

Guided cylinder, double acting/single rod

# STS/STL-<sup>M</sup><sub>B</sub>Series

- Bore size: φ8/φ12/φ16/φ20/φ25/φ32  
φ40/φ50/φ63/φ80/φ100

JIS symbol



## Specifications

| Descriptions              |    | STS-M/B   STL-M/B                                                            |       |       |       |       |                      |       |           |       |       |      |
|---------------------------|----|------------------------------------------------------------------------------|-------|-------|-------|-------|----------------------|-------|-----------|-------|-------|------|
| Bore size                 | mm | φ8                                                                           | φ12   | φ16   | φ20   | φ25   | φ32                  | φ40   | φ50       | φ63   | φ80   | φ100 |
| Actuation                 |    | Double acting                                                                |       |       |       |       |                      |       |           |       |       |      |
| Working fluid             |    | Compressed air                                                               |       |       |       |       |                      |       |           |       |       |      |
| Max. working pressure     |    | 1.0 (≈150 psi, 10 bar)                                                       |       |       |       |       |                      |       |           |       |       |      |
| Min. working pressure     |    | 0.15 (≈22 psi, 1.5 bar)                                                      |       |       |       |       | 0.1 (≈15 psi, 1 bar) |       |           |       |       |      |
| Proof pressure            |    | 1.6 (≈230 psi, 16 bar)                                                       |       |       |       |       |                      |       |           |       |       |      |
| Ambient temperature       |    | -10 (14°F) to 60 (140°F) (no freezing)                                       |       |       |       |       |                      |       |           |       |       |      |
| Port size                 |    | M5                                                                           |       |       |       |       | Rc1/8                |       | Rc1/4     |       | Rc3/8 |      |
| Stroke tolerance          |    | +2.0<br>0                                                                    |       |       |       |       |                      |       |           |       |       |      |
|                           |    |                                                                              |       |       |       |       |                      |       |           |       |       |      |
| Working piston speed      |    | 50 to 500                                                                    |       |       |       |       |                      |       | 50 to 300 |       |       |      |
| Cushion                   |    | With rubber cushion                                                          |       |       |       |       |                      |       |           |       |       |      |
| Lubrication               |    | Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication) |       |       |       |       |                      |       |           |       |       |      |
| Allowable absorbed energy | J  | 0.029                                                                        | 0.056 | 0.088 | 0.157 | 0.157 | 0.401                | 0.627 | 0.980     | 1.560 | 2.510 | 3.92 |

## Stroke length

- Short stroke STS

| Bore size | Standard stroke (mm) | Max. stroke length (mm) | Min. stroke length (mm) | Min. stroke (mm)(switch)             |
|-----------|----------------------|-------------------------|-------------------------|--------------------------------------|
| φ8        | 10,20,30<br>40,50    | 50                      | 5                       | 5<br><br>With one or<br>two switches |
| φ12       |                      |                         |                         |                                      |
| φ16       |                      |                         |                         |                                      |
| φ20       | 25,50                |                         |                         |                                      |
| φ25       |                      |                         |                         |                                      |
| φ32       |                      |                         |                         |                                      |
| φ40       |                      |                         |                         |                                      |
| φ50       |                      |                         |                         |                                      |
| φ63       |                      |                         |                         |                                      |
| φ80       | 25,50,75,100         |                         |                         |                                      |
| φ100      |                      |                         |                         |                                      |

- Long stroke length STL

| Bore size | Standard stroke (mm)                                                  | Max. stroke length (mm) | Min. stroke length (mm) | Min. stroke (mm)(switch)  |
|-----------|-----------------------------------------------------------------------|-------------------------|-------------------------|---------------------------|
| φ8        | 50,75,100                                                             | 200                     | 50                      | 50                        |
| φ12       | 125,150                                                               |                         |                         | With one or two switches. |
| φ16       | 175,200                                                               |                         |                         |                           |
| φ20       | 50,75,100<br>125,150,175<br>200,225,250<br>275,300,325<br>350,375,400 | 400                     | 30                      | 30                        |
| φ25       |                                                                       |                         |                         | With one or two switches  |
| φ32       |                                                                       |                         |                         |                           |
| φ40       |                                                                       |                         |                         |                           |
| φ50       |                                                                       |                         |                         |                           |
| φ63       |                                                                       |                         |                         |                           |
|           |                                                                       |                         |                         |                           |
| φ80       | 75,100,125,150,175<br>200,225,250,275,300<br>325,350,375,400          |                         | 55                      | 55                        |
|           |                                                                       |                         |                         | With one or two switches. |
| φ100      | 75,100,125,150,175,200                                                | 200                     |                         |                           |

Note : The custom stroke length is available in 5 mm increments.  
However, the total length is the same as that of the next longer standard stroke length.

Clean-room specifications (Catalog No. CB-033SA)

- Anti-dust generation structure for use in cleanrooms

STS/L-.... **P7\***

STS/L-.... **P5\***

### Switch specifications

● 1-color/2-color display/for AC magnetic field proof

| Descriptions    | Proximity 2-wire                                           | Proximity 2-wire                      |                                   |                                   | Proximity 3-wire                   |                             |                                   |                                   | Reed 2-wire                        |                                                                                       |                       |                                    | Proximity 2-wire                  |              |            |             |
|-----------------|------------------------------------------------------------|---------------------------------------|-----------------------------------|-----------------------------------|------------------------------------|-----------------------------|-----------------------------------|-----------------------------------|------------------------------------|---------------------------------------------------------------------------------------|-----------------------|------------------------------------|-----------------------------------|--------------|------------|-------------|
|                 | T1H/<br>T1V                                                | T2H/T2V/<br>T2JH/T2JV                 | T2YH/<br>T2YV                     | T2WH/<br>T2WV                     | T3H/<br>T3V                        | T3PH/T3PV<br>(custom)       | T3YH/<br>T3YV                     | T3WH/<br>T3WV                     | T0H/T0V                            | T5H/T5V                                                                               | T8H/T8V               |                                    | T2YD                              |              |            |             |
| Applications    | For programmable controller, relay, compact solenoid valve | Dedicated for programmable controller |                                   |                                   | For programmable controller, relay |                             |                                   |                                   | For programmable controller, relay | For programmable controller, relay, IC circuit (no indicator lamp), serial connection |                       | For programmable controller, relay | For programmable controller       |              |            |             |
| Output method   | -                                                          |                                       |                                   |                                   | NPN output                         | PNP output                  | NPN output                        | NPN output                        | -                                  |                                                                                       |                       |                                    |                                   |              |            |             |
| Pwr. supp. V.   | -                                                          |                                       |                                   |                                   | 10 to 28 VDC                       |                             |                                   |                                   | -                                  |                                                                                       |                       |                                    |                                   |              |            |             |
| Load voltage    | 85 to 265 VAC                                              | 10 to 30 VDC                          | 24 VDC ±10%                       | 30 VDC or less                    |                                    |                             |                                   |                                   | 12/24 VDC                          | 100/110 VAC                                                                           | 5/12/24 VDC           | 100/110 VAC                        | 12/24 VDC                         | 110 VAC      | 220 VAC    | 24 VDC ±10% |
| Load current    | 5 to 100 mA                                                | 5 to 20 mA (*2)                       |                                   |                                   | 100 mA or less                     |                             | 50 mA or less                     |                                   | 5 to 50 mA                         | 7 to 20 mA                                                                            | ≤50 mA                | ≤20 mA                             | 5 to 50 mA                        | 7 to 20 mA   | 7 to 10 mA | 5 to 20 mA  |
| Indicator lamp  | LED<br>(Lit when ON)                                       | LED<br>(Lit when ON)                  | Red/green<br>LED<br>(Lit when ON) | Red/green<br>LED<br>(Lit when ON) | LED<br>(Lit when ON)               | Yellow<br>LED (Lit when ON) | Red/green<br>LED<br>(Lit when ON) | Red/green<br>LED<br>(Lit when ON) | LED<br>(Lit when ON)               | Without indicator lamp                                                                | LED<br>(Lit when ON)  |                                    | Red/green<br>LED<br>(Lit when ON) |              |            |             |
| Leakage current | ≤ 1 mA at 100 VAC,<br>≤ 2 mA at 200 VAC                    | 1 mA or less                          |                                   |                                   | 10 μA or less                      |                             |                                   |                                   | 0 mA                               |                                                                                       |                       |                                    |                                   | 1 mA or less |            |             |
| Weight g        | 1 m:33 3<br>m:87 5<br>m:142                                | 1 m:18<br>3 m:49<br>5 m:80            | 1 m:33<br>3 m:87<br>5 m:142       | 1 m:18<br>3 m:49<br>5 m:80        | 1 m:18 3 m:49<br>5 m:80            |                             | 1 m:33<br>3 m:87<br>5 m:142       | 1 m:18<br>3 m:49<br>5 m:80        | 1 m:18 3 m:49 5 m:80               |                                                                                       | 1 m:33 3 m:87 5 m:142 |                                    | 1 m:61<br>3 m:166<br>5 m:272      |              |            |             |

\*1 : Refer to Ending Page 1 for other switch specifications.

\*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

\*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

\*4 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

\*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

### Theoretical thrust table

(Unit: N)

| Bore size (mm) | Operating direction | Working pressure MPa |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |
|----------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|                |                     | 0.1                  | 0.15                 | 0.2                  | 0.3                  | 0.4                  | 0.5                  | 0.6                  | 0.7                  | 0.8                  | 0.9                  | 1.0                  |
| φ8             | Push                | -                    | -                    | 10.1                 | 15.1                 | 20.1                 | 25.1                 | 30.2                 | 35.2                 | 40.2                 | 45.2                 | 50.3                 |
|                | Pull                | -                    | -                    | 7.54                 | 11.3                 | 15.1                 | 18.8                 | 22.6                 | 26.4                 | 30.2                 | 33.9                 | 37.7                 |
| φ12            | Push                | -                    | -                    | 22.6                 | 33.9                 | 45.2                 | 56.5                 | 67.9                 | 79.2                 | 90.5                 | 1.02×10 <sup>2</sup> | 1.13×10 <sup>2</sup> |
|                | Pull                | -                    | -                    | 17.0                 | 25.4                 | 33.9                 | 42.4                 | 50.9                 | 59.4                 | 67.9                 | 76.3                 | 84.8                 |
| φ16            | Push                | -                    | -                    | 40.2                 | 60.3                 | 80.4                 | 1.01×10 <sup>2</sup> | 1.21×10 <sup>2</sup> | 1.41×10 <sup>2</sup> | 1.61×10 <sup>2</sup> | 1.81×10 <sup>2</sup> | 2.01×10 <sup>2</sup> |
|                | Pull                | -                    | -                    | 30.2                 | 45.2                 | 60.3                 | 75.4                 | 90.5                 | 1.06×10 <sup>2</sup> | 1.21×10 <sup>2</sup> | 1.36×10 <sup>2</sup> | 1.51×10 <sup>2</sup> |
| φ20            | Push                | -                    | -                    | 62.8                 | 94.2                 | 1.26×10 <sup>2</sup> | 1.57×10 <sup>2</sup> | 1.88×10 <sup>2</sup> | 2.20×10 <sup>2</sup> | 2.51×10 <sup>2</sup> | 2.83×10 <sup>2</sup> | 3.14×10 <sup>2</sup> |
|                | Pull                | -                    | -                    | 47.1                 | 70.7                 | 94.2                 | 1.18×10 <sup>2</sup> | 1.41×10 <sup>2</sup> | 1.65×10 <sup>2</sup> | 1.88×10 <sup>2</sup> | 2.12×10 <sup>2</sup> | 2.36×10 <sup>2</sup> |
| φ25            | Push                | -                    | -                    | 98.2                 | 1.47×10 <sup>2</sup> | 1.96×10 <sup>2</sup> | 2.45×10 <sup>2</sup> | 2.95×10 <sup>2</sup> | 3.44×10 <sup>2</sup> | 3.93×10 <sup>2</sup> | 4.42×10 <sup>2</sup> | 4.91×10 <sup>2</sup> |
|                | Pull                | -                    | -                    | 75.6                 | 1.13×10 <sup>2</sup> | 1.51×10 <sup>2</sup> | 1.89×10 <sup>2</sup> | 2.27×10 <sup>2</sup> | 2.64×10 <sup>2</sup> | 3.02×10 <sup>2</sup> | 3.40×10 <sup>2</sup> | 3.78×10 <sup>2</sup> |
| φ32            | Push                | 80.4                 | 1.21×10 <sup>2</sup> | 1.61×10 <sup>2</sup> | 2.41×10 <sup>2</sup> | 3.22×10 <sup>2</sup> | 4.02×10 <sup>2</sup> | 4.83×10 <sup>2</sup> | 5.63×10 <sup>2</sup> | 6.43×10 <sup>2</sup> | 7.24×10 <sup>2</sup> | 8.04×10 <sup>2</sup> |
|                | Pull                | 60.3                 | 90.5                 | 1.21×10 <sup>2</sup> | 1.81×10 <sup>2</sup> | 2.41×10 <sup>2</sup> | 3.02×10 <sup>2</sup> | 3.62×10 <sup>2</sup> | 4.22×10 <sup>2</sup> | 4.83×10 <sup>2</sup> | 5.43×10 <sup>2</sup> | 6.03×10 <sup>2</sup> |
| φ40            | Push                | 1.26×10 <sup>2</sup> | 1.88×10 <sup>2</sup> | 2.51×10 <sup>2</sup> | 3.77×10 <sup>2</sup> | 5.03×10 <sup>2</sup> | 6.28×10 <sup>2</sup> | 7.54×10 <sup>2</sup> | 8.80×10 <sup>2</sup> | 1.01×10 <sup>3</sup> | 1.13×10 <sup>3</sup> | 1.26×10 <sup>3</sup> |
|                | Pull                | 1.06×10 <sup>2</sup> | 1.58×10 <sup>2</sup> | 2.11×10 <sup>2</sup> | 3.17×10 <sup>2</sup> | 4.22×10 <sup>2</sup> | 5.28×10 <sup>2</sup> | 6.33×10 <sup>2</sup> | 7.39×10 <sup>2</sup> | 8.44×10 <sup>2</sup> | 9.50×10 <sup>2</sup> | 1.06×10 <sup>3</sup> |
| φ50            | Push                | 1.96×10 <sup>2</sup> | 2.95×10 <sup>2</sup> | 3.93×10 <sup>2</sup> | 5.89×10 <sup>2</sup> | 7.85×10 <sup>2</sup> | 9.82×10 <sup>2</sup> | 1.18×10 <sup>3</sup> | 1.37×10 <sup>3</sup> | 1.57×10 <sup>3</sup> | 1.77×10 <sup>3</sup> | 1.96×10 <sup>3</sup> |
|                | Pull                | 1.65×10 <sup>2</sup> | 2.47×10 <sup>2</sup> | 3.30×10 <sup>2</sup> | 4.95×10 <sup>2</sup> | 6.60×10 <sup>2</sup> | 8.25×10 <sup>2</sup> | 9.90×10 <sup>2</sup> | 1.15×10 <sup>3</sup> | 1.32×10 <sup>3</sup> | 1.48×10 <sup>3</sup> | 1.65×10 <sup>3</sup> |
| φ63            | Push                | 3.12×10 <sup>2</sup> | 4.68×10 <sup>2</sup> | 6.23×10 <sup>2</sup> | 9.35×10 <sup>2</sup> | 1.25×10 <sup>3</sup> | 1.56×10 <sup>3</sup> | 1.87×10 <sup>3</sup> | 2.18×10 <sup>3</sup> | 2.49×10 <sup>3</sup> | 2.81×10 <sup>3</sup> | 3.12×10 <sup>3</sup> |
|                | Pull                | 2.80×10 <sup>2</sup> | 4.20×10 <sup>2</sup> | 5.61×10 <sup>2</sup> | 8.41×10 <sup>2</sup> | 1.12×10 <sup>3</sup> | 1.40×10 <sup>3</sup> | 1.68×10 <sup>3</sup> | 1.96×10 <sup>3</sup> | 2.24×10 <sup>3</sup> | 2.52×10 <sup>3</sup> | 2.80×10 <sup>3</sup> |
| φ80            | Push                | 5.03×10 <sup>2</sup> | 7.54×10 <sup>2</sup> | 1.01×10 <sup>3</sup> | 1.51×10 <sup>3</sup> | 2.01×10 <sup>3</sup> | 2.51×10 <sup>3</sup> | 3.02×10 <sup>3</sup> | 3.52×10 <sup>3</sup> | 4.02×10 <sup>3</sup> | 4.52×10 <sup>3</sup> | 5.03×10 <sup>3</sup> |
|                | Pull                | 4.54×10 <sup>2</sup> | 6.80×10 <sup>2</sup> | 9.07×10 <sup>2</sup> | 1.36×10 <sup>3</sup> | 1.81×10 <sup>3</sup> | 2.27×10 <sup>3</sup> | 2.72×10 <sup>3</sup> | 3.17×10 <sup>3</sup> | 3.63×10 <sup>3</sup> | 4.08×10 <sup>3</sup> | 4.54×10 <sup>3</sup> |
| φ100           | Push                | 7.85×10 <sup>2</sup> | 1.18×10 <sup>3</sup> | 1.57×10 <sup>3</sup> | 2.36×10 <sup>3</sup> | 3.14×10 <sup>3</sup> | 3.93×10 <sup>3</sup> | 4.71×10 <sup>3</sup> | 5.50×10 <sup>3</sup> | 6.28×10 <sup>3</sup> | 7.07×10 <sup>3</sup> | 7.85×10 <sup>3</sup> |
|                | Pull                | 7.15×10 <sup>2</sup> | 1.07×10 <sup>3</sup> | 1.43×10 <sup>3</sup> | 2.14×10 <sup>3</sup> | 2.86×10 <sup>3</sup> | 3.57×10 <sup>3</sup> | 4.29×10 <sup>3</sup> | 5.00×10 <sup>3</sup> | 5.72×10 <sup>3</sup> | 6.43×10 <sup>3</sup> | 7.15×10 <sup>3</sup> |

For cylinder weight, refer to pages 554 to 557.

## How to order

### ● Short stroke

Without switch (built-in magnet for switch)

**STS** - **M** - **8** - **10** - **F**

With switch (built-in magnet for switch)

**STS** - **M** - **8** - **10** - **T2H** - **R** - **F**

### ● Long stroke length

Without switch (built-in magnet for switch)

**STL** - **M** - **8** - **50** - **F**

With switch (built-in magnet for switch)

**STL** - **M** - **8** - **50** - **T2H** - **R** - **F**

Model No.

**A** Bearing

**B** Bore size

**C** Port thread

**D** Stroke length

#### ■ Custom stroke length

Available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke length.

#### ● Switch model No.

\*1 \*3 \*5

For the 2-color display, T1H/V, T8H/V and strong magnetic field proof switches for φ40 and over, insert "L1" with "-" between **A** and **B**.  
Example) STS-M-L1-63-50-T2YH3-D-F  
For φ80 and φ100, the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches cannot be retrofitted on a previously purchased standard product.  
In this case, order the model No. with "L1" inserted between **A** and **B**.  
(Example) STS-M-L1-80-50-F

**F** Switch quantity

**G** Option

### ⚠ Precautions for model No. selection

- \*1 : Switches other than **E** Switch model No. are also available. (Custom order product)  
Refer to Ending Page 1 for details.
- \*2 : Refer to page 440 (metal bush bearing M) and page 442 (ball bearing B) for combinations of variations/options.
- \*3 : T8H/V switch cannot be installed on φ8 to φ16.
- \*4 : φ8 to φ25 with ball bearing B are copper and PTFE free as standard.
- \*5 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

**STS-M-8-30-T0H-R-F**

Model: Guided cylinder, short stroke length, standard single rod

- A** Bearing : Metal bush bearing
- B** Bore size : φ8 mm
- C** Port thread : Rc thread
- D** Stroke length : 30 mm
- E** Switch model No. : Reed switch T0H, 1 m lead wire length
- F** Switch quantity : 1 on rod side
- G** Option : End plate material: steel

| Code             | Content            |
|------------------|--------------------|
| <b>A Bearing</b> |                    |
| <b>M</b>         | Metal bush bearing |
| <b>B</b>         | Ball bearing       |

|                         |                     |
|-------------------------|---------------------|
| <b>B Bore size (mm)</b> |                     |
| <b>8</b>                | φ8                  |
| <b>12</b>               | φ12                 |
| <b>16</b>               | φ16                 |
| <b>20</b>               | φ20                 |
| <b>25</b>               | φ25                 |
| <b>32</b>               | φ32                 |
| <b>40</b>               | φ40                 |
| <b>50</b>               | φ50                 |
| <b>63</b>               | φ63                 |
| <b>80</b>               | φ80                 |
| <b>100</b>              | φ100 (custom order) |

|                      |                                                |
|----------------------|------------------------------------------------|
| <b>C Port thread</b> |                                                |
| <b>Blank</b>         | Rc thread                                      |
| <b>NN</b>            | NPT thread (φ32 and over) custom order product |
| <b>GN</b>            | G thread (φ32 and over) custom order product   |

|                                                         |  |
|---------------------------------------------------------|--|
| <b>D Stroke length (mm)</b>                             |  |
| Refer to the stroke length table on the following page. |  |

| E Switch model No. |                  |           |         |    |                           |           |
|--------------------|------------------|-----------|---------|----|---------------------------|-----------|
| Axial lead wire    | Radial lead wire | Contact   | Voltage |    | Indicator                 | Lead wire |
|                    |                  |           | AC      | DC |                           |           |
| T0H*               | T0V*             | Reed      | ●       | ●  | 1-color display           | 2-wire    |
| T5H*               | T5V*             |           | ●       | ●  | Without indicator lamp    |           |
| T8H*               | T8V*             |           | ●       | ●  | 1-color display           |           |
| T1H*               | T1V*             |           | ●       |    |                           |           |
| T2H*               | T2V*             |           |         | ●  |                           |           |
| T3H*               | T3V*             |           |         |    | ●                         | 3-wire    |
| T3PH*              | T3PV*            | Proximity |         | ●  | 1-color display (custom)  | 3-wire    |
| T2WH*              | T2WV*            |           |         | ●  | 2-color display           | 2-wire    |
| T2YH*              | T2YV*            |           |         | ●  |                           | 2-wire    |
| T3WH*              | T3WV*            |           |         | ●  |                           | 3-wire    |
| T3YH*              | T3YV*            |           |         | ●  |                           | 3-wire    |
| T2JH*              | T2JV*            |           |         | ●  | 1-color display off-delay | 2-wire    |
| T2YD*              | -                |           |         | ●  | 2-color display           | 2-wire    |
| T2YDT*             | -                |           |         | ●  | AC magnetic field         |           |

|                           |                |
|---------------------------|----------------|
| <b>* Lead wire length</b> |                |
| <b>Blank</b>              | 1 m (standard) |
| <b>3</b>                  | 3 m (option)   |
| <b>5</b>                  | 5 m (option)   |

|                          |                |
|--------------------------|----------------|
| <b>F Switch quantity</b> |                |
| <b>R</b>                 | 1 on rod side  |
| <b>H</b>                 | 1 on head side |
| <b>D</b>                 | 2              |
| <b>T</b>                 | 3              |

|                 |                                             |
|-----------------|---------------------------------------------|
| <b>G Option</b> |                                             |
| <b>F</b>        | End plate material: steel                   |
| <b>M</b>        | Corrosion proof (Piston rod, guide rod SUS) |
| <b>M1</b>       | Corrosion proof (M + end plate SUS)         |
| <b>P6</b>       | Copper and PTFE free specifications *4      |

### D Stroke length

| Series        | Stroke length<br>(mm)  | Applicable bore size |                    |     |     |     |     |     |     |     |     |      |
|---------------|------------------------|----------------------|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|
|               |                        | φ8                   | φ12                | φ16 | φ20 | φ25 | φ32 | φ40 | φ50 | φ63 | φ80 | φ100 |
| STS           | Standard stroke length | 10                   | ●                  | ●   | ●   |     |     |     |     |     |     |      |
|               |                        | 20                   | ●                  | ●   | ●   |     |     |     |     |     |     |      |
|               |                        | 25                   |                    |     |     | ●   | ●   | ●   | ●   | ●   | ●   | ●    |
|               |                        | 30                   | ●                  | ●   | ●   |     |     |     |     |     |     |      |
|               |                        | 40                   | ●                  | ●   | ●   |     |     |     |     |     |     |      |
|               |                        | 50                   | ●                  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    |
|               |                        | 75                   |                    |     |     |     |     |     |     |     | ●   | ●    |
|               |                        | 100                  |                    |     |     |     |     |     |     |     | ●   | ●    |
|               | Min. stroke length     | *1                   | 5                  |     |     |     |     |     |     |     |     |      |
| Custom stroke | *1, 2                  | In 5 mm increments   |                    |     |     |     |     |     |     |     |     |      |
| STL           | Standard stroke length | 50                   | ●                  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    |
|               |                        | 75                   | ●                  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    |
|               |                        | 100                  | ●                  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    |
|               |                        | 125                  | ●                  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    |
|               |                        | 150                  | ●                  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    |
|               |                        | 175                  | ●                  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    |
|               |                        | 200                  | ●                  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    |
|               |                        | 225                  |                    |     |     | ●   | ●   | ●   | ●   | ●   | ●   |      |
|               |                        | 250                  |                    |     |     | ●   | ●   | ●   | ●   | ●   | ●   |      |
|               |                        | 275                  |                    |     |     | ●   | ●   | ●   | ●   | ●   | ●   |      |
|               |                        | 300                  |                    |     |     | ●   | ●   | ●   | ●   | ●   | ●   |      |
|               |                        | 325                  |                    |     |     | ●   | ●   | ●   | ●   | ●   | ●   |      |
|               |                        | 350                  |                    |     |     | ●   | ●   | ●   | ●   | ●   | ●   |      |
|               |                        | 375                  |                    |     |     | ●   | ●   | ●   | ●   | ●   | ●   |      |
|               |                        | 400                  |                    |     |     | ●   | ●   | ●   | ●   | ●   | ●   |      |
|               | Min. stroke length     | *1                   | 50                 |     |     | 30  |     |     |     |     | 55  |      |
|               | Custom stroke          | *1, 2                | In 5 mm increments |     |     |     |     |     |     |     |     |      |

\*1: The total dimensions are the same as the longer standard stroke length.

\*2: Special total length for custom stroke length can be provided when a custom stroke length is used. (Custom order)

### How to order switch

**SW** - **T0V**

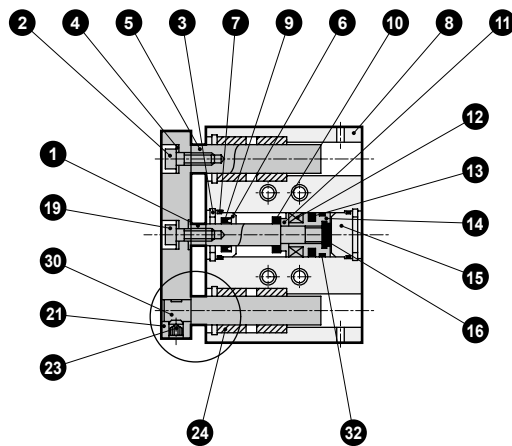
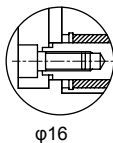
Switch model No.  
(Item **E** on the previous page)

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

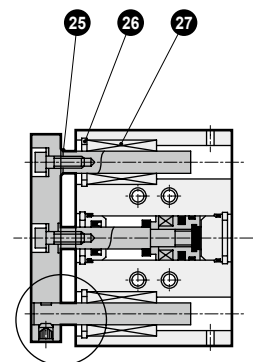
## Internal structure and parts list (φ8 to φ63)

- Double acting/  
standard single rod
- STS-M<sub>B</sub>

φ8/φ12/φ16

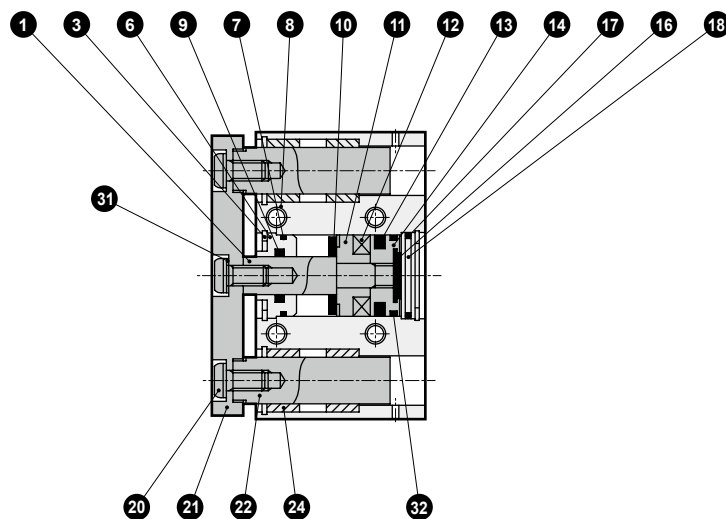


Metal bush bearing

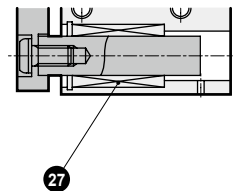


Ball bearing

φ20/φ25

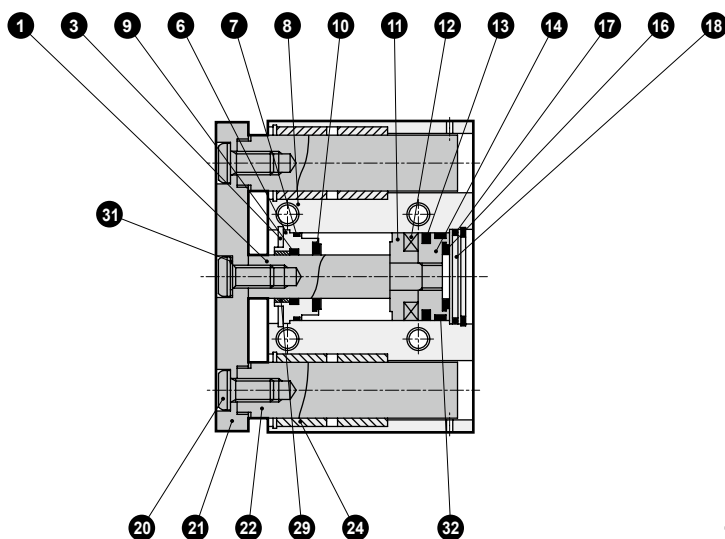


Metal bush bearing

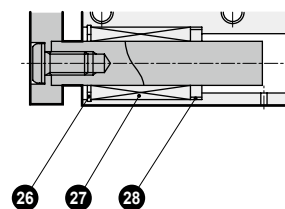


Ball bearing

φ32/φ40/φ50/φ63



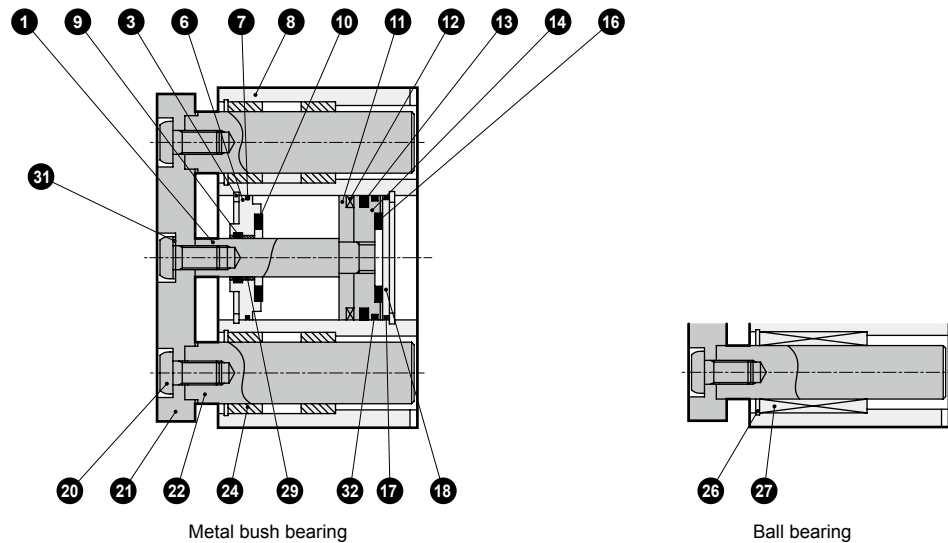
Metal bush bearing



Ball bearing

### Internal structure and parts list (φ80)

- Double acting/standard single rod φ80
- STS-M<sub>B</sub>



| No.                                            | Part name                     | Material                                                       | Remarks                                                           | No. | Part name                            | Material                                   | Remarks                                                      |
|------------------------------------------------|-------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------|-----|--------------------------------------|--------------------------------------------|--------------------------------------------------------------|
| <b>STS-M<sub>B</sub> (Standard single rod)</b> |                               |                                                                |                                                                   |     |                                      |                                            |                                                              |
| 1                                              | Piston rod                    | Stainless steel (φ8 to φ25)<br>Steel (φ32 to φ80)              | Industrial chrome plating                                         | 16  | Cushion rubber (H)                   | Urethane rubber                            |                                                              |
| 2                                              | Hexagon socket head cap screw | Alloy steel                                                    | Zinc chromate                                                     | 17  | O-ring                               | Nitrile rubber                             |                                                              |
| 3                                              | C type snap ring              | Steel                                                          | Zinc phosphate                                                    | 18  | Base plate                           | Aluminum alloy (φ20 to φ63)<br>Steel (φ80) | Chromate (φ20 to φ63)<br>Zinc chromate (φ80)                 |
| 4                                              | Plain washer                  | Steel                                                          | Black finish                                                      | 19  | Hexagon nut (φ8)                     | Steel                                      | Zinc chromate                                                |
| 5                                              | Guide rod (1)                 | M: Stainless steel<br>B: Alloy steel                           | Industrial chrome plating (φ12, φ16)<br>Industrial chrome plating |     | Hex socket head cap screw (φ12, φ16) | Alloy steel                                | Zinc chromate                                                |
| 6                                              | Rod metal                     | Special aluminum alloy                                         | Alumite (*1)                                                      | 20  | Hexagon socket button head bolt      | Alloy steel                                | Zinc chromate                                                |
| 7                                              | Metal gasket                  | Nitrile rubber                                                 |                                                                   | 21  | End plate                            | Aluminum alloy                             | Alumite                                                      |
| 8                                              | Cylinder body                 | Aluminum alloy                                                 | Hard alumite                                                      | 22  | Guide rod (φ20 to φ80)               | Steel                                      | Industrial chrome plating                                    |
| 9                                              | Rod packing                   | Nitrile rubber                                                 |                                                                   | 23  | Hexagon socket set screw (φ8, φ12)   | Alloy steel                                | Black finish                                                 |
| 10                                             | Cushion rubber (R)            | Urethane rubber                                                |                                                                   | 24  | Metal                                | Oil impregnated bearing alloy              |                                                              |
| 11                                             | Spacer                        | Aluminum alloy (φ8 to φ12, φ63, φ80)<br>Polyamide (φ20 to φ50) | Chromate (φ8 to φ12, φ63, φ80)                                    | 25  | Plain washer                         | Steel                                      | Black finish                                                 |
| 12                                             | Magnet                        | Plastic                                                        |                                                                   | 26  | C type snap ring                     | Steel                                      | Zinc phosphate                                               |
| 13                                             | Piston packing                | Nitrile rubber                                                 |                                                                   | 27  | Ball bush                            |                                            |                                                              |
| 14                                             | Piston                        | Special aluminum alloy (φ8)<br>Aluminum alloy (φ12 to φ80)     | Chromate (φ8, φ20 to φ80)                                         | 28  | Collar                               | Aluminum alloy                             |                                                              |
| 15                                             | Cover                         | Aluminum alloy                                                 |                                                                   | 29  | Bush                                 | Multi-layered, oilless metal               |                                                              |
|                                                |                               |                                                                |                                                                   | 30  | Guide rod (2) (φ8, φ12)              | M: Stainless steel<br>B: Alloy steel       | Industrial chrome plating (φ12)<br>Industrial chrome plating |
|                                                |                               |                                                                |                                                                   | 31  | Disc spring washer                   | Steel                                      |                                                              |
|                                                |                               |                                                                |                                                                   | 32  | Wear ring                            | Acetal resin                               | φ12 to φ80                                                   |

\*1: Chromate-coated for φ32 to φ50 only.

### Repair parts list

| Bore size (mm) | Kit No.<br>STS-M <sub>B</sub> | Repair parts No. |
|----------------|-------------------------------|------------------|
| φ8             | STS-8K                        | 7 9 10 13 16     |
| φ12            | STS-12K                       | 7 9 10 13 16 32  |
| φ16            | STS-16K                       |                  |
| φ20            | STS-20K                       |                  |
| φ25            | STS-25K                       |                  |
| φ32            | STS-32K                       | 7 9 10 13        |
| φ40            | STS-40K                       |                  |
| φ50            | STS-50K                       | 16 17 32         |
| φ63            | STS-63K                       |                  |
| φ80            | STS-80K                       |                  |

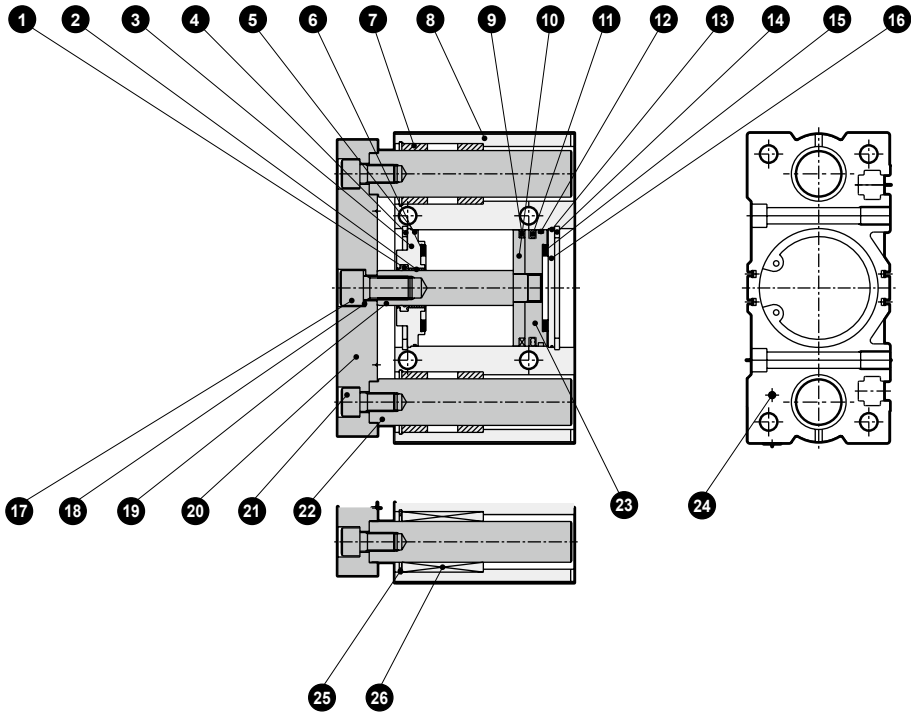
Note: Specify the kit No. when placing an order.

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MecHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MedHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

Internal structure and parts list (φ100)

● Double acting/standard single rod φ100  
STS-M<sub>B</sub>



| Mod No.                             | Part name          | Material                      | Remarks        | Mod No. | Part name                     | Material        | Remarks                   |
|-------------------------------------|--------------------|-------------------------------|----------------|---------|-------------------------------|-----------------|---------------------------|
| STS/L-M <sub>B</sub> (Standard rod) |                    |                               |                |         |                               |                 |                           |
| 1                                   | Rod packing        | Nitrile rubber                |                | 14      | C type snap ring              | Steel           | Zinc phosphate            |
| 2                                   | Bush               | Dry bearing                   |                | 15      | Cushion rubber (H)            | Urethane rubber |                           |
| 3                                   | Rod metal          | Aluminum alloy                | Chromate       | 16      | Base plate                    | Steel           | Zinc chromate             |
| 4                                   | C type snap ring   | Steel                         | Zinc phosphate | 17      | Hexagon socket head cap screw | Steel           | Zinc chromate             |
| 5                                   | Metal gasket       | Nitrile rubber                |                | 18      | Disc spring washer            | Steel           | Zinc chromate             |
| 6                                   | Cushion rubber (R) | Urethane rubber               |                | 19      | Piston rod                    | Steel           | Industrial chrome plating |
| 7                                   | Metal              | Oil impregnated bearing alloy |                | 20      | End plate                     | Aluminum alloy  | Alumite                   |
| 8                                   | Tube body          | Aluminum alloy                | Hard alumite   | 21      | Hexagon socket head cap screw | Steel           | Zinc chromate             |
| 9                                   | Magnet             | Plastic                       |                | 22      | Guide rod                     | Steel           | Industrial chrome plating |
| 10                                  | Spacer             | Aluminum alloy                | Chromate       | 23      | Piston                        | Aluminum alloy  | Chromate                  |
| 11                                  | Piston packing     | Nitrile rubber                |                | 24      | Hexagon socket set screw      | Steel           | Black finish              |
| 12                                  | Wear ring          | Acetal resin                  |                | 25      | C type snap ring              | Steel           | Zinc phosphate            |
| 13                                  | O-ring             | Nitrile rubber                |                | 26      | Ball bearing                  |                 |                           |

Repair parts kit

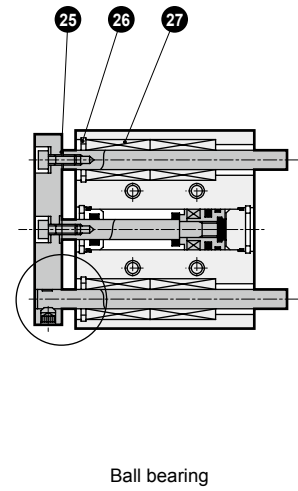
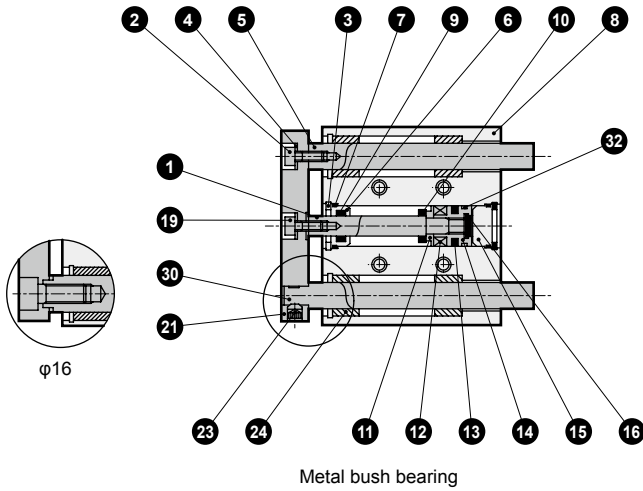
| Bore size<br>(mm) | Kit No.            | Repair parts No.  |
|-------------------|--------------------|-------------------|
|                   | STS-M <sub>B</sub> |                   |
| φ100              | STS-100K           | 1 5 6 11 12 13 15 |

Note: Specify the kit No. when placing an order.

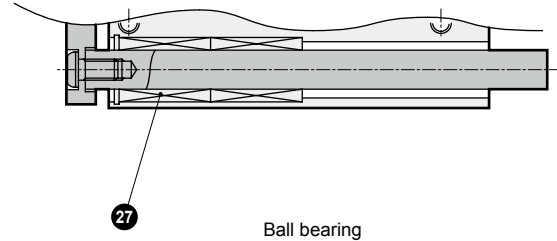
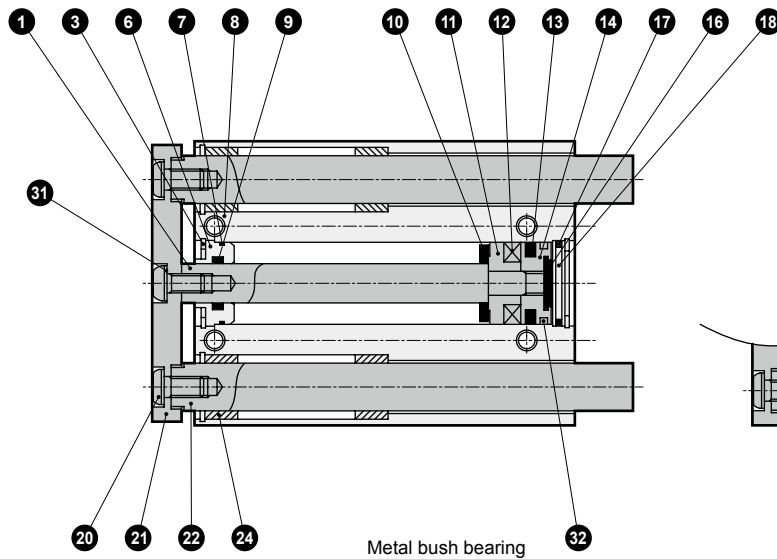
### Internal structure and parts list (φ8 to φ63)

- Double acting/  
standard single rod  
STL-B<sup>M</sup>

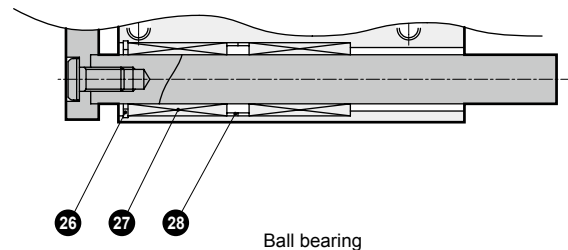
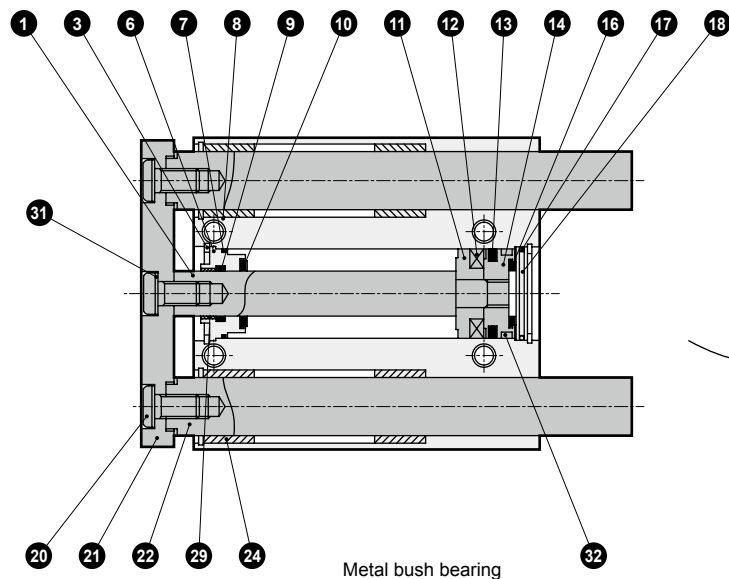
φ8/φ12/φ16



φ20/φ25



φ32/φ40/φ50/φ63

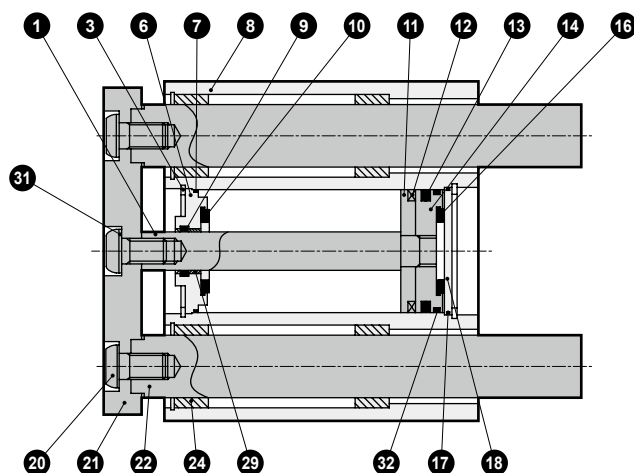


|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STB/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

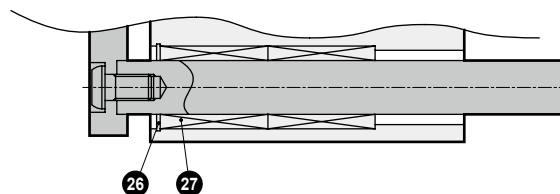
## Internal structure and parts list (φ80)

● Standard single rod φ80

STL-M<sub>B</sub>



Metal bush bearing



Ball bearing

| No.                                                          | Part name                     | Material                                                       | Remarks                                                           | No. | Part name                            | Material                                   | Remarks                                                      |
|--------------------------------------------------------------|-------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------|-----|--------------------------------------|--------------------------------------------|--------------------------------------------------------------|
| <b>STL-M<sub>B</sub> (Double acting/standard single rod)</b> |                               |                                                                |                                                                   |     |                                      |                                            |                                                              |
| 1                                                            | Piston rod                    | Stainless steel (φ8 to φ25)<br>Steel (φ32 to φ80)              | Industrial chrome plating                                         | 16  | Cushion rubber (H)                   | Urethane rubber                            |                                                              |
| 2                                                            | Hexagon socket head cap screw | Alloy steel                                                    | Zinc chromate                                                     | 17  | O-ring                               | Nitrile rubber                             |                                                              |
| 3                                                            | C type snap ring              | Steel                                                          | Zinc phosphate                                                    | 18  | Base plate                           | Aluminum alloy (φ20 to φ63)<br>Steel (φ80) | Chromate (φ20 to φ63)<br>Zinc chromate (φ80)                 |
| 4                                                            | Plain washer                  | Steel                                                          | Black finish                                                      | 19  | Hexagon nut (φ8)                     | Steel                                      | Zinc chromate                                                |
| 5                                                            | Guide rod (1)                 | M: Stainless steel<br>B: Alloy steel                           | Industrial chrome plating (φ12, φ16)<br>Industrial chrome plating |     | Hex socket head cap screw (φ12, φ16) | Alloy steel                                |                                                              |
| 6                                                            | Rod metal                     | Special aluminum alloy                                         | Alumite (*1)                                                      | 20  | Hexagon socket button head bolt      | Alloy steel                                | Zinc chromate                                                |
| 7                                                            | Metal gasket                  | Nitrile rubber                                                 |                                                                   | 21  | End plate                            | Aluminum alloy                             | Alumite                                                      |
| 8                                                            | Cylinder body                 | Aluminum alloy                                                 | Hard alumite                                                      | 22  | Guide rod (φ20 to φ80)               | Steel                                      | Industrial chrome plating                                    |
| 9                                                            | Rod packing                   | Nitrile rubber                                                 |                                                                   | 23  | Hexagon socket set screw (φ8, φ12)   | Alloy steel                                | Black finish                                                 |
| 10                                                           | Cushion rubber (R)            | Urethane rubber                                                |                                                                   | 24  | Metal                                | Oil impregnated bearing alloy              |                                                              |
| 11                                                           | Spacer                        | Aluminum alloy (φ8 to φ12, φ63, φ80)<br>Polyamide (φ20 to φ50) | Chromate (φ8, φ12, φ63, φ80)                                      | 25  | Plain washer                         | Steel                                      | Black finish                                                 |
| 12                                                           | Magnet                        | Plastic                                                        |                                                                   | 26  | C type snap ring                     | Steel                                      | Zinc phosphate                                               |
| 13                                                           | Piston packing                | Nitrile rubber                                                 |                                                                   | 27  | Ball bush                            |                                            |                                                              |
| 14                                                           | Piston                        | Special aluminum alloy (φ8)<br>Aluminum alloy (φ12 to φ80)     | Chromate                                                          | 28  | Collar                               | Aluminum alloy                             |                                                              |
|                                                              |                               |                                                                |                                                                   | 29  | Bush                                 | Dry bearing                                |                                                              |
| 15                                                           | Cover                         | Aluminum alloy                                                 |                                                                   | 30  | Guide rod (2) (φ8, φ12)              | M: Stainless steel<br>B: Alloy steel       | Industrial chrome plating (φ12)<br>Industrial chrome plating |
|                                                              |                               |                                                                |                                                                   | 31  | Disc spring washer                   | Steel                                      |                                                              |
|                                                              |                               |                                                                |                                                                   | 32  | Wear ring                            | Acetal resin                               | φ12 to φ80                                                   |

\*1: Chromate-coated for φ32 to φ50 only.

