ-Z RSQ RSG | Standard type | -XC3A | -XC3B | -XC3C | <p>In the case of standard type, the symbol for port and rod-chamfered positions are on the same surface and positioned upward. Define the port position at right to be A, and then B, C in a clockwise order.</p> | | |

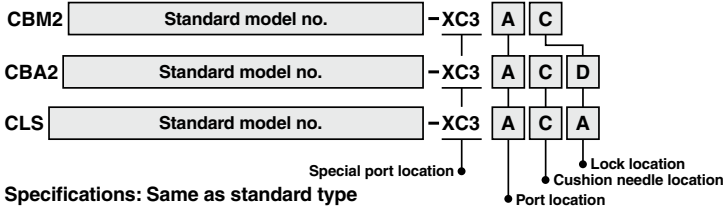
Made to Order Common Specifications: -XC3: Special Port Location



15 Special Port Location

Symbol
-XC3

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>The port and end lock positions can be specified. 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>The figures below show typical symbol examples for the double clevis type.</p> <p>AD CD BD Standard (BA) CA DA</p> <p>Diagrams seen from the rod side</p> |
| CBA2 | <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>End lock Cushion valve</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) 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 Cushion valve</p> | <p>1. 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. 2. The combination model of a port and a cushion valve is applicable when the rod and head covers are moved to the same position. 3. Part number of -XC3[A][B][A] is not available since it indicates a standard type. 4. 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. 5. Symbols excluding those that indicate the locations of ports and cushion valves are the same as the standard type.</p> |

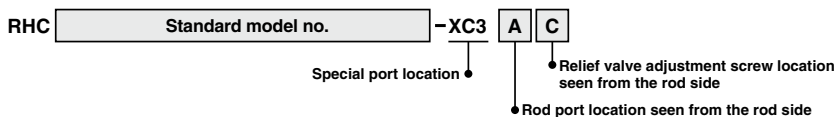
Made to Order Common Specifications: -XC3: Special Port Location



15 Special Port Location

Symbol
-XC3

How to Order



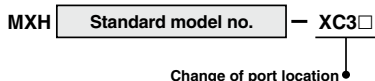
* For port location, refer to the following diagrams and show the symbols of A, B, C and D.

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>Basic type</p> | <p>Foot type</p> | <p>Rod side flange type</p> | <p>Head side flange type</p> |
| | <p>Relief valve adjustment screw</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. 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. ③ The symbol indicated as "-XC3 <input type="text" value="A"/> <input type="text" value="B"/>" is the standard specification, and there are no part numbers A or B. 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. 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 |
|----------|-------|-------|
| | | |

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



16 With Heavy Duty Scraper

Symbol
-XC4

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 | | |
| | | 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-Z1 | Double acting, Single rod | Applicable to ø32 to ø63 | |
| | | CG1-Z | Double acting, Single rod | Applicable to ø32 to ø63 | |
| MB | Air cylinder | MB-Z | Double acting, Single rod | Except ø125 | |
| | | MBW-Z | Double acting, Double rod | Except ø125 | |
| MB1 | Air cylinder | MB1-Z | Double acting, Single rod | Except ø125 | |
| | | MB1W-Z | Double acting, Double rod | Except ø125 | |
| CA2 * | Air cylinder | CA2-Z | Double acting, Single rod | | |
| | | 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 | | |
| | | CS1W | Double acting, Double rod | | |
| CS2 | Air cylinder | CS2 | Double acting, Single rod | Applicable to ø125 to ø250 | |
| | | CS2W | Double acting, Double rod | Applicable to ø125 to ø160 | |
| CQ2 | Air cylinder | CQ2-Z | Double acting, Single rod | Applicable to ø20 to ø100 The only mounting option selectable for sizes ø20 to ø32 is the (B) through-hole. | |
| | | 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 | | |
| CV | Valve mounted air cylinder | CVM5 | Double acting, Single rod | | |
| | | CV3 | Double acting, Single rod | | |
| | | CVS1 | Double acting, Single rod | | |
| MGP | Compact guide cylinder | MGPM-Z | Double acting | Applicable to ø20 to ø100 | |
| | | 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 | |
| MGC | Guide cylinder | MGC | Double acting | Applicable to ø32 to ø50 | |
| CNA2 | Cylinder with lock | CNA2 | Double acting, Single rod | | |
| CNG | Cylinder with lock | CNG | Double acting, Single rod | Applicable to ø32, ø40 | |
| MK | Rotary clamp cylinder | MK-Z | Double acting | Applicable to ø16 to ø63 (Rod flange type only applicable to ø32 to ø63) | |

Web Catalog

* 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 1482.

⚠ 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.

For CS2 series bore sizes ø125 to ø160, the entire rod cover assembly will need to be replaced. For bore sizes ø180 to ø250, a special tool is required for replacement, and therefore the product will need to be sent in for factory repair.

Specifications: Same as standard type

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

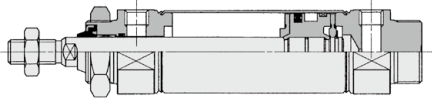


16 With Heavy Duty Scraper

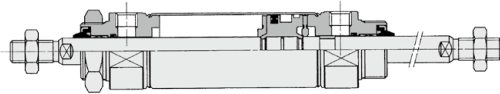
Symbol
-XC4

Construction (Dimensions are the same as standard.)

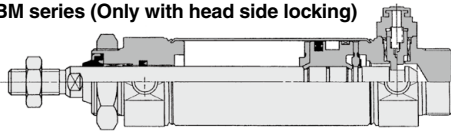
CM2 series Refer to page 1479 for the female rod end.



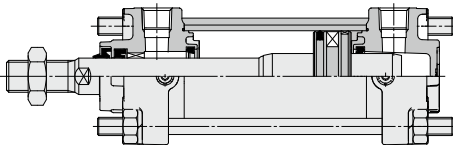
CM2W series Refer to page 1479 for the female rod end.



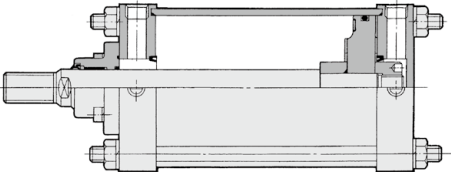
CBM series (Only with head side locking)



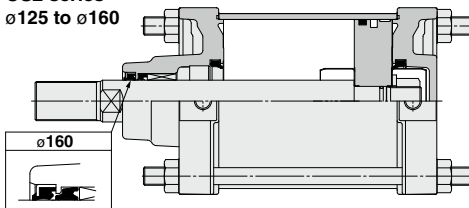
CA2 series



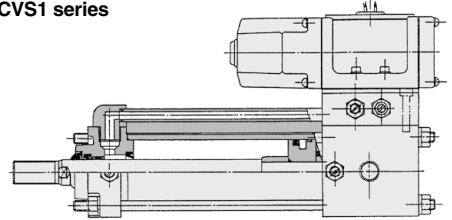
CS1 series



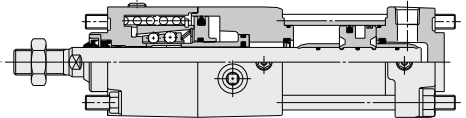
CS2 series
ø125 to ø160



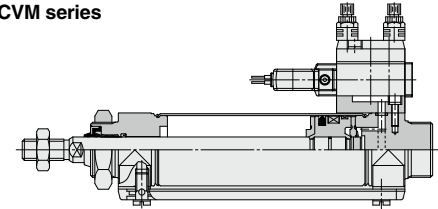
CVS1 series



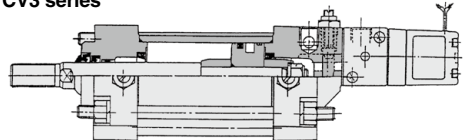
CNA2 series



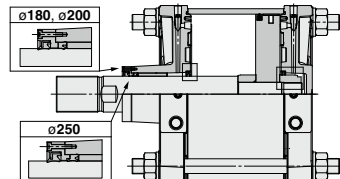
CVM series



CV3 series



ø180 to ø250 Refer to page 1479 for dimensions.



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



16 With Heavy Duty Scraper

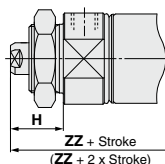
Symbol
-XC4

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

CM2 series CM2W series

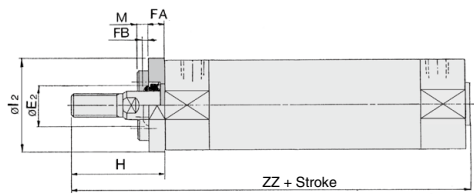
* (): Denotes the dimensions for the CM2W series.

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 |

CG1-Z1 series CG1 series



CG1 Series

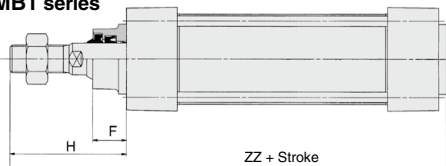
| Bore size | Stroke range | | E ₂ | FA | FB | M | l ₂ | H | | ZZ | |
|-----------|--------------|-------|----------------|-----|----|----|----------------|-------------|---------------|---------------------------|---------------|
| | CG1-Z1 | CG1-Z | | | | | | Male thread | Female thread | Male thread | Female thread |
| | | | | | | | | 32 | Up to 1000 | Up to 300 (Up to 1500) | 17 |
| 40 | 21 | 8 | 3 | 3.5 | 47 | 58 | 29 | 138 (147) | | | 109 (118) |
| 50 | 26 | 9 | 3 | 4.5 | 58 | 66 | 30 | 158 (170) | | | 122 (134) |
| 63 | 26 | 9 | 3 | 5.5 | 72 | 66 | 30 | 158 (170) | | | 122 (134) |

Note) (): Long stroke

* 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).

MB series

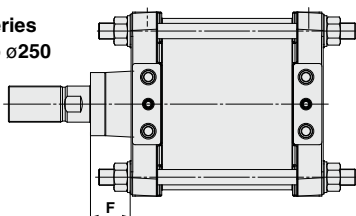
MB1 series



MB, MB1 Series

| Bore size | F | H | ZZ |
|-----------|----|----|-----|
| 32 | 13 | 47 | 135 |
| 40 | 13 | 58 | 146 |
| 50 | 14 | 67 | 165 |
| 63 | 14 | 67 | 165 |
| 80 | 20 | 81 | 199 |
| 100 | 20 | 81 | 199 |

CS2 series ø180 to ø250



CS2 Series

| Bore size | F |
|-----------|----|
| ø180 | 42 |
| ø200 | 46 |
| ø250 | 57 |

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



16 With Heavy Duty Scraper

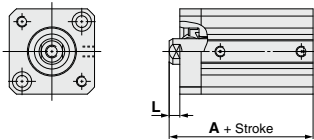
Symbol
-XC4

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

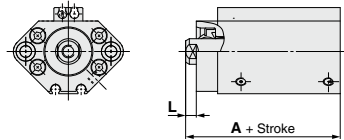
CQ2 series

Double acting, Single rod

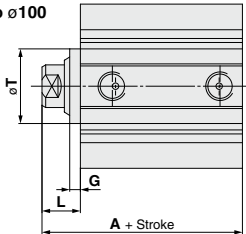
ø20, ø25 (Without auto switch magnet), ø32



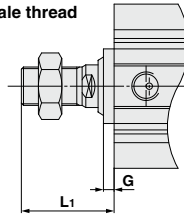
ø20, ø25 (With auto switch magnet)



ø40 to ø100



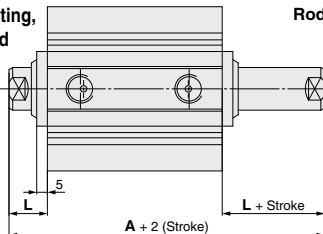
Rod end male thread



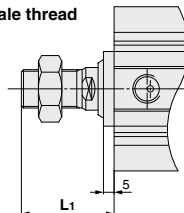
| Bore size [mm] | A | | | G | | L | | L1 | | T |
|-------------------|----------------------|-------------------|----------------------|-----------------------|-----------------------|-----------------------|----------------------|-----------------------|----------------------|----|
| | 50 mm stroke or less | 75, 100 mm stroke | 125 to 300 mm stroke | 100 mm stroke or less | 125 mm stroke or more | 100 mm stroke or less | 125 to 300 mm stroke | 100 mm stroke or less | 125 to 300 mm stroke | |
| 20 | 34 (46) | — | — | — | — | 4.5 | — | 18.5 | — | — |
| 25 | 37.5 (47.5) | — | — | — | — | 5 | — | 22.5 | — | — |
| 32 | 40 (50) | 50 | 67.5 | — | — | 7 | 12 | 28.5 | 33.5 | — |
| 40 | 46.5 (56.5) | 56.5 | 77 | 5 | 10 | 17 | 22 | 38.5 | 43.5 | 28 |
| 50 | 48.5 (58.5) | 58.5 | 78.5 | 5 | 10 | 18 | 23 | 43.5 | 48.5 | 35 |
| 63 | 54 (64) | 64 | 80 | 5 | 10 | 18 | 23 | 43.5 | 48.5 | 35 |
| 80 | 63.5 (73.5) | 73.5 | 91 | 5 | 10 | 20 | 25 | 53.5 | 58.5 | 43 |
| 100 | 75 (85) | 85 | 102.5 | 5 | 10 | 22 | 27 | 53.5 | 58.5 | 59 |

(): Dimensions with auto switch magnet

Double acting, Double rod



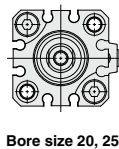
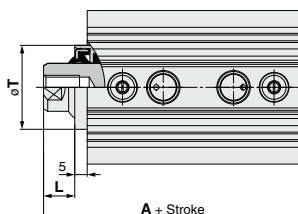
Rod end male thread



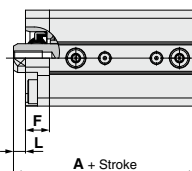
| Bore size [mm] | A | | L | L1 |
|-------------------|--------------------|-------------------|----|------|
| | Up to 50 mm stroke | 75, 100 mm stroke | | |
| 40 | 46.5 (56.5) | 56.5 | 17 | 38.5 |
| 50 | 48.5 (58.5) | 58.5 | 18 | 43.5 |
| 63 | 54 (64) | 64 | 18 | 43.5 |
| 80 | 63.5 (73.5) | 73.5 | 20 | 53.5 |
| 100 | 75 (85) | 85 | 22 | 53.5 |

(): Dimensions with auto switch magnet

RQ series



Bore size 20, 25



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

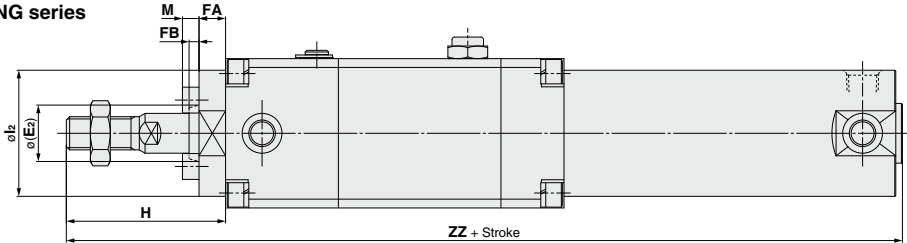


16 With Heavy Duty Scraper

Symbol
-XC4

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

CNG series

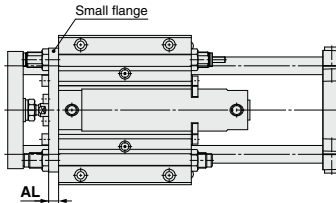


| Bore size | E ₂ | FA | FB | M | l ₂ | H | ZZ |
|-----------|----------------|----|----|-----|----------------|----|-----|
| 32 | 17 | 8 | 3 | 5 | 38 | 48 | 204 |
| 40 | 21 | 8 | 3 | 3.5 | 47 | 58 | 229 |

| | 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

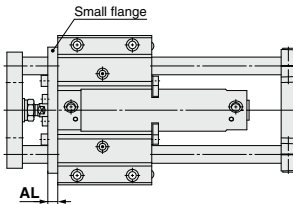


| (mm) | |
|----------------|----|
| Bore size (mm) | AL |
| 32 | 9 |
| 40 | 12 |
| 50 | 12 |

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



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

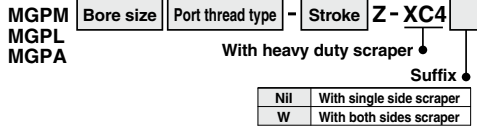
Made to Order Common Specifications: -XC4: With Heavy Duty Scraper



16 With Heavy Duty Scraper

Symbol
-XC4

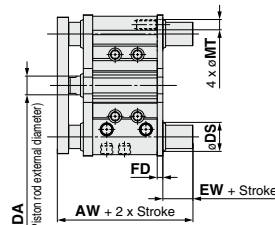
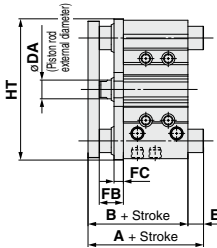
How to Order/MGP



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 | 0.12 MPa 0.14 MPa | |
| Specifications other than above | 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* | |
|----------------|-------|----|----|-----|------|-----------|
| | | | | | 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 | 127.5 | 6 | 23 | 47 | 80 |
| 25 | 75.5 | 91.5 | 110.5 | 127.5 | 12 | 28 | 47 | 93 |

| Bore size (mm) | A | | | E | | | HT | | |
|----------------|---------------|---------------------|-------------|---------------|---------------------|-------------|------|------|-----|
| | 50 st or less | Over 50 st to 50 st | Over 200 st | 50 st or less | Over 50 st to 50 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 200 st | 25 st or less | Over 25 st to 50 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: -XC4: With Heavy Duty Scraper



16 With Heavy Duty Scraper

Symbol
-XC4

How to Order/MK

MKB
MKF Bore size Port thread type - Clamp stroke Rotary direction Body option Z - Auto switch - **XC4**
MKG * MKF only applicable to ø32 to ø63
With heavy duty scraper

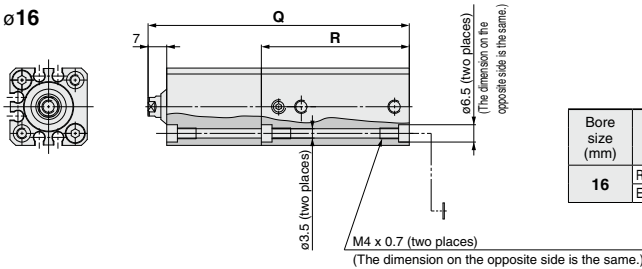
Specifications

| | | | | | | | |
|---------------------------------|-----------------------|----|----|-----------|----|----|----|
| Bore size (mm) | 16 | 20 | 25 | 32 | 40 | 50 | 63 |
| Minimum operating pressure | 0.15 MPa | | | (0.1 MPa) | | | |
| Specifications other than above | Same as standard type | | | | | | |

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

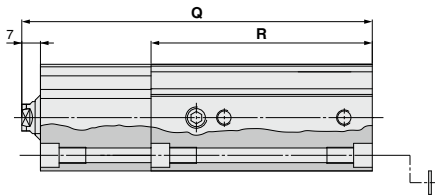
Dimensions (Dimensions other than below are the same as standard type.)

ø16



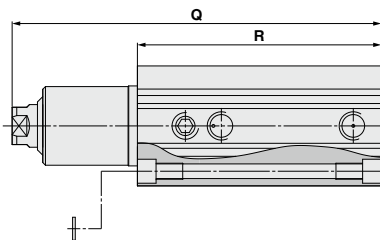
| Bore size (mm) | Rod state | Clamp stroke | | | | | |
|----------------|-----------|--------------|------|-------|------|-------|------|
| | | 10 mm | | 20 mm | | 30 mm | |
| | | Q | R | Q | R | Q | R |
| 16 | Retracted | 78 | 45.5 | 98 | 55.5 | 118 | 65.5 |
| | Extended | 95.5 | | 125.5 | | 155.5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

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)

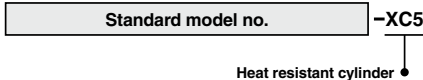
Symbol
-XC5

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 | | Web Catalog |
| | | 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 with rubber bumper, with auto switch | |
| | | MBW-Z | Double acting, Double rod | Except with rubber bumper, with auto switch | |
| MB1 | Air cylinder | MB1-Z | Double acting, Single rod | Except with rubber bumper, with auto switch | |
| | | MB1W-Z | Double acting, Double rod | Except with rubber bumper, with auto switch | |
| CA2 | Air cylinder | CA2-Z | Double acting, Single rod | | |
| | | CA2W-Z | Double acting, Double rod | | |
| CS1* | Air cylinder | CS1 | Double acting, Single rod | | |
| | | CS1W | Double acting, Double rod | | |
| CS2 | Air cylinder | CS2 | Double acting, Single rod | Applicable to ø125 to ø160 | |
| | | CS2W | Double acting, Double rod | Applicable to ø125 to ø160 | |

How to Order



- 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

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 ⁽²⁾ |
| Specifications other than above and external dimensions | Same as standard type |

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



18 Made of Stainless Steel

Symbol
-XC6

The piston rod and rod end nut (male thread only) of this model are made of stainless steel. This model is suitable for applications in which the end of the piston rod is to be immersed in water, etc., and there is concern regarding the generation of rust or corrosion.

Applicable Series

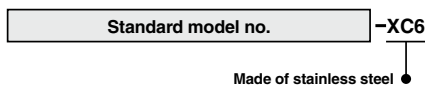
| Series | Description | Model | Action | Vol. no. (for std model) |
|-----------------------------------|-------------------------------------|---------------------------|--|--------------------------|
| CM2 | Air cylinder | CM2-Z1 | Double acting, Single rod | Web Catalog |
| | | CM2-Z | Double acting, Single rod | |
| | | CM2W-Z | Single acting (Spring return) Double rod | |
| | Non-rotating rod type | CM2K-Z | Double acting, Single rod | |
| | | CM2KW-Z | Single acting (Spring return) 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□□ | Double acting, Single rod | |
| | Smooth cylinder ⁽⁵⁾ | 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 ⁽⁶⁾ | Double acting, Single rod | | |
| CG1 | Air cylinder | CG1-Z1 | Double acting, Single rod | Web Catalog |
| | | CG1-Z | Double acting, Single rod | |
| | Double rod type | CG1W-Z | Double acting, Double rod | |
| | Direct mount type | CG1R-Z | Double acting, Single rod | |
| | Smooth cylinder ⁽⁵⁾ | CG1Y-Z | Double acting, Single rod | |
| MB ⁽²⁾ | Air cylinder | MB-Z ⁽⁴⁾ | Double acting, Single rod | |
| | | MBW-Z ⁽⁴⁾ | Double acting, Double rod | |
| MB1 ⁽²⁾ | Air cylinder | MB1-Z ⁽⁴⁾ | Double acting, Single rod | |
| | End lock cylinder | CBA2 ⁽¹⁾ | Double acting, Single rod | |
| CA2 ⁽²⁾ | Air-hydro type | CA2□H | Double acting, Single rod | |
| | | CA2W□H | Double acting, Double rod | |
| CS1 ⁽²⁾ | Air cylinder | CS1 | Double acting, Single rod | |
| | Air-hydro type | CS1W | Double acting, Double rod | |
| | | CS1□H | Double acting, Single rod | |

| Series | Description | Model | Action | Vol. no. (for std model) |
|------------|-----------------------------------|---------------------------|--|--------------------------|
| CQS | Compact cylinder | CQS | Double acting, Single rod | Web Catalog |
| | | CQSW | Single acting (Spring return) 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 | |
| | | CQ2W-Z | Single acting (Spring return) Double rod | |
| | Axial piping (Centralized piping) | CQP2-Z | Double acting, Single rod | |
| | | CQ2□S-Z | Single acting (Spring return) Double rod | |
| | Long stroke | CQ2-Z | Double acting, Single rod | |
| | Anti-lateral load | CQ2□S-Z | Double acting, Single rod | |
| | Water resistant | CQ2-R/V-Z | Double acting, Single rod | |
| CQ2W-R/V-Z | | Double acting, Double rod | | |
| MU | Plate cylinder | MU-Z | Double acting, Single rod | |
| MGP | Compact guide cylinder | MGP-Z | Double acting | |
| MGG | Guide cylinder | MGG | Double acting | |
| MGC | Guide cylinder | MGC | Double acting | |
| CXS | Dual rod cylinder | CXSM | Double acting | |
| CXSJ | Dual rod cylinder compact type | CXSJM | Double acting | |
| RHC | High power cylinder | RHC | Double acting | |
| CV | Valve mounted air cylinder | CVM5 | Double acting, Single rod | |
| | | CVS1 | Double acting, Single rod | |

- Note 1) Head side locking type only
 Note 2) There is a maximum stroke limit for CA2, MB, MB1 and CS1 cylinders.
 Note 3) The MB-Z, MB1-Z, and CA2-Z made of stainless steel are applicable as "-XC6".
 Note 4) Only available for ø125 type.
 Note 5) Keep in mind that poor lubrication of the piston rod sliding surface may result in the specifications stated in the catalog not being satisfied.
 Note 6) Double end lock is available as a special order.

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 | ○ | ○ | ○ | ○ | ○ | ○ | Web Catalog |
| CG1 | 20, 25, 32, 40, 50, 63, 80, 100 | ○* | ○* | ○ | ○ | — | ○ | |
| CQ2 | 20, 25, 32, 40, 50, 63, 80, 100 | — | — | ○ | ○ | — | ○ | |

* Except bore size 20 and 25.

Maximum Stroke

| Series | Double acting, Single rod | Double acting single rod with rod boot |
|--------------|---------------------------|--|
| CA2, MB, MB1 | CA2: 1500 MB-MB1: 1700 | 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.

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

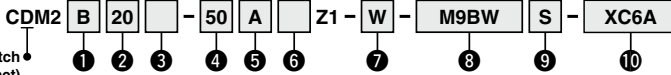


18 Made of Stainless Steel

Symbol
-XC6

Suitable for environments where rust and corrosion are likely to be generated

How to Order/CM2-Z1



With auto switch
(Built-in magnet)

1 Mounting

| | |
|-----------|----------------------------|
| B | Basic (Double-side bossed) |
| L | Axial foot |
| F | Rod flange |
| G | Head flange |
| C | Single clevis*1 |
| D | Double clevis*1 |
| U | Rod trunnion*1 |
| T | Head trunnion*1 |
| E | Integrated clevis |
| V | Integrated clevis (90°) |
| BZ | Boss-cut/Basic |
| FZ | Boss-cut/Rod flange |
| UZ | Boss-cut/Rod trunnion*1 |

*1 Only applicable to the XC6A

2 Bore size

| | |
|-----------|-------|
| 20 | 20 mm |
| 25 | 25 mm |
| 32 | 32 mm |
| 40 | 40 mm |

3 Port thread type

| | |
|------------|-----|
| Nil | Rc |
| TN | NPT |
| TF | G |

4 Stroke

Refer to Table 1 for applicable strokes.

5 Cushion

| | |
|------------|---------------|
| Nil | Rubber bumper |
| A | Air cushion |

6 Rod end thread

| | |
|------------|----------------|
| Nil | Male rod end |
| F | Female rod end |

7 Rod end bracket

| | |
|------------|----------------------|
| Nil | No bracket |
| V | Single knuckle joint |
| W | Double knuckle joint |

* No bracket is provided for the female rod end.

8 Auto switch

For auto switch models, refer to the table of applicable auto switches.

9 Number of auto switches

| | |
|------------|---|
| Nil | 2 |
| S | 1 |
| n | n |

10 Made to order

| | |
|-------------|--|
| XC6A | Stainless steel rod + Stainless steel end nut |
| XC6B | Stainless steel rod + Stainless steel end nut + Stainless steel mounting nut + Retaining ring + Bracket |

Table 1. Applicable Strokes

| Bore size [mm] | Standard stroke [mm] | Max. manufacturable stroke [mm] |
|----------------|----------------------|---------------------------------|
| 20 | | 1000 |
| 25 | 25, 50, 75, 100, | |
| 32 | 125, 150, 200, | |
| 40 | 250, 300 | |

* The manufacturing of intermediate strokes in 1 mm increments is possible.

Specifications

| | | |
|---|------------------------------------|---|
| Material | Stainless steel | |
| Changed parts | XC6A | Piston rod, Rod end nut |
| | XC6B | Piston rod, Rod end nut, Retaining ring, Mounting nut Bracket (Refer to the mounting brackets in the table below.) |
| Specifications other than the above and dimensions | Same as those of the standard type | |

* The pivot bracket must be ordered separately. (Refer to the mounting brackets in the table below.)

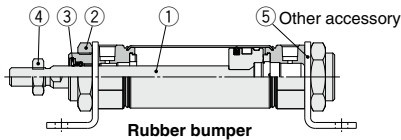
* Rod end is not affected by this option and should be managed separately.

* The materials of the cushion needle are the same as standard. It is made from iron and nickel.

Construction

XC6A, XC6B construction

The material of the components below will be changed from standard and those not mentioned will remain the same as standard.



| No. | 1 | 2 | 3 | 4 | 5 |
|--------------------|-------------------|---------------------|-----------------------|--------------------|---|
| Description | Piston rod | Mounting nut | Retaining ring | Rod end nut | Bracket (Refer to the mounting brackets below.) |
| XC6A | Stainless steel | No change (Steel) | No change (Steel) | Stainless steel | No change (Steel) |
| XC6B | Stainless steel | Stainless steel | Stainless steel | Stainless steel | Stainless steel |

Mounting Brackets/Part Nos.

| Mounting bracket | Min. order quantity | Bore size [mm] | | | | Contents (for min. order quantity) |
|----------------------|---------------------|----------------|---------------|---------------|----|--|
| | | 20 | 25 | 32 | 40 | |
| Foot*1 | 2 | CM-L020B-XB12 | CM-L032B-XB12 | CM-L040B-XB12 | | 2 foot brackets, 1 mounting nut |
| Foot | 1 | CM-L020BSUS | CM-L032BSUS | CM-L040BSUS | | 1 foot bracket*2 |
| Flange | 1 | CM-F020BSUS | CM-F032BSUS | CM-F040BSUS | | 1 flange*2 |
| Rod end nut | 1 | NT-02SUS | NT-03SUS | NT-04SUS | | 1 rod end nut |
| Mounting nut | 1 | SN-020BSUS | SN-032BSUS | SN-040BSUS | | 1 mounting nut |
| Single knuckle joint | 1 | I-020BSUS | I-032BSUS | I-040BSUS | | 1 single knuckle joint |
| Double knuckle joint | 1 | Y-020BSUS | Y-032BSUS | Y-040BSUS | | 1 double knuckle joint, 1 clevis pin, 2 retaining rings (split pins) |

*1 Order two foot brackets per cylinder.

*2 The mounting nut is not included. Order it separately as required.

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



18 Made of Stainless Steel

Symbol
-XC6

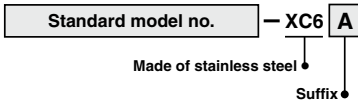
CQ2□^R_V Series

Applicable Series

| Description | Model | Action |
|-----------------|---------------------------------|---------------------------|
| Water resistant | CQ2□ ^R _V | Double acting, Single rod |
| | CQ2W□ ^R _V | Double acting, Double rod |

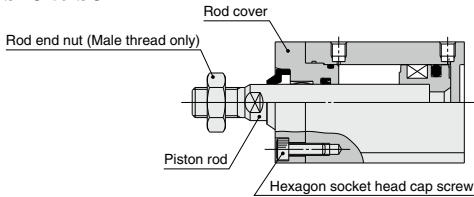
How to Order

C□Q2□^R_V
C□Q2W□^R_V



| | |
|------------|---|
| Nil | Piston rod/Retaining ring/Rod end nut material: Stainless steel |
| A | Piston rod/Rod end nut/Cover holding bolt material: Stainless steel |

ø20 to ø32



Specifications

| Parts changed to stainless steel | XC6 | Retaining ring, Piston rod, Rod end nut |
|----------------------------------|--------------------|---|
| | XC6A ^{*1} | Piston rod, Rod end nut, Cover holding bolt |

| Specifications other than the above and dimensions | Same as the standard type |
|--|---------------------------|
|--|---------------------------|

*1 -XC6A is only applicable to ø20, ø25, and ø32 of the double acting, single rod type.

Stainless steel rod end brackets (single knuckle joint, double knuckle joint) are also available.

For details ⇨ [Web Catalog](#)

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



18 Made of Stainless Steel

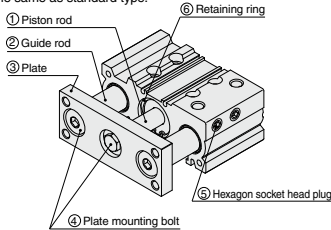
Symbol
-XC6

MGP series

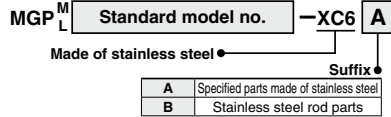
Specified Parts Changed to Stainless Steel

| | |
|------|------------------|
| 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.



How to Order



Dimensions

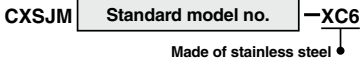
| Bore size (mm) | XC6A | | | XC6B |
|----------------|------|----|----|------|
| | DA | FA | FB | DA |
| 12 | (6) | 8 | 5 | (6) |
| 16 | (8) | 8 | 5 | (8) |
| 20 | (10) | 9 | 7 | (10) |
| 25 | (10) | 10 | 6 | (10) |
| 32 | (14) | 12 | 10 | (14) |
| 40 | (14) | 12 | 10 | (14) |
| 50 | 20 | 16 | 12 |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

(mm)

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

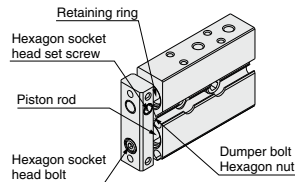
CXSJM series

How to Order



Specifications

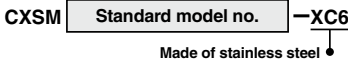
| | |
|---|---|
| Parts changed to stainless steel | Piston rod, retaining ring, hexagon socket head bolt, hexagon socket head set screw, dumper bolt, hexagon nut |
| Specifications other than above and external dimensions | Same as standard |



Note) The head cover retaining ring for $\phi 6$ is made of special steel.

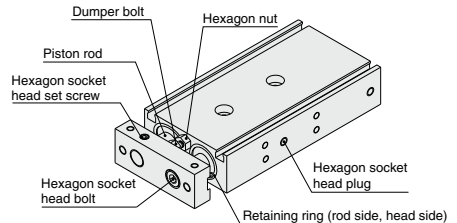
CXSM series

How to Order



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 |



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



18 Made of Stainless Steel

Symbol
-XC6

The piston rod, rod end nut, and other specified parts of this model are made of stainless steel. This model is suitable for applications in which the plate is to be immersed in water, etc., and there is concern regarding the generation of rust or corrosion.

MGG series

How to Order

MGG Standard model no. **-XC6** **Suffix**

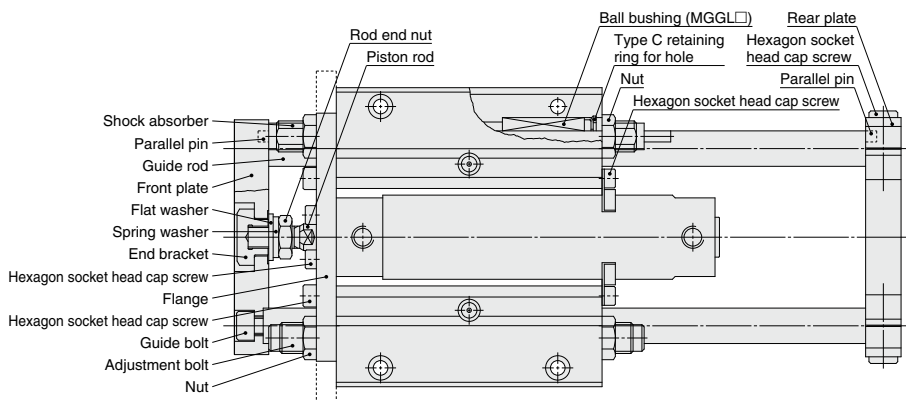
Made of stainless steel ●

| 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 |

Specified Parts Changed to Stainless Steel

| Symbol | Basic cylinder | Guide unit |
|--|--|---|
| -XC6 | | — |
| -XC6A | CDG1Z20 to 63-□Z-XC6 CDG1B20 to 100-□Z-XC6 (Piston rod, Rod end nut) | Flange, Front plate, Rear plate, Ball bushing (MGG□), Guide rod, End bracket, Flat washer, Spring washer, Type C retaining ring for hole, Adjustment bolt, Nut, Parallel pin, Hexagon socket head cap screw, Guide bolt |
| -XC6B | | Front plate, Guide rod, End bracket, Flat washer, Spring washer, Parallel pin (for front plate), Guide bolt |
| -XC6C | | Guide rod |
| Specifications other than above | | Same as 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□B20 to 50-□XC6A

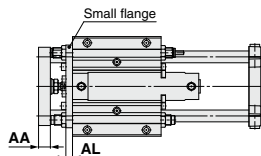
MGG□B20 to 50-□XC6B

MGG□B20 to 50-□XC6C

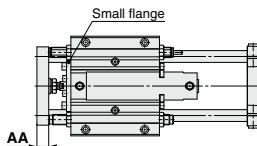
MGG□F20 to 50-□XC6A

MGG□F20 to 50-□XC6B

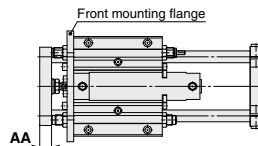
MGG□F20 to 50-□XC6C



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



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



| Bore size (mm) | (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

The piston rod, rod end nut, and other specified parts of this model are made of stainless steel. This model is suitable for applications in which the plate is to be immersed in water, etc., and there is concern regarding the generation of rust or corrosion.

