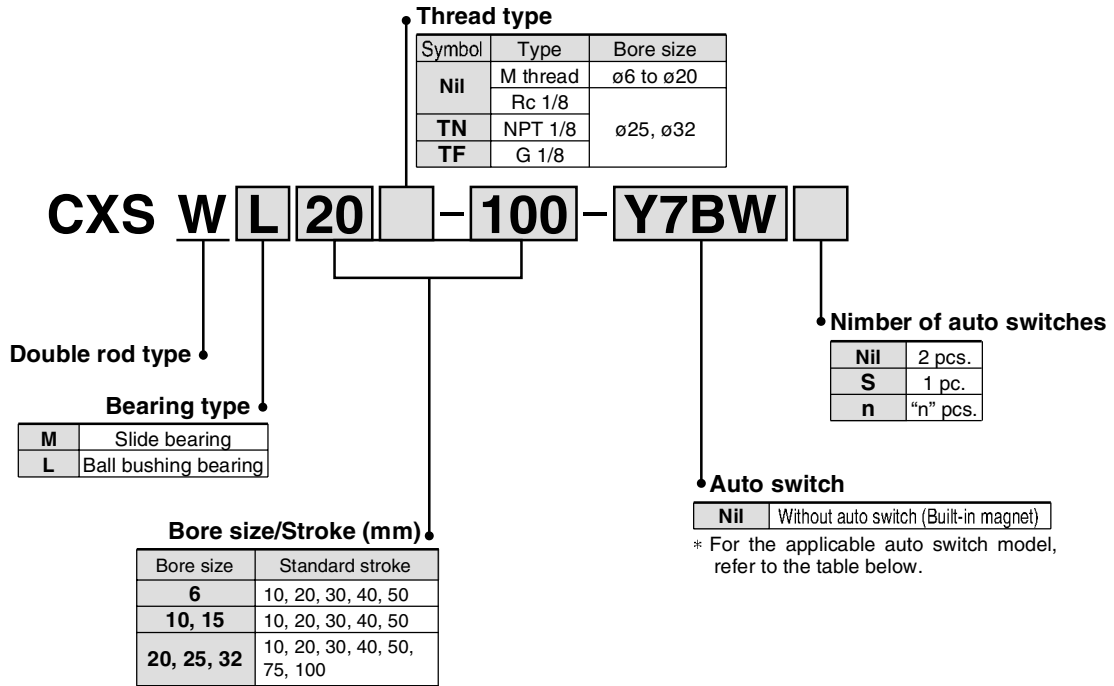


# Dual Rod Cylinder Double Rod Type Series CXSW

ø6, ø10, ø15, ø20, ø25, ø32

## How to Order



## Applicable Auto Switch

Refer to pages 1719 to 1827 for further information on auto switches.

| Type                                 | Special function                           | Electrical entry | Indicator light | Wiring (Output) | Load voltage            |    | Auto switch model |            | Lead wire length (m) * |        |       | Pre-wired connector | Applicable load |            |     |
|--------------------------------------|--|------------------|-----------------|-----------------|-------------------------|----|-------------------|------------|------------------------|--------|-------|---------------------|-----------------|------------|-----|
|                                      |  |                  |                 |                 | DC                      | AC | Perpendicular     | In-line    | 0.5 (Nil)              | 3 (L)  | 5 (Z) |                     | IC circuit      |            |     |
|                                      |  |                  |                 |                 |                         |    |                   |            |                        |        |       |                     | IC circuit      | Relay, PLC |     |
| Solid state switch                   | —  | Grommet          | Yes             | 3-wire (NPN)    | 5 V, 12 V               | —  | Y69A              | Y59A       | ●                      | ●      | ○     | ○                   | IC circuit      | Relay, PLC |     |
|                                      |  |                  |                 | 3-wire (PNP)    |                         |    | Y7PV              | Y7P        | ●                      | ●      | ○     |                     |                 |            |     |
|                                      |  |                  |                 | 2-wire          |                         |    | Y69B              | Y59B       | ●                      | ●      | ○     |                     |                 |            |     |
|                                      | Diagnostic indication (2-color indication) |                  |                 | 24 V            | 3-wire (NPN)            |    | Y7NWV             | Y7NW       | ●                      | ●      | ○     | ○                   | ○               |            |     |
|                                      |  |                  |                 |                 | 3-wire (PNP)            |    | Y7PWV             | Y7PW       | ●                      | ●      | ○     | ○                   |                 |            |     |
|                                      |  |                  |                 |                 | 2-wire                  |    | Y7BWV             | Y7BW       | ●                      | ●      | ○     | ○                   |                 |            |     |
| Water resistant (2-color indication) | 12 V                                       | —                | Y7BA**          | —               | ●                       | ○  | ○                 | ○          | —                      |        |       |                     |                 |            |     |
|                                      |  | Reed switch      | Grommet         | Yes             | 3-wire (NPN equivalent) | —  | 5 V               | —          | Z76                    | ●      | ●     | —                   | —               | IC circuit | —   |
|                                      |  |                  |                 |                 | None                    |    |                   |            |                        | 2-wire | 24 V  | 12 V                | 100 V           | —          | Z73 |
| 100 V or less                        | —  | Z80              | ●               | ●               |                         | —  | —                 | IC circuit | —                      |        |       |                     |                 |            |     |

\* Lead wire length symbols: 0.5 m ..... Nil (Example) Y59A  
 3 m ..... L (Example) Y59AL  
 5 m ..... Z (Example) Y59AZ

\* Solid state auto switches marked with "○" are produced upon receipt of order.  
 \*\* ø10, 15, 20 are not applicable. Please consult with SMC separately.