## Repair parts list

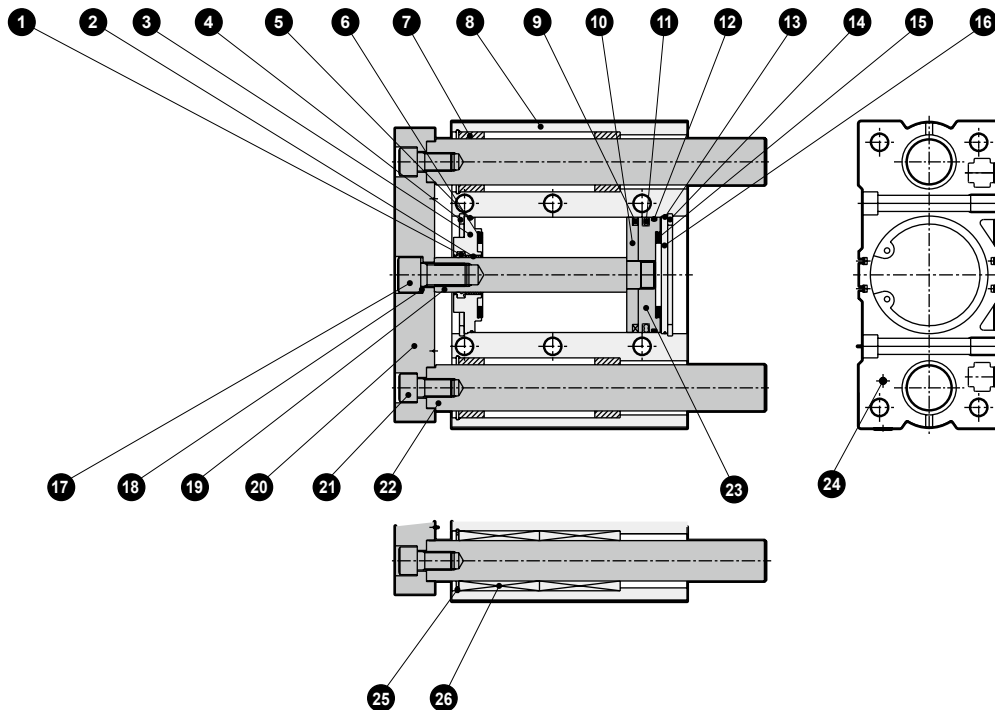
| Bore size (mm) | Kit No.<br>STL-M <sub>B</sub> | Repair parts No. |
|----------------|-------------------------------|------------------|
| φ8             | STS-8K                        | 7 9 10 13 16     |
| φ12            | STS-12K                       | 7 9 10 13 16 32  |
| φ16            | STS-16K                       |                  |
| φ20            | STS-20K                       |                  |
| φ25            | STS-25K                       |                  |
| φ32            | STS-32K                       | 7 9 10           |
| φ40            | STS-40K                       |                  |
| φ50            | STS-50K                       | 13 16 17 32      |
| φ63            | STS-63K                       |                  |
| φ80            | STS-80K                       |                  |

Note: Specify the kit No. when placing an order.

### Internal structure and parts list (φ100)

● Double acting/standard single rod φ100

STL-M<sub>B</sub>



| Mod No.                             | Part name          | Material                      | Remarks        | Mod No. | Part name                     | Material        | Remarks                   |
|-------------------------------------|--------------------|-------------------------------|----------------|---------|-------------------------------|-----------------|---------------------------|
| STS/L-M <sub>B</sub> (Standard rod) |                    |                               |                |         |                               |                 |                           |
| 1                                   | Rod packing        | Nitrile rubber                |                | 14      | C type snap ring              | Steel           | Zinc phosphate            |
| 2                                   | Bush               | Dry bearing                   |                | 15      | Cushion rubber (H)            | Urethane rubber |                           |
| 3                                   | Rod metal          | Aluminum alloy                | Chromate       | 16      | Base plate                    | Steel           | Zinc chromate             |
| 4                                   | C type snap ring   | Steel                         | Zinc phosphate | 17      | Hexagon socket head cap screw | Steel           | Zinc chromate             |
| 5                                   | Metal gasket       | Nitrile rubber                |                | 18      | Disc spring washer            | Steel           |                           |
| 6                                   | Cushion rubber (R) | Urethane rubber               |                | 19      | Piston rod                    | Steel           | Industrial chrome plating |
| 7                                   | Metal              | Oil impregnated bearing alloy |                | 20      | End plate                     | Aluminum alloy  | Alumite                   |
| 8                                   | Tube body          | Aluminum alloy                | Hard alumite   | 21      | Hexagon socket head cap screw | Steel           | Zinc chromate             |
| 9                                   | Magnet             | Plastic                       |                | 22      | Guide rod                     | Steel           | Industrial chrome plating |
| 10                                  | Spacer             | Aluminum alloy                | Chromate       | 23      | Piston                        | Aluminum alloy  | Chromate                  |
| 11                                  | Piston packing     | Nitrile rubber                |                | 24      | Hexagon socket set screw      | Steel           | Black finish              |
| 12                                  | Wear ring          | Acetal resin                  |                | 25      | C type snap ring              | Steel           | Zinc phosphate            |
| 13                                  | O-ring             | Nitrile rubber                |                | 26      | Ball bearing                  |                 |                           |

### Repair parts kit

| Bore size<br>(mm) | Kit No.            | Repair parts No.  |
|-------------------|--------------------|-------------------|
|                   | STL-M <sub>B</sub> |                   |
| φ100              | STS-100K           | 1 5 6 11 12 13 15 |

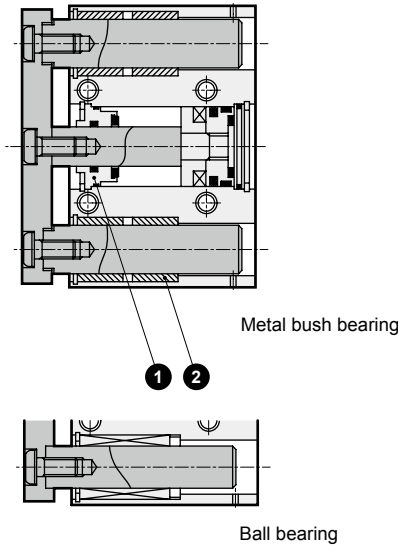
Note: Specify the kit No. when placing an order.

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MecHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

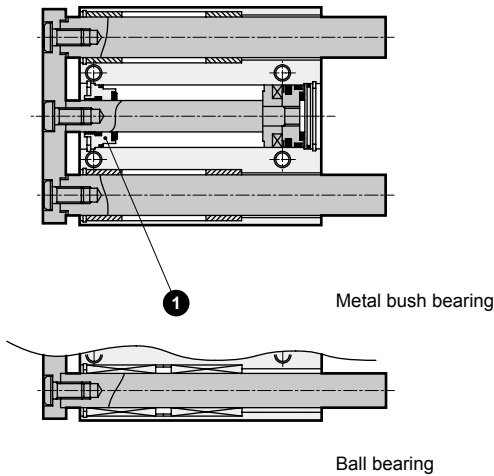
|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MedHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

Internal structure and parts list (φ8 to φ100)

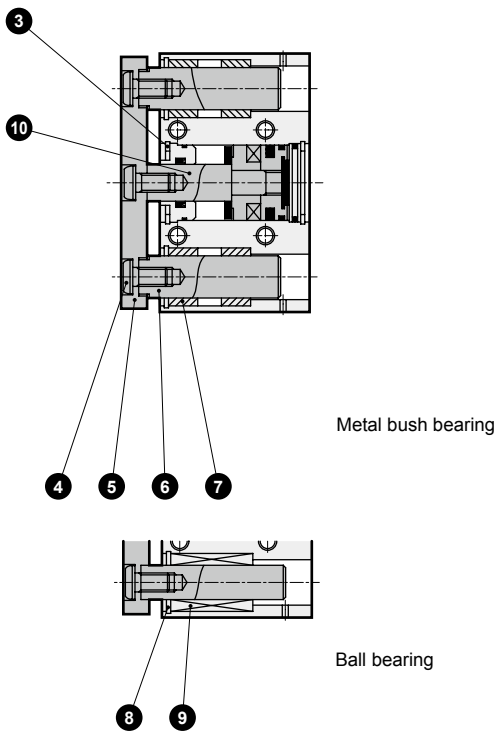
● Copper and PTFE free  
STS-<sup>M</sup><sub>B</sub>-P6 \* P6 does not include a 29 bush.



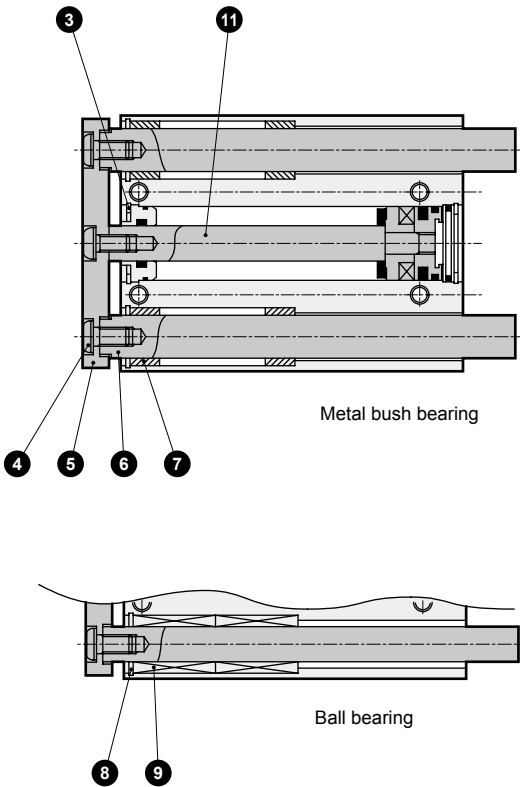
● Copper and PTFE free  
STL-<sup>M</sup><sub>B</sub>-P6 \* P6 does not include a 29 bush.



● Corrosion proof  
STS-<sup>M</sup><sub>B</sub>-M/M1



● Corrosion proof  
STL-<sup>M</sup><sub>B</sub>-M/M1



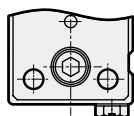
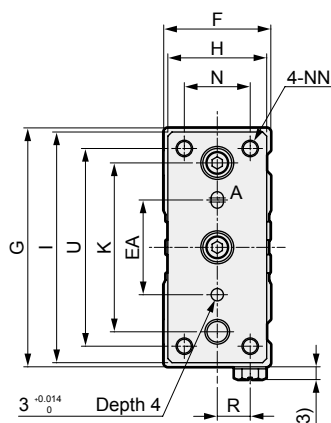
Parts list (Parts not listed below are the same as those of the double acting/standard single rod. Refer to pages 449 to 453.)

| No.                                                                                 | Part name                                                                   | Material                                 | Remarks | No. | Part name                                             | Material                           | Remarks                                 |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------|---------|-----|-------------------------------------------------------|------------------------------------|-----------------------------------------|
| ST <sup>S</sup> <sub>L</sub> - <sup>M</sup> <sub>B</sub> -P6 (copper and PTFE free) |                                                                             |                                          |         | 6   | Guide rod                                             | Stainless steel                    | Industrial chrome plating (M type only) |
| 1                                                                                   | Rod metal                                                                   | Special aluminum alloy                   |         | 7   | Metal                                                 | Bearing with solid lubricant       |                                         |
| 2                                                                                   | Metal                                                                       | Cast iron oil-impregnated bearing        |         | 8   | Adaptor (φ8 to φ16)<br>C type snap ring (φ32 to φ100) | Aluminum alloy<br>Stainless steel  |                                         |
| ST <sup>S</sup> <sub>L</sub> - <sup>M</sup> <sub>B</sub> -M/M1 (corrosion proof)    |                                                                             |                                          |         | 9   | Ball bush                                             | Made of stainless steel            |                                         |
| 3                                                                                   | C type snap ring                                                            | Stainless steel                          |         | 10  | Piston rod                                            | Stainless steel Steel (φ8 to φ100) | Industrial chrome plating               |
| 4                                                                                   | Hex socket button head bolt (φ8 to φ80)<br>Hex socket head cap screw (φ100) | Stainless steel                          |         | 11  | Piston rod                                            | Stainless steel Steel (φ8 to φ100) | Industrial chrome plating               |
| 5                                                                                   | End plate                                                                   | M: Aluminum alloy<br>M1: Stainless steel | Alumite |     |                                                       |                                    |                                         |

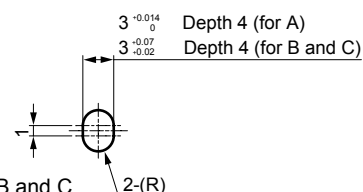
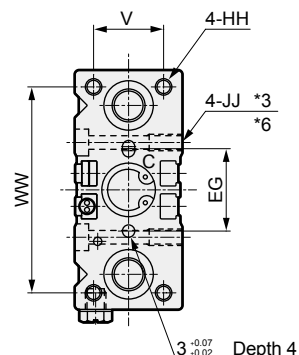
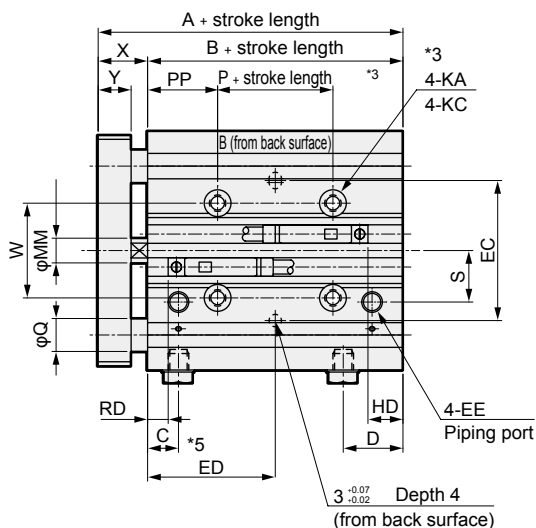
Dimensions:  $\phi 8/\phi 12/\phi 16$



- Standard single rod STS-M
- Corrosion proof STS-M-M/M1



$\phi 16$



Slot dimensions for A, B and C

| Code           | Standard stroke length |             |    |    | A           | B                               | C                       | D           | DD  | EE      | EA   | EC         | ED  |                    | EG | F     | G  | H     | HH          |     |
|----------------|------------------------|-------------|----|----|-------------|---------------------------------|-------------------------|-------------|-----|---------|------|------------|-----|--------------------|----|-------|----|-------|-------------|-----|
| Bore size (mm) | (mm)                   |             |    |    |             |                                 |                         |             |     |         |      |            |     |                    |    |       |    |       |             |     |
| φ8             | 10, 20, 30<br>40, 50   |             |    |    | 40          | 28                              | 11                      | 14.5        | 6.5 | M5      | 20   | 25         | 15+ | Stroke length<br>2 | 20 | 24    | 53 | 22    | M4 depth 8  |     |
| φ12            |                        |             |    |    | 44          | 32                              | 7.5                     | 14.5        | 7.5 | M5      | 23   | 34         | 16+ | Stroke length<br>2 | 20 | 26    | 58 | 24    | M4 depth 8  |     |
| φ16            |                        |             |    |    | 45          | 32                              | 7.5                     | 17          | 7.5 | M5      | 24   | 36         | 16+ | Stroke length<br>2 | 24 | 30    | 64 | 28    | M5 depth 10 |     |
| Code           | I                      | JJ          |    | K  | KA          |                                 | KC                      |             |     | MM      | N    | NN         |     | P                  | PP | Q     |    |       |             | R   |
| Bore size (mm) |                        |             |    |    |             |                                 |                         |             |     |         |      |            |     |                    |    | STS-M |    | STS-B |             |     |
| φ8             | 51                     | M4 depth 10 |    | 40 | 3.3 through |                                 | 6.5 spot face depth 3.3 |             |     | 4       | 15   | M4 through |     | -10                | 20 | 6     |    | 5     |             | 7.5 |
| φ12            | 56                     | M4 depth 10 |    | 41 | 3.3 through |                                 | 6.5 spot face depth 3.3 |             |     | 6       | 16   | M4 through |     | -2                 | 17 | 8     |    | 6     |             | 8   |
| φ16            | 62                     | M5 depth 10 |    | 46 | 4.3 through |                                 | 8 spot face depth 4.4   |             |     | 8       | 18   | M5 through |     | -2                 | 17 | 10    |    | 8     |             | 10  |
| Code           | S                      | U           | V  | W  | WW          | X                               | Y                       | T0/T5/T2/T3 |     | T2W/T3W |      |            |     |                    |    |       |    |       |             |     |
| Bore size (mm) |                        |             |    |    |             |                                 |                         | RD          | HD  | RD      | HD   |            |     |                    |    |       |    |       |             |     |
| φ8             | 13.5                   | 43          | 16 | 25 | 45          | 12 <sup>0</sup> <sub>-1.5</sub> | 8                       | 6.5         | 2.5 | 8.5     | 4.5  |            |     |                    |    |       |    |       |             |     |
| φ12            | 12.5                   | 48          | 17 | 23 | 50          | 12 <sup>0</sup> <sub>-1.5</sub> | 8                       | 5           | 8.5 | 7       | 10.5 |            |     |                    |    |       |    |       |             |     |
| φ16            | 13                     | 52          | 22 | 25 | 54          | 13 <sup>0</sup> <sub>-1.5</sub> | 9                       | 4.5         | 9.5 | 6       | 11.5 |            |     |                    |    |       |    |       |             |     |

\*1 : HD and RD dimensions for 10 mm stroke length differ from these dimensions according to the setting.

\*2 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

\*3 : 2-KA, 2-KC and 2-JJ (two mounting holes) for STS-M-8-10 (10 mm stroke length).

\*4 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

\*5 : ED is 5 for STS-M-8-10 (10 mm stroke length).

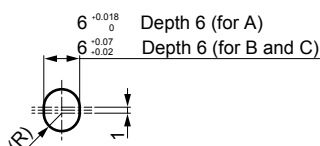
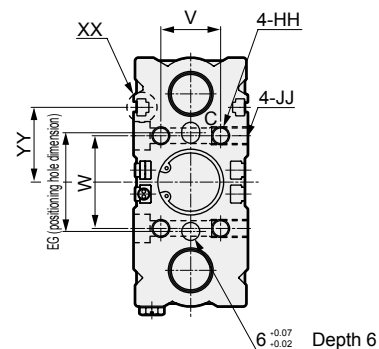
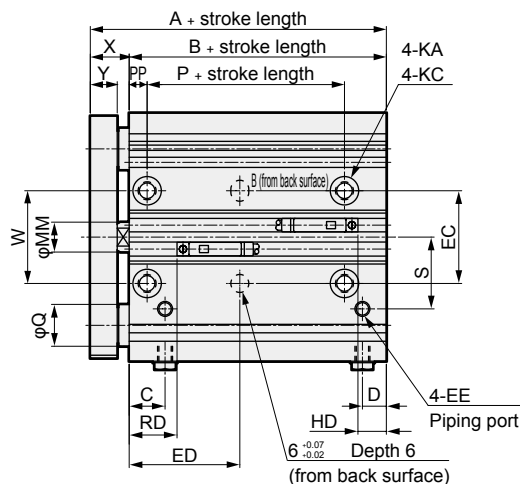
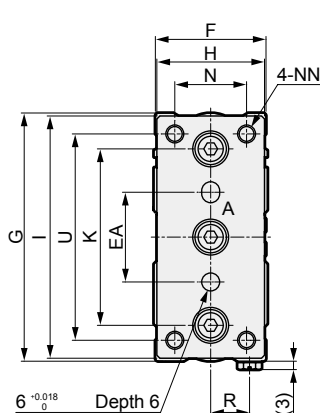
\*6 : For STS-M-16-10 (10 mm stroke length), use only two mounting holes for JJ M5 screw, although there are four mounting holes in the figure.

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MecHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

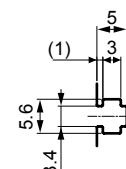
Dimensions:  $\phi 20/\phi 25$



- Standard single rod STS-M<sub>B</sub>
- Corrosion proof STS-M<sub>B</sub>-M/M1



Slot dimensions for A, B and C



XX section details

| Code           | Standard stroke length (mm) | A  | B  | C  | D | EE | EA | EC | EG | ED                                 |    | F  | G  | H           | HH |
|----------------|-----------------------------|----|----|----|---|----|----|----|----|------------------------------------|----|----|----|-------------|----|
| Bore size (mm) |                             | 53 | 40 | 12 | 8 | M5 | 30 | 31 | 33 | 14+<br><div>Stroke length2</div>   | 38 | 83 | 36 | M6 depth 12 |    |
| φ20            |                             | 54 | 41 | 12 | 9 | M5 | 32 | 35 | 37 | 14.5+<br><div>Stroke length2</div> | 42 | 86 | 38 | M6 depth 12 |    |
| φ25            | 25, 50                      |    |    |    |   |    |    |    |    |                                    |    |    |    |             |    |

| Code           | I  | JJ          | K  | KA          | KC                      |  |  | MM | N  | NN         | P  | PP | Q  |    | R  |
|----------------|----|-------------|----|-------------|-------------------------|--|--|----|----|------------|----|----|----|----|----|
| Bore size (mm) | 81 | M6 depth 12 | 59 | 5.2 through | 9.5 spot face depth 5.4 |  |  | 10 | 24 | M6 through | 20 | 6  | 14 | 12 | 13 |
| φ20            | 84 | M6 depth 12 | 63 | 5.2 through | 9.5 spot face depth 5.4 |  |  | 12 | 26 | M6 through | 20 | 6  | 14 | 12 | 14 |
| φ25            |    |             |    |             |                         |  |  |    |    |            |    |    |    |    |    |

| Code           | S  | U  | V  | W  | X                             | Y | YY | T0/T5/T2/T3 |    | T2W/T3W |    |
|----------------|----|----|----|----|-------------------------------|---|----|-------------|----|---------|----|
| Bore size (mm) | 24 | 69 | 20 | 31 | 13 <sup>0</sup> <sub>-2</sub> | 9 | 25 | RD          | HD | RD      | HD |
| φ20            | 26 | 72 | 24 | 35 | 13 <sup>0</sup> <sub>-2</sub> | 9 | 27 | 13          | 9  | 14.5    | 11 |
| φ25            |    |    |    |    |                               |   |    |             |    |         |    |

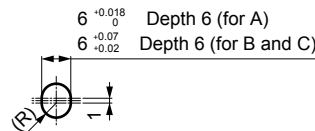
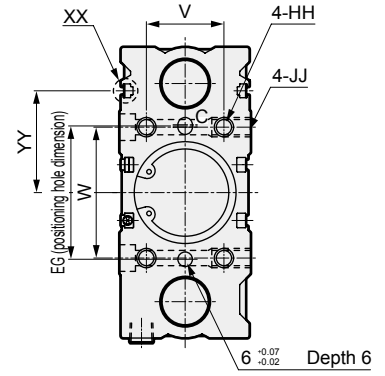
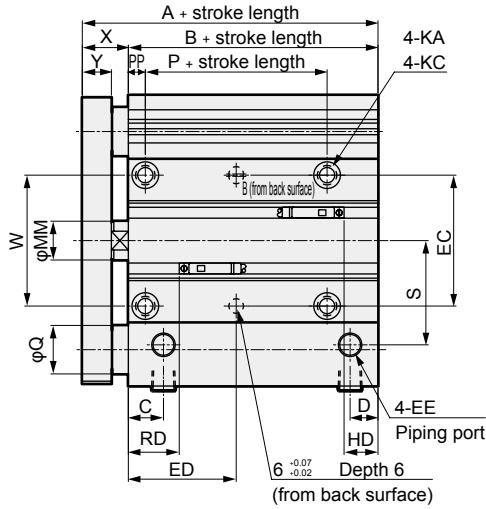
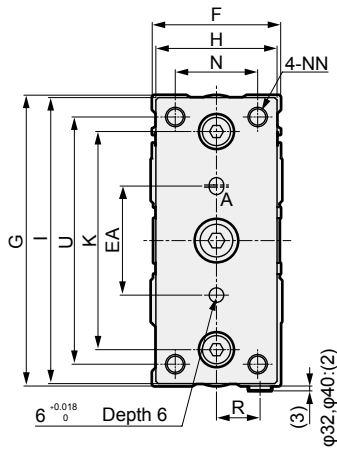
\*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

\*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

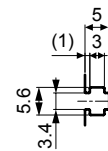
Dimensions: ø32/ø40/ø50/ø63



- Standard single rod STS-M<sub>B</sub>
- Corrosion proof STS-M<sub>B</sub>-M/M1



Slot dimensions for A, B and C



XX section details

| Code           | Standard stroke length (mm) |              | A   | B           | C                               | D                      | EE    | EA          | EC   | EG      | ED          |                                | F  | G     | H     | HH           |
|----------------|-----------------------------|--------------|-----|-------------|---------------------------------|------------------------|-------|-------------|------|---------|-------------|--------------------------------|----|-------|-------|--------------|
| Bore size (mm) |                             |              |     |             |                                 |                        |       |             |      |         |             | <div>Stroke length<br/>2</div> |    |       |       |              |
| φ32            | 25, 50                      |              | 68  | 49          | 14                              | 10.5                   | Rc1/8 | 42          | 45   | 46      | 17.5+       |                                | 47 | 111   | 45    | M8 depth 16  |
| φ40            |                             |              | 72  | 53          | 14.5                            | 12                     | Rc1/8 | 45          | 54   | 55      | 19.5+       |                                | 54 | 120   | 50    | M8 depth 16  |
| φ50            |                             |              | 77  | 55          | 16                              | 12.5                   | Rc1/4 | 55          | 66   | 69      | 19.5+       |                                | 66 | 147   | 64    | M10 depth 20 |
| φ63            |                             |              | 83  | 61          | 17.5                            | 17.5                   | Rc1/4 | 62          | 79   | 82      | 22.5+       |                                | 79 | 162   | 75    | M10 depth 20 |
| Code           | I                           | JJ           | K   | KA          |                                 | KC                     |       |             | MM   | N       | NN          | P                              | PP | Q     |       | R            |
| Bore size (mm) |                             |              |     |             |                                 |                        |       |             |      |         |             |                                |    | STS-M | STS-B |              |
| φ32            | 109                         | M8 depth 16  | 81  | 6.3 through |                                 | 11 spot face depth 6.5 |       |             | 16   | 29      | M8 through  | 22                             | 7  | 20    | 16    | 16           |
| φ40            | 118                         | M8 depth 16  | 90  | 6.3 through |                                 | 11 spot face depth 6.5 |       |             | 16   | 34      | M8 through  | 25                             | 7  | 20    | 16    | 18           |
| φ50            | 145                         | M10 depth 20 | 110 | 8.6 through |                                 | 14 spot face depth 8.6 |       |             | 20   | 44      | M10 through | 26                             | 8  | 25    | 20    | 22           |
| φ63            | 160                         | M10 depth 20 | 124 | 8.6 through |                                 | 14 spot face depth 8.6 |       |             | 20   | 55      | M10 through | 26                             | 8  | 25    | 20    | 26           |
| Code           | S                           | U            | V   | W           | X                               | Y                      | YY    | T0/T5/T2/T3 |      | T2W/T3W |             |                                |    |       |       |              |
| Bore size (mm) |                             |              |     |             |                                 |                        |       | RD          | HD   | RD      | HD          |                                |    |       |       |              |
| φ32            | 39                          | 93           | 25  | 45          | 19 <sup>0</sup> / <sub>-2</sub> | 12                     | 39    | 17.5        | 13.5 | 19      | 15          |                                |    |       |       |              |
| φ40            | 43                          | 102          | 32  | 54          | 19 <sup>0</sup> / <sub>-2</sub> | 12                     | 42    | 21          | 14   | 22.5    | 16          |                                |    |       |       |              |
| φ50            | 49                          | 125          | 38  | 66          | 22 <sup>0</sup> / <sub>-2</sub> | 16                     | 45    | 22          | 16   | 23.5    | 16.5        |                                |    |       |       |              |
| φ63            | 56                          | 140          | 50  | 79          | 22 <sup>0</sup> / <sub>-2</sub> | 16                     | 52    | 20          | 23   | 21.5    | 24.5        |                                |    |       |       |              |

\*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

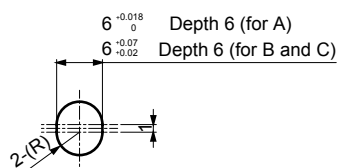
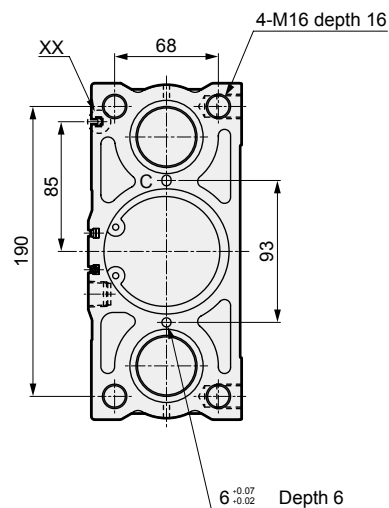
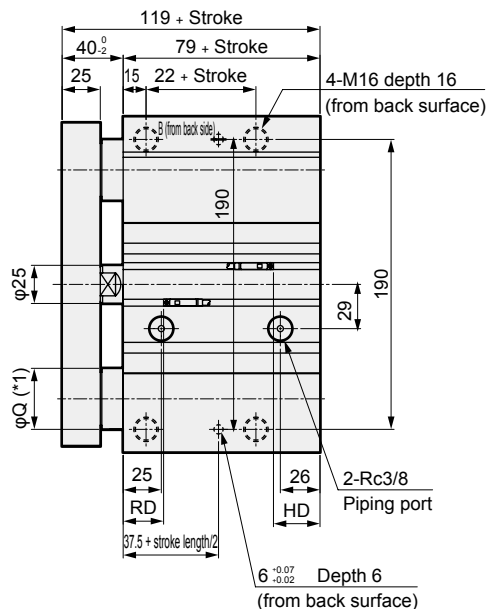
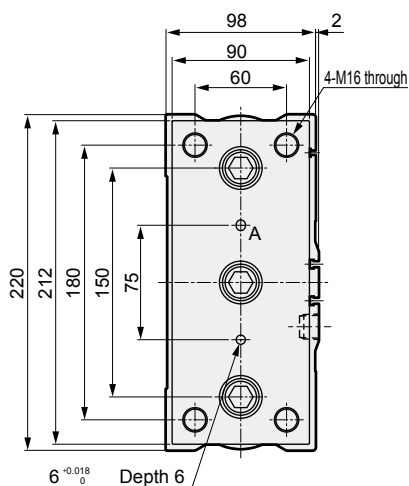
\*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MecHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

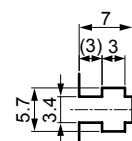
## Dimensions: $\phi 80$



- Standard single rod STS-M-B
- Corrosion proof STS-M-B-M/M1



Slot dimensions for A, B and C



XX section details

| Code           | T0/T5/T2/T3 |      | T2W/T3W |      |
|----------------|-------------|------|---------|------|
| Bore size (mm) | RD          | HD   | RD      | HD   |
| $\phi 80$      | 26.5        | 30.5 | 28      | 35.5 |

\*1 :  $\phi 40$  for M (metal bush bearing) and  $\phi 35$  for B (ball bearing).

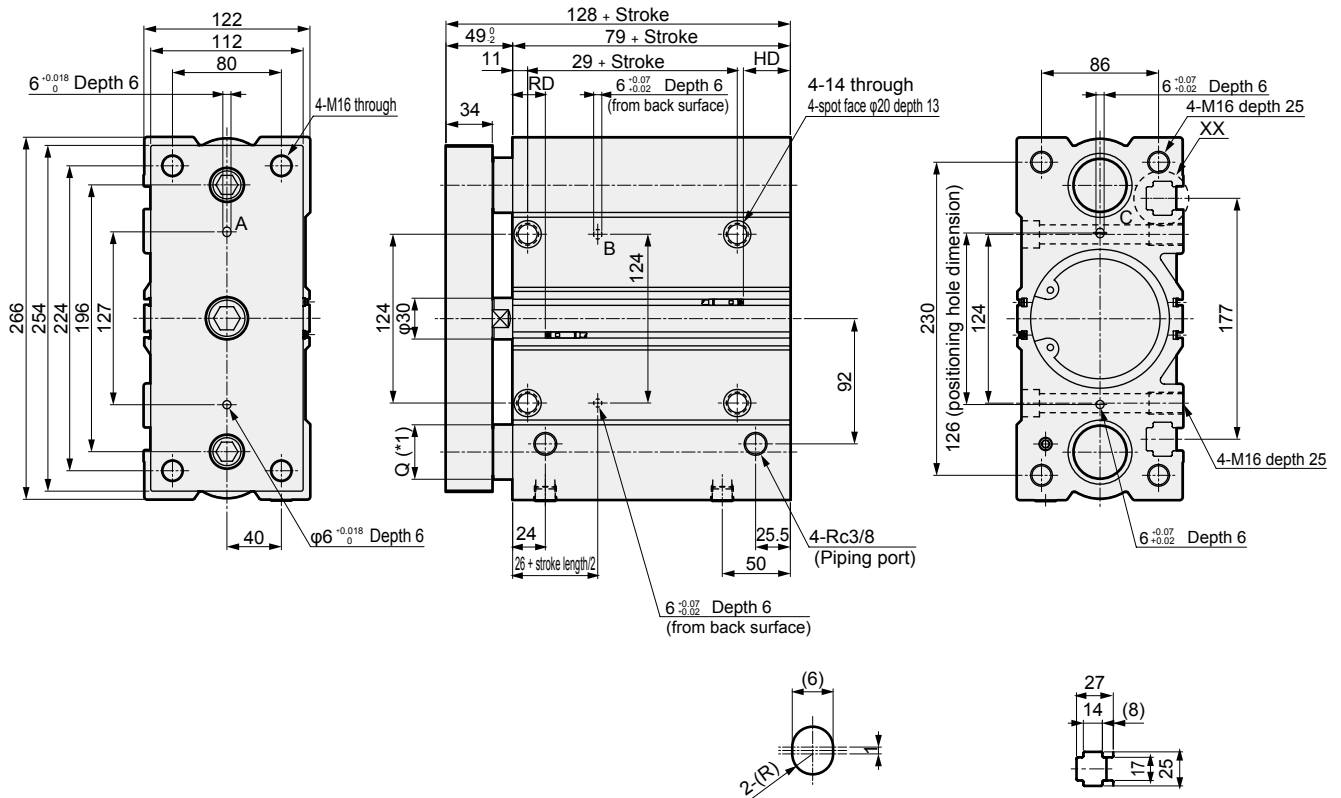
\*2 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length. The standard stroke lengths of  $\phi 80$  are 25, 50, 75 and 100 mm.

\*3 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

## Dimensions: $\phi 100$



- Standard single rod STS-M<sub>B</sub>
- Corrosion proof STS-M<sub>B</sub>-M/M1
- Copper and PTFE free STS-M<sub>B</sub>-P6



Slot dimensions for A, B and C

XX section details

| Code           | T0/T5/T2/T3 |      | T2W/T3W |    |
|----------------|-------------|------|---------|----|
| Bore size (mm) | RD          | HD   | RD      | HD |
| $\phi 100$     | 24          | 34.5 | 27      | 37 |

\*1 : Dimension Q is  $\phi 40$  for M (metal bush bearing) and  $\phi 35$  for B (ball bearing).

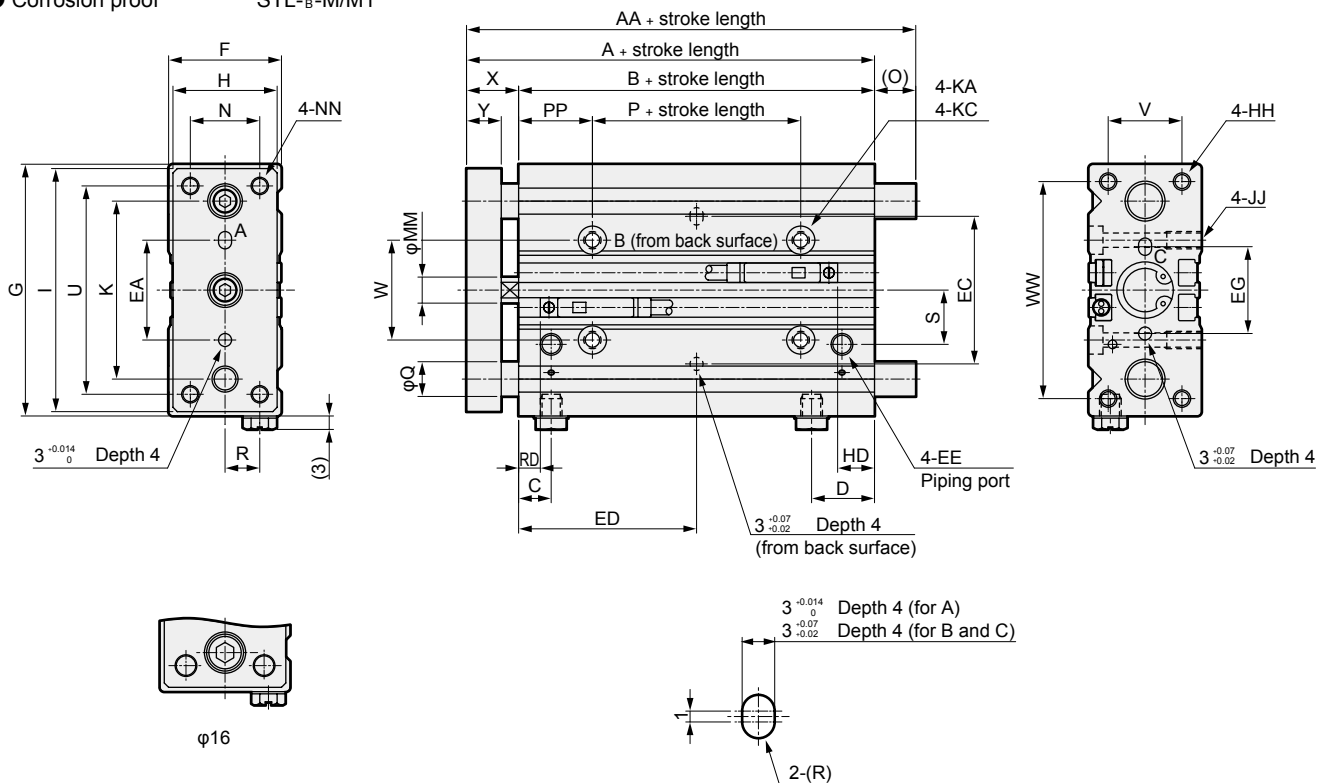
\*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

Dimensions:  $\phi 8/\phi 12/\phi 16$



- Standard single rod STL-M<sub>B</sub>
- Corrosion proof STL-M<sub>B</sub>-M/M1



| Code           | Standard stroke length (mm)        | A           | AA   | B           | C                       | D                               | DD  | EE          | EA         | EC  | ED   |                                  | EG    | F     | G   | H  | HH          |
|----------------|------------------------------------|-------------|------|-------------|-------------------------|---------------------------------|-----|-------------|------------|-----|------|----------------------------------|-------|-------|-----|----|-------------|
| Bore size (mm) |                                    | 40          | 46   | 28          | 11                      | 14.5                            | 6.5 | M5          | 20         | 25  | 15+  | $\frac{\text{Stroke length}}{2}$ | 20    | 24    | 53  | 22 | M4 depth 8  |
| φ8             | 50, 75, 100, 125,<br>150, 175, 200 | 44          | 53.5 | 32          | 7.5                     | 14.5                            | 7.5 | M5          | 23         | 34  | 16+  | $\frac{\text{Stroke length}}{2}$ | 20    | 26    | 58  | 24 | M4 depth 8  |
| φ12            |                                    | 45          | 64   | 32          | 7.5                     | 17                              | 7.5 | M5          | 24         | 36  | 16+  | $\frac{\text{Stroke length}}{2}$ | 24    | 30    | 64  | 28 | M5 depth 10 |
| φ16            |                                    |             |      |             |                         |                                 |     |             |            |     |      |                                  |       |       |     |    |             |
| Code           | I                                  | JJ          | K    | KA          | KC                      |                                 | MM  | N           | NN         | O   | P    | PP                               | Q     |       | R   |    |             |
| Bore size (mm) |                                    |             |      |             |                         |                                 |     |             |            |     |      |                                  | STL-M | STL-B |     |    |             |
| φ8             | 51                                 | M4 depth 10 | 40   | 3.3 through | 6.5 spot face depth 3.3 |                                 | 4   | 15          | M4 through | 6   | -10  | 20                               | 6     | 5     | 7.5 |    |             |
| φ12            | 56                                 | M4 depth 10 | 41   | 3.3 through | 6.5 spot face depth 3.3 |                                 | 6   | 16          | M4 through | 9.5 | -2   | 17                               | 8     | 6     | 8   |    |             |
| φ16            | 62                                 | M5 depth 10 | 46   | 4.3 through | 8 spot face depth 4.4   |                                 | 8   | 18          | M5 through | 19  | -2   | 17                               | 10    | 8     | 10  |    |             |
| Code           | S                                  | U           | V    | W           | WW                      | X                               | Y   | T0/T5/T2/T3 | T2W/T3W    |     |      |                                  |       |       |     |    |             |
| Bore size (mm) |                                    |             |      |             |                         |                                 |     | RD          | HD         | RD  | HD   |                                  |       |       |     |    |             |
| φ8             | 13.5                               | 43          | 16   | 25          | 45                      | 12 <sup>0</sup> <sub>-1.5</sub> | 8   | 6.5         | 2.5        | 8.5 | 4.5  |                                  |       |       |     |    |             |
| φ12            | 12.5                               | 48          | 17   | 23          | 50                      | 12 <sup>0</sup> <sub>-1.5</sub> | 8   | 5           | 8.5        | 7   | 10.5 |                                  |       |       |     |    |             |
| φ16            | 13                                 | 52          | 22   | 25          | 54                      | 13 <sup>0</sup> <sub>-1.5</sub> | 9   | 4.5         | 9.5        | 6   | 11.5 |                                  |       |       |     |    |             |

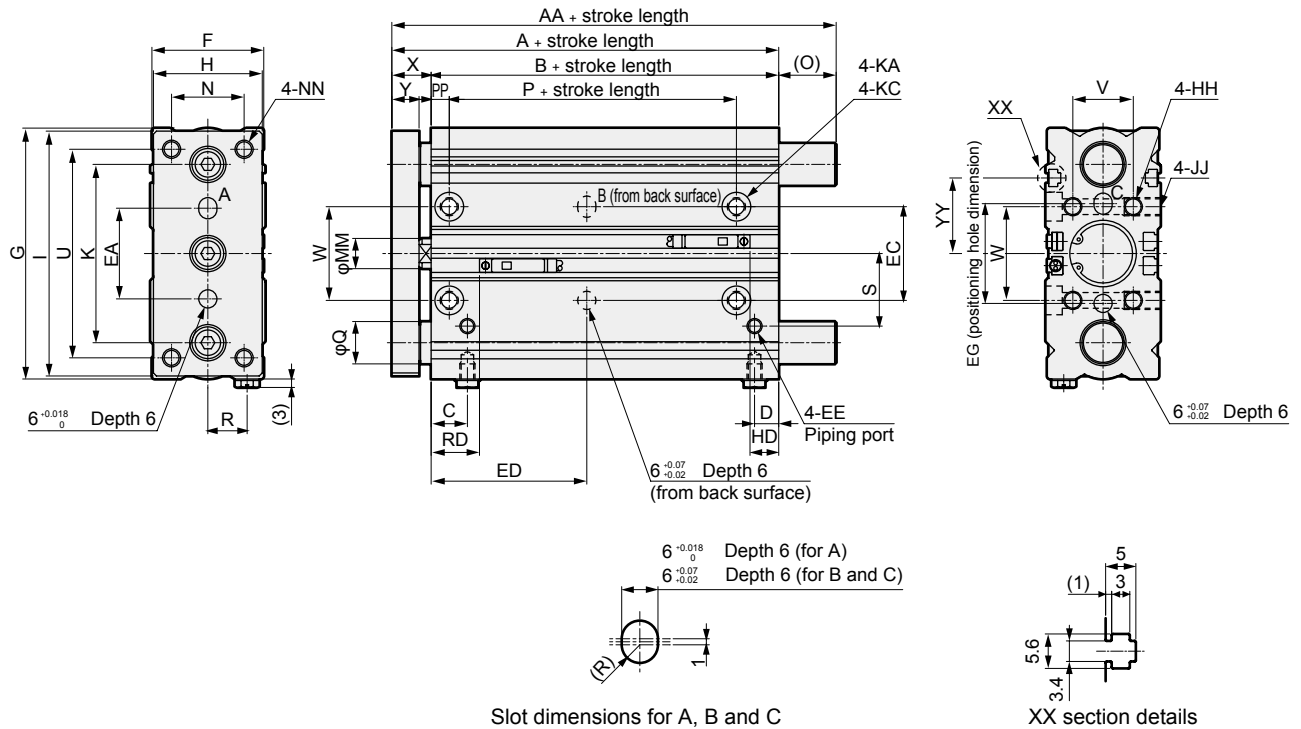
\*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

\*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

Dimensions:  $\phi 20/\phi 25$



- Standard single rod STL-M<sub>B</sub>
- Corrosion proof STL-M<sub>B</sub>-M/M1



Slot dimensions for A, B and C

XX section details

| Code           | Standard stroke length (mm)           |    |             |    |             |                   |             | A           | AA                      | B       | C    | D    | EE         | EA | EC | EG | ED                                   |    |       | F  | G  | H  |
|----------------|---------------------------------------|----|-------------|----|-------------|-------------------|-------------|-------------|-------------------------|---------|------|------|------------|----|----|----|--------------------------------------|----|-------|----|----|----|
| Bore size (mm) |                                       |    |             |    |             |                   |             | 53          | 72                      | 40      | 12   | 8    | M5         | 30 | 31 | 33 | 14.0+ <div>Stroke length<br/>2</div> |    |       | 38 | 83 | 36 |
|                | 50, 75, 100, 125, 150, 175, 200, 225, |    |             |    |             |                   |             | 54          | 72                      | 41      | 12   | 9    | M5         | 32 | 35 | 37 | 14.5+ <div>Stroke length<br/>2</div> |    |       | 42 | 86 | 38 |
| Code           | HH                                    |    | I           | JJ | K           | KA                |             | KC          |                         | MM      | N    | NN   |            | O  | P  | PP | Q                                    |    | R     |    |    |    |
| Bore size (mm) |                                       |    |             |    |             |                   |             |             |                         |         |      |      |            |    |    |    | STL-M                                |    | STL-B |    |    |    |
|                | φ20                                   |    | M6 depth 12 | 81 | M6 depth 12 | 59                | 5.2 through |             | 9.5 spot face depth 5.4 |         | 10   | 24   | M6 through |    | 19 | 20 | 6                                    | 14 | 12    | 13 |    |    |
|                | φ25                                   |    | M6 depth 12 | 84 | M6 depth 12 | 63                | 5.2 through |             | 9.5 spot face depth 5.4 |         | 12   | 26   | M6 through |    | 18 | 20 | 6                                    | 14 | 12    | 14 |    |    |
| Code           | S                                     | U  | V           | W  | X           | Y                 | YY          | T0/T5/T2/T3 |                         | T2W/T3W |      |      |            |    |    |    |                                      |    |       |    |    |    |
| Bore size (mm) |                                       |    |             |    |             |                   |             | RD          | HD                      | RD      | HD   |      |            |    |    |    |                                      |    |       |    |    |    |
|                | φ20                                   | 24 | 69          | 20 | 31          | 13 <sub>0.2</sub> | 9           | 25          | 12                      | 9.5     | 12.5 | 12.5 |            |    |    |    |                                      |    |       |    |    |    |
|                | φ25                                   | 26 | 72          | 24 | 35          | 13 <sub>0.2</sub> | 9           | 27          | 13                      | 9       | 14.5 | 11   |            |    |    |    |                                      |    |       |    |    |    |

\*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

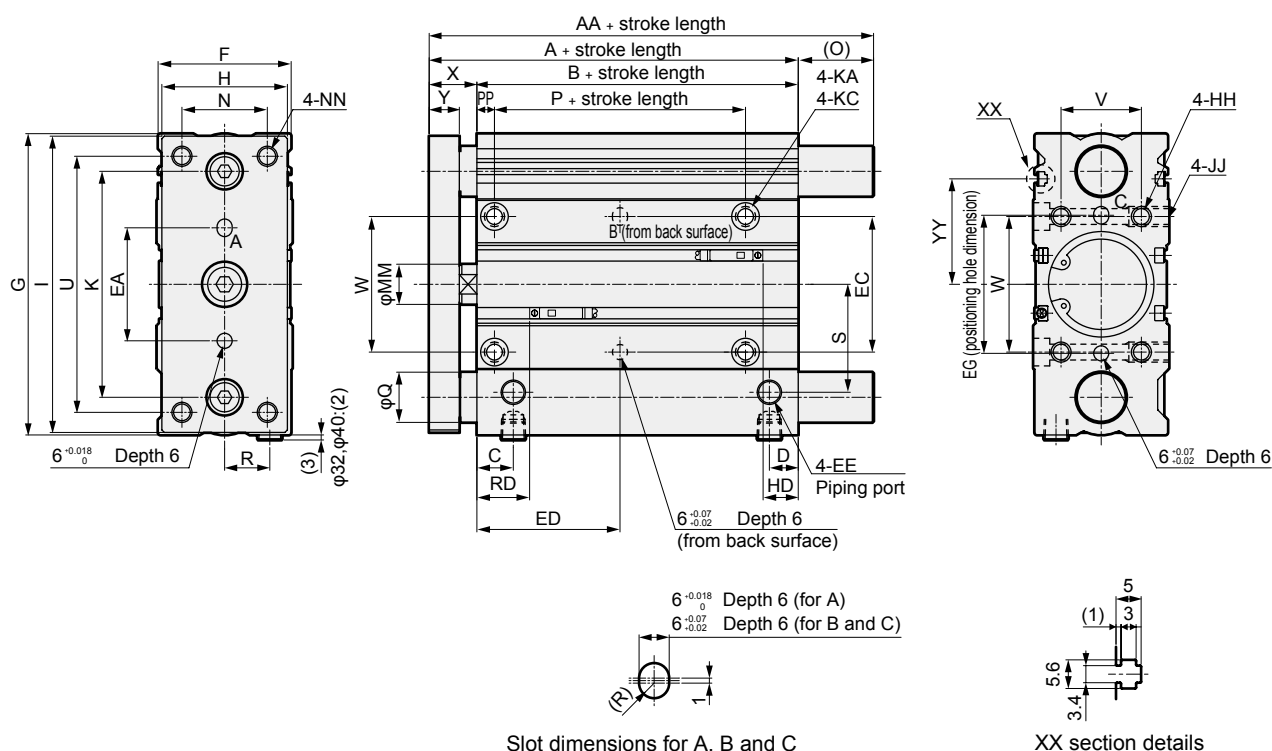
\*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STB/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

Dimensions:  $\phi 32/\phi 40/\phi 50/\phi 63$



- Standard single rod STL-M
- Corrosion proof STL-M-M/M1



| Code           | Standard stroke length (mm)                                                   |              |     |             |                        | A       | AA   | B           | C    | D    | EE    | EA    | EC    | EG | ED    |                                | F  | G   | H  | HH           |  |
|----------------|-------------------------------------------------------------------------------|--------------|-----|-------------|------------------------|---------|------|-------------|------|------|-------|-------|-------|----|-------|--------------------------------|----|-----|----|--------------|--|
| Bore size (mm) | 50, 75, 100, 125, 150,<br>175, 200, 225, 250, 275,<br>300, 325, 350, 375, 400 |              |     |             |                        | 68      | 102  | 49          | 14   | 10.5 | Rc1/8 | 42    | 45    | 46 | 17.5+ | <div>Stroke length<br/>2</div> | 47 | 111 | 45 | M8 depth 16  |  |
| φ32            |                                                                               |              |     |             |                        | 72      | 102  | 53          | 14.5 | 12   | Rc1/8 | 45    | 54    | 55 | 19.5+ | <div>Stroke length<br/>2</div> | 54 | 120 | 50 | M8 depth 16  |  |
| φ40            |                                                                               |              |     |             |                        | 77      | 125  | 55          | 16   | 12.5 | Rc1/4 | 55    | 66    | 69 | 19.5+ | <div>Stroke length<br/>2</div> | 66 | 147 | 64 | M10 depth 20 |  |
| φ50            |                                                                               |              |     |             |                        | 83      | 125  | 61          | 17.5 | 17.5 | Rc1/4 | 62    | 79    | 82 | 22.5+ | <div>Stroke length<br/>2</div> | 79 | 162 | 75 | M10 depth 20 |  |
| φ63            |                                                                               |              |     |             |                        |         |      |             |      |      |       |       |       |    |       |                                |    |     |    |              |  |
| Code           | I                                                                             | JJ           | K   | KA          | KC                     | MM      | N    | NN          | O    | P    | PP    | Q     |       | R  | S     | U                              | V  | W   |    |              |  |
| Bore size (mm) |                                                                               |              |     |             |                        |         |      |             |      |      |       | STL-M | STL-B |    |       |                                |    |     |    |              |  |
| φ32            | 109                                                                           | M8 depth 16  | 81  | 6.3 through | 11 spot face depth 6.5 | 16      | 29   | M8 through  | 34   | 22   | 7     | 20    | 16    | 16 | 39    | 93                             | 25 | 45  |    |              |  |
| φ40            | 118                                                                           | M8 depth 16  | 90  | 6.3 through | 11 spot face depth 6.5 | 16      | 34   | M8 through  | 30   | 25   | 7     | 20    | 16    | 18 | 43    | 102                            | 32 | 54  |    |              |  |
| φ50            | 145                                                                           | M10 depth 20 | 110 | 8.6 through | 14 spot face depth 8.6 | 20      | 44   | M10 through | 48   | 26   | 8     | 25    | 20    | 22 | 49    | 125                            | 38 | 66  |    |              |  |
| φ63            | 160                                                                           | M10 depth 20 | 124 | 8.6 through | 14 spot face depth 8.6 | 20      | 55   | M10 through | 42   | 26   | 8     | 25    | 20    | 26 | 56    | 140                            | 50 | 79  |    |              |  |
| Code           | X                                                                             | Y            | YY  | T0/T5/T2/T3 |                        | T2W/T3W |      |             |      |      |       |       |       |    |       |                                |    |     |    |              |  |
| Bore size (mm) |                                                                               |              |     | RD          | HD                     | RD      | HD   |             |      |      |       |       |       |    |       |                                |    |     |    |              |  |
| φ32            | 19 <sup>0</sup> / <sub>2</sub>                                                | 12           | 39  | 17.5        | 13.5                   | 19      | 15   |             |      |      |       |       |       |    |       |                                |    |     |    |              |  |
| φ40            | 19 <sup>0</sup> / <sub>2</sub>                                                | 12           | 42  | 21          | 14                     | 22.5    | 16   |             |      |      |       |       |       |    |       |                                |    |     |    |              |  |
| φ50            | 22 <sup>0</sup> / <sub>2</sub>                                                | 16           | 45  | 22          | 16                     | 23.5    | 16.5 |             |      |      |       |       |       |    |       |                                |    |     |    |              |  |
| φ63            | 22 <sup>0</sup> / <sub>2</sub>                                                | 16           | 52  | 20          | 23                     | 21.5    | 24.5 |             |      |      |       |       |       |    |       |                                |    |     |    |              |  |

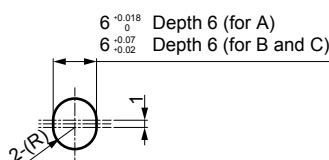
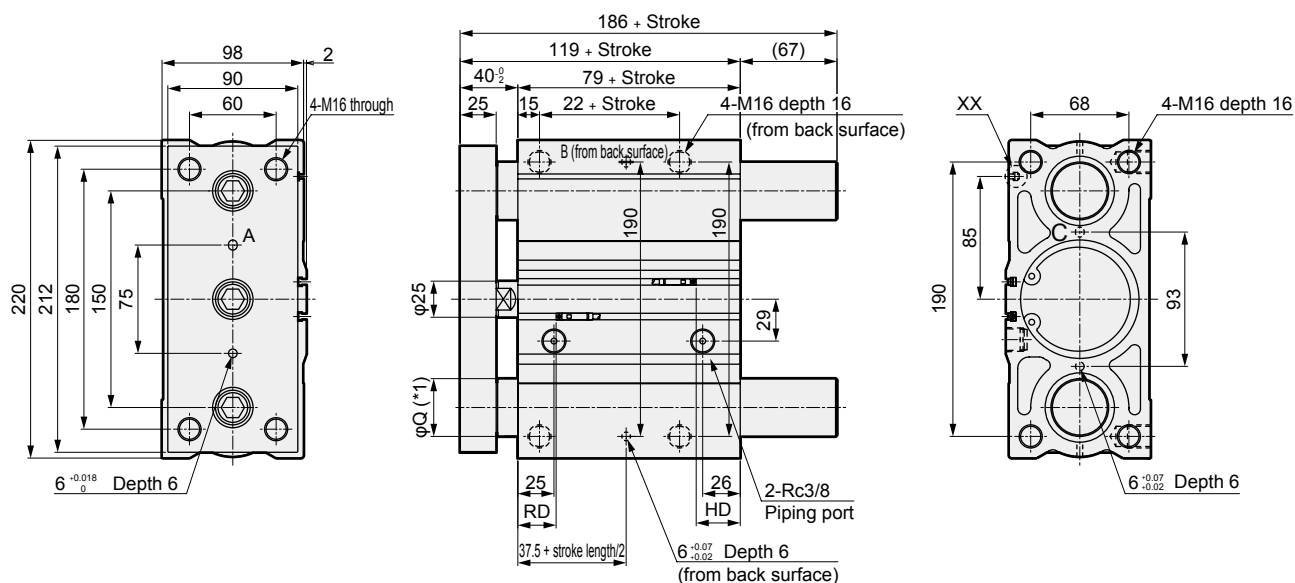
\*1 : All dimensions not shown are the same as those of the standard. When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

\*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

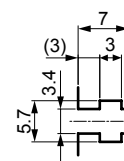
Dimensions:  $\phi 80$



- Standard single rod STL-B<sup>M</sup>
- Corrosion proof STL-B<sup>M</sup>-M/M1



Slot dimensions for A, B and C



XX section details

| Code           | T0/T5/T2/T3 |      | T2W/T3W |      |
|----------------|-------------|------|---------|------|
| Bore size (mm) | RD          | HD   | RD      | HD   |
| $\phi 80$      | 26.5        | 30.5 | 28      | 35.5 |

\*1 :  $\phi 40$  for M (metal bush bearing) and  $\phi 35$  for B (ball bearing).