MGC series

How to Order

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

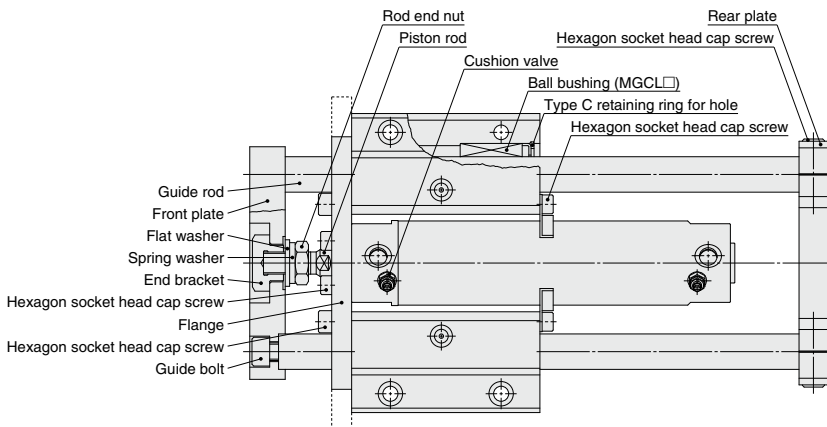
Note) For the XC6A, XC6B, and XC6C, this symbol is displayed when the D-A9□ or M9□ type auto switch is specified. It does not apply to other auto switches (such as the D-C7□ and H7□). (Nil)

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 |

Specified Parts Changed to Stainless Steel

| Symbol | Basic cylinder | Guide unit |
|---------------------------------|--|--|
| -XC6 | CDG1ZA20 to 50-□-XC6 (Piston rod, Rod end nut) | — |
| -XC6A | CDG1BA20 to 50-□-X1057 (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 above | | Same as standard type |



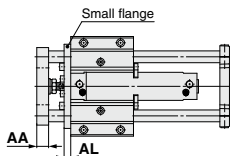
Dimensions (Dimensions other than below are the same as standard type.)

MGC□B20 to 50-□-XC6A

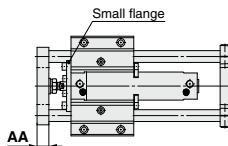
MGC□B20 to 50-□-XC6B

MGC□F20 to 50-□-XC6A

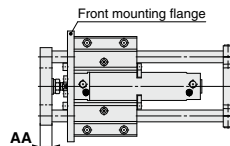
MGC□F20 to 50-□-XC6B



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



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



| Bore size (mm) | (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) |
|-----------------|-------------------------|---------------------------|---------------------------|-------------|--------------------------|
| MB | Standard type | MB-Z | Double acting, Single rod | Except ø125 | |
| | | 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 locks | MBB | Double acting, Single rod | | |
| Smooth cylinder | MBY-Z | Double acting, Single rod | | | |
| MB1 | Standard type | MB1-Z | Double acting, Single rod | Except ø125 | Web Catalog |
| | | MB1W-Z | Double acting, Double rod | Except ø125 | |
| | Non-rotating rod type | MB1K-Z | Double acting, Single rod | | |
| CA2 | Standard type | CA2-Z | Double acting, Single rod | | |
| | | 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 | | |
| | Air-hydro cylinder | CA2H | Double acting, Single rod | | |
| | | CA2HW | Double acting, Double rod | | |
| | Smooth cylinder | CA2Y-Z | 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, Retaining ring |
| 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

Symbol
-XC8

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 | | |
| | Air cylinder | CM2-Z | Double acting | Except boss-cut and clevis types | | |
| | 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 | | |
| CM2 | Air-hydro type | CM2H-Z | Double acting | Except clevis type | | |
| | Direct mount type, air-hydro type | CM2HR-Z | Double acting | Head cover is equipped with boss. | | |
| | CG1 | 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 |
| MB | Direct mount, Non-rotating rod type | CG1KR-Z | Double acting | Except with air cushion | | |
| | Air cylinder | MB-Z | Double acting | Except ø125, with rubber bumper, with auto switch, head side flange and clevis types | | |
| | 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 | | |
| | 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 | | |
| | 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 | | |
| | Air-hydro type | CS1H | Double acting | Except head side flange and clevis types | | |
| CU | Free mount cylinder | CU | Double acting | | | |
| | Long stroke | CU | Double acting | | | |
| CQS | Compact cylinder | CQS | Double acting | Except with rubber bumper and with mounting bracket | | |
| | 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 | | |
| | 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 | | | |
| MGP | Compact guide cylinder | MGPM-Z | Double acting | | | |
| | | MGPL-Z | Double acting | | | |
| | | MGPA-Z | Double acting | | | |
| MGG | Guide cylinder | MGG | Double acting | | | |
| MGC | Guide cylinder | MGC | Double acting | | | |

Web Catalog

How to Order

CJ2 -

CM2 -

CG1 -

CBM2 - - -

CBA2 - - -

MB -

MB1 -

* Except head side flange and clevis types

CA2 -

* Except head side flange and clevis types

CA2K - -

* Except head side flange and clevis types

CS1 - -

* Except head side flange and clevis types

CU - -

CQSB - -

CQ2B(H) - -

MTS - -

MGP -

MGG - -

MGC - - -

Adjustable stroke cylinder/Adjustable extend type

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



20 Adjustable Stroke Cylinder/Adjustable Extension Type

Symbol
-XC8

Specifications

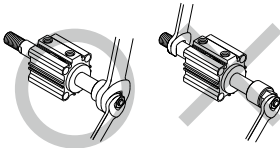
| Series | Stroke adjustment symbol | Stroke adjustment range (mm) |
|---------------------------------------|--------------------------|------------------------------|
| CJ2 | — | 0 to 15 |
| CM2 CG1 MB MB1 CA2 CS1 | A | 0 to 25 |
| | B | 0 to 50 |
| CU | A | 0 to 10 |
| | B | 0 to 20 |
| | C | 0 to 30 |
| CQ2 CQS | — | 0 to 10 |
| MGG MGC | A | 0 to 25 |
| | B | 0 to 50 |

| Series | Stroke adjustment symbol | Stroke adjustment range (mm) |
|---------------------------------|--------------------------|------------------------------------|
| MGP | A | 0 to 10 |
| | B | 0 to 25 |
| MTS | — | 0 to 10 ($\phi 8$) |
| | | 0 to 25 ($\phi 12$ to $\phi 40$) |
| Specifications other than above | | Same as standard type |

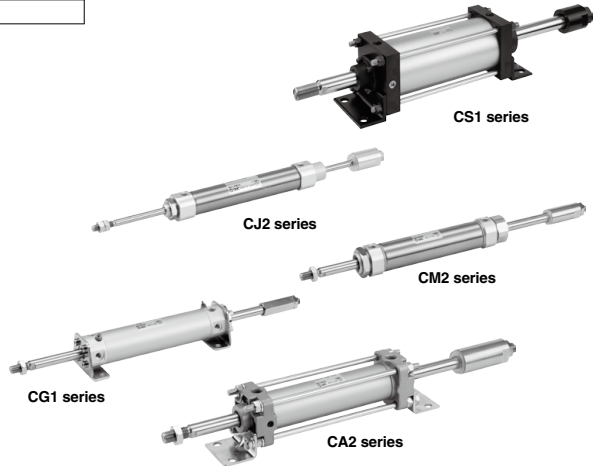
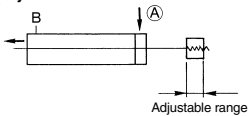
Precautions

⚠ 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

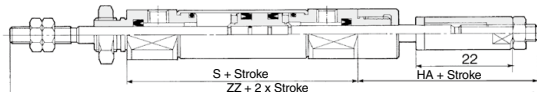


20 Adjustable Stroke Cylinder/Adjustable Extension Type

Symbol
-XC8

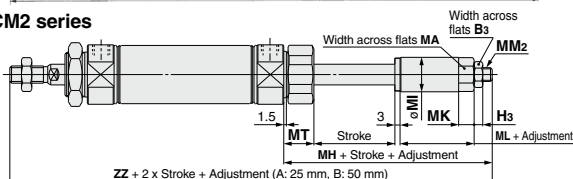
Dimensions (Dimensions other than below are the same as standard type.)

CJ2 series



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

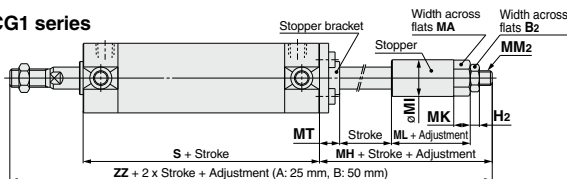
CM2 series



CM2 Series

| Bore size (mm) | B ₃ | H ₃ | MA | MI | MK | MM ₂ | 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

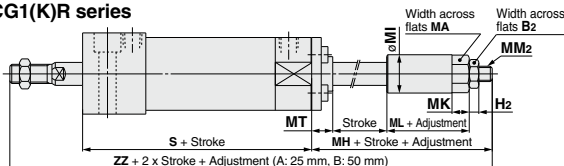


CG1 Series

| Bore size (mm) | B ₂ | H ₂ | MA | MH | MI | MK | ML | MM ₂ | 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(KR) series



CG1(KR) Series

| Bore size (mm) | B ₂ | H ₂ | MA | MH | MI | MK | ML | MM ₂ | 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: -XC8: Adjustable Stroke Cylinder/Adjustable Extension Type

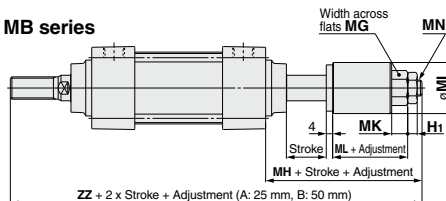


20 Adjustable Stroke Cylinder/Adjustable Extension Type

Symbol
-XC8

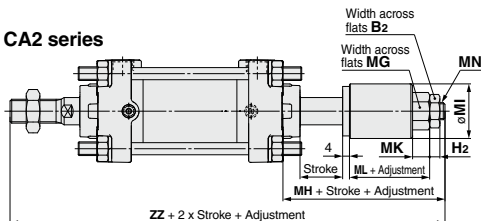
Dimensions (Dimensions other than below are the same as standard type.)

MB series



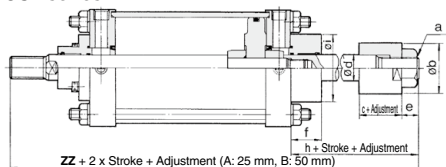
| Bore size (mm) | MG | MH | MI | MK | ML | MN | ZZ |
|----------------|----|----|----|----|----|------------|-----|
| 32 | 17 | 44 | 23 | 9 | 20 | M8 x 1.25 | 175 |
| 40 | 19 | 48 | 32 | 10 | 22 | M10 x 1.25 | 183 |
| 50 | 24 | 53 | 38 | 13 | 24 | M14 x 1.5 | 205 |
| 63 | 24 | 53 | 38 | 13 | 24 | M14 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 |

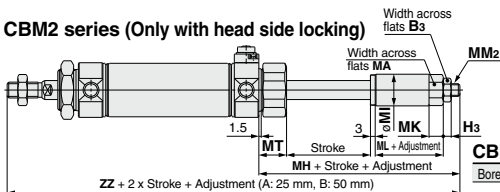
CS1 series



| 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 |

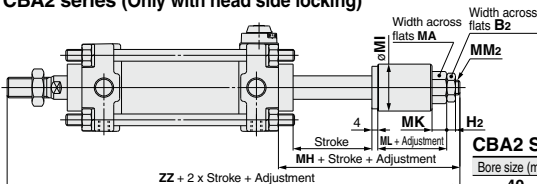
* With auto switch ø180: 382.5, ø200: 387.5

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

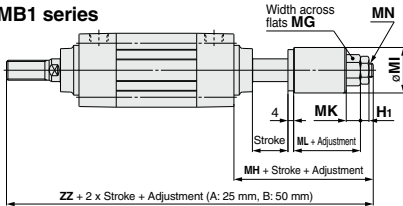


20 Adjustable Stroke Cylinder/Adjustable Extension Type

Symbol
-XC8

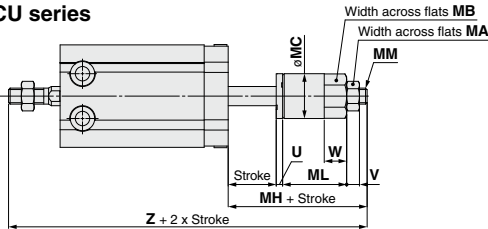
Dimensions (Dimensions other than below are the same as standard type.)

MB1 series



| Bore size | MG | MH | MI | MK | ML | MN | ZZ | (mm) |
|-----------|----|----|----|----|----|------------|-----|------|
| 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 | |

CU series



| Bore size | MA | MB | oMC | MM | U | V | W | Adjustment A: 0 to 10 | | | Adjustment B: 0 to 20 | | | Adjustment C: 0 to 30 | | |
|-----------|----|----|-----|------------|-----|-----|---|-----------------------|------|---------------|-----------------------|------|---------------|-----------------------|------|---------------|
| | | | | | | | | MH | ML | Z | MH | ML | Z | MH | ML | Z |
| 10 | 7 | 8 | 10 | M4 x 0.7 | 1.5 | 2.4 | 5 | 25 | 19 | 83 | 35 | 29 | 93 | 45 | 39 | 103 |
| 16 | 8 | 12 | 14 | M5 x 0.8 | 2 | 4 | 7 | 28.5 | 20 | 82 (92) | 38.5 | 30 | 92 (102) | 48.5 | 40 | 102 (112) |
| 20 | 10 | 15 | 18 | M6 x 1.0 | 2 | 5 | 7 | 32 | 22 | 95.8 (105.8) | 42 | 32 | 105.8 (115.8) | 52 | 42 | 115.8 (125.8) |
| 25 | 13 | 17 | 20 | M8 x 1.25 | 3 | 5 | 9 | 38 | 26 | 110 (120) | 48 | 36 | 120 (130) | 58 | 46 | 130 (140) |
| 32 | 17 | 17 | 20 | M10 x 1.25 | 3 | 6 | 9 | 37.3 | 24.5 | 118.8 (128.8) | 47.3 | 34.5 | 128.8 (138.8) | 57.3 | 44.5 | 138.8 (148.8) |

Note1 (): Denotes the dimensions with auto switch.

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



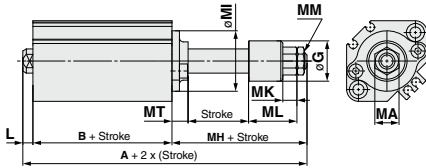
20 Adjustable Stroke Cylinder/Adjustable Extension Type

Symbol
-XC8

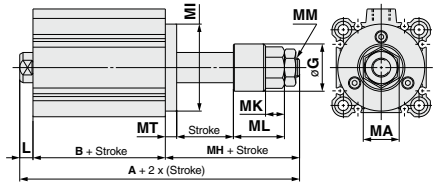
Dimensions (Dimensions other than below are the same as standard type.)

CQ2, CQ2H series

ø12 to ø25



ø32 to ø100



| Bore size | A | | B | | L | MH | MT | MA | MI | MM | MK | ML | øG | Stroke adjustment range |
|-----------|----------------------|-------------------|----------------------|-------------------|-----|----|----|----|-----------|------------|-----|------|----|-------------------------|
| | 50 mm stroke or less | 75, 100 mm stroke | 50 mm stroke or less | 75, 100 mm stroke | | | | | | | | | | |
| 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) | 88.5 | 30.5 (40.5) | 40.5 | 7 | 41 | 6 | 17 | ø38 | M8 x 1.25 | 9 | 28.5 | 25 | 5 to 50 75,100 |
| 40 | 88 (98) | 98 | 40 (50) | 50 | 7 | 41 | 6 | 19 | ø46 | M10 x 1.25 | 10 | 27 | 25 | 5 to 50 75,100 |
| 50 | 100.5 (110.5) | 110.5 | 40.5 (50.5) | 50.5 | 8 | 52 | 8 | 24 | ø57 | M14 x 1.5 | 13 | 31 | 35 | 10 to 50 75,100 |
| 63 | 102 (112) | 112 | 42 (52) | 52 | 8 | 52 | 10 | 24 | ø68 | M14 x 1.5 | 13 | 31 | 35 | 10 to 50 75,100 |
| 80 | 125 (135) | 135 | 51 (61) | 61 | 10 | 64 | 12 | 32 | ø90 | M20 x 1.5 | 16 | 40 | 45 | 10 to 50 75,100 |
| 100 | 138.5 (148.5) | 148.5 | 60.5 (70.5) | 70.5 | 12 | 66 | 14 | 32 | ø110 | M20 x 1.5 | 16 | 40 | 45 | 10 to 50 75,100 |

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

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

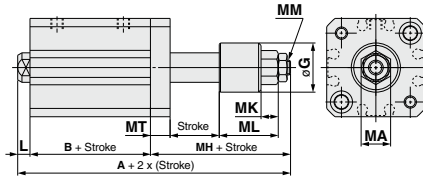


20 Adjustable Stroke Cylinder/Adjustable Extension Type

Symbol
-XC8

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

CQS series

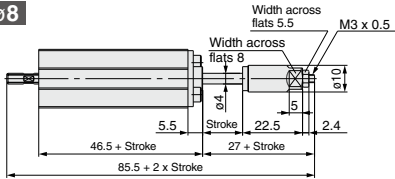


| Bore size | A | B | L | MH | MT | MA | MM | MK | ML | MG | Stroke adjustment range (mm) |
|-----------|-------------|---------|-----|------|----|----|----------|-----|----|----|------------------------------|
| 12 | 56.1 (61.1) | 22 (27) | 3.5 | 30.6 | 5 | 8 | M4 x 0.7 | 5.5 | 20 | 14 | 5 to 30 |
|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

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

MTS series

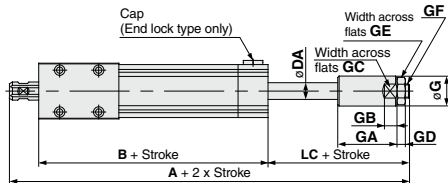
ø8



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 |

ø12 to ø40



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: -XC8: Adjustable Stroke Cylinder/Adjustable Extension Type



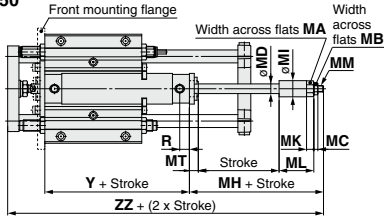
20 Adjustable Stroke Cylinder/Adjustable Extension Type

Symbol
-XC8

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

MGJ series

ø20 to ø50

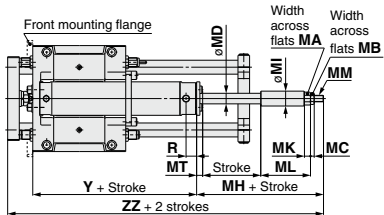


MGJ Series

(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 |

ø63

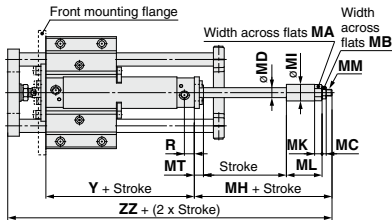


| Bore size (mm) | Adjustment 0 to 25 mm | | | Adjustment 0 to 50 mm | | |
|----------------|-----------------------|----|-----|-----------------------|----|-----|
| | MH | ML | ZZ | MH | ML | ZZ |
| 20 | 63 | 43 | 179 | 88 | 68 | 204 |
| 25 | 66 | 43 | 189 | 91 | 68 | 214 |
| 32 | 66 | 43 | 191 | 91 | 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

ø20 to ø50



MGC Series

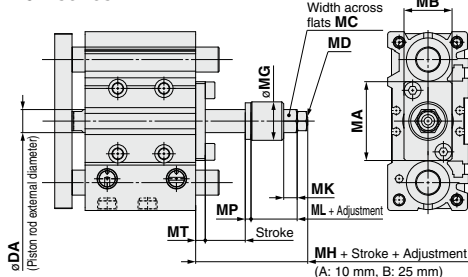
(mm)

| 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.

MGP series



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 | 21 | 5.5 | 10 | 3 | 3 |
| 20 | 10 | 33 | 22 | 12 | M6 x 1 | 20 | 27 | 7 | 14 | 3 | 4 |
| 25 | 12 | 41 | 25 | 12 | M6 x 1 | 20 | 28 | 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 | 34.5 | 10 | 17 | 4 | 6 |
| 50 | 20 | 71 | 38 | 24 | M14 x 1.5 | 35 | 42.5 | 13 | 21 | 4 | 8 |
| 63 | 20 | 84 | 50 | 24 | M14 x 1.5 | 35 | 43 | 13 | 21 | 4 | 8 |
| 80 | 25 | 114 | 50 | 32 | M20 x 1.5 | 45 | 57 | 16 | 30 | 4 | 9 |
| 100 | 30 | 140 | 65 | 32 | M20 x 1.5 | 45 | 60 | 16 | 30 | 4 | 12 |

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



21 Adjustable Stroke Cylinder/Adjustable Retraction Type

Symbol

-XC9

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-side bossed, double clevis type, double foot, head side flange and with air cushion | |
| | Non-rotating rod | CJ2K-Z | Double acting, Single rod | Except double-side bossed, double clevis type, double foot and head side flange | |
| | Direct mount type | CJ2R-Z | Double acting, Single rod | | |
| | Non-rotating rod/Direct mount type | CJ2RK-Z | Double acting, Single rod | | |
| CM2 | Smooth cylinder | CJ2Y-Z | Double acting, Single rod | Except double-side bossed, double clevis type, double foot and head side flange | |
| | Air cylinder | CM2-Z | Double acting, Single rod | Except boss-cut and clevis types | |
| | 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 | |
| CG1 | 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 | |
| | Air cylinder | CG1-Z | Double acting, Single rod | Except head side flange and clevis types, ø80, and ø100 | |
| | Non-rotating rod | CG1K-Z | Double acting, Single rod | Except head side flange, clevis types and with air cushion | |
| MB | 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 | |
| | Air cylinder | MB-Z | Double acting, Single rod | Except ø125, with rubber bumper, with auto switch, head side flange and clevis types | |
| | 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 | Web Catalog |
| | 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 | |
| | 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 | |
| CS2 | Air cylinder | CS2 | Double acting, Single rod | Except head side flange and clevis types, ø125 to ø160 | |
| CS2Y | Smooth cylinder | CS2Y | Double acting, Single rod | Except head side flange and clevis types, ø125 to ø160 | |
| | Compact cylinder | CQS | Double acting, Single rod | Except with rubber bumper and with mounting bracket | |
| CQS | Non-rotating rod type | CQSK | Double acting, Single rod | Except with rubber bumper and with mounting bracket | |
| | Compact cylinder | CQ2-Z | Double acting, Single rod | Except with rubber bumper and with mounting bracket | |
| CQ2 | 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 | |
| | | MGPL-Z | Double acting | | |
| | | MGPA-Z | Double acting | | |
| MGG | Guide cylinder | MGG | Double acting | | |
| MGC | Guide cylinder | MGC | Double acting | | |

How to Order

| | | | | | | | |
|--|---------------|-----------------|-------------|--------------------------|--------------------------|--------------------------------|--------------------------------|
| CJ2 | Mounting type | Bore size | Stroke | Z - XC9 | | | |
| 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 | Mounting type | Bore size | Stroke | Suffix | Stroke adjustment symbol | Z - XC9 | |
| 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 | - XC9 |
| * Equipment not equipped back side | | | | | | | |

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: -XC9: Adjustable Stroke Cylinder/Adjustable Retraction Type



21 Adjustable Stroke Cylinder/Adjustable Retraction Type

Symbol
-XC9

Specifications

| Series | Stroke adjustment symbol | Stroke adjustment range (mm) |
|---------------------------------------|--------------------------|------------------------------|
| CJ2 | — | 0 to 15 |
| CM2 CG1 MB MB1 CA2 CS1 | A | 0 to 25 |
| | B | 0 to 50 |
| CQ2 CQS | — | 0 to 10 |

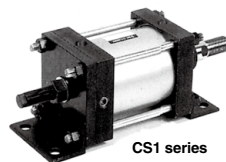
| Series | Stroke adjustment symbol | Stroke adjustment range (mm) |
|---------------------------------|--------------------------|------------------------------|
| MGP | A | 0 to 10 |
| | B | 0 to 25 |
| MGG MGC | A | 0 to 25 |
| | B | 0 to 50 |
| Specifications other than above | | Same as standard type |

Precautions

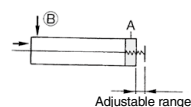
⚠ Caution

1. 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.

2. 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.

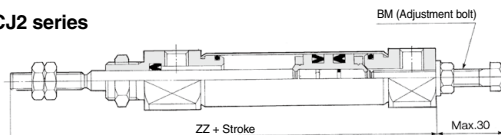


Symbol



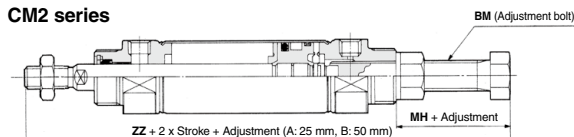
Dimensions (Dimensions other than below are the same as standard type.)

CJ2 series



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

CM2 series



| Bore size (mm) | (mm) | | |
|----------------|------------|------|-------|
| | BM | MH | ZZ |
| 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



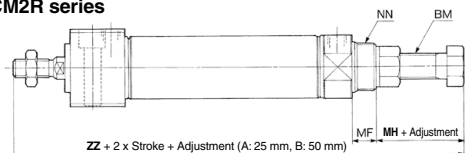
21 Adjustable Stroke Cylinder/Adjustable Retraction Type

Symbol

-XC9

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

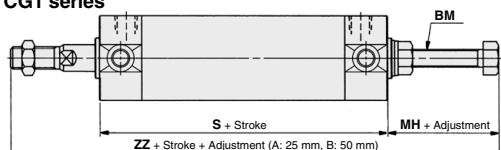
CM2R series



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 |

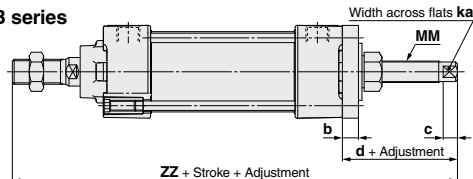
CG1 series



CG1

| Bore size (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 |

MB series



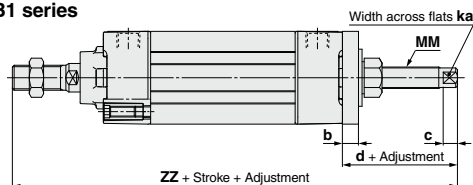
* In the case of axial foot type, the cushion is shipped after mounting. On other types, it is placed in the same package (not assembled).

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

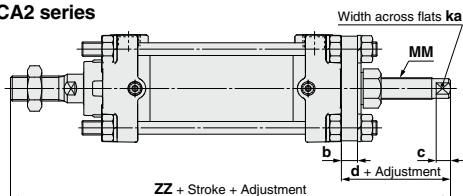
MB, MB1 Common

| 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 series



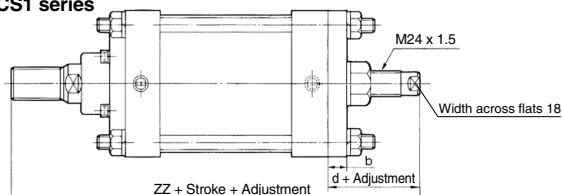
CA2-Z

| 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 |

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: -XC9: Adjustable Stroke Cylinder/Adjustable Retraction Type

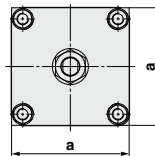
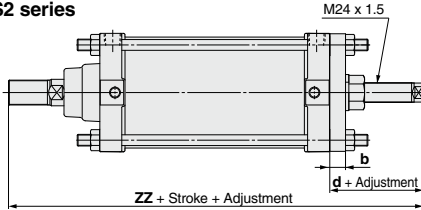


21 Adjustable Stroke Cylinder/Adjustable Retraction Type

Symbol
-XC9

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

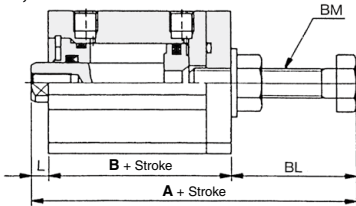
CS2 series



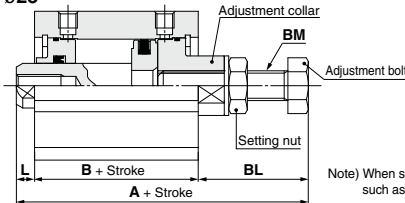
| Bore size (mm) | a | b | d | ZZ |
|----------------|-----|----|----|-----|
| 125 | 142 | 19 | 63 | 271 |
| 140 | 155 | 19 | 63 | 271 |
| 160 | 174 | 19 | 59 | 285 |

CQS series

ø12, ø16



ø20, ø25



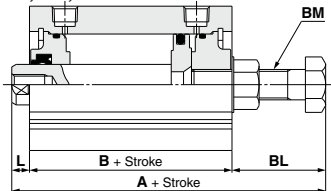
| Bore size (mm) | A | B | L | BL | BM | Manufacturable stroke |
|----------------|-------------|---------|-----|---------|-----------|-----------------------|
| 12 | 50.5 (54.5) | 22 (27) | 3.5 | 25 (29) | M5 x 0.8 | 5 to 30 |
| 16 | 51 (56) | 22 (27) | 3.5 | 25.5 | M6 x 1 | |
| 20 | 61 (71) | 26 (36) | 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.

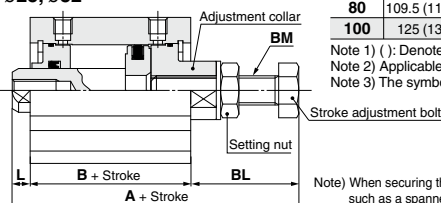
Note) When securing the adjustment bolt, clamp the width across flats of the adjustment collar with a tool, such as a spanner and tighten the setting nut with a tool, such as other spanner to secure the bolt firmly.