- Since there are other applicable auto switches than listed, refer to page 569 for details.
- For details about auto switches with pre-wired connector, refer to pages 1784 and 1785.
- Auto switches are shipped together (not assembled).

# Series CXSW



## Specifications

|                               |  |           |           |           |           |           |
|-------------------------------|--|-----------|-----------|-----------|-----------|-----------|
| Bore size (mm)                | <b>6</b>   | <b>10</b> | <b>15</b> | <b>20</b> | <b>25</b> | <b>32</b> |
| Fluid                         | Air (Non-lube)   |           |           |           |           |           |
| Proof pressure                | 1.05 MPa   |           |           |           |           |           |
| Maximum operating pressure    | 0.7 MPa  |           |           |           |           |           |
| Minimum operating pressure    | 0.15 MPa   |           |           | 0.1 MPa   |           |           |
| Ambient and fluid temperature | -10 to 60°C (No freezing)  |           |           |           |           |           |
| Piston speed                  | 50 to 500 mm/s   |           |           |           |           |           |
| Cushion                       | Bumper is standard on both ends  |           |           |           |           |           |
| Stroke adjustable range       | 0 to -10 mm compared to the standard stroke<br>(Extended end: 5 mm, Retracted end: 5 mm) |           |           |           |           |           |
| Port size                     | M5 x 0.8   |           |           |           | Rc 1/8    |           |
| Bearing type                  | Slide bearing, Ball bushing bearing (Same dimensions for both)                           |           |           |           |           |           |

## Standard Stroke

| Model   | Standard stroke             | Long stroke        |
|---------|-----------------------------|--------------------|
| CXSW□6  | 10, 20, 30, 40, 50          | —                  |
| CXSW□10 | 10, 20, 30, 40, 50          | 75, 100, 125, 150  |
| CXSW□15 |                             |                    |
| CXSW□20 | 10, 20, 30, 40, 50, 75, 100 | 125, 150, 175, 200 |
| CXSW□25 |                             |                    |
| CXWS□32 |                             |                    |

\* For long strokes, it will be made-to-order. (-XB11)

## Theoretical Output

| Model   | Rod size (mm) | Piston area (mm <sup>2</sup> ) | Operating pressure (MPa) |      |      |      |      |      |      |
|---------|---------------|--------------------------------|--------------------------|------|------|------|------|------|------|
|         |               |                                | 0.1                      | 0.2  | 0.3  | 0.4  | 0.5  | 0.6  | 0.7  |
| CXSW□6  | 4             | 31                             | 4.6                      | 6.2  | 9.3  | 12.4 | 15.5 | 18.6 | 21.7 |
| CXSW□10 | 6             | 100                            | 10                       | 20   | 30   | 40   | 50   | 60   | 70   |
| CXSW□15 | 8             | 252                            | 25.2                     | 50.4 | 75.6 | 101  | 126  | 151  | 176  |
| CXSW□20 | 10            | 471                            | 47.1                     | 94.2 | 141  | 188  | 236  | 283  | 330  |
| CXSW□25 | 12            | 756                            | 75.6                     | 151  | 227  | 302  | 378  | 454  | 529  |
| CXSW□32 | 16            | 1206                           | 121                      | 241  | 362  | 482  | 603  | 724  | 844  |

Note) Theoretical output (N) = Pressure (MPa) x Piston area (mm<sup>2</sup>)

## Mass

| Model    | Standard stroke (mm) |      |      |      |      |      |      |
|----------|----------------------|------|------|------|------|------|------|
|          | 10                   | 20   | 30   | 40   | 50   | 75   | 100  |
| CXSWM 6  | 0.11                 | 0.13 | 0.14 | 0.16 | 0.17 | —    | —    |
| CXSWL 6  | 0.12                 | 0.13 | 0.15 | 0.16 | 0.18 | —    | —    |
| CXSWM10  | 0.24                 | 0.26 | 0.28 | 0.30 | 0.32 | 0.37 | 0.42 |
| CXSWL 10 | 0.25                 | 0.27 | 0.29 | 0.31 | 0.33 | 0.38 | 0.43 |
| CXSWM15  | 0.43                 | 0.45 | 0.48 | 0.51 | 0.54 | 0.61 | 0.68 |
| CXSWL 15 | 0.47                 | 0.50 | 0.52 | 0.55 | 0.58 | 0.65 | 0.72 |
| CXSWM20  | 0.71                 | 0.74 | 0.78 | 0.82 | 0.85 | 0.95 | 1.04 |
| CXSWL 20 | 0.75                 | 0.79 | 0.82 | 0.86 | 0.90 | 0.99 | 1.08 |
| CXSWM25  | 1.06                 | 1.11 | 1.17 | 1.22 | 1.28 | 1.41 | 1.55 |
| CXSWL 25 | 1.07                 | 1.12 | 1.18 | 1.23 | 1.29 | 1.42 | 1.56 |
| CXSWM32  | 2.04                 | 2.12 | 2.21 | 2.29 | 2.38 | 2.59 | 2.81 |
| CXSWL 32 | 2.06                 | 2.15 | 2.23 | 2.32 | 2.41 | 2.62 | 2.83 |