\*2 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length. The standard stroke length of  $\phi 80$  can be selected from 75 to 400 mm in 25 mm increments.

\*3 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

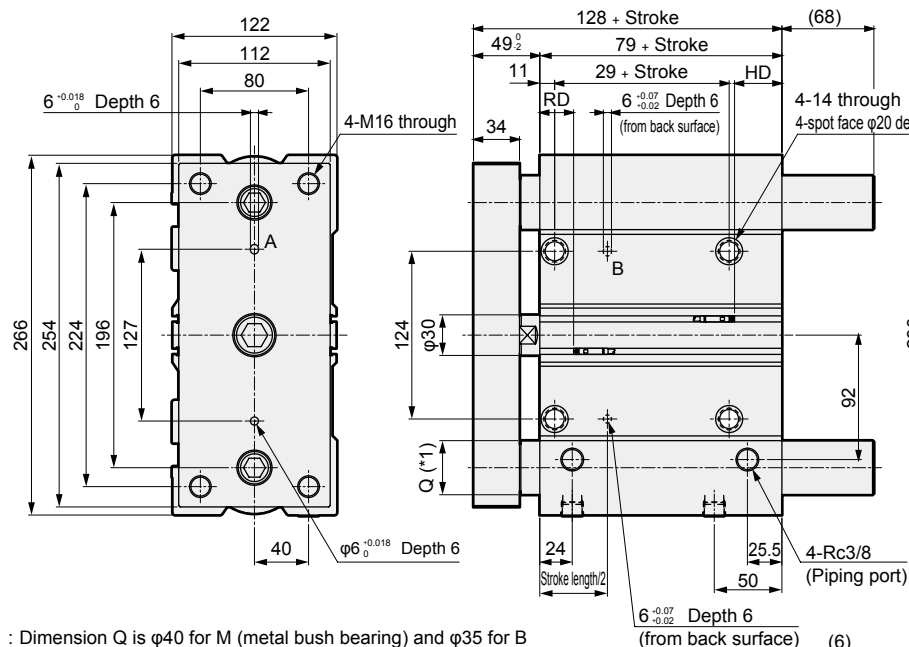
|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |



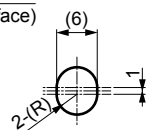
Dimensions:  $\phi 100$

- Standard single rod STL-B
- Corrosion proof STL-B-M/M1
- Copper and PTFE free STL-B P6

[100 or less stroke length]



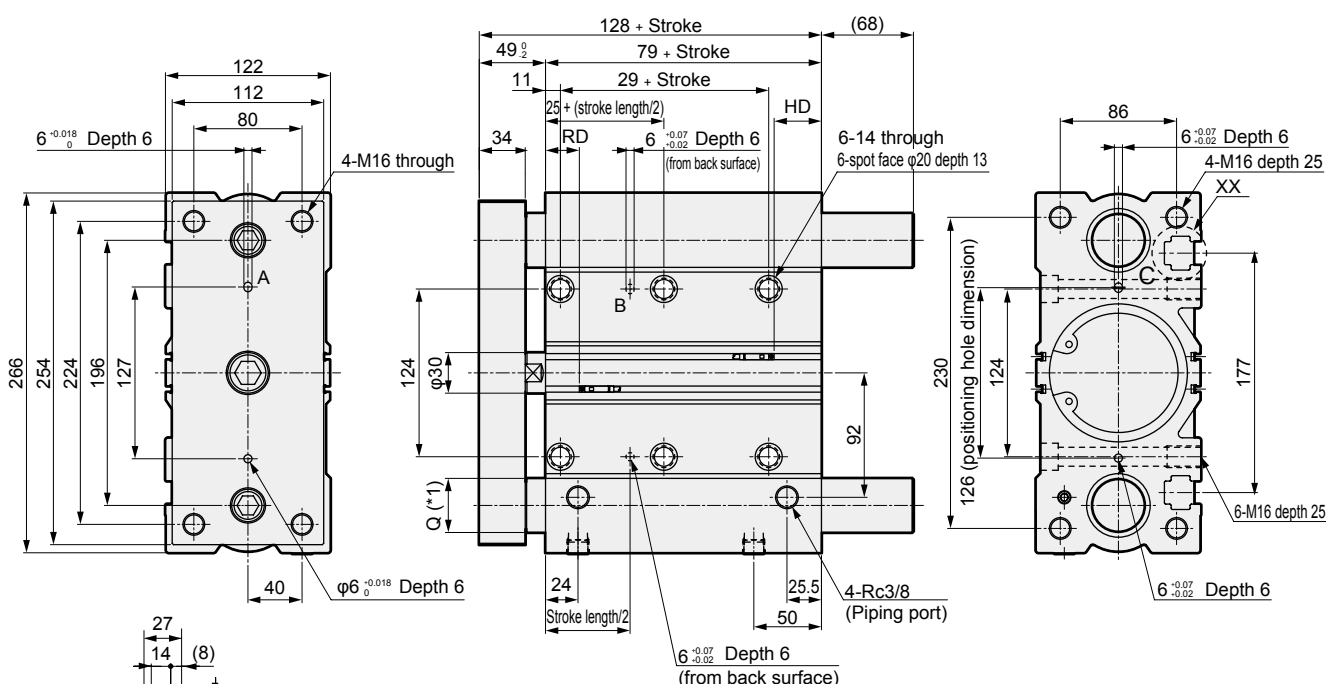
- \*1 : Dimension Q is  $\phi 40$  for M (metal bush bearing) and  $\phi 35$  for B (ball bearing).  
 \*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.



Slot dimensions for A, B and C

| Code           | T0/T5/T2/T3 |    | T2W/T3W |    |
|----------------|-------------|----|---------|----|
| Bore size (mm) | RD          | HD | RD      | HD |
| φ100           | 25          | 35 | 27      | 37 |

[125 and over stroke length]



XX section details

- \*1 : Dimension Q is  $\phi 40$  for M (metal bush bearing) and  $\phi 35$  for B (ball bearing).

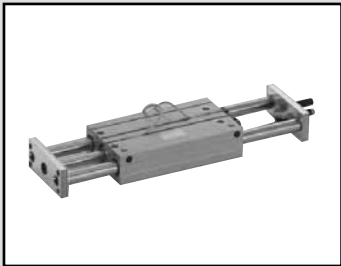
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# MEMO

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|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MedHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending



Guided cylinder Double acting/stroke adjustable

# STS/STL-M<sub>B</sub>P Series

- Bore size:  $\varnothing 8/\varnothing 12/\varnothing 16/\varnothing 20/\varnothing 25/\varnothing 32$   
 $\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80$

JIS symbol 



## Specifications

| Descriptions              |      | STS-MP/BP   STL-MP/BP                                                        |       |       |       |       |                         |       |       |           |       |
|---------------------------|------|------------------------------------------------------------------------------|-------|-------|-------|-------|-------------------------|-------|-------|-----------|-------|
| Bore size                 | mm   | φ8                                                                           | φ12   | φ16   | φ20   | φ25   | φ32                     | φ40   | φ50   | φ63       | φ80   |
| Actuation                 |      | Double acting/stroke adjustable                                              |       |       |       |       |                         |       |       |           |       |
| Working fluid             |      | Compressed air                                                               |       |       |       |       |                         |       |       |           |       |
| Max. working pressure     | MPa  | 1.0 (≈150 psi, 10 bar)                                                       |       |       |       |       |                         |       |       |           |       |
| Min. working pressure     | MPa  | 0.2 (≈29 psi, 2 bar)                                                         |       |       |       |       | 0.15 (≈22 psi, 1.5 bar) |       |       |           |       |
| Proof pressure            | MPa  | 1.6 (≈230 psi, 16 bar)                                                       |       |       |       |       |                         |       |       |           |       |
| Ambient temperature       | °C   | -10 (14°F) to 60 (140°F) (no freezing)                                       |       |       |       |       |                         |       |       |           |       |
| Port size                 |      | M5                                                                           |       |       |       |       | Rc1/8                   |       | Rc1/4 |           | Rc3/8 |
| Stroke tolerance          | mm   | +2.0                                                                         |       |       |       |       |                         |       |       |           |       |
|                           |      | 0                                                                            |       |       |       |       |                         |       |       |           |       |
| Working piston speed      | mm/s | 50 to 500                                                                    |       |       |       |       |                         |       |       | 50 to 300 |       |
| Cushion                   |      | With rubber cushion, with shock absorber for push                            |       |       |       |       |                         |       |       |           |       |
| Adjustable stroke range   | mm   | 25                                                                           |       |       |       |       |                         |       |       |           |       |
| Lubrication               |      | Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication) |       |       |       |       |                         |       |       |           |       |
| Allowable absorbed energy | J    | 0.029                                                                        | 0.056 | 0.088 | 0.157 | 0.157 | 0.401                   | 0.627 | 0.980 | 1.560     | 2.510 |

## Stroke length

- Short stroke STS

| Bore size | Standard stroke length (mm) | Max. stroke length (mm) | Min. stroke length (mm) | Min. stroke with switch (mm) |
|-----------|-----------------------------|-------------------------|-------------------------|------------------------------|
| φ8        | 10,20,30,40,50              | 50                      | 10                      | 10                           |
| φ12       |                             |                         |                         |                              |
| φ16       |                             |                         |                         |                              |
| φ20       | 25,50                       |                         | 25                      | With one or two switches     |
| φ25       |                             |                         |                         |                              |
| φ32       |                             |                         |                         |                              |
| φ40       |                             |                         |                         |                              |
| φ50       |                             |                         |                         |                              |
| φ63       |                             |                         |                         |                              |
| φ80       | 25,50,75,100                | 100                     |                         |                              |

- Long stroke length STL

| Bore size | Standard stroke length (mm)                                        | Max. stroke length (mm) | Min. stroke length (mm)            | Min. stroke with switch (mm)       |
|-----------|--------------------------------------------------------------------|-------------------------|------------------------------------|------------------------------------|
| φ8        | 50,75,100,125,150<br>175,200                                       | 200                     | 50                                 | 50<br><br>With one or two switches |
| φ12       |                                                                    |                         |                                    |                                    |
| φ16       |                                                                    |                         |                                    |                                    |
| φ20       | 50,75,100,125,150<br>175,200,225,250<br>275,300,325,350<br>375,400 | 400                     |                                    |                                    |
| φ25       |                                                                    |                         |                                    |                                    |
| φ32       |                                                                    |                         |                                    |                                    |
| φ40       |                                                                    |                         |                                    |                                    |
| φ50       |                                                                    |                         |                                    |                                    |
| φ63       |                                                                    |                         |                                    |                                    |
| φ80       | 75,100,125,150,175<br>200,225,250,275,300<br>325,350,375,400       |                         | 75<br><br>With one or two switches |                                    |

### Switch specifications

● 1-color/2-color display/for AC magnetic field proof

| Descriptions    | Proximity 2-wire                                           | Proximity 2-wire                      |                                   |                                   | Proximity 3-wire                   |                                |                                   |                                   | Reed 2-wire                        |                                                                                       |                       |                                    |            |                              |                                   | Proximity 2-wire |
|-----------------|------------------------------------------------------------|---------------------------------------|-----------------------------------|-----------------------------------|------------------------------------|--------------------------------|-----------------------------------|-----------------------------------|------------------------------------|---------------------------------------------------------------------------------------|-----------------------|------------------------------------|------------|------------------------------|-----------------------------------|------------------|
|                 | T1H/<br>T1V                                                | T2H/T2V/<br>T2JH/T2JV                 | T2YH/<br>T2YV                     | T2WH/<br>T2WV                     | T3H/<br>T3V                        | T3PH/T3PV<br>(custom)          | T3YH/<br>T3YV                     | T3WH/<br>T3WV                     | T0H/T0V                            | T5H/T5V                                                                               |                       | T8H/T8V                            |            |                              | T2YD                              |                  |
| Applications    | For programmable controller, relay, compact solenoid valve | Dedicated for programmable controller |                                   |                                   | For programmable controller, relay |                                |                                   |                                   | For programmable controller, relay | For programmable controller, relay, IC circuit (no indicator lamp), serial connection |                       | For programmable controller, relay |            |                              | For programmable controller       |                  |
| Output method   | -                                                          |                                       |                                   |                                   | NPN output                         | PNP output                     | NPN output                        | NPN output                        | -                                  |                                                                                       |                       |                                    |            |                              |                                   |                  |
| Pwr. supp. V.   | -                                                          |                                       |                                   |                                   | 10 to 28 VDC                       |                                |                                   |                                   | -                                  |                                                                                       |                       |                                    |            |                              |                                   |                  |
| Load voltage    | 85 to 265 VAC                                              | 10 to 30 VDC                          | 24 VDC ±10%                       | 30 VDC or less                    |                                    |                                |                                   | 12/24 VDC                         | 100/110 VAC                        | 5/12/24 VDC                                                                           | 100/110 VAC           | 12/24 VDC                          | 110 VAC    | 220 VAC                      | 24 VDC ±10%                       |                  |
| Load current    | 5 to 100 mA                                                | 5 to 20 mA (*2)                       |                                   | 100 mA or less                    |                                    | 50 mA or less                  |                                   | 5 to 50 mA                        | 7 to 20 mA                         | ≤50 mA                                                                                | ≤20 mA                | 5 to 50 mA                         | 7 to 20 mA | 7 to 10 mA                   | 5 to 20 mA                        |                  |
| Indicator lamp  | LED<br>(Lit when ON)                                       | LED<br>(Lit when ON)                  | Red/green<br>LED<br>(Lit when ON) | Red/green<br>LED<br>(Lit when ON) | LED<br>(Lit when ON)               | Yellow<br>LED<br>(Lit when ON) | Red/green<br>LED<br>(Lit when ON) | Red/green<br>LED<br>(Lit when ON) | LED<br>(Lit when ON)               | Without indicator lamp                                                                |                       | LED<br>(Lit when ON)               |            |                              | Red/green<br>LED<br>(Lit when ON) |                  |
| Leakage current | ≤1 mA at 100 VAC,<br>≤2 mA at 200 VAC                      | 1 mA or less                          |                                   |                                   | 10 µA or less                      |                                |                                   |                                   | 0 mA                               |                                                                                       |                       |                                    |            |                              |                                   | 1 mA or less     |
| Weight g        | 1 m:33<br>3 m:87<br>5 m:142                                | 1 m:18<br>3 m:49<br>5 m:80            | 1 m:33<br>3 m:87<br>5 m:142       | 1 m:18<br>3 m:49<br>5 m:80        | 1 m:18<br>3 m:49<br>5 m:80         | 1 m:33<br>3 m:87<br>5 m:142    | 1 m:18<br>3 m:49<br>5 m:80        |                                   | 1 m:18 3 m:49 5 m:80               |                                                                                       | 1 m:33 3 m:87 5 m:142 |                                    |            | 1 m:61<br>3 m:166<br>5 m:272 |                                   |                  |

\*1 : Refer to Ending Page 1 for other switch specifications.

\*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

\*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

\*4 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

\*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

### Theoretical thrust table

(Unit: N)

| Bore size<br>(mm) | Operating<br>direction | Working pressure MPa   |                        |                        |                        |                        |                        |                        |                        |                        |                        |                        |
|-------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|                   |                        | 0.1                    | 0.15                   | 0.2                    | 0.3                    | 0.4                    | 0.5                    | 0.6                    | 0.7                    | 0.8                    | 0.9                    | 1.0                    |
| φ8                | Push                   | -                      | -                      | 10.1                   | 15.1                   | 20.1                   | 25.1                   | 30.2                   | 35.2                   | 40.2                   | 45.2                   | 50.3                   |
|                   | Pull                   | -                      | -                      | 7.54                   | 11.3                   | 15.1                   | 18.8                   | 22.6                   | 26.4                   | 30.2                   | 33.9                   | 37.7                   |
| φ12               | Push                   | -                      | -                      | 22.6                   | 33.9                   | 45.2                   | 56.5                   | 67.9                   | 79.2                   | 90.5                   | 1.02 × 10 <sup>2</sup> | 1.13 × 10 <sup>2</sup> |
|                   | Pull                   | -                      | -                      | 17.0                   | 25.4                   | 33.9                   | 42.4                   | 50.9                   | 59.4                   | 67.9                   | 76.3                   | 84.8                   |
| φ16               | Push                   | -                      | -                      | 40.2                   | 60.3                   | 80.4                   | 1.01 × 10 <sup>2</sup> | 1.21 × 10 <sup>2</sup> | 1.41 × 10 <sup>2</sup> | 1.61 × 10 <sup>2</sup> | 1.81 × 10 <sup>2</sup> | 2.01 × 10 <sup>2</sup> |
|                   | Pull                   | -                      | -                      | 30.2                   | 45.2                   | 60.3                   | 75.4                   | 90.5                   | 1.06 × 10 <sup>2</sup> | 1.21 × 10 <sup>2</sup> | 1.36 × 10 <sup>2</sup> | 1.51 × 10 <sup>2</sup> |
| φ20               | Push                   | -                      | -                      | 62.8                   | 94.2                   | 1.26 × 10 <sup>2</sup> | 1.57 × 10 <sup>2</sup> | 1.88 × 10 <sup>2</sup> | 2.20 × 10 <sup>2</sup> | 2.51 × 10 <sup>2</sup> | 2.83 × 10 <sup>2</sup> | 3.14 × 10 <sup>2</sup> |
|                   | Pull                   | -                      | -                      | 47.1                   | 70.7                   | 94.2                   | 1.18 × 10 <sup>2</sup> | 1.41 × 10 <sup>2</sup> | 1.65 × 10 <sup>2</sup> | 1.88 × 10 <sup>2</sup> | 2.12 × 10 <sup>2</sup> | 2.36 × 10 <sup>2</sup> |
| φ25               | Push                   | -                      | -                      | 98.2                   | 1.47 × 10 <sup>2</sup> | 1.96 × 10 <sup>2</sup> | 2.45 × 10 <sup>2</sup> | 2.95 × 10 <sup>2</sup> | 3.44 × 10 <sup>2</sup> | 3.93 × 10 <sup>2</sup> | 4.42 × 10 <sup>2</sup> | 4.91 × 10 <sup>2</sup> |
|                   | Pull                   | -                      | -                      | 75.6                   | 1.13 × 10 <sup>2</sup> | 1.51 × 10 <sup>2</sup> | 1.89 × 10 <sup>2</sup> | 2.27 × 10 <sup>2</sup> | 2.64 × 10 <sup>2</sup> | 3.02 × 10 <sup>2</sup> | 3.40 × 10 <sup>2</sup> | 3.78 × 10 <sup>2</sup> |
| φ32               | Push                   | 80.4                   | 1.21 × 10 <sup>2</sup> | 1.61 × 10 <sup>2</sup> | 2.41 × 10 <sup>2</sup> | 3.22 × 10 <sup>2</sup> | 4.02 × 10 <sup>2</sup> | 4.83 × 10 <sup>2</sup> | 5.63 × 10 <sup>2</sup> | 6.43 × 10 <sup>2</sup> | 7.24 × 10 <sup>2</sup> | 8.04 × 10 <sup>2</sup> |
|                   | Pull                   | 60.3                   | 90.5                   | 1.21 × 10 <sup>2</sup> | 1.81 × 10 <sup>2</sup> | 2.41 × 10 <sup>2</sup> | 3.02 × 10 <sup>2</sup> | 3.62 × 10 <sup>2</sup> | 4.22 × 10 <sup>2</sup> | 4.83 × 10 <sup>2</sup> | 5.43 × 10 <sup>2</sup> | 6.03 × 10 <sup>2</sup> |
| φ40               | Push                   | 1.26 × 10 <sup>2</sup> | 1.88 × 10 <sup>2</sup> | 2.51 × 10 <sup>2</sup> | 3.77 × 10 <sup>2</sup> | 5.03 × 10 <sup>2</sup> | 6.28 × 10 <sup>2</sup> | 7.54 × 10 <sup>2</sup> | 8.80 × 10 <sup>2</sup> | 1.01 × 10 <sup>3</sup> | 1.13 × 10 <sup>3</sup> | 1.26 × 10 <sup>3</sup> |
|                   | Pull                   | 1.06 × 10 <sup>2</sup> | 1.58 × 10 <sup>2</sup> | 2.11 × 10 <sup>2</sup> | 3.17 × 10 <sup>2</sup> | 4.22 × 10 <sup>2</sup> | 5.28 × 10 <sup>2</sup> | 6.33 × 10 <sup>2</sup> | 7.39 × 10 <sup>2</sup> | 8.44 × 10 <sup>2</sup> | 9.50 × 10 <sup>2</sup> | 1.06 × 10 <sup>3</sup> |
| φ50               | Push                   | 1.96 × 10 <sup>2</sup> | 2.95 × 10 <sup>2</sup> | 3.93 × 10 <sup>2</sup> | 5.89 × 10 <sup>2</sup> | 7.85 × 10 <sup>2</sup> | 9.82 × 10 <sup>2</sup> | 1.18 × 10 <sup>3</sup> | 1.37 × 10 <sup>3</sup> | 1.57 × 10 <sup>3</sup> | 1.77 × 10 <sup>3</sup> | 1.96 × 10 <sup>3</sup> |
|                   | Pull                   | 1.65 × 10 <sup>2</sup> | 2.47 × 10 <sup>2</sup> | 3.30 × 10 <sup>2</sup> | 4.95 × 10 <sup>2</sup> | 6.60 × 10 <sup>2</sup> | 8.25 × 10 <sup>2</sup> | 9.90 × 10 <sup>2</sup> | 1.15 × 10 <sup>3</sup> | 1.32 × 10 <sup>3</sup> | 1.48 × 10 <sup>3</sup> | 1.65 × 10 <sup>3</sup> |
| φ63               | Push                   | 3.12 × 10 <sup>2</sup> | 4.68 × 10 <sup>2</sup> | 6.23 × 10 <sup>2</sup> | 9.35 × 10 <sup>2</sup> | 1.25 × 10 <sup>3</sup> | 1.56 × 10 <sup>3</sup> | 1.87 × 10 <sup>3</sup> | 2.18 × 10 <sup>3</sup> | 2.49 × 10 <sup>3</sup> | 2.81 × 10 <sup>3</sup> | 3.12 × 10 <sup>3</sup> |
|                   | Pull                   | 2.80 × 10 <sup>2</sup> | 4.20 × 10 <sup>2</sup> | 5.61 × 10 <sup>2</sup> | 8.41 × 10 <sup>2</sup> | 1.12 × 10 <sup>3</sup> | 1.40 × 10 <sup>3</sup> | 1.68 × 10 <sup>3</sup> | 1.96 × 10 <sup>3</sup> | 2.24 × 10 <sup>3</sup> | 2.52 × 10 <sup>3</sup> | 2.80 × 10 <sup>3</sup> |
| φ80               | Push                   | 5.03 × 10 <sup>2</sup> | 7.54 × 10 <sup>2</sup> | 1.01 × 10 <sup>3</sup> | 1.51 × 10 <sup>3</sup> | 2.01 × 10 <sup>3</sup> | 2.51 × 10 <sup>3</sup> | 3.02 × 10 <sup>3</sup> | 3.52 × 10 <sup>3</sup> | 4.02 × 10 <sup>3</sup> | 4.52 × 10 <sup>3</sup> | 5.03 × 10 <sup>3</sup> |
|                   | Pull                   | 4.54 × 10 <sup>2</sup> | 6.80 × 10 <sup>2</sup> | 9.07 × 10 <sup>2</sup> | 1.36 × 10 <sup>3</sup> | 1.81 × 10 <sup>3</sup> | 2.27 × 10 <sup>3</sup> | 2.72 × 10 <sup>3</sup> | 3.17 × 10 <sup>3</sup> | 3.63 × 10 <sup>3</sup> | 4.08 × 10 <sup>3</sup> | 4.54 × 10 <sup>3</sup> |

For cylinder weight, refer to pages 554 to 557.

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MechHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

# STS/STL-MP Series

## How to order

### ● Short stroke

Without switch (built-in magnet for switch)

**STS** - **M** **P** - **8** - **10** - **F**

With switch (built-in magnet for switch)

**STS** - **M** **P** - **8** - **10** - **T2H** - **R** - **F**

### ● Long stroke length

Without switch (built-in magnet for switch)

**STL** - **M** **P** - **8** - **50** - **F**

With switch (built-in magnet for switch)

**STL** - **M** **P** - **8** - **50** - **T2H** - **R** - **F**

Model No.

**A** Bearing

**B** Bore size

**C** Port thread

**D** Stroke length

**E** Switch model No.  
\*1 \*3 \*4

For the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches for  $\phi 40$  and over, insert "L1" with "-" between **A** and **B**.  
(Example) STS-MP-L1-63-50-T2YH3-D-F

For  $\phi 80$ , the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches cannot be retrofitted on a previously purchased standard product. In this case, order the model No. with "L1" inserted between **A** and **B**.  
(Example) STS-MP-L1-80-50-F

**F** Switch quantity

**G** Option

## ⚠ Precautions for model No. selection

- \*1 : Switches other than **E** Switch model No. are also available. (Custom order product)  
Refer to Ending Page 1 for details.
- \*2 : Refer to pages 440 to 443 for combinations of variations/options.
- \*3 : T8H/V switch cannot be installed on  $\phi 8$  to  $\phi 16$ .
- \*4 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

**STS-MP-8-30-T0H-R-F**

Model: Guided cylinder, short stroke length, standard/stroke adjustable

- A** Bearing : Metal bush bearing
- B** Bore size :  $\phi 8$  mm
- C** Port thread : Rc thread
- D** Stroke length : 30 mm
- E** Switch model No. : Reed T0H, lead wire length 1 m
- F** Switch quantity : 1 on rod side
- G** Option : End plate material: steel

| Code             | Content            |
|------------------|--------------------|
| <b>A Bearing</b> |                    |
| <b>M</b>         | Metal bush bearing |
| <b>B</b>         | Ball bearing       |

|                         |           |
|-------------------------|-----------|
| <b>B Bore size (mm)</b> |           |
| <b>8</b>                | $\phi 8$  |
| <b>12</b>               | $\phi 12$ |
| <b>16</b>               | $\phi 16$ |
| <b>20</b>               | $\phi 20$ |
| <b>25</b>               | $\phi 25$ |
| <b>32</b>               | $\phi 32$ |
| <b>40</b>               | $\phi 40$ |
| <b>50</b>               | $\phi 50$ |
| <b>63</b>               | $\phi 63$ |
| <b>80</b>               | $\phi 80$ |

|                      |                                                       |
|----------------------|-------------------------------------------------------|
| <b>C Port thread</b> |                                                       |
| <b>Blank</b>         | Rc thread                                             |
| <b>NN</b>            | NPT thread ( $\phi 32$ and over) custom order product |
| <b>GN</b>            | G thread ( $\phi 32$ and over) custom order product   |

|                                                         |  |
|---------------------------------------------------------|--|
| <b>D Stroke length (mm)</b>                             |  |
| Refer to the stroke length table on the following page. |  |

| <b>E Switch model No.</b> |                  |         |    |           |                                       |           |
|---------------------------|------------------|---------|----|-----------|---------------------------------------|-----------|
| Axial lead wire           | Radial lead wire | Voltage |    | Contact   | Indicator                             | Lead wire |
|                           |                  | AC      | DC |           |                                       |           |
| <b>T0H*</b>               | <b>T0V*</b>      | ●       | ●  | Reed      | 1-color display                       | 2-wire    |
| <b>T5H*</b>               | <b>T5V*</b>      | ●       | ●  |           | Without indicator lamp                |           |
| <b>T8H*</b>               | <b>T8V*</b>      | ●       | ●  |           | 1-color display                       |           |
| <b>T1H*</b>               | <b>T1V*</b>      | ●       | ●  |           | 1-color display (custom)              | 3-wire    |
| <b>T2H*</b>               | <b>T2V*</b>      |         | ●  | Proximity | 2-color display                       | 2-wire    |
| <b>T3H*</b>               | <b>T3V*</b>      |         | ●  |           | 2-color display                       | 3-wire    |
| <b>T3PH*</b>              | <b>T3PV*</b>     |         | ●  |           | 2-color display                       | 3-wire    |
| <b>T2WH*</b>              | <b>T2WV*</b>     |         | ●  |           | 1-color display off-delay             | 2-wire    |
| <b>T2YH*</b>              | <b>T2YV*</b>     |         | ●  |           | 2-color display for AC magnetic field | 2-wire    |
| <b>T3WH*</b>              | <b>T3WV*</b>     |         | ●  |           |                                       |           |
| <b>T3YH*</b>              | <b>T3YV*</b>     |         | ●  |           |                                       |           |
| <b>T2JH*</b>              | <b>T2JV*</b>     |         | ●  |           |                                       |           |
| <b>T2YD*</b>              | -                |         | ●  |           |                                       |           |
| <b>T2YDT*</b>             | -                |         | ●  |           |                                       |           |

|                           |                |
|---------------------------|----------------|
| <b>* Lead wire length</b> |                |
| <b>Blank</b>              | 1 m (standard) |
| <b>3</b>                  | 3 m (option)   |
| <b>5</b>                  | 5 m (option)   |

|                          |                |
|--------------------------|----------------|
| <b>F Switch quantity</b> |                |
| <b>R</b>                 | 1 on rod side  |
| <b>H</b>                 | 1 on head side |
| <b>D</b>                 | 2              |
| <b>T</b>                 | 3              |

|                 |                           |
|-----------------|---------------------------|
| <b>G Option</b> |                           |
| <b>F</b>        | End plate material: steel |

### D Stroke length

| Series | Stroke length (mm)     | Applicable bore size |     |     |     |     |     |     |     |     |     |
|--------|------------------------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|        |                        | φ8                   | φ12 | φ16 | φ20 | φ25 | φ32 | φ40 | φ50 | φ63 | φ80 |
| STS    | Standard stroke length | 10                   | ●   | ●   | ●   |     |     |     |     |     |     |
|        |                        | 20                   | ●   | ●   | ●   |     |     |     |     |     |     |
|        |                        | 25                   |     |     |     | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 30                   | ●   | ●   | ●   |     |     |     |     |     |     |
|        |                        | 40                   | ●   | ●   | ●   |     |     |     |     |     |     |
|        |                        | 50                   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 75                   |     |     |     |     |     |     |     |     | ●   |
|        |                        | 100                  |     |     |     |     |     |     |     |     | ●   |
|        | Min. stroke length     | 5                    |     |     |     |     |     |     |     |     |     |
| STL    | Standard stroke length | 50                   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 75                   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 100                  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 125                  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 150                  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 175                  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 200                  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 225                  |     |     |     | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 250                  |     |     |     | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 275                  |     |     |     | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 300                  |     |     |     | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 325                  |     |     |     | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 350                  |     |     |     | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 375                  |     |     |     | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 400                  |     |     |     | ●   | ●   | ●   | ●   | ●   | ●   |
|        | Min. stroke length     | 50                   |     |     |     |     |     |     |     |     |     |

Note: Custom stroke length is not available. Adjust the stroke length with the stroke adjustment mechanism.

### How to order switch

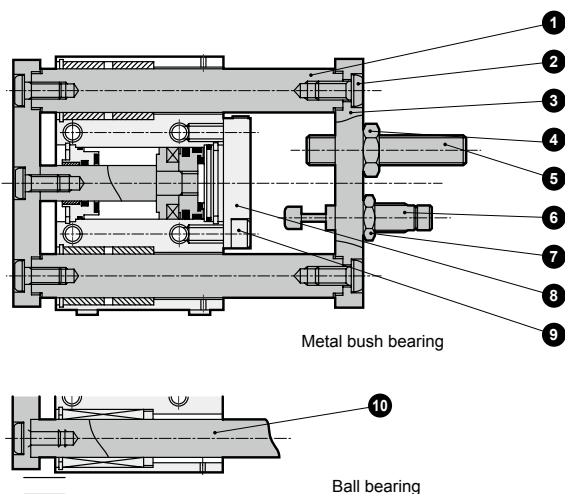
SW - T0V

Switch model No.  
(Item E on the previous page)

### Internal structure and parts list

#### ● Stroke adjustable

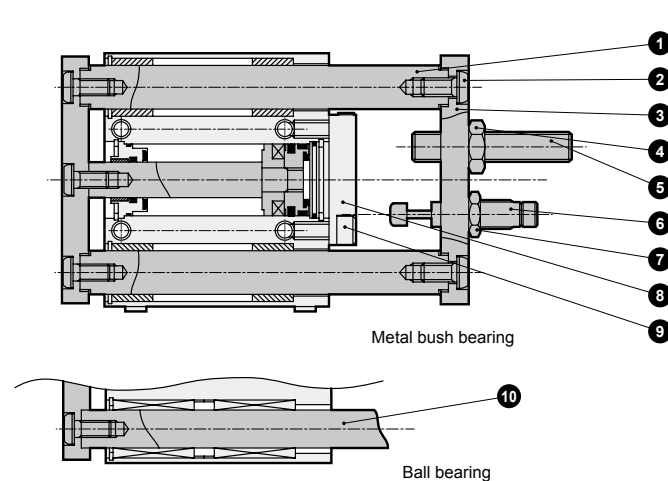
STS-M<sub>B</sub>P



Metal bush bearing

Ball bearing

STL-M<sub>B</sub>P



Metal bush bearing

Ball bearing

### Parts list

(Parts not listed below are the same as those of the standard. Refer to pages 449 to 453.)

| No.                                                      | Part name                       | Material       | Remarks                   |
|----------------------------------------------------------|---------------------------------|----------------|---------------------------|
| <b>ST<sub>L</sub>-M<sub>B</sub>P (Stroke adjustable)</b> |                                 |                |                           |
| 1                                                        | Guide rod                       | Steel          | Industrial chrome plating |
| 2                                                        | Hexagon socket button head bolt | Alloy steel    | Zinc chromate             |
| 3                                                        | End plate (H)                   | Aluminum alloy | Alumite                   |
| 4                                                        | Hexagon nut                     | Steel          | Black finish              |
| 5                                                        | Hexagon socket set screw        | Steel          | Black finish              |
| 6                                                        | Shock absorber                  | -              |                           |
| 7                                                        | Hexagon nut                     | Steel          | Zinc chromate             |
| 8                                                        | Stopper plate                   | Steel          | Zinc chromate             |
| 9                                                        | Hexagon socket head cap screw   | Alloy steel    | Zinc chromate             |
| 10                                                       | Guide rod                       | Alloy steel    | Industrial chrome plating |

### Repair parts list

The repair parts list is common with the double acting/single rod. Refer to page 449 for STS Series and page 452 for STL Series.

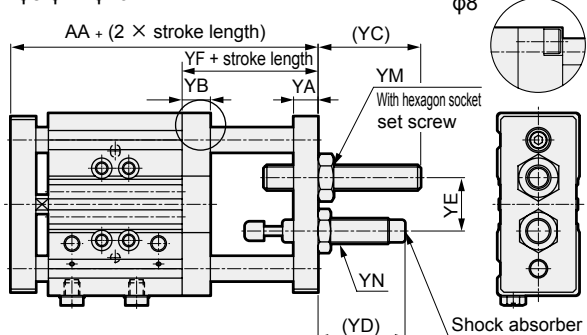
|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |



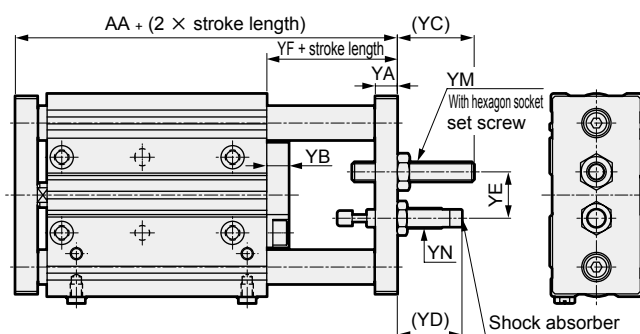
## Dimensions

● Stroke adjustable (Dimensions not listed below are the same as those of the double acting/single rod.)

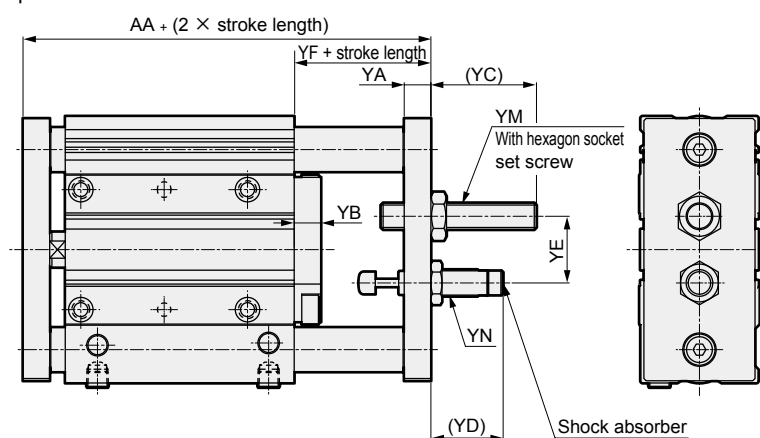
φ8/φ12/φ16



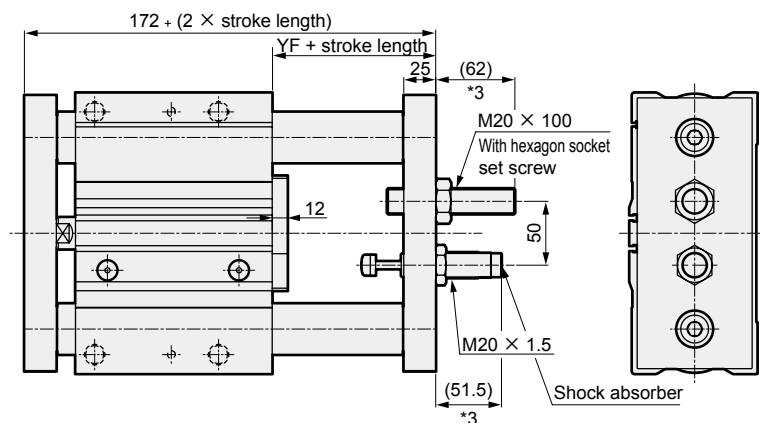
φ20/φ25



φ32/φ40/φ50/φ63



φ80



| Code           | AA    | YA | YB | YC *3 | YD *3 | YE | YF   | YM      | YN      | Shock absorber model No. |
|----------------|-------|----|----|-------|-------|----|------|---------|---------|--------------------------|
| Bore size (mm) |       |    |    |       |       |    |      |         |         |                          |
| φ8             | 67.5  | 8  | 9  | 32.5  | 27.5  | 17 | 27.5 | M8X50   | M8X0.75 | NCK-00-0.3-C             |
| φ12            | 71.5  | 8  | 9  | 32.5  | 27.5  | 17 | 27.5 | M8X50   | M8X0.75 | NCK-00-0.3-C             |
| φ16            | 73.5  | 9  | 9  | 31.5  | 26.5  | 17 | 28.5 | M8X50   | M8X0.75 | NCK-00-0.3-C             |
| φ20            | 81.5  | 9  | 9  | 31.5  | 26.5  | 19 | 28.5 | M8X50   | M8X0.75 | NCK-00-0.3-C             |
| φ25            | 84    | 9  | 9  | 30    | 29    | 19 | 30   | M8X50   | M10X1   | NCK-00-0.7-C             |
| φ32            | 104.5 | 12 | 12 | 47.5  | 32.5  | 30 | 36.5 | M12X70  | M12X1   | NCK-00-1.2-C             |
| φ40            | 108.5 | 12 | 12 | 47.5  | 32.5  | 30 | 36.5 | M12X70  | M12X1   | NCK-00-1.2-C             |
| φ50            | 124   | 16 | 16 | 51    | 52    | 40 | 47   | M16X80  | M14X1.5 | NCK-00-2.6-C             |
| φ63            | 130   | 16 | 16 | 51    | 52    | 40 | 47   | M16X80  | M14X1.5 | NCK-00-2.6-C             |
| φ80            | 172   | 25 | 12 | 62    | 51.5  | 50 | 53   | M20X100 | M20X1.5 | NCK-00-7.0-C             |

\*1 : Custom stroke length is not available.

\*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

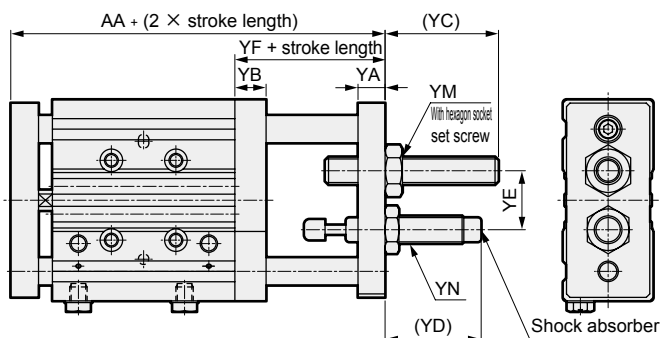
\*3 : YC and YD are dimensions at shipment.

### Dimensions

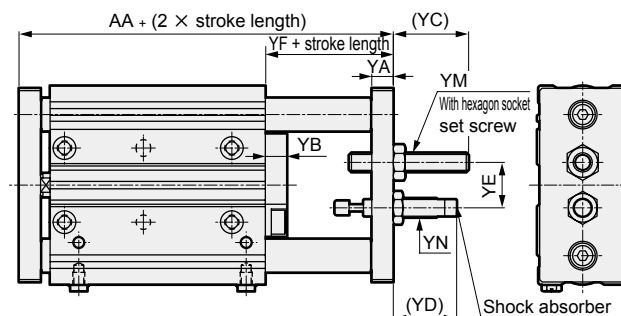


- Stroke adjustable (Dimensions not listed below are the same as those of the double acting/single rod.)

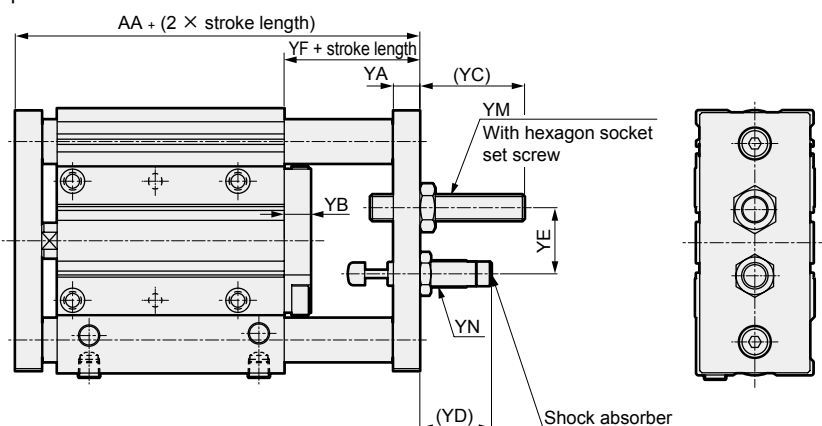
φ8/φ12/φ16



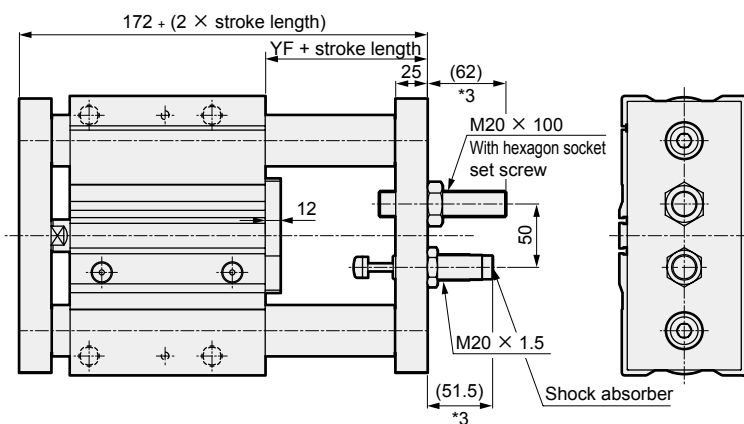
φ20/φ25



φ32/φ40/φ50/φ63



φ80



| Code           | AA    | YA | YB | YC *3 | YD *3 | YE | YF   | YM      | YN      | Shock absorber model No. |
|----------------|-------|----|----|-------|-------|----|------|---------|---------|--------------------------|
| Bore size (mm) |       |    |    |       |       |    |      |         |         |                          |
| φ8             | 67.5  | 8  | 9  | 32.5  | 27.5  | 17 | 27.5 | M8X50   | M8X0.75 | NCK-00-0.3-C             |
| φ12            | 71.5  | 8  | 9  | 32.5  | 27.5  | 17 | 27.5 | M8X50   | M8X0.75 | NCK-00-0.3-C             |
| φ16            | 73.5  | 9  | 9  | 31.5  | 26.5  | 17 | 28.5 | M8X50   | M8X0.75 | NCK-00-0.3-C             |
| φ20            | 81.5  | 9  | 9  | 31.5  | 26.5  | 19 | 28.5 | M8X50   | M8X0.75 | NCK-00-0.3-C             |
| φ25            | 84    | 9  | 9  | 30    | 29    | 19 | 30   | M8X50   | M10X1   | NCK-00-0.7-C             |
| φ32            | 104.5 | 12 | 12 | 47.5  | 32.5  | 30 | 36.5 | M12X70  | M12X1   | NCK-00-1.2-C             |
| φ40            | 108.5 | 12 | 12 | 47.5  | 32.5  | 30 | 36.5 | M12X70  | M12X1   | NCK-00-1.2-C             |
| φ50            | 124   | 16 | 16 | 51    | 52    | 40 | 47   | M16X80  | M14X1.5 | NCK-00-2.6-C             |
| φ63            | 130   | 16 | 16 | 51    | 52    | 40 | 47   | M16X80  | M14X1.5 | NCK-00-2.6-C             |
| φ80            | 172   | 25 | 12 | 62    | 51.5  | 50 | 53   | M20X100 | M20X1.5 | NCK-00-7.0-C             |

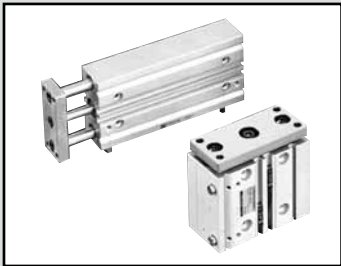
\*1 : Custom stroke length is not available.