CQ2 series

ø12, ø16, ø40 to ø100



ø20, ø25, ø32



| Bore size (mm) | A | | B | | L | BL | BM | Manufacturable stroke |
|----------------|----------------------|-------------------|----------------------|-------------------|-----|------|-----------|-----------------------|
| | 50 mm stroke or less | 75, 100 mm stroke | 50 mm stroke or less | 75, 100 mm 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 | 5 to 50 |
| 25 | 63.5 (73.5) | — | 29 (39) | — | 5 | 29.5 | M8 x 1.25 | |
| 32 | 65.5 (75.5) | 75.5 | 30.5 (40.5) | 40.5 | 7 | 28 | M8 x 1.25 | 5 to 50 |
| 40 | 84 (94) | 94 | 40 (50) | 50 | 7 | 37 | M12 x 1.5 | 75, 100 |
| 50 | 84.5 (94.5) | 94.5 | 40.5 (50.5) | 50.5 | 8 | 36 | M12 x 1.5 | |
| 63 | 88.5 (98.5) | 98.5 | 42 (52) | 52 | 8 | 38.5 | M16 x 1.5 | 10 to 50 |
| 80 | 109.5 (119.5) | 119.5 | 51 (61) | 61 | 10 | 48.5 | M20 x 1.5 | 75, 100 |
| 100 | 125 (135) | 135 | 60.5 (70.5) | 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 3) The symbol is X526 for the long stroke type. → **Web Catalog**

Note) When securing the stroke 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

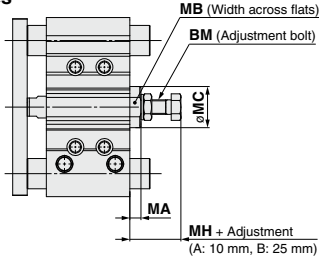


21 Adjustable Stroke Cylinder/Adjustable Retraction Type

Symbol
-XC9

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

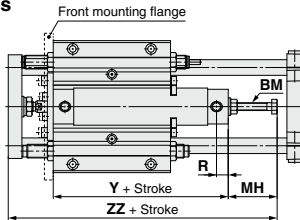
MGP series



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 |

MGG series ø20 to ø50

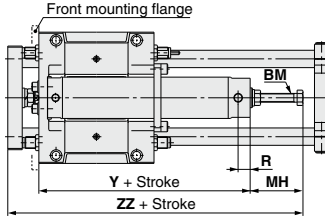


MGG Series (mm)

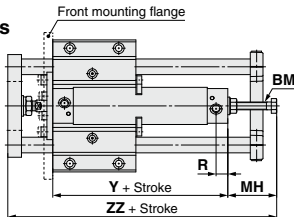
| Bore size (mm) | R | Y | BM | Adjustment 0 to 25 mm | | Adjustment 0 to 50 mm | |
|----------------|----|-----|------------|-----------------------|-----|-----------------------|-----|
| | | | | MH | ZZ | MH | ZZ |
| 20 | 12 | 77 | M6 x 1 | 48 | 164 | 73 | 189 |
| 25 | 12 | 77 | M6 x 1 | 48 | 171 | 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 | Excludes the type with an air cushion, a rod end bracket, or a pivot bracket as well as "E," "D," "M," and "G" | Web Catalog |
| | Non-rotating rod type | CJ2K-Z | Double acting, Single rod | Excludes the type with a rod end bracket or a pivot bracket as well as "E," "D," "M," and "G" | |
| CM2 | Air cylinder | CM2-Z | Double acting, Single rod | Excludes the type with an air cushion, a rod end bracket, or a pivot bracket | |
| | Non-rotating rod type | CM2K-Z | Double acting, Single rod | Excludes the type with an air cushion, a rod end bracket, or a pivot bracket | |
| CG1 | Smooth cylinder | CM2Y-Z | Double acting, Single rod | Excludes the type with a rod end bracket or a pivot bracket | |
| | Air cylinder | CG1-Z | Double acting, Single rod | | |
| MB | Non-rotating rod type | CG1K-Z | Double acting, Single rod | Except with air cushion and with rod boot | |
| | Air cylinder | MB-Z | Double acting, Single rod | Except ø125, clevis and trunnion types | |
| | Non-rotating rod type | MBK-Z | Double acting, Single rod | Except clevis and trunnion types | |
| MB1 | With end lock type | MBB | Double acting, Single rod | Except clevis and trunnion types | |
| | Air cylinder | MB1-Z | Double acting, Single rod | Except ø125, clevis and trunnion types | |
| CA2 | Non-rotating rod type | MB1K-Z | Double acting, Single rod | Except clevis and trunnion types | |
| | Air cylinder | CA2-Z | Double acting, Single rod | Except clevis and trunnion types | |
| | Non-rotating rod type | CA2K | Double acting, Single rod | Except clevis and trunnion types | |
| CS1 | End lock cylinder | CBA2 | Double acting, Single rod | Except clevis and trunnion types | |
| | Air cylinder | CS1 | Double acting, Single rod | Except clevis and trunnion types | |
| CS2 | Air-hydro cylinder | CS1H | Double acting, Single rod | Except clevis and trunnion types | |
| | Air cylinder | CS2 | Double acting, Single rod | Except clevis and trunnion types | |
| CQS | Smooth cylinder | CS2Y | Double acting, Single rod | Except clevis and trunnion types | |
| | Compact cylinder | CQS | Double acting, Single rod | Except with bracket | |
| CQ2 | Non-rotating rod type | CQSK | Double acting, Single rod | Except with bracket | |
| | Compact cylinder | CQ2-Z | Double acting, Single rod | Except with bracket | |
| CQ2B | Non-rotating rod type | CQ2K-Z | Double acting, Single rod | Except with bracket | |
| | 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 | Rod boot suffix | + | Stroke B | Rod end thread*1 | Rod boot suffix | Z — | XC10 | | | | | |
| *1 The rod end thread shape is the same for both strokes A and B. | | | | | | | | | | | | | | | | | |
| MB | Mounting type | Bore size | — | Stroke A | Suffix | + | Stroke B | Suffix | Z — | XC10 | | | | | | | |
| MB1 | Mounting type | Bore size | — | Stroke A | Suffix | + | Stroke B | Suffix | Z — | XC10 | | | | | | | |
| MBB | Mounting type | Bore size | — | Stroke A | Suffix | — | Lock position | Manual release type | + | Stroke B | Suffix | — | Lock position | Symbol of manual release | Z — | XC10 | |
| CA2 | Mounting type | Type | Bore size | — | Stroke A | Suffix | + | Stroke B | Suffix | Z — | XC10 | | | | | | |
| CA2K | Mounting type | Type | Bore size | — | Stroke A | Suffix | + | Stroke B | Suffix | Z — | XC10 | | | | | | |
| CBA2 | Mounting type | Type | Bore size | — | Stroke A | Suffix | — | Lock position | Manual release type | + | Stroke B | Suffix | — | Lock position | Symbol of manual release | Z — | XC10 |
| CS1 | Mounting type | Tubing material | Type | Bore size | — | Stroke A | Suffix | + | Stroke B | Suffix | Z — | XC10 | | | | | |
| CS2 | Mounting type | Bore size | Port suffix | — | Stroke A | Suffix | + | Stroke B | Suffix | Z — | XC10 | | | | | | |
| CQ2B | Bore size | — | Stroke S ₁ | + | Stroke S ₂ | D (C)(M)(Z) — | XC10 | | | | | | | | | | |
| CQSB | Bore size | — | Stroke S ₁ | + | Stroke S ₂ | 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

Symbol
-XC10

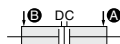
Specifications

| Series | Bore size (mm) | Maximum manufacturable stroke (mm) |
|-------------------------|----------------|------------------------------------|
| CJ2 | 10, 16 | 300 (Maximum 150 on one side) |
| CM2 | 20 to 40 | 1000 (A + B stroke) |
| CG1 | 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) |
| MB MB1 | 32 to 100 | 1000 (A + B stroke) |
| CA2 | 40 to 100 | 1000 (A + B stroke) |
| CS1 | 125, 140 | 1000 (A + B stroke) |
| | 160 to 300 | 1200 (A + B stroke) |

| Series | Bore size (mm) | Maximum manufacturable stroke (mm) |
|---------------------------------|-----------------------|------------------------------------|
| CS2 | 125, 140 | 1000 (A + B stroke) |
| | 160, 180 | 1200 (A + B stroke) |
| | 200 | 998 (A + B stroke) |
| | 250 | 813 (A + B stroke) |
| | 320 | 495 (A + B stroke) |
| CQS CQ2 | 12, 16 | 60 (Maximum 30 on one side) |
| | 20, 25 | 100 (Maximum 50 on one side) |
| CQ2 | 32, 40 | 200 (Maximum 100 on one side) |
| | 50 to 100 | 200 (Maximum 100 on one side) |
| Specifications other than above | Same as standard type | |

Symbol

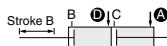
Function



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 **D**, 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

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



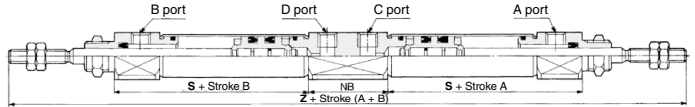
22 Dual Stroke Cylinder/Double Rod Type

Symbol
-XC10

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

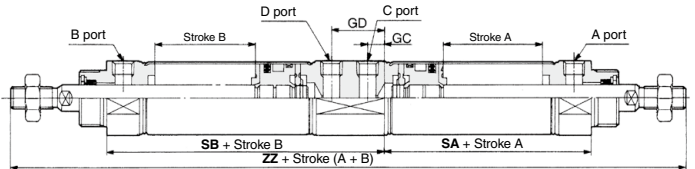
CJ2 series

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

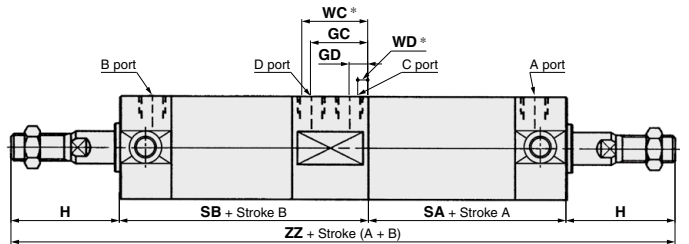
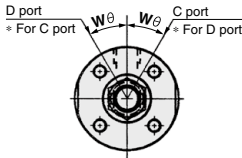


CM2 series

| 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

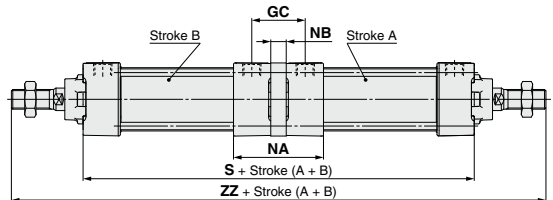


| Bore size | GC | GD | H | SA | SB | Wθ | Air cushion | | |
|-----------|-----------|---------|----|-----------|-----------|-----|-------------|-----|-----|
| | | | | | | | WC | WD | ZZ |
| 20 | 20.5 (21) | 8.5 (9) | 35 | 56.5 (56) | 85.5 (86) | 30° | (25) | (5) | 212 |
| 25 | 21 (21.5) | 9 (8.5) | 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

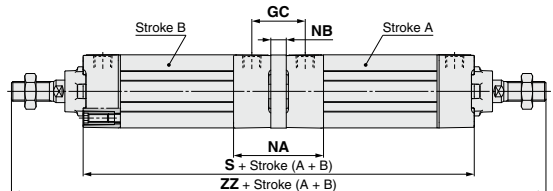
MB series

| 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

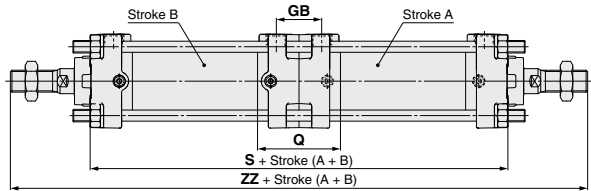
Symbol
-XC10

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 |

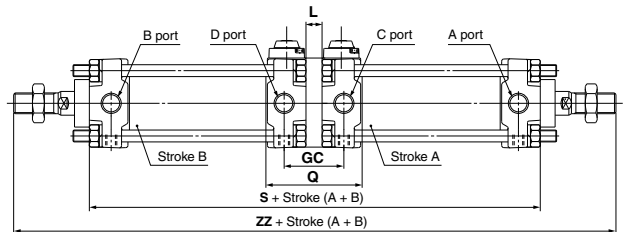
(mm)



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 |

(mm)

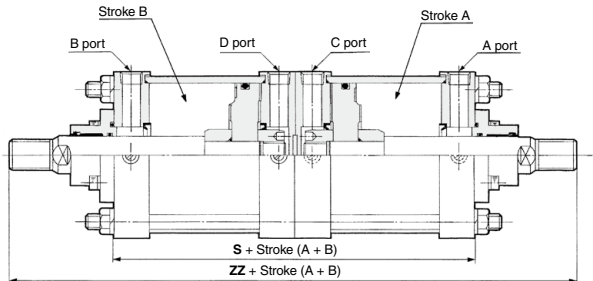


* The above diagram shows head side lock type and manual releasing non-locking type. Dimensions of rod side locking type, both-side lock type and manual releasing lock type are the same as dimensions in the above table.

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 | — | — |

(mm)



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



22 Dual Stroke Cylinder/Double Rod Type

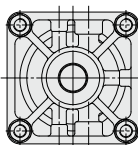
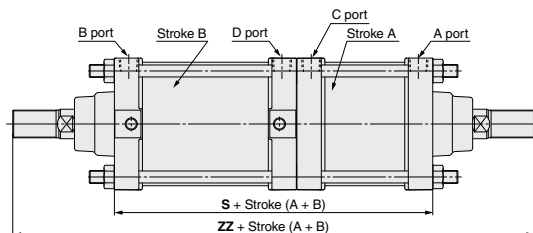
Symbol
-XC10

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

CS2 series

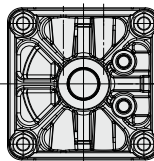
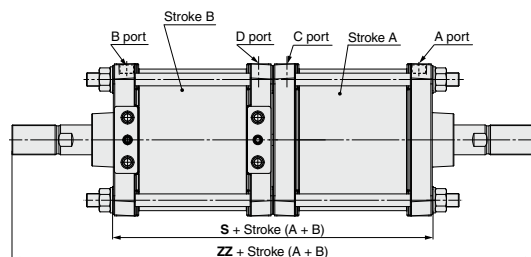
* For rod side flange type "F", the flange bracket will be attached to the stroke A side.

ø125 to ø160

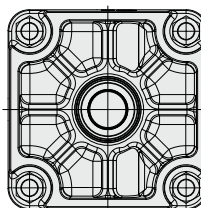
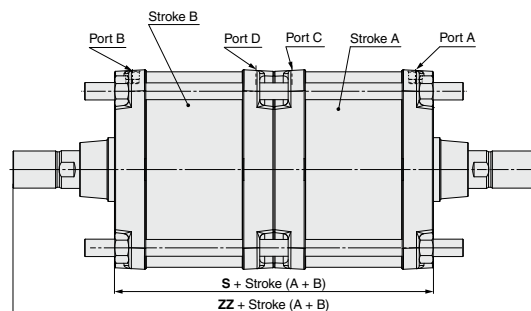


| Bore size (mm) | (mm) | |
|----------------|------|-----|
| | S | ZZ |
| 125 | 196 | 416 |
| 140 | 196 | 416 |
| 160 | 212 | 452 |

ø180 to ø250



ø320



| Bore size (mm) | (mm) | |
|----------------|------|-----|
| | S | ZZ |
| 180 | 230 | 500 |
| 200 | 240 | 510 |
| 250 | 282 | 602 |
| 320 | 350 | 700 |

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



22 Dual Stroke Cylinder/Double Rod Type

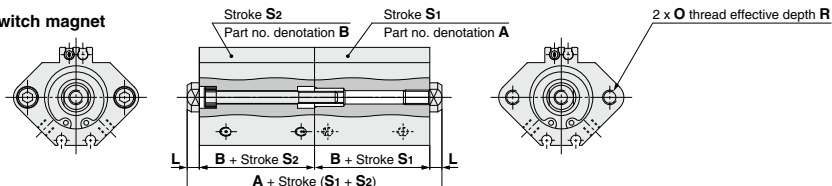
Symbol
-XC10

Dimensions (Other dimensions are the same as standard.)

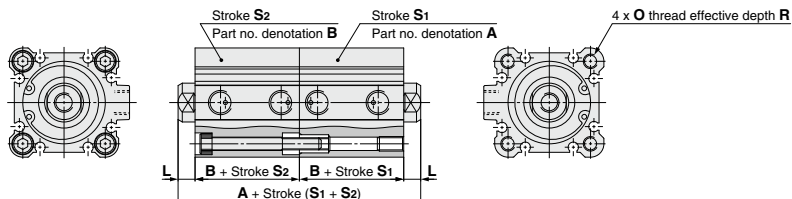
CQ2 series

ø12 to ø25

With auto switch magnet



* In the case of bore sizes ø12 to ø25 with an auto switch, port directions are different.



* Secure the body with the threaded portion at the tip of the piston rod on both sides or with the cylinder tube on the stroke S₁ side tapped.

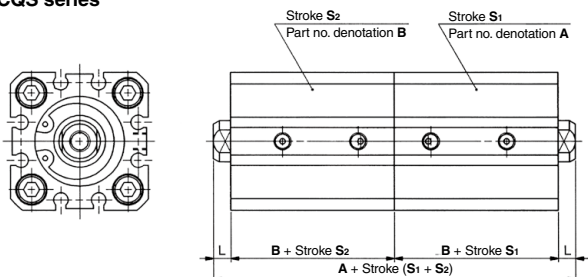
* Please contact SMC for the through-hole type and models with a mounting bracket.

| Bore size [mm] | A | | | B | | L | O | R |
|-------------------|---|--|--|--------------------------|-----------------------|-----|------------|----|
| | 50 st or less for both S ₁ and S ₂ | Combination of 50 st or less, 75, 100 st | 75, 100 st for both S ₁ and S ₂ | 50 st or less | 75, 100 st | | | |
| 12 | 41 (63) | — | — | 17 (28) | — | 3.5 | M4 x 0.7 | 7 |
| 16 | 44 (68) | — | — | 18.5 (30.5) | — | 3.5 | M4 x 0.7 | 7 |
| 20 | 48 (72) | — | — | 19.5 (31.5) | — | 4.5 | M6 x 1.0 | 10 |
| 25 | 55 (75) | — | — | 22.5 (32.5) | — | 5 | M6 x 1.0 | 10 |
| 32 | 60 (80) | 70 (80) | 80 (80) | 23 (33) | 33 (33) | 7 | M6 x 1.0 | 10 |
| 40 | 73 (93) | 83 (93) | 93 (93) | 29.5 (39.5) | 39.5 (39.5) | 7 | M6 x 1.0 | 10 |
| 50 | 77 (97) | 87 (97) | 97 (97) | 30.5 (40.5) | 40.5 (40.5) | 8 | M8 x 1.25 | 14 |
| 63 | 88 (108) | 98 (108) | 108 (108) | 36 (46) | 46 (46) | 8 | M10 x 1.5 | 18 |
| 80 | 107 (127) | 117 (127) | 127 (127) | 43.5 (53.5) | 53.5 (53.5) | 10 | M12 x 1.75 | 22 |
| 100 | 130 (150) | 140 (150) | 150 (150) | 53 (63) | 63 (63) | 12 | M12 x 1.75 | 22 |

* () : Dimensions with auto switch

* Applicable stroke available in 5 mm increments

CQS series



| Bore size (mm) | (mm) | | | |
|-------------------|---------|-------------|-----|---|
| | A | B | L | Stroke Both of S ₁ , S ₂ |
| 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 | 5 to 50 |
| 25 | 55 (75) | 22.5 (32.5) | 5 | |

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

Symbol
-XC11

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 ø6 and with air cushion | Web Catalog |
| CM2 | Air cylinder | CM2-Z | Double acting, Single rod | | |
| | 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 | Except ø80-100 | |
| | 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 | |
| MB1 | Air cylinder | MB1-Z | Double acting, Single rod | * Except ø125 and trunnion type | |
| CA2 | Air cylinder | CA2-Z | Double acting, Single rod | * Except trunnion type | |
| | Non-rotating rod | CA2K | Double acting, Single rod | * Except trunnion type | |
| CS1 | Air cylinder | CS1 | Double acting, Single rod | * Except trunnion type | |
| CS2 | Air cylinder | CS2 | Double acting, Single rod | * Except trunnion type | |
| CQS | Compact cylinder | CQS | Double acting, Single rod | Except with bracket | |
| | Non-rotating rod type | CQSK | Double acting, Single rod | Except with bracket | |
| CQ2 | Compact cylinder | CQ2-Z | Double acting, Single rod | Except with bracket | |
| | Non-rotating rod type | CQ2K-Z | Double acting, Single rod | Except with bracket | |
| | Air-hydro cylinder | CQ2H-Z | Double acting, Single rod | Except with bracket | |
| CNA2 | Cylinder with lock | CNA2 | Double acting, Single rod | * Except trunnion type | |
| MGG | Guide cylinder | MGG | Double acting | | |
| MGC | Guide cylinder | MGC | Double acting | | |

How to Order

CJ2 - +

CM2 - +

CG1 - +

MB
MB1 - +
* Except trunnion type

CA2 - +
* Except trunnion type

CA2K - + -
* Except trunnion type

CS1 - + -
* Except trunnion type

CS2 - + -
* Except trunnion type

CQSB - +

CQ2B - +

CNA2 - + -

Dual stroke cylinder/Single rod ↓

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



23 Dual Stroke Cylinder/Single Rod Type

Symbol
-XC11

Specifications: The following models are the same as the standard type except for the specifications listed below.
(Please contact SMC for each manufacturable stroke length.)

CJ2

| | | | |
|--|-----------------------------------|--|---------|
| Bore size (mm) | | 10 | 16 |
| Piston speed | | The piston speed for the stroke B retraction side is 50 to 500 mm/s. | |
| Allowable kinetic energy | Stroke B (Retraction side) | 0.015 J | 0.040 J |
| Stroke tolerance | | Stroke A: 0 to +2.0 mm, Stroke B is the same as that of the standard type. | |
| Specifications other than above | | Same as standard type | |



CM2

| | | | | | |
|--|-----------------------------------|--|--------|--------|--------|
| Bore size (mm) | | 20 | 25 | 32 | 40 |
| Piston speed | | The piston speed for the stroke B retraction side is 50 to 500 mm/s. | | | |
| Allowable kinetic energy | Stroke B (Retraction side) | 0.12 J | 0.18 J | 0.28 J | 0.53 J |
| Stroke tolerance | | Stroke A: 0 to +2.0 mm, Stroke B is the same as that of the standard type. | | | |
| Specifications other than above | | Same as standard type | | | |

CG1

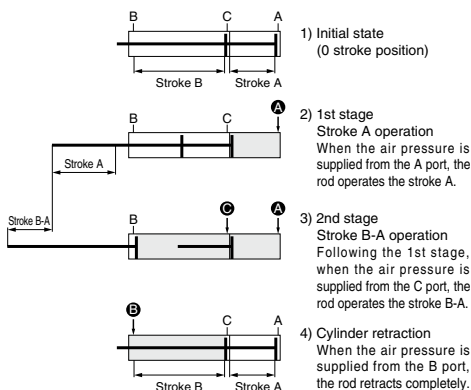
| | | | | | | | |
|--|-----------------------------------|--|-------|--------|-------|-------|--------|
| Bore size (mm) | | 20 | 25 | 32 | 40 | 50 | 63 |
| Piston speed | | The piston speed for the stroke B retraction side is 50 to 500 mm/s. | | | | | |
| Allowable kinetic energy | Stroke B (Retraction side) | 0.07 J | 0.1 J | 0.16 J | 0.3 J | 0.5 J | 0.85 J |
| Specifications other than above | | Same as standard type | | | | | |

Precautions

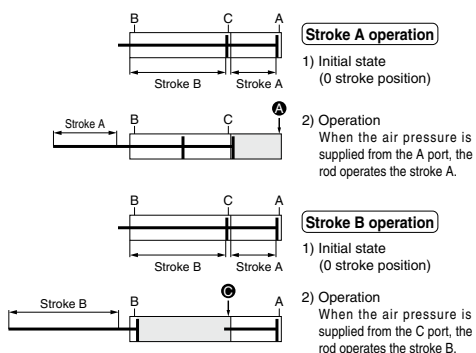
⚠ Caution

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

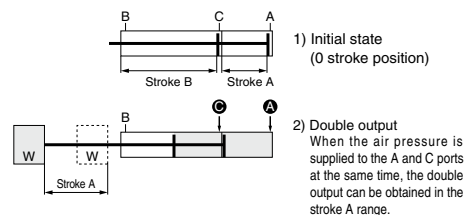
Functional description of dual stroke cylinder



Stroke A or stroke B operation can be made individually.



Double output is possible.



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

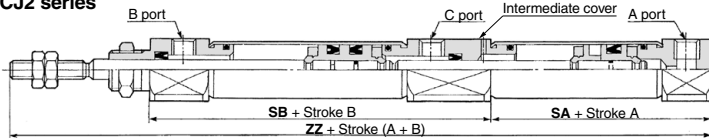


23 Dual Stroke Cylinder/Single Rod Type

Symbol
-XC11

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

CJ2 series



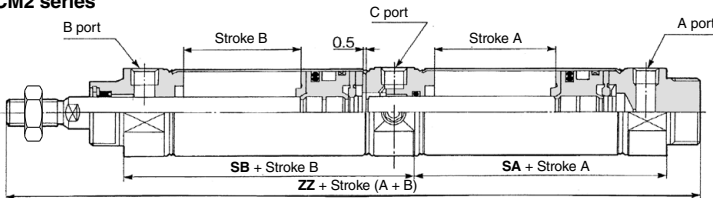
| (mm) | | | |
|----------------|------|------|-------|
| Bore size (mm) | SA | SB | Z |
| 10 | 31 | 53.5 | 112.5 |
| 16 | 31.5 | 54.5 | 114 |

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

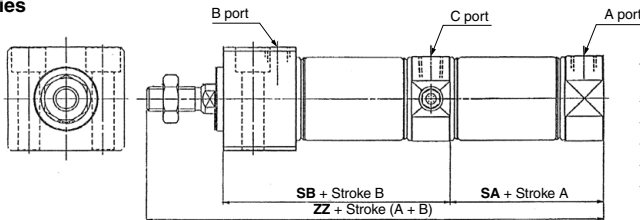
Reed auto switch : D-C7□, D-C80, D-C73C, D-C80C, D-A80, D-A9□, D-A9□V, D-A79W, D-A73

CM2 series



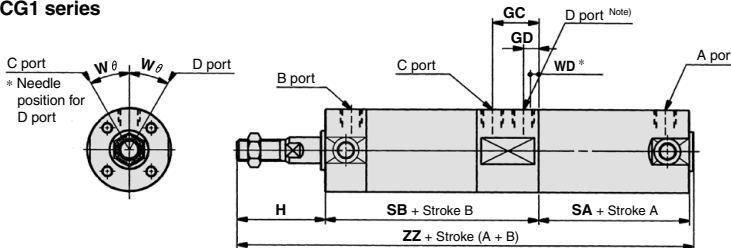
| (mm) | | | |
|----------------|------|------|-----|
| Bore size (mm) | SA | SB | ZZ |
| 20 | 48 | 62 | 164 |
| 25 | 48 | 62 | 168 |
| 32 | 50 | 64 | 172 |
| 40 | 67.5 | 88.5 | 222 |

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 |
| | | | | | | | | 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)

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

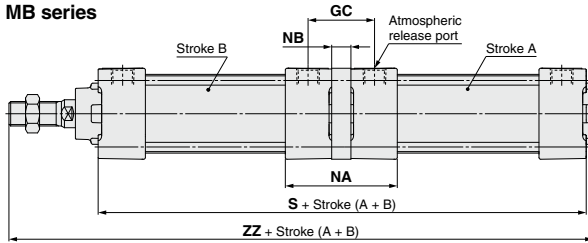


23 Dual Stroke Cylinder/Single Rod Type

Symbol
-XC11

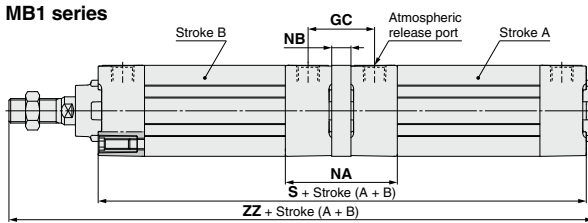
Construction/Dimensions

MB series



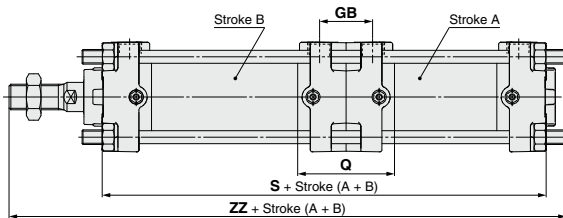
| (mm) | | | | | |
|-----------|----|----|------|-----|-----|
| Bore size | GC | NA | NB | S | ZZ |
| 32 | 36 | 64 | 10.6 | 179 | 230 |
| 40 | 38 | 64 | 10.6 | 179 | 234 |
| 50 | 41 | 73 | 10.6 | 199 | 261 |
| 63 | 43 | 73 | 10.6 | 199 | 261 |
| 80 | 52 | 90 | 14.6 | 243 | 319 |
| 100 | 52 | 90 | 14.6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

MB1 series



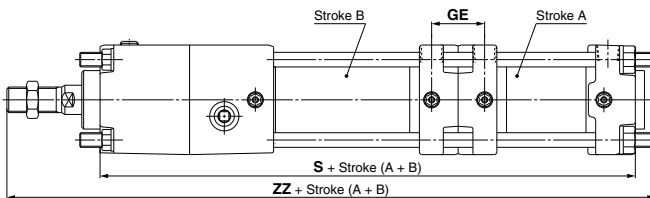
| (mm) | | | | | |
|-----------|----|----|------|-----|-----|
| Bore size | GC | NA | NB | S | ZZ |
| 32 | 36 | 62 | 10.6 | 179 | 230 |
| 40 | 38 | 62 | 10.6 | 179 | 234 |
| 50 | 41 | 71 | 10.6 | 199 | 261 |
| 63 | 43 | 71 | 10.6 | 199 | 261 |
| 80 | 52 | 88 | 14.6 | 243 | 319 |
| 100 | 52 | 88 | 14.6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

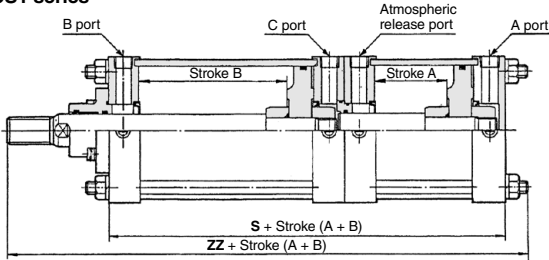


23 Dual Stroke Cylinder/Single Rod Type

Symbol
-XC11

Construction/Dimensions

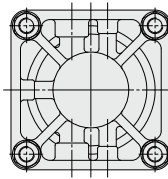
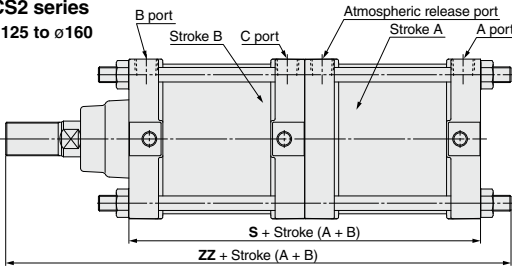
CS1 series



| Bore size (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 | — | — |

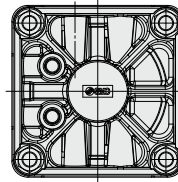
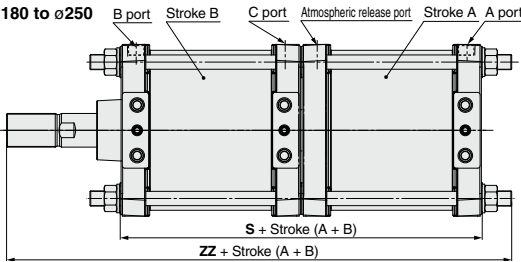
CS2 series

ø125 to ø160



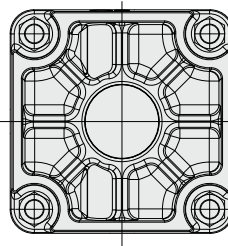
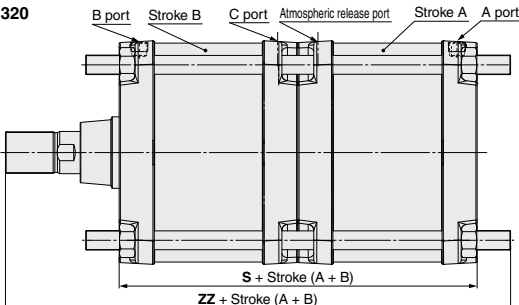
| Bore size (mm) | S | | ZZ | |
|----------------|-----|-------|-----|-------|
| | S | ZZ | S | ZZ |
| 125 | 197 | 334 | 197 | 334 |
| 140 | 197 | 334 | 197 | 334 |
| 160 | 213 | 363.5 | 213 | 363.5 |

ø180 to ø250



| Bore size (mm) | S | | ZZ | |
|----------------|-----|-------|-----|-------|
| | S | ZZ | S | ZZ |
| 180 | 231 | 401 | 231 | 401 |
| 200 | 241 | 411 | 241 | 411 |
| 250 | 283 | 484.5 | 283 | 484.5 |
| 320 | 351 | 577.5 | 351 | 577.5 |

ø320



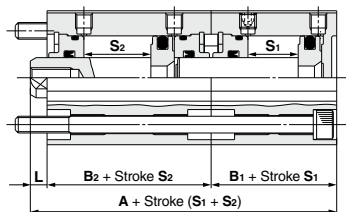
Made to Order Common Specifications: -XC11: Dual Stroke Cylinder/Single Rod Type



22 Dual Stroke Cylinder/Double Rod Type

Symbol
-XC11

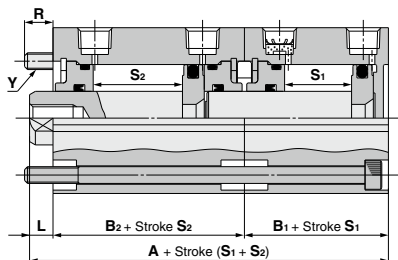
CQS series



| Bore size (mm) | (mm) | | | | | Stroke Both of S ₁ & S ₂ |
|----------------|-------------|----------------|----------------|-----|--|--|
| | A | B ₁ | B ₂ | L | | |
| 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 | | |
| 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 | | |

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



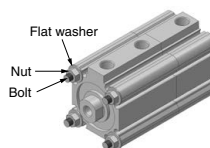
| Bore size (mm) | (mm) | | | | | | | Stroke Both S ₁ and S ₂ |
|----------------|---------------|----------------|----------------|-----|------------|-----------|----------|---|
| | A | B ₁ | B ₂ | L | R | Y | | |
| 12 | 45.7 (63.9) | 17 (28) | 25.2 (32.4) | 3.5 | 8.3 (8.1) | M3 x 0.5 | 5 to 30 | |
| 16 | 48 (70) | 18.5 (30.5) | 26 (36) | 3.5 | 9 (7) | | | |
| 20 | 50 (74) | 19.5 (31.5) | 26 (38) | 4.5 | 11.5 (7.5) | M5 x 0.8 | 5 to 50 | |
| 25 | 56.5 (76.5) | 22.5 (32.5) | 29 (39) | 5 | 10.5 | | | |
| 32 | 60.5 (80.5) | 23 (33) | 30.5 (40.5) | 7 | 8.5 | M6 x 1 | 10 to 50 | |
| 40 | 76.5 (96.5) | 29.5 (39.5) | 40 (50) | 7 | 7.5 | | | |
| 50 | 79 (99) | 30.5 (40.5) | 40.5 (50.5) | 8 | 12 | M8 x 1.25 | 10 to 50 | |
| 63 | 86 (106) | 36 (46) | 42 (52) | 8 | 12.5 | | | |
| 80 | 104.5 (124.5) | 43.5 (53.5) | 51 (61) | 10 | 19 | M10 x 1.5 | 10 to 50 | |
| 100 | 125.5 (145.5) | 53 (63) | 60.5 (70.5) | 12 | 15 | | | |

* () : Dimensions with auto switch magnet
 * Applicable stroke available in 5 mm increments
 * Please contact SMC for long stroke type.

Precautions

⚠ Caution

1. Remove the temporary fixing nut and flat washer from the mounting bolt, and secure the cylinder properly with the mounting bolt.
2. Although the cylinder can be detached by removing the nut, do not detach it for purposes other than replacing the seal.
3. The removed nut and flat washer are not used to secure the body.



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



23 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 - **XC11**

Dual stroke cylinder/Single rod type

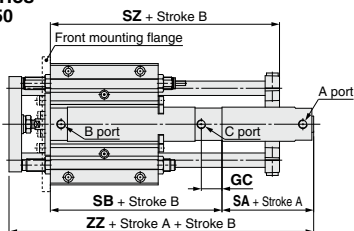
Specifications

| Bore size | 20 | 25 | 32 | 40 | 50 | 63 |
|---------------------------------|---|----|----|----|----|----|
| Basic cylinder | $\phi 20$ to $\phi 50$: CDG1ZN <input type="text"/> Bore size - <input type="text"/> Stroke A + <input type="text"/> Stroke B-A Z - <input type="text"/> Auto switch - X428 $\phi 63$: CDG1ZN <input type="text"/> Bore size - <input type="text"/> Stroke A + <input type="text"/> Stroke B-A Z - <input type="text"/> Auto switch - 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.)

MGG series

$\phi 20$ to $\phi 50$



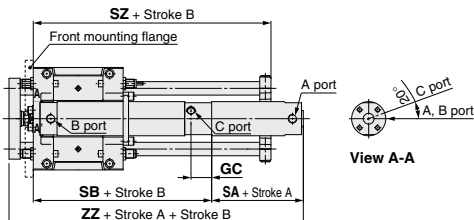
MGG Series

(mm)

| Bore size (mm) | GC | SA | SB | SZ | ZZ | Bracket mounting stroke (Stroke A + Stroke B) | Long stroke ^{Note} | |
|----------------|----|----|-----|-----|-----|---|-----------------------------|-----|
| | | | | | | | SA | ZZ |
| 20 | 21 | 50 | 87 | 118 | 176 | 35 st or more | 58 | 184 |
| 25 | 21 | 50 | 87 | 129 | 183 | 60 st or more | 58 | 191 |
| 32 | 23 | 52 | 91 | 155 | 189 | 80 st or more | 60 | 197 |
| 40 | 25 | 58 | 100 | 182 | 214 | 125 st or more | 67 | 223 |
| 50 | 29 | 65 | 118 | 218 | 250 | 160 st or more | 77 | 262 |
| 63 | 28 | 66 | 132 | 254 | 252 | 210 st or more | 78 | 264 |

Note) When the stroke A is a long stroke ($\phi 20$: 201 mm or more, $\phi 25$ to $\phi 63$: 301 mm or more)

$\phi 63$



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



23 Dual Stroke Cylinder/Single Rod Type

Symbol
-XC11

MGG series

How to Order

MGC - + - - - **XC11**

Dual stroke cylinder/Single rod type

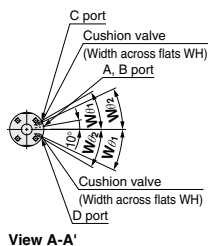
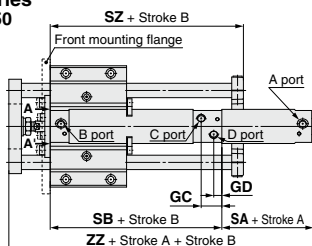
Specifications

| Bore size | 20 | 25 | 32 | 40 | 50 |
|---------------------------------|--|----|----|----|----|
| Basic cylinder | CDG1ZA <input type="text" value="Bore size"/> - <input type="text" value="Stroke A"/> + <input type="text" value="Stroke B-A"/> Z - <input type="text" value="Auto switch"/> - 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 ₁ | W ₂ | Long stroke ^{Note} | |
|----------------|------|-----|----|-----|----------------|----------------|-----------------------------|-----|
| | | | | | | | SA | ZZ |
| 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

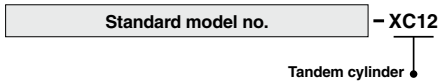
Symbol
-XC12

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

Applicable Series

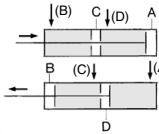
| Series | Description | Model | Action | Note | Vol. no. (for std model) |
|--------|-----------------------|--------|---------------------------|---------------------------|--------------------------|
| CM2 | Air cylinder | CM2-Z | Double acting, Single rod | Except with air cushion | Web Catalog |
| | Direct mount type | CM2R | Double acting, Single rod | Except with air cushion | |
| CG1 | Air cylinder | CG1-Z | Double acting, Single rod | Except with air cushion | |
| | 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 | |
| MB1 | Air cylinder | MB1-Z | Double acting, Single rod | Except ø125 | |
| CA2 | Air cylinder | CA2-Z | Double acting, Single rod | Double acting, Single rod | |

How to Order



CG1 series

Symbol



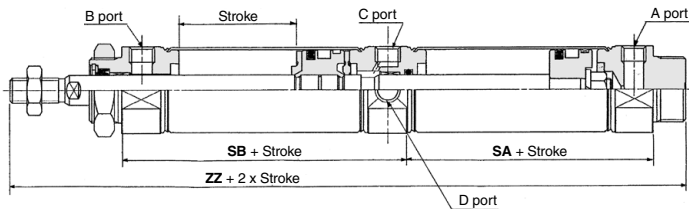
When air pressure is supplied to ports (B) and (D), the output force is doubled in the retract stroke.