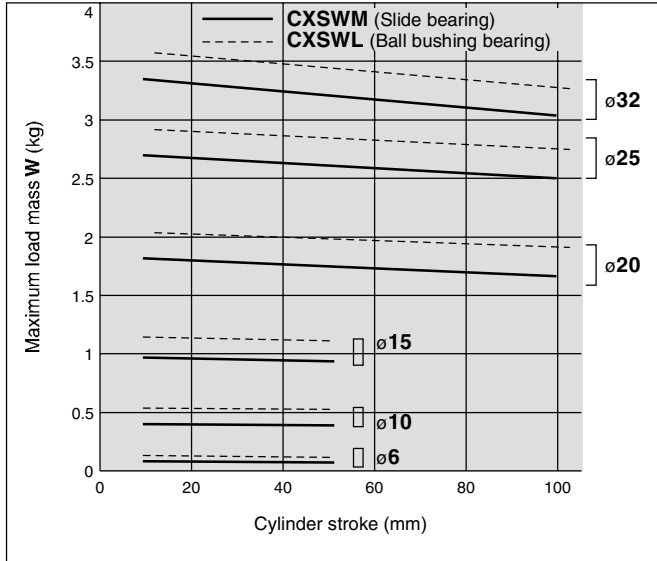
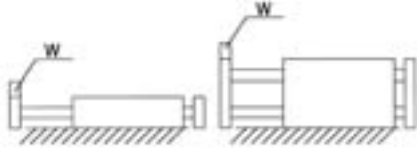
**Made to Order Specifications**  
(For details, refer to page 1861.)

| Symbol | Specifications |
|--------|----------------|
| -XB11  | Long stroke    |

## Operating Conditions

### Maximum Load Mass

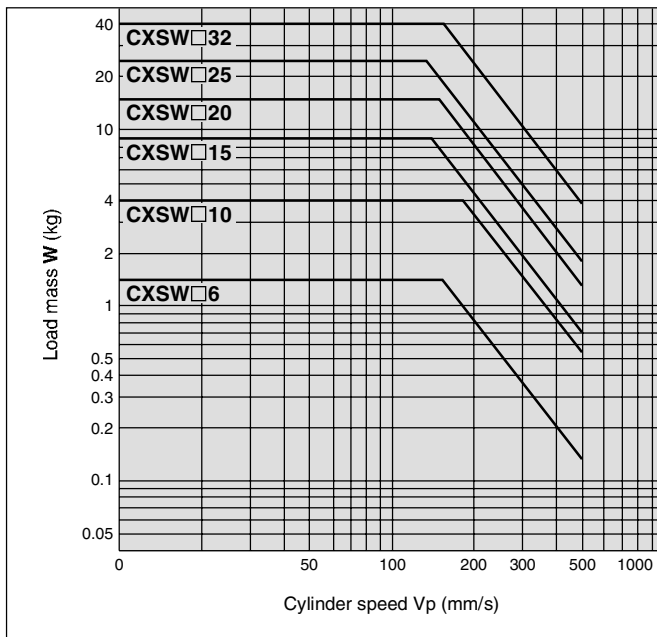
When the cylinder is mounted as shown in the diagrams below, the maximum load mass  $W$  should not exceed the values illustrated in the graph immediately following the diagrams.



Note) Please consult with SMC regarding the maximum load mass for long strokes depending on your specific usage conditions.

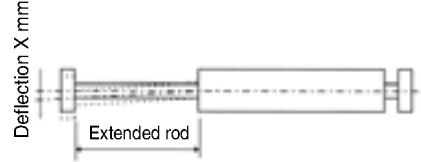
### Allowable Kinetic Energy

Operate a vertically mounted cylinder with a load mass and cylinder speed not exceeding the ranges shown in the graph below. A horizontally mounted cylinder should also be operated with a load mass less than the ranges given in the graph at left. Cylinder speed should be adjusted using a speed controller.



### Deflection at the Plate End

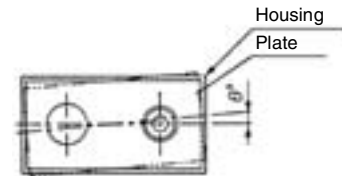
An approximate plate-end deflection  $X$  without a load is shown in the table below.



| Bore size (mm)               | 6 to 32  |
|------------------------------|----------|
| CXSWM (Slide bearing)        | ±0.03 mm |
| CXSWL (Ball bushing bearing) |          |

### Non-rotating accuracy

Non-rotating accuracy  $\theta^\circ$  without a load should be less than or equal to the value provided in the table below as a guide.

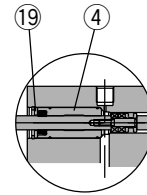
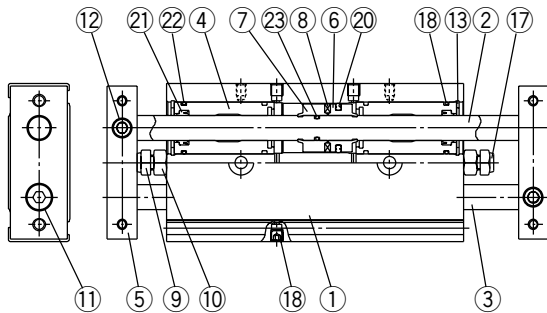


| Bore size (mm)               | 6 to 32 |
|------------------------------|---------|
| CXSWM (Slide bearing)        | ±0.1°   |
| CXSWL (Ball bushing bearing) |         |

# Series CXSW

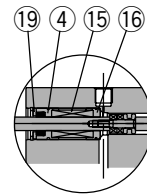
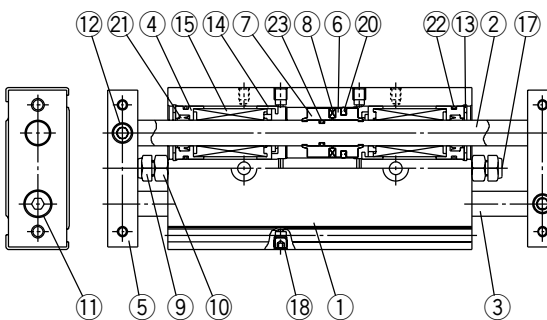
## Construction