\*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

\*3 : YC and YD are dimensions at shipment.

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MecHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending



Guided cylinder Double acting/heat resistant

# STS/STL-MT Series

● Bore size:  $\phi 12/\phi 16/\phi 20/\phi 25/\phi 32/\phi 40$   
 $\phi 50/\phi 63/\phi 80$

JIS symbol



## Specifications

| Descriptions              |      | STS-MT/BT   STL-MT/BT                                               |      |       |       |                         |       |       |           |       |
|---------------------------|------|---------------------------------------------------------------------|------|-------|-------|-------------------------|-------|-------|-----------|-------|
| Bore size                 | mm   | φ12                                                                 | φ16  | φ20   | φ25   | φ32                     | φ40   | φ50   | φ63       | φ80   |
| Actuation                 |      | Double acting/heat resistant                                        |      |       |       |                         |       |       |           |       |
| Working fluid             |      | Compressed air                                                      |      |       |       |                         |       |       |           |       |
| Max. working pressure     | MPa  | 1.0 (≈150 psi, 10 bar)                                              |      |       |       |                         |       |       |           |       |
| Min. working pressure     | MPa  | 0.2 (≈29 psi, 2 bar)                                                |      |       |       | 0.15 (≈22 psi, 1.5 bar) |       |       |           |       |
| Proof pressure            | MPa  | 1.6 (≈230 psi, 16 bar)                                              |      |       |       |                         |       |       |           |       |
| Ambient temperature       | °C   | 5 (41°F) to 120 (248°F)                                             |      |       |       |                         |       |       |           |       |
| Port size                 |      | M5                                                                  |      |       |       | Rc1/8                   |       | Rc1/4 |           | Rc3/8 |
| Stroke tolerance          | mm   | +2.0                                                                |      |       |       |                         |       |       |           |       |
|                           |      | 0                                                                   |      |       |       |                         |       |       |           |       |
| Working piston speed      | mm/s | 50 to 500                                                           |      |       |       |                         |       |       | 50 to 300 |       |
| Cushion                   |      | None                                                                |      |       |       |                         |       |       |           |       |
| Lubrication               |      | Not required (Periodically apply additional heat-resistant grease.) |      |       |       |                         |       |       |           |       |
| Allowable absorbed energy | J    | 0.004                                                               | 0.01 | 0.016 | 0.021 | 0.025                   | 0.092 | 0.1   | 0.12      | 0.27  |

## Stroke length

● Short stroke STS

| Bore size | Standard stroke length (mm) | Max. stroke length (mm) | Min. stroke length (mm) |
|-----------|-----------------------------|-------------------------|-------------------------|
| φ12       | 10,20,30,40,50              | 50                      | 5                       |
| φ16       |                             |                         |                         |
| φ20       | 25,50                       |                         |                         |
| φ25       |                             |                         |                         |
| φ32       |                             |                         |                         |
| φ40       |                             |                         |                         |
| φ50       |                             |                         |                         |
| φ63       |                             |                         |                         |
| φ80       | 25,50,75,100                | 100                     |                         |

● Long stroke length STL

| Bore size | Standard stroke length (mm)                                        | Max. stroke length (mm) | Min. stroke length (mm) |
|-----------|--------------------------------------------------------------------|-------------------------|-------------------------|
| φ12       | 50,75,100,125,150                                                  | 200                     | 50                      |
| φ16       | 175,200                                                            |                         |                         |
| φ20       | 50,75,100,125,150<br>175,200,225,250<br>275,300,325,350<br>375,400 | 400                     | 30                      |
| φ25       |                                                                    |                         |                         |
| φ32       |                                                                    |                         |                         |
| φ40       |                                                                    |                         |                         |
| φ50       |                                                                    |                         |                         |
| φ63       | 75,100,125,150,175<br>200,225,250,275,300<br>325,350,375,400       |                         | 55                      |
| φ80       |                                                                    |                         |                         |

Note: The custom stroke length is available in 5 mm increments.  
However, the total length is the same as that of the next longer standard stroke length.

(Unit: N)

## Theoretical thrust table

| Bore size (mm) | Operating direction | Working pressure MPa |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
|----------------|---------------------|----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                |                     | 0.1                  | 0.15               | 0.2                | 0.3                | 0.4                | 0.5                | 0.6                | 0.7                | 0.8                | 0.9                | 1.0                |
| $\phi 12$      | Push                | -                    | -                  | 22.6               | 33.9               | 45.2               | 56.5               | 67.9               | 79.2               | 90.5               | $1.02 \times 10^2$ | $1.13 \times 10^2$ |
|                | Pull                | -                    | -                  | 17.0               | 25.4               | 33.9               | 42.4               | 50.9               | 59.4               | 67.9               | 76.3               | 84.8               |
| $\phi 16$      | Push                | -                    | -                  | 40.2               | 60.3               | 80.4               | $1.01 \times 10^2$ | $1.21 \times 10^2$ | $1.41 \times 10^2$ | $1.61 \times 10^2$ | $1.81 \times 10^2$ | $2.01 \times 10^2$ |
|                | Pull                | -                    | -                  | 30.2               | 45.2               | 60.3               | 75.4               | 90.5               | $1.06 \times 10^2$ | $1.21 \times 10^2$ | $1.36 \times 10^2$ | $1.51 \times 10^2$ |
| $\phi 20$      | Push                | -                    | -                  | 62.8               | 94.2               | $1.26 \times 10^2$ | $1.57 \times 10^2$ | $1.88 \times 10^2$ | $2.20 \times 10^2$ | $2.51 \times 10^2$ | $2.83 \times 10^2$ | $3.14 \times 10^2$ |
|                | Pull                | -                    | -                  | 47.1               | 70.7               | 94.2               | $1.18 \times 10^2$ | $1.41 \times 10^2$ | $1.65 \times 10^2$ | $1.88 \times 10^2$ | $2.12 \times 10^2$ | $2.36 \times 10^2$ |
| $\phi 25$      | Push                | -                    | -                  | 98.2               | $1.47 \times 10^2$ | $1.96 \times 10^2$ | $2.45 \times 10^2$ | $2.95 \times 10^2$ | $3.44 \times 10^2$ | $3.93 \times 10^2$ | $4.42 \times 10^2$ | $4.91 \times 10^2$ |
|                | Pull                | -                    | -                  | 75.6               | $1.13 \times 10^2$ | $1.51 \times 10^2$ | $1.89 \times 10^2$ | $2.27 \times 10^2$ | $2.64 \times 10^2$ | $3.02 \times 10^2$ | $3.40 \times 10^2$ | $3.78 \times 10^2$ |
| $\phi 32$      | Push                | 80.4                 | $1.21 \times 10^2$ | $1.61 \times 10^2$ | $2.41 \times 10^2$ | $3.22 \times 10^2$ | $4.02 \times 10^2$ | $4.83 \times 10^2$ | $5.63 \times 10^2$ | $6.43 \times 10^2$ | $7.24 \times 10^2$ | $8.04 \times 10^2$ |
|                | Pull                | 60.3                 | 90.5               | $1.21 \times 10^2$ | $1.81 \times 10^2$ | $2.41 \times 10^2$ | $3.02 \times 10^2$ | $3.62 \times 10^2$ | $4.22 \times 10^2$ | $4.83 \times 10^2$ | $5.43 \times 10^2$ | $6.03 \times 10^2$ |
| $\phi 40$      | Push                | $1.26 \times 10^2$   | $1.88 \times 10^2$ | $2.51 \times 10^2$ | $3.77 \times 10^2$ | $5.03 \times 10^2$ | $6.28 \times 10^2$ | $7.54 \times 10^2$ | $8.80 \times 10^2$ | $1.01 \times 10^3$ | $1.13 \times 10^3$ | $1.26 \times 10^3$ |
|                | Pull                | $1.06 \times 10^2$   | $1.58 \times 10^2$ | $2.11 \times 10^2$ | $3.17 \times 10^2$ | $4.22 \times 10^2$ | $5.28 \times 10^2$ | $6.33 \times 10^2$ | $7.39 \times 10^2$ | $8.44 \times 10^2$ | $9.50 \times 10^2$ | $1.06 \times 10^3$ |
| $\phi 50$      | Push                | $1.96 \times 10^2$   | $2.95 \times 10^2$ | $3.93 \times 10^2$ | $5.89 \times 10^2$ | $7.85 \times 10^2$ | $9.82 \times 10^2$ | $1.18 \times 10^3$ | $1.37 \times 10^3$ | $1.57 \times 10^3$ | $1.77 \times 10^3$ | $1.96 \times 10^3$ |
|                | Pull                | $1.65 \times 10^2$   | $2.47 \times 10^2$ | $3.30 \times 10^2$ | $4.95 \times 10^2$ | $6.60 \times 10^2$ | $8.25 \times 10^2$ | $9.90 \times 10^2$ | $1.15 \times 10^3$ | $1.32 \times 10^3$ | $1.48 \times 10^3$ | $1.65 \times 10^3$ |
| $\phi 63$      | Push                | $3.12 \times 10^2$   | $4.68 \times 10^2$ | $6.23 \times 10^2$ | $9.35 \times 10^2$ | $1.25 \times 10^3$ | $1.56 \times 10^3$ | $1.87 \times 10^3$ | $2.18 \times 10^3$ | $2.49 \times 10^3$ | $2.81 \times 10^3$ | $3.12 \times 10^3$ |
|                | Pull                | $2.80 \times 10^2$   | $4.20 \times 10^2$ | $5.61 \times 10^2$ | $8.41 \times 10^2$ | $1.12 \times 10^3$ | $1.40 \times 10^3$ | $1.68 \times 10^3$ | $1.96 \times 10^3$ | $2.24 \times 10^3$ | $2.52 \times 10^3$ | $2.80 \times 10^3$ |
| $\phi 80$      | Push                | $5.03 \times 10^2$   | $7.54 \times 10^2$ | $1.01 \times 10^3$ | $1.51 \times 10^3$ | $2.01 \times 10^3$ | $2.51 \times 10^3$ | $3.02 \times 10^3$ | $3.52 \times 10^3$ | $4.02 \times 10^3$ | $4.52 \times 10^3$ | $5.03 \times 10^3$ |
|                | Pull                | $4.54 \times 10^2$   | $6.80 \times 10^2$ | $9.07 \times 10^2$ | $1.36 \times 10^3$ | $1.81 \times 10^3$ | $2.27 \times 10^3$ | $2.72 \times 10^3$ | $3.17 \times 10^3$ | $3.63 \times 10^3$ | $4.08 \times 10^3$ | $4.54 \times 10^3$ |

For cylinder weight, refer to pages 554 to 557.

## How to order

Short stroke (switch not mountable)

**STS** - **M** T - **12** - **10** - **F**

Long stroke (switch not mountable)

**STL** - **M** T - **12** - **50** - **F**

Model No.

**A** Bearing

**B** Bore size

**C** Port thread

**E** Option

**D** Stroke length

■ The custom stroke length is available in 5mm increments.  
However, the total length is the same as that of the next longer standard stroke length.

## ⚠ Precautions for model No. selection

\*1 : Refer to pages 440 to 443 for combinations of variations/options.

\*2 : Ball bearing (B) only.

[Example of model No.]

### STS-MT-12-30-F

Model: Guided cylinder, short stroke length, standard/heat resistance

- A** Bearing : Metal bush bearing
- B** Bore size : φ12 mm
- C** Port thread : Rc thread
- D** Stroke length : 30 mm
- E** Option : End plate material: steel

### **D** Stroke length

| Series | Stroke length (mm)    | Applicable bore size |     |     |     |     |     |     |     |     |
|--------|-----------------------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|
|        |                       | φ12                  | φ16 | φ20 | φ25 | φ32 | φ40 | φ50 | φ63 | φ80 |
| STS    | 10                    | ●                    | ●   |     |     |     |     |     |     |     |
|        | 20                    | ●                    | ●   |     |     |     |     |     |     |     |
|        | 25                    |                      |     | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        | 30                    | ●                    | ●   |     |     |     |     |     |     |     |
|        | 40                    | ●                    | ●   |     |     |     |     |     |     |     |
|        | 50                    | ●                    | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        | 75                    |                      |     |     |     |     |     |     |     | ●   |
|        | 100                   |                      |     |     |     |     |     |     |     | ●   |
|        | Min. stroke length *1 | 5                    |     |     |     |     |     |     |     |     |
|        | Custom stroke *1, 2   | In 5 mm increments   |     |     |     |     |     |     |     |     |
| STL    | 50                    | ●                    | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        | 75                    | ●                    | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        | 100                   | ●                    | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        | 125                   | ●                    | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        | 150                   | ●                    | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        | 175                   | ●                    | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        | 200                   | ●                    | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        | 225                   |                      |     | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        | 250                   |                      |     | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        | 275                   |                      |     | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        | 300                   |                      |     | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        | 325                   |                      |     | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        | 350                   |                      |     | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        | 375                   |                      |     | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        | 400                   |                      |     | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
|        | Min. stroke length *1 | 50                   |     |     |     | 30  |     |     |     | 55  |
|        | Custom stroke *1, 2   | In 5 mm increments   |     |     |     |     |     |     |     |     |

\*1 : The total dimensions are the same as the longer standard stroke length.

\*2 : Special total length for custom stroke length can be provided when a custom stroke length is used. (Custom order)

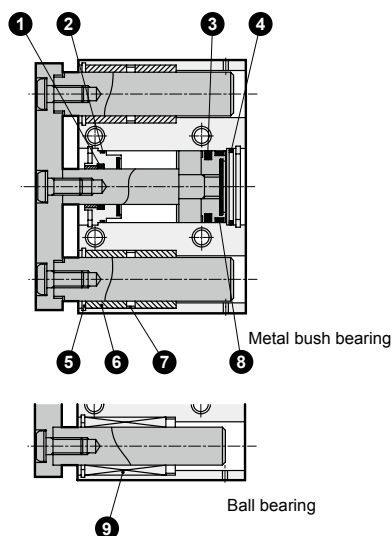
| Code                                    | Content                                                               |
|-----------------------------------------|-----------------------------------------------------------------------|
| <b>A Bearing</b>                        |                                                                       |
| <b>M</b>                                | Metal bush bearing                                                    |
| <b>B</b>                                | Ball bearing (not available for φ20 and φ25)                          |
| <b>B Bore size (mm)</b>                 |                                                                       |
| <b>12</b>                               | φ12                                                                   |
| <b>16</b>                               | φ16                                                                   |
| <b>20</b>                               | φ20                                                                   |
| <b>25</b>                               | φ25                                                                   |
| <b>32</b>                               | φ32                                                                   |
| <b>40</b>                               | φ40                                                                   |
| <b>50</b>                               | φ50                                                                   |
| <b>63</b>                               | φ63                                                                   |
| <b>80</b>                               | φ80                                                                   |
| <b>C Port thread</b>                    |                                                                       |
| <b>Blank</b>                            | Rc thread                                                             |
| <b>NN</b>                               | NPT thread (φ32 and over) custom order product                        |
| <b>GN</b>                               | G thread (φ32 and over) custom order product                          |
| <b>D Stroke length (mm)</b>             |                                                                       |
| Refer to the stroke length table below. |                                                                       |
| <b>E Option</b>                         |                                                                       |
| <b>F</b>                                | End plate material: steel                                             |
| <b>M</b>                                | Corrosion proof (Piston rod, guide rod SUS) (custom order product) *2 |
| <b>M1</b>                               | Corrosion proof (M + end plate SUS) (custom order product) *2         |

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

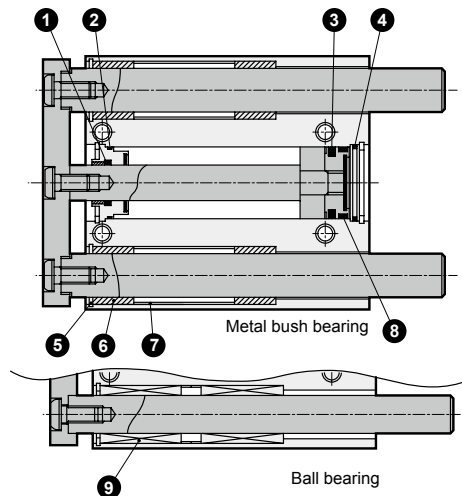
## Internal structure and parts list

### ● Heat resistance

STS-<sup>M</sup><sub>B</sub>T



STL-<sup>M</sup><sub>B</sub>T



\*1: Ball bearing is not available for the heat resistant  $\phi 20$  and  $\phi 25$ .

## Parts list (Dimensions other than those listed below are the same as those of double acting/standard single rod. Refer to pages 449 to 453.)

| No.                                                                           | Part name              | Material                                                                                     | Remarks      |
|-------------------------------------------------------------------------------|------------------------|----------------------------------------------------------------------------------------------|--------------|
| <b>ST<sup>S</sup><sub>L</sub>-<sup>M</sup><sub>B</sub>T (heat resistance)</b> |                        |                                                                                              |              |
| 1                                                                             | Rod packing            | Fluoro rubber                                                                                |              |
| 2                                                                             | Metal gasket           | Fluoro rubber                                                                                |              |
| 3                                                                             | Piston packing         | Fluoro rubber                                                                                |              |
| 4                                                                             | O-ring                 | Fluoro rubber                                                                                |              |
| 5                                                                             | Round R type snap ring | Steel                                                                                        | Black finish |
| 6                                                                             | Metal                  | Bearing with solid lubricant                                                                 |              |
| 7                                                                             | Collar                 | Aluminum alloy                                                                               |              |
| 8                                                                             | Wear ring              | Tetrafluoroethylene resin ( $\phi 12, \phi 16$ )<br>Special resin ( $\phi 20$ to $\phi 80$ ) |              |
| 9                                                                             | Ball bush              |                                                                                              |              |

## Repair parts list

### ● ST<sup>S</sup><sub>L</sub>-<sup>M</sup><sub>B</sub>T (heat resistance)

| Bore size (mm) | Kit No.   | Repair parts No. |
|----------------|-----------|------------------|
| $\phi 12$      | STS-T-12K |                  |
| $\phi 16$      | STS-T-16K |                  |
| $\phi 20$      | STS-T-20K |                  |
| $\phi 25$      | STS-T-25K | 1 2 3            |
| $\phi 32$      | STS-T-32K |                  |
| $\phi 40$      | STS-T-40K | 4 8              |
| $\phi 50$      | STS-T-50K |                  |
| $\phi 63$      | STS-T-63K |                  |
| $\phi 80$      | STS-T-80K |                  |

Note: Specify the kit No. when placing an order.

## Dimensions

Same as STS/STL Series (double acting/single rod). Refer to the pages below.

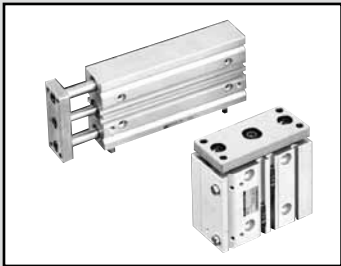
STS Series : Page 455 ( $\phi 8$  to  $\phi 16$ ), page 456 ( $\phi 20$  and  $\phi 25$ ), page 457 ( $\phi 32$  to  $\phi 63$ ) and page 458 ( $\phi 80$ )

STL Series : Page 460 ( $\phi 8$  to  $\phi 16$ ), page 461 ( $\phi 20$  and  $\phi 25$ ), page 462 ( $\phi 32$  to  $\phi 63$ ) and page 463 ( $\phi 80$ )

# MEMO

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MecHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending



Guided cylinder Double acting/packing seal material fluoro rubber

# STS/STL-<sup>M</sup><sub>B</sub>T2 Series

● Bore size: φ12/φ16/φ20/φ25/φ32/φ40/φ50/φ63/φ80

JIS symbol



## Specifications

| Descriptions              |      | STS-MT2, BT2   STL-MT2, BT2                                                  |       |       |       |                      |       |       |           |       |
|---------------------------|------|------------------------------------------------------------------------------|-------|-------|-------|----------------------|-------|-------|-----------|-------|
| Bore size                 | mm   | φ12                                                                          | φ16   | φ20   | φ25   | φ32                  | φ40   | φ50   | φ63       | φ80   |
| Actuation                 |      | Double acting/packing material fluoro rubber                                 |       |       |       |                      |       |       |           |       |
| Working fluid             |      | Compressed air                                                               |       |       |       |                      |       |       |           |       |
| Max. working pressure     | MPa  | 1.0 (≈150 psi, 10 bar)                                                       |       |       |       |                      |       |       |           |       |
| Min. working pressure     | MPa  | 0.15 (≈22 psi, 1.5 bar)                                                      |       |       |       | 0.1 (≈15 psi, 1 bar) |       |       |           |       |
| Proof pressure            | MPa  | 1.6 (≈230 psi, 16 bar)                                                       |       |       |       |                      |       |       |           |       |
| Ambient temperature       | °C   | -10 (14°F) to 60 (140°F) (no freezing)                                       |       |       |       |                      |       |       |           |       |
| Port size                 |      | M5                                                                           |       |       |       | Rc1/8                |       | Rc1/4 |           | Rc3/8 |
| Stroke tolerance          | mm   | +2.0                                                                         |       |       |       |                      |       |       |           |       |
|                           |      | 0                                                                            |       |       |       |                      |       |       |           |       |
| Working piston speed      | mm/s | 50 to 500                                                                    |       |       |       |                      |       |       | 50 to 300 |       |
| Cushion                   |      | With rubber cushion                                                          |       |       |       |                      |       |       |           |       |
| Lubrication               |      | Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication) |       |       |       |                      |       |       |           |       |
| Allowable absorbed energy | J    | 0.056                                                                        | 0.088 | 0.157 | 0.157 | 0.401                | 0.627 | 0.980 | 1.560     | 2.510 |

## Stroke length

● Short stroke STS

| Bore size | Stroke length (mm) | Max. stroke length (mm) | Min. stroke length (mm) | Min. stroke with switch (mm)      |
|-----------|--------------------|-------------------------|-------------------------|-----------------------------------|
| φ12       | 10,20,30,40,50     | 50                      | 5                       | 5<br><br>With one or two switches |
| φ16       |                    |                         |                         |                                   |
| φ20       |                    |                         |                         |                                   |
| φ25       |                    |                         |                         |                                   |
| φ32       |                    |                         |                         |                                   |
| φ40       |                    |                         |                         |                                   |
| φ50       |                    |                         |                         |                                   |
| φ63       | 25,50              | 100                     |                         |                                   |
| φ80       |                    |                         |                         |                                   |

● Long stroke length STL

| Bore size | Stroke length (mm)                                                 | Max. stroke length (mm) | Min. stroke length (mm) | Min. stroke with switch (mm)       |
|-----------|--------------------------------------------------------------------|-------------------------|-------------------------|------------------------------------|
| φ12       | 50,75,100,125,150                                                  | 200                     | 50                      | 50<br>With one or two switches     |
| φ16       | 175,200                                                            |                         |                         |                                    |
| φ20       | 50,75,100,125,150<br>175,200,225,250<br>275,300,325,350<br>375,400 | 400                     | 30                      | 30<br><br>With one or two switches |
| φ25       |                                                                    |                         |                         |                                    |
| φ32       |                                                                    |                         |                         |                                    |
| φ40       |                                                                    |                         |                         |                                    |
| φ50       |                                                                    |                         | 55                      | 55<br>With one or two switches     |
| φ63       |                                                                    |                         |                         |                                    |
| φ80       | 75,100,125,150,175<br>200,225,250,275,300<br>325,350,375,400       |                         |                         |                                    |

Note: The custom stroke length is available in 5 mm increments.  
However, the total length is the same as that of the next longer standard stroke length.

### Switch specifications

● 1-color/2-color display/for AC magnetic field proof

| Descriptions    | Proximity 2-wire                                           |                       | Proximity 2-wire                      |                                |                                | Proximity 3-wire                   |                             |                                |                                | Reed 2-wire                        |                      |                                                                                       |         |                                    |                       | Proximity 2-wire            |                                |            |         |            |  |            |  |             |  |
|-----------------|------------------------------------------------------------|-----------------------|---------------------------------------|--------------------------------|--------------------------------|------------------------------------|-----------------------------|--------------------------------|--------------------------------|------------------------------------|----------------------|---------------------------------------------------------------------------------------|---------|------------------------------------|-----------------------|-----------------------------|--------------------------------|------------|---------|------------|--|------------|--|-------------|--|
|                 | T1H/<br>T1V                                                | T2H/T2V/<br>T2JH/T2JV | T2YH/<br>T2YV                         | T2WH/<br>T2WV                  | T3H/<br>T3V                    | T3PH/T3PV<br>(custom)              | T3YH/<br>T3YV               | T3WH/<br>T3WV                  | T0H/T0V                        |                                    | T5H/T5V              |                                                                                       | T8H/T8V |                                    | T2YD                  |                             |                                |            |         |            |  |            |  |             |  |
| Applications    | For programmable controller, relay, compact solenoid valve |                       | Dedicated for programmable controller |                                |                                | For programmable controller, relay |                             |                                |                                | For programmable controller, relay |                      | For programmable controller, relay, IC circuit (no indicator lamp), serial connection |         | For programmable controller, relay |                       | For programmable controller |                                |            |         |            |  |            |  |             |  |
| Output method   | -                                                          |                       |                                       |                                | NPN output                     | PNP output                         | NPN output                  | NPN output                     | -                              |                                    |                      |                                                                                       |         |                                    |                       |                             |                                |            |         |            |  |            |  |             |  |
| Pwr. supp. V.   | -                                                          |                       |                                       |                                | 10 to 28 VDC                   |                                    |                             |                                | -                              |                                    |                      |                                                                                       |         |                                    |                       |                             |                                |            |         |            |  |            |  |             |  |
| Load voltage    | 85 to 265 VAC                                              |                       | 10 to 30 VDC                          |                                | 24 VDC ±10%                    |                                    | 30 VDC or less              |                                |                                | 12/24 VDC                          |                      | 100/110 VAC                                                                           |         | 5/12/24 VDC                        |                       | 100/110 VAC                 |                                | 12/24 VDC  |         | 110 VAC    |  | 220 VAC    |  | 24 VDC ±10% |  |
| Load current    | 5 to 100 mA                                                |                       | 5 to 20 mA (*2)                       |                                |                                | 100 mA or less                     |                             | 50 mA or less                  |                                | 5 to 50 mA                         |                      | 7 to 20 mA                                                                            |         | ≤50 mA                             |                       | ≤20 mA                      |                                | 5 to 50 mA |         | 7 to 20 mA |  | 7 to 10 mA |  | 5 to 20 mA  |  |
| Indicator lamp  | LED<br>(Lit when ON)                                       |                       | LED<br>(Lit when ON)                  | Red/green LED<br>(Lit when ON) | Red/green LED<br>(Lit when ON) | LED<br>(Lit when ON)               | Yellow LED<br>(Lit when ON) | Red/green LED<br>(Lit when ON) | Red/green LED<br>(Lit when ON) | LED<br>(Lit when ON)               |                      | Without indicator lamp                                                                |         | LED<br>(Lit when ON)               |                       |                             | Red/green LED<br>(Lit when ON) |            |         |            |  |            |  |             |  |
| Leakage current | ≤ 1 mA at 100 VAC,<br>≤ 2 mA at 200 VAC                    |                       | 1 mA or less                          |                                |                                | 10 µA or less                      |                             |                                |                                | 0 mA                               |                      |                                                                                       |         |                                    |                       | 1 mA or less                |                                |            |         |            |  |            |  |             |  |
| Weight g        | 1 m:33                                                     | 1 m:18                | 1 m:33                                | 1 m:18                         | 1 m:18                         |                                    | 1 m:33                      |                                | 1 m:18                         |                                    | 1 m:18 3 m:49 5 m:80 |                                                                                       |         |                                    | 1 m:33 3 m:87 5 m:142 |                             |                                |            | 1 m:61  |            |  |            |  |             |  |
|                 | 3 m:87                                                     | 3 m:49                | 3 m:87                                | 3 m:49                         | 3 m:49                         |                                    | 3 m:87                      |                                | 3 m:49                         |                                    |                      |                                                                                       |         |                                    |                       |                             |                                |            | 3 m:166 |            |  |            |  |             |  |
|                 | 5 m:142                                                    | 5 m:80                | 5 m:142                               | 5 m:80                         | 5 m:80                         |                                    | 5 m:142                     |                                | 5 m:80                         |                                    |                      |                                                                                       |         |                                    |                       |                             |                                |            | 5 m:272 |            |  |            |  |             |  |

\*1 : Refer to Ending Page 1 for other switch specifications.

\*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

\*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

\*4 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

\*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

### Theoretical thrust table

(Unit: N)

| Bore size<br>(mm) | Operating<br>direction | Working pressure MPa |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
|-------------------|------------------------|----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                   |                        | 0.1                  | 0.15               | 0.2                | 0.3                | 0.4                | 0.5                | 0.6                | 0.7                | 0.8                | 0.9                | 1.0                |
| φ20               | Push                   | -                    | -                  | 62.8               | 94.2               | $1.26 \times 10^2$ | $1.57 \times 10^2$ | $1.88 \times 10^2$ | $2.20 \times 10^2$ | $2.51 \times 10^2$ | $2.83 \times 10^2$ | $3.14 \times 10^2$ |
|                   | Pull                   | -                    | -                  | 47.1               | 70.7               | 94.2               | $1.18 \times 10^2$ | $1.41 \times 10^2$ | $1.65 \times 10^2$ | $1.88 \times 10^2$ | $2.12 \times 10^2$ | $2.36 \times 10^2$ |
| φ25               | Push                   | -                    | -                  | 98.2               | $1.47 \times 10^2$ | $1.96 \times 10^2$ | $2.45 \times 10^2$ | $2.95 \times 10^2$ | $3.44 \times 10^2$ | $3.93 \times 10^2$ | $4.42 \times 10^2$ | $4.91 \times 10^2$ |
|                   | Pull                   | -                    | -                  | 75.6               | $1.13 \times 10^2$ | $1.51 \times 10^2$ | $1.89 \times 10^2$ | $2.27 \times 10^2$ | $2.64 \times 10^2$ | $3.02 \times 10^2$ | $3.40 \times 10^2$ | $3.78 \times 10^2$ |
| φ32               | Push                   | 80.4                 | $1.21 \times 10^2$ | $1.61 \times 10^2$ | $2.41 \times 10^2$ | $3.22 \times 10^2$ | $4.02 \times 10^2$ | $4.83 \times 10^2$ | $5.63 \times 10^2$ | $6.43 \times 10^2$ | $7.24 \times 10^2$ | $8.04 \times 10^2$ |
|                   | Pull                   | 60.3                 | 90.5               | $1.21 \times 10^2$ | $1.81 \times 10^2$ | $2.41 \times 10^2$ | $3.02 \times 10^2$ | $3.62 \times 10^2$ | $4.22 \times 10^2$ | $4.83 \times 10^2$ | $5.43 \times 10^2$ | $6.03 \times 10^2$ |
| φ40               | Push                   | $1.26 \times 10^2$   | $1.88 \times 10^2$ | $2.51 \times 10^2$ | $3.77 \times 10^2$ | $5.03 \times 10^2$ | $6.28 \times 10^2$ | $7.54 \times 10^2$ | $8.80 \times 10^2$ | $1.01 \times 10^3$ | $1.13 \times 10^3$ | $1.26 \times 10^3$ |
|                   | Pull                   | $1.06 \times 10^2$   | $1.58 \times 10^2$ | $2.11 \times 10^2$ | $3.17 \times 10^2$ | $4.22 \times 10^2$ | $5.28 \times 10^2$ | $6.33 \times 10^2$ | $7.39 \times 10^2$ | $8.44 \times 10^2$ | $9.50 \times 10^2$ | $1.06 \times 10^3$ |
| φ50               | Push                   | $1.96 \times 10^2$   | $2.95 \times 10^2$ | $3.93 \times 10^2$ | $5.89 \times 10^2$ | $7.85 \times 10^2$ | $9.82 \times 10^2$ | $1.18 \times 10^3$ | $1.37 \times 10^3$ | $1.57 \times 10^3$ | $1.77 \times 10^3$ | $1.96 \times 10^3$ |
|                   | Pull                   | $1.65 \times 10^2$   | $2.47 \times 10^2$ | $3.30 \times 10^2$ | $4.95 \times 10^2$ | $6.60 \times 10^2$ | $8.25 \times 10^2$ | $9.90 \times 10^2$ | $1.15 \times 10^3$ | $1.32 \times 10^3$ | $1.48 \times 10^3$ | $1.65 \times 10^3$ |
| φ63               | Push                   | $3.12 \times 10^2$   | $4.68 \times 10^2$ | $6.23 \times 10^2$ | $9.35 \times 10^2$ | $1.25 \times 10^3$ | $1.56 \times 10^3$ | $1.87 \times 10^3$ | $2.18 \times 10^3$ | $2.49 \times 10^3$ | $2.81 \times 10^3$ | $3.12 \times 10^3$ |
|                   | Pull                   | $2.80 \times 10^2$   | $4.20 \times 10^2$ | $5.61 \times 10^2$ | $8.41 \times 10^2$ | $1.12 \times 10^3$ | $1.40 \times 10^3$ | $1.68 \times 10^3$ | $1.96 \times 10^3$ | $2.24 \times 10^3$ | $2.52 \times 10^3$ | $2.80 \times 10^3$ |
| φ80               | Push                   | $5.03 \times 10^2$   | $7.54 \times 10^2$ | $1.01 \times 10^3$ | $1.51 \times 10^3$ | $2.01 \times 10^3$ | $2.51 \times 10^3$ | $3.02 \times 10^3$ | $3.52 \times 10^3$ | $4.02 \times 10^3$ | $4.52 \times 10^3$ | $5.03 \times 10^3$ |
|                   | Pull                   | $4.54 \times 10^2$   | $6.80 \times 10^2$ | $9.07 \times 10^2$ | $1.36 \times 10^3$ | $1.81 \times 10^3$ | $2.27 \times 10^3$ | $2.72 \times 10^3$ | $3.17 \times 10^3$ | $3.63 \times 10^3$ | $4.08 \times 10^3$ | $4.54 \times 10^3$ |

For cylinder weight, refer to pages 554 to 557.

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MechHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

# STS/STL-M<sub>B</sub>T2 Series

## How to order

### ● Short stroke

Without switch (built-in magnet for switch)

**STS** - **M** **T2** - **12** - **10** - **F**

With switch (built-in magnet for switch)

**STS** - **M** **T2** - **12** - **10** - **T2H** - **R** - **F**

### ● Long stroke length

Without switch (built-in magnet for switch)

**STL** - **M** **T2** - **12** - **50** - **F**

With switch (built-in magnet for switch)

**STL** - **M** **T2** - **12** - **50** - **T2H** - **R** - **F**

Model No.

**A** Bearing

**B** Bore size

**C** Port thread

**D** Stroke length

■ Custom stroke length  
Available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke length.

**E** Switch model No.  
\*1 \*3 \*4

For the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches for  $\phi 40$  and over, insert "L1" with "-" between **A** and **B**.

Example) For STS-MT2-L1-63-50-T2YH3-D-F  $\phi 80$ , the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches cannot be retrofitted on a previously purchased standard product. In this case, order the model No. with "L1" inserted between **A** and **B**.

Example) STS-MT2-L1-80-50-F

### ⚠ Precautions for model No. selection

- \*1 : Switches other than switch model No. are also available. (Custom order product)  
Refer to Ending Page 1 for details.
- \*2 : Refer to pages 440 to 443 for combinations of variations/options.
- \*3 : T8H/V cannot be installed on  $\phi 12$  and  $\phi 16$ .
- \*4 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

**F** Switch quantity

**G** Option

[Example of model No.]

**STS-MT2-12-30-T0H-R-F**

Model: Guided cylinder, short stroke length, standard/packing seal material fluoro rubber

- A** Bearing : Metal bush bearing
- B** Bore size :  $\phi 12$  mm
- C** Port thread : Rc thread
- D** Stroke length : 30 mm
- E** Switch model No. : Reed switch T0H, 1 m lead wire length
- F** Switch quantity : 1 on rod side
- G** Option : End plate material: steel

| Code             | Content            |
|------------------|--------------------|
| <b>A Bearing</b> |                    |
| <b>M</b>         | Metal bush bearing |
| <b>B</b>         | Ball bearing       |

|                         |           |
|-------------------------|-----------|
| <b>B Bore size (mm)</b> |           |
| <b>12</b>               | $\phi 12$ |
| <b>16</b>               | $\phi 16$ |
| <b>20</b>               | $\phi 20$ |
| <b>25</b>               | $\phi 25$ |
| <b>32</b>               | $\phi 32$ |
| <b>40</b>               | $\phi 40$ |
| <b>50</b>               | $\phi 50$ |
| <b>63</b>               | $\phi 63$ |
| <b>80</b>               | $\phi 80$ |

|                      |                                                       |
|----------------------|-------------------------------------------------------|
| <b>C Port thread</b> |                                                       |
| <b>Blank</b>         | Rc thread                                             |
| <b>NN</b>            | NPT thread ( $\phi 32$ and over) custom order product |
| <b>GN</b>            | G thread ( $\phi 32$ and over) custom order product   |

|                                                         |  |
|---------------------------------------------------------|--|
| <b>D Stroke length (mm)</b>                             |  |
| Refer to the stroke length table on the following page. |  |

| E Switch model No. |                  |           |         |    |                           |           |        |
|--------------------|------------------|-----------|---------|----|---------------------------|-----------|--------|
| Axial lead wire    | Radial lead wire | Contact   | Voltage |    | Indicator                 | Lead wire |        |
|                    |                  |           | AC      | DC |                           |           |        |
| T0H*               | T0V*             | Reed      | ●       | ●  | 1-color display           | 2-wire    |        |
| T5H*               | T5V*             |           | ●       | ●  | Without indicator lamp    |           |        |
| T8H*               | T8V*             |           | ●       | ●  | 1-color display           |           |        |
| T1H*               | T1V*             |           | ●       |    |                           |           |        |
| T2H*               | T2V*             |           |         | ●  |                           |           |        |
| T3H*               | T3V*             |           |         |    | ●                         |           | 3-wire |
| T3PH*              | T3PV*            | Proximity |         | ●  | 1-color display (custom)  | 3-wire    |        |
| T2WH*              | T2WV*            |           |         | ●  | 2-color display           | 2-wire    |        |
| T2YH*              | T2YV*            |           |         | ●  |                           | 2-wire    |        |
| T3WH*              | T3WV*            |           |         | ●  |                           | 3-wire    |        |
| T3YH*              | T3YV*            |           |         | ●  |                           | 3-wire    |        |
| T2JH*              | T2JV*            |           |         | ●  | 1-color display off-delay | 2-wire    |        |
| T2YD*              | -                |           |         | ●  | 2-color display           | 2-wire    |        |
| T2YDT*             | -                |           |         | ●  | AC magnetic field         |           |        |

|                           |                |
|---------------------------|----------------|
| <b>* Lead wire length</b> |                |
| <b>Blank</b>              | 1 m (standard) |
| <b>3</b>                  | 3 m (option)   |
| <b>5</b>                  | 5 m (option)   |

|                          |                |
|--------------------------|----------------|
| <b>F Switch quantity</b> |                |
| <b>R</b>                 | 1 on rod side  |
| <b>H</b>                 | 1 on head side |
| <b>D</b>                 | 2              |
| <b>T</b>                 | 3              |

|                 |                                                                    |
|-----------------|--------------------------------------------------------------------|
| <b>G Option</b> |                                                                    |
| <b>F</b>        | End plate material: steel                                          |
| <b>M</b>        | Corrosion proof (Piston rod, guide rod SUS) (custom order product) |
| <b>M1</b>       | Corrosion proof (M + end plate SUS) (custom order product)         |

### D Stroke length

| Series              | Stroke length (mm)     | Applicable bore size |     |     |     |     |     |     |     |     |   |
|---------------------|------------------------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|---|
|                     |                        | φ12                  | φ16 | φ20 | φ25 | φ32 | φ40 | φ50 | φ63 | φ80 |   |
| STS                 | Standard stroke length | 10                   | ●   | ●   |     |     |     |     |     |     |   |
|                     |                        | 20                   | ●   | ●   |     |     |     |     |     |     |   |
|                     |                        | 25                   |     |     | ●   | ●   | ●   | ●   | ●   | ●   |   |
|                     |                        | 30                   | ●   | ●   |     |     |     |     |     |     |   |
|                     |                        | 40                   | ●   | ●   |     |     |     |     |     |     |   |
|                     |                        | 50                   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ● |
|                     |                        | 75                   |     |     |     |     |     |     |     |     | ● |
|                     |                        | 100                  |     |     |     |     |     |     |     |     | ● |
|                     | Min. stroke length *1  | 5                    |     |     |     |     |     |     |     |     |   |
| Custom stroke *1, 2 | In 5 mm increments     |                      |     |     |     |     |     |     |     |     |   |
| STL                 | Standard stroke length | 50                   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   |   |
|                     |                        | 75                   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ● |
|                     |                        | 100                  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ● |
|                     |                        | 125                  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ● |
|                     |                        | 150                  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ● |
|                     |                        | 175                  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ● |
|                     |                        | 200                  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ● |
|                     |                        | 225                  |     |     | ●   | ●   | ●   | ●   | ●   | ●   | ● |
|                     |                        | 250                  |     |     | ●   | ●   | ●   | ●   | ●   | ●   | ● |
|                     |                        | 275                  |     |     | ●   | ●   | ●   | ●   | ●   | ●   | ● |
|                     |                        | 300                  |     |     | ●   | ●   | ●   | ●   | ●   | ●   | ● |
|                     |                        | 325                  |     |     | ●   | ●   | ●   | ●   | ●   | ●   | ● |
|                     |                        | 350                  |     |     | ●   | ●   | ●   | ●   | ●   | ●   | ● |
|                     |                        | 375                  |     |     | ●   | ●   | ●   | ●   | ●   | ●   | ● |
|                     |                        | 400                  |     |     | ●   | ●   | ●   | ●   | ●   | ●   | ● |
|                     | Min. stroke length *1  | 50                   |     | 30  |     |     |     |     |     | 55  |   |
|                     | Custom stroke *1, 2    | In 5 mm increments   |     |     |     |     |     |     |     |     |   |

\*1: The total dimensions are the same as the longer standard stroke length.

\*2: Special total length for custom stroke length can be provided when a custom stroke length is used. (Custom order)

### How to order switch

SW - T0V

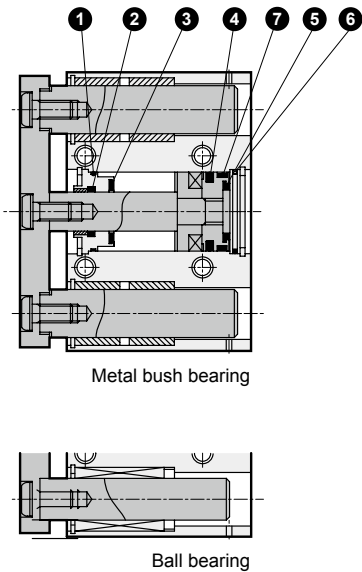
Switch model No.  
(Item ⑤ on the previous page)

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

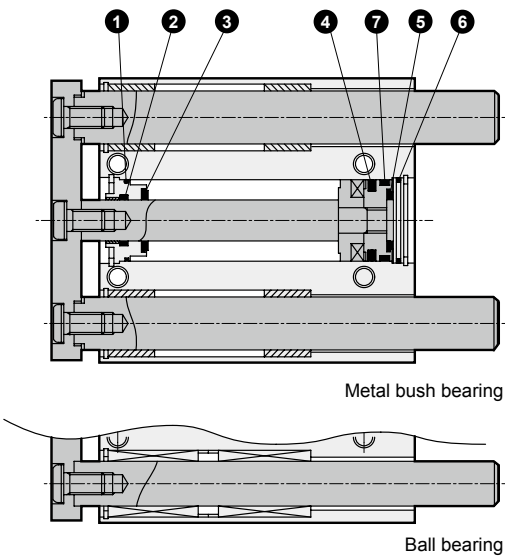
LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MedHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

Internal structure and parts list

● Packing material fluoro rubber  
STS-<sup>M</sup><sub>B</sub>T2



STL-<sup>M</sup><sub>B</sub>T2



Parts list (Parts not listed below are the same as those of the double acting/standard single rod. Refer to pages 449 to 453.)

| No.                                                                                            | Part name          | Material        | Remarks |
|------------------------------------------------------------------------------------------------|--------------------|-----------------|---------|
| STS- <sup>S</sup> <sub>L</sub> - <sup>M</sup> <sub>B</sub> T2 (packing material fluoro rubber) |                    |                 |         |
| 1                                                                                              | Metal gasket       | Fluoro rubber   |         |
| 2                                                                                              | Rod packing        | Fluoro rubber   |         |
| 3                                                                                              | Cushion rubber (R) | Urethane rubber |         |
| 4                                                                                              | Piston packing     | Fluoro rubber   |         |
| 5                                                                                              | Cushion rubber (H) | Urethane rubber |         |
| 6                                                                                              | O-ring             | Fluoro rubber   |         |
| 7                                                                                              | Wear ring          | Acetal resin    |         |

Repair parts list

● ST-<sup>S</sup><sub>L</sub>-<sup>M</sup><sub>B</sub>T2 (packing material fluoro rubber)

| Bore size (mm) | Kit No.    | Repair parts No.                    |
|----------------|------------|-------------------------------------|
| φ12            | STS-T2-12K | <div>1 2 3 4</div> <div>5 6 7</div> |
| φ16            | STS-T2-16K |                                     |
| φ20            | STS-T2-20K |                                     |
| φ25            | STS-T2-25K |                                     |
| φ32            | STS-T2-32K |                                     |
| φ40            | STS-T2-40K |                                     |
| φ50            | STS-T2-50K |                                     |
| φ63            | STS-T2-63K |                                     |
| φ80            | STS-T2-80K |                                     |

Note: Specify the kit No. when placing an order.

Dimensions

Same as STS/STL Series (double acting/single rod). Refer to the pages below.

STS Series: Page 455 (φ8 to φ16), page 456 (φ20 and φ25), page 457 (φ32 to φ63) and page 458 (φ80)  
STL Series: Page 460 (φ8 to φ16), page 461 (φ20 and φ25), page 462 (φ32 to φ63) and page 463 (φ80)

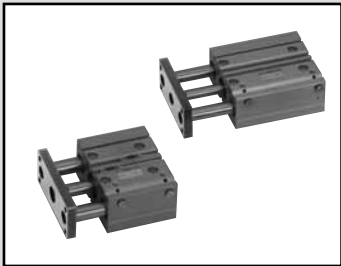
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# MEMO

---

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MechHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending



Guided cylinder Rubber-air cushioned

# STS/STL-M-B-\*C Series

● Bore size:  $\phi 32/\phi 40/\phi 50/\phi 63/\phi 80$

JIS symbol



## Specifications

| Descriptions              |      | STS/L-M/B- <sup>*</sup> C                                                    |       |       |           |       |
|---------------------------|------|------------------------------------------------------------------------------|-------|-------|-----------|-------|
| Bore size                 | mm   | φ32                                                                          | φ40   | φ50   | φ63       | φ80   |
| Actuation                 |      | Double acting                                                                |       |       |           |       |
| Working fluid             |      | Compressed air                                                               |       |       |           |       |
| Max. working pressure     | MPa  | 1.0 (≈150 psi, 10 bar)                                                       |       |       |           |       |
| Min. working pressure     | MPa  | 0.2 (≈29 psi, 2 bar)                                                         |       |       |           |       |
| Proof pressure            | MPa  | 1.6 (≈230 psi, 16 bar)                                                       |       |       |           |       |
| Ambient temperature       | °C   | -10 (14°F) to 60 (140°F) (no freezing)                                       |       |       |           |       |
| Port size                 |      | Rc1/8                                                                        |       | Rc1/4 |           | Rc3/8 |
| Stroke tolerance          | mm   | +2.0<br>0                                                                    |       |       |           |       |
| Working piston speed      | mm/s | 50 to 500                                                                    |       |       | 50 to 300 |       |
| Cushion                   |      | Rubber-air cushioned                                                         |       |       |           |       |
| Lubrication               |      | Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication) |       |       |           |       |
| Allowable absorbed energy | J    | 0.401                                                                        | 0.627 | 0.980 | 1.560     | 2.510 |

## Stroke length

· Short stroke STS

| Bore size (mm) | Stroke length (mm) | Max. stroke length (mm) | Min. stroke length (mm) | Min. stroke with switch (mm) |
|----------------|--------------------|-------------------------|-------------------------|------------------------------|
| φ32            | 25, 50             | 50                      | 5                       | 5                            |
| φ40            |                    |                         | 10                      | 10                           |
| φ50            |                    |                         |                         |                              |
| φ63            | 25, 50, 75, 100    | 100                     |                         |                              |
| φ80            |                    |                         |                         |                              |

With one or two switches

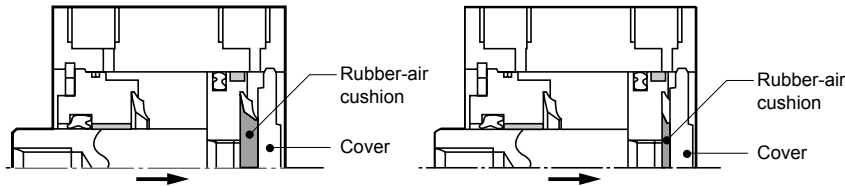
· Long stroke length STL

| Bore size (mm) | Stroke length (mm)                                                      | Max. stroke length (mm) | Min. stroke length (mm) | Min. stroke with switch (mm) |
|----------------|-------------------------------------------------------------------------|-------------------------|-------------------------|------------------------------|
| φ32            | 50, 75, 100, 125, 150                                                   | 400                     | 30                      | 30                           |
| φ40            | 175, 200, 225, 250                                                      |                         |                         |                              |
| φ50            | 275, 300, 325, 350                                                      |                         |                         |                              |
| φ63            | 375, 400                                                                |                         |                         |                              |
| φ80            | 75, 100, 125, 150, 175<br>200, 225, 250, 275, 300<br>325, 350, 375, 400 |                         | 55                      | 55                           |

Note : The custom stroke length is available in 5 mm increments.  
However, the total length is the same as that of the next longer standard stroke length.

With one or two switches

## Rubber-air cushion mechanism

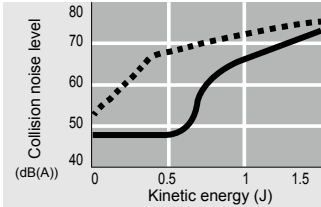


### When pulled

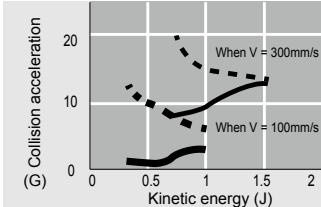
An airtight space is created in the  area when the piston operates and the rubber-air cushion and cover make contact. Air in the airtight area is further compressed, absorbing energy as the piston operates.  
At the end of the stroke, energy generated by compression distortion of the air cushion is also added.