When air pressure is supplied to ports (A) and (C), the output force is doubled in the out stroke.

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 |

Made to Order Common Specifications: -XC12: Tandem Cylinder

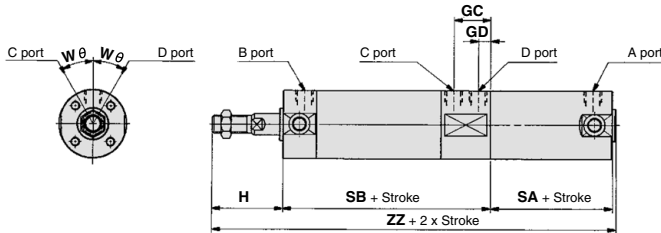


24 Tandem Cylinder

Symbol
-XC12

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) |
| | | | | | | | | SA | ZZ |
| 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 |

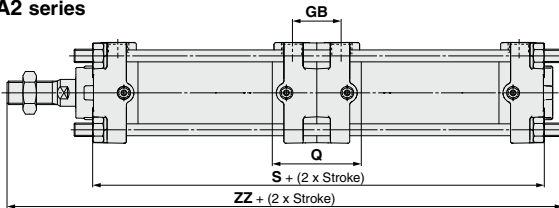
Note) When the stroke is a long stroke (ø20: 201 mm or more, ø25 to ø63: 301 mm or more)

CG1K

| Bore size | GC | GD | H | SA | SB | Wθ | ZZ | (mm) | |
|-----------|----|----|----|----|-----|-----|-----|-------------|-------|
| | | | | | | | | Long stroke | Note) |
| | | | | | | | | SA | ZZ |
| 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 |

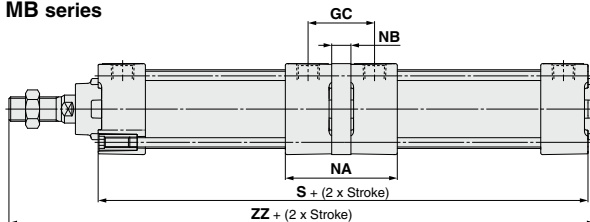
* Please contact SMC for long stroke (301 mm or more) since SA-dimensions and ZZ-dimensions are different from those in the above table.

CA2 series



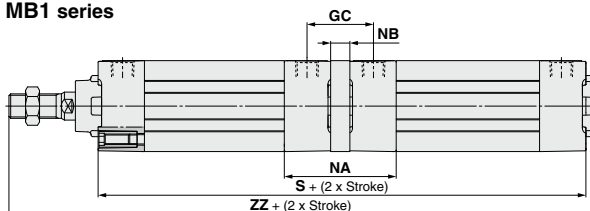
| Bore size | GB | Q | S | ZZ | (mm) | |
|-----------|----|----|-----|-----|-------------|-------|
| | | | | | Long stroke | Note) |
| | | | | | | |
| 40 | 29 | 53 | 169 | 231 | 65 | 217 |
| 50 | 33 | 59 | 181 | 250 | 75 | 253 |
| 63 | 33 | 61 | 197 | 269 | 85 | 291 |
| 80 | 41 | 73 | 233 | 321 | 95 | 331 |
| 100 | 41 | 79 | 253 | 342 | 105 | 351 |

MB series



| Bore size | GC | NA | NB | S | ZZ | (mm) | |
|-----------|----|----|------|-----|-----|-------------|-------|
| | | | | | | Long stroke | Note) |
| | | | | | | | |
| 32 | 36 | 64 | 10.6 | 180 | 231 | 65 | 217 |
| 40 | 38 | 64 | 10.6 | 180 | 235 | 75 | 253 |
| 50 | 41 | 73 | 10.6 | 200 | 262 | 85 | 291 |
| 63 | 43 | 73 | 10.6 | 200 | 262 | 95 | 331 |
| 80 | 52 | 90 | 14.6 | 244 | 320 | 105 | 351 |
| 100 | 52 | 90 | 14.6 | 244 | 320 | 115 | 391 |

MB1 series



| Bore size | GC | NA | NB | S | ZZ | (mm) | |
|-----------|----|----|------|-----|-----|-------------|-------|
| | | | | | | Long stroke | Note) |
| | | | | | | | |
| 32 | 36 | 62 | 10.6 | 180 | 231 | 65 | 217 |
| 40 | 38 | 62 | 10.6 | 180 | 235 | 75 | 253 |
| 50 | 41 | 71 | 10.6 | 200 | 262 | 85 | 291 |
| 63 | 43 | 71 | 10.6 | 200 | 262 | 95 | 331 |
| 80 | 52 | 88 | 14.6 | 244 | 320 | 105 | 351 |
| 100 | 52 | 88 | 14.6 | 244 | 320 | 115 | 391 |

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



25 Auto Switch Rail Mounting Type

Symbol
-XC13

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 Single acting (Spring return/extend) | | Web Catalog |
| | | CM2W-Z | Double acting, Double rod | | |
| | Non-rotating rod type | 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 | | |
| | Smooth cylinder | CM2Y-Z | Double acting, Single rod | | |
| End lock cylinder | CBM2 | Double acting, Single rod | For XC13A and XC13C only | | |
| CG1 | 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 | |
| | End lock cylinder | CBG1 | Double acting, Single rod | For XC13A only | |
| MGG | Guide cylinder | MGG | Double acting | | |
| MGC | Guide cylinder | MGC | Double acting | | |

How to Order

CDM2 - XC13A

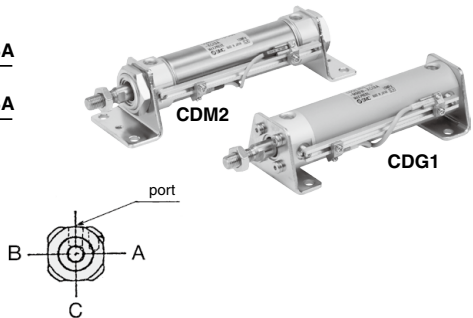
CDG1 - XC13A

* 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 ^{*2, *3} | Mounted on the left side when viewed from the rod. |
| XC13C ^{*1, *2} | 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 1289 to 1383. |

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 1289 to 1383. |

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

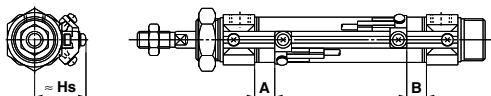


25 Auto Switch Rail Mounting Type

Symbol
-XC13

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

CDM2 series



Proper Auto Switch Mounting Position (mm)

| Auto switch model Bore size (mm) | D-F7NT | | D-A9□ D-A9□V D-A79W | | D-A7□ D-A80 | |
|-------------------------------------|---------|---------|---------------------------|-----------|----------------|---------|
| | 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) |
| 25 | 8 (5.5) | 7 (4.5) | 13 (10.5) | 12 (9.5) | 5 (2.5) | 4 (1.5) |
| 32 | 9 (6.5) | 8 (5.5) | 14 (11.5) | 13 (10.5) | 6 (3.5) | 5 (2.5) |
| 40 | 15 | 13 | 19 | 18 | 12 | 10 |

Auto Switch Mounting Height (mm)

| D-F7□/F79F D-J79/F7NT D-F7□W/J79W D-F7BA D-A9□/A9□V A7□/A80H | D-F7□V D-F7BAV | D-J79C | D-A7□ D-A80 | D-A73C 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 |

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.

Minimum Auto Switch Mounting Stroke (mm)

| Auto switch model | No. of auto switch mounted | | |
|---|----------------------------|-------------------|--|
| | 1 | 2 Same surface | n (n: No. of auto switches) Same surface |
| D-F7□V D-J79C | 5 | 5 | 10 + 10 (n-2) ^{Note} (n=4, 6···) |
| D-F7□ D-J79 | 5 | 5 | 15 + 15 (n-2) ^{Note} (n=4, 6···) |
| D-F7□WV D-F7BAV D-A79W | 10 | 15 | 10 + 15 (n-2) ^{Note} (n=4, 6···) |
| D-F7□W/J79W D-F7BA D-F79F/F7NT | 10 | 15 | 15 + 20 (n-2) ^{Note} (n=4, 6···) |
| D-A9□ D-A9□V | 5 | 10 | 10 + 15 (n-2) ^{Note} (n=4, 6···) |
| D-A7□/A80 D-A7□H/A80H D-A73C/A80C | 5 | 10 | 15 + 10 (n-2) ^{Note} (n=4, 6···) |
| D-A7□H D-A80H | 5 | 10 | 15 + 15 (n-2) ^{Note} (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) |
|-------------------|----------------|
| | 20 to 40 |
| 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 (mm)

| Auto switch model | Bore size (mm) | | | |
|---|----------------|------|------|------|
| | 20 | 25 | 32 | 40 |
| D-F7□/F79F/F7□V D-J79/J79C D-F7□W/J79W/F7□WV D-F7BA/F7BAV D-F7NTL | 3.5 | 3.5 | 4 | 3.5 |
| D-A9□/D-A9□V | 5.5 | 6 | 6.5 | 6.5 |
| D-A7□/A80 D-A7□H/A80H 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

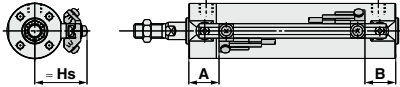


25 Auto Switch Rail Mounting Type

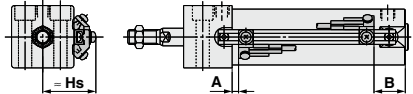
Symbol
-XC13

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 D-M9□W/D-M9□WV D-M9□A/D-M9□AV | | D-F7□/F79F□V D-J79/J79C D-F7□W/J79W/F7□WV | | D-F7A/F7ABV D-A72/A7□H/A80H D-A73C/A80C | | D-F7NT | | D-A7□ D-A80 | | D-A79W | |
|-------------------|--|-------------|---|-------------|---|-------------|--------|-------------|----------------|-------------|--------|---|
| | A | B | 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 D-M9□W/D-M9□WV D-M9□A/D-M9□AV | | D-F7□/F79F□V D-J79/J79C D-F7□W/J79W/F7□WV | | D-F7A/F7ABV D-A72/A7□H/A80H D-A73C/A80C | | D-F7NT | | D-A7□ D-A80 | | D-A79W | |
|-------------------|--|------|---|------|---|------|--------|------|----------------|------|--------|---|
| | A | B | 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 (Head side) | | R (Rod side) | | W (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 CG1 series.

Auto Switch Mounting Height

(mm)

| Auto switch model | D-M9□/M9□V D-M9□W/M9□WV D-F7□/F79F D-J79/F7NT D-F7□W/J79W/F7B | D-F7□V D-F7□WV D-F7BAV | D-J79C | D-A7□ D-A80 | D-A73C 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 |

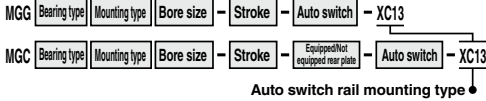
Made to Order Common Specifications: -XC13: Auto Switch Rail Mounting Type



25 Auto Switch Rail Mounting Type

Symbol
-XC13

How to Order

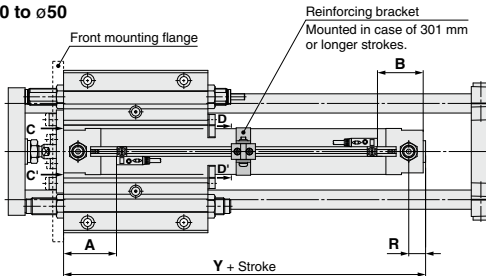


MGG/MGC Applicable Auto Switches

| 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 |
| Auto switch specifications | Reed switch | |
| | | D-A7/A8, D-A7□/A80H, D-A73C/A80C, D-A79W |
| For detailed specifications about an auto switch for itself, refer to pages 1289 to 1383. | | |

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

MGG series ø20 to ø50



Width across flats HT



View C-C'

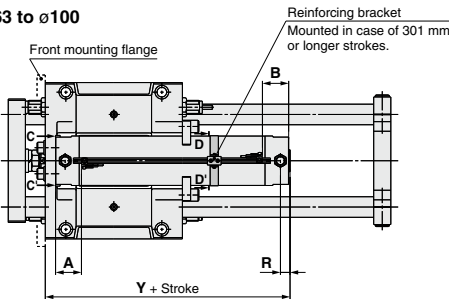


View D-D'

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



Width across flats HT



View C-C'

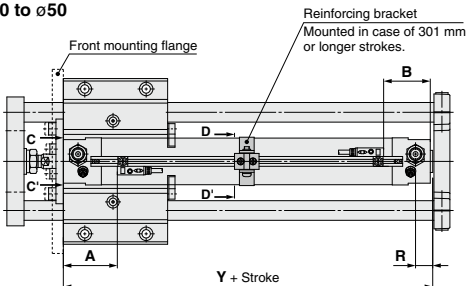


View D-D'

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



Width across flats HT



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 | | D-F7□/F79F/F7□V | | D-F79/J79C | | D-F7□W/J79W/F7□VW | | D-F7BA/F7BAV | | D-A7□/A80 | | D-A79W | |
|-------------------|------------|------|-----------------|----|------------|----|-------------------|------|--------------|----|-----------|---|--------|---|
| | A | B | A | B | 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 | D-M9□W/M9□VW | D-M9□A/M9□AV | D-F7□V | D-F7□VW | D-F7BAV | D-J79C | D-A7□/A80 | D-A73C/A80C | D-A79W |
|------------|--------------|--------------|--------|---------|---------|--------|-----------|-------------|--------|
| Hs | Hs | Hs | Hs | 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) |
| D-M9□/M9□V D-F7□V D-J79C | 5 | 5 | 10 + 10 (n-2) ^{Note} (n=4, 6··) |
| D-M9□VW D-M9□AV D-F7□VW D-F7BAV D-A79W | 10 | 15 | 10 + 15 (n-2) ^{Note} (n=4, 6··) |
| D-M9□W D-M9□A | 10 | 15 | 15 + 15 (n-2) ^{Note} (n=4, 6··) |
| D-F7□ D-J79 | 5 | 5 | 15 + 15 (n-2) ^{Note} (n=4, 6··) |
| D-F7□W/J79W D-F7BA D-F79F/F7NT | 10 | 15 | 15 + 20 (n-2) ^{Note} (n=4, 6··) |
| D-A7□/A80 D-A7□H/A80H D-A73C/A80C | 5 | 10 | 15 + 10 (n-2) ^{Note} (n=4, 6··) |
| D-A7□H D-A80H | 5 | 10 | 15 + 15 (n-2) ^{Note} (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 D-M9□W/M9□VW D-M9□A/M9□AV | 4 | 4 | 5 | 4 | 5.5 | 6.5 | 7.5 | 7 |
| D-F7□/F79F/F7□V D-J79/J79C D-F7□W/J79W/F7□VW D-F7BA/F7BAV D-F7NT | 4.5 | 4 | 4.5 | 5 | 5 | 6 | 6 | 6 |
| D-A7□/A80 D-A7□H/A80H 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 D-M9□W/M9□VW | 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-Z | Single acting (Panel mount) | Except $\phi 4$ | Web Catalog |
| | | CJPS-Z | Single acting (Embedded) | Except $\phi 4$ | |
| | | CJPB | Single acting (Panel mount) | Except $\phi 4$ | |
| | | CJPS | Single acting (Embedded) | Except $\phi 4$ | |

How to Order

CJP -XC17

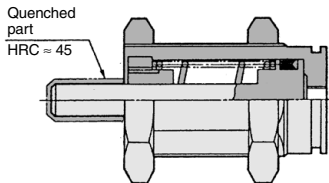
Note) Additional symbol for "-B" (without thread) is unnecessary when indicating the model no.

Rod quenched specifications

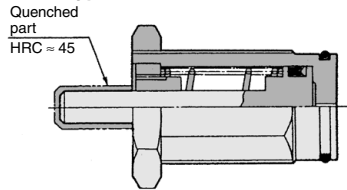
Specifications: Same as standard type

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)

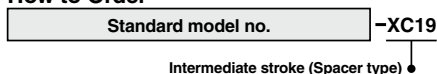
Symbol
-XC19

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) |
|--------|--------------------------------|---------------------------------|---------------------------|-----------------------|--------------------------|
| CU | Free mount cylinder | CU | Double acting, Single rod | 5 mm spacer only | Web Catalog |
| | 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 | |
| CJP2 | Pin cylinder | CJP2 | Double acting, Single rod | Except ø4 | |
| MGP | Compact guide cylinder | MGP ^{LA} _{AZ} | Double acting | Air cushion type only | |
| MXH | Compact slide | MXH-Z | Double acting | 5 mm spacer only | |
| CXS | Dual rod cylinder | CXS ^{LA} | Double acting | 5 mm spacer only | |
| CXSJ | Dual rod cylinder compact type | CXSJ ^{LA} | Double acting | 5 mm spacer only | |

How to Order



CU

Applicable Stroke

| Stroke (mm) | 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

| Stroke (mm) | 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. Minimum manufacturable stroke ø16 to ø63: 15 mm ø80, ø100: 20 mm 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 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

| Stroke (mm) | 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

| Stroke (mm) | 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

| Stroke (mm) | 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

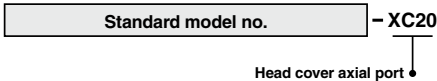
Symbol
-XC20

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 | Except with air cushion | |
| | | | Single acting (Spring return/extend) | | |
| | Non-rotating rod type | CM2K-Z | Double acting, Single rod | Except with air cushion | |
| | | | Single acting (Spring return/extend) | | |
| | 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-Z1 | Double acting, Single rod | Except double clevis type (D) | Web Catalog |
| | | | Single acting (Spring return/extend) | Except with air cushion | |
| | Non-rotating rod type | CG1K-Z | Double acting, Single rod | Except with air cushion | |
| | | | Single acting (Spring return/extend) | | |
| | 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

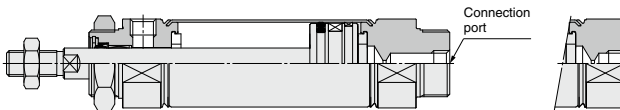


Specifications: Same as standard type

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

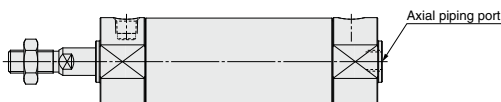
Construction (*Same dimensions as standard type except port size.)

CM2 series



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

CG1 series CG1-Z1 series



| Bore size (mm) | Port size |
|----------------|-----------|
| 20, 25, 32, 40 | Rc 1/8 |
| 50, 63 | Rc 1/4 |
| 80* | Rc 3/8 |
| 100* | Rc 1/2 |

* CG1-Z1 only

Made to Order Common Specifications: -XC22: Fluororubber Seals



29 Fluororubber Seals

Symbol
-XC22

Applicable Series

| Series | Description | Model | Action | Note | Vol. no. (for std model) |
|-------------------|--|---------------------------|---|---|--------------------------|
| CJP | Pin cylinder | CJPB-Z | Single acting (Panel mounting) | Except ø4 | |
| | | CJPS-Z | Single acting (Embedded) | Except ø4 | |
| | | CJP2 | Double acting, Single rod | Except ø4, Packing set (6) | |
| | | CJPB | Single acting (Panel mounting) | Except ø4 | |
| | | CJPS | Single acting (Embedded) | Except ø4 | |
| CJ2 | Air cylinder | CJ2-Z | Double acting, Single rod Single acting (Spring return/extend) | Except with air cushion | Web Catalog |
| | | CJ2W-Z | Double acting, Double rod | Except with air cushion | |
| | Non-rotating rod type | CJ2K-Z | Double acting, Single rod | | |
| | Direct mount type | CJ2R-Z | Double acting, Single rod | | |
| CM2 | Air cylinder | CM2-Z | Double acting, Single rod | | |
| | | CM2W-Z | Double acting, Double rod | | |
| | Non-rotating rod type | CM2K-Z | Double acting, Single rod | | |
| | | 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 | | | |
| CG1 | Air cylinder | CG1-Z | Double acting, Single rod | Without a bumper for cylinders with a rubber bumper | (4) |
| | 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 | |
| MB | Air cylinder | MB-Z | Double acting, Single rod | Except ø125, Air cushion only | |
| | | MBW-Z | Double acting, Double rod | Except ø125, Air cushion only | |
| MB1 | Air cylinder | MB1-Z | Double acting, Single rod | Except ø125, Air cushion only | |
| | | MB1W-Z | Double acting, Double rod | Except ø125, Air cushion only | |
| CA2 | Air cylinder | CA2-Z | Double acting, Single rod | Air cushion only | |
| | | CA2W-Z | Double acting, Double rod | Air cushion only | |
| | End lock cylinder | CBA2 | Double acting, Single rod | | |
| CS1 | Air cylinder | CS1 | Double acting, Single rod | Applicable bore: Lube type 125 to 300, Non-lube type 125 to 200 | |
| CS2 | Air cylinder | CS2 | Double acting, Single rod | Applicable to ø125 to ø160 | Web Catalog |
| | | CS2W | Double acting, Double rod | Applicable to ø125 to ø160 | |
| CUJ | Mini free mount cylinder | CUJ | Double acting, Single rod | Except ø4, ø12 to ø20: A bumper is a standard product. | |
| CU | Free mount cylinder | CU | Double acting, Single rod Single acting (Spring return/extend) | | |
| | | CUK | Double acting, Single rod | | |
| | Non-rotating rod type | CUK | Single acting (Spring return/extend) | | |
| | Long stroke | CU | Double acting, Single rod | | |
| | Long stroke, Non-rotating | CUK | Double acting, Single rod | | |
| MGP | Compact guide cylinder | MGPM-Z | Double acting | Slide bearing only | |
| | Heavy duty guide rod type | MGPS | Double acting | | |
| MGQ | Compact guide cylinder | MGQM | Double acting | Slide bearing only | (5) |
| MGG | Guide cylinder | MGG | Double acting | Without rubber bumper | |
| MGC | Guide cylinder | MGC | Double acting | | |
| CEP1 | High precision stroke reading cylinder | CEP1 | Double acting, Single rod | | |
| MXH | Compact slide | MXH-Z | Double acting | | |
| CXS | Dual rod cylinder | CXS | Double acting | | Web Catalog |
| CXSJ | Dual rod cylinder compact type | CXSJ | Double acting | | |
| CX2 | Slide unit | CX2 | Double acting | | |
| CXW | Slide unit | CXW | Double acting | | |
| MK | 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) Without auto switch : -10 to 70°C (0°C to 70°C for CS1, CS2 series) | Note 1) (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) The MGQ series is using a shock absorber RBL type.

Note 4) No cushion is equipped for N type. Piston speed is ranged from 50 to 500 mm/s.

Note 5) The MGP and MGQ series are without a cushion.

Confirm the kinetic energy.

Note 6) 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: -XC22: Fluororubber Seals



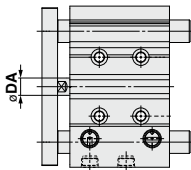
29 Fluororubber Seals

Symbol
-XC22

How to Order

MGPM **-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 |

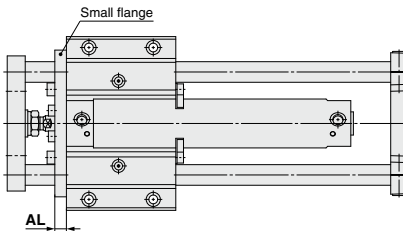
The dimensions in () are the same as standard type.

How to Order

MGC **-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 |

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-Z | Double acting | Web Catalog |
| | | CY3B | | |
| REA | Sine rodless cylinder | REA | Double acting | |

How to Order

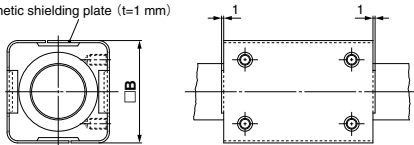
CY3B
REA -XC24

With magnetic shielding plate

Specifications: Same as standard type

Dimensions

Magnetic shielding plate (t=1 mm)



| 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

A CM2 series air cylinder with no restrictor on the rod cover and head cover ports

Applicable Series

| Series | Description | Model | Action | Vol. no. (for std model) |
|--------|-------------------------------------|---------|-----------------------------------|--------------------------|
| CM2 | Air cylinder | CM2-Z | Double acting, Single rod | Web Catalog |
| | | | Single acting (Spring return/air) | |
| | | CM2W-Z | Double acting, Double rod | |
| | Non-rotating rod type | CM2K-Z | Double acting, Single rod | |
| | | 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 | |
| | Smooth cylinder | CM2Y-Z | Double acting, Single rod | |

* Except with air cushion (Standard equipment)

How to Order

CM2 -XC25

No fixed throttle in connection port

Specifications/ Dimensions: Same as standard type

⚠ 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 **-XC26**

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

Applicable Series

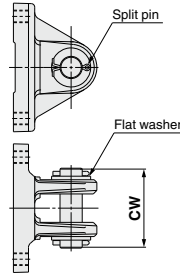
| Series | Description | Model | Action | Note | Vol. no. (for std model) |
|--------|-----------------|-------|---------------------------|-------------------|--------------------------|
| MB | Air cylinder | MB | Double acting, Single rod | ø125 only | Web Catalog |
| | | | Double acting, Single rod | ø125 only | |
| MB1 | Air cylinder | MB1W | Double acting, Double rod | ø125 only | |
| | | | Double acting, Double rod | ø125 only | |
| CS1 | Standard type | CS1 | Double acting, Single rod | ø125 to ø160 only | |
| | Low friction | CS1Q | Double acting, Single rod | | |
| CS2 | Standard type | CS2 | Double acting, Single rod | ø125 to ø160 only | |
| | Smooth cylinder | CS2Y | Double acting, Single rod | | |

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

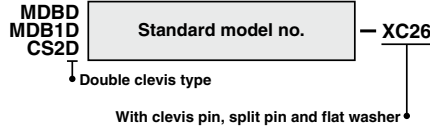


- * For mounting bracket, split pin, clevis pin and flat washer are shipped together, (but not assembled).
- * Mounting method is the same as standard type.

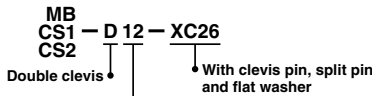
| Bore size (mm) | CW |
|----------------|-----|
| ø125 | 90 |
| ø140 | 104 |
| ø160 | 113 |
| ø180 | 136 |
| ø200 | 136 |
| ø250 | 169 |
| ø300, ø320 | 207 |

How to Order

• Product

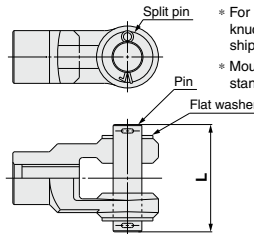


• Parts assembly



| Bore size | Applicable model |
|-----------|--------------------------|
| 12 | 125 mm MB, MB1, CS1, CS2 |
| 14 | 140 mm CS1, CS2 |
| 16 | 160 mm CS1, CS2 |
| 18 | 180 mm CS1, CS2 |
| 20 | 200 mm CS1, CS2 |
| 25 | 250 mm CS1, CS2 |
| 30 | 300 mm CS1 |
| 32 | 320 mm CS2 |

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 |
| ø180 | 136 |
| ø200 | 136 |
| ø250 | 169 |
| ø300, ø320 | 207 |

CS1 Y — 12, 14, 16, 18, 20, 25, 30 — **XC26**

MB
MB1 Y — 12A, 14A, 16A, 18A, 20A, 25A, 32A — **XC26**
CS2

Double knuckle joint

With knuckle joint pin, split pin and flat washer

IY — 12, 14, 16, 18, 25, 30 — **XC26**

Clevis pin/Knuckle joint pin

With clevis pin, knuckle joint pin, split pin, and flat washer

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

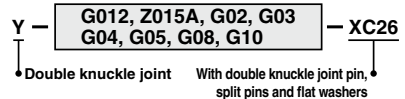
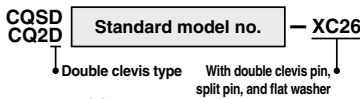
| Series | Model | Action | Note | Vol. no. (for std model) |
|--------|-------------------|--------|--|--------------------------|
| CQS | Standard | CQS | Double acting, Single rod Single acting (Spring return/stand) | Web Catalog |
| | Long stroke | CQS | Double acting, Single rod | |
| | Non-rotating rod | CQSK | Double acting, Single rod | |
| | Anti-lateral load | CQS□S | Double acting, Single rod | |
| CQ2 | Compact cylinder | CQ2 | Double acting, Single rod Single acting (Spring return/stand) | |
| | Long stroke | CQ2 | Double acting, Single rod | |
| | Non-rotating rod | CQ2K | Double acting, Single rod | |
| | Anti-lateral load | CQ2□S | Double acting, Single rod | |
| | With end lock | CBQ2 | Double acting, Single rod | |

Specifications

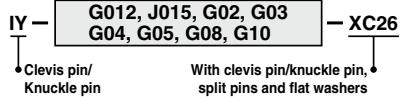
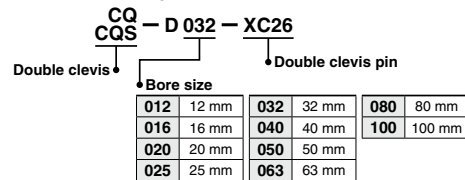
| | |
|---------------------------------|--|
| Mounting | Double clevis (D) only |
| Changed parts | Clevis pin/Knuckle pin, Split pin, Flat washer |
| Specifications other than above | Same as standard |

How to Order

● Product



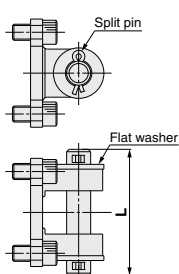
● Parts assembly



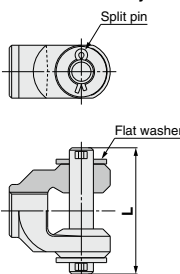
* For the CQS, only bore sizes 012 to 025 are selectable.

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

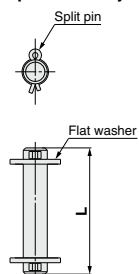
Double clevis



Double knuckle joint



Clevis pin/Knuckle joint pin



* Body mounting bolts, pin, split pins, and flat washers are included.

* A pin, split pins, and flat washers are included.

* Split pins and flat washers are included.

| Bore size (mm) | Double clevis | Double knuckle joint | Clevis pin Knuckle joint pin | L (mm) |
|----------------|---------------|----------------------|---------------------------------|--------|
| 12 | CQ-D012-XC26 | Y-G012-XC26 | IY-G012-XC26 | 21 |
| 16 | CQ-D016-XC26 | Y-Z015A-XC26 | IY-J015-XC26 | 23 |
| 20 | CQ-D020-XC26 | Y-G02-XC26 | IY-G02-XC26 | 31 |
| 25 | CQ-D025-XC26 | Y-G03-XC26 | IY-G03-XC26 | 36.5 |
| 32 | CQ-D032-XC26 | | | |
| 40 | CQ-D040-XC26 | Y-G04-XC26 | IY-G04-XC26 | 52.5 |

| Bore size (mm) | Double clevis | Double knuckle joint | Clevis pin Knuckle joint pin | L (mm) |
|----------------|---------------|----------------------|---------------------------------|--------|
| 50 | CQ-D050-XC26 | | | |
| 63 | CQ-D063-XC26 | Y-G05-XC26 | IY-G05-XC26 | 66 |
| 80 | CQ-D080-XC26 | Y-G08-XC26 | IY-G08-XC26 | 78 |
| 100 | CQ-D100-XC26 | Y-G10-XC26 | IY-G10-XC26 | 86 |

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



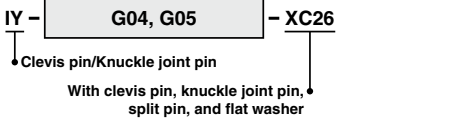
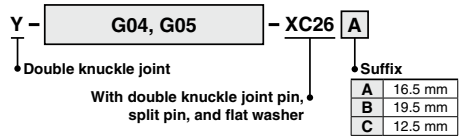
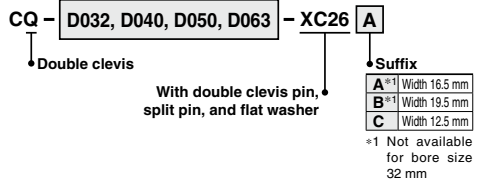
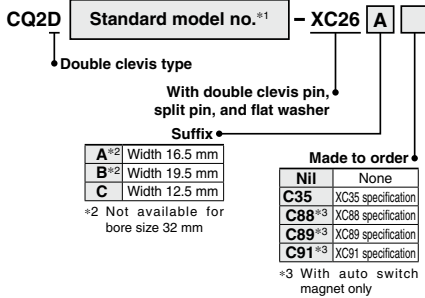
33 Double Clevis Width, Double Knuckle Joint Width 12.5 mm, 16.5 mm, or 19.5 mm: With Double Clevis and Double Knuckle Joint -XC26

3 different double clevis widths and double knuckle joint widths are selectable: 12.5 mm, 16.5 mm, or 19.5 mm

| Series | Description | Model | Action | Note | Vol. no. (for std model) |
|--------|-------------------|-------|------------------------------|--|--------------------------|
| CQ2 | Compact cylinder | CQ2 | Double acting, Single rod | Applicable to ø32 to ø63 Double clevis (D) mounting only | Web Catalog |
| | Long stroke | CQ2 | | | |
| | Anti-lateral load | CQ2□S | | | |

Specifications:
Same as those of the standard type

How to Order



*1 Can be ordered with a rod end bracket (double knuckle joint)

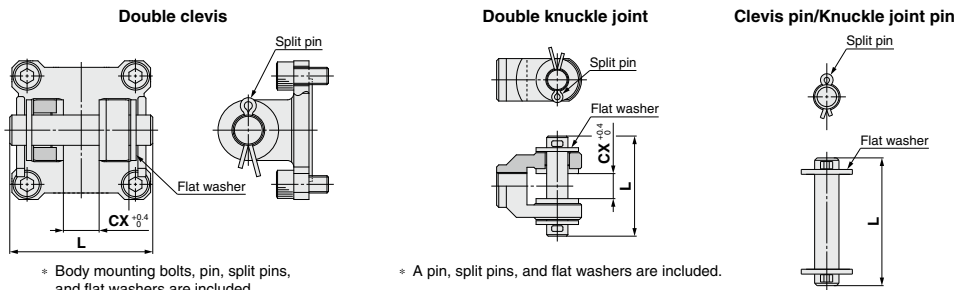
Applicable Made to Order Options

| Series | Made to order | | | |
|-------------------|---------------|------|------|------|
| | XC35 | XC88 | XC89 | XC91 |
| Compact cylinder | ● | ● | ● | — |
| Long stroke | ● | ● | ● | ● |
| Anti-lateral load | — | — | ● | ● |

* For details on XC35 ⇨ Web Catalog

For details on XC88, 89, and 91 ⇨ Web Catalog

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



| Bore size [mm] | Double clevis | Double knuckle joint | Clevis pin Knuckle joint pin | [mm] | |
|----------------|---------------|----------------------|---------------------------------|------|------|
| | | | | CX | L |
| 32 | CQ-D032-XC26C | Y-G04-XC26C | IY-G04-XC26 | 12.5 | 52.5 |
| | CQ-D040-XC26A | Y-G04-XC26A | | 16.5 | |
| 40 | CQ-D040-XC26B | Y-G04-XC26B | IY-G05-XC26 | 19.5 | 66 |
| | CQ-D040-XC26C | Y-G04-XC26C | | 12.5 | |
| 50 | CQ-D050-XC26A | Y-G05-XC26A | IY-G05-XC26 | 16.5 | 66 |
| | CQ-D050-XC26B | Y-G05-XC26B | | 19.5 | |
| 63 | CQ-D050-XC26C | Y-G05-XC26C | IY-G05-XC26 | 12.5 | 66 |
| | CQ-D063-XC26A | Y-G05-XC26A | | 16.5 | |
| 63 | CQ-D063-XC26B | Y-G05-XC26B | IY-G05-XC26 | 19.5 | 66 |
| | CQ-D063-XC26C | Y-G05-XC26C | | 12.5 | |