### CXSWM (Slide bearing)



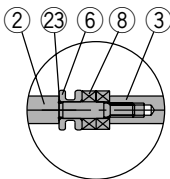
CXSWM6

### CXSWL (Ball bushing bearing)

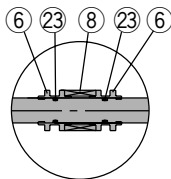


CXSWL6

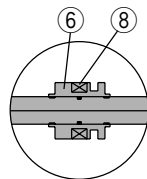
### (Piston part)



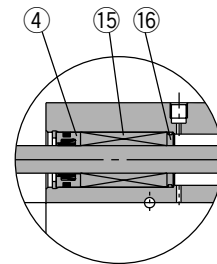
CXSW□6



CXSW□10



CXSW□25, 32



CXSWL10, 15

### Component Parts

| No. | Description                   | Material               | Note               |
|-----|-------------------------------|------------------------|--------------------|
| 1   | Housing                       | Aluminum alloy         | Hard anodized      |
| 2   | Piston rod A                  | Carbon steel           | Hard chrome plated |
| 3   | Piston rod B                  | Carbon steel           | Hard chrome plated |
| 4   | Rod cover                     | Aluminum bearing alloy |                    |
| 5   | Plate                         | Aluminum alloy         | Hard anodized      |
| 6   | Piston A                      | Aluminum alloy         | Chromated          |
| 7   | Piston B                      | Aluminum alloy         | Chromated          |
| 8   | Magnet                        | —                      |                    |
| 9   | Bumper bolt                   | Carbon steel           | Nickel plated      |
| 10  | Hexagon nut                   | Carbon steel           | Nickel plated      |
| 11  | Hexagon socket head cap screw | Chromium steel         | Nickel plated      |
| 12  | Hexagon socket head set screw | Chromium steel         | Nickel plated      |

Note) Piston rod for CXSL is quenched.

### Replacement Parts/Seal Kit

| Bore size (mm) | Kit no.    | Contents                        |
|----------------|------------|---------------------------------|
| 6              | CXSWM6-PS  | Set of nos. above<br>⑳, ㉑ and ㉒ |
|                | CXSWL6-PS  |                                 |
| 10             | CXSWM10-PS |                                 |
|                | CXSWL10APS |                                 |
| 15             | CXSWM15-PS |                                 |
|                | CXSWL15APS |                                 |
| 20             | CXSWM20-PS |                                 |
|                | CXSWL20APS |                                 |
| 25             | CXSWM25-PS |                                 |
|                | CXSWL25APS |                                 |
| 32             | CXSWM32-PS |                                 |
|                | CXSWL32APS |                                 |

### Component Parts

| No. | Description    | Material        | Note             |
|-----|----------------|-----------------|------------------|
| 13  | Retaining ring | Special steel   | Phosphate coated |
| 14  | Bumper holder  | Synthetic resin |                  |
| 15  | Ball bushing   | —               |                  |
| 16  | Bearing spacer | Synthetic resin |                  |
| 17  | Bumper         | Polyurethane    |                  |
| 18  | Plug           | Chromium steel  | Nickel plated    |
| 19  | Seal retainer  | Aluminum alloy  |                  |
| 20* | Piston seal    | NBR             |                  |
| 21* | Rod seal       | NBR             |                  |
| 22* | O-ring         | NBR             |                  |
| 23  | O-ring         | NBR             |                  |

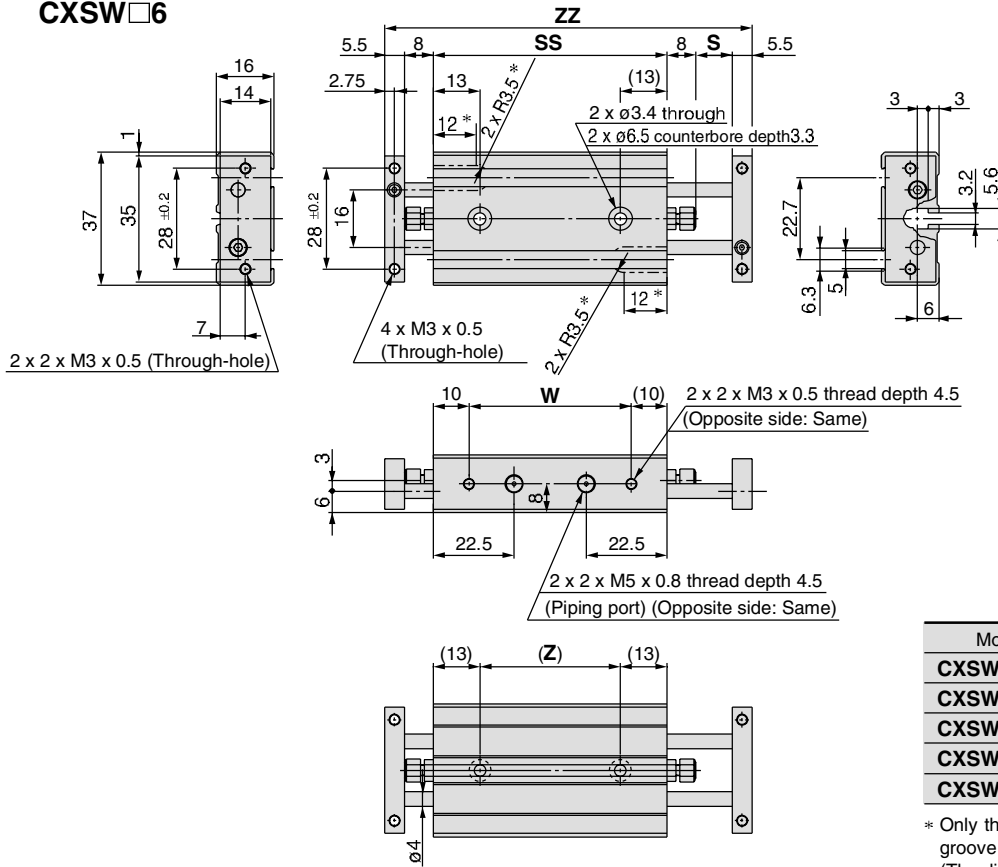
\* For CXSWL6, aluminum bearing alloy is used for ⑯.