--- Cylinder with rubber cushion  
— Cylinder with rubber-air cushion

Data of the reduction of collision noise level (an example case)



Data of the reduction of collision acceleration level (an example case)



### Switch specifications

● 1-color/2-color display/for AC magnetic field proof

| Descriptions    | Proximity 2-wire                                          | Proximity 2-wire                      |                                   |                                   | Proximity 3-wire                   |                                |                                   |                                   | Reed 2-wire                        |                                                                                       |                      |                                    |                                   |                                       | Proximity 2-wire |             |
|-----------------|-----------------------------------------------------------|---------------------------------------|-----------------------------------|-----------------------------------|------------------------------------|--------------------------------|-----------------------------------|-----------------------------------|------------------------------------|---------------------------------------------------------------------------------------|----------------------|------------------------------------|-----------------------------------|---------------------------------------|------------------|-------------|
|                 | T1H/<br>T1V                                               | T2H/T2V/<br>T2JH/T2JV                 | T2YH/<br>T2YV                     | T2WH/<br>T2WV                     | T3H/<br>T3V                        | T3PH/T3PV<br>(custom)          | T3YH/<br>T3YV                     | T3WH/<br>T3WV                     | T0H/T0V                            | T5H/T5V                                                                               |                      | T8H/T8V                            |                                   | T2YD                                  |                  |             |
| Applications    | For programming controller, relay, compact solenoid valve | Dedicated for programmable controller |                                   |                                   | For programmable controller, relay |                                |                                   |                                   | For programmable controller, relay | For programmable controller, relay, IC circuit (no indicator lamp), serial connection |                      | For programmable controller, relay |                                   | Dedicated for programmable controller |                  |             |
| Output method   | -                                                         |                                       |                                   |                                   | NPN output                         | PNP output                     | NPN output                        | NPN output                        | -                                  |                                                                                       |                      |                                    |                                   |                                       |                  |             |
| Pwr. supp. V.   | -                                                         |                                       |                                   |                                   | 10 to 28 VDC                       |                                |                                   |                                   | -                                  |                                                                                       |                      |                                    |                                   |                                       |                  |             |
| Load voltage    | 85 to 265 VAC                                             | 10 to 30 VDC                          | 24 VDC ±10%                       |                                   | 30 VDC or less                     |                                |                                   |                                   | 12/24 VDC                          | 100/110 VAC                                                                           | 5/12/24 VDC          | 100/110 VAC                        | 12/24 VDC                         | 110 VAC                               | 220 VAC          | 24 VDC ±10% |
| Load current    | 5 to 100 mA                                               | 5 to 20 mA (*2)                       |                                   |                                   | 100 mA or less                     |                                | 50 mA or less                     |                                   | 5 to 50 mA                         | 7 to 20 mA                                                                            | ≤50 mA               | ≤20 mA                             | 5 to 50 mA                        | 7 to 20 mA                            | 7 to 10 mA       | 5 to 20 mA  |
| Indicator lamp  | LED<br>(Lit when ON)                                      | LED<br>(Lit when ON)                  | Red/green<br>LED<br>(Lit when ON) | Red/green<br>LED<br>(Lit when ON) | LED<br>(Lit when ON)               | Yellow<br>LED<br>(Lit when ON) | Red/green<br>LED<br>(Lit when ON) | Red/green<br>LED<br>(Lit when ON) | LED<br>(Lit when ON)               | Without indicator lamp                                                                | LED<br>(Lit when ON) |                                    | Red/green<br>LED<br>(Lit when ON) |                                       |                  |             |
| Leakage current | ≤ 1 mA at 100 VAC,<br>≤ 2 mA at 200 VAC                   | 1 mA or less                          |                                   |                                   | 10 µA or less                      |                                |                                   |                                   | 0 mA                               |                                                                                       |                      |                                    |                                   |                                       | 1 mA or less     |             |
| Weight g        | 1 m:33                                                    | 1 m:18                                | 1 m:33                            | 1 m:18                            | 1 m:18                             |                                | 1 m:33                            | 1 m:18                            | 1 m:18 3 m:49 5 m:80               |                                                                                       |                      | 1 m:33 3 m:87 5 m:142              |                                   |                                       | 1 m:61           |             |
|                 | 3 m:87                                                    | 3 m:49                                | 3 m:87                            | 3 m:49                            | 3 m:49                             |                                | 3 m:87                            | 3 m:49                            |                                    |                                                                                       |                      |                                    |                                   |                                       | 3 m:166          |             |
|                 | 5 m:142                                                   | 5 m:80                                | 5 m:142                           | 5 m:80                            | 5 m:80                             |                                | 5 m:142                           | 5 m:80                            |                                    |                                                                                       |                      |                                    |                                   |                                       | 5 m:272          |             |

\*1 : Refer to Ending Page 1 for other switch specifications.

\*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

\*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

\*4 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

\*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

### Theoretical thrust table

(Unit: N)

| Bore size<br>(mm) | Operating<br>direction | Working pressure MPa |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
|-------------------|------------------------|----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                   |                        | 0.1                  | 0.15               | 0.2                | 0.3                | 0.4                | 0.5                | 0.6                | 0.7                | 0.8                | 0.9                | 1.0                |
| φ32               | Push                   | 80.4                 | $1.21 \times 10^2$ | $1.61 \times 10^2$ | $2.41 \times 10^2$ | $3.22 \times 10^2$ | $4.02 \times 10^2$ | $4.83 \times 10^2$ | $5.63 \times 10^2$ | $6.43 \times 10^2$ | $7.24 \times 10^2$ | $8.04 \times 10^2$ |
|                   | Pull                   | 60.3                 | 90.5               | $1.21 \times 10^2$ | $1.81 \times 10^2$ | $2.41 \times 10^2$ | $3.02 \times 10^2$ | $3.62 \times 10^2$ | $4.22 \times 10^2$ | $4.83 \times 10^2$ | $5.43 \times 10^2$ | $6.03 \times 10^2$ |
| φ40               | Push                   | $1.26 \times 10^2$   | $1.88 \times 10^2$ | $2.51 \times 10^2$ | $3.77 \times 10^2$ | $5.03 \times 10^2$ | $6.28 \times 10^2$ | $7.54 \times 10^2$ | $8.80 \times 10^2$ | $1.01 \times 10^3$ | $1.13 \times 10^3$ | $1.26 \times 10^3$ |
|                   | Pull                   | $1.06 \times 10^2$   | $1.58 \times 10^2$ | $2.11 \times 10^2$ | $3.17 \times 10^2$ | $4.22 \times 10^2$ | $5.28 \times 10^2$ | $6.33 \times 10^2$ | $7.39 \times 10^2$ | $8.44 \times 10^2$ | $9.50 \times 10^2$ | $1.06 \times 10^3$ |
| φ50               | Push                   | $1.96 \times 10^2$   | $2.95 \times 10^2$ | $3.93 \times 10^2$ | $5.89 \times 10^2$ | $7.85 \times 10^2$ | $9.82 \times 10^2$ | $1.18 \times 10^3$ | $1.37 \times 10^3$ | $1.57 \times 10^3$ | $1.77 \times 10^3$ | $1.96 \times 10^3$ |
|                   | Pull                   | $1.65 \times 10^2$   | $2.47 \times 10^2$ | $3.30 \times 10^2$ | $4.95 \times 10^2$ | $6.60 \times 10^2$ | $8.25 \times 10^2$ | $9.90 \times 10^2$ | $1.15 \times 10^3$ | $1.32 \times 10^3$ | $1.48 \times 10^3$ | $1.65 \times 10^3$ |
| φ63               | Push                   | $3.12 \times 10^2$   | $4.68 \times 10^2$ | $6.23 \times 10^2$ | $9.35 \times 10^2$ | $1.25 \times 10^3$ | $1.56 \times 10^3$ | $1.87 \times 10^3$ | $2.18 \times 10^3$ | $2.49 \times 10^3$ | $2.81 \times 10^3$ | $3.12 \times 10^3$ |
|                   | Pull                   | $2.80 \times 10^2$   | $4.20 \times 10^2$ | $5.61 \times 10^2$ | $8.41 \times 10^2$ | $1.12 \times 10^3$ | $1.40 \times 10^3$ | $1.68 \times 10^3$ | $1.96 \times 10^3$ | $2.24 \times 10^3$ | $2.52 \times 10^3$ | $2.80 \times 10^3$ |
| φ80               | Push                   | $5.03 \times 10^2$   | $7.54 \times 10^2$ | $1.01 \times 10^3$ | $1.51 \times 10^3$ | $2.01 \times 10^3$ | $2.51 \times 10^3$ | $3.02 \times 10^3$ | $3.52 \times 10^3$ | $4.02 \times 10^3$ | $4.52 \times 10^3$ | $5.03 \times 10^3$ |
|                   | Pull                   | $4.54 \times 10^2$   | $6.80 \times 10^2$ | $9.07 \times 10^2$ | $1.36 \times 10^3$ | $1.81 \times 10^3$ | $2.27 \times 10^3$ | $2.72 \times 10^3$ | $3.17 \times 10^3$ | $3.63 \times 10^3$ | $4.08 \times 10^3$ | $4.54 \times 10^3$ |

For cylinder weight, refer to pages 554 to 557.

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MecHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

# STS/STL-B-M-\*C Series

## How to order

### ● Short stroke

Without switch (built-in magnet for switch)

**STS - M - 32 - C - 50 - F**

With switch (built-in magnet for switch)

**STS - M - 32 - C - 50 - T0H - R - F**

### ● Long stroke length

Without switch (built-in magnet for switch)

**STL - M - 32 - C - 100 - F**

With switch (built-in magnet for switch)

**STL - M - 32 - C - 100 - T0H - D - F**

**A** Bearing

**B** Bore size

**C** Port thread

Rubber-air cushioned

**D** Stroke length

- The custom stroke length is available in 5mm increments. However, the total length is the same as that of the next longer standard stroke length.
- Total length dimension with custom stroke length is handled as custom stroke dedicated length. (Custom order)

## ⚠ Precautions for model No. selection

- \*1 : The total dimensions are the same as the longer standard stroke length.
- \*2 : Refer to pages 440 and 443 for combinations of variations/options.
- \*3 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

## [Example of model No.]

### STS-M-32C-50-T0H-R

Model : Guided cylinder, short stroke length  
Rubber-air cushioned

- A** Bearing : Metal bush bearing
- B** Bore size :  $\phi 32$  mm
- C** Port thread : Rc thread
- D** Stroke length : 50 mm
- E** Switch model No. : Reed T0H switch, lead wire 1 m
- F** Switch quantity : 1 on rod side

## How to order switch

**SW - T0H**

Switch model No.  
(Item **E** above)

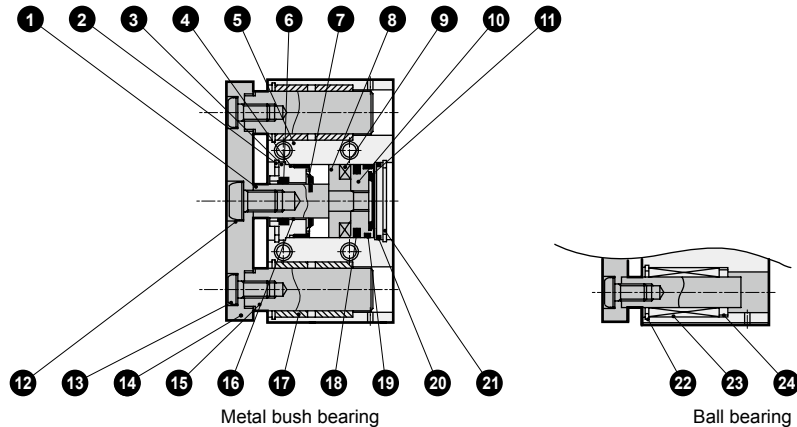
**F** Switch quantity

**G** Option

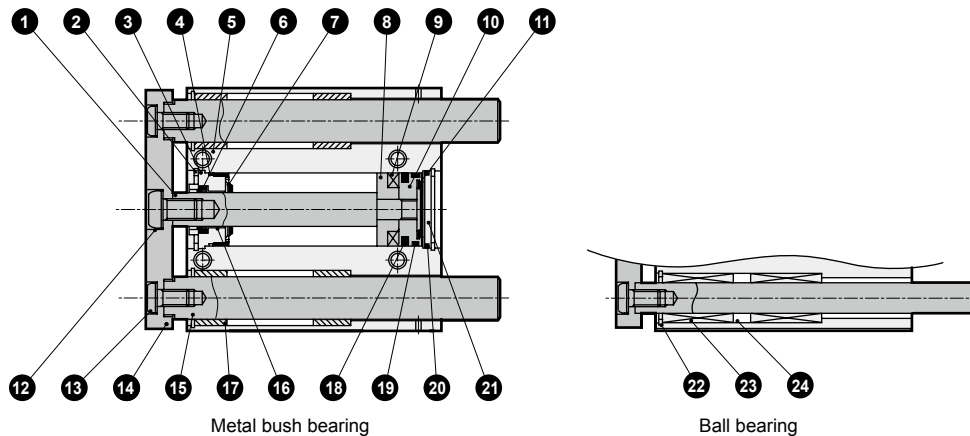
| Code                   | Content                                                    |                       |         |                   |                           |           |                          |
|------------------------|------------------------------------------------------------|-----------------------|---------|-------------------|---------------------------|-----------|--------------------------|
| A Bearing              |                                                            |                       |         |                   |                           |           |                          |
| M                      | Metal bush bearing                                         |                       |         |                   |                           |           |                          |
| B                      | Ball bearing                                               |                       |         |                   |                           |           |                          |
| B Bore size (mm)       |                                                            |                       |         |                   |                           |           |                          |
| 32                     | φ32                                                        |                       |         |                   |                           |           |                          |
| 40                     | φ40                                                        |                       |         |                   |                           |           |                          |
| 50                     | φ50                                                        |                       |         |                   |                           |           |                          |
| 63                     | φ63                                                        |                       |         |                   |                           |           |                          |
| 80                     | φ80                                                        |                       |         |                   |                           |           |                          |
| C Port thread          |                                                            |                       |         |                   |                           |           |                          |
| Blank                  | Rc thread                                                  |                       |         |                   |                           |           |                          |
| N                      | NPT thread (custom order product)                          |                       |         |                   |                           |           |                          |
| G                      | G thread (custom order product)                            |                       |         |                   |                           |           |                          |
| D Stroke length        |                                                            |                       |         |                   |                           |           |                          |
| Series                 | Stroke length (mm)                                         | Applicable bore size  |         |                   |                           |           |                          |
|                        |                                                            | φ32                   | φ40     | φ50               | φ63                       | φ80       |                          |
| STS                    | Standard                                                   | 25                    | ●       | ●                 | ●                         | ●         | ●                        |
|                        | Stroke length                                              | 50                    | ●       | ●                 | ●                         | ●         | ●                        |
|                        |                                                            | 75                    |         |                   |                           |           | ●                        |
|                        |                                                            | 100                   |         |                   |                           |           | ●                        |
|                        | Min. stroke length *1                                      | 5                     |         |                   | 10                        |           |                          |
| Custom stroke *1       | In 5 mm increments                                         |                       |         |                   |                           |           |                          |
| STL                    | Standard                                                   | 50                    | ●       | ●                 | ●                         | ●         | ●                        |
|                        | stroke length                                              | 75                    | ●       | ●                 | ●                         | ●         | ●                        |
|                        |                                                            | 100                   | ●       | ●                 | ●                         | ●         | ●                        |
|                        |                                                            | 125                   | ●       | ●                 | ●                         | ●         | ●                        |
|                        |                                                            | 150                   | ●       | ●                 | ●                         | ●         | ●                        |
|                        |                                                            | 175                   | ●       | ●                 | ●                         | ●         | ●                        |
|                        |                                                            | 200                   | ●       | ●                 | ●                         | ●         | ●                        |
|                        |                                                            | 225                   | ●       | ●                 | ●                         | ●         | ●                        |
|                        |                                                            | 250                   | ●       | ●                 | ●                         | ●         | ●                        |
|                        |                                                            | 275                   | ●       | ●                 | ●                         | ●         | ●                        |
|                        |                                                            | 300                   | ●       | ●                 | ●                         | ●         | ●                        |
|                        |                                                            | 325                   | ●       | ●                 | ●                         | ●         | ●                        |
|                        |                                                            | 350                   | ●       | ●                 | ●                         | ●         | ●                        |
|                        |                                                            | 375                   | ●       | ●                 | ●                         | ●         | ●                        |
|                        |                                                            | 400                   | ●       | ●                 | ●                         | ●         | ●                        |
|                        |                                                            | Min. stroke length *1 | 30      |                   |                           | 55        |                          |
|                        | Custom stroke *1                                           | In 5 mm increments    |         |                   |                           |           |                          |
| E Switch model No.     |                                                            |                       |         |                   |                           |           |                          |
| Axial lead wire        | Radial lead wire                                           | Contact               | Voltage |                   | Display                   | Lead wire |                          |
|                        |                                                            |                       | AC      | DC                |                           |           |                          |
| T0H*                   | T0V*                                                       | Reed                  | ●       | ●                 | 1-color display           | 2-wire    |                          |
| T5H*                   | T5V*                                                       |                       | ●       | ●                 | Without indicator lamp    |           |                          |
| T8H*                   | T8V*                                                       |                       | ●       | ●                 | 1-color display           |           |                          |
| T1H*                   | T1V*                                                       |                       | ●       | ●                 |                           |           |                          |
| T2H*                   | T2V*                                                       | Proximity             | ●       | ●                 | 2-color display           | 3-wire    |                          |
| T3H*                   | T3V*                                                       |                       | ●       | ●                 |                           |           |                          |
| T3PH*                  | T3PV*                                                      |                       | ●       | ●                 |                           |           | 1-color display (custom) |
| T2WH*                  | T2WV*                                                      |                       | ●       | ●                 |                           |           | 2-color display          |
| T2YH*                  | T2YV*                                                      |                       | ●       | ●                 |                           |           |                          |
| T3WH*                  | T3WV*                                                      |                       | ●       | ●                 |                           |           |                          |
| T3YH*                  | T3YV*                                                      |                       | ●       | ●                 |                           |           |                          |
| T2JH*                  | T2JV*                                                      |                       | ●       | ●                 | 1-color display off-delay | 2-wire    |                          |
| T2YD*                  | -                                                          | ●                     | ●       | 2-color display   | 2-wire                    |           |                          |
| T2YDT*                 | -                                                          | ●                     | ●       | AC magnetic field |                           |           |                          |
| * Lead wire length (m) |                                                            |                       |         |                   |                           |           |                          |
| Blank                  | 1 m (standard)                                             |                       |         |                   |                           |           |                          |
| 3                      | 3 m (option)                                               |                       |         |                   |                           |           |                          |
| 5                      | 5 m (option)                                               |                       |         |                   |                           |           |                          |
| F Switch quantity      |                                                            |                       |         |                   |                           |           |                          |
| R                      | 1 on rod side                                              |                       |         |                   |                           |           |                          |
| H                      | 1 on head side                                             |                       |         |                   |                           |           |                          |
| D                      | 2                                                          |                       |         |                   |                           |           |                          |
| G Option               |                                                            |                       |         |                   |                           |           |                          |
| F                      | End plate material (steel)                                 |                       |         |                   |                           |           |                          |
| M                      | Corrosion proof (Piston rod, guide rod SUS) (custom order) |                       |         |                   |                           |           |                          |
| M1                     | Corrosion proof (M + end plate SUS) (custom order)         |                       |         |                   |                           |           |                          |
| P6                     | Copper and PTFE free (custom order)                        |                       |         |                   |                           |           |                          |

## Internal structure and parts list

### ● STS-B<sup>M</sup>-32C to 80C (short stroke)



### ● STL-B<sup>M</sup>-32C to 80C (long stroke length)



| No. | Part name              | Material               | Remarks                   | No. | Part name                       | Material                                 | Remarks                   |
|-----|------------------------|------------------------|---------------------------|-----|---------------------------------|------------------------------------------|---------------------------|
| 1   | Piston rod             | Steel                  | Industrial chrome plating | 13  | Hexagon socket button head bolt | Alloy steel                              | Zinc chromate             |
| 2   | C type snap ring       | Steel                  | Zinc phosphate            | 14  | End plate                       | Aluminum alloy                           | Alumite                   |
| 3   | Rod metal              | Special aluminum alloy | Alumite                   | 15  | Guide rod                       | Steel                                    | Industrial chrome plating |
| 4   | Metal gasket           | Nitrile rubber         |                           | 16  | Bush                            | DU dry bearing                           |                           |
| 5   | Cylinder body          | Aluminum alloy         | Hard alumite              | 17  | Metal                           | Oil impregnated bearing alloy            |                           |
| 6   | Rod packing            | Nitrile rubber         |                           | 18  | Piston packing                  | Nitrile rubber                           |                           |
| 7   | Rubber air cushion (R) | Urethane rubber        |                           | 19  | Wear ring                       | Acetal resin                             |                           |
| 8   | Spacer                 | Aluminum alloy         |                           | 20  | O-ring                          | Nitrile rubber                           |                           |
| 9   | Magnet                 | Plastic                |                           | 21  | Base plate                      | Aluminum alloy (φ32 to φ63), steel (φ80) | Zinc chromate (φ80)       |
| 10  | Piston                 | Aluminum alloy         |                           | 22  | C type snap ring                | Steel                                    | Zinc phosphate            |
| 11  | Rubber air cushion (H) | Special rubber         |                           | 23  | Ball bush                       |                                          |                           |
| 12  | Disc spring washer     | Steel                  |                           | 24  | Collar                          | Aluminum alloy                           | (Not provided for φ80)    |

## Repair parts list

| Bore size (mm) | Kit No.  | Repair parts No. |
|----------------|----------|------------------|
| φ32            | STS-32CK |                  |
| φ40            | STS-40CK | 4 6 7 11         |
| φ50            | STS-50CK | 18 19 20         |
| φ63            | STS-63CK |                  |
| φ80            | STS-80CK |                  |

## Dimensions

Same as STS/STL Series (double acting/single rod). Refer to the pages below.

STS Series : Page 455 (φ8 to φ16), page 456 (φ20 and φ25), page 457 (φ32 to φ63) and page 458 (φ80)

STL Series : Page 460 (φ8 to φ16), page 461 (φ20 and φ25), page 462 (φ32 to φ63) and page 463 (φ80)

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MecHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

Technical data

Refer to page 550 for guided cylinder selection guide.

[Comparison of collision noise level]

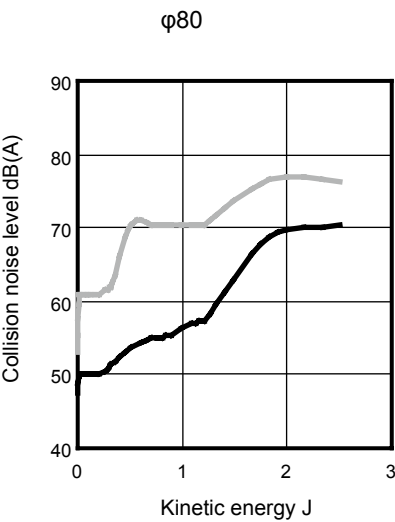
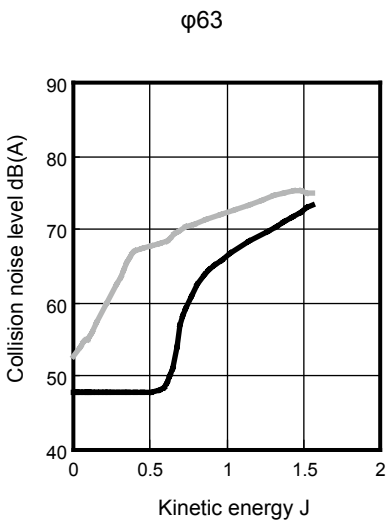
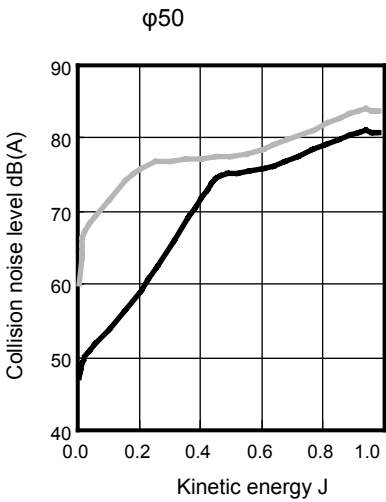
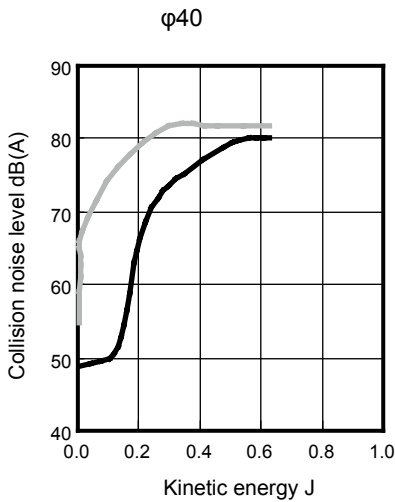
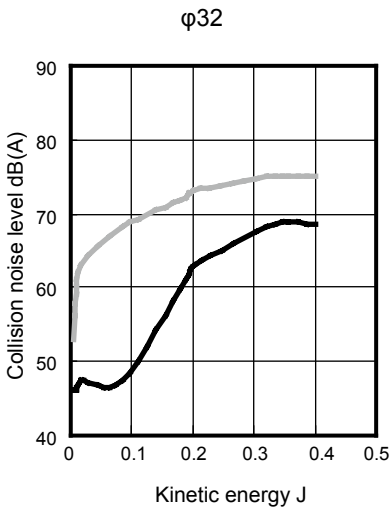
Values are comparison samples obtained under the conditions below.

As the values vary with base rigidity, etc., they are not guaranteed.

(Test conditions)

- Cylinder : STS/L
- Mounting direction of cylinder : Vertical with rod upward
- Cylinder supply pressure : 0.5 MPa
- Position of sound level meter : 1 m from sample

Standard rubber cushion:   
Rubber-air cushion : 

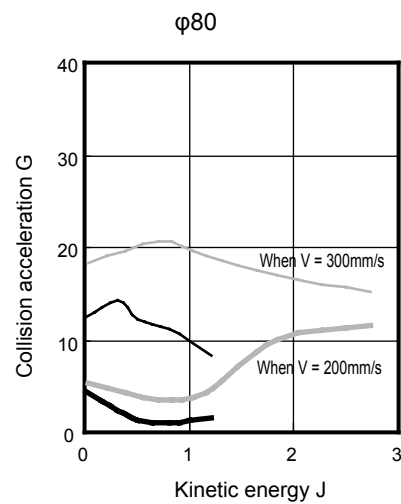
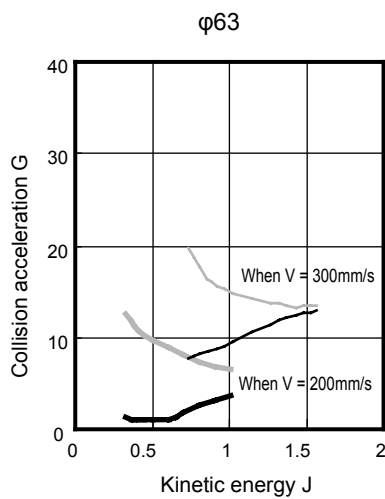
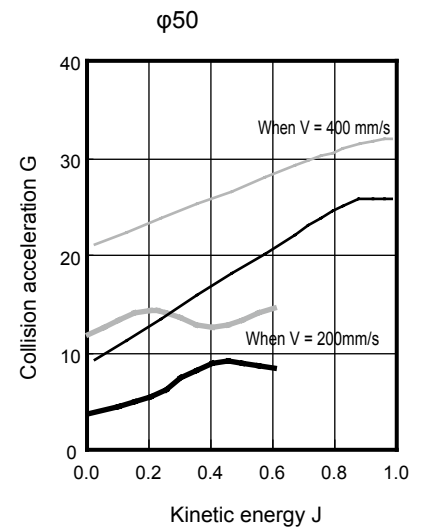
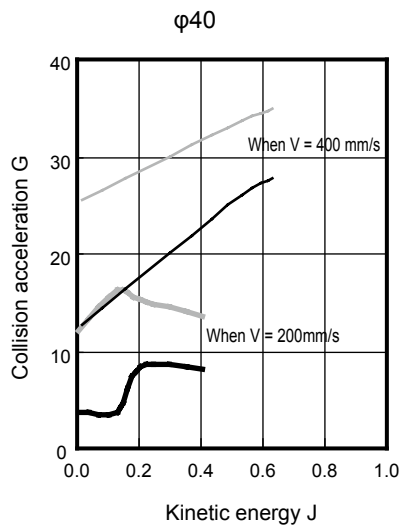
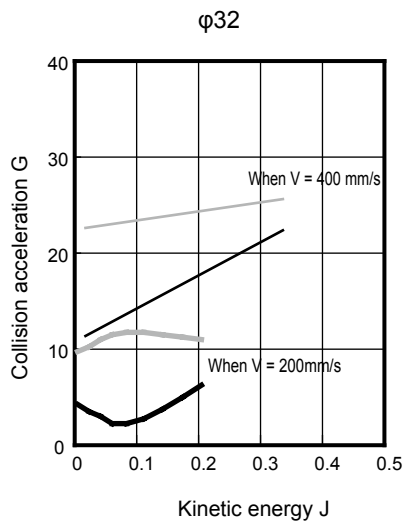


### Technical data

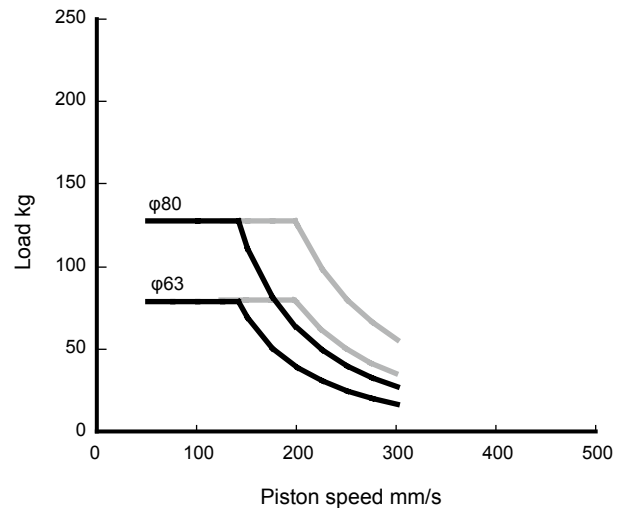
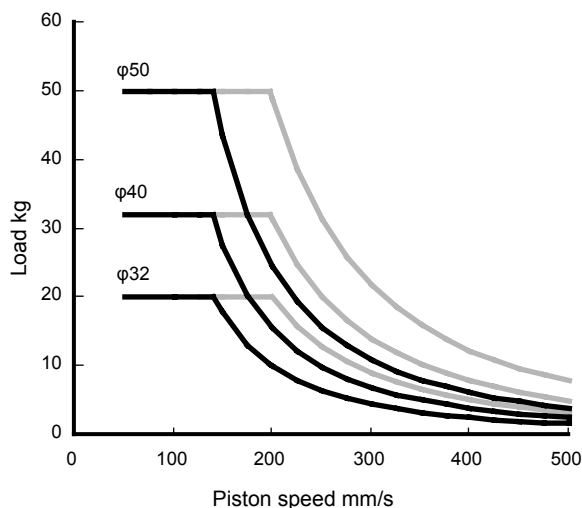
#### [Comparison of collision acceleration]

Standard rubber cushion: —

Rubber-air cushion : —



#### [Allowable energy value]



Usable in the range below and to the left of the curve.

Although it can be used in the range marked with —, the use within the range marked with solid line is recommended to maximize the noise reduction effect.

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MedHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending



Guided cylinder, double acting/air cushioned

# STS/STL-M<sup>C</sup> Series

● Bore size: φ25/φ32/φ40/φ50/φ63/φ80

JIS symbol 



## Specifications

1 MPa = 10 bar

| Descriptions                  | STS-MC/BC, STL-MC/BC                                                         |                      |      |       |           |       |
|-------------------------------|------------------------------------------------------------------------------|----------------------|------|-------|-----------|-------|
| Bore size      mm             | φ25                                                                          | φ32                  | φ40  | φ50   | φ63       | φ80   |
| Actuation                     | Double acting/air cushioned                                                  |                      |      |       |           |       |
| Working fluid                 | Compressed air                                                               |                      |      |       |           |       |
| Max. working pressure    MPa  | 1.0 (≈150 psi, 10 bar)                                                       |                      |      |       |           |       |
| Min. working pressure    MPa  | 0.15 (≈22 psi)                                                               | 0.1 (≈15 psi, 1 bar) |      |       |           |       |
| Proof pressure      MPa       | 1.6 (≈230 psi, 16 bar)                                                       |                      |      |       |           |       |
| Ambient temperature    °C     | -10 (14°F) to 60 (140°F) (no freezing)                                       |                      |      |       |           |       |
| Port size                     | M5                                                                           | Rc1/8                |      | Rc1/4 |           | Rc3/8 |
| Stroke tolerance      mm      | <sup>+2.0</sup> <sub>0</sub>                                                 |                      |      |       |           |       |
| Working piston speed    mm/s  | 50 to 500                                                                    |                      |      |       | 50 to 300 |       |
| Cushion                       | With air cushion                                                             |                      |      |       |           |       |
| Effective cushion length   mm | 8.1                                                                          | 8.6                  |      | 13.4  |           | 15.4  |
| Lubrication                   | Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication) |                      |      |       |           |       |
| Allowable absorbed energy   J | 1.18                                                                         | 2.27                 | 3.05 | 3.81  | 15.64     | 20.18 |

## Stroke length

· Short stroke STS

| Bore size (mm) | Standard stroke length (mm) | Max. stroke length (mm) | Min. stroke length (mm) Note | Min. stroke with switch (mm) Note |
|----------------|-----------------------------|-------------------------|------------------------------|-----------------------------------|
| φ25            | 25, 50                      | 50                      | 15                           | 15<br>With one or two switches    |
| φ32            |                             |                         |                              |                                   |
| φ40            |                             |                         |                              |                                   |
| φ50            |                             |                         |                              |                                   |
| φ63            | 25, 50, 75, 100             | 100                     |                              |                                   |
| φ80            |                             |                         |                              |                                   |

Note: For min. stroke length and below, select the basic since there is no cushion effect.

· Long stroke length STL

| Bore size (mm) | Standard stroke length (mm)                                                   | Max. stroke length (mm) | Min. stroke length (mm) | Min. stroke with switch (mm)   |
|----------------|-------------------------------------------------------------------------------|-------------------------|-------------------------|--------------------------------|
| φ25            | 50, 75, 100, 125, 150<br>175, 200, 225, 250<br>275, 300, 325, 350<br>375, 400 | 400                     | 30                      | 30<br>With one or two switches |
| φ32            |                                                                               |                         |                         |                                |
| φ40            |                                                                               |                         |                         |                                |
| φ50            |                                                                               |                         |                         |                                |
| φ63            | 75, 100, 125, 150, 175<br>200, 225, 250, 275, 300<br>325, 350, 375            | 375                     | 55                      | 55<br>With one or two switches |
| φ80            |                                                                               |                         |                         |                                |

Note: The custom stroke length is available in 1mm increments. (Custom order)

### Switch specifications

● 1-color/2-color display/for AC magnetic field proof

| Descriptions    | Proximity 2-wire                                           |                       | Proximity 2-wire                      |                                   |                      | Proximity 3-wire                   |                                   |                                   |                      | Reed 2-wire                        |                                                                                       |                       |                                    |            |            |                                   | Proximity 2-wire |
|-----------------|------------------------------------------------------------|-----------------------|---------------------------------------|-----------------------------------|----------------------|------------------------------------|-----------------------------------|-----------------------------------|----------------------|------------------------------------|---------------------------------------------------------------------------------------|-----------------------|------------------------------------|------------|------------|-----------------------------------|------------------|
|                 | T1H/<br>T1V                                                | T2H/T2V/<br>T2JH/T2JV | T2YH/<br>T2YV                         | T2WH/<br>T2WV                     | T3H/<br>T3V          | T3PH/T3PV<br>(custom)              | T3YH/<br>T3YV                     | T3WH/<br>T3WV                     | T0H/T0V              | T5H/T5V                            |                                                                                       | T8H/T8V               |                                    |            | T2YD       |                                   |                  |
| Applications    | For programmable controller, relay, compact solenoid valve |                       | Dedicated for programmable controller |                                   |                      | For programmable controller, relay |                                   |                                   |                      | For programmable controller, relay | For programmable controller, relay, IC circuit (no indicator lamp), serial connection |                       | For programmable controller, relay |            |            | For programmable controller       |                  |
| Output method   | -                                                          |                       |                                       |                                   | NPN output           | PNP output                         | NPN output                        | NPN output                        | -                    |                                    |                                                                                       |                       |                                    |            |            |                                   |                  |
| Pwr. supp. V.   | -                                                          |                       |                                       |                                   | 10 to 28 VDC         |                                    |                                   |                                   | -                    |                                    |                                                                                       |                       |                                    |            |            |                                   |                  |
| Load voltage    | 85 to 265 VAC                                              |                       | 10 to 30 VDC                          |                                   | 24 VDC ±10%          |                                    | 30 VDC or less                    |                                   |                      | 12/24 VDC                          | 100/110 VAC                                                                           | 5/12/24 VDC           | 100/110 VAC                        | 12/24 VDC  | 110 VAC    | 220 VAC                           | 24 VDC ±10%      |
| Load current    | 5 to 100 mA                                                |                       | 5 to 20 mA (*2)                       |                                   |                      | 100 mA or less                     |                                   | 50 mA or less                     |                      | 5 to 50 mA                         | 7 to 20 mA                                                                            | ≤50 mA                | ≤20 mA                             | 5 to 50 mA | 7 to 20 mA | 7 to 10 mA                        | 5 to 20 mA       |
| Indicator lamp  | LED<br>(Lit when ON)                                       | LED<br>(Lit when ON)  | Red/green<br>LED<br>(Lit when ON)     | Red/green<br>LED<br>(Lit when ON) | LED<br>(Lit when ON) | Yellow<br>LED<br>(Lit when ON)     | Red/green<br>LED<br>(Lit when ON) | Red/green<br>LED<br>(Lit when ON) | LED<br>(Lit when ON) |                                    | Without indicator lamp                                                                |                       | LED<br>(Lit when ON)               |            |            | Red/green<br>LED<br>(Lit when ON) |                  |
| Leakage current | ≤ 1 mA at 100 VAC,<br>≤ 2 mA at 200 VAC                    |                       | 1 mA or less                          |                                   |                      | 10 µA or less                      |                                   |                                   |                      | 0 mA                               |                                                                                       |                       |                                    |            |            |                                   | 1 mA or less     |
| Weight g        | 1 m:33                                                     | 1 m:18                | 1 m:33                                | 1 m:18                            | 1 m:18               |                                    | 1 m:33                            | 1 m:18                            | 1 m:18 3 m:49 5 m:80 |                                    |                                                                                       | 1 m:33 3 m:87 5 m:142 |                                    |            | 1 m:61     |                                   |                  |
|                 | 3 m:87                                                     | 3 m:49                | 3 m:87                                | 3 m:49                            | 3 m:49               |                                    | 3 m:87                            | 3 m:49                            |                      |                                    |                                                                                       |                       |                                    |            | 3 m:166    |                                   |                  |
|                 | 5 m:142                                                    | 5 m:80                | 5 m:142                               | 5 m:80                            | 5 m:80               |                                    | 5 m:142                           | 5 m:80                            |                      |                                    |                                                                                       |                       |                                    |            | 5 m:272    |                                   |                  |

\*1 : Refer to Ending Page 1 for other switch specifications.

\*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

\*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

\*4 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

\*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

### Theoretical thrust table

(Unit: N)

| Bore size<br>(mm) | Operating<br>direction | Working pressure MPa |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
|-------------------|------------------------|----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                   |                        | 0.1                  | 0.15               | 0.2                | 0.3                | 0.4                | 0.5                | 0.6                | 0.7                | 0.8                | 0.9                | 1.0                |
| φ25               | Push                   | -                    | -                  | 98.2               | $1.47 \times 10^2$ | $1.96 \times 10^2$ | $2.45 \times 10^2$ | $2.95 \times 10^2$ | $3.44 \times 10^2$ | $3.93 \times 10^2$ | $4.42 \times 10^2$ | $4.91 \times 10^2$ |
|                   | Pull                   | -                    | -                  | 75.6               | $1.13 \times 10^2$ | $1.51 \times 10^2$ | $1.89 \times 10^2$ | $2.27 \times 10^2$ | $2.64 \times 10^2$ | $3.02 \times 10^2$ | $3.40 \times 10^2$ | $3.78 \times 10^2$ |
| φ32               | Push                   | 80.4                 | $1.21 \times 10^2$ | $1.61 \times 10^2$ | $2.41 \times 10^2$ | $3.22 \times 10^2$ | $4.02 \times 10^2$ | $4.83 \times 10^2$ | $5.63 \times 10^2$ | $6.43 \times 10^2$ | $7.24 \times 10^2$ | $8.04 \times 10^2$ |
|                   | Pull                   | 60.3                 | 90.5               | $1.21 \times 10^2$ | $1.81 \times 10^2$ | $2.41 \times 10^2$ | $3.02 \times 10^2$ | $3.62 \times 10^2$ | $4.22 \times 10^2$ | $4.83 \times 10^2$ | $5.43 \times 10^2$ | $6.03 \times 10^2$ |
| φ40               | Push                   | $1.26 \times 10^2$   | $1.88 \times 10^2$ | $2.51 \times 10^2$ | $3.77 \times 10^2$ | $5.03 \times 10^2$ | $6.28 \times 10^2$ | $7.54 \times 10^2$ | $8.80 \times 10^2$ | $1.01 \times 10^3$ | $1.13 \times 10^3$ | $1.26 \times 10^3$ |
|                   | Pull                   | $1.06 \times 10^2$   | $1.58 \times 10^2$ | $2.11 \times 10^2$ | $3.17 \times 10^2$ | $4.22 \times 10^2$ | $5.28 \times 10^2$ | $6.33 \times 10^2$ | $7.39 \times 10^2$ | $8.44 \times 10^2$ | $9.50 \times 10^2$ | $1.06 \times 10^3$ |
| φ50               | Push                   | $1.96 \times 10^2$   | $2.95 \times 10^2$ | $3.93 \times 10^2$ | $5.89 \times 10^2$ | $7.85 \times 10^2$ | $9.82 \times 10^2$ | $1.18 \times 10^3$ | $1.37 \times 10^3$ | $1.57 \times 10^3$ | $1.77 \times 10^3$ | $1.96 \times 10^3$ |
|                   | Pull                   | $1.65 \times 10^2$   | $2.47 \times 10^2$ | $3.30 \times 10^2$ | $4.95 \times 10^2$ | $6.60 \times 10^2$ | $8.25 \times 10^2$ | $9.90 \times 10^2$ | $1.15 \times 10^3$ | $1.32 \times 10^3$ | $1.48 \times 10^3$ | $1.65 \times 10^3$ |
| φ63               | Push                   | $3.12 \times 10^2$   | $4.68 \times 10^2$ | $6.23 \times 10^2$ | $9.35 \times 10^2$ | $1.25 \times 10^3$ | $1.56 \times 10^3$ | $1.87 \times 10^3$ | $2.18 \times 10^3$ | $2.49 \times 10^3$ | $2.81 \times 10^3$ | $3.12 \times 10^3$ |
|                   | Pull                   | $2.80 \times 10^2$   | $4.20 \times 10^2$ | $5.61 \times 10^2$ | $8.41 \times 10^2$ | $1.12 \times 10^3$ | $1.40 \times 10^3$ | $1.68 \times 10^3$ | $1.96 \times 10^3$ | $2.24 \times 10^3$ | $2.52 \times 10^3$ | $2.80 \times 10^3$ |
| φ80               | Push                   | $5.03 \times 10^2$   | $7.54 \times 10^2$ | $1.01 \times 10^3$ | $1.51 \times 10^3$ | $2.01 \times 10^3$ | $2.51 \times 10^3$ | $3.02 \times 10^3$ | $3.52 \times 10^3$ | $4.02 \times 10^3$ | $4.52 \times 10^3$ | $5.03 \times 10^3$ |
|                   | Pull                   | $4.54 \times 10^2$   | $6.80 \times 10^2$ | $9.07 \times 10^2$ | $1.36 \times 10^3$ | $1.81 \times 10^3$ | $2.27 \times 10^3$ | $2.72 \times 10^3$ | $3.17 \times 10^3$ | $3.63 \times 10^3$ | $4.08 \times 10^3$ | $4.54 \times 10^3$ |

For cylinder weight, refer to pages 554 to 557.

# STS/STL-MC Series

## How to order

### ● Short stroke

Without switch (built-in magnet for switch)

STS - M C - 25 - 25 - F

With switch (built-in magnet for switch)

STS - M C - 25 - 25 - T2H - R - F

### ● Long stroke length

Without switch (built-in magnet for switch)

STL - M C - 25 - 50 - F

With switch (built-in magnet for switch)

STL - M C - 25 - 50 - T2H - R - F

A Bearing

B Bore size

C Port thread

D Stroke length

E Switch model No.  
\*1, \*4

### ⚠ Precautions for model No. selection

\*1 : Switches other than E Switch model No. are also available. (Custom order product)  
Refer to Ending Page 1 for details.

\*2 : Refer to pages 440 to 443 for combinations of variations/options.

\*3 : φ25 with ball bearing B is copper and PTFE free as standard.

\*4 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

For the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches for φ40 and over, insert "L1" with "-" between A and B.

(Example) STS-MC-L1-63-50-T2YH3-D-F  
For φ80, the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches cannot be retrofitted on a previously purchased standard product.

In this case, order the model No. with "L1" inserted between A and B.

(Example) STS-MC-L1-80-50-F

### [Example of model No.]

#### STS-MC-25-50-T0H-R-F

Model: Guided cylinder, short stroke length, standard/air cushioned

- A Bearing : Metal bush bearing
- B Bore size : φ25 mm
- C Port thread : Rc thread
- D Stroke length : 50 mm
- E Switch model No. : Reed switch T0H, 1 m lead wire length

F Switch quantity : 1 on rod side

G Option : End plate material: steel

F Switch quantity

G Option

| Code             | Content            |
|------------------|--------------------|
| <b>A Bearing</b> |                    |
| M                | Metal bush bearing |
| B                | Ball bearing       |

|                         |     |
|-------------------------|-----|
| <b>B Bore size (mm)</b> |     |
| 25                      | φ25 |
| 32                      | φ32 |
| 40                      | φ40 |
| 50                      | φ50 |
| 63                      | φ63 |
| 80                      | φ80 |

|                      |                                                |
|----------------------|------------------------------------------------|
| <b>C Port thread</b> |                                                |
| Blank                | Rc thread                                      |
| NN                   | NPT thread (φ32 and over) custom order product |
| GN                   | G thread (φ32 and over) custom order product   |

|                                                         |  |
|---------------------------------------------------------|--|
| <b>D Stroke length (mm)</b>                             |  |
| Refer to the stroke length table on the following page. |  |

| E Switch model No. |                  |           |         |    |                           |           |
|--------------------|------------------|-----------|---------|----|---------------------------|-----------|
| Axial lead wire    | Radial lead wire | Contact   | Voltage |    | Indicator                 | Lead wire |
|                    |                  |           | AC      | DC |                           |           |
| T0H*               | T0V*             | Reed      | ●       | ●  | 1-color display           | 2-wire    |
| T5H*               | T5V*             |           | ●       | ●  | no indicator lamp         |           |
| T8H*               | T8V*             |           | ●       | ●  | 1-color display           |           |
| T1H*               | T1V*             |           | ●       |    |                           |           |
| T2H*               | T2V*             | Proximity |         | ●  | 2-color display           | 3-wire    |
| T3H*               | T3V*             |           |         | ●  |                           |           |
| T3PH*              | T3PV*            |           |         | ●  | 1-color display (custom)  | 3-wire    |
| T2WH*              | T2WV*            |           |         | ●  | 2-color display           | 2-wire    |
| T2YH*              | T2YV*            |           |         | ●  |                           | 2-wire    |
| T3WH*              | T3WV*            |           |         | ●  |                           | 3-wire    |
| T3YH*              | T3YV*            |           |         | ●  |                           | 3-wire    |
| T2JH*              | T2JV*            |           |         | ●  | 1-color display off-delay | 2-wire    |
| T2YD*              | -                |           |         | ●  | 2-color display           | 2-wire    |
| T2YDT*             | -                |           |         | ●  | (AC magnetic field)       |           |

|                           |                |
|---------------------------|----------------|
| <b>* Lead wire length</b> |                |
| Blank                     | 1 m (standard) |
| 3                         | 3 m (option)   |
| 5                         | 5 m (option)   |

|                          |                |
|--------------------------|----------------|
| <b>F Switch quantity</b> |                |
| R                        | 1 on rod side  |
| H                        | 1 on head side |
| D                        | 2              |
| T                        | 3              |

|                 |                                                                    |
|-----------------|--------------------------------------------------------------------|
| <b>G Option</b> |                                                                    |
| F               | End plate material (steel)                                         |
| M               | Corrosion proof (Piston rod, guide rod SUS) (custom order product) |
| M1              | Corrosion proof (M + end plate SUS) (custom)                       |
| P6 *3           | Copper/PTFE free specs (custom)                                    |

### D Stroke length

| Series | Stroke length (mm)     | Applicable bore size |     |     |     |     |     |
|--------|------------------------|----------------------|-----|-----|-----|-----|-----|
|        |                        | φ25                  | φ32 | φ40 | φ50 | φ63 | φ80 |
| STS    | Standard stroke length | 25                   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 50                   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 75                   |     |     |     |     | ●   |
|        |                        | 100                  |     |     |     |     | ●   |
|        | Min. stroke length     | 15                   |     |     |     |     |     |
| STL    | Standard stroke length | 50                   | ●   | ●   | ●   | ●   |     |
|        |                        | 75                   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 100                  | ●   | ●   | ●   | ●   | ●   |
|        |                        | 125                  | ●   | ●   | ●   | ●   | ●   |
|        |                        | 150                  | ●   | ●   | ●   | ●   | ●   |
|        |                        | 175                  | ●   | ●   | ●   | ●   | ●   |
|        |                        | 200                  | ●   | ●   | ●   | ●   | ●   |
|        |                        | 225                  | ●   | ●   | ●   | ●   | ●   |
|        |                        | 250                  | ●   | ●   | ●   | ●   | ●   |
|        |                        | 275                  | ●   | ●   | ●   | ●   | ●   |
|        |                        | 300                  | ●   | ●   | ●   | ●   | ●   |
|        |                        | 325                  | ●   | ●   | ●   | ●   | ●   |
|        |                        | 350                  | ●   | ●   | ●   | ●   | ●   |
|        |                        | 375                  | ●   | ●   | ●   | ●   | ●   |
|        |                        | 400                  | ●   | ●   | ●   | ●   |     |
|        | Min. stroke length     | 30                   |     |     |     |     | 55  |

Note: Custom stroke length is available as custom order.