* Split pins and flat washers 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 ⁽¹⁾ Single acting (Spring return) ⁽¹⁾ | Web Catalog |
| | Non-rotating rod type | CM2K-Z | Double acting, Single rod ⁽¹⁾ Single acting (Spring return) ⁽¹⁾ | |
| | End lock cylinder | CBM2 | Double acting, Single rod | |
| | Smooth cylinder | CM2Y-Z | Double acting, Single rod | |
| CG1 | Air cylinder | CG1-Z1 | Double acting, Single rod | |
| | Standard type | CG1-Z | Double acting, Single rod ⁽¹⁾ Single acting (Spring return) ⁽¹⁾ | |
| MB | Non-rotating rod type | CG1K-Z ⁽²⁾ | Double acting, Double rod ⁽¹⁾ | |
| | Standard type | MB-Z | Double acting, Double rod ⁽¹⁾ | |
| | Non-rotating rod type | MBK-Z | Double acting, Single rod ⁽¹⁾ | |
| | | MBKW-Z | Double acting, Double rod | |
| MB1 | With end lock | MBB | Double acting, Single rod | |
| | Smooth cylinder | MBY-Z | Double acting, Single rod ⁽¹⁾ | |
| | Standard type | MB1-Z | Double acting, Single rod ⁽¹⁾ | |
| CA2 | Non-rotating rod type | MB1K-Z | Double acting, Single rod ⁽¹⁾ | |
| | Standard type | CA2-Z | Double acting, Single rod ⁽¹⁾ | |
| | Non-rotating rod type | CA2K | Double acting, Single rod | |
| | End lock cylinder | CBA2 | Double acting, Single rod | |
| | Air-hydro cylinder | CA2H | Double acting, Single rod | |
| | Smooth cylinder | CA2Y-Z | Double acting, Single rod | |

| Series | Description | Model | Action | Vol. no. (for std model) |
|--------|------------------------|---------|--|--------------------------|
| CS1 | Standard type | CS1 | Double acting, Single rod | Web Catalog |
| | Low friction | CS1Q | Double acting, Single rod | |
| CS2 | Standard type | CS2 | Double acting, Single rod | |
| | Smooth cylinder | CS2Y | Double acting, Single rod | |
| CQS | Standard type | CQS | Double acting, Single rod Single acting (Spring return) ⁽¹⁾ | |
| | 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 ⁽¹⁾ Single acting (Spring return) ⁽¹⁾ | |
| | 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 | |

Note 1) Except cylinders with double knuckle joint bracket in How to Order
Note 2) Except ø20, ø25, and ø32 with air cushion

How to Order

| | | |
|------|---|--|
| CM2D | Standard model no. | -XC27 |
| CG1D | Standard model no. | -XC27 |
| CA2D | Standard model no. | -XC27 |
| CS1D | Standard model no. | -XC27 |
| CS2D | Standard model no. | -XC27 |
| CQSD | Standard model no. | -XC27 |
| CQ2D | 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, 18A, 20A, 25A, 32A | -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 made of stainless steel | 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 | ○ | ○ | ○ | ○ | ○ | ○ | Web Catalog |
| CG1 | 20, 25, 32, 40, 50, 63, 80, 100 | ○* | ○* | ○ | ○ | — | ○ | |
| CQ2 | 20, 25, 32, 40, 50, 63, 80, 100 | — | — | ○ | ○ | — | ○ | |

* 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 | Web Catalog |
| | | 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 | |
| | Air-hydro cylinder | CA2H | Double acting, Single rod | |
| CA2HW | | Double acting, Double rod | | |
| Smooth cylinder | CA2Y-Z | Double acting, Single rod | | |

How to Order

CA2 **F** Standard model no. -XC28

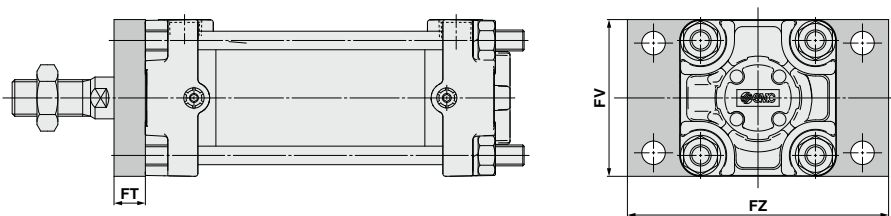
Compact flange made of SS400

• Mounting type

| | |
|----------|------------------|
| F | Rod side flange |
| G | Head side flange |

Specifications: Same as standard type

Dimensions



| Bore size (mm) | (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

Applicable Series

| Series | Description | Model | Action | Vol. no. (for std model) |
|--------|-------------------|--|--|--------------------------|
| CM2 | Air cylinder | CM2-Z | Double acting, Single rod ⁽¹⁾ Single acting (Spring return) ^{(1) (2)} | Web Catalog |
| | | CM2W-Z | Double acting, Double rod | |
| | CM2R-Z | Double acting, Single rod ⁽¹⁾ | | |
| | CM2□□P | Double acting, Single rod | | |
| | End lock cylinder | CBM2 | Double acting, Single rod | |
| CG1 | Air cylinder | CG1-Z1 | Double acting, Single rod | |
| | | CG1-Z | Double acting, Single rod ⁽¹⁾ Single acting (Spring return) ^{(1) (2)} | |

| Series | Description | Model | Action | Vol. no. (for std model) |
|--------|----------------------------|--------------------|--|--------------------------|
| MB | Air cylinder | MB-Z [*] | Double acting, Single rod ⁽¹⁾ | Web Catalog |
| | Cylinder with end lock | MBB | Double acting, Single rod | |
| | Smooth cylinder | MBY-Z | Double acting, Single rod | |
| MB1 | Air cylinder | MB1-Z [*] | Double acting, Single rod ⁽¹⁾ | |
| CA2 | Air cylinder | CA2-Z | Double acting, Single rod ⁽¹⁾ | |
| | End lock cylinder | CBA2 | Double acting, Single rod | |
| | Air-hydro cylinder | CA2H | Double acting, Single rod | |
| CV | Valve mounted air cylinder | CA2Y-Z | Double acting, Single rod | |
| | | CV3 | Double acting, Single rod | |

* Except $\phi 125$

Note 1) Except cylinders with rod end bracket in How to Order
Note 2) Compatible with rubber bumper only

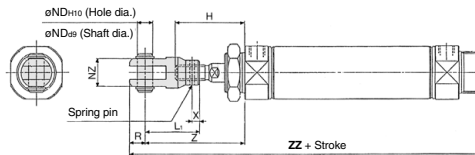
How to Order

Standard model no. **-XC29**
Double knuckle joint with spring pin

Specifications: Same as standard type

Dimensions (For mounting bracket, pin is shipped together.)

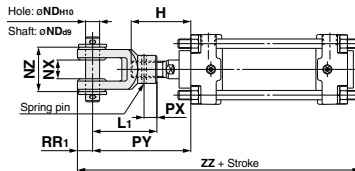
CM2 series



| Bore size (mm) | H | L ₁ | NDH ₁₀ | NZ | R | X | Z | ZZ | Spring pin |
|----------------|----|----------------|-----------------------------------|----|----|----|----|-----|------------|
| 20 | 41 | 36 | 9 ^{+0.058} ₀ | 18 | 10 | 5 | 61 | 146 | ø3 x 16L |
| 25 | 45 | 38 | 9 ^{+0.058} ₀ | 18 | 10 | 5 | 65 | 150 | ø3 x 16L |
| 32 | 45 | 38 | 9 ^{+0.058} ₀ | 18 | 10 | 5 | 65 | 152 | ø3 x 16L |
| 40 | 50 | 55 | 12 ^{+0.070} ₀ | 38 | 13 | 11 | 83 | 200 | ø4 x 24L |

* Other dimensions are the same as standard type.

CA2 series



| Bore size (mm) | H | L ₁ | PX | PY | ZZ | RR ₁ | øND | H10 | d _e | NX | NZ | Spring pin |
|----------------|----|----------------|----|-----|-----|-----------------|-----|-------------|------------------|----------------------------|----|------------|
| 40 | 51 | 55 | 11 | 84 | 192 | 13 | 12 | +0.070 0 | -0.050 -0.093 | 16 ^{+0.3} -0.1 | 38 | ø4 x 24L |
| 50 | 58 | 60 | 12 | 91 | 207 | 15 | 12 | +0.070 0 | -0.050 -0.093 | 16 ^{+0.3} -0.1 | 38 | ø4 x 25L |
| 63 | 58 | 60 | 12 | 91 | 218 | 15 | 12 | +0.070 0 | -0.050 -0.093 | 16 ^{+0.3} -0.1 | 38 | ø4 x 25L |
| 80 | 71 | 71 | 16 | 105 | 257 | 19 | 18 | +0.070 0 | -0.050 -0.093 | 28 ^{+0.3} -0.1 | 55 | ø4 x 36L |
| 100 | 72 | 83 | 16 | 118 | 282 | 21 | 20 | +0.084 0 | -0.065 -0.117 | 30 ^{+0.3} -0.1 | 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

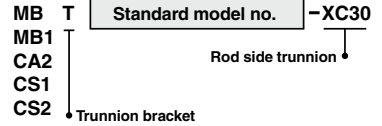
Symbol
-XC30

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 | Note | Vol. no. (for std model) |
|--------|------------------------|----------------------|---------------------------|-------------------|--------------------------|
| MB | Standard type | MB-Z ^{*1} | Double acting, Single rod | Web Catalog | |
| | | MBW-Z ^{*1} | Double acting, Double rod | | |
| | Non-rotating rod type | MBK-Z | Double acting, Single rod | | |
| | Cylinder with end lock | MBB | Double acting, Single rod | | |
| | Smooth cylinder | MBY-Z | Double acting, Single rod | | |
| MB1 | Standard type | MB1-Z ^{*1} | Double acting, Single rod | | |
| | | MB1W-Z ^{*1} | Double acting, Double rod | | |
| | Non-rotating rod type | MB1K-Z | Double acting, Single rod | | |
| CA2 | Air cylinder | CA2-Z | Double acting, Single rod | | |
| | End lock cylinder | CBA2 ^{*2} | Double acting, Single rod | | |
| | Smooth cylinder | CA2Y-Z | Double acting, Single rod | | |
| CS1 | Standard type | CS1 | Double acting, Single rod | | |
| | | CS1W | Double acting, Double rod | | |
| CS2 | Standard type | CS1Q | Double acting, Single rod | ø125 to ø160 only | |
| | | CS2 | Double acting, Single rod | ø125 to ø160 only | |
| CS2 | Smooth cylinder | CS2W | Double acting, Double rod | ø125 to ø160 only | |
| | | CS2Y | Double acting, Single rod | ø125 to ø160 only | |

How to Order



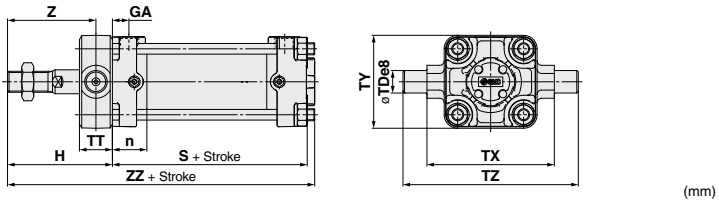
Specifications: Same as standard type

*1 Except ø125

*2 Only applicable to the type with a head side end lock

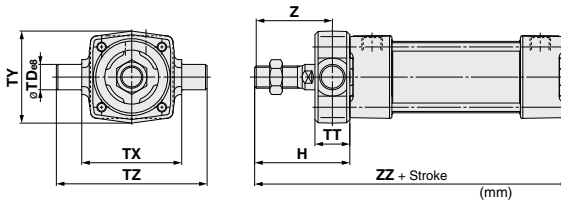
Dimensions (Dimensions other than below are the same as standard type.)

CA2 series



| Symbol | n | GA | H | S | TDe8 | TT | TX | TY | TZ | Z | ZZ |
|---------------------|----|----|------|-----|--|----|-----|-----|-----|------|-------|
| Bore size 40 | 23 | 11 | 66 | 80 | 15 ^{-0.032} _{-0.059} | 22 | 85 | 62 | 117 | 55 | 151 |
| 50 | 26 | 13 | 71 | 86 | 15 ^{-0.032} _{-0.059} | 22 | 95 | 74 | 127 | 60 | 163 |
| 63 | 27 | 13 | 79 | 94 | 18 ^{-0.032} _{-0.059} | 28 | 110 | 90 | 148 | 65 | 179 |
| 80 | 32 | 16 | 94.5 | 111 | 25 ^{-0.043} _{-0.073} | 34 | 140 | 110 | 192 | 77.5 | 212.5 |
| 100 | 35 | 16 | 100 | 121 | 25 ^{-0.040} _{-0.073} | 40 | 162 | 130 | 214 | 80 | 229 |

MB series



| Bore size | H | øTDe8 | TT | TX | TY | TZ | Z | ZZ |
|------------|----|--|----|-----|-----|-----|------|-----|
| 32 | 47 | 12 ^{-0.032} _{-0.059} | 17 | 50 | 49 | 74 | 38.5 | 135 |
| 40 | 60 | 16 ^{-0.032} _{-0.059} | 22 | 63 | 58 | 95 | 49 | 148 |
| 50 | 66 | 16 ^{-0.032} _{-0.059} | 22 | 75 | 71 | 107 | 55 | 164 |
| 63 | 72 | 20 ^{-0.040} _{-0.073} | 28 | 90 | 87 | 130 | 58 | 170 |
| 80 | 86 | 20 ^{-0.040} _{-0.073} | 34 | 110 | 110 | 150 | 69 | 204 |
| 100 | 92 | 25 ^{-0.040} _{-0.073} | 40 | 132 | 136 | 182 | 72 | 210 |

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



Made to Order Common Specifications: -XC30: Rod Side Trunnion

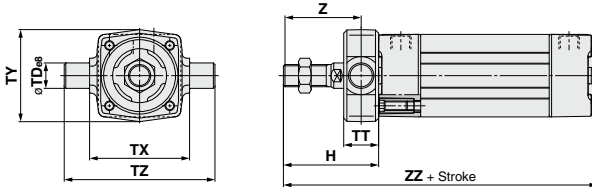


37 Rod Side Trunnion

Symbol
-XC30

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

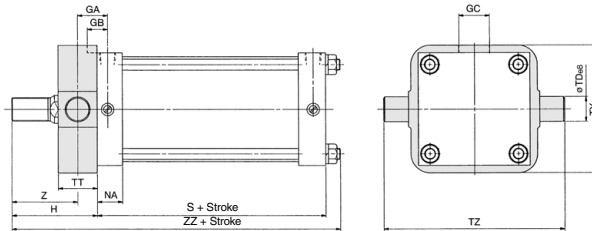
MB1 series



| Bore size | H | øTDø8 | TT | TX | TY | TZ | Z | ZZ |
|------------|----|--|----|-----|-----|-----|------|-----|
| 32 | 47 | 12 ^{+0.032} _{-0.059} | 17 | 50 | 49 | 74 | 38.5 | 135 |
| 40 | 60 | 16 ^{+0.038} _{-0.059} | 22 | 63 | 58 | 95 | 49 | 148 |
| 50 | 66 | 16 ^{+0.038} _{-0.059} | 22 | 75 | 71 | 107 | 55 | 164 |
| 63 | 72 | 20 ^{+0.040} _{-0.073} | 28 | 90 | 87 | 130 | 58 | 170 |
| 80 | 86 | 20 ^{+0.040} _{-0.073} | 34 | 110 | 110 | 150 | 69 | 204 |
| 100 | 92 | 25 ^{+0.040} _{-0.073} | 40 | 132 | 136 | 182 | 72 | 210 |

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

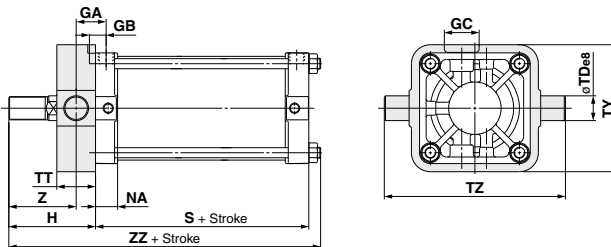
CS1 series



| Bore size (mm) | Symbol | GA | GB | GC | NA | S | øTDø8 | TT | TY | TZ | H | Z | ZZ |
|----------------|--------|------|------|----|----|-----|--|----|-----|-----|-----|-------|-----|
| 125 | | 38 | 23 | 45 | 32 | 95 | 32 ^{-0.050} _{-0.089} | 50 | 164 | 234 | 113 | 88.0 | 227 |
| 140 | | 40.5 | 23 | 45 | 32 | 95 | 36 ^{-0.050} _{-0.089} | 55 | 184 | 262 | 113 | 85.5 | 227 |
| 160 | | 45.5 | 25.5 | 50 | 36 | 103 | 40 ^{-0.050} _{-0.089} | 60 | 204 | 292 | 123 | 93.0 | 248 |
| 180 | | 45 | 25.5 | 50 | 36 | 108 | 45 ^{-0.050} _{-0.089} | 59 | 228 | 326 | 138 | 108.5 | 272 |
| 200 | | 45 | 25.5 | 50 | 36 | 108 | 45 ^{-0.050} _{-0.089} | 59 | 257 | 355 | 138 | 108.5 | 272 |
| 250 | | 54.5 | 30 | 60 | 46 | 138 | 56 ^{-0.060} _{-0.106} | 69 | 325 | 447 | 163 | 128.5 | 331 |
| 300 | | 59.5 | 30 | 70 | 46 | 143 | 67 ^{-0.060} _{-0.106} | 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 | TDø8 | TT | TY | TZ | H | Z | ZZ |
|----------------|------|----|----|------|-----|--|----|-----|-----|-----|------|-----|
| 125 | 38 | 23 | 45 | 28.5 | 96 | 32 ^{-0.050} _{-0.089} | 50 | 164 | 234 | 112 | 87 | 221 |
| 140 | 40.5 | 23 | 45 | 28.5 | 96 | 36 ^{-0.050} _{-0.089} | 55 | 184 | 262 | 112 | 84.5 | 221 |
| 160 | 46 | 26 | 50 | 32.5 | 104 | 40 ^{-0.050} _{-0.089} | 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) **-XC34**

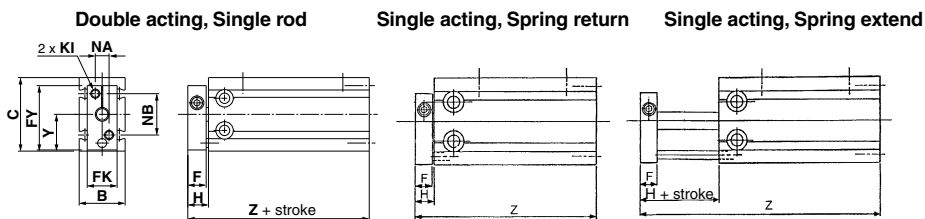
The plate has workpiece mounting screws.
The dimension FL, the distance between a non-rotating plate to piston rod end, has been eliminated.
The piston rod does not protrude from the plate.

Applicable model no. **-XC34**

Applicable Series

| Series | Description | Model | Action | Vol. no. (for std model) |
|--------|------------------------------|-------|--|--------------------------|
| CU | Non-rotating rod | CUK | Double acting, Single rod | Web Catalog |
| | Non-rotating rod | CUK | Single acting, Single rod (Spring return/extend) | |
| | Non-rotating rod/Long stroke | CUK | Double acting, Single rod | |

Dimensions



(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)

| Bore size (mm) | Action | F | H | Z | | | | | | | | | | | | | | |
|----------------|--------|-----|------|----------------|-------------|-------------------------------|------|-----|-------------|------|-----|-------------------------------|------|-----|-------------|------|--|--|
| | | | | 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 | 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

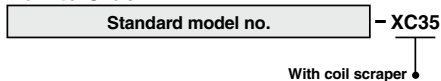
Symbol
-XC35

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 | Web Catalog |
| | | CM2W-Z | Double acting, Double rod | Except with air cushion | |
| | Cylinder with end lock | CBM2 | Double acting, Single rod | Lock in head end only (Except with air cushion) | |
| CG1 | Air cylinder | CG1-Z1 | Double acting, Single rod | | |
| | | CG1-Z | Double acting, Single rod | | |
| MB | Air cylinder | MB-Z | Double acting, Single rod | Except ø125 | |
| | | MBW-Z | Double acting, Double rod | Except ø125 | |
| MB1 | Air cylinder | MB1-Z | Double acting, Single rod | Except ø125 | |
| | | MBW-Z | Double acting, Double rod | Except ø125 | |
| CA2 | Air cylinder | CA2-Z | Double acting, Single rod | | |
| | | CA2W-Z | Double acting, Double rod | | |
| | Cylinder with end lock | CBA2 | Double acting, Single rod | | |
| CS1 | Air cylinder | CS1 | Double acting, Single rod | | |
| | | CS1W | Double acting, Double rod | | |
| CS2 | Air cylinder | CS2 | Double acting, Single rod | Applicable to ø125 to ø250 | |
| | | CS2W | Double acting, Double rod | Applicable to ø125 to ø160 | |
| CQ2 | Compact cylinder | 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 | |
| | | CQ2-Z | Double acting, Single rod | Applicable to ø32 to ø100 | |
| RQ | Compact cylinder with air cushion | RQ | Double acting, Single rod | Applicable to ø32 to ø100 | |
| MWB | Cylinder with lock | MWB | Double acting, Single rod | | |
| | | MWBW | Double acting, Double rod | | |
| | Lock unit | MWB-UT | — | Both sides are equipped with a coil scraper | |
| CNA2 | Cylinder with lock | CNA2 | Double acting, Single rod | | |
| CNG | Cylinder with lock | CNG | Double acting, Single rod | | |
| CLS | Cylinder with lock | CLS | Double acting, Single rod | Applicable to ø125 to ø160 (ø180 to ø250 as standard) | |
| CLQ | Compact cylinder with lock | CLQ | Double acting, Single rod | Applicable to ø40 to ø100 | |
| MGP | Compact guide cylinder | MGPM-Z | Double acting | Applicable to ø20 to ø100 | |
| | | 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 | |
| MGC | Guide cylinder | MGC | Double acting | Applicable to ø32 to ø50 | |

How to Order



* For MGP series, refer to page 1542.

Specifications: Same as standard type

Made to Order Common Specifications: -XC35: With Coil Scraper

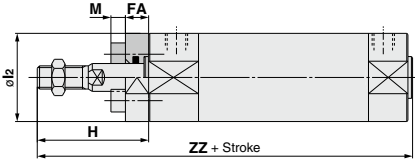


39 With Coil Scraper

Symbol
-XC35

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

CG1-Z1 series CG1-Z series



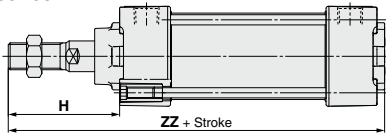
| Bore size | Stroke range | | FA | H | | I ₂ | M | ZZ | |
|-----------|------------------------|------------------------|----|-------------|---------------|----------------|-----|-------------|---------------|
| | CG1-Z1 | CG1-Z | | Male thread | Female thread | | | Male thread | Female thread |
| 20 | Up to 200 (up to 1500) | Up to 300 (up to 1500) | 6 | 39 | 27 | 26 | 4 | 110 (118) | 98 (106) |
| 25 | | | 6 | 44 | 28 | 31 | 5 | 115 (123) | 99 (107) |
| 32 | Up to 1000 | Up to 300 (up to 1500) | 6 | 44 | 28 | 38 | 5 | 117 (125) | 101 (109) |
| 40 | | | 7 | 54 | 29 | 47 | 3.5 | 134 (143) | 109 (118) |
| 50 | | | 7 | 62 | 30 | 58 | 4.5 | 154 (166) | 122 (134) |
| 63 | | | 7 | 62 | 30 | 72 | 5.5 | 154 (166) | 122 (134) |

Note) (): CG1-Z long stroke

* 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).

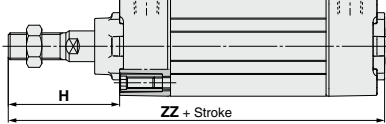
The dimensions of the CS2 series are the same as the standard type.

MB series



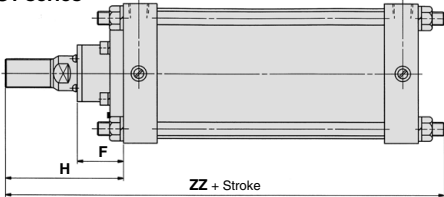
| Bore size | H | ZZ |
|-----------|----|-----|
| 32 | 47 | 135 |
| 40 | 58 | 146 |
| 50 | 67 | 165 |
| 63 | 67 | 165 |
| 80 | 81 | 199 |
| 100 | 81 | 199 |

MB1 series



| Bore size | H | ZZ |
|-----------|----|-----|
| 32 | 47 | 135 |
| 40 | 58 | 146 |
| 50 | 67 | 165 |
| 63 | 67 | 165 |
| 80 | 81 | 199 |
| 100 | 81 | 199 |

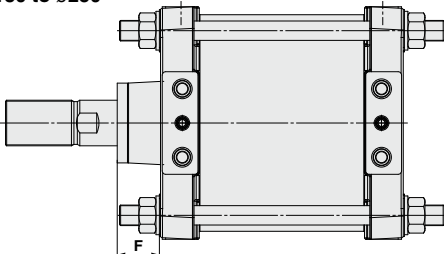
CS1 series



| Bore size | 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 | — | — | — |

CS2 series Bore sizes $\phi 125$ to $\phi 160$ have the same dimensions as the standard type.

$\phi 180$ to $\phi 250$



| Bore size | F |
|-----------|----|
| 180 | 37 |
| 200 | 41 |
| 250 | 52 |

Made to Order Common Specifications: -XC35: With Coil Scraper

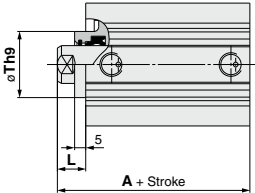


39 With Coil Scraper

Symbol
-XC35

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

CQ2 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 ⁺⁰ _{-0.062} |
| 40 | 41.5 (51.5) | 51.5 | 72 | 12 | 17 | 28 ⁺⁰ _{-0.062} |
| 50 | 43.5 (53.5) | 53.5 | 73.5 | 13 | 18 | 35 ⁺⁰ _{-0.062} |
| 63 | 49 (59) | 59 | 75 | 13 | 18 | 35 ⁺⁰ _{-0.062} |
| 80 | 58.5 (68.5) | 68.5 | 86 | 15 | 20 | 43 ⁺⁰ _{-0.062} |
| 100 | 70 (80) | 80 | 97.5 | 17 | 22 | 59 ⁺⁰ _{-0.074} |

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

Made to Order Common Specifications: -XC35: With Coil Scraper

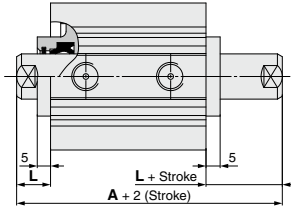


39 With Coil Scraper

Symbol
-XC35

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

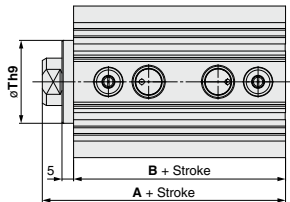
CQ2W series



| Bore size | A | | L |
|------------|-------------------|----------------|----|
| | 50 stroke or less | 75, 100 stroke | |
| 32 | 54.5 (64.5) | 64.5 | 12 |
| 40 | 64 (74) | 74 | 12 |
| 50 | 66.5 (76.5) | 76.5 | 13 |
| 63 | 68 (78) | 78 | 13 |
| 80 | 81 (91) | 91 | 15 |
| 100 | 94.5 (104.5) | 104.5 | 17 |

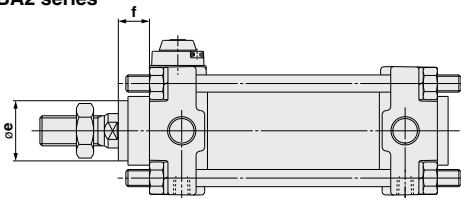
* () : Denotes the dimensions with auto switch magnet.

RQ series



| Bore size (mm) | A | B | Th9 |
|----------------|------|------|-----------------------------------|
| 32 | 49 | 37 | 23 ⁰ _{-0.052} |
| 40 | 56 | 44 | 28 ⁰ _{-0.052} |
| 50 | 62.5 | 49.5 | 35 ⁰ _{-0.062} |
| 63 | 68 | 55 | 35 ⁰ _{-0.062} |
| 80 | 78.5 | 63.5 | 43 ⁰ _{-0.062} |
| 100 | 93 | 76 | 59 ⁰ _{-0.074} |

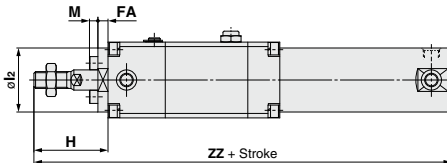
CBA2 series



| Bore size (mm) | øe | f | |
|----------------|----|------------------------|------------------------|
| | | With rod side locking. | With both-side locking |
| 40 | 28 | 14.5 | |
| 50 | 32 | 16.5 | |
| 63 | 32 | 14 | |
| 80 | 37 | 16 | |
| 100 | 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.

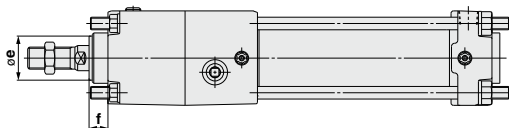
CNG series



| Bore size (mm) | FA | M | l ₂ | H | ZZ |
|----------------|----|-----|----------------|----|-----|
| 20 | 6 | 4 | 26 | 39 | 182 |
| 25 | 6 | 5 | 31 | 44 | 197 |
| 32 | 6 | 5 | 38 | 44 | 200 |
| 40 | 7 | 3.5 | 47 | 54 | 225 |
| | | | | | ZZ |
| | | | | | 190 |
| | | | | | 205 |
| | | | | | 208 |
| | | | | | 234 |

Long stroke

CNA2 series



| Bore size (mm) | e | f |
|----------------|----|------|
| 40 | 28 | 12 |
| 50 | 32 | 12.5 |
| 63 | 32 | 12.5 |
| 80 | 37 | 16.5 |
| 100 | 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

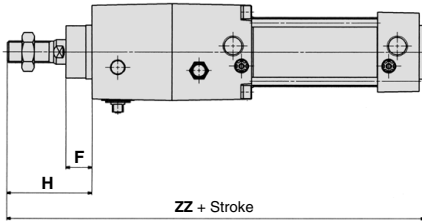


39 With Coil Scraper

Symbol
-XC35

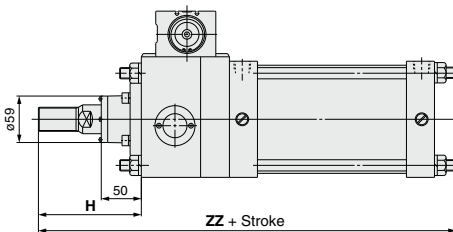
Dimensions (Dimensions other than below are the same as standard type.)

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 |

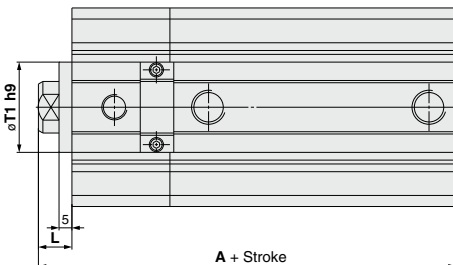
CLS series



| 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 ⁰ _{-0.052} |
| | 75,100 | 85.5 | | | |
| 50 | 10 to 50 | 78.5 | 88.5 | 13 | 35 ⁰ _{-0.062} |
| | 75,100 | 88.5 | | | |
| 63 | 10 to 50 | 87 | 97 | 13 | 35 ⁰ _{-0.062} |
| | 75,100 | 97 | | | |
| 80 | 10 to 50 | 101.5 | 111.5 | 15 | 43 ⁰ _{-0.062} |
| | 75,100 | 111.5 | | | |
| 100 | 10 to 50 | 120 | 130 | 17 | 59 ⁰ _{-0.074} |
| | 75,100 | 130 | | | |

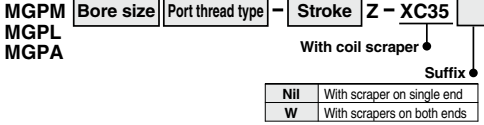
Made to Order Common Specifications: -XC35: With Coil Scraper



39 With Coil Scraper

Symbol
-XC35

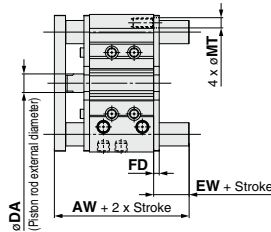
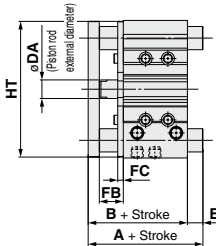
How to Order



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 | | 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) | MGPM, MGPL, MGPA (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:

| Bore size (mm) | AW, EW, FD, MT (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 (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 | 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 (mm)

| 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 -XC35
MGC -XC35
With coil scraper ●

Specifications: Same as the standard type of each series

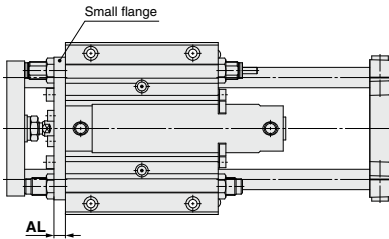
Note 1) Except $\phi 20$ and $\phi 25$

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

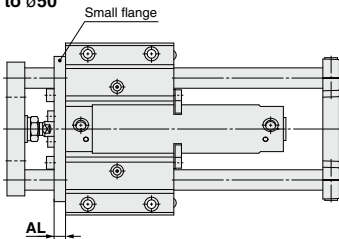
$\phi 32$ to $\phi 50$



| (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) |
|--|---|--------|---|---------------------------|
| CQS | Compact cylinder | CQS | Double acting, Single rod Single acting (Spring return/extend) | Web Catalog |
| | | CQSW | Double acting, Double rod | |
| CQ2 | Compact cylinder | CQ2-Z | Double acting, Single rod Single acting (Spring return/extend) | |
| | | CQ2W-Z | Double acting, Double rod | |
| | | CQ2 | Double acting, Single rod | |
| | Long stroke <small>Note 4)</small> | CQ2K | Double acting, Single rod | |
| | | CQ2KW | Double acting, Double rod | |
| | Non-rotating rod <small>Note 4)</small> | CQP2 | Double acting, Single rod Single acting (Spring return/extend) | |
| Axial piping type (Centralized piping type) | | | | |

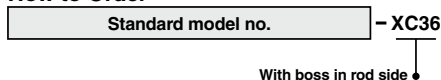
Note 1) For the double rod type, it comes with boss for both sides.

Note 2) Except with bracket

Note 3) $\sigma 125$ or more is excluded in CQ2.

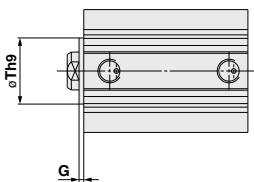
Note 4) The standard model can be used for long strokes and non-rotating rod types (single rod or double rod).

How to Order



Specifications: Same as standard type

Dimensions



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

| Series | CQ2 | | CQS | |
|--------|-----------------------------------|-----|-----------------------------------|-----|
| | Th9 | G | Th9 | G |
| 12 | 15 ⁰ _{-0.043} | 1.5 | 15 ⁰ _{-0.043} | 1.5 |
| 16 | 20 ⁰ _{-0.052} | 1.5 | 20 ⁰ _{-0.052} | 1.5 |
| 20 | 13 ⁰ _{-0.043} | 2 | 13 ⁰ _{-0.043} | 2 |
| 25 | 15 ⁰ _{-0.043} | 2 | 15 ⁰ _{-0.043} | 2 |
| 32 | 21 ⁰ _{-0.052} | 2 | — | — |
| 40 | 28 ⁰ _{-0.052} | 2 | — | — |
| 50 | 35 ⁰ _{-0.062} | 2 | — | — |
| 63 | 35 ⁰ _{-0.062} | 2 | — | — |
| 80 | 43 ⁰ _{-0.062} | 2 | — | — |
| 100 | 59 ⁰ _{-0.074} | 2 | — | — |

41 Larger Throttle Diameter of Connection Port

Symbol
-XC37

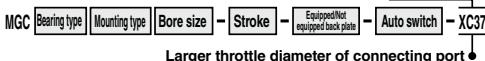
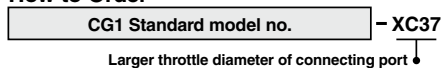
This is a cylinder with a piping port larger than the standard type.