\* Seal kit includes ㉑ to ㉒. To order them, use the order number given in the left table.

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

**Dimensions:  $\phi 6, \phi 10$**

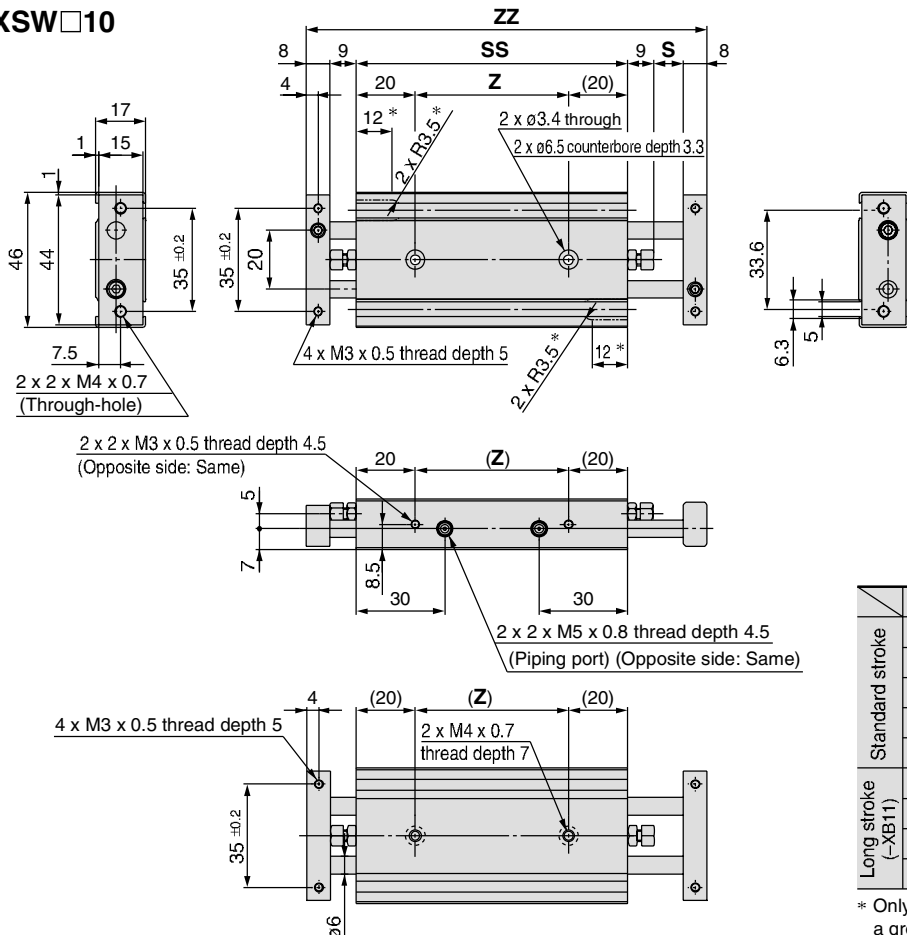
**CXSW□6**



| Model     | S  | SS  | ZZ  | Z  | W  |
|-----------|----|-----|-----|----|----|
| CXSW□6-10 | 10 | 66  | 103 | 40 | 46 |
| CXSW□6-20 | 20 | 76  | 123 | 50 | 56 |
| CXSW□6-30 | 30 | 86  | 143 | 60 | 66 |
| CXSW□6-40 | 40 | 96  | 163 | 70 | 76 |
| CXSW□6-50 | 50 | 106 | 183 | 80 | 86 |

\* Only the CXSW□6-10 and the CXSW□6-20 have a groove cut out for installing auto switches. (The dimensions are marked "\*").