### How to order switch

**SW** - **T0V**

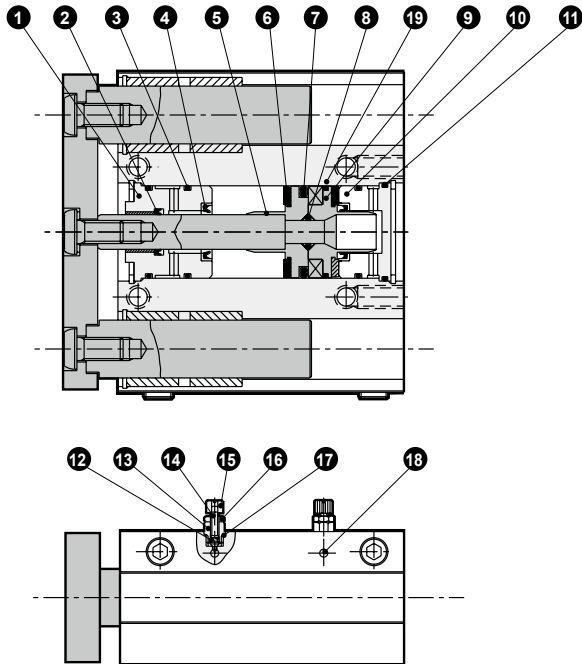
Switch model No.  
(Item (E) on the previous page)

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

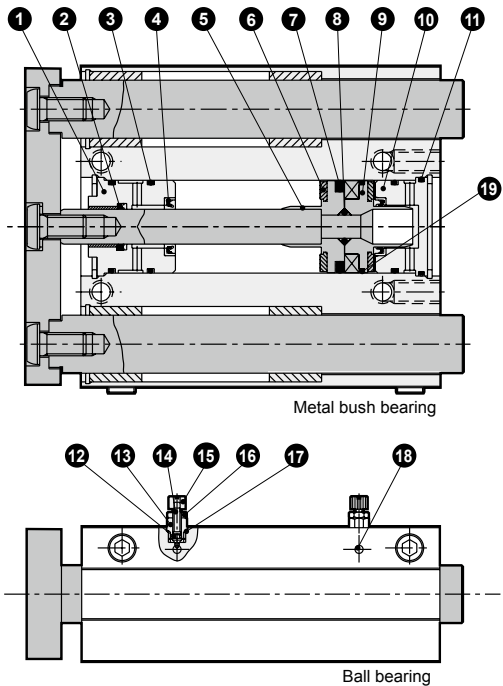
|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

Internal structure and parts list

● With air cushion  
STS-<sup>M</sup><sub>BC</sub>



● With air cushion  
STL-<sup>M</sup><sub>BC</sub>



Parts list (Parts not listed below are the same as those of the double acting/standard single rod. Refer to pages 449 to 453.)

| No.                                             | Part name       | Material               | Remarks | No. | Part name     | Material        | Remarks   |
|-------------------------------------------------|-----------------|------------------------|---------|-----|---------------|-----------------|-----------|
| STS- <sup>M</sup> <sub>BC</sub> (air-cushioned) |                 |                        |         |     |               |                 |           |
| 1                                               | Rod metal       | Special aluminum alloy | Alumite | 10  | Base plate    | Aluminum alloy  | Chromate  |
| 2                                               | Rod packing     | Nitrile rubber         |         | 11  | O-ring        | Nitrile rubber  |           |
| 3                                               | Metal gasket    | Nitrile rubber         |         | 12  | O-ring        | Nitrile rubber  |           |
| 4                                               | Cushion packing | Nitrile rubber/steel   |         | 13  | Needle holder | Aluminum alloy  |           |
| 5                                               | Piston R        | Aluminum alloy         |         | 14  | Needle        | Stainless steel |           |
| 6                                               | Cushion rubber  | Urethane rubber        |         | 15  | Knob          | Aluminum alloy  |           |
| 7                                               | Piston packing  | Nitrile rubber         |         | 16  | Lock nut      | Steel           | Nickeling |
| 8                                               | O-ring          | Nitrile rubber         |         | 17  | O-ring        | Nitrile rubber  |           |
| 9                                               | Piston H        | Aluminum alloy         |         | 18  | Steel ball    | Alloy steel     |           |
|                                                 |                 |                        |         | 19  | Wear ring     | Acetal resin    |           |

Repair parts list

● STS-<sup>M</sup><sub>BC</sub> (air-cushioned)

| Bore size (mm) | Kit No.   | Repair parts No.                      |
|----------------|-----------|---------------------------------------|
| φ25            | STS-C-25K | <div>2 3 4 6</div> <div>7 11 19</div> |
| φ32            | STS-C-32K |                                       |
| φ40            | STS-C-40K |                                       |
| φ50            | STS-C-50K |                                       |
| φ63            | STS-C-63K |                                       |
| φ80            | STS-C-80K |                                       |

Note: Specify the kit No. when placing an order.

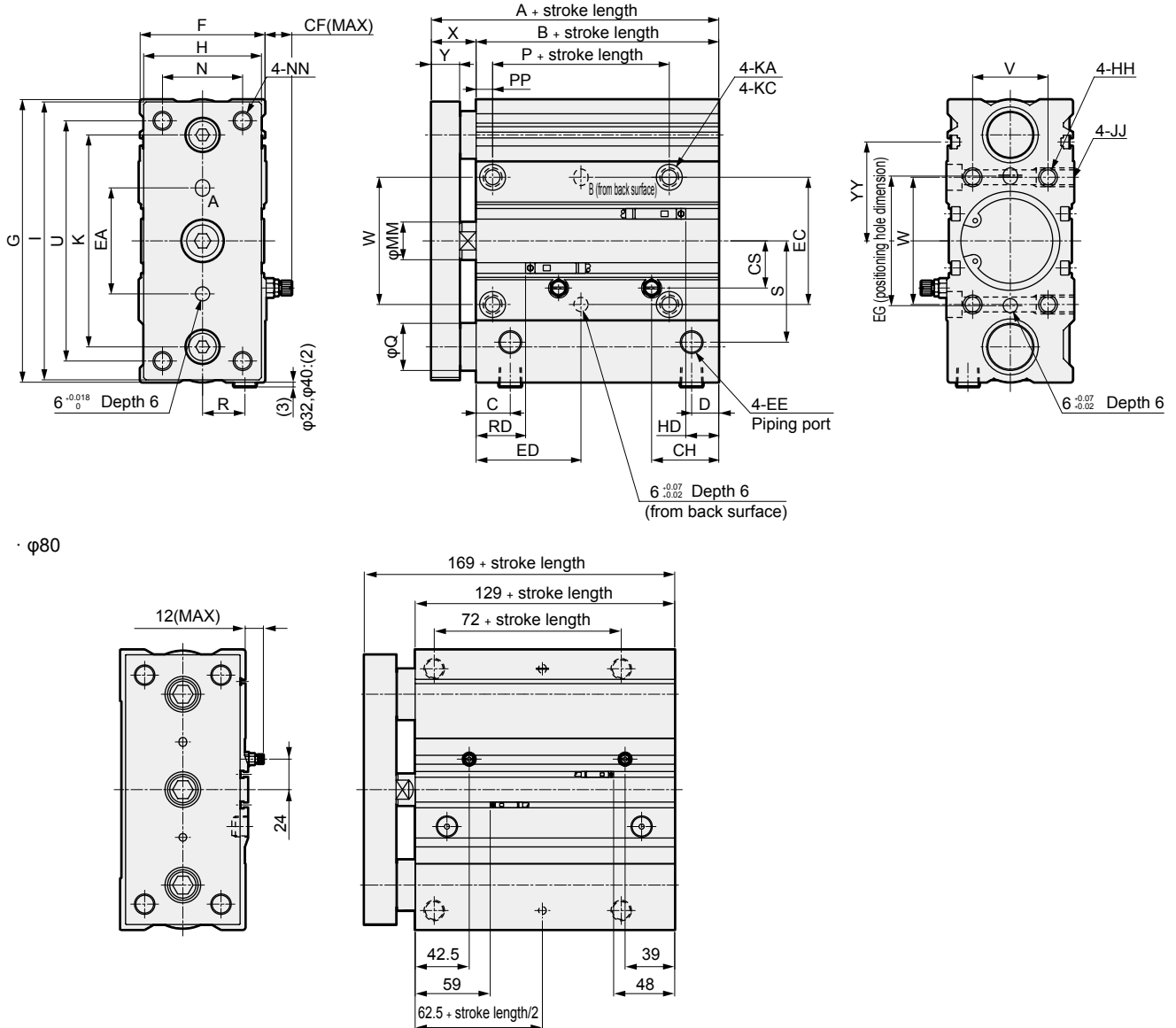
### Dimensions



#### ● With air cushion

STS-M<sub>B</sub>C (Dimensions not listed below are the same as those of the double acting/standard single rod.)

·  $\phi 25/\phi 32/\phi 40/\phi 50/\phi 63$



·  $\phi 80$

\*1 : The custom stroke length is available in 1 mm increments. (Custom order)

\*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

\*3 : Port plug of  $\phi 25$  is hexagonal.

#### ● STS-M/BC( $\phi 25$ to $\phi 63$ )

| Code           | A   | B  | C    | D    | EE     | EA | EC | EG | ED                        | F  | G   | H  | HH           | I   | JJ           | K   | KA          | KC                      |
|----------------|-----|----|------|------|--------|----|----|----|---------------------------|----|-----|----|--------------|-----|--------------|-----|-------------|-------------------------|
| Bore size (mm) |     |    |      |      |        |    |    |    |                           |    |     |    |              |     |              |     |             |                         |
| $\phi 25$      | 79  | 66 | 12   | 9    | M5×0.8 | 32 | 35 | 37 | 27+<br>Stroke length<br>2 | 42 | 86  | 38 | M6 depth 12  | 84  | M6 depth 12  | 63  | 5.2 through | 9.5 spot face depth 5.4 |
| $\phi 32$      | 93  | 74 | 14   | 10.5 | Rc1/8  | 42 | 45 | 46 | 30+<br>Stroke length<br>2 | 47 | 111 | 45 | M8 depth 16  | 109 | M8 depth 16  | 81  | 6.3 through | 11 spot face depth 6.5  |
| $\phi 40$      | 97  | 78 | 14.5 | 11.5 | Rc1/8  | 45 | 54 | 55 | 32+<br>Stroke length<br>2 | 54 | 120 | 50 | M8 depth 16  | 118 | M8 depth 16  | 90  | 6.3 through | 11 spot face depth 6.5  |
| $\phi 50$      | 102 | 80 | 16   | 12.5 | Rc1/4  | 55 | 66 | 69 | 32+<br>Stroke length<br>2 | 66 | 147 | 64 | M10 depth 20 | 145 | M10 depth 20 | 110 | 8.6 through | 14 spot face depth 8.6  |
| $\phi 63$      | 108 | 86 | 12.5 | 17.5 | Rc1/4  | 62 | 79 | 82 | 35+<br>Stroke length<br>2 | 79 | 162 | 75 | M10 depth 20 | 160 | M10 depth 20 | 124 | 8.6 through | 14 spot face depth 8.6  |

| Code           | MM | N  | NN          | P  | PP | Q     |       | R  | S  | U   | V  | W  | X                 | Y  | YY | CF | CH   | CR   | CS | T0/T5/T2/T3 | T2W/T3W |
|----------------|----|----|-------------|----|----|-------|-------|----|----|-----|----|----|-------------------|----|----|----|------|------|----|-------------|---------|
| Bore size (mm) |    |    |             |    |    | STS-M | STS-B |    |    |     |    |    |                   |    |    |    |      |      |    | HD          | RD      |
| $\phi 25$      | 12 | 26 | M6 through  | 45 | 6  | 14    | 12    | 14 | 26 | 72  | 24 | 35 | 13 $\frac{0}{-2}$ | 9  | 27 | 15 | 24.5 | 27   | 25 | 19          | 28      |
| $\phi 32$      | 16 | 29 | M8 through  | 47 | 7  | 20    | 16    | 16 | 39 | 93  | 25 | 45 | 19                | 12 | 39 | 14 | 28   | 33   | 34 | 21.5        | 34.5    |
| $\phi 40$      | 16 | 34 | M8 through  | 50 | 7  | 20    | 16    | 18 | 43 | 102 | 32 | 54 | 19 $\frac{0}{-2}$ | 12 | 42 | 14 | 29   | 35   | 20 | 22          | 38      |
| $\phi 50$      | 20 | 44 | M10 through | 51 | 8  | 25    | 20    | 22 | 49 | 125 | 38 | 66 | 22                | 16 | 45 | 17 | 29   | 36   | 23 | 24.5        | 38.5    |
| $\phi 63$      | 20 | 55 | M10 through | 51 | 8  | 25    | 20    | 26 | 56 | 140 | 50 | 79 | 22 $\frac{0}{-2}$ | 16 | 52 | 17 | 29   | 41.5 | 25 | 26          | 44      |

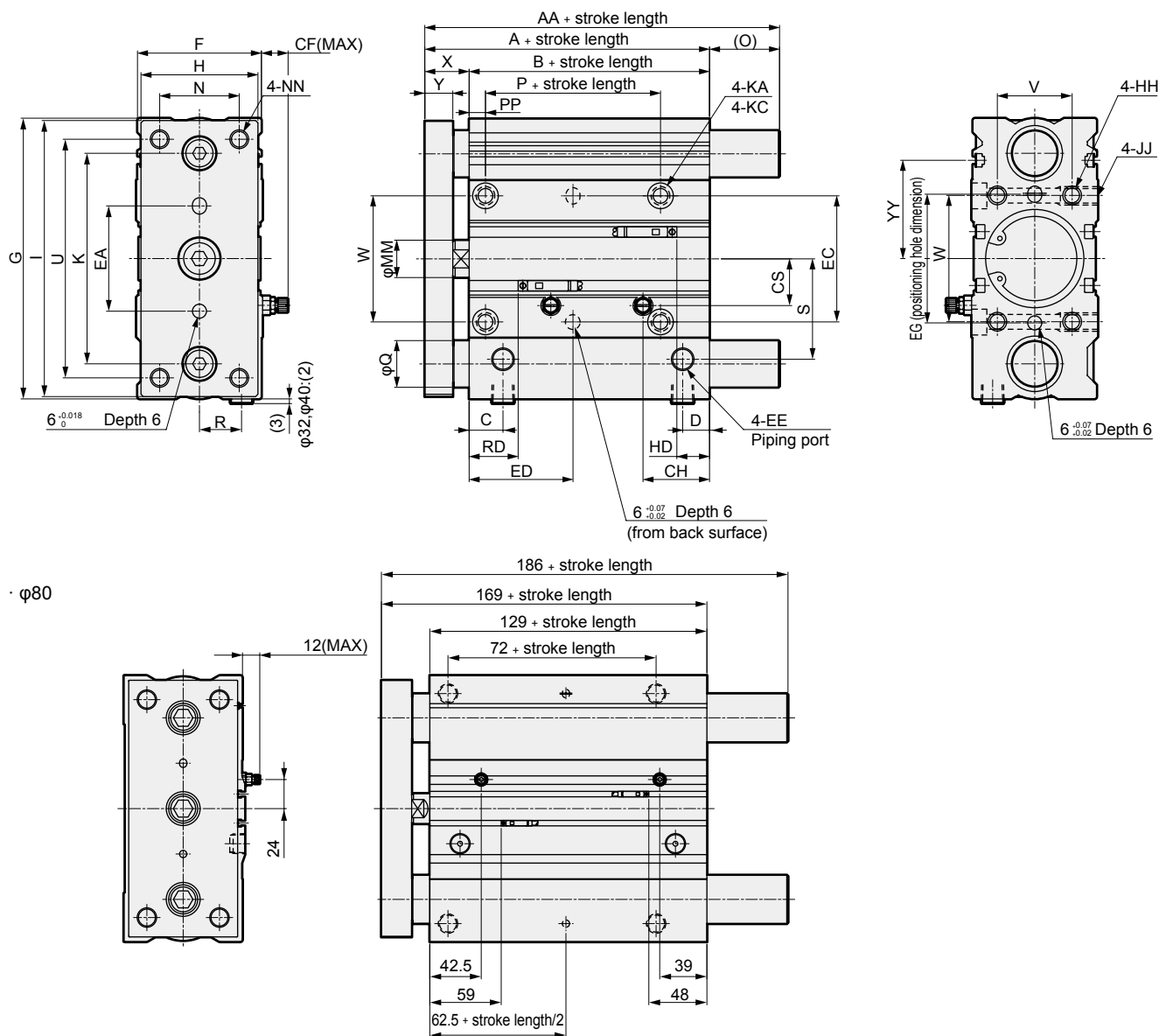
## Dimensions



### ● Air cushion

STL-M<sub>BC</sub> C (Dimensions not listed below are the same as those of the double acting/standard single rod.)

·  $\phi 25/\phi 32/\phi 40/\phi 50/\phi 63$



\*1 : The custom stroke length is available in 1 mm increments. (Custom order)

\*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

\*3 : Port plug of  $\phi 25$  is hexagonal.

### ● STL-M/BC( $\phi 25$ to $\phi 63$ )

| Code           | A   | AA  | B  | C    | D    | EE     | EA | EC | EG | ED                        | F  | G   | H  | HH           | I   | JJ           | K   | KA          | KC                      |
|----------------|-----|-----|----|------|------|--------|----|----|----|---------------------------|----|-----|----|--------------|-----|--------------|-----|-------------|-------------------------|
| Bore size (mm) |     |     |    |      |      |        |    |    |    |                           |    |     |    |              |     |              |     |             |                         |
| $\phi 25$      | 79  | 79  | 66 | 12   | 9    | M5×0.8 | 32 | 35 | 37 | 27+<br>Stroke length<br>2 | 42 | 86  | 38 | M6 depth 12  | 84  | M6 depth 12  | 63  | 5.2 through | 9.5 spot face depth 5.4 |
| $\phi 32$      | 93  | 102 | 74 | 14   | 10.5 | Rc1/8  | 42 | 45 | 46 | 30+<br>Stroke length<br>2 | 47 | 111 | 45 | M8 depth 16  | 109 | M8 depth 16  | 81  | 6.3 through | 11 spot face depth 6.5  |
| $\phi 40$      | 97  | 102 | 78 | 14.5 | 11.5 | Rc1/8  | 45 | 54 | 55 | 32+<br>Stroke length<br>2 | 54 | 120 | 50 | M8 depth 16  | 118 | M8 depth 16  | 90  | 6.3 through | 11 spot face depth 6.5  |
| $\phi 50$      | 102 | 125 | 80 | 16   | 12.5 | Rc1/4  | 55 | 66 | 69 | 32+<br>Stroke length<br>2 | 66 | 147 | 64 | M10 depth 20 | 145 | M10 depth 20 | 110 | 8.6 through | 14 spot face depth 8.6  |
| $\phi 63$      | 108 | 125 | 86 | 12.5 | 17.5 | Rc1/4  | 62 | 79 | 82 | 35+<br>Stroke length<br>2 | 79 | 162 | 75 | M10 depth 20 | 160 | M10 depth 20 | 124 | 8.6 through | 14 spot face depth 8.6  |

| Code           | MM | N  | NN          | O  | P  | PP | Q     |       | R  | S  | U   | V  | W  | X  | Y                              | YY | CF | CH   | CR   | CS | T0/T5/T2/T3 |      | T2W/T3W |      |
|----------------|----|----|-------------|----|----|----|-------|-------|----|----|-----|----|----|----|--------------------------------|----|----|------|------|----|-------------|------|---------|------|
| Bore size (mm) |    |    |             |    |    |    | STL-M | STL-B |    |    |     |    |    |    |                                |    |    |      |      |    | HD          | RD   | HD      | RD   |
| $\phi 25$      | 12 | 26 | M6 through  | 0  | 45 | 6  | 14    | 12    | 14 | 26 | 72  | 24 | 35 | 13 | 9 <sup>0</sup> / <sub>2</sub>  | 27 | 15 | 24.5 | 27   | 25 | 19          | 28   | 29.5    | 21   |
| $\phi 32$      | 16 | 29 | M8 through  | 9  | 47 | 7  | 20    | 16    | 16 | 39 | 93  | 25 | 45 | 19 | 12                             | 39 | 14 | 28   | 33   | 34 | 21.5        | 34.5 | 36      | 22   |
| $\phi 40$      | 16 | 34 | M8 through  | 5  | 50 | 7  | 20    | 16    | 18 | 43 | 102 | 32 | 54 | 19 | 12 <sup>0</sup> / <sub>2</sub> | 42 | 14 | 29   | 35   | 20 | 22          | 38   | 40      | 24   |
| $\phi 50$      | 20 | 44 | M10 through | 23 | 51 | 8  | 25    | 20    | 22 | 49 | 125 | 38 | 66 | 22 | 16                             | 45 | 17 | 29   | 36   | 23 | 24.5        | 38.5 | 40      | 24.5 |
| $\phi 63$      | 20 | 55 | M10 through | 17 | 51 | 8  | 25    | 20    | 26 | 56 | 140 | 50 | 79 | 22 | 16 <sup>0</sup> / <sub>2</sub> | 52 | 17 | 29   | 41.5 | 25 | 26          | 44   | 45.5    | 27.5 |

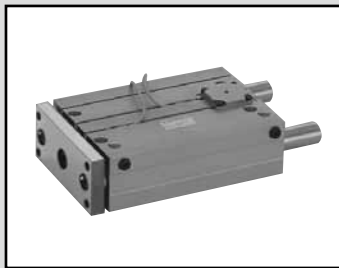
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# MEMO

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|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MedHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

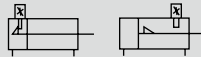


Guided cylinder, double acting/position locking

# STS/STL-MQ Series

● Bore size:  $\phi 20/\phi 25/\phi 32/\phi 40/\phi 50/\phi 63/\phi 80$

JIS symbol



## Specifications

| Descriptions               |      | STS-MQ/BQ, STL-MQ/BQ                                                         |       |                         |       |       |           |       |
|----------------------------|------|------------------------------------------------------------------------------|-------|-------------------------|-------|-------|-----------|-------|
| Bore size                  | mm   | φ20                                                                          | φ25   | φ32                     | φ40   | φ50   | φ63       | φ80   |
| Actuation                  |      | Double acting/position locking                                               |       |                         |       |       |           |       |
| Working fluid              |      | Compressed air                                                               |       |                         |       |       |           |       |
| Max. working pressure      | MPa  | 1.0 (≈150 psi, 10 bar)                                                       |       |                         |       |       |           |       |
| Min. working pressure      | MPa  | 0.2 (≈29 psi, 2 bar)                                                         |       | 0.15 (≈22 psi, 1.5 bar) |       |       |           |       |
| Proof pressure             | MPa  | 1.6 (≈230 psi, 16 bar)                                                       |       |                         |       |       |           |       |
| Ambient temperature        | °C   | -10 (14°F) to 60 (140°F) (no freezing)                                       |       |                         |       |       |           |       |
| Port size                  |      | M5                                                                           |       | Rc1/8                   |       | Rc1/4 |           | Rc3/8 |
| Stroke tolerance           | mm   | <sup>+2.0</sup> <sub>0</sub>                                                 |       |                         |       |       |           |       |
| Working piston speed       | mm/s | 50 to 500                                                                    |       |                         |       |       | 50 to 300 |       |
| Cushion                    |      | With rubber cushion                                                          |       |                         |       |       |           |       |
| Position locking mechanism |      | Rod side or head side                                                        |       |                         |       |       |           |       |
| Holding force              | N    | Max. thrust x 0.7                                                            |       |                         |       |       |           |       |
| Lubrication                |      | Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication) |       |                         |       |       |           |       |
| Allowable absorbed energy  | J    | 0.157                                                                        | 0.157 | 0.401                   | 0.627 | 0.980 | 1.560     | 2.510 |

## Stroke length

· Short stroke STS

| Bore size (mm) | Standard stroke length (mm) | Max. stroke length (mm) | Min. stroke length (mm) | Min. stroke with switch (mm)  |
|----------------|-----------------------------|-------------------------|-------------------------|-------------------------------|
| $\phi 20$      | 25, 50                      | 50                      | 5                       | 5<br>With one or two switches |
| $\phi 25$      |                             |                         |                         |                               |
| $\phi 32$      |                             |                         |                         |                               |
| $\phi 40$      |                             |                         |                         |                               |
| $\phi 50$      |                             |                         |                         |                               |
| $\phi 63$      | 25, 50, 75, 100             | 100                     |                         |                               |
| $\phi 80$      |                             |                         |                         |                               |

· Long stroke length STL

| Bore size (mm) | Standard stroke length (mm) | Max. stroke length (mm) | Min. stroke length (mm) | Min. stroke with switch (mm)   |
|----------------|-----------------------------|-------------------------|-------------------------|--------------------------------|
| φ20            | 50, 75, 100, 125, 150, 175  | 400                     | 30                      | 30<br>With one or two switches |
| φ25            | 200, 225, 250, 275, 300     |                         |                         |                                |
| φ32            | 325, 350, 375, 400          |                         |                         |                                |
| φ40            | 50, 75, 100, 125, 150, 175  | 375                     |                         |                                |
| φ50            | 200, 225, 250, 275, 300     |                         |                         |                                |
| φ63            | 325, 350, 375               |                         |                         |                                |
| φ80            | 75, 100, 125, 150, 175      | 350                     | 55                      | 55<br>With one or two switches |
|                | 200, 225, 250, 275, 300     |                         |                         |                                |
|                | 325, 350                    |                         |                         |                                |

Note: The custom stroke length is available in 5 mm increments.

However, the total length is the same as that of the next longer standard stroke length.

▲ Be sure to read the “Safety precautions” Position locking on pages 562 to 565 before use.

### Switch specifications

● 1-color/2-color display/for AC magnetic field proof

| Descriptions    | Proximity 2-wire                                           | Proximity 2-wire                      |                                |                                | Proximity 3-wire                   |                             |                                |                                | Reed 2-wire                        |             |                                                                                       |                       |                                    |            |            | Proximity 2-wire               |
|-----------------|------------------------------------------------------------|---------------------------------------|--------------------------------|--------------------------------|------------------------------------|-----------------------------|--------------------------------|--------------------------------|------------------------------------|-------------|---------------------------------------------------------------------------------------|-----------------------|------------------------------------|------------|------------|--------------------------------|
|                 | T1H/<br>T1V                                                | T2H/T2V/<br>T2JH/T2JV                 | T2YH/<br>T2YV                  | T2WH/<br>T2WV                  | T3H/<br>T3V                        | T3PH/T3PV<br>(custom)       | T3YH/<br>T3YV                  | T3WH/<br>T3WV                  | T0H/T0V                            |             | T5H/T5V                                                                               |                       | T8H/T8V                            |            |            | T2YD                           |
| Applications    | For programmable controller, relay, compact solenoid valve | Dedicated for programmable controller |                                |                                | For programmable controller, relay |                             |                                |                                | For programmable controller, relay |             | For programmable controller, relay, IC circuit (no indicator lamp), serial connection |                       | For programmable controller, relay |            |            | For programmable controller    |
| Output method   | -                                                          |                                       |                                |                                | NPN output                         | PNP output                  | NPN output                     | NPN output                     | -                                  |             |                                                                                       |                       |                                    |            |            |                                |
| Pwr. supp. V.   | -                                                          |                                       |                                |                                | 10 to 28 VDC                       |                             |                                |                                | -                                  |             |                                                                                       |                       |                                    |            |            |                                |
| Load voltage    | 85 to 265 VAC                                              | 10 to 30 VDC                          |                                | 24 VDC ±10%                    | 30 VDC or less                     |                             |                                |                                | 12/24 VDC                          | 100/110 VAC | 5/12/24 VDC                                                                           | 100/110 VAC           | 12/24 VDC                          | 110 VAC    | 220 VAC    | 24 VDC ±10%                    |
| Load current    | 5 to 100 mA                                                | 5 to 20 mA (*2)                       |                                |                                | 100 mA or less                     |                             | 50 mA or less                  |                                | 5 to 50 mA                         | 7 to 20 mA  | ≤50 mA                                                                                | ≤20 mA                | 5 to 50 mA                         | 7 to 20 mA | 7 to 10 mA | 5 to 20 mA                     |
| Indicator lamp  | LED<br>(Lit when ON)                                       | LED<br>(Lit when ON)                  | Red/green LED<br>(Lit when ON) | Red/green LED<br>(Lit when ON) | LED<br>(Lit when ON)               | Yellow LED<br>(Lit when ON) | Red/green LED<br>(Lit when ON) | Red/green LED<br>(Lit when ON) | LED<br>(Lit when ON)               |             | Without indicator lamp                                                                |                       | LED<br>(Lit when ON)               |            |            | Red/green LED<br>(Lit when ON) |
| Leakage current | ≤1 mA at 100 VAC,<br>≤2 mA at 200 VAC                      | 1 mA or less                          |                                |                                | 10 µA or less                      |                             |                                |                                | 0 mA                               |             |                                                                                       |                       |                                    |            |            | 1 mA or less                   |
| Weight g        | 1 m:33                                                     | 1 m:18                                | 1 m:33                         | 1 m:18                         | 1 m:18                             |                             | 1 m:33                         | 1 m:18                         | 1 m:18 3 m:49 5 m:80               |             |                                                                                       | 1 m:33 3 m:87 5 m:142 |                                    |            | 1 m:61     |                                |
|                 | 3 m:87                                                     | 3 m:49                                | 3 m:87                         | 3 m:49                         | 3 m:49                             |                             | 3 m:87                         | 3 m:49                         |                                    |             |                                                                                       |                       |                                    |            | 3 m:166    |                                |
|                 | 5 m:142                                                    | 5 m:80                                | 5 m:142                        | 5 m:80                         | 5 m:80                             |                             | 5 m:142                        | 5 m:80                         |                                    |             |                                                                                       |                       |                                    |            | 5 m:272    |                                |

\*1 : Refer to Ending Page 1 for other switch specifications.

\*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

\*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

\*4 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

\*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

### Theoretical thrust table

(Unit: N)

| Bore size<br>(mm) | Operating<br>direction | Working pressure MPa   |                        |                        |                        |                        |                        |                        |                        |                        |                        |                        |
|-------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|                   |                        | 0.1                    | 0.15                   | 0.2                    | 0.3                    | 0.4                    | 0.5                    | 0.6                    | 0.7                    | 0.8                    | 0.9                    | 1.0                    |
| φ20               | Push                   | -                      | -                      | 62.8                   | 94.2                   | 1.26 × 10 <sup>2</sup> | 1.57 × 10 <sup>2</sup> | 1.88 × 10 <sup>2</sup> | 2.20 × 10 <sup>2</sup> | 2.51 × 10 <sup>2</sup> | 2.83 × 10 <sup>2</sup> | 3.14 × 10 <sup>2</sup> |
|                   | Pull                   | -                      | -                      | 47.1                   | 70.7                   | 94.2                   | 1.18 × 10 <sup>2</sup> | 1.41 × 10 <sup>2</sup> | 1.65 × 10 <sup>2</sup> | 1.88 × 10 <sup>2</sup> | 2.12 × 10 <sup>2</sup> | 2.36 × 10 <sup>2</sup> |
| φ25               | Push                   | -                      | -                      | 98.2                   | 1.47 × 10 <sup>2</sup> | 1.96 × 10 <sup>2</sup> | 2.45 × 10 <sup>2</sup> | 2.95 × 10 <sup>2</sup> | 3.44 × 10 <sup>2</sup> | 3.93 × 10 <sup>2</sup> | 4.42 × 10 <sup>2</sup> | 4.91 × 10 <sup>2</sup> |
|                   | Pull                   | -                      | -                      | 75.6                   | 1.13 × 10 <sup>2</sup> | 1.51 × 10 <sup>2</sup> | 1.89 × 10 <sup>2</sup> | 2.27 × 10 <sup>2</sup> | 2.64 × 10 <sup>2</sup> | 3.02 × 10 <sup>2</sup> | 3.40 × 10 <sup>2</sup> | 3.78 × 10 <sup>2</sup> |
| φ32               | Push                   | 80.4                   | 1.21 × 10 <sup>2</sup> | 1.61 × 10 <sup>2</sup> | 2.41 × 10 <sup>2</sup> | 3.22 × 10 <sup>2</sup> | 4.02 × 10 <sup>2</sup> | 4.83 × 10 <sup>2</sup> | 5.63 × 10 <sup>2</sup> | 6.43 × 10 <sup>2</sup> | 7.24 × 10 <sup>2</sup> | 8.04 × 10 <sup>2</sup> |
|                   | Pull                   | 60.3                   | 90.5                   | 1.21 × 10 <sup>2</sup> | 1.81 × 10 <sup>2</sup> | 2.41 × 10 <sup>2</sup> | 3.02 × 10 <sup>2</sup> | 3.62 × 10 <sup>2</sup> | 4.22 × 10 <sup>2</sup> | 4.83 × 10 <sup>2</sup> | 5.43 × 10 <sup>2</sup> | 6.03 × 10 <sup>2</sup> |
| φ40               | Push                   | 1.26 × 10 <sup>2</sup> | 1.88 × 10 <sup>2</sup> | 2.51 × 10 <sup>2</sup> | 3.77 × 10 <sup>2</sup> | 5.03 × 10 <sup>2</sup> | 6.28 × 10 <sup>2</sup> | 7.54 × 10 <sup>2</sup> | 8.80 × 10 <sup>2</sup> | 1.01 × 10 <sup>3</sup> | 1.13 × 10 <sup>3</sup> | 1.26 × 10 <sup>3</sup> |
|                   | Pull                   | 1.06 × 10 <sup>2</sup> | 1.58 × 10 <sup>2</sup> | 2.11 × 10 <sup>2</sup> | 3.17 × 10 <sup>2</sup> | 4.22 × 10 <sup>2</sup> | 5.28 × 10 <sup>2</sup> | 6.33 × 10 <sup>2</sup> | 7.39 × 10 <sup>2</sup> | 8.44 × 10 <sup>2</sup> | 9.50 × 10 <sup>2</sup> | 1.06 × 10 <sup>3</sup> |
| φ50               | Push                   | 1.96 × 10 <sup>2</sup> | 2.95 × 10 <sup>2</sup> | 3.93 × 10 <sup>2</sup> | 5.89 × 10 <sup>2</sup> | 7.85 × 10 <sup>2</sup> | 9.82 × 10 <sup>2</sup> | 1.18 × 10 <sup>3</sup> | 1.37 × 10 <sup>3</sup> | 1.57 × 10 <sup>3</sup> | 1.77 × 10 <sup>3</sup> | 1.96 × 10 <sup>3</sup> |
|                   | Pull                   | 1.65 × 10 <sup>2</sup> | 2.47 × 10 <sup>2</sup> | 3.30 × 10 <sup>2</sup> | 4.95 × 10 <sup>2</sup> | 6.60 × 10 <sup>2</sup> | 8.25 × 10 <sup>2</sup> | 9.90 × 10 <sup>2</sup> | 1.15 × 10 <sup>3</sup> | 1.32 × 10 <sup>3</sup> | 1.48 × 10 <sup>3</sup> | 1.65 × 10 <sup>3</sup> |
| φ63               | Push                   | 3.12 × 10 <sup>2</sup> | 4.68 × 10 <sup>2</sup> | 6.23 × 10 <sup>2</sup> | 9.35 × 10 <sup>2</sup> | 1.25 × 10 <sup>3</sup> | 1.56 × 10 <sup>3</sup> | 1.87 × 10 <sup>3</sup> | 2.18 × 10 <sup>3</sup> | 2.49 × 10 <sup>3</sup> | 2.81 × 10 <sup>3</sup> | 3.12 × 10 <sup>3</sup> |
|                   | Pull                   | 2.80 × 10 <sup>2</sup> | 4.20 × 10 <sup>2</sup> | 5.61 × 10 <sup>2</sup> | 8.41 × 10 <sup>2</sup> | 1.12 × 10 <sup>3</sup> | 1.40 × 10 <sup>3</sup> | 1.68 × 10 <sup>3</sup> | 1.96 × 10 <sup>3</sup> | 2.24 × 10 <sup>3</sup> | 2.52 × 10 <sup>3</sup> | 2.80 × 10 <sup>3</sup> |
| φ80               | Push                   | 5.03 × 10 <sup>2</sup> | 7.54 × 10 <sup>2</sup> | 1.01 × 10 <sup>3</sup> | 1.51 × 10 <sup>3</sup> | 2.01 × 10 <sup>3</sup> | 2.51 × 10 <sup>3</sup> | 3.02 × 10 <sup>3</sup> | 3.52 × 10 <sup>3</sup> | 4.02 × 10 <sup>3</sup> | 4.52 × 10 <sup>3</sup> | 5.03 × 10 <sup>3</sup> |
|                   | Pull                   | 4.54 × 10 <sup>2</sup> | 6.80 × 10 <sup>2</sup> | 9.07 × 10 <sup>2</sup> | 1.36 × 10 <sup>3</sup> | 1.81 × 10 <sup>3</sup> | 2.27 × 10 <sup>3</sup> | 2.72 × 10 <sup>3</sup> | 3.17 × 10 <sup>3</sup> | 3.63 × 10 <sup>3</sup> | 4.08 × 10 <sup>3</sup> | 4.54 × 10 <sup>3</sup> |

For cylinder weight, refer to pages 554 to 557.

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRR  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MecHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

# STS/STL-MQ Series

## How to order

### ● Short stroke

Without switch (built-in magnet for switch)

STS - M Q - 20 - 25 - H - F

With switch (built-in magnet for switch)

STS - M Q - 20 - 25 - H - T2H - R - F

### ● Long stroke length

Without switch (built-in magnet for switch)

STL - M Q - 20 - 50 - H - F

With switch (built-in magnet for switch)

STL - M Q - 20 - 50 - H - T2H - R - F

A Bearing

B Bore size

C Port thread

D Stroke length

E Position locking mechanism

F Switch model No.

\*1

\*4

\*5

### ⚠ Precautions for model No. selection

\*1 : Switches other than F Switch model No. are also available. (Custom order product)  
Refer to Ending Page 1 for details.

\*2 : Refer to pages 440 to 443 for combinations of variations/options.

\*3 : φ20 and φ25 with ball bearing B are copper and PTFE free as standard.

\*4 : In some cases, a switch cannot be inserted from the rod side of the head side position locking of 25 mm stroke length or less.  
In this case, temporarily remove the end plate and install the switch.  
Contact CKD to inquire about the removal and assembling method of the end plate.

\*5 : Switches are shipped with the product.  
Contact CKD if assembling before shipment is necessary.

For the 2-color display, T1H/V and AC magnetic field proof switches for φ40 and over, insert "L1" with "-" between Items A and B.

(Example) STS-MQ-L1-63-50-T2YH3-D-F  
For φ80, the 2-color display, T1H/V and AC magnetic field proof switches cannot be retrofitted on a previously purchased standard product.  
In this case, order the model No. with "L1" inserted between A and B.

(Example) STS-MQ-L1-80-50-F

### [Example of model No.]

### STS-MQ-20-25-H-T0H-R-F

Model: Guided cylinder, short stroke length, position locking

A Bearing : Metal bush bearing  
B Bore size : φ20 mm  
C Port thread : Rc thread  
D Stroke length : 25 mm  
E Position locking mechanism : With head side position locking  
F Switch model No. : Reed switch T0H, 1 m lead wire length

G Switch quantity : 1 on rod side  
H Option : End plate material: steel

G Switch quantity

H Option

| Code             | Content            |
|------------------|--------------------|
| <b>A Bearing</b> |                    |
| M                | Metal bush bearing |
| B                | Ball bearing       |

|                         |     |
|-------------------------|-----|
| <b>B Bore size (mm)</b> |     |
| 20                      | φ20 |
| 25                      | φ25 |
| 32                      | φ32 |
| 40                      | φ40 |
| 50                      | φ50 |
| 63                      | φ63 |
| 80                      | φ80 |

|                      |                                                |
|----------------------|------------------------------------------------|
| <b>C Port thread</b> |                                                |
| Blank                | Rc thread                                      |
| NN                   | NPT thread (φ32 and over) custom order product |
| GN                   | G thread (φ32 and over) custom order product   |

|                                                         |  |
|---------------------------------------------------------|--|
| <b>D Stroke length (mm)</b>                             |  |
| Refer to the stroke length table on the following page. |  |

|                                     |                                      |
|-------------------------------------|--------------------------------------|
| <b>E Position locking mechanism</b> |                                      |
| H                                   | Head side position locking mechanism |
| R                                   | Rod side position locking mechanism  |

| F Switch model No. |                  | Contact   | Voltage | Indicator                 | Lead wire |
|--------------------|------------------|-----------|---------|---------------------------|-----------|
| Axial lead wire    | Radial lead wire |           |         |                           |           |
| T0H*               | T0V*             | Reed      | ACDC    | 1-color display           | 2-wire    |
| T5H*               | T5V*             | Reed      |         | no indicator lamp         | 2-wire    |
| T1H*               | T1V*             | Proximity |         | 1-color display           | 2-wire    |
| T2H*               | T2V*             |           |         | display                   | 2-wire    |
| T3H*               | T3V*             |           |         |                           | 3-wire    |
| T3PH*              | T3PV*            |           |         | 1-color display (custom)  | 3-wire    |
| T2WH*              | T2WV*            | Proximity |         | 2-color display           | 2-wire    |
| T2YH*              | T2YV*            |           |         | display                   | 2-wire    |
| T3WH*              | T3WV*            |           |         |                           | 3-wire    |
| T3YH*              | T3YV*            |           |         |                           | 3-wire    |
| T2JH*              | T2JV*            | Proximity |         | 1-color display off-delay | 2-wire    |
| T2YD*              | -                |           |         | 2-color display           | 2-wire    |
| T2YDT*             | -                | Proximity |         | (AC magnetic field)       | 2-wire    |
|                    |                  |           |         |                           |           |

|                           |                |
|---------------------------|----------------|
| <b>* Lead wire length</b> |                |
| Blank                     | 1 m (standard) |
| 3                         | 3 m (option)   |
| 5                         | 5 m (option)   |

|                          |                |
|--------------------------|----------------|
| <b>G Switch quantity</b> |                |
| R                        | 1 on rod side  |
| H                        | 1 on head side |
| D                        | 2              |
| T                        | 3              |

|                 |                                                                    |
|-----------------|--------------------------------------------------------------------|
| <b>H Option</b> |                                                                    |
| F               | End plate material (steel)                                         |
| M               | Corrosion proof (Piston rod, guide rod SUS) (custom order product) |
| M1              | Corrosion proof (M + end plate SUS) (custom)                       |
| P6 *4           | Copper/PTFE free specs (custom)                                    |

### D Stroke length

| Series | Stroke length (mm)     | Applicable bore size |     |     |     |     |     |     |
|--------|------------------------|----------------------|-----|-----|-----|-----|-----|-----|
|        |                        | φ20                  | φ25 | φ32 | φ40 | φ50 | φ63 | φ80 |
| STS    | Standard stroke length | 25                   | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 50                   | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 75                   |     |     |     |     |     | ●   |
|        |                        | 100                  |     |     |     |     |     | ●   |
|        | Min. stroke length *1  | 5                    |     |     |     |     |     |     |
| STL    | Custom stroke *1, 2    | In 5 mm increments   |     |     |     |     |     |     |
|        | Standard stroke length | 50                   | ●   | ●   | ●   | ●   | ●   |     |
|        |                        | 75                   | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 100                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 125                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 150                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 175                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 200                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 225                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 250                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 275                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 300                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 325                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 350                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 375                  | ●   | ●   | ●   | ●   | ●   |     |
|        |                        | 400                  | ●   | ●   | ●   |     |     |     |
|        | Min. stroke length *1  | 30                   |     |     |     |     |     | 55  |
|        | Custom stroke *1, 2    | In 5 mm increments   |     |     |     |     |     |     |

\*1: The total dimensions are the same as the longer standard stroke length.

\*2: Special total length for custom stroke length can be provided when a custom stroke length is used. (Custom order)

### How to order switch

SW - T0V

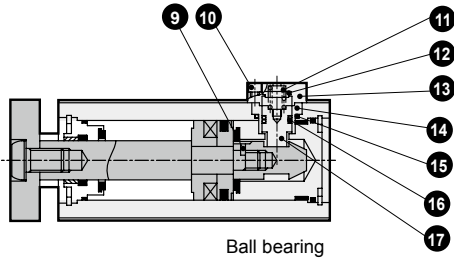
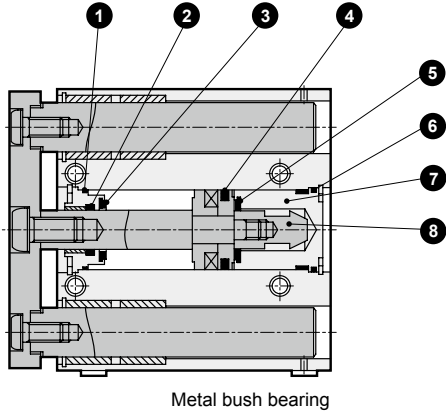
Switch model No.  
(Item ⑥ on the previous page)

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

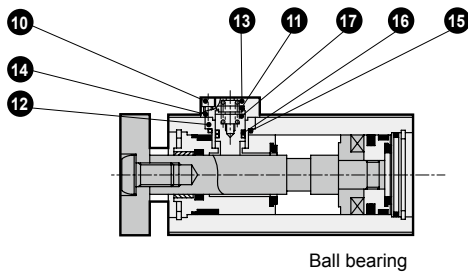
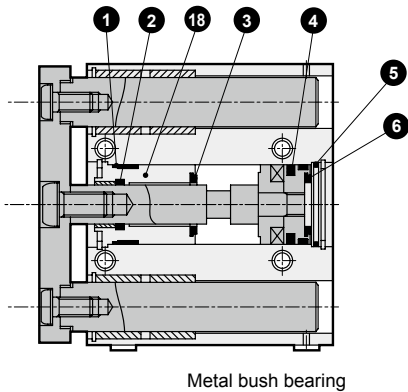
|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

Internal structure and parts list

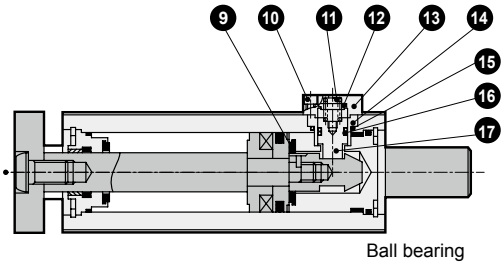
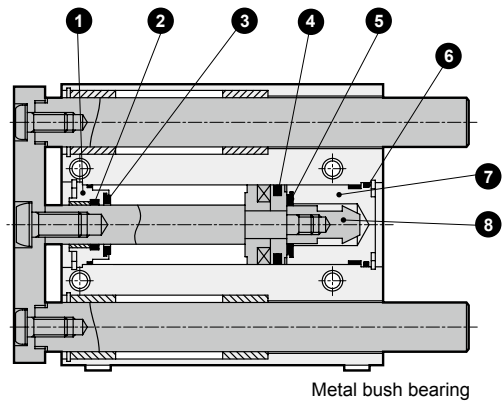
● Position locking/head side  
STS-<sup>M</sup><sub>B</sub>Q-H



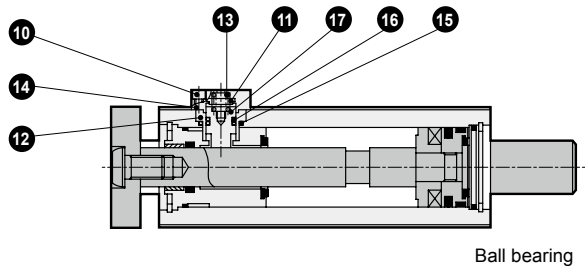
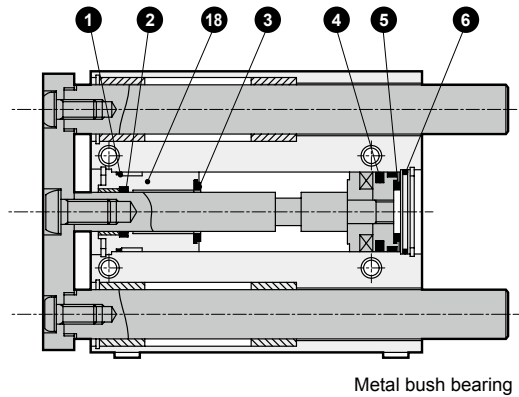
● Position locking/rod side  
STS-<sup>M</sup><sub>B</sub>Q-R



STL-<sup>M</sup><sub>B</sub>Q-H



STL-<sup>M</sup><sub>B</sub>Q-R



**Parts list** (Parts not listed below are the same as those of the double acting/standard single rod. Refer to pages 449 to 453.)

| No.                                                                                        | Part name                     | Material        | Remarks           | No.                                                                                       | Part name                     | Material        | Remarks           |
|--------------------------------------------------------------------------------------------|-------------------------------|-----------------|-------------------|-------------------------------------------------------------------------------------------|-------------------------------|-----------------|-------------------|
| <b>ST<sup>S</sup><sub>L</sub>-<sup>M</sup><sub>B</sub>Q-H (position locking/head side)</b> |                               |                 |                   | <b>ST<sup>S</sup><sub>L</sub>-<sup>M</sup><sub>B</sub>Q-R (position locking/rod side)</b> |                               |                 |                   |
| 1                                                                                          | Metal gasket                  | Nitrile rubber  |                   | 1                                                                                         | Metal gasket                  | Nitrile rubber  |                   |
| 2                                                                                          | Rod packing                   | Nitrile rubber  |                   | 2                                                                                         | Rod packing                   | Nitrile rubber  |                   |
| 3                                                                                          | Cushion rubber (R)            | Urethane rubber |                   | 3                                                                                         | Cushion rubber (R)            | Urethane rubber |                   |
| 4                                                                                          | Piston packing                | Nitrile rubber  |                   | 4                                                                                         | Piston packing                | Nitrile rubber  |                   |
| 5                                                                                          | Cushion rubber (H)            | Urethane rubber |                   | 5                                                                                         | Cushion rubber (H)            | Urethane rubber |                   |
| 6                                                                                          | O-ring                        | Nitrile rubber  |                   | 6                                                                                         | O-ring                        | Nitrile rubber  |                   |
| 7                                                                                          | Head cover                    | Aluminum alloy  |                   | 10                                                                                        | Hexagon socket head cap screw | Alloy steel     | Zinc chromate     |
| 8                                                                                          | Sleeve                        | Steel           | Nitriding         | 11                                                                                        | Coil spring                   | Steel           | Electrodeposition |
| 9                                                                                          | Spring pin                    | Steel           | Black finish      | 12                                                                                        | Cushion rubber                | Urethane rubber |                   |
| 10                                                                                         | Hexagon socket head cap screw | Alloy steel     | Zinc chromate     | 13                                                                                        | Stopper cover                 | Aluminum alloy  | Alumite           |
| 11                                                                                         | Coil spring                   | Steel           | Electrodeposition | 14                                                                                        | Stopper housing               | Aluminum alloy  | Alumite           |
| 12                                                                                         | Cushion rubber                | Urethane rubber |                   | 15                                                                                        | O-ring                        | Nitrile rubber  |                   |
| 13                                                                                         | Stopper cover                 | Aluminum alloy  | Alumite           | 16                                                                                        | Stopper packing               | Nitrile rubber  |                   |
| 14                                                                                         | Stopper housing               | Aluminum alloy  | Alumite           | 17                                                                                        | Stopper piston                | Stainless steel |                   |
| 15                                                                                         | O-ring                        | Nitrile rubber  |                   | 18                                                                                        | Rod cover                     | Aluminum alloy  | Alumite           |
| 16                                                                                         | Stopper packing               | Nitrile rubber  |                   |                                                                                           |                               |                 |                   |
| 17                                                                                         | Stopper piston                | Steel           | Nitriding         |                                                                                           |                               |                 |                   |

## Repair parts list

● ST<sup>S</sup><sub>L</sub>-<sup>M</sup><sub>B</sub>Q (position locking)

| Bore size (mm) | Kit No.                    | Repair parts No.                                       |
|----------------|----------------------------|--------------------------------------------------------|
| φ20            | STS-Q-H-20K<br>STS-Q-R-20K | <div> <div>12</div> <div>15</div> <div>16</div> </div> |
| φ25            | STS-Q-H-25K<br>STS-Q-R-25K |                                                        |
| φ32            | STS-Q-32K                  |                                                        |
| φ40            | STS-Q-40K                  |                                                        |
| φ50            | STS-Q-50K                  |                                                        |
| φ63            | STS-Q-63K                  |                                                        |
| φ80            | STS-Q-80K                  |                                                        |

Note: Specify the kit No. when placing an order.

The kit No. of φ20 and φ25 differs depending on the side of position locking.