Applicable Series

| Series | Description | Model | Action | Vol. no. (for std. model) |
|--------|-----------------|--------|---------------------------|---------------------------|
| CG1 | Air cylinder | CG1-Z | Double acting, Single rod | Web Catalog |
| | Double rod type | CG1W-Z | Double acting, Double rod | |
| MGG | Guide Cylinder | MGG | Double acting | |
| MGC | Guide Cylinder | MGC | Double acting | |

Note 1) Except $\sigma 80$, 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.

| CG1 Series | | | (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 | | Web Catalog |
| MTS | Precision cylinder | MTS | Double acting, Single rod | Available only for ø8 female thread | |

How to Order

CM2 Standard model no. -XC38

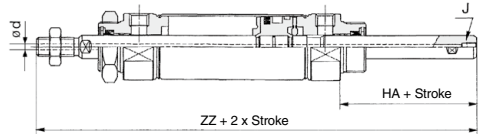
Vacuum (Rod through-hole)



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

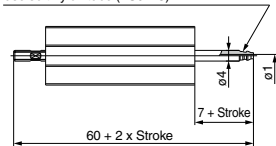
Vacuum (Rod through-hole)



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 | Web Catalog |

How to Order

CG1 Standard model no. -XC42
Built-in shock absorber in head cover side ↓

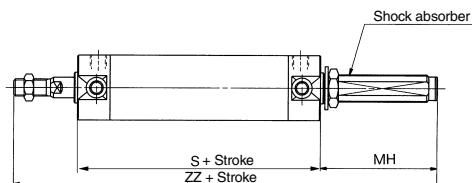


Specifications

| | |
|---------------------------|-----------------------|
| 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 Single acting (Spring return) | Web Catalog |
| | | CJ2W-Z | Double acting, Double rod | |
| | Non-rotating rod type | CJ2K-Z | Double acting, Single rod Single acting (Spring return) | |
| | | CJ2Z-Z | Double acting, Single rod | |
| | With speed controller | CJ2Z-Z | Double acting, Single rod | |
| | | CJ2W-Z | Double acting, Double rod | |
| Direct mount type | CJ2RA-Z | Double acting, Single rod Single acting (Spring return) | | |
| | | Double acting, Single rod Single acting (Spring return) | | |
| Non-rotating rod, Direct mount type | CJ2RK-Z | Double acting, Single rod Single acting (Spring return) | | |
| | | Double acting, Single rod Single acting (Spring return) | | |

45 Mounting Nut with Set Screw

Symbol

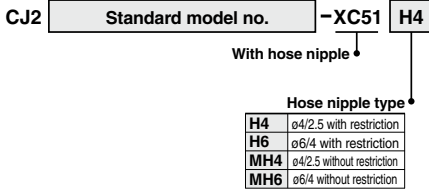
-XC52

In order to prevent the mounting nut from being loosen, set screw should be tighten from the two directions to fix the mounting nut.

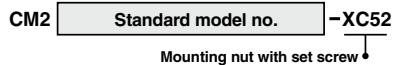
Applicable Series

| Series | Description | Action | Action | Vol. no. (for std model) |
|--------------------|-------------------------|---------------------------|--|--------------------------|
| CM2 | Air cylinder | CM2-Z | Double acting, Single rod Single acting (Spring return) | Web Catalog |
| | | CM2W-Z | Double acting, Double rod | |
| | Non-rotating rod type | CM2K-Z | Double acting, Single rod Single acting (Spring return) | |
| | | CM2KW-Z | Double acting, Double rod | |
| | Centralized piping type | CM2CP-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 | | |

How to Order



How to Order



Specifications: Same as standard type

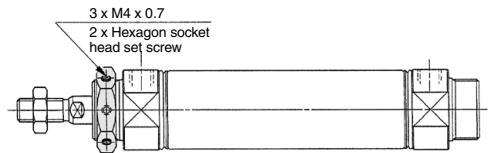
Specifications: Same as standard type

Dimensions

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

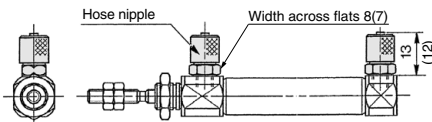
Applicable Hose Nipple Type

| Symbol | Applicable bore size (mm) | Function | Hose nipple part no. |
|------------|---------------------------|-----------------------------|----------------------|
| H4 | ø4/2.5 | With a fixed orifice (ø0.8) | CJ-5H-4 |
| H6 | ø6/4 | | CJ-5H-6 |
| MH4 | ø4/2.5 | Without fixed orifice | M-5H-4 |
| MH6 | 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.

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) |
|--------|---------------------------------------|--------------------|---------------------------------|---------------------|---------------------------|
| MGPW | Compact guide cylinder | MGPW | Double acting | | Web Catalog |
| MGG | Guide cylinder | MGG ^M B | Double acting | For basic type only | |
| MGC | Guide cylinder | MGC ^M B | Double acting | For basic type only | |
| MGQ | Compact guide cylinder | MGQ | Double acting | For basic type only | |
| MY | Mechanically jointed rodless cylinder | MY1H-Z | Linear guide | | |
| | | MY1C | Cam follower guide | | |
| | | MY1H | Linear guide | | |
| | | MY2H | Linear guide type (Single axis) | | |
| | | MY2HT | Linear guide type (Double axis) | | |

How to Order

Standard model no. **-XC56**
 With knock pin holes

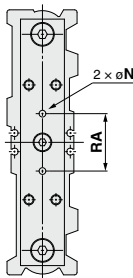
Specifications: Same as standard type

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

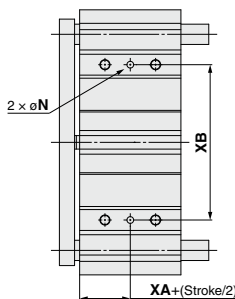
MGPW series

ø20 to ø63

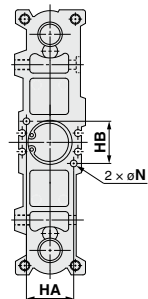
Upper view of plate



Side view (lower surface) of cylinder



Bottom view of cylinder



MGPW Series

(mm)

| Bore size (mm) | HA | HB | N | RA | XA | XB |
|----------------|---------|---------|--|---------|----|----------|
| 20 | 25±0.02 | 25±0.02 | 3 ^{H7} / ₀ ^{+0.010} depth 6 | 28±0.02 | 17 | 76±0.03 |
| 25 | 28±0.02 | 28±0.02 | 4 ^{H7} / ₀ ^{+0.012} depth 6 | 34±0.02 | 18 | 92±0.03 |
| 32 | 34±0.02 | 34±0.02 | 4 ^{H7} / ₀ ^{+0.012} depth 6 | 42±0.02 | 19 | 112±0.03 |
| 40 | 38±0.02 | 38±0.02 | 4 ^{H7} / ₀ ^{+0.012} depth 6 | 50±0.02 | 21 | 128±0.04 |
| 50 | 49±0.02 | 49±0.02 | 5 ^{H7} / ₀ ^{+0.012} depth 8 | 66±0.03 | 21 | 168±0.04 |
| 63 | 58±0.03 | 58±0.03 | 5 ^{H7} / ₀ ^{+0.012} depth 8 | 80±0.03 | 25 | 196±0.04 |

Made to Order Common Specifications: -XC56: With Knock Pin Holes

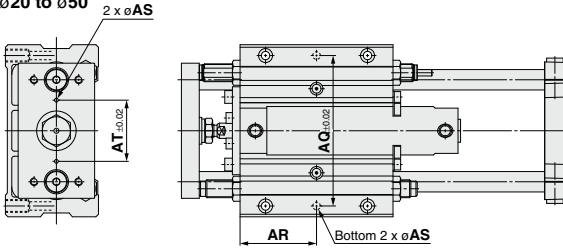


46 With Knock Pin Holes

Symbol
-XC56

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

MGG series ø20 to ø50

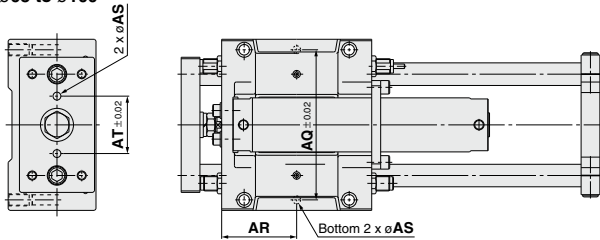


MGG Series

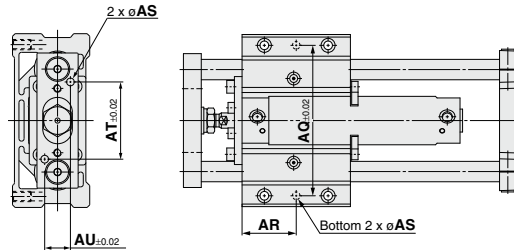
(mm)

| Bore size (mm) | AQ | AR | AS | AT |
|----------------|-----|-----|--|-----|
| 20 | 92 | 45 | 5 ^{HT} ₀ ^{+0.012} depth 6 | 36 |
| 25 | 113 | 50 | 6 ^{HT} ₀ ^{+0.012} depth 8 | 45 |
| 32 | 118 | 60 | 6 ^{HT} ₀ ^{+0.012} depth 8 | 48 |
| 40 | 150 | 70 | 8 ^{HT} ₀ ^{+0.015} depth 11 | 56 |
| 50 | 170 | 85 | 10 ^{HT} ₀ ^{+0.015} depth 13 | 68 |
| 63 | 200 | 100 | 10 ^{HT} ₀ ^{+0.015} depth 13 | 74 |
| 80 | 234 | 115 | 12 ^{HT} ₀ ^{+0.018} depth 15 | 92 |
| 100 | 274 | 140 | 12 ^{HT} ₀ ^{+0.018} depth 15 | 106 |

ø63 to ø100



MGC series ø20 to ø50

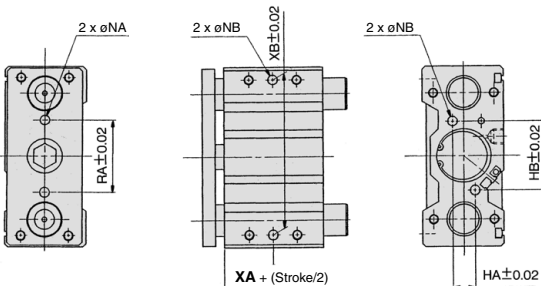


MGC Series

(mm)

| Bore size (mm) | AQ | AR | AS | AT | AU |
|----------------|-----|------|---|----|----|
| 20 | 90 | 37.5 | 5 ^{HT} ₀ ^{+0.012} depth 6 | 45 | 15 |
| 25 | 103 | 40 | 6 ^{HT} ₀ ^{+0.012} depth 8 | 55 | 20 |
| 32 | 118 | 42.5 | 6 ^{HT} ₀ ^{+0.012} depth 8 | 60 | 20 |
| 40 | 140 | 47.5 | 8 ^{HT} ₀ ^{+0.015} depth 11 | 70 | 22 |
| 50 | 170 | 65 | 8 ^{HT} ₀ ^{+0.015} depth 11 | 85 | 30 |

MGG series



MGG Series

(mm)

| Bore size (mm) | HA | HB | NA | NB | RA | XA | XB |
|----------------|----|-----|---|--|-----|------|-----|
| 12 | 0 | 19 | 3 ^{HT} ₀ ^{+0.012} depth 4 | 3 ^{HT} ₀ ^{+0.012} depth 4 | 21 | 14.5 | 50 |
| 16 | 7 | 22 | 3 ^{HT} ₀ ^{+0.012} depth 4 | 3 ^{HT} ₀ ^{+0.012} depth 4 | 22 | 16.5 | 54 |
| 20 | 9 | 26 | 4 ^{HT} ₀ ^{+0.012} depth 5 | 4 ^{HT} ₀ ^{+0.012} depth 5 | 28 | 18 | 64 |
| 25 | 12 | 30 | 4 ^{HT} ₀ ^{+0.012} depth 5 | 6 ^{HT} ₀ ^{+0.012} depth 5 | 34 | 19 | 76 |
| 32 | 14 | 44 | 6 ^{HT} ₀ ^{+0.012} through | 6 ^{HT} ₀ ^{+0.012} depth 8 | 46 | 18.5 | 100 |
| 40 | 14 | 54 | 6 ^{HT} ₀ ^{+0.012} through | 6 ^{HT} ₀ ^{+0.012} depth 8 | 50 | 22 | 110 |
| 50 | 20 | 62 | 8 ^{HT} ₀ ^{+0.015} through | 8 ^{HT} ₀ ^{+0.015} depth 11 | 56 | 22 | 124 |
| 63 | 30 | 74 | 8 ^{HT} ₀ ^{+0.015} through | 8 ^{HT} ₀ ^{+0.015} depth 11 | 66 | 24 | 132 |
| 80 | 36 | 94 | 10 ^{HT} ₀ ^{+0.018} through | 10 ^{HT} ₀ ^{+0.018} depth 13 | 84 | 28.5 | 166 |
| 100 | 40 | 116 | 10 ^{HT} ₀ ^{+0.018} through | 10 ^{HT} ₀ ^{+0.018} depth 13 | 110 | 32.5 | 200 |

Made to Order Common Specifications: -XC56: With Knock Pin Holes

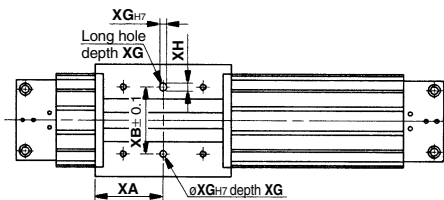


46 With Knock Pin Holes

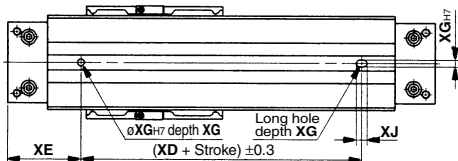
Symbol
-XC56

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

MY1C series



Mounting surface of a workpiece for the slide table



Mounting surface of cylinder tube

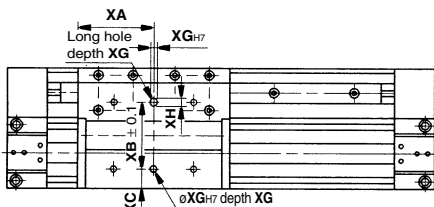
| Bore size (mm) | XA | XB | XD | XE | XG | XH | XJ |
|----------------|-----|-----|-----|----|----|----|----|
| 16 | 40 | 40 | 80 | 40 | 4 | 5 | 9 |
| 20 | 50 | 40 | 100 | 50 | 4 | 5 | 9 |
| 25 | 51 | 50 | 110 | 55 | 5 | 6 | 10 |
| 32 | 66 | 60 | 140 | 70 | 6 | 7 | 11 |
| 40 | 81 | 80 | 180 | 80 | 6 | 7 | 11 |
| 50 | 100 | 90 | 230 | 85 | 8 | 9 | 13 |
| 63 | 115 | 110 | 280 | 90 | 10 | 10 | 15 |

MY1H-Z series

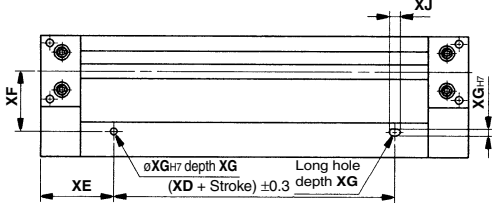
$\phi 25, \phi 32, \phi 40$

MY1H series

$\phi 10, \phi 16, \phi 20$



Mounting surface of a workpiece for the slide table



Mounting surface of cylinder tube

| 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.)

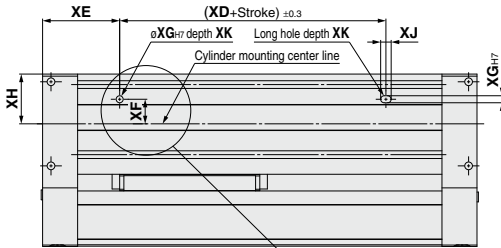
MY2H series

ø16, ø25, ø40

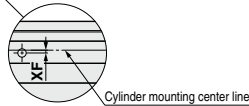
MY2HT series

ø16, ø25, ø40

* The workpiece mounting surface of the slide table supports knock pin holes as standard.



Mounting surface of
cylinder tube



MY2HT16, 25

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

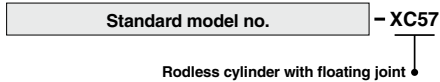
Symbol
-XC57

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. (CY3B (-Z) 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-Z | Double acting | Web Catalog |
| | | CY3B | Double acting | |
| | | CY3R | Double acting | |
| REA | Sine rodless cylinder | REA | Double acting | |
| | | REAR | Double acting | |
| REB | Sine rodless cylinder | REBR | Double acting | |

How to Order



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.

Specifications: Same as standard type

Made to Order Common Specifications: -XC57: Rodless Cylinder with Floating Joint

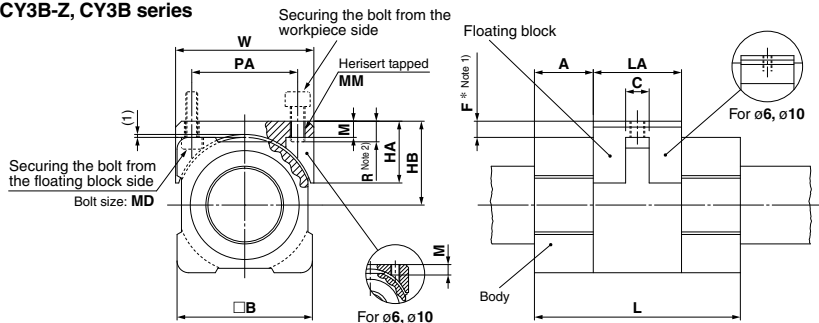


47 Rodless Cylinder with Floating Joint

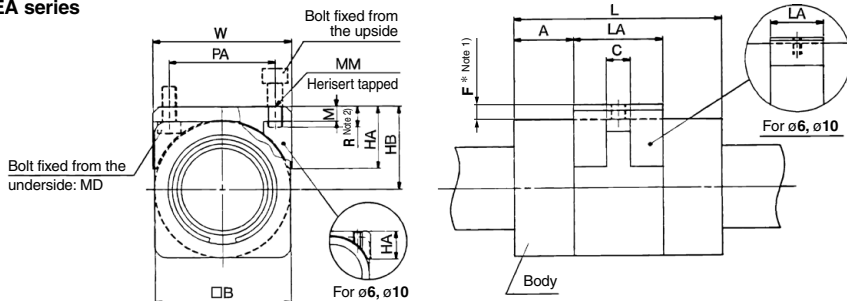
Symbol
-XC57

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

CY3B-Z, CY3B series



REA series



| Bore size (mm) | A | □B | C | F ⁽¹⁾ | HA | HB | L | LA | MM | MD | M | PA | R ⁽²⁾ | W |
|----------------|------|-----|-----|------------------|------|------|-----|----|---------------|----|-----|----|------------------|-----|
| 6 | 10 | 17 | — | 2.5 | 6.3 | 11 | 35 | 15 | M3 x 0.5 x 3L | — | 3 | 12 | — | 18 |
| 10 | 10 | 25 | — | 2.5 | 9.5 | 15 | 38 | 18 | M3 x 0.5 x 3L | — | 3.5 | 17 | — | 26 |
| 15 | 16 | 35 | 6.5 | 5.5 | 16.5 | 23 | 57 | 25 | M4 x 0.7 | M3 | 4.5 | 25 | 6 | 36 |
| 20 | 18 | 36 | 6.5 | 5.5 | 17 | 23.5 | 66 | 30 | M4 x 0.7 | M3 | 4.5 | 27 | 6 | 37 |
| 25 | 20 | 46 | 8.0 | 5.5 | 21 | 28.5 | 70 | 30 | M5 x 0.8 | M4 | 5.5 | 36 | 7 | 47 |
| 32 | 22.5 | 60 | 9.5 | 6.0 | 27.5 | 36 | 80 | 35 | M6 x 1.0 | M5 | 6.5 | 47 | 8 | 61 |
| 40 | 26 | 70 | 9.5 | 6.0 | 28.5 | 41 | 92 | 40 | M6 x 1.0 | M5 | 6.7 | 55 | 8 | 71 |
| 50 | 35 | 86 | 11 | 6.0 | 35 | 49 | 110 | 40 | M8 x 1.25 | M6 | 8.5 | 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 F¹, 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 ø6 and ø10, 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.

Made to Order Common Specifications: -XC57: Rodless Cylinder with Floating Joint



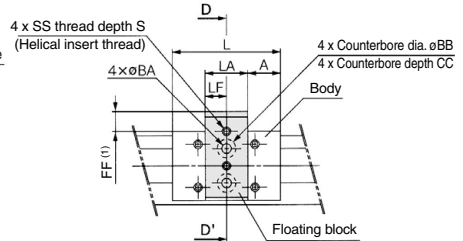
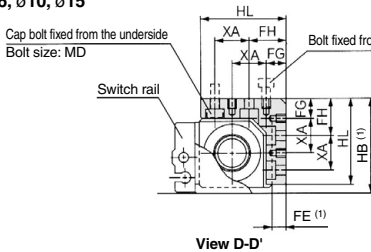
47 Rodless Cylinder with Floating Joint

Symbol
-XC57

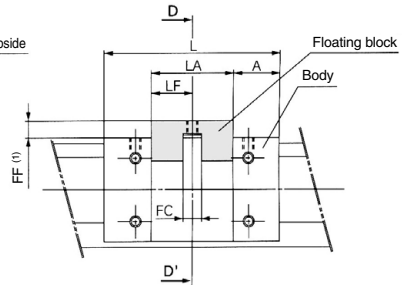
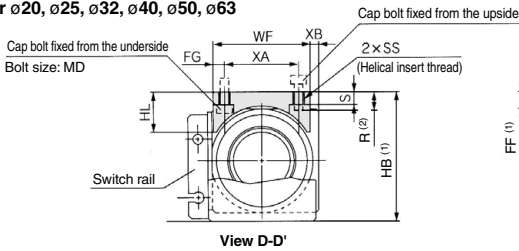
Construction/Dimensions

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 ⁽¹⁾ | FF ⁽¹⁾ | FG | FH | HB ⁽¹⁾ | HL | L | LA | LF | MD | R ⁽²⁾ | 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 | Web Catalog |
| | | MBW-Z | Double acting, Double rod | Except ø125 | |
| | Smooth cylinder | MBY-Z | Double acting, Single rod | | |
| MB1 | Air cylinder | MB1-Z | Double acting, Single rod | Except ø125 | |
| | | MB1W-Z | Double acting, Double rod | Except ø125 | |
| CA2 | Air cylinder | CA2-Z | Double acting, Single rod | | |
| | | CA2W-Z | Double acting, Double rod | | |
| | Air-hydro cylinder | CA2H | Double acting, Single rod | | |
| | | CA2HW | Double acting, Double rod | | |
| | Smooth cylinder | CA2Y-Z | Double acting, Single rod | | |
| CV | Valve mounted cylinder | CV3 | Double acting, Single rod | | |

Specifications

| | |
|---|---|
| Parts changed to stainless steel | Tie-rod, Tie-rod nut, Bracket mounting nut, Spring washer, Cushion valve, Retaining ring, Piston rod (with hard chrome plated), Rod end nut |
| Maximum manufacturable stroke (mm) | Double acting, Single rod: 1600 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)

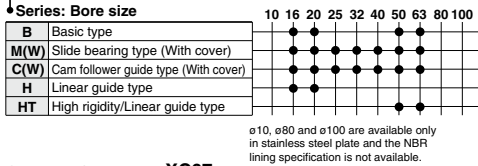


49 Dust Seal Band NBR Lining Specifications

Symbol
-XC67

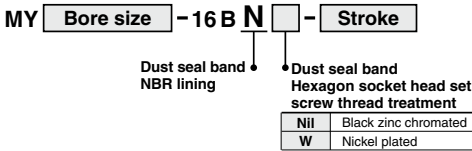
The standard vinyl chloride lining specification is changed to NBR lining
Oil resistance and peeling resistance are improved.
Note) Please consult with SMC for specific details on oil resistance.

MY1 **B** **Bore size** - **Stroke** **Stroke adjustment unit** - **Auto switch** **Suffix** -XC67



Example) MY1B40G-300L-Z73-XC67

For ordering dust seal band (NBR lining) only



Example) MY25-16BNW-300

Applicable Series

| Series | Description | Model | Type | Vol. no. (for std model) |
|--------|---------------------------------------|---------|--------------------------------------|--------------------------|
| MY | Mechanically jointed rodless cylinder | MY1B | Basic type | Web Catalog |
| | | 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)

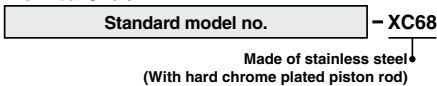
Symbol
-XC68

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) |
|--------|-----------------|--------|---------------------------|--------------------------|
| MB | Standard type | MB-Z | Double acting, Single rod | Web Catalog |
| | | MBW-Z | Double acting, Double rod | |
| | Smooth cylinder | MBY-Z | Double acting, Single rod | |
| MB1 | Standard type | MB1-Z | Double acting, Single rod | |
| | | MB1W-Z | Double acting, Double rod | |
| CA2 | Standard type | CA2-Z | Double acting, Single rod | |
| | | CA2W-Z | Double acting, Double rod | |
| | Smooth cylinder | CA2Y-Z | Double acting, Single rod | |
| CS1 | Standard type | CS1 | Double acting, Single rod | |
| CS2 | Standard type | CS2 | Double acting, Single rod | |
| | | CS2W | Double acting, Double rod | |
| MWB | Smooth cylinder | CS2Y | Double acting, Single rod | |
| | Lock unit | MWB-UT | — | |

How to Order



Specifications

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

Note) A rod end nut (stainless steel) only comes with the series that indicate that a rod end nut is included.

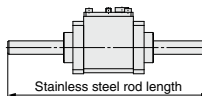
Maximum stroke

| Series | Double acting, Single rod | Double acting single rod with rod boot |
|---------|---------------------------|--|
| MB, MB1 | 1600 | 1000 |
| CA2 | 1000 | 1000 |

| Series | Bore size | Double acting, Single rod | Double acting single rod with rod boot |
|------------|------------|---------------------------|--|
| CS1 CS2 | 125 to 160 | 1600 | 1600 |
| | 180 | 1569 | 1569 |
| | 200 | 998 | 998 |
| | 250 | 813 | 813 |
| | 300, 320 | 495 | 495 |

MWB-UT (Lock unit) Stainless Steel Rod Length

| Model | Min. length | Max. length | Note |
|-------|-------------|-------------|---|
| 32 | 250 mm | 1800 mm | Can be manufactured in increments of 1 mm up to the maximum length. |
| 40 | 250 mm | 2500 mm | |
| 50 | 300 mm | | |
| 63 | 300 mm | | |
| 80 | 300 mm | | |
| 100 | 300 mm | | |



* Rod is shipped together with the product.

Made to Order Common Specifications: -XC69: MGP Series with Shock Absorber



Symbol

-XC69

51 MGP Series with Shock Absorber

Applicable Series

| Series | Description | Model | Action | Note | Vol. no. (for std model) |
|--------|------------------------|--------|---------------|-------------------|--------------------------|
| MGP | Compact guide cylinder | MGPM-Z | Double acting | Except ø12 to ø40 | Web Catalog |
| | | MGPL-Z | Double acting | | |
| | | MGPA-Z | Double acting | | |

How to Order **MGP** **M** **50** **□** - **50** **Z** - **Z73** **□** - **XC69**

Compact guide cylinder • Bearing type • Bore size (mm) • Port thread type • Cylinder stroke (mm) • Auto switch • Suffix for auto switch • With shock absorber

| | |
|----------|-------------------------------------|
| M | Slide bearing |
| L | Ball bushing bearing |
| A | High precision ball bushing bearing |

Specifications of Extension Adjusting Mechanism

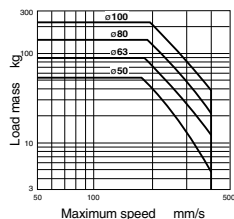
| Bore size (mm) | 50, 63 | 80, 100 |
|-------------------------------|---------------------------|----------|
| Shock absorber model | RB2015 | RB2725 |
| Maximum energy absorption (J) | 58.8 | 147 |
| Stroke adjustment range (mm) | 0 to -25 | 0 to -30 |
| Piston speed | Refer to the graph below. | |

Soft type RJ series type (-XB22) is also available.
For details, refer to -XB22.

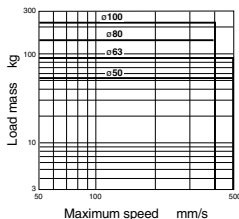
Allowable Kinetic Energy

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.

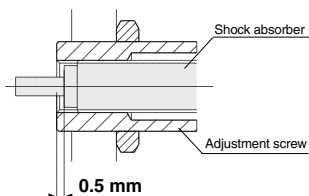
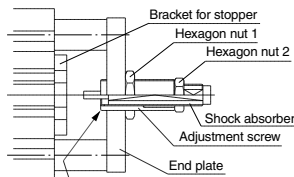
Adjustment

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. After 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.



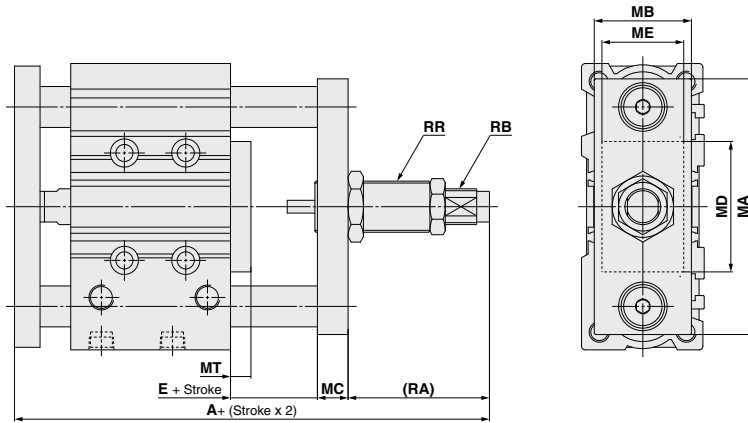
Made to Order Common Specifications: -XC69: MGP Series with Shock Absorber



51 MGP Series with Shock Absorber

Symbol
-XC69

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 |
|-----------|-------|----|-----|----|----|-----|----|----|----|---------|-----------|
| 50 | 155 | 10 | 139 | 60 | 16 | 71 | 38 | 9 | 57 | RJ2015H | M27 x 1.5 |
| 63 | 160 | 10 | 153 | 60 | 16 | 84 | 50 | 9 | 57 | RJ2015H | M27 x 1.5 |
| 80 | 212.5 | 17 | 190 | 75 | 22 | 114 | 50 | 16 | 77 | RJ2725H | M36 x 1.5 |
| 100 | 232 | 17 | 228 | 75 | 25 | 140 | 65 | 16 | 74 | RJ2725H | M36 x 1.5 |

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 | | Web Catalog |

How to Order

MGG **B** - - - **XC71**

↓ Basic type

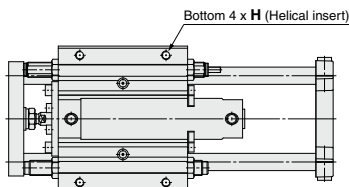
↓ Helical insert thread specifications

Specifications

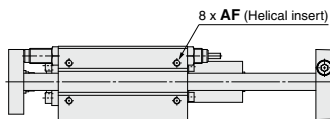
| | |
|---------------------------------|-----------------------|
| Applicable series | MGG□B |
| Bore size (mm) | 20, 25, 32, 40, 50 |
| Mounting type | Basic type |
| Specifications other than above | Same as standard type |

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 | | Web Catalog |

How to Order

MGG - **XC72**

↓ Without built-in auto switch magnet

Specifications

| | |
|---|-----------------------|
| Applicable series | MGG |
| Bore size (mm) | 20, 25, 32, 40, 50 |
| Auto switch | Not mountable |
| Specifications other than above and external dimensions | Same as standard type |

Made to Order Common Specifications: -XC73: Built-in Cylinder with Lock (CDNG)



54 Built-in Cylinder with Lock (CDNG)

Symbol
-XC73

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 | | Web Catalog |

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) [Built-in adjustment bolts (2 pcs.)] | | 0 to -15 mm | | | |
| Non-rotating accuracy ±2 | Slide bearing | ±0.06° | ±0.05° | ±0.04° | |
| | Ball bushing bearing | ±0.04° | ±0.04° | ±0.04° | |
| Shock absorber model | | RB1412 | | RB2015 | |
| Specifications other than above | | Same as standard type | | | |

● 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)

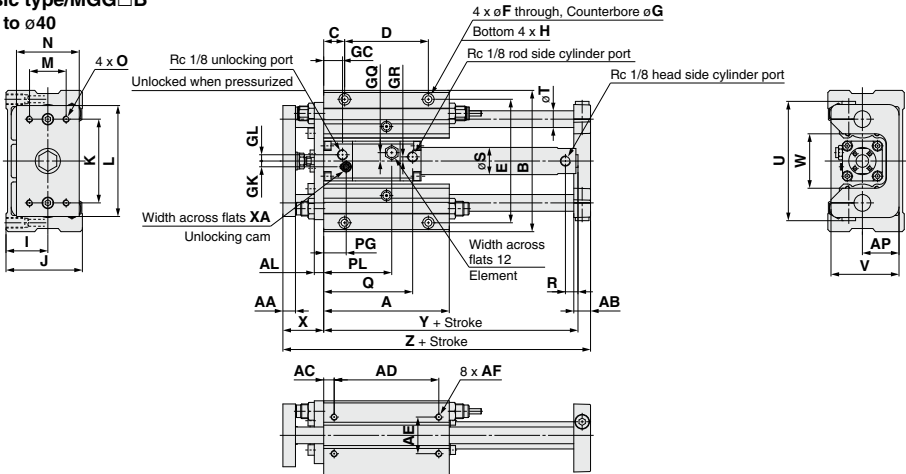
Note 2) When the piston is locked, the load mass is limited by the mounting orientation and the operating pressure. For details about the lock specifications, etc., refer to the cylinders with lock (Web Catalog).

* 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 | M8 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 | M8 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)

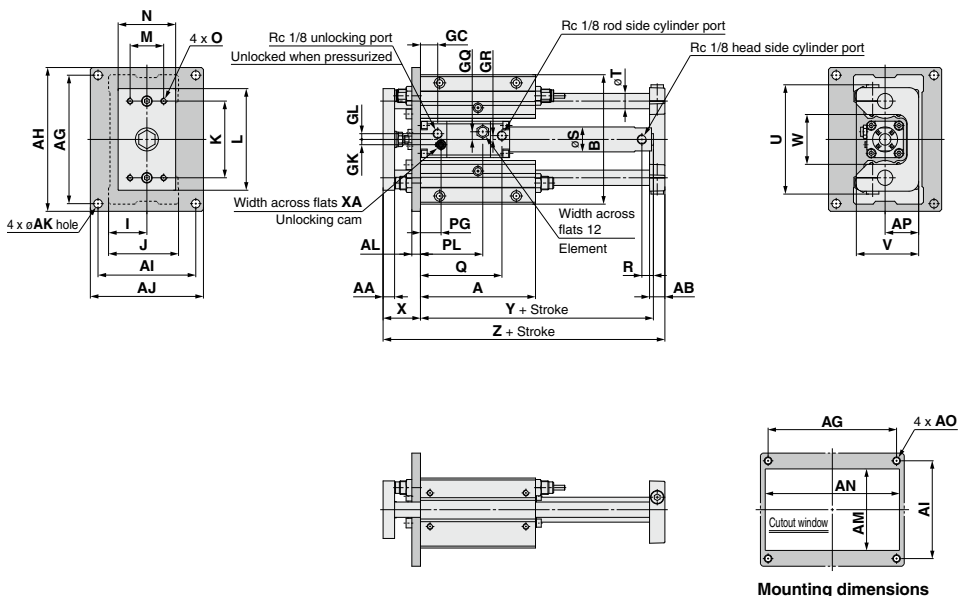


54 Built-in Cylinder with Lock (CDNG)

Symbol
-XC73

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 |
| | 150, 200, 250, 300 | 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 | 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 |
|----------------|--------------------|------|----|-----|----|----|----|-----|----|----|----|----|-----|-----|
| 20 | M6 x 1 depth 9 | 21.5 | 65 | 85 | 12 | 26 | 16 | 114 | 65 | 52 | 39 | 3 | 143 | 194 |
| 25 | M8 x 1.25 depth 13 | 26.5 | 73 | 96 | 12 | 31 | 20 | 138 | 84 | 62 | 46 | 3 | 153 | 228 |
| 32 | M8 x 1.25 depth 13 | 26.5 | 73 | 97 | 12 | 38 | 20 | 138 | 84 | 62 | 46 | 3 | 156 | 228 |
| 40 | M10 x 1.5 depth 16 | 28 | 81 | 104 | 12 | 47 | 25 | 164 | 94 | 75 | 56 | 4 | 171 | 274 |

| Bore size (mm) | Stroke range (mm) | R | Y |
|----------------|-------------------|----|-----|
| 20 | 250 to 400 | 14 | 151 |
| 25 | 350 to 500 | 14 | 161 |
| 32 | 350 to 600 | 14 | 164 |
| 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)

Symbol
-XC73

This type has a built-in cylinder with lock, which accommodates intermediate stops, emergency stops and drop prevention, etc.