**CXSW□10**



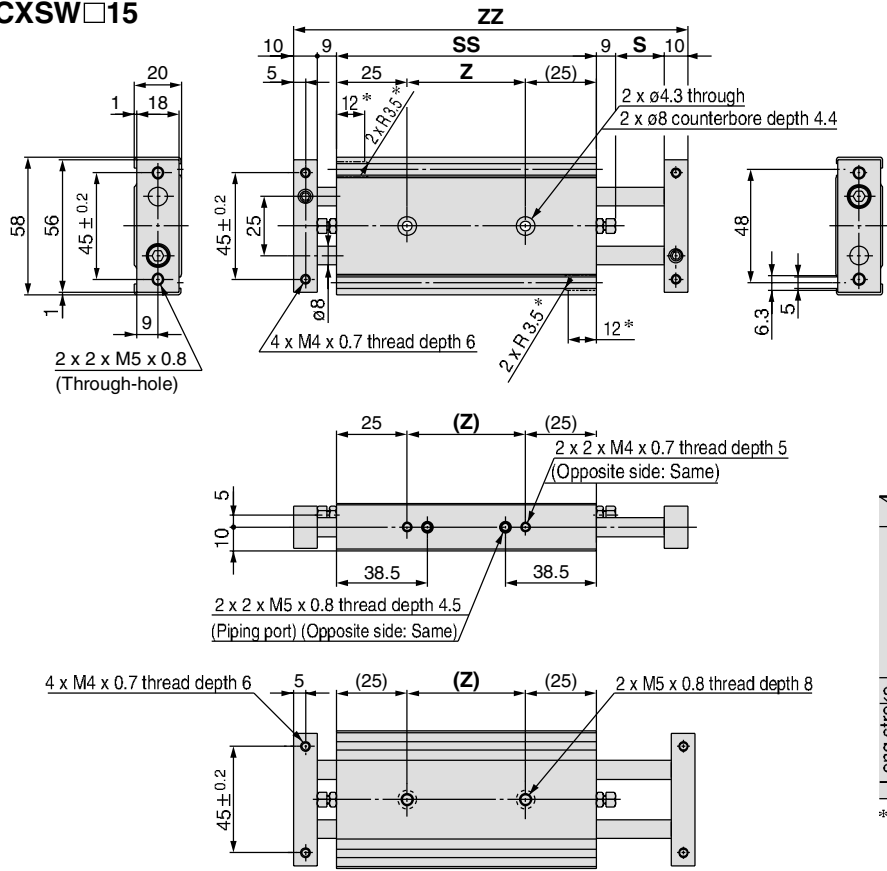
|                        | Model       | S   | SS  | ZZ  | Z   |
|------------------------|-------------|-----|-----|-----|-----|
| Standard stroke        | CXSW□10-10  | 10  | 92  | 136 | 52  |
|                        | CXSW□10-20  | 20  | 102 | 156 | 62  |
|                        | CXSW□10-30  | 30  | 112 | 176 | 72  |
|                        | CXSW□10-40  | 40  | 122 | 196 | 82  |
|                        | CXSW□10-50  | 50  | 132 | 216 | 92  |
| Long stroke<br>(-XB11) | CXSW□10-75  | 75  | 157 | 266 | 117 |
|                        | CXSW□10-100 | 100 | 182 | 316 | 142 |
|                        | CXSW□10-125 | 125 | 207 | 366 | 167 |
|                        | CXSW□10-150 | 150 | 232 | 416 | 192 |

\* Only the CXSW□10-10 and the CXSW□10-20 have a groove cut out for installing auto switches.

# Series CXSW

## Dimensions: $\phi 15$ , $\phi 20$

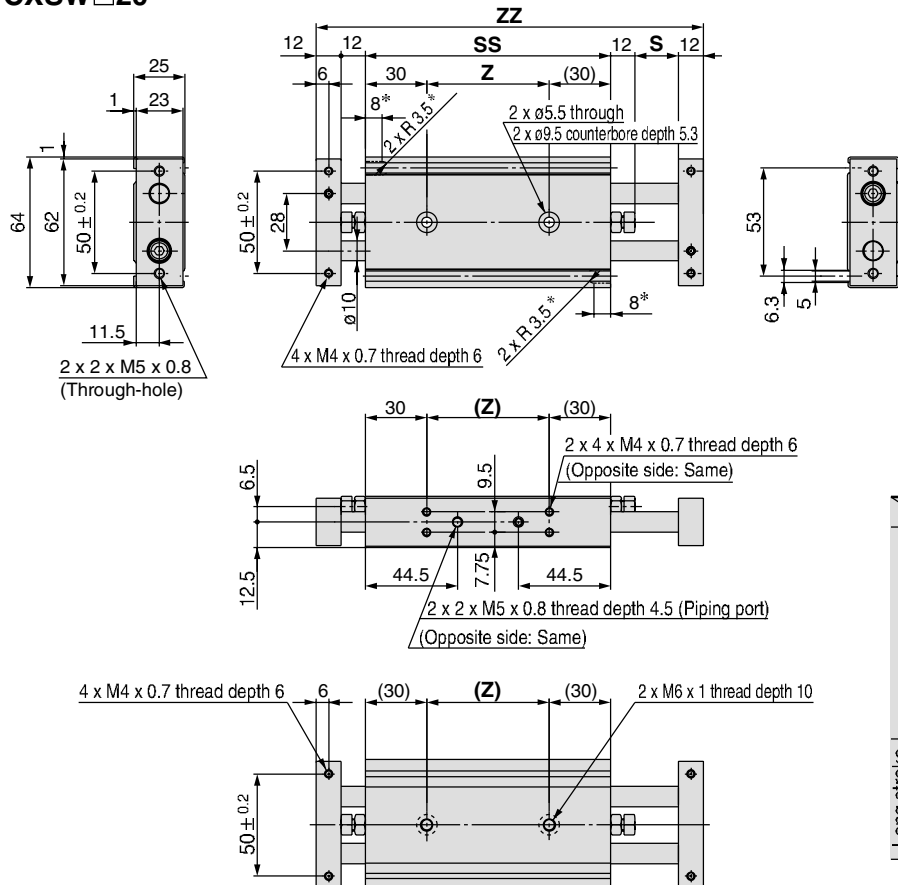
### CXSW $\square 15$



|                        |                       | (mm)  |     |     |     |   |
|------------------------|-----------------------|-------|-----|-----|-----|---|
|                        |                       | Model | S   | SS  | ZZ  | Z |
| Standard stroke        | CXSW $\square 15-10$  | 10    | 105 | 153 | 55  |   |
|                        | CXSW $\square 15-20$  | 20    | 115 | 173 | 65  |   |
|                        | CXSW $\square 15-30$  | 30    | 125 | 193 | 75  |   |
|                        | CXSW $\square 15-40$  | 40    | 135 | 213 | 85  |   |
|                        | CXSW $\square 15-50$  | 50    | 145 | 233 | 95  |   |
| Long stroke<br>(-XB11) | CXSW $\square 15-75$  | 75    | 170 | 283 | 120 |   |
|                        | CXSW $\square 15-100$ | 100   | 195 | 333 | 145 |   |
|                        | CXSW $\square 15-125$ | 125   | 220 | 383 | 170 |   |
|                        | CXSW $\square 15-150$ | 150   | 245 | 433 | 195 |   |

\* Only the CXSW $\square 15-10$  and the CXSW $\square 15-20$  have a groove cut out for installing auto switches.  
(The dimensions are marked "\*".)