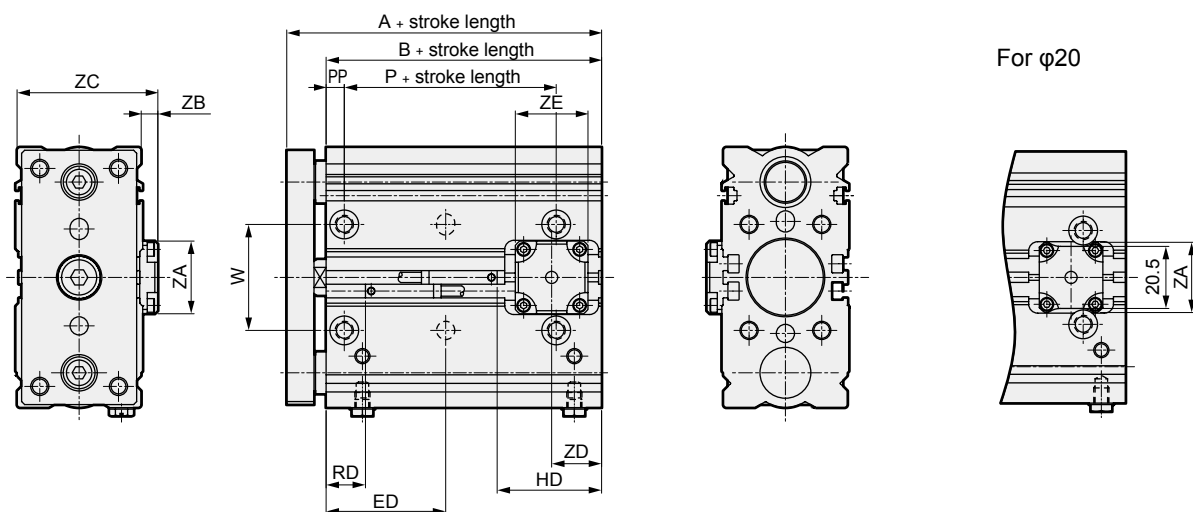
|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

Dimensions:  $\phi 20$ ,  $\phi 25$



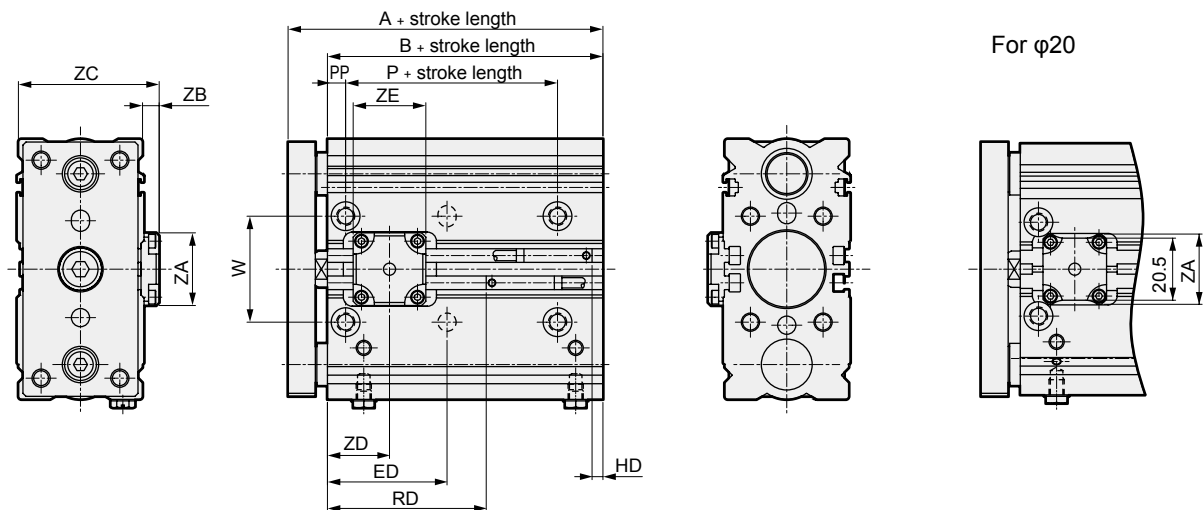
- Position locking/head side (Dimensions not listed below are the same as those of the double acting/single rod)

STS-M<sub>B</sub>Q-H



- Position locking/rod side (Dimensions not listed below are the same as those of the double acting/single rod)

STS-M<sub>B</sub>Q-R



| Code<br>Bore size<br>(mm) | A  | B  | EA | EC | EG | ED                              | P  | PP | W  | ZA   | ZB | ZC | ZE | STS-M <sub>B</sub> Q-H |             |      |         | STS-M <sub>B</sub> Q-R |      |             |     |         |      |
|---------------------------|----|----|----|----|----|---------------------------------|----|----|----|------|----|----|----|------------------------|-------------|------|---------|------------------------|------|-------------|-----|---------|------|
|                           |    |    |    |    |    |                                 |    |    |    |      |    |    |    | ZD                     | T0/T5/T2/T3 |      | T2W/T3W |                        | ZD   | T0/T5/T2/T3 |     | T2W/T3W |      |
|                           |    |    |    |    |    |                                 |    |    |    |      |    |    |    |                        | RD          | HD   | RD      | HD                     |      | RD          | HD  | RD      | HD   |
| φ20                       | 78 | 65 | 30 | 31 | 33 | 26.5+ <div>Stroke length2</div> | 45 | 6  | 31 | 23.2 | 6  | 44 | 21 | 18                     | 12          | 34.5 | 12.5    | 37.5                   | 20   | 37          | 9.5 | 37.5    | 12.5 |
| φ25                       | 79 | 66 | 32 | 35 | 37 | 27+ <div>Stroke length2</div>   | 45 | 6  | 35 | 24   | 5  | 47 | 24 | 16.5                   | 13          | 34   | 14.5    | 36                     | 20.5 | 38          | 9   | 39.5    | 11   |

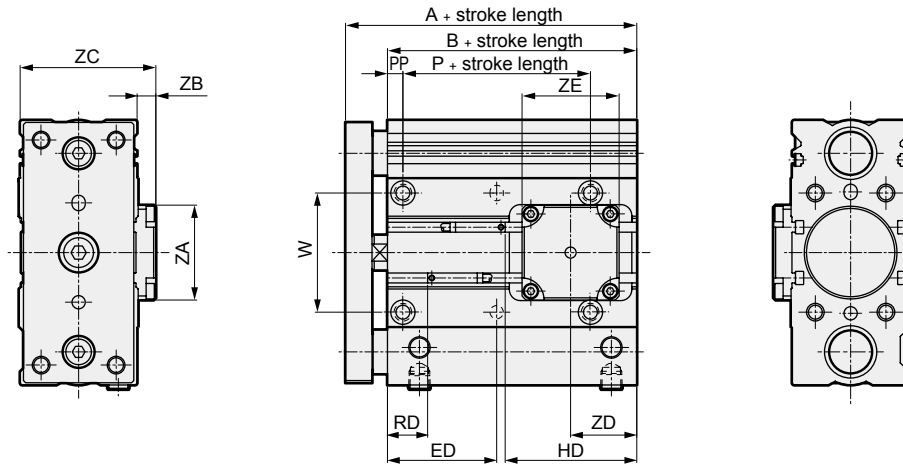
\*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

\*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

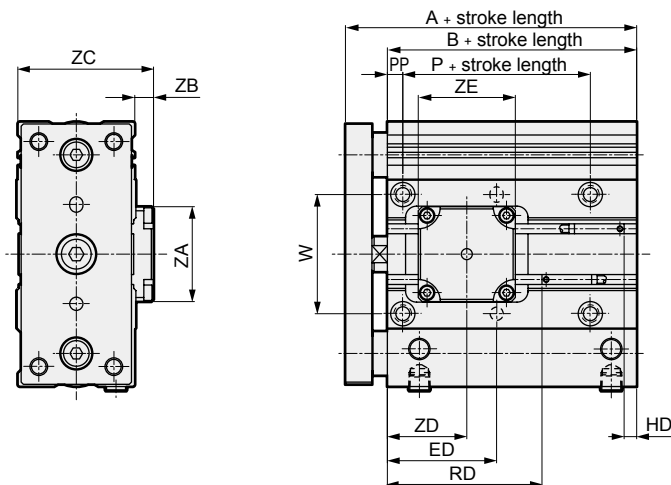
Dimensions: φ32/φ40/φ50/φ63



- Position locking/head side (Dimensions not listed below are the same as those of the double acting/single rod)  
STS-M<sub>B</sub>Q-H



- Position locking/rod side (Dimensions not listed below are the same as those of the double acting/single rod)  
STS-M<sub>B</sub>Q-R



| Code              | A   | B   | EA | EC | EG | ED                                      | P  | PP | W  | ZA | ZB  | ZC   | ZE | STS-M <sub>B</sub> Q-H |             |      |         | STS-M <sub>B</sub> Q-R |    |             |      |         |      |
|-------------------|-----|-----|----|----|----|-----------------------------------------|----|----|----|----|-----|------|----|------------------------|-------------|------|---------|------------------------|----|-------------|------|---------|------|
| Bore size<br>(mm) |     |     |    |    |    |                                         |    |    |    |    |     |      |    | ZD                     | T0/T5/T2/T3 |      | T2W/T3W |                        | ZD | T0/T5/T2/T3 |      | T2W/T3W |      |
|                   |     |     |    |    |    |                                         |    |    |    |    |     |      |    |                        | RD          | HD   | RD      | HD                     |    | RD          | HD   | RD      | HD   |
| φ32               | 93  | 74  | 42 | 45 | 46 | 30 + $\frac{\text{Stroke length}}{2}$   | 47 | 7  | 45 | 32 | 6.5 | 53.5 | 24 | 21                     | 17.5        | 38.5 | 19      | 40                     | 25 | 42.5        | 13.5 | 44      | 15   |
| φ40               | 122 | 103 | 45 | 54 | 55 | 44.5 + $\frac{\text{Stroke length}}{2}$ | 75 | 7  | 54 | 43 | 8   | 62   | 44 | 30                     | 21          | 64   | 22.5    | 66                     | 36 | 71          | 14   | 72.5    | 16   |
| φ50               | 127 | 105 | 55 | 66 | 69 | 44.5 + $\frac{\text{Stroke length}}{2}$ | 76 | 8  | 66 | 43 | 7.5 | 73.5 | 44 | 33                     | 22          | 66   | 23.5    | 66.5                   | 40 | 72          | 16   | 73.5    | 16.5 |
| φ63               | 133 | 111 | 62 | 79 | 82 | 47.5 + $\frac{\text{Stroke length}}{2}$ | 76 | 8  | 79 | 47 | 7.5 | 86.5 | 47 | 35                     | 20          | 73   | 21.5    | 74.5                   | 40 | 70          | 23   | 71.5    | 24.5 |

\*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

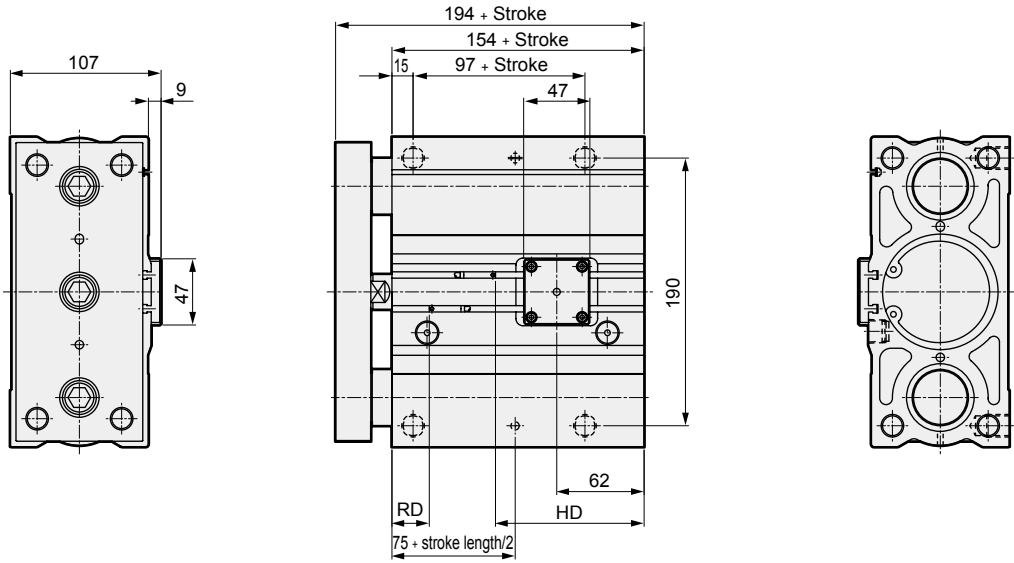
\*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

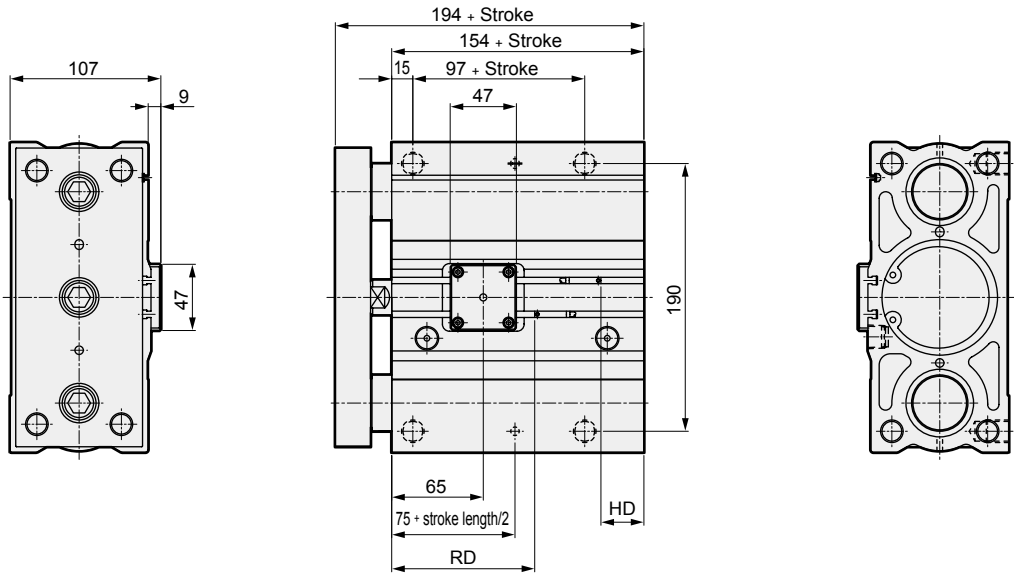
Dimensions:  $\phi 80$  

- Position locking/head side (Dimensions not listed below are the same as those of the double acting/single rod)  
STS-<sup>M</sup><sub>B</sub>Q-H



| T0/T5/T2/T3 |       | T2W/T3W |       |
|-------------|-------|---------|-------|
| RD          | HD    | RD      | HD    |
| 26.5        | 105.5 | 28      | 110.5 |

- Position locking/rod side (Dimensions not listed below are the same as those of the double acting/single rod)  
STS-<sup>M</sup><sub>B</sub>Q-R



| T0/T5/T2/T3 |      | T2W/T3W |      |
|-------------|------|---------|------|
| RD          | HD   | RD      | HD   |
| 101.5       | 30.5 | 103     | 35.5 |

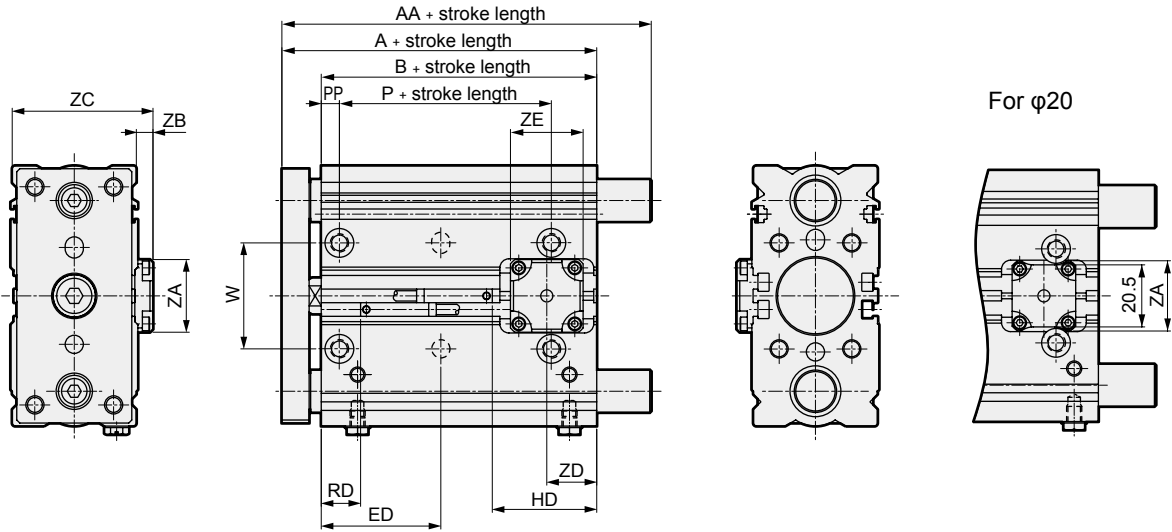
\*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.  
\*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

Dimensions:  $\phi 20/\phi 25$



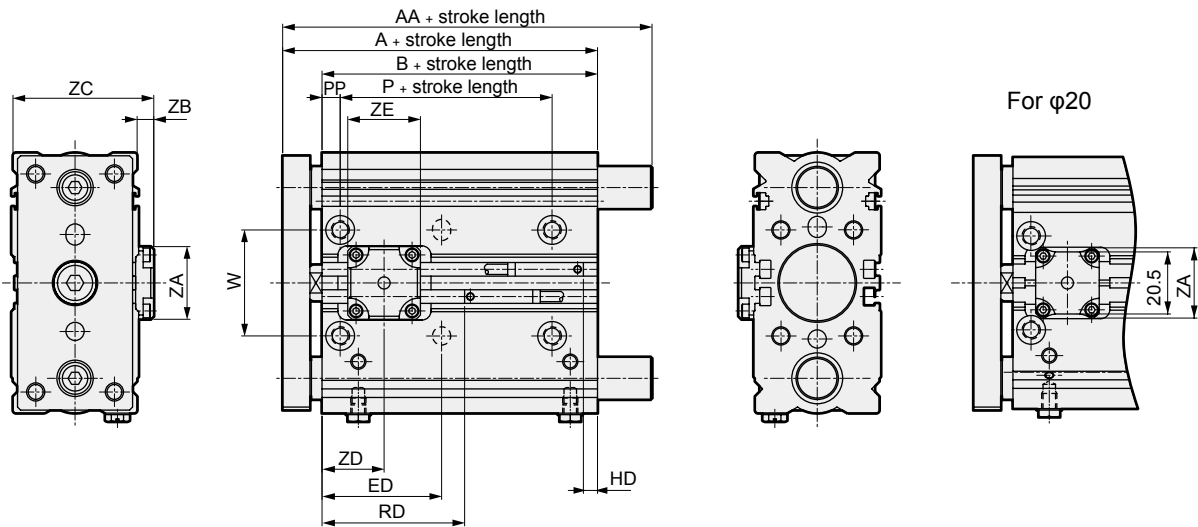
- Position locking/head side (Dimensions not listed below are the same as those of the double acting/single rod)

STL-B<sup>M</sup>Q-H



- Position locking/rod side (Dimensions not listed below are the same as those of the double acting/single rod)

STL-B<sup>M</sup>Q-R



| Code<br>Bore size<br>(mm) | A  | AA | EA | EC | EG | ED                                     | B  | P  | PP | W  | ZA   | ZB | ZC | ZE | STL- <sup>M</sup> B-Q-H |             |      |         | STL- <sup>M</sup> B-Q-R |      |             |     |         |      |
|---------------------------|----|----|----|----|----|----------------------------------------|----|----|----|----|------|----|----|----|-------------------------|-------------|------|---------|-------------------------|------|-------------|-----|---------|------|
|                           |    |    |    |    |    |                                        |    |    |    |    |      |    |    |    | ZD                      | T0/T5/T2/T3 |      | T2W/T3W |                         | ZD   | T0/T5/T2/T3 |     | T2W/T3W |      |
|                           |    |    |    |    |    |                                        |    |    |    |    |      |    |    |    |                         | RD          | HD   | RD      | HD                      |      | RD          | HD  | RD      | HD   |
| φ20                       | 78 | 97 | 30 | 31 | 33 | 26.5+ $\frac{\text{Stroke length}}{2}$ | 65 | 45 | 6  | 31 | 23.2 | 6  | 44 | 21 | 18                      | 12          | 34.5 | 37.5    | 12.5                    | 20   | 37          | 9.5 | 12.5    | 37.5 |
| φ25                       | 79 | 97 | 32 | 35 | 37 | 27+ $\frac{\text{Stroke length}}{2}$   | 66 | 45 | 6  | 35 | 24   | 5  | 47 | 24 | 16.5                    | 13          | 34   | 39.5    | 11                      | 20.5 | 38          | 9   | 14.5    | 36   |

\*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

\*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

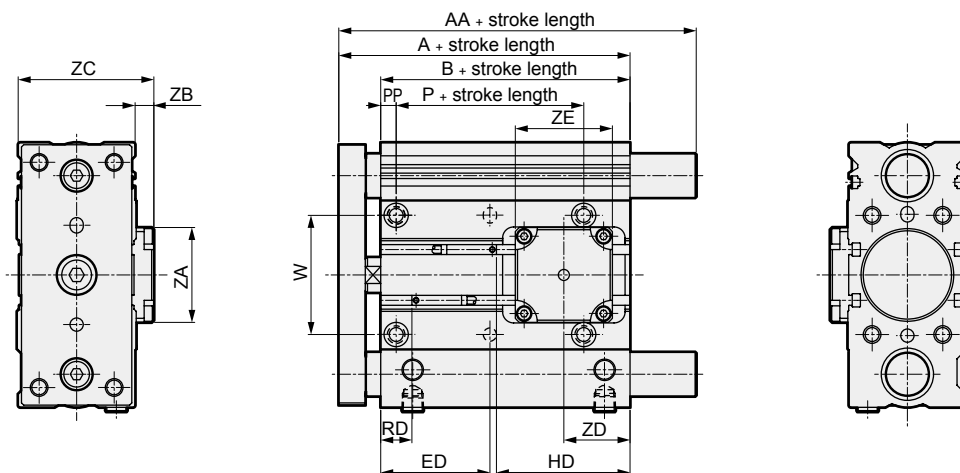
|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| ST3/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

Dimensions:  $\phi 32/\phi 40/\phi 50/\phi 63$



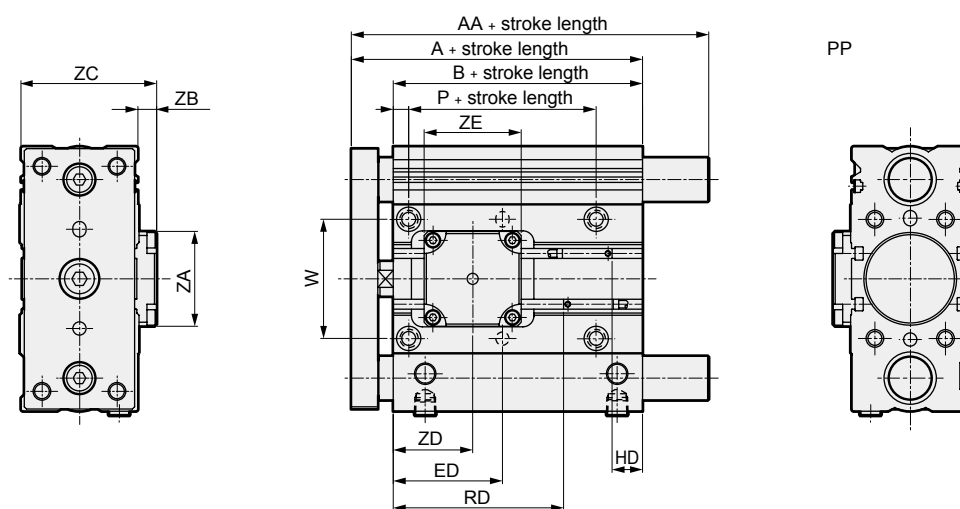
- Position locking/head side (Dimensions not listed below are the same as those of the double acting/single rod)

STL-M<sub>B</sub>Q-H



- Position locking/rod side (Dimensions not listed below are the same as those of the double acting/single rod)

STL-M<sub>B</sub>Q-R



| Code              | A   | AA  | EA | EC | EG | ED                                      | B   | P  | PP | W  | ZA | ZB  | ZC   | ZE | STL-M <sub>B</sub> Q-H |             |      |         | STL-M <sub>B</sub> Q-R |    |             |      |         |      |
|-------------------|-----|-----|----|----|----|-----------------------------------------|-----|----|----|----|----|-----|------|----|------------------------|-------------|------|---------|------------------------|----|-------------|------|---------|------|
| Bore size<br>(mm) |     |     |    |    |    |                                         |     |    |    |    |    |     |      |    | ZD                     | T0/T5/T2/T3 |      | T2W/T3W |                        | ZD | T0/T5/T2/T3 |      | T2W/T3W |      |
|                   |     |     |    |    |    |                                         |     |    |    |    |    |     |      |    |                        | RD          | HD   | RD      | HD                     |    | RD          | HD   | RD      | HD   |
| φ32               | 93  | 127 | 42 | 45 | 46 | 30 + $\frac{\text{Stroke length}}{2}$   | 74  | 47 | 7  | 45 | 32 | 6.5 | 53.5 | 24 | 21                     | 17.5        | 38.5 | 44      | 15                     | 25 | 42.5        | 13.5 | 19      | 40   |
| φ40               | 122 | 152 | 45 | 54 | 55 | 44.5 + $\frac{\text{Stroke length}}{2}$ | 103 | 75 | 7  | 54 | 43 | 8   | 62   | 44 | 30                     | 21          | 64   | 72.5    | 16                     | 36 | 71          | 14   | 22.5    | 66   |
| φ50               | 127 | 175 | 55 | 66 | 69 | 44.5 + $\frac{\text{Stroke length}}{2}$ | 105 | 76 | 8  | 66 | 43 | 7.5 | 73.5 | 44 | 33                     | 22          | 66   | 73.5    | 16.5                   | 40 | 72          | 16   | 23.5    | 66.5 |
| φ63               | 133 | 175 | 62 | 79 | 82 | 47.5 + $\frac{\text{Stroke length}}{2}$ | 111 | 76 | 8  | 79 | 47 | 7.5 | 86.5 | 47 | 35                     | 20          | 73   | 71.5    | 24.5                   | 40 | 70          | 23   | 21.5    | 74.5 |

\*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

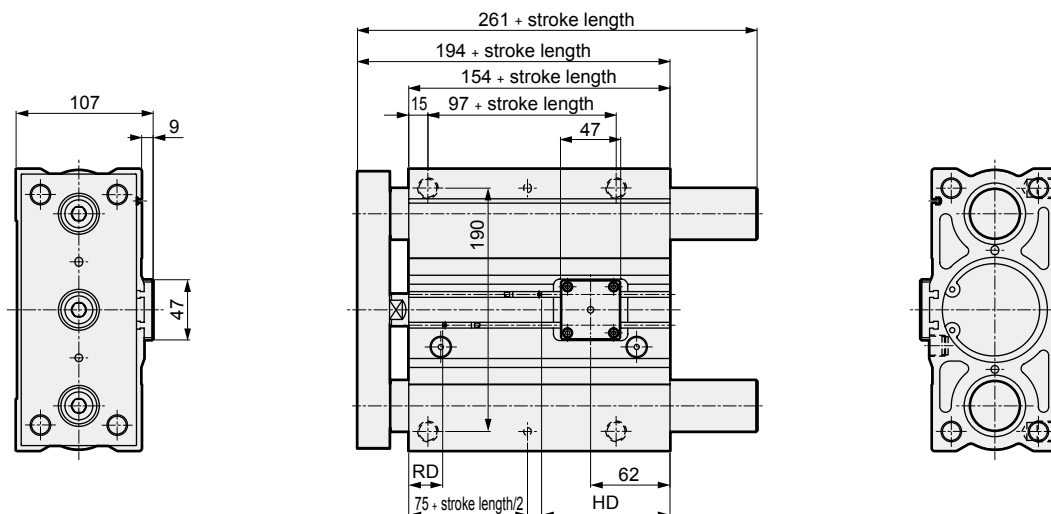
\*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

Dimensions:  $\phi 80$



- Position locking/head side (Dimensions not listed below are the same as those of the double acting/single rod)

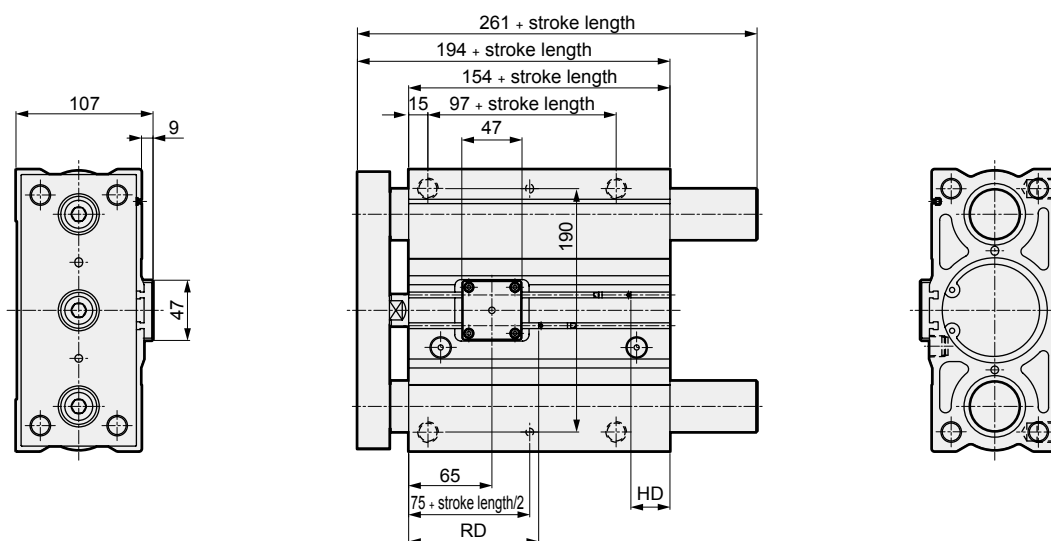
STL-BQ-H



| T0/T5/T2/T3 |       | T2W/T3W |       |
|-------------|-------|---------|-------|
| RD          | HD    | RD      | HD    |
| 26.5        | 105.5 | 28      | 110.5 |

- Position locking/rod side (Dimensions not listed below are the same as those of the double acting/single rod)

STL-BQ-R



| T0/T5/T2/T3 |      | T2W/T3W |      |
|-------------|------|---------|------|
| RD          | HD   | RD      | HD   |
| 101.5       | 30.5 | 103     | 35.5 |

\*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

\*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof and T1H/V switches.

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| ST5/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |



Guided cylinder/fine speed

# STS/STL-M<sub>B</sub>F Series

- Bore size:  $\phi 8$ ,  $\phi 12$ ,  $\phi 16$ ,  $\phi 20$ ,  $\phi 25$ ,  $\phi 32$   
 $\phi 40$ ,  $\phi 50$ ,  $\phi 63$ ,  $\phi 80$

JIS symbol



## Specifications

| Descriptions                  | STS-MF, STS-BF (short stroke length)/STL-MF, STL-BF (long stroke length) |       |       |       |       |                      |       |       |        |       |
|-------------------------------|--------------------------------------------------------------------------|-------|-------|-------|-------|----------------------|-------|-------|--------|-------|
| Bore size      mm             | φ8                                                                       | φ12   | φ16   | φ20   | φ25   | φ32                  | φ40   | φ50   | φ63    | φ80   |
| Actuation                     | Double acting                                                            |       |       |       |       |                      |       |       |        |       |
| Working fluid                 | Compressed air                                                           |       |       |       |       |                      |       |       |        |       |
| Max. working pressure    MPa  | 1.0 (≈150 psi, 10 bar)                                                   |       |       |       |       |                      |       |       |        |       |
| Min. working pressure    MPa  | 0.15 (≈22 psi, 1.5 bar)                                                  |       |       |       |       | 0.1 (≈15 psi, 1 bar) |       |       |        |       |
| Proof pressure          MPa   | 1.6 (≈230 psi, 16 bar)                                                   |       |       |       |       |                      |       |       |        |       |
| Ambient temperature    °C     | 5 (41°F) to 60 (140°F)                                                   |       |       |       |       |                      |       |       |        |       |
| Port size                     | M5                                                                       |       |       |       |       | Rc1/8                |       | Rc1/4 |        | Rc3/8 |
| Stroke tolerance      mm      | <sup>+2.0</sup> <sub>0</sub>                                             |       |       |       |       |                      |       |       |        |       |
| Working piston speed    mm/s  | 1 to 200                                                                 |       |       |       |       |                      |       |       |        |       |
| Cushion                       | Rubber cushion                                                           |       |       |       |       |                      |       |       |        |       |
| Lubrication                   | Not available                                                            |       |       |       |       |                      |       |       |        |       |
| Allowable absorbed energy   J | 0.029                                                                    | 0.056 | 0.088 | 0.157 | 0.157 | 0.401                | 0.627 | 0.980 | 0.1560 | 2.510 |

\*1: Refer to page 445 for theoretical thrust table.

## Stroke length

| Model No.        | Bore size (mm)                                                        | Standard stroke length (mm)     | Max. stroke length (mm) | Min. stroke length (mm) |
|------------------|-----------------------------------------------------------------------|---------------------------------|-------------------------|-------------------------|
| STS-MF<br>STS-BF | $\phi 8$ , $\phi 12$ , $\phi 16$                                      | 10, 20, 30, 40, 50              | 50                      | 5                       |
|                  | $\phi 20$ , $\phi 25$ , $\phi 32$ , $\phi 40$ , $\phi 50$ , $\phi 63$ | 25, 50                          |                         |                         |
|                  | $\phi 80$                                                             | 25, 50, 75, 100                 | 100                     |                         |
| STL-MF<br>STL-BF | $\phi 8$ , $\phi 12$ , $\phi 16$                                      | 50, 75, 100, 125, 150, 175, 200 | 200                     | 50                      |
|                  | $\phi 20$ , $\phi 25$ , $\phi 32$ , $\phi 40$ , $\phi 50$ , $\phi 63$ | 50, 75, 100, 125, 150, 175, 200 |                         | 30                      |
|                  | $\phi 80$                                                             | 75, 100, 125, 150, 175, 200     |                         | 55                      |

\*1: The custom stroke length is available in 5mm increments. However, the total length is the same as that of the next longer standard stroke length.

## Switch specifications

- 1-color/2-color display/for AC magnetic field proof

| Descriptions    | Proximity 2-wire                                           |                       | Proximity 2-wire                      |                                   |                      | Proximity 3-wire                   |                                   |                                   |                      | Reed 2-wire                        |                           |                                                                                       |                       |        |                                    |                                   |             | Proximity 2-wire            |           |            |         |            |         |            |             |  |
|-----------------|------------------------------------------------------------|-----------------------|---------------------------------------|-----------------------------------|----------------------|------------------------------------|-----------------------------------|-----------------------------------|----------------------|------------------------------------|---------------------------|---------------------------------------------------------------------------------------|-----------------------|--------|------------------------------------|-----------------------------------|-------------|-----------------------------|-----------|------------|---------|------------|---------|------------|-------------|--|
|                 | T1H/<br>T1V                                                | T2H/T2V/<br>T2JH/T2JV | T2YH/<br>T2YV                         | T2WH/<br>T2WV                     | T3H/<br>T3V          | T3PH/T3PV<br>(custom)              | T3YH/<br>T3YV                     | T3WH/<br>T3WV                     | T0H/T0V              |                                    | T5H/T5V                   |                                                                                       | T8H/T8V               |        |                                    | T2YD                              |             |                             |           |            |         |            |         |            |             |  |
| Applications    | For programmable controller, relay, compact solenoid valve |                       | Dedicated for programmable controller |                                   |                      | For programmable controller, relay |                                   |                                   |                      | For programmable controller, relay |                           | For programmable controller, relay, IC circuit (no indicator lamp), serial connection |                       |        | For programmable controller, relay |                                   |             | For programmable controller |           |            |         |            |         |            |             |  |
| Output method   | -                                                          |                       |                                       |                                   |                      | NPN output                         | PNP output                        | NPN output                        | NPN output           | -                                  |                           |                                                                                       |                       |        |                                    |                                   |             |                             |           |            |         |            |         |            |             |  |
| Pwr. supp. V.   | -                                                          |                       |                                       |                                   |                      | 10 to 28 VDC                       |                                   |                                   |                      | -                                  |                           |                                                                                       |                       |        |                                    |                                   |             |                             |           |            |         |            |         |            |             |  |
| Load voltage    | 85 to 265 VAC                                              |                       | 10 to 30 VDC                          |                                   | 24 VDC ±10%          |                                    | 30 VDC or less                    |                                   |                      |                                    | 12/24 VDC                 |                                                                                       | 100/110 VAC           |        | 5/12/24 VDC                        |                                   | 100/110 VAC |                             | 12/24 VDC |            | 110 VAC |            | 220 VAC |            | 24 VDC ±10% |  |
| Load current    | 5 to 100 mA                                                |                       | 5 to 20 mA (*2)                       |                                   |                      | 100 mA or less                     |                                   | 50 mA or less                     |                      | 5 to 50 mA                         |                           | 7 to 20 mA                                                                            |                       | ≤50 mA |                                    | ≤20 mA                            |             | 5 to 50 mA                  |           | 7 to 20 mA |         | 7 to 10 mA |         | 5 to 20 mA |             |  |
| Indicator lamp  | LED<br>(Lit when ON)                                       | LED<br>(Lit when ON)  | Red/green<br>LED<br>(Lit when ON)     | Red/green<br>LED<br>(Lit when ON) | LED<br>(Lit when ON) | Yellow<br>LED<br>(Lit when ON)     | Red/green<br>LED<br>(Lit when ON) | Red/green<br>LED<br>(Lit when ON) | LED<br>(Lit when ON) |                                    | Without<br>indicator lamp |                                                                                       | LED<br>(Lit when ON)  |        |                                    | Red/green<br>LED<br>(Lit when ON) |             |                             |           |            |         |            |         |            |             |  |
| Leakage current | ≤1 mA at 100 VAC,<br>≤2 mA at 200 VAC                      |                       | 1 mA or less                          |                                   |                      | 10 μA or less                      |                                   |                                   |                      | 0 mA                               |                           |                                                                                       |                       |        |                                    |                                   |             | 1 mA or less                |           |            |         |            |         |            |             |  |
| Weight g        | 1 m:33                                                     | 1 m:18                | 1 m:33                                | 1 m:18                            | 1 m:18               |                                    | 1 m:33                            | 1 m:18                            | 1 m:18 3 m:49 5 m:80 |                                    |                           |                                                                                       | 1 m:33 3 m:87 5 m:142 |        |                                    |                                   | 1 m:61      |                             |           |            |         |            |         |            |             |  |
|                 | 3 m:87                                                     | 3 m:49                | 3 m:87                                | 3 m:49                            | 3 m:49               |                                    | 3 m:87                            | 3 m:49                            | 3 m:18 3 m:49 5 m:80 |                                    |                           |                                                                                       | 3 m:33 3 m:87 5 m:142 |        |                                    |                                   | 3 m:166     |                             |           |            |         |            |         |            |             |  |
|                 | 5 m:142                                                    | 5 m:80                | 5 m:142                               | 5 m:80                            | 5 m:80               |                                    | 5 m:142                           | 5 m:80                            | 5 m:18 3 m:49 5 m:80 |                                    |                           |                                                                                       | 5 m:33 3 m:87 5 m:142 |        |                                    |                                   | 5 m:272     |                             |           |            |         |            |         |            |             |  |

\*1 : Refer to Ending Page 1 for other switch specifications.

\*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

\*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

\*4 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

\*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

For cylinder weight, refer to pages 554 to 557.

### How to order

#### ● Short stroke length

Without switch (built-in magnet for switch)

STS - M F - 8 - 10 - F

With switch (built-in magnet for switch)

STS - M F - 8 - 10 - T2H - R - F

#### ● Long stroke length

Without switch (built-in magnet for switch)

STL - M F - 8 - 50 - F

With switch (built-in magnet for switch)

STL - M F - 8 - 50 - T2H - R - F

Model No.

● A Bearing ● B Bore size

⚠ Precautions for model No. selection

\*1: Refer to pages 440 and 443 for combinations of variations/options.

[Example of model No.]

**STL-MF-8-50-T2H-R-F**

Model: Guided cylinder, long stroke length, fine speed

- A Bearing : Metal bush bearing
- B Bore size :  $\phi 8$  mm
- C Port thread : Rc thread
- D Stroke length : 50 mm
- E Switch model No.: Proximity switch T2H, lead wire 1 m
- F Switch quantity : 1 on rod side
- G Option : End plate material: steel

#### ● D Stroke length

| Series | Stroke length (mm)  | Applicable bore size |           |           |           |           |           |           |           |           |           |
|--------|---------------------|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|        |                     | $\phi 8$             | $\phi 12$ | $\phi 16$ | $\phi 20$ | $\phi 25$ | $\phi 32$ | $\phi 40$ | $\phi 50$ | $\phi 63$ | $\phi 80$ |
| STS    | 10                  | ●                    | ●         | ●         |           |           |           |           |           |           |           |
|        | 20                  | ●                    | ●         | ●         |           |           |           |           |           |           |           |
|        | 25                  | ●                    | ●         | ●         | ●         | ●         | ●         | ●         | ●         | ●         | ●         |
|        | 30                  | ●                    | ●         | ●         |           |           |           |           |           |           |           |
|        | 40                  | ●                    | ●         | ●         |           |           |           |           |           |           |           |
|        | 50                  | ●                    | ●         | ●         | ●         | ●         | ●         | ●         | ●         | ●         | ●         |
|        | 75                  |                      |           |           |           |           |           |           |           |           | ●         |
|        | 100                 |                      |           |           |           |           |           |           |           |           | ●         |
|        | Min. stroke *1      | 5                    |           |           |           |           |           |           |           |           |           |
|        | Custom stroke *1, 2 | In 5 mm increments   |           |           |           |           |           |           |           |           |           |
| STL    | 50                  | ●                    | ●         | ●         | ●         | ●         | ●         | ●         | ●         | ●         | ●         |
|        | 75                  | ●                    | ●         | ●         | ●         | ●         | ●         | ●         | ●         | ●         | ●         |
|        | 100                 | ●                    | ●         | ●         | ●         | ●         | ●         | ●         | ●         | ●         | ●         |
|        | 125                 | ●                    | ●         | ●         | ●         | ●         | ●         | ●         | ●         | ●         | ●         |
|        | 150                 | ●                    | ●         | ●         | ●         | ●         | ●         | ●         | ●         | ●         | ●         |
|        | 175                 | ●                    | ●         | ●         | ●         | ●         | ●         | ●         | ●         | ●         | ●         |
|        | 200                 | ●                    | ●         | ●         | ●         | ●         | ●         | ●         | ●         | ●         | ●         |
|        | Min. stroke *1      | 50                   |           |           |           |           | 30        |           |           |           | 55        |
|        | Custom stroke *1, 2 | In 5 mm increments   |           |           |           |           |           |           |           |           |           |

\*1 : The total dimensions are the same as the longer standard stroke length.

\*2 : Special total length for custom stroke length can be provided when a custom stroke length is used. (Custom order)

\*3 : T8H/V switch cannot be installed on  $\phi 8$  to  $\phi 16$ .

\*4 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

### How to order switch

SW - T0H

Switch model No.  
(Item E above)

### Dimensions

Same as STS/STL Series (double acting/single rod).

STS Series : Page 455 ( $\phi 8$  to  $\phi 16$ ), page 456 ( $\phi 20$  and  $\phi 25$ ), page 457 ( $\phi 32$  to  $\phi 63$ ) and page 458 ( $\phi 80$ )

STL Series : Page 460 ( $\phi 8$  to  $\phi 16$ ), page 461 ( $\phi 20$  and  $\phi 25$ ), page 462 ( $\phi 32$  to  $\phi 63$ ) and page 463 ( $\phi 80$ )

### Technical data

Refer to Measuring methods (in Pneumatic Cylinders I (Catalog No.CB-029SA) on page 1161), for technical data regarding measuring dimensions.

| Code                                    | Content                                                            |           |         |           |                           |        |                                        |        |
|-----------------------------------------|--------------------------------------------------------------------|-----------|---------|-----------|---------------------------|--------|----------------------------------------|--------|
| A Bearing                               |                                                                    |           |         |           |                           |        |                                        |        |
| M                                       | Metal bush bearing                                                 |           |         |           |                           |        |                                        |        |
| B                                       | Ball bearing                                                       |           |         |           |                           |        |                                        |        |
| B Bore size (mm)                        |                                                                    |           |         |           |                           |        |                                        |        |
| 8                                       | φ8                                                                 |           |         |           |                           |        |                                        |        |
| 12                                      | φ12                                                                |           |         |           |                           |        |                                        |        |
| 16                                      | φ16                                                                |           |         |           |                           |        |                                        |        |
| 20                                      | φ20                                                                |           |         |           |                           |        |                                        |        |
| 25                                      | φ25                                                                |           |         |           |                           |        |                                        |        |
| 32                                      | φ32                                                                |           |         |           |                           |        |                                        |        |
| 40                                      | φ40                                                                |           |         |           |                           |        |                                        |        |
| 50                                      | φ50                                                                |           |         |           |                           |        |                                        |        |
| 63                                      | φ63                                                                |           |         |           |                           |        |                                        |        |
| 80                                      | φ80                                                                |           |         |           |                           |        |                                        |        |
| C Port thread                           |                                                                    |           |         |           |                           |        |                                        |        |
| Blank                                   | Rc thread                                                          |           |         |           |                           |        |                                        |        |
| NN                                      | NPT thread (φ32 and over) custom order product                     |           |         |           |                           |        |                                        |        |
| GN                                      | G thread (φ32 and over) custom order product                       |           |         |           |                           |        |                                        |        |
| D Stroke length (mm)                    |                                                                    |           |         |           |                           |        |                                        |        |
| Refer to the stroke length table below. |                                                                    |           |         |           |                           |        |                                        |        |
| E Switch model No.                      |                                                                    |           |         |           |                           |        |                                        |        |
| Axial lead wire                         | Radial lead wire                                                   | Contact   | Voltage | Indicator | Lead wire                 |        |                                        |        |
|                                         |                                                                    |           | AC      | DC        |                           |        |                                        |        |
| T0H*                                    | T0V*                                                               | Reed      | ●       | ●         | 1-color display           | 2-wire |                                        |        |
| T5H*                                    | T5V*                                                               |           | ●       | ●         | no indicator lamp         |        |                                        |        |
| T8H*                                    | T8V*                                                               |           | ●       | ●         |                           |        |                                        |        |
| T1H*                                    | T1V*                                                               | Proximity | ●       | □         | 1-color display           | 2-wire |                                        |        |
| T2H*                                    | T2V*                                                               |           | □       | ●         |                           |        | display                                |        |
| T3H*                                    | T3V*                                                               |           | □       | ●         |                           |        |                                        |        |
| T3PH*                                   | T3PV*                                                              |           | □       | □         | 1-color display (custom)  | 3-wire |                                        |        |
| T2WH*                                   | T2WV*                                                              |           | □       | ●         |                           |        |                                        |        |
| T2YH*                                   | T2YV*                                                              |           | □       | ●         |                           |        | 2-color display                        | 2-wire |
| T3WH*                                   | T3WV*                                                              |           | □       | ●         |                           |        |                                        |        |
| T3YH*                                   | T3YV*                                                              |           | □       | ●         |                           |        |                                        |        |
| T2JH*                                   | T2JV*                                                              |           | □       | ●         | 1-color display off-delay | 2-wire |                                        |        |
| T2YD*                                   | -                                                                  |           | □       | ●         |                           |        | 2-color display<br>(AC magnetic field) | 2-wire |
| T2YDT*                                  | -                                                                  |           | □       | ●         |                           |        |                                        |        |
| * Lead wire length                      |                                                                    |           |         |           |                           |        |                                        |        |
| Blank                                   | 1 m (standard)                                                     |           |         |           |                           |        |                                        |        |
| 3                                       | 3 m (option)                                                       |           |         |           |                           |        |                                        |        |
| 5                                       | 5 m (option)                                                       |           |         |           |                           |        |                                        |        |
| F Switch quantity                       |                                                                    |           |         |           |                           |        |                                        |        |
| R                                       | 1 on rod side                                                      |           |         |           |                           |        |                                        |        |
| H                                       | 1 on head side                                                     |           |         |           |                           |        |                                        |        |
| D                                       | 2                                                                  |           |         |           |                           |        |                                        |        |
| T                                       | 3                                                                  |           |         |           |                           |        |                                        |        |
| G Option                                |                                                                    |           |         |           |                           |        |                                        |        |
| F                                       | End plate material (steel)                                         |           |         |           |                           |        |                                        |        |
| M                                       | Corrosion proof (Piston rod, guide rod SUS) (custom order product) |           |         |           |                           |        |                                        |        |
| M1                                      | Corrosion proof (M + end plate SUS) (custom order product)         |           |         |           |                           |        |                                        |        |

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MecHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MedHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending



Guided cylinder Double acting/low speed

# STS/STL-MO Series

● Bore size:  $\phi 8/\phi 12/\phi 16/\phi 20/\phi 25/\phi 32/\phi 40/\phi 50/\phi 63/\phi 80$

JIS symbol



## Specifications

| Descriptions              |      | STS-MO/BO, STL-MO/BO                              |       |       |       |       |                      |       |       |        |       |
|---------------------------|------|---------------------------------------------------|-------|-------|-------|-------|----------------------|-------|-------|--------|-------|
| Bore size                 | mm   | φ8                                                | φ12   | φ16   | φ20   | φ25   | φ32                  | φ40   | φ50   | φ63    | φ80   |
| Actuation                 |      | Double acting/low speed                           |       |       |       |       |                      |       |       |        |       |
| Working fluid             |      | Compressed air                                    |       |       |       |       |                      |       |       |        |       |
| Max. working pressure     | MPa  | 1.0 (≈150 psi, 10 bar)                            |       |       |       |       |                      |       |       |        |       |
| Min. working pressure     | MPa  | 0.15 (≈22 psi, 1.5 bar)                           |       |       |       |       | 0.1 (≈15 psi, 1 bar) |       |       |        |       |
| Proof pressure            | MPa  | 1.6 (≈230 psi, 16 bar)                            |       |       |       |       |                      |       |       |        |       |
| Ambient temperature       | °C   | -10 (14°F) to 60 (140°F) (no freezing)            |       |       |       |       |                      |       |       |        |       |
| Port size                 |      | M5                                                |       |       |       |       | Rc1/8                |       | Rc1/4 |        | Rc3/8 |
| Stroke tolerance          | mm   | $\begin{smallmatrix} +2.0 \\ 0 \end{smallmatrix}$ |       |       |       |       |                      |       |       |        |       |
| Working piston speed      | mm/s | 10 to 200                                         |       |       |       |       |                      |       |       |        |       |
| Cushion                   |      | With rubber cushion                               |       |       |       |       |                      |       |       |        |       |
| Lubrication               |      | Not available                                     |       |       |       |       |                      |       |       |        |       |
| Allowable absorbed energy | J    | 0.029                                             | 0.056 | 0.088 | 0.157 | 0.157 | 0.401                | 0.627 | 0.980 | 0.1560 | 2.510 |

## Stroke length

· Short stroke length STS

| Bore size (mm) | Standard stroke length (mm) | Max. stroke length (mm) | Min. stroke length (mm) | Min. stroke with switch (mm)  |
|----------------|-----------------------------|-------------------------|-------------------------|-------------------------------|
| $\phi 8$       | 10, 20, 30, 40, 50          | 50                      | 5                       | 5<br>With one or two switches |
| $\phi 12$      |                             |                         |                         |                               |
| $\phi 16$      |                             |                         |                         |                               |
| $\phi 20$      |                             |                         |                         |                               |
| $\phi 25$      |                             |                         |                         |                               |
| $\phi 32$      |                             |                         |                         |                               |
| $\phi 40$      | 25, 50                      | 50                      | 5                       | 5<br>With one or two switches |
| $\phi 50$      |                             |                         |                         |                               |
| $\phi 63$      |                             |                         |                         |                               |
| $\phi 80$      |                             |                         |                         |                               |
|                | 25, 50, 75, 100             | 100                     |                         |                               |

· Long stroke length STL

| Bore size (mm) | Standard stroke length (mm)                             | Max. stroke length (mm) | Min. stroke length (mm) | Min. stroke with switch (mm)   |
|----------------|---------------------------------------------------------|-------------------------|-------------------------|--------------------------------|
| $\phi 8$       | 50, 75, 100, 125, 150                                   | 150                     | 50                      | 50                             |
| $\phi 12$      |                                                         |                         |                         |                                |
| $\phi 16$      |                                                         |                         |                         |                                |
| $\phi 20$      | 50, 75, 100, 125, 150<br>175, 200, 225, 250<br>275, 300 | 300                     | 30                      | 30<br>With one or two switches |
| $\phi 25$      |                                                         |                         |                         |                                |
| $\phi 32$      |                                                         |                         |                         |                                |
| $\phi 40$      |                                                         |                         |                         |                                |
| $\phi 50$      |                                                         |                         |                         |                                |
| $\phi 63$      |                                                         |                         |                         |                                |
| $\phi 80$      | 75, 100, 125, 150, 175<br>200, 225, 250, 275, 300       |                         | 55                      | 55<br>With one or two switches |

Note : The custom stroke length is available in 5 mm increments.  
However, the total length is the same as that of the next longer standard stroke length.