How to Order

MGC **Bearing type** **Mounting type** **Bore size** - **Stroke** - **Equipped/Not equipped rear plate** - **Auto switch** - **C (Note 1)** - **XC73**

Cylinder Specifications

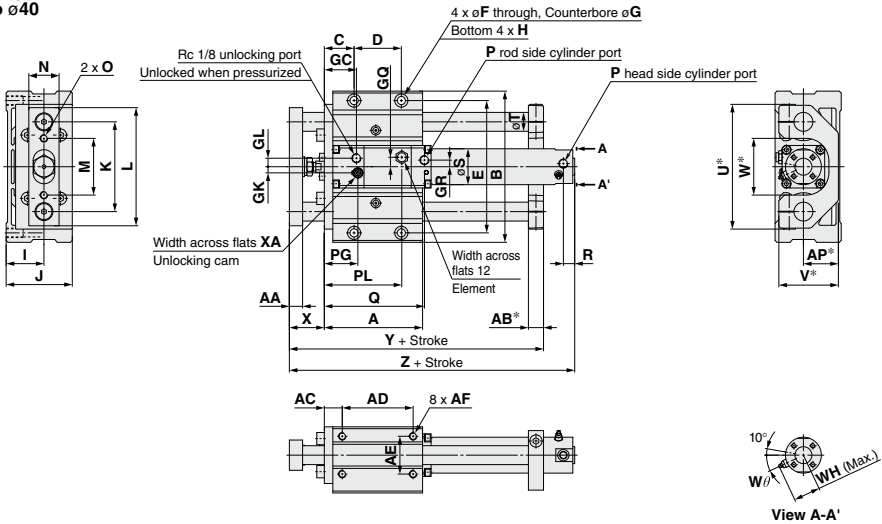
| Applicable series | | MGC | | | |
|---------------------------------|----------------------|-----------------------------------|-----------|--------|------------------------------|
| Bore size (mm) | | 20 | 25 | 32 | 40 |
| Basic cylinder | | CDNGBA | Bore size | Stroke | D - Auto switch - C (Note 1) |
| Minimum operating pressure | | 0.2 MPa (Horizontal with no load) | | | |
| Piston speed | | 50 to 750 mm/s (Note 2) | | | |
| Non-rotating accuracy #2 | Slide bearing | ±0.06° | ±0.05° | ±0.04° | |
| | Ball bushing bearing | ±0.04° | ±0.04° | ±0.04° | |
| Specifications other than above | | Same as standard type | | | |

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 (Web Catalog).
- * 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/MGC□B
ø20 to ø40



Standard Stroke

| Bore size (mm) | Stroke range (mm) | A | AA | AB* | AC | AD | AE | AF | AP* | B | C | D | E | F | G | GC | GK | GL | GQ | GR | H | I | J | K |
|----------------|------------------------|-----|----|-----|------|-----|----|--------------------|-----|-----|------|----|-----|------|-------------|----|-----|----|----|----|---------------------|----|------|-----|
| 20 | 75, 100, 125, 150, 200 | 94 | 11 | 13 | 16.5 | 70 | 35 | M6 x 1 depth 12 | 32 | 135 | 26.5 | 50 | 118 | 6.8 | 11 depth 8 | 27 | 5.5 | 6 | 8 | 4 | M8 x 1.25 depth 14 | 35 | 60 | 80 |
| 25 | 75, 100, 125 | 104 | 14 | 16 | 19 | 75 | 40 | M8 x 1.25 depth 16 | 37 | 160 | 31.5 | 50 | 140 | 8.6 | 14 depth 10 | 34 | 6.5 | 9 | 10 | 7 | M10 x 1.5 depth 18 | 40 | 70 | 95 |
| 32 | 150, 200 | 104 | 14 | 16 | 19 | 75 | 40 | M8 x 1.25 depth 16 | 37 | 160 | 31.5 | 50 | 140 | 8.6 | 14 depth 10 | 34 | 6.5 | 9 | 10 | 7 | M10 x 1.5 depth 18 | 40 | 70 | 95 |
| 40 | 250, 300 | 142 | 17 | 19 | 22 | 110 | 45 | M10 x 1.5 depth 20 | 42 | 194 | 37 | 80 | 170 | 10.5 | 17 depth 12 | 38 | 7 | 11 | 12 | 7 | M12 x 1.75 depth 21 | 45 | 82.5 | 115 |

Long Stroke

| Bore size (mm) | L | M | N | O | P | PG | PL | Q | R | S | T | U* | V* | W* | WH | W/ø | X | XA | Y | Z | Bore size (mm) | Stroke range (mm) | R | Z |
|----------------|-----|----|----|-----------|----------|------|----|-----|----|----|----|-----|----|----|------|-----|----|----|-----|-----|----------------|-------------------|----|-----|
| 20 | 105 | 50 | 25 | M6 x 1 | M5 x 0.8 | 30.5 | 74 | 96 | 12 | 26 | 16 | 112 | 53 | 50 | 23 | 30° | 30 | 3 | 148 | 182 | 20 | 250 to 400 | 14 | 190 |
| 25 | 125 | 60 | 32 | M8 x 1.25 | M5 x 0.8 | 35.5 | 82 | 106 | 12 | 31 | 20 | 132 | 63 | 60 | 25 | 30° | 37 | 3 | 169 | 199 | 25 | 350 to 500 | 14 | 207 |
| 32 | 125 | 60 | 32 | M8 x 1.25 | Rc 1/8 | 35.5 | 82 | 106 | 12 | 38 | 20 | 132 | 63 | 60 | 28.5 | 25° | 37 | 3 | 169 | 209 | 32 | 350 to 600 | 14 | 210 |
| 40 | 150 | 75 | 38 | M8 x 1.25 | Rc 1/8 | 40 | 93 | 116 | 12 | 47 | 25 | 162 | 73 | 70 | 33 | 20° | 44 | 4 | 210 | 227 | 40 | 350 to 800 | 15 | 236 |

Note) Without rear plate: Dimensions with an asterisk (*) mark is not needed.



Made to Order Common Specifications:

-XC73: Built-in Cylinder with Lock (CDNG)

-XC74: With Front Plate for MGG Cylinder



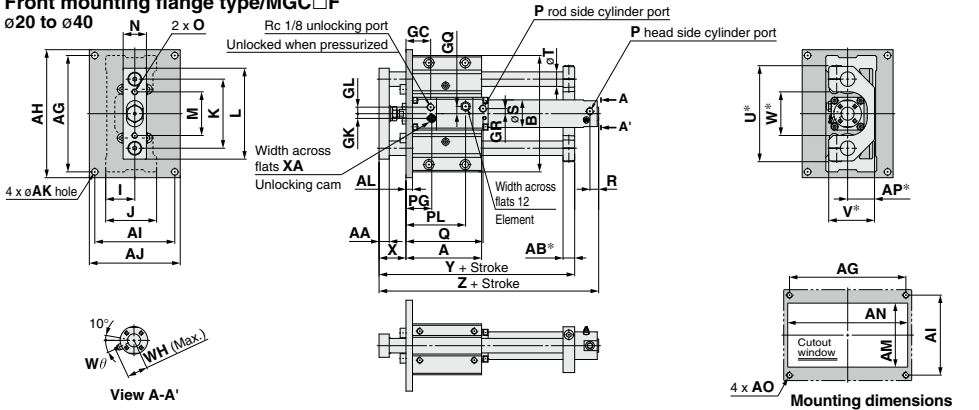
54 Built-in Cylinder with Lock (CDNG)

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, 300 | 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 | | 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 | Wθ | 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 -XC74

With front plate for MGG

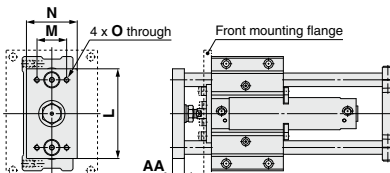
Specifications

| 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 | | Web Catalog |

How to Order

MGC -XC78

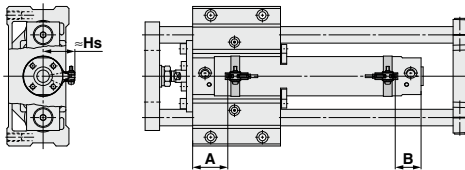
Auto switch mounting special dimensions at stroke end

Specifications

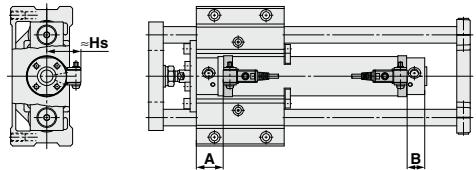
| Applicable series | MGC |
|---------------------------------|-----------------------|
| Bore size (mm) | 20, 25, 32, 40, 50 |
| Applicable cylinder | Guide cylinder |
| Specifications other than above | Same as standard type |

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

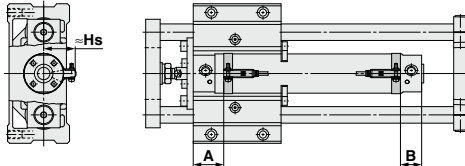
D-M9□(V)/M9□(V)/M9□A(V)
D-A9□(V)



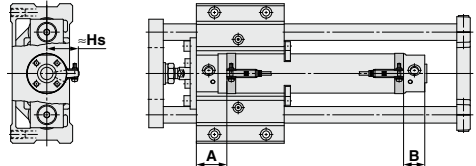
D-B5/B6
D-G5/K5



D-C7/C8
D-H7



D-B7/B8
D-G7/K7



Proper Auto Switch Mounting Position

| Auto switch model | (mm) | | | | | | | | | | | | | | | |
|-------------------|------------------------------------|------------|----------|------------|--|----------------|------------------------------------|----------------|----------------|----------------|--------|----------------|--|----------------|--|------------|
| | D-M9□(V) D-M9□W(V) D-M9□A(V) | | D-A9□(V) | | D-B7/B8 D-B73C D-B80C D-G7/K7 D-K79C | | D-C7□ D-C80 D-C73C D-C80C | | D-B5□ D-B64 | | D-B59W | | D-H7□ D-H7C D-H7NF D-H7□W D-H7BA | | D-G59□G5 D-K59 D-G5W D-K59W D-G5NT D-G5BA | |
| | A | B | A | B | A | B | A | B | A | B | A | B | A | B | A | B |
| 20 | 33 | 24 (32) | 29 | 20 (28) | 30.5 | 21.5 (29.5) | 29.5 | 20.5 (28.5) | 23.5 | 15.5 (22.5) | 26.5 | 17.5 (25.5) | 28.5 | 19.5 (27.5) | 25 | 16 (24) |
| 25 | 33 | 24 (32) | 29 | 20 (28) | 30.5 | 21.5 (29.5) | 29.5 | 20.5 (28.5) | 23.5 | 15.5 (22.5) | 26.5 | 17.5 (25.5) | 28.5 | 19.5 (27.5) | 25 | 16 (24) |
| 32 | 34 | 25 (33) | 30 | 21 (29) | 31.5 | 22.5 (30.5) | 30.5 | 21.5 (29.5) | 24.5 | 15.5 (23.5) | 27.5 | 18.5 (26.5) | 29.5 | 20.5 (28.5) | 26 | 17 (25) |
| 40 | 39 | 27 (36) | 35 | 23 (32) | 36.5 | 24.5 (33.5) | 35.5 | 23.5 (32.5) | 29.5 | 19 (26.5) | 32 | 20.5 (29.5) | 34.5 | 22.5 (31.5) | 31 | 19 (28) |
| 50 | 46 | 32 (36) | 42 | 28 (40) | 43.5 | 29.5 (41.5) | 42.5 | 28.5 (40.5) | 36.5 | 22.5 (34.5) | 39.5 | 25.5 (37.5) | 41.5 | 27.5 (39.5) | 38 | 24 (36) |

Proper Auto Switch Mounting Height

| Auto switch model | (mm) | | | | | |
|-------------------|-----------------------------------|------|--|------------------|---|---|
| | D-M9□(V) D-M9□W(V) D-A9□(V) | | D-C7□/C80 D-H7□ D-H7NF D-H7BA | D-C73C D-C80C | D-B7□/B80 D-B73C D-B80C D-G79/K79 D-H7C D-G5NT D-G59F | D-G5□/K59 D-G5W D-K59W D-B5□/B64 D-B59W D-G5BA D-G59F |
| | 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 | | Web Catalog |

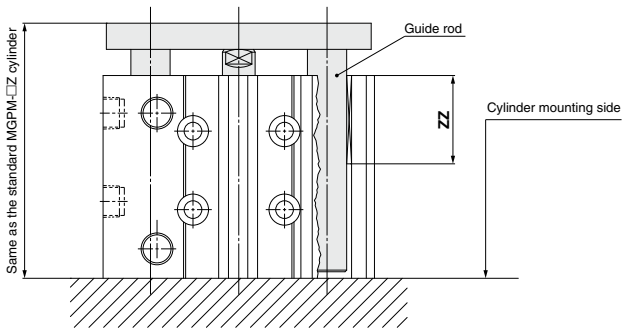
How to Order

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 | | Web Catalog |

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 <small>Note</small> | | 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 * | Slide bearing | ±0.04° | | ±0.03° | |
| | Ball bushing bearing | ±0.03° | | ±0.02° | |
| Shock absorber model | | RB2015 | | RB2725 | |
| Specifications other than above | | Same as standard type | | | |

● Built-in cylinder with lock

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 (**Web Catalog**).

* 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 1289 to 1383 for the detailed specifications of auto switches.

| Type | Special function | Electrical entry | Indicator light | Wiring (output) | Load voltage | | Auto switch part no. | Band mounting | 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 | No | 3-wire (NPN) | 5 V, 12 V | — | M9N | — | ● | ● | ● | ○ | ○ | IC circuit | | | | | |
| | | | | 3-wire (PNP) | | | M9P | — | ● | ● | ● | ○ | ○ | | | | | | |
| | | Terminal conduit | | 2-wire | 12 V | M9B | — | ● | ● | ● | ○ | ○ | — | | | | | | |
| | | | | 3-wire (NPN) | | — | G39 | — | — | — | — | — | | | | | | | |
| | Diagnostic indication (2-color) | Grommet | Yes | 24 V | 3-wire (NPN) | 5 V, 12 V | — | M9NW | — | ● | ● | ● | ○ | ○ | IC circuit | | | | |
| | | | | | 3-wire (PNP) | | | M9PW | — | ● | ● | ● | ○ | ○ | | | | | |
| | | | | | 2-wire | 12 V | M9BW | — | ● | ● | ● | ○ | ○ | — | | | | | |
| | | | | | 3-wire (NPN) | | M9NA | — | ○ | ○ | ● | ○ | ○ | | | | | | |
| | | | | | Water resistant (2-color indicator) | Grommet | No | 24 V | 3-wire (PNP) | 5 V, 12 V | — | M9PA | — | ○ | ○ | ● | ○ | ○ | IC circuit |
| | | | | | | | | | 2-wire | | | M9BA | — | ○ | ○ | ○ | ○ | ○ | |
| Reed auto switch | — | Grommet | Yes | 3-wire (NPN equivalent) | — | 5 V | — | A96 | — | ● | — | ● | — | — | IC circuit | | | | |
| | | | | | | | | Terminal conduit | 24 V | 12 V | 100 V | A93 | — | ● | | ● | ● | ● | — |
| | | 100 V or less | | | A90 | — | ● | | | | — | ● | — | — | IC circuit | | | | |
| | | — | | | A33 | — | — | | | | — | — | — | — | | PLC | | | |
| | | Din terminal | | | Yes | 24 V | 12 V | 100 V, 200 V | — | A34 | — | — | — | — | — | | Relay, PLC | | |
| — | 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 1566 since there are applicable auto switches other than listed above.
* Refer to pages 1358 and 1359 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 D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV | BA7-040 | BA7-040 | BA7-063 | BA7-063 |
| D-A3□/A44 D-G39/K39 | BMB1-050 | BMB1-063 | BMB1-080 | BMB1-100 |
| D-Z7□/Z80 D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV 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 1395 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.

Made to Order Common Specifications: -XC83: Built-in Cylinder with Lock (MDNB)



58 Built-in Cylinder with Lock (MDNB)

Symbol
-XC83

Besides the models listed on the previous page, the following auto switches are applicable.
Refer to pages 1289 and 1383 for details.

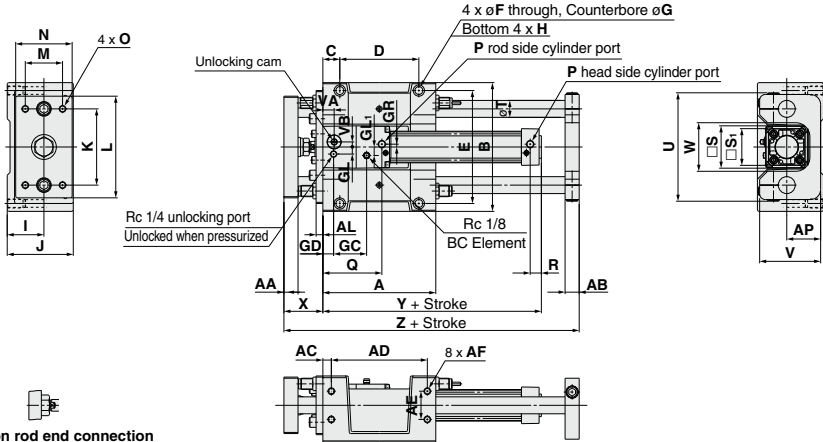
| Auto switch type | Part no. | Electrical entry (Felching direction) | Features |
|------------------|-----------------------|---------------------------------------|-------------------------------------|
| Reed | D-A93V, A96V | Grommet (Perpendicular) | — |
| | D-A90V | | Without indicator light |
| | 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, M9BWW | | Diagnostic indication (2-color) |
| | D-Y7NWV, Y7PWV, Y7BWW | | Water resistant (2-color indicator) |
| | D-M9NAV, M9PAV, M9BAV | Grommet (In-line) | — |
| | D-Y59A, Y59B, Y7P | | — |
| | D-Y7NW, Y7PW, Y7BW | | Diagnostic indication (2-color) |
| | D-Y7BA | | Water resistant (2-color indicator) |

* For solid state switches, auto switches with a pre-wired connector are also available. Refer to pages 1358 and 1359 for details.
* Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H/Y7G/Y7H types) are also available. Refer to pages 1308 and 1310 for details.

Refer to the MNB series in the **Web Catalog** 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 ₁ | 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 | 23 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 | 23 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 ₁ | 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 |

Made to Order Common Specifications: -XC83: Built-in Cylinder with Lock (MDNB)

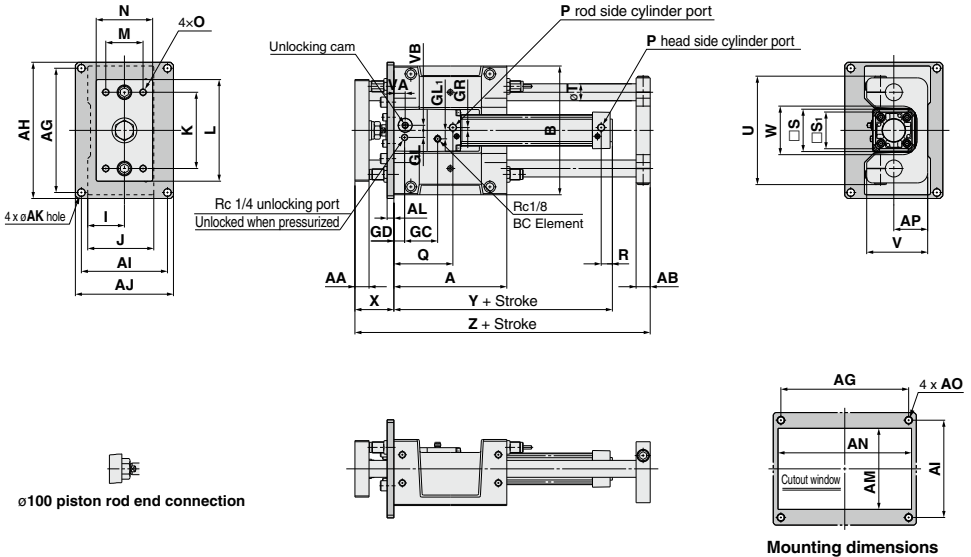


58 Built-in Cylinder with Lock (MDNB)

Symbol
-XC83

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 ₁ | GR | I | J | K | L | M | N |
|----------------|-------------------|-----|----|----|-----|-----|-----|-----|----|----|-----|-----|-----|----|-----|------|------|------|-----------------|------|----|-----|-----|-----|----|-----|
| 50 | 75, 100, 125 | 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 |
| | 150, 200 | 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 |
| 63 | 250, 300 | 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 |
| | | 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 ₁ | 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) |
|-------------------|-----------------------|--|--|----------------------|--------------------------|
| CJ2 | Air cylinder | CJ2-Z | Double acting, Single rod Single acting Spring returnless | | |
| | | CJ2W-Z | Double acting, Double rod | | |
| | Non-rotating rod type | CJ2K-Z | Double acting, Single rod Single acting Spring returnless | | |
| | | CJ2Z-Z | Double acting, Single rod | | |
| | With speed controller | CJ2ZW-Z | Double acting, Double rod | | |
| | Direct mount type | CJ2RA-Z | Double acting, Single rod Single acting Spring returnless | | |
| CJ2RK-Z | | Double acting, Single rod Single acting Spring returnless | | | |
| CM2 | Air cylinder | CM2-Z1 | Double acting, Single rod | | Web Catalog |
| | | CM2-Z | Double acting, Single rod | | |
| | | CM2W-Z | Double acting, Double rod | | |
| | | CM2-Z | Double acting, Double rod | | |
| | Non-rotating rod type | CM2K-Z | Double acting, Single rod | | |
| | | CM2KW-Z | Double acting, Double rod | | |
| | Direct mount type | CM2K-Z | Double acting, Single rod | | |
| | | CM2R-Z | Double acting, Single rod | | |
| CG1 | Air cylinder | CM2R□P | Double acting, Single rod | Except with rod boot | |
| | | CG1-Z1 | Double acting, Single rod | | |
| | | CG1-Z | Double acting, Single rod | | |
| | | CG1W-Z | Double acting, Double rod | | |
| Direct mount type | CG1-Z | Single acting Spring returnless | | | |
| | CG1R-Z | Double acting, Single rod | | | |
| CA2 | Air cylinder | CA2-Z | Double acting, Single rod | | |
| | | CA2W-Z | Double acting, Double rod | | |

| Series | Description | Model | Action | Note | Vol. no. (for std model) |
|-------------------|------------------------|---------------------------|---------------------------------|------|--------------------------|
| CGS | Compact cylinder | CQS | Double acting, Single rod | | |
| | | 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 | | Web Catalog |
| | | CQ2-Z | Single acting Spring returnless | | |
| | | CQ2W-Z | Double acting, Double rod | | |
| | Large bore size | CQ2-Z | Double acting, Single rod | | |
| | | CQ2W-Z | Double acting, Double rod | | |
| | Long stroke | CQ2-Z | Double acting, Single rod | | |
| MGP | Non-rotating rod type | CQ2K-Z | Double acting, Single rod | | |
| | | CQ2KW-Z | Double acting, Double rod | | |
| | Water resistant | CQ2-R/V | Double acting, Single rod | | |
| | | CQ2W-R/V | Double acting, Double rod | | |
| | Axial piping type | CQP2 | Double acting, Single rod | | |
| | | CQP2 | Single acting Spring returnless | | |
| | Anti-lateral load | CQ2□S-Z | Double acting, Double rod | | |
| | With end lock | CBO2 | Double acting, Single rod | | |
| CGS | Compact guide cylinder | MGP-Z | Double acting, Single rod | | |
| | With air cushion | MGP□IAZ | Double acting, Single rod | | |
| | With end lock | MGP | Double acting, Single rod | | |
| CXSJ | Dual rod cylinder | MGPS | Double acting, Single rod | | |
| | | CXSJ | Double acting | | |
| CXS | | CXS | Double acting | | |

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.

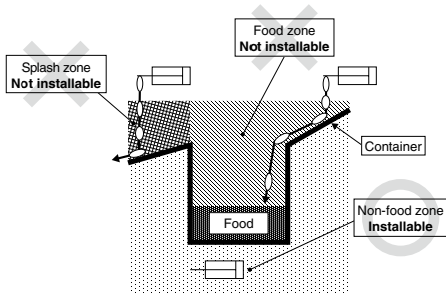
<Not installable>

Food zone.....An environment where food which will be sold as merchandize, directly touches the cylinder's components.

Splash zone.....An environment where food which will not be sold as merchandize, 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 | Note | Vol. no. (for std model) |
|--------|-------------------|-------|---------------------------|-------------------|--------------------------|
| CS1 | Standard type | CS1 | Double acting, Single rod | | Web Catalog |
| | Low friction type | CS1Q | Double acting, Single rod | ø125 to ø160 only | |
| CS2 | Standard type | CS2 | Double acting, Single rod | | |
| | Smooth cylinder | CS2Y | Double acting, Single rod | ø125 to ø160 only | |

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) |

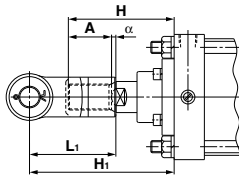
Note 1) Rod end brackets are shipped together.

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)

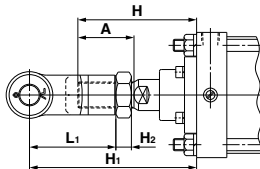
Dimensions (Dimensions other than below are the same as standard type.)

CS1, CS2 series XC86B, XC86C

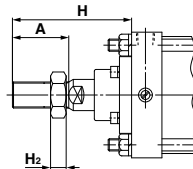


| Symbol Bore size (mm) | H | A | α | L ₁ | H ₁ | CS1 | | CS2 | |
|--------------------------|-----|----|----------|----------------|----------------|-----------------------------------|-----------------------|-----------------------|-----------------------|
| | | | | | | Applicable knuckle joint part no. | | | |
| | | | | | | I type single knuckle | Y type double knuckle | I type single knuckle | Y type double knuckle |
| 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 |
| 180, 200 | 135 | 63 | 3.5 | 125 | 193.5 | I-18, I-20 | Y-18, Y-20 | I-18A, I-20A | Y-18A, Y-20A |
| 250 | 160 | 71 | 3.5 | 160 | 245.5 | I-25 | Y-25 | I-25A | Y-25A |
| 300 | 175 | 80 | 3.5 | 175 | 266.5 | I-30 | Y-30 | — | — |
| 320 | 175 | 80 | 3.5 | 175 | 266.5 | — | — | I-32A | Y-32A |

CS1, CS2 series XC86D, XC86E



XC86F



| Symbol Bore size (mm) | H | A | L ₁ | H ₁ | H ₂ | CS1 | | CS2 | | CS1, CS2 common 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 | |
| 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 |
| 180 | 155 | 83 | 125 | 223 | 23 | I-18 | Y-18 | I-18A | Y-18A | NT-18 |
| 200 | 160 | 88 | 125 | 227 | 27 | I-20 | Y-20 | I-20A | Y-20A | NT-20 |
| 250 | 195 | 106 | 160 | 287 | 34 | I-25 | Y-25 | I-25A | Y-25A | NT-25 |
| 300 | 210 | 115 | 175 | 312 | 38 | I-30 | Y-30 | — | — | NT-30 |
| 320 | 210 | 115 | 175 | 312 | 38 | — | — | I-32A | Y-32A | NT-30 |

Made to Order Common Specifications: -XC86: With Rod End Bracket -XC87: Cylinder with One-way Lock/Heavy Duty Specifications

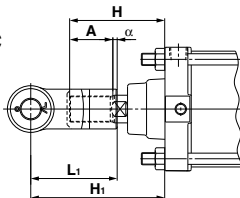


60 With Rod End Bracket

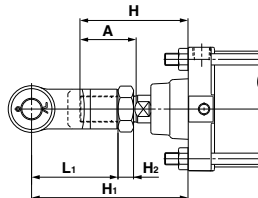
Symbol
-XC86

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

CS2 series
XC86B, XC86C



CS2 series
XC86D, XC86E



| Bore size (mm) | Symbol | H | A | α | L ₁ | H ₁ | Applicable knuckle joint part no. | |
|----------------|--------|----|-----|----------|----------------|----------------|-----------------------------------|-----------------------|
| | | | | | | | I type single knuckle | Y type double knuckle |
| 125 | 110 | 50 | 3.5 | 100 | 156.5 | I-12A | Y-12A | |
| 140 | 110 | 50 | 3.5 | 105 | 161.5 | I-14A | Y-14A | |
| 160 | 120 | 56 | 3.5 | 110 | 170.5 | I-16A | Y-16A | |

| Bore size (mm) | Symbol | H | A | L ₁ | H ₁ | H ₂ | Applicable knuckle joint part no. | | Applicable rod end nut |
|----------------|--------|----|-----|----------------|----------------|----------------|-----------------------------------|-----------------------|------------------------|
| | | | | | | | I type single knuckle | Y type double knuckle | |
| 125 | 125 | 65 | 100 | 181 | 18 | I-12A | Y-12A | NT-12 | |
| 140 | 125 | 65 | 105 | 186 | 18 | I-14A | Y-14A | NT-12 | |
| 160 | 140 | 76 | 110 | 198 | 21 | I-16A | Y-16A | NT-16 | |

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) |
|--------|--|-------|---------------------------|----------------------------|--------------------------|
| CLQ | Compact cylinder with lock | CLQ | Double acting, Single rod | Applicable to ø40 to ø100. | Web Catalog |
| RLQ | Compact cylinder with air cushion and lock | RLQ | Double acting, Single rod | Applicable to ø40 to ø63. | |
| MLGP | Compact guide cylinder with lock | MLGP | Double acting | Applicable to ø40 to ø100. | |
| CLK2 | Clamp cylinder with lock | CLK2 | Double acting, Single rod | Applicable to ø40 to ø63. | |
| MLU | Plate cylinder with lock | MLU | Double acting, Single rod | Applicable to ø40 and ø50. | |

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 | Note | Vol. no. (for std model) |
|--------|------------------------|---------|---------------------------|------|------|------|-------------------|--------------------------|
| MB | Air cylinder | MB-Z | Double acting, Single rod | ● | ● | ● | ø32-ø100 only | Web Catalog |
| CA2 | Air cylinder | CA2-Z | Double acting, Single rod | ● | ● | ● | | |
| CQ2 | Compact cylinder | CQ2-Z | Double acting, Single rod | ● | ● | ● | | |
| | Long stroke | CQ2-Z | Double acting, Single rod | ● | ● | — | | |
| | Anti-lateral load | CQ2□S-Z | Double acting, Single rod | ● | ● | — | | |
| MGP | Compact guide cylinder | MGPM-Z | Double acting | ● | —* | ● | ø32-ø100 only | |
| | | MGPL-Z | Double acting | — | — | ● | | |
| | | MGPA-Z | Double acting | — | — | ● | | |
| MK2T | Rotary clamp cylinder | MK2T | Double acting | — | ● | ● | ø32-ø63 only | |
| CKG1 | Clamp cylinder | CKG1-Z1 | Double acting, Single rod | ● | ● | ● | | |
| | | CKG1-Z | Double acting, Single rod | ● | ● | ● | | |
| | | CKGA | Double acting, Single rod | ● | ● | ● | ø80 and ø100 only | |

Common Specifications: MB, CA2, CQ2, MK2T, CKG1

| Part no. | Piston rod material (Hard chrome plating) | | 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.

Specifications: MGP

| Part no. | Piston rod/Guide rod material (Hard chrome plating) | | Coil scraper | | Lube-retainer | | Grease for welding |
|----------|--|---------------------|--------------|-----------|---------------|-----------|-----------------------|
| | S45C | Stainless steel 304 | Rod side | Head side | Rod side | Head side | |
| -XC88 | — | ● | ● | — | ● | — | ● |
| -XC91 | ● | — | ● | — | ● | — | ● |
| -XC88W | — | ● | ● | ● | ● | ● | ● |
| -XC89W | ● | — | ● | ● | ● | ● | ● |
| -XC91W | ● | — | ● | ● | ● | — | ● |

* There is no "-XC89" part number suffix as the specifications are the same as those of the "-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-XC88/XC89/XC91

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

Applicable Series

| Series | Description | Model | Action | XC88 | XC89 | XC91 | Vol. no. (for std. model) |
|--------|--------------|-------|---------------------------|------|------|------|---------------------------|
| MB | Air cylinder | MB-Z | Double acting, Single rod | ● | ● | ● | Web Catalog |

How to Order

Standard model no. — XC89

Spatter-resistant rod material

| | |
|------|---------------------|
| XC88 | Stainless steel 304 |
| XC89 | S45C |
| XC91 | S45C |

Made to Order

| Part no. | Piston rod material (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.

Specifications

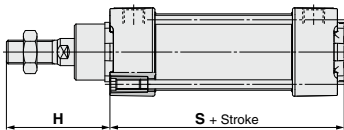
| | |
|----------------------------|-------------------------------|
| Bore size | ø32, ø40, ø50, ø63, ø80, ø100 |
| Port thread type | Rc |
| Max. manufacturable stroke | See right side. |
| Rod boot | None |
| Cushion | Air cushion |
| Dimensions | See below. |
| Additional specifications | Same as standard type |

Max. manufacturable stroke

| Bore size (mm) | Max. manufacturable stroke |
|----------------|----------------------------|
| 32 | 1000 |
| 40 | 1000 |
| 50 | 1000 |
| 63 | 1000 |
| 80 | 1000 |
| 100 | 1000 |

Manufacture of intermediate strokes is possible. (Spacers are not used.)
Produced upon receipt of order.

Dimensions (Other dimensions are the same as the standard type.)



| Bore size (mm) | XC88, 89 | | XC91 | | XC35 | |
|----------------|----------|-----|------|-----|------|-----|
| | H | S | H | S | H | S |
| 32 | 50 | 88 | 47 | 88 | 47 | 88 |
| 40 | 61 | 88 | 58 | 88 | 58 | 88 |
| 50 | 67 | 98 | 67 | 98 | 67 | 98 |
| 63 | 67 | 98 | 67 | 98 | 67 | 98 |
| 80 | 82 | 118 | 81 | 118 | 81 | 118 |
| 100 | 82 | 118 | 81 | 118 | 81 | 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-XC88/XC89/XC91

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

Applicable Series

| Series | Description | Model | Action | XC88 | XC89 | XC91 | Vol. no. (for std model) |
|--------|--------------|-------|---------------------------|------|------|------|--------------------------|
| CA2 | Air cylinder | CA2-Z | Double acting, Single rod | ● | ● | ● | Web Catalog |

How to Order

Standard model no. — XC89

Spatter-resistant rod material

| | |
|------|---------------------|
| XC88 | Stainless steel 304 |
| XC89 | S45C |
| XC91 | S45C |

Made to Order

| Part no. | Piston rod material (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.

Specifications

| | |
|----------------------------|--------------------------|
| Bore size | ø40, ø50, ø63, ø80, ø100 |
| Tubing material | Aluminum tube |
| Port thread type | Rc |
| Max. manufacturable stroke | See right side. |
| Rod boot | None |
| Cushion | Air cushion |
| Dimensions | See below. |
| Additional specifications | Same as standard type |

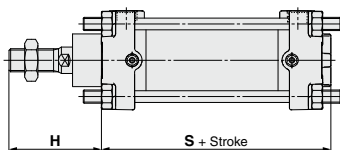
Max. manufacturable stroke

(mm)

| Bore size | Max. manufacturable stroke ^{Note 1)} |
|-----------|---|
| 40 | 1000 |
| 50, 63 | 1000 |
| 80, 100 | 1000 |

Note 1) For details about applicable maximum stroke, refer to the model selection table on the Web Catalog.