### CXSW $\square 20$

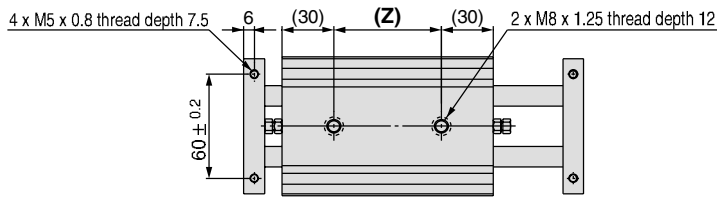
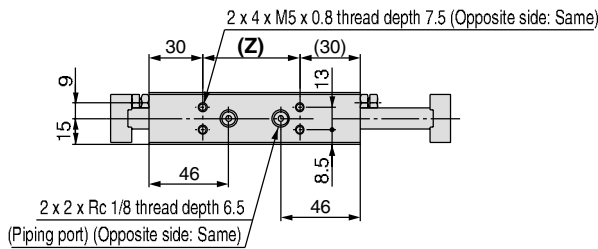
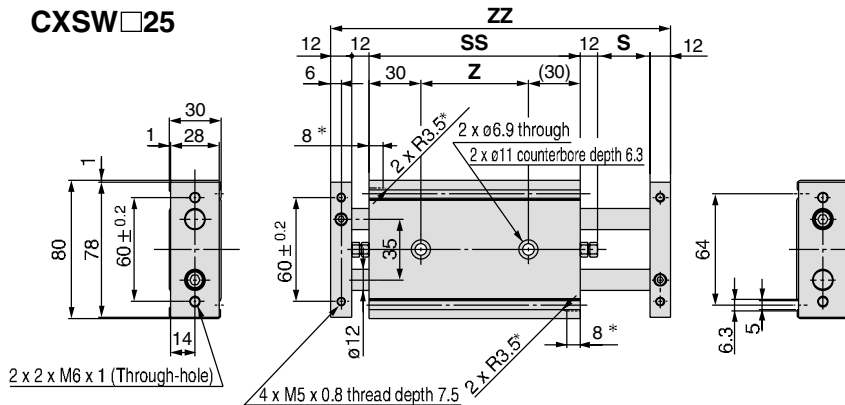


|                        |                       | (mm)  |     |     |     |   |
|------------------------|-----------------------|-------|-----|-----|-----|---|
|                        |                       | Model | S   | SS  | ZZ  | Z |
| Standard stroke        | CXSW $\square 20-10$  | 10    | 120 | 178 | 60  |   |
|                        | CXSW $\square 20-20$  | 20    | 130 | 198 | 70  |   |
|                        | CXSW $\square 20-30$  | 30    | 140 | 218 | 80  |   |
|                        | CXSW $\square 20-40$  | 40    | 150 | 238 | 90  |   |
|                        | CXSW $\square 20-50$  | 50    | 160 | 258 | 100 |   |
| Long stroke<br>(-XB11) | CXSW $\square 20-75$  | 75    | 185 | 308 | 125 |   |
|                        | CXSW $\square 20-100$ | 100   | 210 | 358 | 150 |   |
|                        | CXSW $\square 20-125$ | 125   | 235 | 408 | 175 |   |
|                        | CXSW $\square 20-150$ | 150   | 260 | 458 | 200 |   |

\* Only the CXSW $\square 20-10$  has a groove cut out for installing auto switches.  
(The dimensions are marked "\*".)

## Dimensions: $\phi 25$ , $\phi 32$

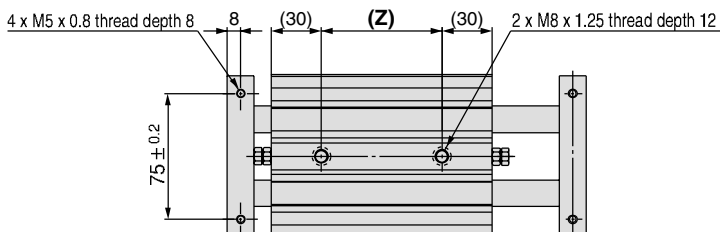
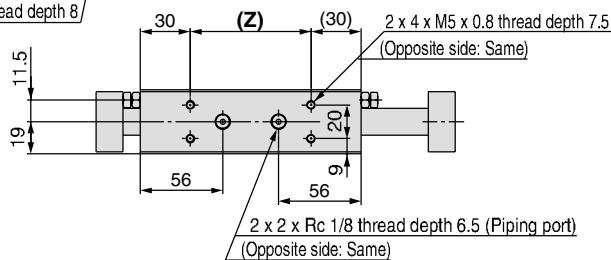
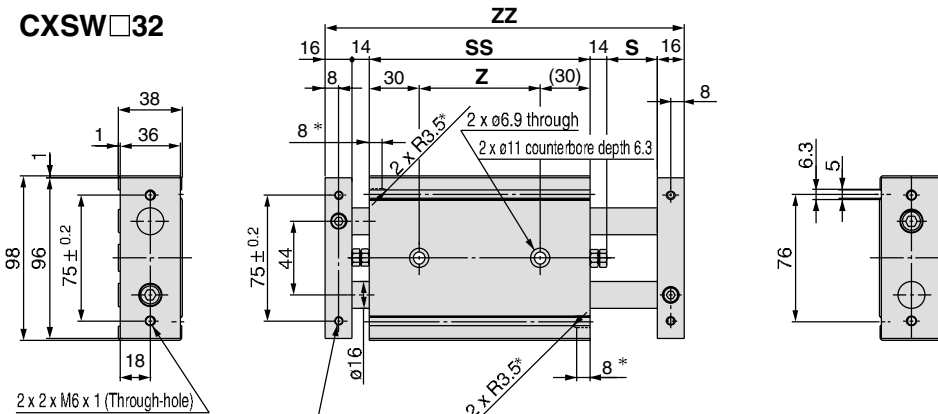
### CXSW $\square 25$



|                        |                        | (mm)                   |     |     |     |     |
|------------------------|------------------------|------------------------|-----|-----|-----|-----|
|                        |                        | Model                  | S   | SS  | ZZ  | Z   |
| Standard stroke        | CXSW $\square 25$ -10  | 10                     | 122 | 180 | 62  |     |
|                        | CXSW $\square 25$ -20  | 20                     | 132 | 200 | 72  |     |
|                        | CXSW $\square 25$ -30  | 30                     | 142 | 220 | 82  |     |
|                        | CXSW $\square 25$ -40  | 40                     | 152 | 240 | 92  |     |
|                        | CXSW $\square 25$ -50  | 50                     | 162 | 260 | 102 |     |
|                        | CXSW $\square 25$ -75  | 75                     | 187 | 310 | 127 |     |
| Long stroke<br>(-XB11) | CXSW $\square 25$ -100 | 100                    | 212 | 360 | 152 |     |
|                        | CXSW $\square 25$ -125 | 125                    | 237 | 410 | 177 |     |
|                        | CXSW $\square 25$ -150 | 150                    | 262 | 460 | 202 |     |
|                        | CXSW $\square 25$ -175 | 175                    | 287 | 510 | 227 |     |
|                        |                        | CXSW $\square 25$ -200 | 200 | 312 | 560 | 252 |

\* Only the CXSW  $\square 25$ -10 has a groove cut out for installing auto switches.  
(The dimensions are marked “\*”).

### CXSW $\square 32$



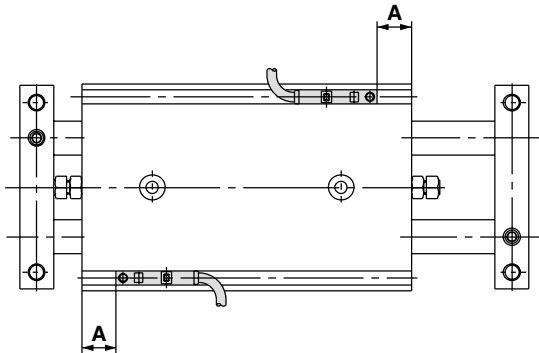
|                        |                        | (mm)                   |     |     |     |     |
|------------------------|------------------------|------------------------|-----|-----|-----|-----|
|                        |                        | Model                  | S   | SS  | ZZ  | Z   |
| Standard stroke        | CXSW $\square 32$ -10  | 10                     | 143 | 213 | 83  |     |
|                        | CXSW $\square 32$ -20  | 20                     | 153 | 233 | 93  |     |
|                        | CXSW $\square 32$ -30  | 30                     | 163 | 253 | 103 |     |
|                        | CXSW $\square 32$ -40  | 40                     | 173 | 273 | 113 |     |
|                        | CXSW $\square 32$ -50  | 50                     | 183 | 293 | 123 |     |
|                        | CXSW $\square 32$ -75  | 75                     | 208 | 343 | 148 |     |
| Long stroke<br>(-XB11) | CXSW $\square 32$ -100 | 100                    | 233 | 393 | 173 |     |
|                        | CXSW $\square 32$ -125 | 125                    | 258 | 443 | 198 |     |
|                        | CXSW $\square 32$ -150 | 150                    | 283 | 493 | 223 |     |
|                        | CXSW $\square 32$ -175 | 175                    | 308 | 543 | 248 |     |
|                        |                        | CXSW $\square 32$ -200 | 200 | 333 | 593 | 273 |

\* Only the CXSW  $\square 32$ -10 has a groove cut out for installing auto switches.  
(The dimensions are marked “\*”).

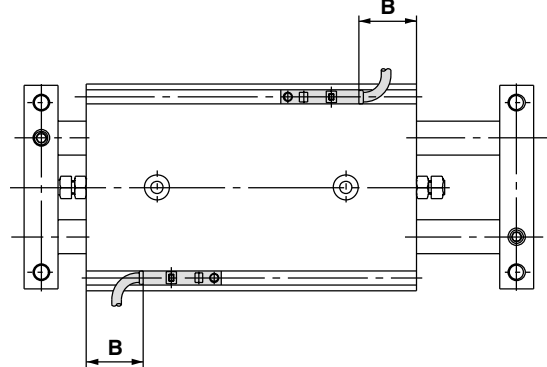
# Series CXSW

## Auto Switch Proper Mounting Position (Detection at Stroke End)

Electrical entry direction: Inward



Electrical entry direction: Outward



| Bore size<br>(mm) | A    | D-Z7/Z8, D-Y7□W<br>D-Y5□, D-Y7□ | D-Y6□, D-Y7□V<br>D-Y7□WV | D-Y7BAL |
|-------------------|------|---------------------------------|--------------------------|---------|
|                   |      | B                               | B                        | B       |
| 6                 | 13.8 | 9.8(8.3)                        | 11.3                     | 3.8     |
| 10                | 28.5 | 24.5(23)                        | 26                       | —       |
| 15                | 35   | 31(29.5)                        | 32.5                     | —       |
| 20                | 42.5 | 38.5(37)                        | 40.5                     | —       |
| 25                | 43.5 | 39.5(38)                        | 41.5                     | 33.5    |
| 32                | 54   | 50(48.5)                        | 52                       | 44      |

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

**As for auto switch mounting dimensions, auto switch mounting method and its operating range, those are the same as basic type. Refer to page 569**