Dimensions (Other dimensions are the same as the standard type.)



| Bore size (mm) | XC88, 89 | | XC91 | | XC35 | |
|----------------|----------|-----|------|-----|------|-----|
| | H | S | H | S | H | S |
| 40 | 56 | 95 | 51 | 95 | 51 | 95 |
| 50 | 60 | 101 | 58 | 101 | 58 | 101 |
| 63 | 60 | 112 | 58 | 112 | 58 | 112 |
| 80 | 73 | 133 | 71 | 133 | 71 | 133 |
| 100 | 74 | 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)



CQ2-XC88/XC89/XC91

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)

■ CDQ2 series (Long Stroke)

■ CDQ2□S series (Anti-lateral Load)

Applicable Series

| Series | Description | Model | Action | Note | XC88 | XC89 | XC91 |
|--------|-------------------|---------|---------------------------|------------------------------|------|------|------|
| CQ2 | Compact cylinder | CQ2-Z | Double acting, Single rod | With auto switch magnet only | ● | ● | ● |
| | Long stroke | CQ2-Z | Double acting, Single rod | | ● | ● | — |
| | Anti-lateral load | CQ2□S-Z | Double acting, Single rod | | ● | ● | — |

Made to Order

| Part no. | Piston rod material (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.

How to Order

CDQ2 **Standard model no.** — **XC89**

Spatter-resistant rod material ↓

| | |
|-------------|---------------------|
| XC88 | Stainless steel 304 |
| XC89 | S45C |
| XC91 | S45C |

(Standard)

Specifications

| | |
|--|-----------------------------------|
| Bore size | φ32, φ40, φ50, φ63, φ80, φ100 |
| Mounting brackets | Excludes the compact foot bracket |
| Type | Pneumatic |
| Mounting bolt for the through-hole type | Not included |
| Dimensions | See below. |
| Additional specifications | Same as standard type |

(Long stroke)

Specifications

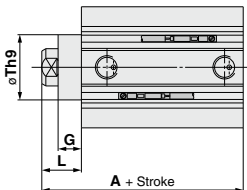
| | |
|----------------------------------|-----------------------------------|
| Mounting brackets | Excludes the compact foot bracket |
| Type | Pneumatic |
| Cushion | Rubber bumper |
| Dimensions | See below. |
| Additional specifications | Same as standard type |

(Anti-lateral load)

Specifications

| | |
|----------------------------------|-----------------------------------|
| Mounting brackets | Excludes the compact foot bracket |
| Dimensions | See below. |
| Additional specifications | Same as standard type |

Dimensions (Other dimensions are the same as the standard type.)



| Bore size (mm) | XC88, 89 | | | | | | XC91 | | | | (mm) |
|----------------|----------|-------------|-------------------|----|----|------------------------------------|------|---|----|------------------------------------|------|
| | A | | | G | L | Th9 | A | G | L | Th9 | |
| | Standard | Long stroke | Anti-lateral load | | | | | | | | |
| 32 | 50 | 67.5 | 60 | 10 | 17 | 23 ⁰ _{-0.0102} | 45 | 5 | 12 | 23 ⁰ _{-0.0102} | |
| 40 | 56.5 | 77 | 66.5 | 10 | 17 | 28 ⁰ _{-0.0102} | 51.5 | 5 | 12 | 28 ⁰ _{-0.0102} | |
| 50 | 58.5 | 78.5 | 68.5 | 10 | 18 | 35 ⁰ _{-0.0102} | 53.5 | 5 | 13 | 35 ⁰ _{-0.0102} | |
| 63 | 64 | 80 | 74 | 10 | 18 | 35 ⁰ _{-0.0102} | 59 | 5 | 13 | 35 ⁰ _{-0.0102} | |
| 80 | 73.5 | 91 | 83.5 | 10 | 20 | 43 ⁰ _{-0.0102} | 68.5 | 5 | 15 | 43 ⁰ _{-0.0102} | |
| 100 | 85 | 102.5 | 95 | 10 | 22 | 59 ⁰ _{-0.0174} | 80 | 5 | 17 | 59 ⁰ _{-0.0174} | |

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-XC88(W)/XC89W/XC91(W)

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

Applicable Series

| Series | Description | Model | Action | XC88(W) | XC89 | XC91(W) | Note | Vol. no. (for std model) |
|--------|------------------------|--------|---------------|---------|------|---------|------------------|--------------------------|
| MGP | Compact guide cylinder | MGPM-Z | Double acting | ● | —* | ● | ø32 to ø100 only | Web Catalog |
| | | MGPL-Z | | — | — | ● | | |
| | | MGPA-Z | | — | — | ● | | |

Made to Order

| Part no. | Piston rod/ Guide rod material (Hard chrome plating) | | Coil scraper | | Lube-retainer | | Grease for welding |
|----------|--|------------------------|--------------|-----------|---------------|-----------|-----------------------|
| | S45C | Stainless steel 304 | Rod side | Head side | Rod side | Head side | |
| -XC88 | — | ● | ● | — | ● | — | ● |
| -XC91 | ● | — | ● | — | ● | — | ● |
| -XC88W | — | ● | ● | ● | ● | ● | ● |
| -XC89W | ● | — | ● | ● | ● | ● | ● |
| -XC91W | ● | — | ● | ● | ● | — | ● |

* There is no "-XC89" part number suffix as the specifications are the same as those of the "-XC91."

Specifications

| | | |
|----------------------------------|-----------------------|-------------------------------|
| Bore size | XC88, XC91 | ø32, ø40, ø50, ø63, ø80, ø100 |
| Max. operating pressure | XC88W, XC89W, XC91W | 0.12 MPa 0.14 MPa |
| Dimensions | See below. | |
| Additional specifications | Same as standard type | |

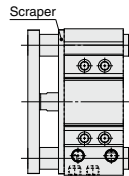
How to Order

Standard model no. — XC88W

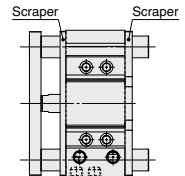
Spatter-resistant rod material

| Symbol | Scraper mounting position | Rod material |
|--------|---------------------------|---------------------|
| XC88 | Single side scraper | Stainless steel 304 |
| XC91 | | S45C |
| XC88W | Both sides scraper | Stainless steel 304 |
| XC89W | | S45C |
| XC91W | | S45C |

Single side scraper

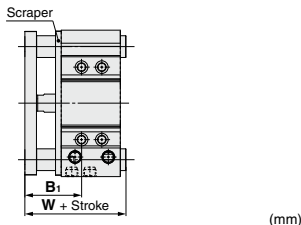


Both sides scraper



Dimensions (Other dimensions are the same as the standard type.)

Single side scraper (-XC88, -XC91)

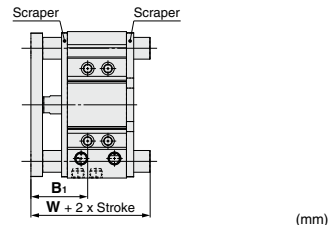


| Bore size (mm) | XC88 | | XC91 | | XC35 | |
|-------------------|----------------|----------------------|----------------|----------------------|----------------|----------------------|
| | B ₁ | W ^{Note 1)} | B ₁ | W ^{Note 1)} | B ₁ | W ^{Note 1)} |
| 32 | 53 | 85 | 53 | 85 | 53 | 85 |
| 40 | 54 | 85 | 54 | 85 | 54 | 85 |
| 50 | 62 | 98.5 | 62 | 98.5 | 62 | 98.5 |
| 63 | 62 | 98.5 | 62 | 98.5 | 62 | 98.5 |
| 80 | 78 | 114.5 | 78 | 114.5 | 78 | 114.5 |
| 100 | 71 | 136.5 | 71 | 136.5 | 71 | 136.5 |

* At 0 stroke

Note 1) W dimensions are for 50 stroke or less.

Both sides scraper (-XC88W, -XC89W, -XC91W)



| Bore size (mm) | XC88W XC89W | | XC91W | | XC35W | |
|-------------------|----------------|-------|----------------|-------|----------------|-------|
| | B ₁ | W | B ₁ | W | B ₁ | W |
| 32 | 53 | 82.5 | 53 | 82.5 | 53 | 82.5 |
| 40 | 54 | 89.5 | 54 | 89 | 54 | 89 |
| 50 | 62 | 95 | 62 | 95 | 62 | 95 |
| 63 | 62 | 100 | 62 | 100 | 62 | 100 |
| 80 | 78 | 120.5 | 78 | 120.5 | 78 | 120.5 |
| 100 | 71 | 143 | 71 | 143 | 71 | 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)



MK2T-XC89/XC91

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.

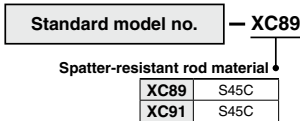
64 Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C) -XC91

With coil scraper and grease for welding

Applicable Series

| Series | Description | Model | Action | XC89 | XC91 | Vol. no. (for std model) |
|--------|-----------------------|-------|---------------|------|------|--------------------------|
| MK2T | Rotary clamp cylinder | MK2T | Double acting | ● | ● | Web Catalog |

How to Order



Made to Order

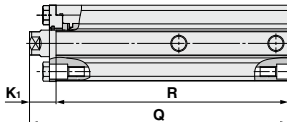
| Part no. | Piston rod material (Hard chrome plated) | Coil scraper | Lube-retainer | Grease for welding |
|----------|--|--------------|---------------|--------------------|
| | S45C | | | |
| -XC89 | ● | ● | ● | ● |
| -XC91 | ● | ● | — | ● |

Note) Use the -XC91 in a place where the distance from the welding portion is far and the spatter scattering is minimized.

Specifications

| | |
|---------------------------|-----------------------|
| Bore size | ø32, ø40, ø50, ø63 |
| Dimensions | See below. |
| Additional specifications | Same as standard type |

Dimensions (Other dimensions are the same as the standard type.)



Clamp stroke: 10 mm (mm)

| Bore size | XC89 | | | XC91 | | |
|-----------|-------|-----|----------------|-------|-----|----------------|
| | Q | R | K ₁ | Q | R | K ₁ |
| 32 | 156 | 140 | 16 | 148 | 140 | 8 |
| 40 | 160.5 | 144 | 16.5 | 151.5 | 144 | 7.5 |
| 50 | — | — | — | — | — | — |
| 63 | — | — | — | — | — | — |

Clamp stroke: 20 mm (mm)

| Bore size | XC89 | | | XC91 | | |
|-----------|-------|-----|----------------|-------|-----|----------------|
| | Q | R | K ₁ | Q | R | K ₁ |
| 32 | 176 | 160 | 16 | 168 | 160 | 8 |
| 40 | 180.5 | 164 | 16.5 | 171.5 | 164 | 7.5 |
| 50 | 202.5 | 179 | 23.5 | 191 | 179 | 12 |
| 63 | 205 | 182 | 23 | 192 | 182 | 10 |

Clamp stroke: 50 mm (mm)

| Bore size | XC89 | | | XC91 | | |
|-----------|------|-------|----------------|-------|-------|----------------|
| | Q | R | K ₁ | Q | R | K ₁ |
| 32 | — | — | — | — | — | — |
| 40 | — | — | — | — | — | — |
| 50 | 266 | 242.5 | 23.5 | 254.5 | 242.5 | 12 |
| 63 | 269 | 246 | 23 | 256 | 246 | 10 |

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-XC88/XC89/XC91

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** **Magnetic Field Resistant Auto Switch Rod Mounting Type**

■ **CKG1 series** **General Purpose Auto Switch Band Mounting/Rod Mounting**

Applicable Series

| Series | Description | Model | Action | XC88 | XC89 | XC91 | Vol. no. (for std model) |
|--------|----------------|---------|---------------------------|------|------|------|--------------------------|
| CKG1 | Clamp cylinder | CKG1-Z1 | Double acting, Single rod | ● | ● | ● | Web Catalog |
| | | CKG1-Z | Double acting, Single rod | ● | ● | ● | |

How to Order

Standard model no. — **XC89**

Spatter-resistant rod material ↓

| | |
|-------------|---------------------|
| XC88 | Stainless steel 304 |
| XC89 | S45C |
| XC91 | S45C |

Cushion ↓

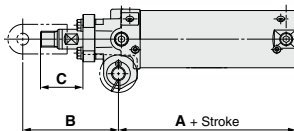
| | |
|-------------|--|
| NIII | With air cushion on the unclamped side (head end) (Standard) |
| W | With air cushion on both ends |

Note) The dimensions of the product with the air cushion on both ends are the same as those of the product with the air cushion on the unclamped side (head end).

Specifications/CKG1-Z, CKG1-Z1 common

| | |
|----------------------------------|---|
| Bore size | ø40, ø50, ø63 |
| End bracket | I, IA, Y, YA |
| Option | Mounting brackets "B," "D," "L," and "K" are not available. |
| Dimensions | See below. |
| Additional specifications | Same as standard type |

Dimensions/CKG1-Z, CKG1-Z1 common (Other dimensions are the same as the standard type.)



| Bore size (mm) | XC88, 89 | | | XC91 | | |
|----------------|----------|----|----|------|----|----|
| | A | B | C | A | B | C |
| 40 | 78 | 97 | 43 | 78 | 97 | 52 |
| 50 | 78 | 97 | 43 | 78 | 97 | 52 |
| 63 | 78 | 97 | 43 | 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-XC88/XC89/XC91

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.

64 Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C) **-XC91**

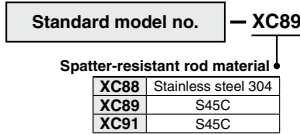
With coil scraper and grease for welding

CKGA series Rod Mounting

Applicable Series

| Series | Description | Model | Action | XC88 | XC89 | XC91 | Vol. no. (for std model) |
|--------|----------------|-------|---------------------------|------|------|------|--------------------------|
| CKG1 | Clamp cylinder | CKGA | Double acting, Single rod | ● | ● | ● | Web Catalog |

How to Order



Made to Order

| Part no. | Piston rod material (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.

Specifications

| | |
|----------------------------------|-----------------------|
| Bore size | ø80, ø100 |
| Dimensions | Same as standard type |
| Additional specifications | Same as 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)



CKGA-XC88/XC89/XC91

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.

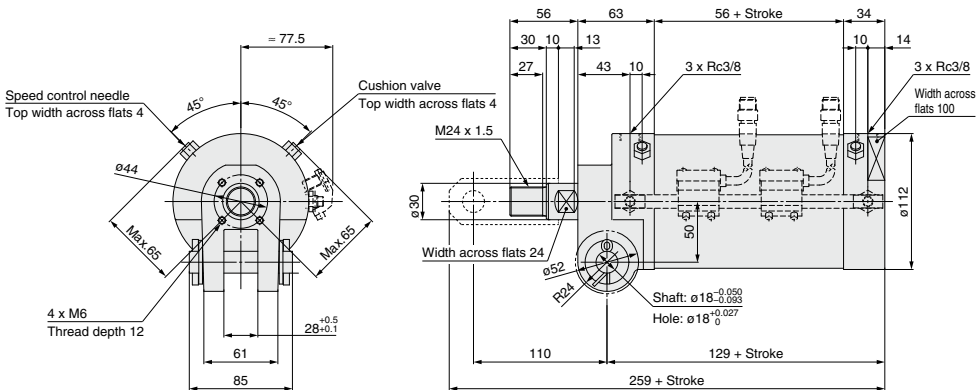
64 Spatter Resistant Coil Scraper, Grease for Welding (Piston rod: S45C) **-XC91**

With coil scraper and grease for welding

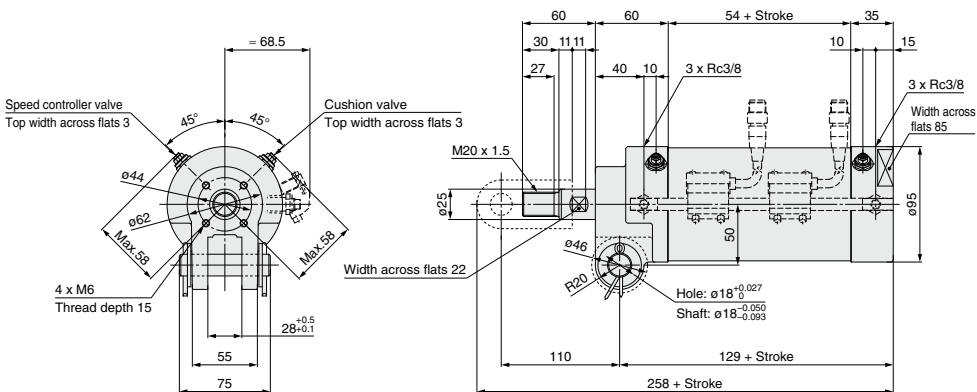
Bore Size

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 μm) 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 | Web Catalog |
| CQS | Compact Cylinder | CQS | Double acting, Single rod | | |
| CQ2 | Compact Cylinder | CQ2-Z | Double acting, Single rod | Applicable to ø32 to ø100. | |
| MGP | Compact Guide Cylinder | MGP | Double acting, Single rod | | |

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, 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

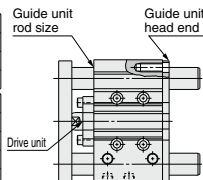
| Bore size (mm) | Standard stroke | Minimum operating pressure |
|----------------|---|----------------------------|
| 32, 40 | 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100 | 0.1 MPa |
| 50 to 100 | 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100 | 0.1 MPa |

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 |
| Nil | With lube-retainers on one side | ○ | ○ | — |
| W | With lube-retainers on both sides | ○ | ○ | ○ |

| XC92 | Bore size | | Minimum operating pressure |
|-------|-------------|-------------|----------------------------|
| | ø12, ø16 | ø20 to ø100 | |
| XC92W | ø12, ø16 | ø20 to ø100 | 0.25 MPa |
| | ø20 to ø100 | | 0.2 MPa |



Specifications other than minimum operating pressure are the same as standard model.

Made to Order Common Specifications: -XC92: Dust Resistant Actuator



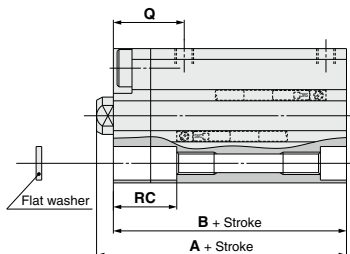
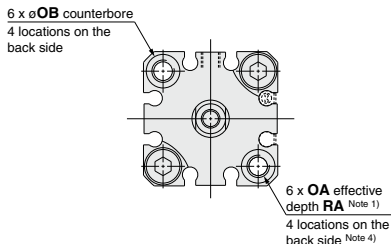
65 Dust Resistant Actuator

Symbol
-XC92

Dimensions (Other dimensions are the same as the standard type.)

CM2 series: The same as the standard type

CQS series



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.

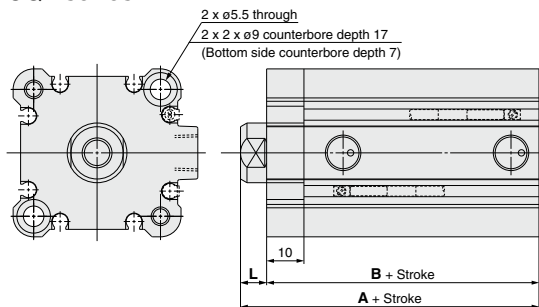
Note 2) Be sure to use the attached flat washer for mounting cylinder with through-holes.

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

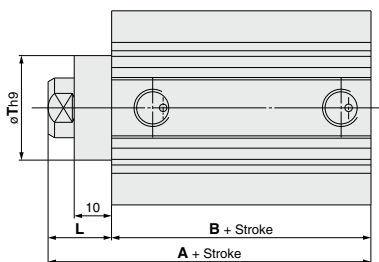
Note 4) 2 locations on the back side for the standard-type $\phi 20$ with 15 strokes or less and $\phi 25$ with 10 strokes, and for models with an auto switch and built-in magnet of $\phi 20$ with 5 strokes.

| Bore size (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 |

CQ2 series



$\phi 32$



$\phi 40$ to $\phi 100$

| Bore size (mm) | A | | B | | L | T |
|----------------|---------------------|------------------|---------------------|------------------|----|----|
| | Without auto switch | With auto switch | Without auto switch | With auto switch | | |
| 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.

Made to Order Common Specifications: -XC92: Dust Resistant Actuator

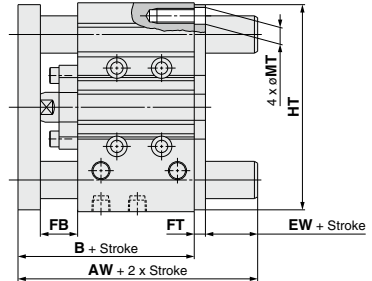
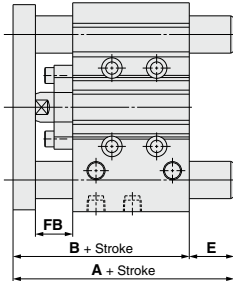


65 Dust Resistant Actuator

Symbol
-XC92

Dimensions (Other dimensions are the same as the standard type.)

MGP series



With Lube-retainers on one side (mm)

| Bore size (mm) | A | | B | E | | FB |
|----------------|---------------|--------------------------------|-------|---------------|--------------------------------|----|
| | 50 st or less | Over 50 st and 200 st or less* | | 50 st or less | Over 50 st and 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 (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 Rc port only | Web Catalog |

How to Order

Standard model no.

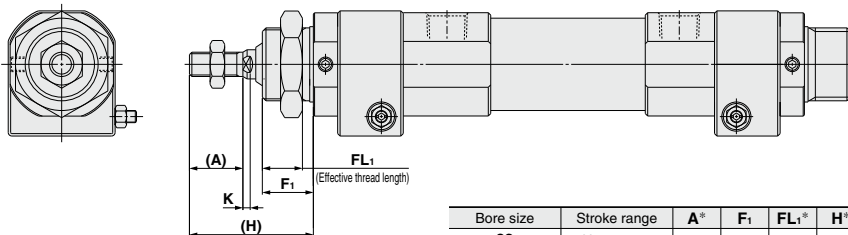
-XC93 □

With greater water resistance + stable lubrication function

● Piston rod,
Rod end nut material

| | |
|------------|-------------------------|
| NII | Standard (Carbon steel) |
| S | Stainless steel |

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



| Bore size | Stroke range | A* | F ₁ | FL ₁ * | H* | K | (mm) |
|-----------|--------------|----|----------------|-------------------|------|---|------|
| 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.

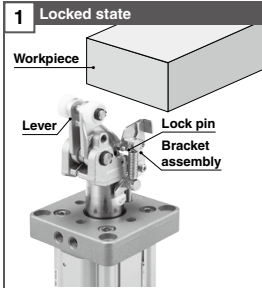
Made to Order Common Specifications -XC102: Lock Release Specification



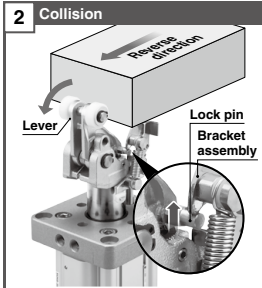
67 Lock Release Specification

Symbol
-XC102

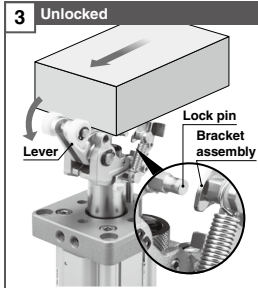
·Prevents lever damage when a transferred workpiece moves backward
(Prevents damage by releasing the locked lever when a pallet suddenly moves backward and collides with the lever)



The lever is in the locked state when the lock pin is hooked on the bracket assembly.



When a workpiece moves backward and collides with the lever, the lock pin unhooks from the bracket assembly as the lever is pushed backward.



When the lock pin is unhooked from the bracket assembly, the lever becomes unlocked, which allows the workpiece to pass through.



Applicable Series

| Series | Description | Model | Action | Note | Vol. no. (for std model) |
|--------|-----------------------------|-------|---------------|------|--------------------------|
| RS2H | Heavy duty stopper cylinder | RS2H | Double acting | | Web Catalog |

Specifications

| | |
|---------------------------------|--------------------------------------|
| Lever | With lock mechanism |
| Shock absorber | Shock absorber with scraper (Option) |
| Specifications other than above | Same as the standard type |

■ The main product specifications and dimensions are the same as those of the standard model. For further details on the shape and dimensions, refer to the CAD data.

How to Order

RS2H **50** **30** **D** **L** **D** **M9BW** **-XC102**



| 1 Bore size | 2 Port thread type | 3 Piping direction | 4 Cylinder stroke | 5 Action | 6 Roller material |
|----------------------------------|------------------------------|---|---------------------------------------|---|---------------------------|
| 50 50 mm 63 63 mm 80 80 mm | Nil Nil Rc TN NPT TF G | Nil Flange side A Axial direction (tube) | 30 30 mm (ø50, ø63) 40 40 mm (ø80) | D Double acting B Double acting spring type T Single acting/spring extend | L Resin M Carbon steel |

7 Option*1

| | |
|-----|-------------------------------|
| Nil | Without option |
| C | With cancel cap |
| S | With lever detection switch*2 |

*1 Options can be combined.
Indicate the option symbols in the order of "C" then "S."

*2 For details on the lever detection switch, refer to the standard model.

9 Shock absorber

| | |
|-----|-----------------------------|
| Nil | Standard |
| Y | Shock absorber with scraper |

10 Auto switch

| | |
|-----|---------------------------------------|
| Nil | Without auto switch (Built-in magnet) |
|-----|---------------------------------------|

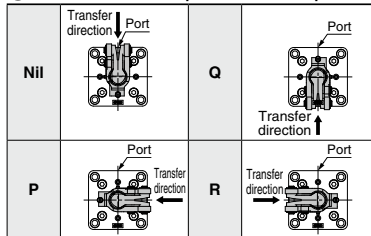
* The applicable auto switches are the same as those for the standard model.

* Auto switches are shipped together with the product but do not come assembled.

11 Number of auto switches (Number of auto switches mounted)

| | |
|-----|---|
| Nil | 2 |
| S | 1 |

8 Positional relationship of the lever and port



Replacement Parts/Shock Absorber

| Bore size (mm) | Order no. | |
|----------------|-----------|----------------|
| | Standard | With scraper |
| 50 | RS2H-R50 | RS2H-R50-X2666 |
| 63 | RS2H-R63 | RS2H-R63-X2666 |
| 80 | RS2H-R80 | RS2H-R80-X2666 |

* The shock absorber can be replaced individually.
Mounting of the built-in shock absorber with a scraper is interchangeable with the standard shock absorber (RS2H-R□).

Made to Order Common Specifications: -XC103: Cylinder for the Foot Type or the Rod Flange Type Mounting Bracket



68 Cylinder for the Foot Type or the Rod Flange Type Mounting Bracket

Symbol

-XC103

For cylinders with a foot type or a rod flange type mounting bracket (The rod end length is 5 mm longer than that of the standard model.)

Applicable Series

| Series | Description | Model | Action | Note | Vol. no. (for std model) |
|--------|------------------|-------|---------------------------|------|--------------------------|
| JCQ | Compact cylinder | JCQ | Double acting, Single rod | | Web Catalog |

How to Order

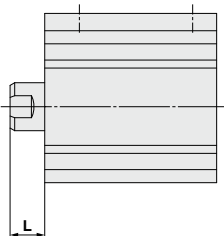
JC(D)QA - **XC103**

↓ Cylinder for the foot type or the rod flange type mounting bracket

Specifications

| | |
|---------------------------------|-----------------------|
| Mounting type | Both ends tapped |
| Dimensions | See below. |
| Specifications other than above | Same as standard type |

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



| Bore size | L (mm) |
|------------|--------|
| 32 | 10 |
| 40 | 11 |
| 50 | 13 |
| 63 | 13 |
| 80 | 14 |
| 100 | 15 |

Dimensions other than those above are the same as those of the standard model.

Made to Order Common Specifications: -XC104: Built-in Cylinder with Lock (MWB)



69 Built-in Cylinder with Lock (MWB)

Symbol

-XC104

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 | Port thread type | – | Stroke | – | Auto switch | – | XC104

Built-in cylinder with lock

Specifications

| Applicable series | MGG | | | |
|---|-----------------------------------|----------------|------------------|--------------------------|
| Bore size (mm) | 50 | 63 | 80 | 100 |
| Basic cylinder | MDWBB | Bore size | Port thread type | – Stroke N – Auto switch |
| Minimum operating pressure ^{Note)} | 0.2 MPa (Horizontal with no load) | | | |
| Piston speed | 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 ^{*2} | Slide bearing | ±0.04° | | ±0.03° |
| | Ball bushing bearing | ±0.03° | | ±0.02° |
| Shock absorber model | RB2015 | RB2725 | | |

*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.

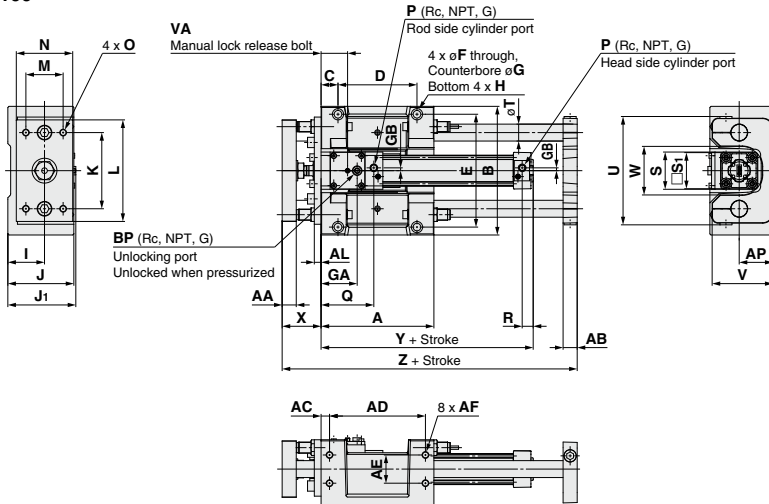
Note) When the piston is locked, the load mass is limited by the mounting orientation and the operating pressure.
For details about the lock specifications, etc., refer to the cylinders with lock/MWB series.

Made to Order Common Specifications: -XC104: Built-in Cylinder with Lock (MWB)



Dimensions

Basic type
ø50 to ø100



(mm)

| Bore size (mm) | A | AA | AB | AC | AD | AE | AF | AL | AP | B | C | D | E | F | G | GA | GB | H | I |
|----------------|-----|----|----|------|-----|----|---------------------|----|----|-----|----|-----|-----|------|---------------|-----|------|--------------------|----|
| 50 | 200 | 25 | 25 | 15 | 170 | 50 | M12 x 1.75 depth 24 | 12 | 60 | 228 | 30 | 140 | 200 | 13.5 | 20 depth 14.5 | 64 | 5 | M16 x 2 depth 28 | 65 |
| 63 | 230 | 25 | 27 | 15 | 200 | 55 | M12 x 1.75 depth 24 | 12 | 70 | 262 | 30 | 170 | 234 | 13.5 | 20 depth 14.5 | 73 | 9 | M16 x 2 depth 28 | 75 |
| 80 | 280 | 30 | 30 | 17.5 | 245 | 70 | M14 x 2.0 depth 28 | 16 | 80 | 304 | 35 | 210 | 274 | 15 | 23 depth 17 | 92 | 11.5 | M18 x 2.5 depth 32 | 85 |
| 100 | 280 | 32 | 30 | 17.5 | 245 | 70 | M14 x 2.0 depth 28 | 16 | 80 | 304 | 35 | 210 | 274 | 15 | 23 depth 17 | 109 | 17 | M18 x 2.5 depth 32 | 85 |

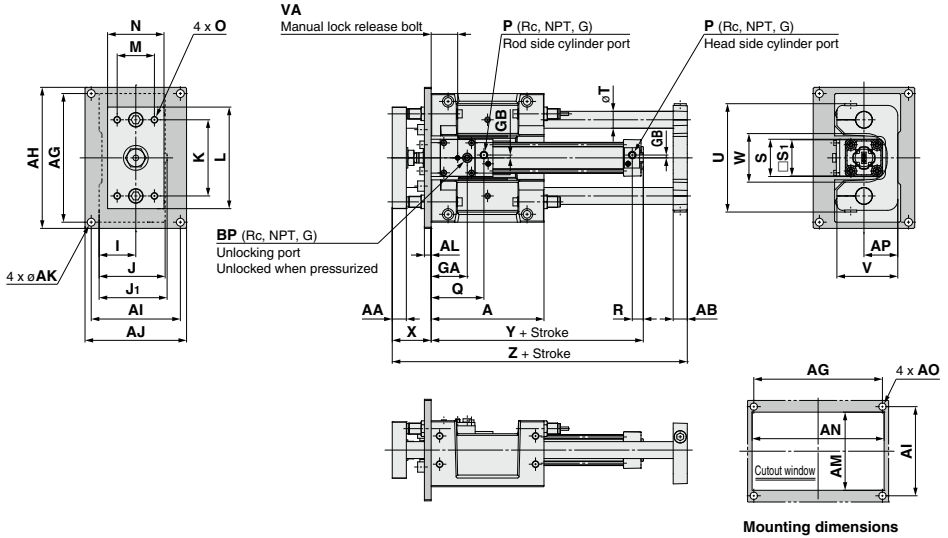
| Bore size (mm) | J | J ₁ | K | L | M | N | O | P | BP | Q | R | S | S ₁ | T | U | V | VA | W | X | Y | Z |
|----------------|-----|----------------|-----|-----|----|-----|---------------------|-----|-----|-------|------|-----|----------------|----|-----|-----|----|-----|----|-----|-----|
| 50 | 117 | 120.5 | 135 | 180 | 66 | 100 | M12 x 1.75 depth 23 | 1/4 | 1/8 | 93.5 | 19.5 | 66 | 65 | 30 | 192 | 108 | 47 | 86 | 69 | 184 | 323 |
| 63 | 138 | 134.5 | 160 | 214 | 76 | 115 | M12 x 1.75 depth 23 | 3/8 | 1/4 | 106.5 | 20.5 | 78 | 75 | 35 | 224 | 128 | 53 | 104 | 69 | 196 | 358 |
| 80 | 153 | 156.5 | 190 | 245 | 80 | 125 | M14 x 2 depth 28 | 3/8 | 1/4 | 132 | 23 | 98 | 95 | 40 | 262 | 143 | 65 | 128 | 87 | 241 | 431 |
| 100 | 153 | 165.5 | 190 | 245 | 80 | 125 | M14 x 2 depth 30 | 1/2 | 1/4 | 150 | 23 | 116 | 114 | 40 | 262 | 143 | 74 | 128 | 87 | 261 | 431 |

Made to Order Common Specifications: -XC104: Built-in Cylinder with Lock (MWB)



Dimensions

Front mounting flange type
ø50 to ø100



| Bore size (mm) | A | AA | AB | AG | AH | AI | AJ | AK | AL | AM | AN | AO | AP | B | GA | GB | I | J | J ₁ |
|----------------|-----|----|----|-----|-----|-----|-----|----|----|-----|-----|-----|----|-----|-----|------|----|-----|----------------|
| 50 | 200 | 25 | 25 | 228 | 250 | 158 | 180 | 14 | 12 | 135 | 234 | M12 | 60 | 228 | 64 | 5 | 65 | 117 | 120.5 |
| 63 | 230 | 25 | 27 | 262 | 284 | 178 | 200 | 14 | 12 | 155 | 268 | M12 | 70 | 262 | 73 | 9 | 75 | 138 | 134.5 |
| 80 | 280 | 30 | 30 | 300 | 326 | 200 | 226 | 16 | 16 | 175 | 310 | M14 | 80 | 304 | 92 | 11.5 | 85 | 153 | 156.5 |
| 100 | 280 | 32 | 30 | 300 | 326 | 200 | 226 | 16 | 16 | 175 | 310 | M14 | 80 | 304 | 109 | 17 | 85 | 153 | 165.5 |

| Bore size (mm) | K | L | M | N | O | P | BP | Q | R | S | S ₁ | T | U | V | VA | W | X | Y | Z |
|----------------|-----|-----|----|-----|---------------------|-----|-----|-------|------|-----|----------------|----|-----|-----|----|-----|----|-----|-----|
| 50 | 135 | 180 | 66 | 100 | M12 x 1.75 depth 23 | 1/4 | 1/8 | 93.5 | 19.5 | 66 | 65 | 30 | 192 | 108 | 47 | 86 | 69 | 184 | 323 |
| 63 | 160 | 214 | 76 | 115 | M12 x 1.75 depth 23 | 3/8 | 1/4 | 106.5 | 20.5 | 78 | 75 | 35 | 224 | 128 | 53 | 104 | 69 | 196 | 358 |
| 80 | 190 | 245 | 80 | 125 | M14 x 2 depth 28 | 3/8 | 1/4 | 132 | 23 | 98 | 95 | 40 | 262 | 143 | 65 | 128 | 87 | 241 | 431 |
| 100 | 190 | 245 | 80 | 125 | M14 x 2 depth 30 | 1/2 | 1/4 | 150 | 23 | 116 | 114 | 40 | 262 | 143 | 74 | 128 | 87 | 261 | 431 |