### Switch specifications

● 1-color/2-color display/for AC magnetic field proof

| Descriptions    | Proximity 2-wire                                           | Proximity 2-wire                      |                                |                                | Proximity 3-wire                   |                             |                                |                                | Reed 2-wire                        |                                                                                       |             |                                    |            |            |                                | Proximity 2-wire |
|-----------------|------------------------------------------------------------|---------------------------------------|--------------------------------|--------------------------------|------------------------------------|-----------------------------|--------------------------------|--------------------------------|------------------------------------|---------------------------------------------------------------------------------------|-------------|------------------------------------|------------|------------|--------------------------------|------------------|
|                 | T1H/<br>T1V                                                | T2H/T2V/<br>T2JH/T2JV                 | T2YH/<br>T2YV                  | T2WH/<br>T2WV                  | T3H/<br>T3V                        | T3PH/T3PV<br>(custom)       | T3YH/<br>T3YV                  | T3WH/<br>T3WV                  | T0H/T0V                            | T5H/T5V                                                                               |             | T8H/T8V                            |            |            | T2YD                           |                  |
| Applications    | For programmable controller, relay, compact solenoid valve | Dedicated for programmable controller |                                |                                | For programmable controller, relay |                             |                                |                                | For programmable controller, relay | For programmable controller, relay, IC circuit (no indicator lamp), serial connection |             | For programmable controller, relay |            |            | For programmable controller    |                  |
| Output method   | -                                                          |                                       |                                |                                | NPN output                         | PNP output                  | NPN output                     | NPN output                     | -                                  |                                                                                       |             |                                    |            |            |                                |                  |
| Pwr. supp. V.   | -                                                          |                                       |                                |                                | 10 to 28 VDC                       |                             |                                |                                | -                                  |                                                                                       |             |                                    |            |            |                                |                  |
| Load voltage    | 85 to 265 VAC                                              | 10 to 30 VDC                          | 24 VDC ±10%                    | 30 VDC or less                 |                                    |                             |                                | 12/24 VDC                      | 100/110 VAC                        | 5/12/24 VDC                                                                           | 100/110 VAC | 12/24 VDC                          | 110 VAC    | 220 VAC    | 24 VDC ±10%                    |                  |
| Load current    | 5 to 100 mA                                                | 5 to 20 mA (*2)                       |                                | 100 mA or less                 |                                    | 50 mA or less               |                                | 5 to 50 mA                     | 7 to 20 mA                         | ≤50 mA                                                                                | ≤20 mA      | 5 to 50 mA                         | 7 to 20 mA | 7 to 10 mA | 5 to 20 mA                     |                  |
| Indicator lamp  | LED<br>(Lit when ON)                                       | LED<br>(Lit when ON)                  | Red/green LED<br>(Lit when ON) | Red/green LED<br>(Lit when ON) | LED<br>(Lit when ON)               | Yellow LED<br>(Lit when ON) | Red/green LED<br>(Lit when ON) | Red/green LED<br>(Lit when ON) | LED<br>(Lit when ON)               | Without indicator lamp                                                                |             | LED<br>(Lit when ON)               |            |            | Red/green LED<br>(Lit when ON) |                  |
| Leakage current | ≤1 mA at 100 VAC,<br>≤2 mA at 200 VAC                      | 1 mA or less                          |                                |                                | 10 μA or less                      |                             |                                |                                | 0 mA                               |                                                                                       |             |                                    |            |            |                                | 1 mA or less     |
| Weight g        | 1 m:33                                                     | 1 m:18                                | 1 m:33                         | 1 m:18                         | 1 m:18                             |                             | 1 m:33                         | 1 m:18                         | 1 m:18 3 m:49 5 m:80               |                                                                                       |             | 1 m:33 3 m:87 5 m:142              |            |            | 1 m:61                         |                  |
|                 | 3 m:87                                                     | 3 m:49                                | 3 m:87                         | 3 m:49                         | 3 m:49                             |                             | 3 m:87                         | 3 m:49                         |                                    |                                                                                       |             |                                    |            |            | 3 m:166                        |                  |
|                 | 5 m:142                                                    | 5 m:80                                | 5 m:142                        | 5 m:80                         | 5 m:80                             |                             | 5 m:142                        | 5 m:80                         |                                    |                                                                                       |             |                                    |            |            | 5 m:272                        |                  |

\*1 : Refer to Ending Page 1 for other switch specifications.

\*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

\*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

\*4 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

\*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

### Theoretical thrust table

(Unit: N)

| Bore size<br>(mm) | Operating<br>direction | Working pressure MPa   |                        |                        |                        |                        |                        |                        |                        |                        |                        |                        |
|-------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|                   |                        | 0.1                    | 0.15                   | 0.2                    | 0.3                    | 0.4                    | 0.5                    | 0.6                    | 0.7                    | 0.8                    | 0.9                    | 1.0                    |
| φ8                | Push                   | -                      | -                      | 10.1                   | 15.1                   | 20.1                   | 25.1                   | 30.2                   | 35.2                   | 40.2                   | 45.2                   | 50.3                   |
|                   | Pull                   | -                      | -                      | 7.54                   | 11.3                   | 15.1                   | 18.8                   | 22.6                   | 26.4                   | 30.2                   | 33.9                   | 37.7                   |
| φ12               | Push                   | -                      | -                      | 22.6                   | 33.9                   | 45.2                   | 56.5                   | 67.9                   | 79.2                   | 90.5                   | 1.02 × 10 <sup>2</sup> | 1.13 × 10 <sup>2</sup> |
|                   | Pull                   | -                      | -                      | 17.0                   | 25.4                   | 33.9                   | 42.4                   | 50.9                   | 59.4                   | 67.9                   | 76.3                   | 84.8                   |
| φ16               | Push                   | -                      | -                      | 40.2                   | 60.3                   | 80.4                   | 1.01 × 10 <sup>2</sup> | 1.21 × 10 <sup>2</sup> | 1.41 × 10 <sup>2</sup> | 1.61 × 10 <sup>2</sup> | 1.81 × 10 <sup>2</sup> | 2.01 × 10 <sup>2</sup> |
|                   | Pull                   | -                      | -                      | 30.2                   | 45.2                   | 60.3                   | 75.4                   | 90.5                   | 1.06 × 10 <sup>2</sup> | 1.21 × 10 <sup>2</sup> | 1.36 × 10 <sup>2</sup> | 1.51 × 10 <sup>2</sup> |
| φ20               | Push                   | -                      | -                      | 62.8                   | 94.2                   | 1.26 × 10 <sup>2</sup> | 1.57 × 10 <sup>2</sup> | 1.88 × 10 <sup>2</sup> | 2.20 × 10 <sup>2</sup> | 2.51 × 10 <sup>2</sup> | 2.83 × 10 <sup>2</sup> | 3.14 × 10 <sup>2</sup> |
|                   | Pull                   | -                      | -                      | 47.1                   | 70.7                   | 94.2                   | 1.18 × 10 <sup>2</sup> | 1.41 × 10 <sup>2</sup> | 1.65 × 10 <sup>2</sup> | 1.88 × 10 <sup>2</sup> | 2.12 × 10 <sup>2</sup> | 2.36 × 10 <sup>2</sup> |
| φ25               | Push                   | -                      | -                      | 98.2                   | 1.47 × 10 <sup>2</sup> | 1.96 × 10 <sup>2</sup> | 2.45 × 10 <sup>2</sup> | 2.95 × 10 <sup>2</sup> | 3.44 × 10 <sup>2</sup> | 3.93 × 10 <sup>2</sup> | 4.42 × 10 <sup>2</sup> | 4.91 × 10 <sup>2</sup> |
|                   | Pull                   | -                      | -                      | 75.6                   | 1.13 × 10 <sup>2</sup> | 1.51 × 10 <sup>2</sup> | 1.89 × 10 <sup>2</sup> | 2.27 × 10 <sup>2</sup> | 2.64 × 10 <sup>2</sup> | 3.02 × 10 <sup>2</sup> | 3.40 × 10 <sup>2</sup> | 3.78 × 10 <sup>2</sup> |
| φ32               | Push                   | 80.4                   | 1.21 × 10 <sup>2</sup> | 1.61 × 10 <sup>2</sup> | 2.41 × 10 <sup>2</sup> | 3.22 × 10 <sup>2</sup> | 4.02 × 10 <sup>2</sup> | 4.83 × 10 <sup>2</sup> | 5.63 × 10 <sup>2</sup> | 6.43 × 10 <sup>2</sup> | 7.24 × 10 <sup>2</sup> | 8.04 × 10 <sup>2</sup> |
|                   | Pull                   | 60.3                   | 90.5                   | 1.21 × 10 <sup>2</sup> | 1.81 × 10 <sup>2</sup> | 2.41 × 10 <sup>2</sup> | 3.02 × 10 <sup>2</sup> | 3.62 × 10 <sup>2</sup> | 4.22 × 10 <sup>2</sup> | 4.83 × 10 <sup>2</sup> | 5.43 × 10 <sup>2</sup> | 6.03 × 10 <sup>2</sup> |
| φ40               | Push                   | 1.26 × 10 <sup>2</sup> | 1.88 × 10 <sup>2</sup> | 2.51 × 10 <sup>2</sup> | 3.77 × 10 <sup>2</sup> | 5.03 × 10 <sup>2</sup> | 6.28 × 10 <sup>2</sup> | 7.54 × 10 <sup>2</sup> | 8.80 × 10 <sup>2</sup> | 1.01 × 10 <sup>3</sup> | 1.13 × 10 <sup>3</sup> | 1.26 × 10 <sup>3</sup> |
|                   | Pull                   | 1.06 × 10 <sup>2</sup> | 1.58 × 10 <sup>2</sup> | 2.11 × 10 <sup>2</sup> | 3.17 × 10 <sup>2</sup> | 4.22 × 10 <sup>2</sup> | 5.28 × 10 <sup>2</sup> | 6.33 × 10 <sup>2</sup> | 7.39 × 10 <sup>2</sup> | 8.44 × 10 <sup>2</sup> | 9.50 × 10 <sup>2</sup> | 1.06 × 10 <sup>3</sup> |
| φ50               | Push                   | 1.96 × 10 <sup>2</sup> | 2.95 × 10 <sup>2</sup> | 3.93 × 10 <sup>2</sup> | 5.89 × 10 <sup>2</sup> | 7.85 × 10 <sup>2</sup> | 9.82 × 10 <sup>2</sup> | 1.18 × 10 <sup>3</sup> | 1.37 × 10 <sup>3</sup> | 1.57 × 10 <sup>3</sup> | 1.77 × 10 <sup>3</sup> | 1.96 × 10 <sup>3</sup> |
|                   | Pull                   | 1.65 × 10 <sup>2</sup> | 2.47 × 10 <sup>2</sup> | 3.30 × 10 <sup>2</sup> | 4.95 × 10 <sup>2</sup> | 6.60 × 10 <sup>2</sup> | 8.25 × 10 <sup>2</sup> | 9.90 × 10 <sup>2</sup> | 1.15 × 10 <sup>3</sup> | 1.32 × 10 <sup>3</sup> | 1.48 × 10 <sup>3</sup> | 1.65 × 10 <sup>3</sup> |
| φ63               | Push                   | 3.12 × 10 <sup>2</sup> | 4.68 × 10 <sup>2</sup> | 6.23 × 10 <sup>2</sup> | 9.35 × 10 <sup>2</sup> | 1.25 × 10 <sup>3</sup> | 1.56 × 10 <sup>3</sup> | 1.87 × 10 <sup>3</sup> | 2.18 × 10 <sup>3</sup> | 2.49 × 10 <sup>3</sup> | 2.81 × 10 <sup>3</sup> | 3.12 × 10 <sup>3</sup> |
|                   | Pull                   | 2.80 × 10 <sup>2</sup> | 4.20 × 10 <sup>2</sup> | 5.61 × 10 <sup>2</sup> | 8.41 × 10 <sup>2</sup> | 1.12 × 10 <sup>3</sup> | 1.40 × 10 <sup>3</sup> | 1.68 × 10 <sup>3</sup> | 1.96 × 10 <sup>3</sup> | 2.24 × 10 <sup>3</sup> | 2.52 × 10 <sup>3</sup> | 2.80 × 10 <sup>3</sup> |
| φ80               | Push                   | 5.03 × 10 <sup>2</sup> | 7.54 × 10 <sup>2</sup> | 1.01 × 10 <sup>3</sup> | 1.51 × 10 <sup>3</sup> | 2.01 × 10 <sup>3</sup> | 2.51 × 10 <sup>3</sup> | 3.02 × 10 <sup>3</sup> | 3.52 × 10 <sup>3</sup> | 4.02 × 10 <sup>3</sup> | 4.52 × 10 <sup>3</sup> | 5.03 × 10 <sup>3</sup> |
|                   | Pull                   | 4.54 × 10 <sup>2</sup> | 6.80 × 10 <sup>2</sup> | 9.07 × 10 <sup>2</sup> | 1.36 × 10 <sup>3</sup> | 1.81 × 10 <sup>3</sup> | 2.27 × 10 <sup>3</sup> | 2.72 × 10 <sup>3</sup> | 3.17 × 10 <sup>3</sup> | 3.63 × 10 <sup>3</sup> | 4.08 × 10 <sup>3</sup> | 4.54 × 10 <sup>3</sup> |

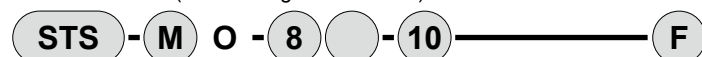
For cylinder weight, refer to pages 554 to 557.

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MechHand/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

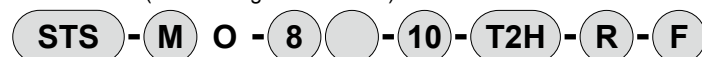
## How to order

### ● Short stroke length

Without switch (built-in magnet for switch)

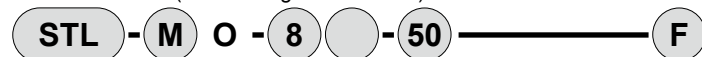


With switch (built-in magnet for switch)

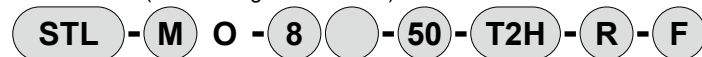


### ● Long stroke length

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



A Bearing

B Bore size

C Port thread

D Stroke length

■ Custom stroke length

Available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke length.

E Switch model No.

\*1, \*3, \*4

### ⚠ Precautions for model No. selection

\*1 : Switches other than E Switch model No. are also available. (Custom order product)

\*2 : Refer to pages 440 to 443 for combinations of variations/options.

\*3 : T8H/V switch cannot be installed on φ8 to φ16.

\*4 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

For the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches for φ40 and over, insert "L1" with "-" between A and E.  
(Example) STS-MO-L1-63-50-T2YH3-D-F  
For φ80, the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches cannot be retrofitted on a previously purchased standard product.

In this case, order the model No. with "L1" inserted between A and E.

(Example) STS-MO-L1-80-50-F

### [Example of model No.]

#### STS-MO-8-30-T0H-R-F

Model: Guided cylinder, short stroke length, standard/low speed

A Bearing : Metal bush bearing

B Bore size : φ8 mm

C Port thread : Rc thread

D Stroke length : 30 mm

E Switch model No.: Reed T0H, lead wire length 1 m

F Switch quantity : 1 on rod side

G Option : End plate material: steel

F Switch quantity

G Option

| Code             | Content            |
|------------------|--------------------|
| <b>A Bearing</b> |                    |
| M                | Metal bush bearing |
| B                | Ball bearing       |

|                         |     |
|-------------------------|-----|
| <b>B Bore size (mm)</b> |     |
| 8                       | φ 8 |
| 12                      | φ12 |
| 16                      | φ16 |
| 20                      | φ20 |
| 25                      | φ25 |
| 32                      | φ32 |
| 40                      | φ40 |
| 50                      | φ50 |
| 63                      | φ63 |
| 80                      | φ80 |

|                      |                                                |
|----------------------|------------------------------------------------|
| <b>C Port thread</b> |                                                |
| Blank                | Rc thread                                      |
| NN                   | NPT thread (φ32 and over) custom order product |
| GN                   | G thread (φ32 and over) custom order product   |

|                                                         |  |
|---------------------------------------------------------|--|
| <b>D Stroke length (mm)</b>                             |  |
| Refer to the stroke length table on the following page. |  |

| Axial lead wire |       | Radial lead wire |       | Contact   | Voltage |    | Indicator                           | Lead wire |
|-----------------|-------|------------------|-------|-----------|---------|----|-------------------------------------|-----------|
|                 |       |                  |       |           | AC      | DC |                                     |           |
| T0H*            | T0V*  | T0H*             | T0V*  | Reed      | ●       | ●  | 1-color display                     | 2-wire    |
| T5H*            | T5V*  | T5H*             | T5V*  | Reed      | ●       | ●  | no indicator lamp                   |           |
| T8H*            | T8V*  | T8H*             | T8V*  | Reed      | ●       | ●  | 1-color display                     | 2-wire    |
| T1H*            | T1V*  | T1H*             | T1V*  | Reed      | ●       | ●  |                                     |           |
| T2H*            | T2V*  | T2H*             | T2V*  | Reed      | ●       | ●  | 2-color display                     | 3-wire    |
| T3H*            | T3V*  | T3H*             | T3V*  | Reed      | ●       | ●  |                                     |           |
| T3PH*           | T3PV* | T3PH*            | T3PV* | Reed      | ●       | ●  | 1-color display (custom)            | 3-wire    |
| T2WH*           | T2WV* | T2WH*            | T2WV* | Proximity | ●       | ●  | 2-color display                     | 2-wire    |
| T2YH*           | T2YV* | T2YH*            | T2YV* | Proximity | ●       | ●  |                                     |           |
| T3WH*           | T3WV* | T3WH*            | T3WV* | Proximity | ●       | ●  | 2-color display                     | 3-wire    |
| T3YH*           | T3YV* | T3YH*            | T3YV* | Proximity | ●       | ●  |                                     |           |
| T2JH*           | T2JV* | T2JH*            | T2JV* | Proximity | ●       | ●  | 1-color display off-delay           | 2-wire    |
| T2YD*           | -     | T2YD*            | -     | Proximity | ●       | ●  | 2-color display (AC magnetic field) | 2-wire    |
| T2YDT*          | -     | T2YDT*           | -     | Proximity | ●       | ●  |                                     |           |

|                           |                |
|---------------------------|----------------|
| <b>* Lead wire length</b> |                |
| Blank                     | 1 m (standard) |
| 3                         | 3 m (option)   |
| 5                         | 5 m (option)   |

|                          |                |
|--------------------------|----------------|
| <b>F Switch quantity</b> |                |
| R                        | 1 on rod side  |
| H                        | 1 on head side |
| D                        | 2              |
| T                        | 3              |

|                 |                                                                    |
|-----------------|--------------------------------------------------------------------|
| <b>G Option</b> |                                                                    |
| F               | End plate material (steel)                                         |
| M               | Corrosion proof (Piston rod, guide rod SUS) (custom order product) |
| M1              | Corrosion proof (M + end plate SUS) (custom order product)         |

### D Stroke length

| Series              | Stroke length (mm)     | Applicable bore size  |     |     |     |     |     |     |     |     |     |    |
|---------------------|------------------------|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
|                     |                        | φ8                    | φ12 | φ16 | φ20 | φ25 | φ32 | φ40 | φ50 | φ63 | φ80 |    |
| STS                 | Standard stroke length | 10                    | ●   | ●   | ●   |     |     |     |     |     |     |    |
|                     |                        | 20                    | ●   | ●   | ●   |     |     |     |     |     |     |    |
|                     |                        | 25                    |     |     |     | ●   | ●   | ●   | ●   | ●   | ●   | ●  |
|                     |                        | 30                    | ●   | ●   | ●   |     |     |     |     |     |     |    |
|                     |                        | 40                    | ●   | ●   | ●   |     |     |     |     |     |     |    |
|                     |                        | 50                    | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●  |
|                     |                        | 75                    |     |     |     |     |     |     |     |     |     | ●  |
|                     |                        | 100                   |     |     |     |     |     |     |     |     |     | ●  |
|                     | Min. stroke length *1  | 5                     |     |     |     |     |     |     |     |     |     |    |
| Custom stroke *1, 2 | In 5 mm increments     |                       |     |     |     |     |     |     |     |     |     |    |
| STL                 | Standard stroke length | 50                    | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   |    |
|                     |                        | 75                    | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●  |
|                     |                        | 100                   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●  |
|                     |                        | 125                   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●  |
|                     |                        | 150                   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●  |
|                     |                        | 175                   |     |     |     | ●   | ●   | ●   | ●   | ●   | ●   | ●  |
|                     |                        | 200                   |     |     |     | ●   | ●   | ●   | ●   | ●   | ●   | ●  |
|                     |                        | 225                   |     |     |     | ●   | ●   | ●   | ●   | ●   | ●   | ●  |
|                     |                        | 250                   |     |     |     | ●   | ●   | ●   | ●   | ●   | ●   | ●  |
|                     |                        | 275                   |     |     |     | ●   | ●   | ●   | ●   | ●   | ●   | ●  |
|                     |                        | 300                   |     |     |     | ●   | ●   | ●   | ●   | ●   | ●   | ●  |
|                     |                        | Min. stroke length *1 | 50  |     |     | 30  |     |     |     |     |     | 55 |
|                     | Custom stroke *1, 2    | In 5 mm increments    |     |     |     |     |     |     |     |     |     |    |

\*1 : The total dimensions are the same as the longer standard stroke length.

\*2 : Special total length for custom stroke length can be provided when a custom stroke length is used.  
(Custom order)

### How to order switch

SW - TOV

Switch model No.  
(Item ⑤ on the previous page)

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

### Internal structure and parts list

Same as double acting/single rod. Refer to pages 449 to 453.

### Repair parts list

| Bore size (mm) | Kit No.              | Repair parts No. |
|----------------|----------------------|------------------|
|                | STS-M <sub>B</sub> O |                  |
| φ8             | STS-O-8K             | 7 9 10 13 16     |
| φ12            | STS-O-12K            | 7 9 10 13 16 32  |
| φ16            | STS-O-16K            |                  |
| φ20            | STS-O-20K            |                  |
| φ25            | STS-O-25K            |                  |
| φ32            | STS-O-32K            | 7 9 10 13        |
| φ40            | STS-O-40K            |                  |
| φ50            | STS-O-50K            | 16 17 32         |
| φ63            | STS-O-63K            |                  |
| φ80            | STS-O-80K            |                  |

Note : Specify the kit No. when placing an order.

### Dimensions

Same as STS/STL Series (double acting/single rod). Refer to the pages below.

STS Series : Page 455 (φ8 to φ16), page 456 (φ20 and φ25), page 457 (φ32 to φ63) and page 458 (φ80)

STL Series : Page 460 (φ8 to φ16), page 461 (φ20 and φ25), page 462 (φ32 to φ63) and page 463 (φ80)

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MedHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending



Guided cylinder Double acting/rubber scraper

# STS/STL-M<sub>B</sub>G Series

Double acting/coil scraper

# STS/STL-M<sub>B</sub>G1 Series

● Bore size:  $\phi 20/\phi 25/\phi 32/\phi 40/\phi 50/\phi 63/\phi 80$

JIS symbol 



## Specifications

| Descriptions              |      | STS-MG/BG, STS-MG1/BG1, STL-MG/BG, STL-MG1/BG1                               |       |                         |       |       |           |       |
|---------------------------|------|------------------------------------------------------------------------------|-------|-------------------------|-------|-------|-----------|-------|
| Bore size                 | mm   | φ20                                                                          | φ25   | φ32                     | φ40   | φ50   | φ63       | φ80   |
| Actuation                 |      | Double acting/scraper                                                        |       |                         |       |       |           |       |
| Working fluid             |      | Compressed air                                                               |       |                         |       |       |           |       |
| Max. working pressure     | MPa  | 1.0 (≈150 psi, 10 bar)                                                       |       |                         |       |       |           |       |
| Min. working pressure     | MPa  | 0.2 (≈29 psi, 2 bar)                                                         |       | 0.15 (≈22 psi, 1.5 bar) |       |       |           |       |
| Proof pressure            | MPa  | 1.6 (≈230 psi, 16 bar)                                                       |       |                         |       |       |           |       |
| Ambient temperature       |      | -10 (14°F) to 60 (140°F) (no freezing)                                       |       |                         |       |       |           |       |
| Port size                 |      | M5                                                                           |       | Rc1/8                   |       | Rc1/4 |           | Rc3/8 |
| Stroke tolerance          |      | +2.0<br>0                                                                    |       |                         |       |       |           |       |
| Working piston speed      | mm/s | 50 to 500                                                                    |       |                         |       |       | 50 to 300 |       |
| Cushion                   |      | With rubber cushion                                                          |       |                         |       |       |           |       |
| Lubrication               |      | Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication) |       |                         |       |       |           |       |
| Allowable absorbed energy | J    | 0.157                                                                        | 0.157 | 0.401                   | 0.627 | 0.980 | 1.560     | 2.510 |

## Stroke length

· Short stroke length STS

| Bore size (mm) | Standard stroke length (mm) | Max. stroke length (mm) | Min. stroke length (mm) | Min. stroke with switch (mm)  |
|----------------|-----------------------------|-------------------------|-------------------------|-------------------------------|
| $\phi 20$      | 25, 50                      | 50                      | 5                       | 5<br>With one or two switches |
| $\phi 25$      |                             |                         |                         |                               |
| $\phi 32$      |                             |                         |                         |                               |
| $\phi 40$      |                             |                         |                         |                               |
| $\phi 50$      |                             |                         |                         |                               |
| $\phi 63$      | 25, 50, 75, 100             | 100                     |                         |                               |
| $\phi 80$      |                             |                         |                         |                               |

· Long stroke length STL

| Bore size (mm) | Standard stroke length (mm)                                                   | Max. stroke length (mm) | Min. stroke length (mm) | Min. stroke with switch (mm)   |
|----------------|-------------------------------------------------------------------------------|-------------------------|-------------------------|--------------------------------|
| $\phi 20$      | 50, 75, 100, 125, 150<br>175, 200, 225, 250<br>275, 300, 325, 350<br>375, 400 | 400                     | 30                      | 30<br>With one or two switches |
| $\phi 25$      |                                                                               |                         |                         |                                |
| $\phi 32$      |                                                                               |                         |                         |                                |
| $\phi 40$      |                                                                               |                         |                         |                                |
| $\phi 50$      |                                                                               |                         |                         |                                |
| $\phi 63$      |                                                                               |                         |                         |                                |
| $\phi 80$      | 75, 100, 125, 150, 175<br>200, 225, 250, 275, 300<br>325, 350, 375, 400       |                         | 55                      | 55<br>With one or two switches |

Note : The custom stroke length is available in 5 mm increments.  
However, the total length is the same as that of the next longer standard stroke length.

### Switch specifications

● 1-color/2-color display/for AC magnetic field proof

| Descriptions    | Proximity 2-wire                                           | Proximity 2-wire                      |                                   |                                   | Proximity 3-wire                   |                                |                                   |                                   | Reed 2-wire                        |                                                                                       |             |                                    |            |                                   | Proximity 2-wire |             |
|-----------------|------------------------------------------------------------|---------------------------------------|-----------------------------------|-----------------------------------|------------------------------------|--------------------------------|-----------------------------------|-----------------------------------|------------------------------------|---------------------------------------------------------------------------------------|-------------|------------------------------------|------------|-----------------------------------|------------------|-------------|
|                 | T1H/<br>T1V                                                | T2H/T2V/<br>T2JH/T2JV                 | T2YH/<br>T2YV                     | T2WH/<br>T2WV                     | T3H/<br>T3V                        | T3PH/T3PV<br>(custom)          | T3YH/<br>T3YV                     | T3WH/<br>T3WV                     | T0H/T0V                            | T5H/T5V                                                                               |             | T8H/T8V                            |            | T2YD                              |                  |             |
| Applications    | For programmable controller, relay, compact solenoid valve | Dedicated for programmable controller |                                   |                                   | For programmable controller, relay |                                |                                   |                                   | For programmable controller, relay | For programmable controller, relay, IC circuit (no indicator lamp), serial connection |             | For programmable controller, relay |            | For programmable controller       |                  |             |
| Output method   | -                                                          |                                       |                                   |                                   | NPN output                         | PNP output                     | NPN output                        | NPN output                        | -                                  |                                                                                       |             |                                    |            |                                   |                  |             |
| Pwr. supp. V.   | -                                                          |                                       |                                   |                                   | 10 to 28 VDC                       |                                |                                   |                                   | -                                  |                                                                                       |             |                                    |            |                                   |                  |             |
| Load voltage    | 85 to 265 VAC                                              | 10 to 30 VDC                          | 24 VDC ±10%                       |                                   | 30 VDC or less                     |                                |                                   |                                   | 12/24 VDC                          | 100/110 VAC                                                                           | 5/12/24 VDC | 100/110 VAC                        | 12/24 VDC  | 110 VAC                           | 220 VAC          | 24 VDC ±10% |
| Load current    | 5 to 100 mA                                                | 5 to 20 mA (*2)                       |                                   |                                   | 100 mA or less                     |                                | 50 mA or less                     |                                   | 5 to 50 mA                         | 7 to 20 mA                                                                            | ≤50 mA      | ≤20 mA                             | 5 to 50 mA | 7 to 20 mA                        | 7 to 10 mA       | 5 to 20 mA  |
| Indicator lamp  | LED<br>(Lit when ON)                                       | LED<br>(Lit when ON)                  | Red/green<br>LED<br>(Lit when ON) | Red/green<br>LED<br>(Lit when ON) | LED<br>(Lit when ON)               | Yellow<br>LED<br>(Lit when ON) | Red/green<br>LED<br>(Lit when ON) | Red/green<br>LED<br>(Lit when ON) | LED<br>(Lit when ON)               | Without indicator lamp                                                                |             | LED<br>(Lit when ON)               |            | Red/green<br>LED<br>(Lit when ON) |                  |             |
| Leakage current | ≤1 mA at 100 VAC,<br>≤2 mA at 200 VAC                      | 1 mA or less                          |                                   |                                   | 10 μA or less                      |                                |                                   |                                   | 0 mA                               |                                                                                       |             |                                    |            |                                   | 1 mA or less     |             |
| Weight g        | 1 m:33                                                     | 1 m:18                                | 1 m:33                            | 1 m:18                            | 1 m:18                             |                                | 1 m:33                            | 1 m:18                            | 1 m:18 3 m:49 5 m:80               |                                                                                       |             | 1 m:33 3 m:87 5 m:142              |            |                                   | 1 m:61           |             |
|                 | 3 m:87                                                     | 3 m:49                                | 3 m:87                            | 3 m:49                            | 3 m:49                             |                                | 3 m:87                            | 3 m:49                            |                                    |                                                                                       |             |                                    |            |                                   | 3 m:166          |             |
|                 | 5 m:142                                                    | 5 m:80                                | 5 m:142                           | 5 m:80                            | 5 m:80                             |                                | 5 m:142                           | 5 m:80                            |                                    |                                                                                       |             |                                    |            |                                   | 5 m:272          |             |

\*1 : Refer to Ending Page 1 for other switch specifications.

\*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

\*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

\*4 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

\*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

### Theoretical thrust table

(Unit: N)

| Bore size<br>(mm) | Operating<br>direction | Working pressure MPa   |                        |                        |                        |                        |                        |                        |                        |                        |                        |                        |
|-------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|                   |                        | 0.1                    | 0.15                   | 0.2                    | 0.3                    | 0.4                    | 0.5                    | 0.6                    | 0.7                    | 0.8                    | 0.9                    | 1.0                    |
| φ20               | Push                   | -                      | -                      | 62.8                   | 94.2                   | 1.26 × 10 <sup>2</sup> | 1.57 × 10 <sup>2</sup> | 1.88 × 10 <sup>2</sup> | 2.20 × 10 <sup>2</sup> | 2.51 × 10 <sup>2</sup> | 2.83 × 10 <sup>2</sup> | 3.14 × 10 <sup>2</sup> |
|                   | Pull                   | -                      | -                      | 47.1                   | 70.7                   | 94.2                   | 1.18 × 10 <sup>2</sup> | 1.41 × 10 <sup>2</sup> | 1.65 × 10 <sup>2</sup> | 1.88 × 10 <sup>2</sup> | 2.12 × 10 <sup>2</sup> | 2.36 × 10 <sup>2</sup> |
| φ25               | Push                   | -                      | -                      | 98.2                   | 1.47 × 10 <sup>2</sup> | 1.96 × 10 <sup>2</sup> | 2.45 × 10 <sup>2</sup> | 2.95 × 10 <sup>2</sup> | 3.44 × 10 <sup>2</sup> | 3.93 × 10 <sup>2</sup> | 4.42 × 10 <sup>2</sup> | 4.91 × 10 <sup>2</sup> |
|                   | Pull                   | -                      | -                      | 75.6                   | 1.13 × 10 <sup>2</sup> | 1.51 × 10 <sup>2</sup> | 1.89 × 10 <sup>2</sup> | 2.27 × 10 <sup>2</sup> | 2.64 × 10 <sup>2</sup> | 3.02 × 10 <sup>2</sup> | 3.40 × 10 <sup>2</sup> | 3.78 × 10 <sup>2</sup> |
| φ32               | Push                   | 80.4                   | 1.21 × 10 <sup>2</sup> | 1.61 × 10 <sup>2</sup> | 2.41 × 10 <sup>2</sup> | 3.22 × 10 <sup>2</sup> | 4.02 × 10 <sup>2</sup> | 4.83 × 10 <sup>2</sup> | 5.63 × 10 <sup>2</sup> | 6.43 × 10 <sup>2</sup> | 7.24 × 10 <sup>2</sup> | 8.04 × 10 <sup>2</sup> |
|                   | Pull                   | 60.3                   | 90.5                   | 1.21 × 10 <sup>2</sup> | 1.81 × 10 <sup>2</sup> | 2.41 × 10 <sup>2</sup> | 3.02 × 10 <sup>2</sup> | 3.62 × 10 <sup>2</sup> | 4.22 × 10 <sup>2</sup> | 4.83 × 10 <sup>2</sup> | 5.43 × 10 <sup>2</sup> | 6.03 × 10 <sup>2</sup> |
| φ40               | Push                   | 1.26 × 10 <sup>2</sup> | 1.88 × 10 <sup>2</sup> | 2.51 × 10 <sup>2</sup> | 3.77 × 10 <sup>2</sup> | 5.03 × 10 <sup>2</sup> | 6.28 × 10 <sup>2</sup> | 7.54 × 10 <sup>2</sup> | 8.80 × 10 <sup>2</sup> | 1.01 × 10 <sup>3</sup> | 1.13 × 10 <sup>3</sup> | 1.26 × 10 <sup>3</sup> |
|                   | Pull                   | 1.06 × 10 <sup>2</sup> | 1.58 × 10 <sup>2</sup> | 2.11 × 10 <sup>2</sup> | 3.17 × 10 <sup>2</sup> | 4.22 × 10 <sup>2</sup> | 5.28 × 10 <sup>2</sup> | 6.33 × 10 <sup>2</sup> | 7.39 × 10 <sup>2</sup> | 8.44 × 10 <sup>2</sup> | 9.50 × 10 <sup>2</sup> | 1.06 × 10 <sup>3</sup> |
| φ50               | Push                   | 1.96 × 10 <sup>2</sup> | 2.95 × 10 <sup>2</sup> | 3.93 × 10 <sup>2</sup> | 5.89 × 10 <sup>2</sup> | 7.85 × 10 <sup>2</sup> | 9.82 × 10 <sup>2</sup> | 1.18 × 10 <sup>3</sup> | 1.37 × 10 <sup>3</sup> | 1.57 × 10 <sup>3</sup> | 1.77 × 10 <sup>3</sup> | 1.96 × 10 <sup>3</sup> |
|                   | Pull                   | 1.65 × 10 <sup>2</sup> | 2.47 × 10 <sup>2</sup> | 3.30 × 10 <sup>2</sup> | 4.95 × 10 <sup>2</sup> | 6.60 × 10 <sup>2</sup> | 8.25 × 10 <sup>2</sup> | 9.90 × 10 <sup>2</sup> | 1.15 × 10 <sup>3</sup> | 1.32 × 10 <sup>3</sup> | 1.48 × 10 <sup>3</sup> | 1.65 × 10 <sup>3</sup> |
| φ63               | Push                   | 3.12 × 10 <sup>2</sup> | 4.68 × 10 <sup>2</sup> | 6.23 × 10 <sup>2</sup> | 9.35 × 10 <sup>2</sup> | 1.25 × 10 <sup>3</sup> | 1.56 × 10 <sup>3</sup> | 1.87 × 10 <sup>3</sup> | 2.18 × 10 <sup>3</sup> | 2.49 × 10 <sup>3</sup> | 2.81 × 10 <sup>3</sup> | 3.12 × 10 <sup>3</sup> |
|                   | Pull                   | 2.80 × 10 <sup>2</sup> | 4.20 × 10 <sup>2</sup> | 5.61 × 10 <sup>2</sup> | 8.41 × 10 <sup>2</sup> | 1.12 × 10 <sup>3</sup> | 1.40 × 10 <sup>3</sup> | 1.68 × 10 <sup>3</sup> | 1.96 × 10 <sup>3</sup> | 2.24 × 10 <sup>3</sup> | 2.52 × 10 <sup>3</sup> | 2.80 × 10 <sup>3</sup> |
| φ80               | Push                   | 5.03 × 10 <sup>2</sup> | 7.54 × 10 <sup>2</sup> | 1.01 × 10 <sup>3</sup> | 1.51 × 10 <sup>3</sup> | 2.01 × 10 <sup>3</sup> | 2.51 × 10 <sup>3</sup> | 3.02 × 10 <sup>3</sup> | 3.52 × 10 <sup>3</sup> | 4.02 × 10 <sup>3</sup> | 4.52 × 10 <sup>3</sup> | 5.03 × 10 <sup>3</sup> |
|                   | Pull                   | 4.54 × 10 <sup>2</sup> | 6.80 × 10 <sup>2</sup> | 9.07 × 10 <sup>2</sup> | 1.36 × 10 <sup>3</sup> | 1.81 × 10 <sup>3</sup> | 2.27 × 10 <sup>3</sup> | 2.72 × 10 <sup>3</sup> | 3.17 × 10 <sup>3</sup> | 3.63 × 10 <sup>3</sup> | 4.08 × 10 <sup>3</sup> | 4.54 × 10 <sup>3</sup> |

For cylinder weight, refer to pages 554 to 557.

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MecHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

# STS/STL-M<sub>B</sub>G/G1 Series

## How to order

### ● Short stroke length

Without switch (built-in magnet for switch)

STS - M G - 20 - 25 - F

With switch (built-in magnet for switch)

STS - M G - 20 - 25 - T2H - R - F

### ● Long stroke length

Without switch (built-in magnet for switch)

STL - M G - 20 - 50 - F

With switch (built-in magnet for switch)

STL - M G - 20 - 50 - T2H - R - F

A Bearing

B Model No.

D Port thread

C Bore size

E Stroke length

■ Custom stroke length

Available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke length.

F Switch model No.

\*1, \*4

### ⚠ Precautions for model No. selection

\*1 : Switches other than F Switch model No. are also available. (Custom order product)  
Refer to Ending Page 1 for details.

\*2 : Refer to pages 440 to 443 for combinations of variations/options.

\*3 : φ20 and φ25 with ball bearing B are copper and PTFE free as standard. Not available for coil scraper G1.

\*4 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

For the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches for φ40 and over, insert "L1" with "-" between B and C.

(Example) STS-MG-L1-63-50-T2YH3-D-F

For φ80, the 2-color display, T1H/V, T8H/V and strong magnetic field proof switches cannot be retrofitted on a previously purchased standard product.

In this case, order the model No. with "L1" inserted between B and C.

(Example) STS-MG-L1-80-50-F

[Example of model No.]

**STS-MG-20-25-T0H-R-F**

Model: Guided cylinder, short stroke length

- A Bearing : Metal bush bearing
- B Model No. : Rubber scraper
- C Bore size : φ20 mm
- D Port thread : Rc thread
- E Stroke length : 25 mm
- F Switch model No. : Reed T0H, lead wire length 1 m
- G Switch quantity : 1 on rod side
- H Option : End plate material: steel

G Switch quantity

H Option

| Code             | Content            |
|------------------|--------------------|
| <b>A Bearing</b> |                    |
| M                | Metal bush bearing |
| B                | Ball bearing       |

|                    |                |
|--------------------|----------------|
| <b>B Model No.</b> |                |
| G                  | Rubber scraper |
| G1                 | Coil scraper   |

|                         |     |
|-------------------------|-----|
| <b>C Bore size (mm)</b> |     |
| 20                      | φ20 |
| 25                      | φ25 |
| 32                      | φ32 |
| 40                      | φ40 |
| 50                      | φ50 |
| 63                      | φ63 |
| 80                      | φ80 |

|                      |                                                 |
|----------------------|-------------------------------------------------|
| <b>D Port thread</b> |                                                 |
| Blank                | Rc thread                                       |
| NN                   | NPT thread (φ32 and over) custom order product. |
| GN                   | G thread (φ32 and over) custom order product.   |

|                                                         |  |
|---------------------------------------------------------|--|
| <b>E Stroke length (mm)</b>                             |  |
| Refer to the stroke length table on the following page. |  |

| F Switch model No. |                  | Contact   | Voltage<br>ACDC | Indicator                           | Lead wire |
|--------------------|------------------|-----------|-----------------|-------------------------------------|-----------|
| Axial lead wire    | Radial lead wire |           |                 |                                     |           |
| T0H*               | T0V*             | Reed      | ● ●             | 1-color display                     | 2-wire    |
| T5H*               | T5V*             |           | ● ●             | no indicator lamp                   |           |
| T8H*               | T8V*             |           | ● ●             | 1-color display                     | 2-wire    |
| T1H*               | T1V*             |           | ●               |                                     |           |
| T2H*               | T2V*             | Proximity | ●               | display                             | 3-wire    |
| T3H*               | T3V*             |           | ●               |                                     |           |
| T3PH*              | T3PV*            |           | ●               | 1-color display (custom)            | 3-wire    |
| T2WH*              | T2WV*            |           | ●               | 2-color display                     | 2-wire    |
| T2YH*              | T2YV*            |           | ●               |                                     | 2-wire    |
| T3WH*              | T3WV*            |           | ●               |                                     | 3-wire    |
| T3YH*              | T3YV*            |           | ●               |                                     | 3-wire    |
| T2JH*              | T2JV*            |           | ●               | 1-color display off-delay           | 2-wire    |
| T2YD*              | -                |           | ●               | 2-color display (AC magnetic field) | 2-wire    |
| T2YDT*             | -                |           | ●               |                                     |           |

|                           |                |
|---------------------------|----------------|
| <b>* Lead wire length</b> |                |
| Blank                     | 1 m (standard) |
| 3                         | 3 m (option)   |
| 5                         | 5 m (option)   |

|                          |                |
|--------------------------|----------------|
| <b>G Switch quantity</b> |                |
| R                        | 1 on rod side  |
| H                        | 1 on head side |
| D                        | 2              |
| T                        | 3              |

|                 |                                                                    |
|-----------------|--------------------------------------------------------------------|
| <b>H Option</b> |                                                                    |
| F               | End plate material (steel)                                         |
| M               | Corrosion proof (Piston rod, guide rod SUS) (custom order product) |
| M1              | Corrosion proof (M + end plate SUS) (custom order product)         |
| P6              | *3 Copper/PTFE free specs (custom) (N/A for G1 coil scraper)       |

### E Stroke length

| Series | Stroke length (mm)     | Applicable bore size |     |     |     |     |     |     |
|--------|------------------------|----------------------|-----|-----|-----|-----|-----|-----|
|        |                        | φ20                  | φ25 | φ32 | φ40 | φ50 | φ63 | φ80 |
| STS    | Standard stroke length | 25                   | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 50                   | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 75                   |     |     |     |     |     | ●   |
|        |                        | 100                  |     |     |     |     |     | ●   |
|        | Min. stroke length *1  | 5                    |     |     |     |     |     |     |
| STL    | Custom stroke *1, 2    | In 5 mm increments   |     |     |     |     |     |     |
|        |                        | 50                   | ●   | ●   | ●   | ●   | ●   |     |
|        |                        | 75                   | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 100                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 125                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 150                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 175                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 200                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 225                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 250                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 275                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 300                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 325                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 350                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 375                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 400                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        | Min. stroke length *1  | 30                   |     |     |     |     |     | 55  |
|        | Custom stroke *1, 2    | In 5 mm increments   |     |     |     |     |     |     |

\*1 : The total dimensions are the same as the longer standard stroke length.

\*2 : Special total length for custom stroke length can be provided when a custom stroke length is used.  
(Custom order)

### How to order switch

SW - T0V

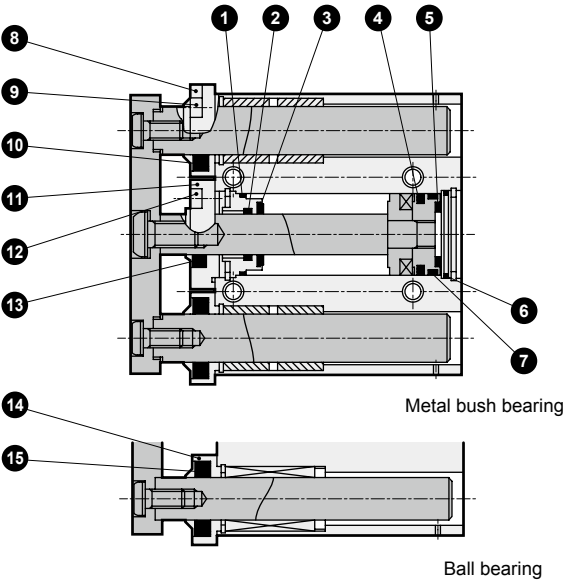
Switch model No.  
(Item F on the previous page)

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

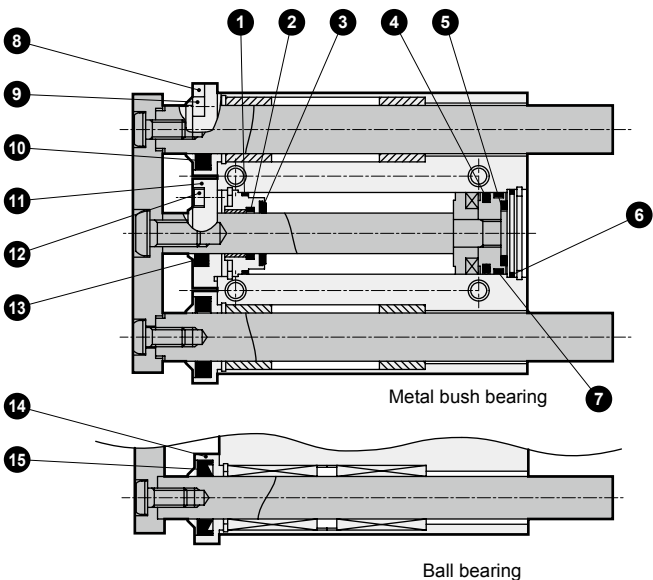
|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

Internal structure and parts list

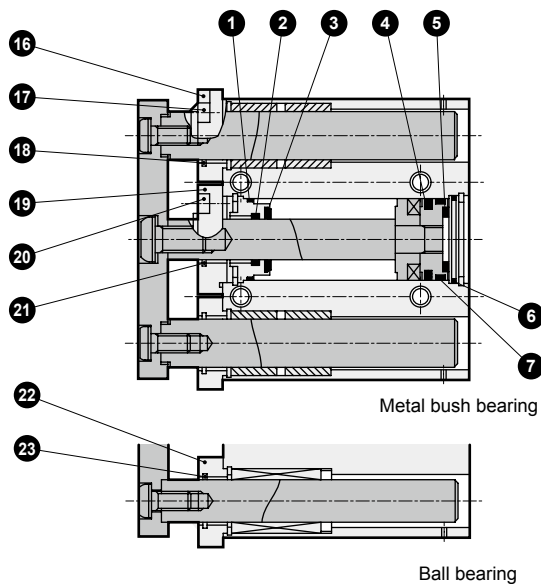
● Rubber scraper  
STS-<sup>M</sup><sub>B</sub>G



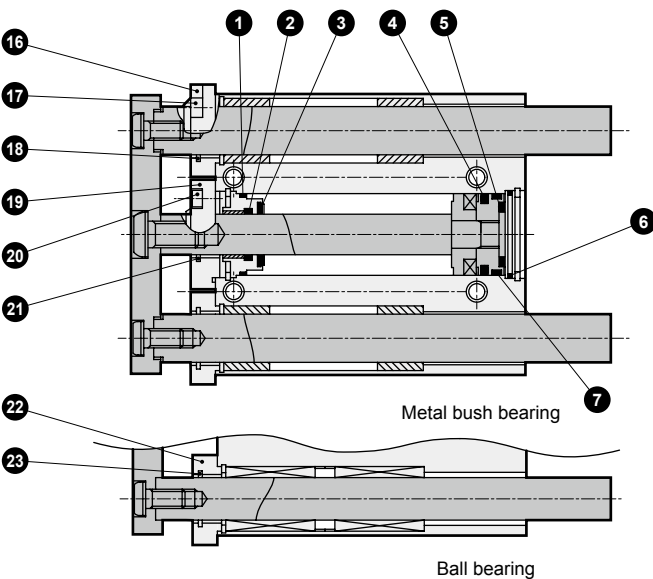
STL-<sup>M</sup><sub>B</sub>G



● Coil scraper  
STS-<sup>M</sup><sub>B</sub>G1



STL-<sup>M</sup><sub>B</sub>G1



# STS/STL-M<sup>B</sup>G/G1 Series

## Internal structure and parts list

**Parts list** (Parts not listed below are the same as those of the double acting/standard single rod. Refer to pages 449 to 453.)

| No.                                                               | Part name                     | Material               | Remarks       | No.                                                              | Part name                     | Material        | Remarks       |
|-------------------------------------------------------------------|-------------------------------|------------------------|---------------|------------------------------------------------------------------|-------------------------------|-----------------|---------------|
| <b>ST<sup>S</sup><sub>L</sub>-M<sup>B</sup>G (Rubber scraper)</b> |                               |                        |               | <b>ST<sup>S</sup><sub>L</sub>-M<sup>B</sup>G1 (Coil scraper)</b> |                               |                 |               |
| 1                                                                 | Metal gasket                  | Nitrile rubber         |               | 1                                                                | Metal gasket                  | Nitrile rubber  |               |
| 2                                                                 | Rod packing                   | Nitrile rubber         |               | 2                                                                | Rod packing                   | Nitrile rubber  |               |
| 3                                                                 | Cushion rubber (R)            | Urethane rubber        |               | 3                                                                | Cushion rubber (R)            | Urethane rubber |               |
| 4                                                                 | Piston packing                | Nitrile rubber         |               | 4                                                                | Piston packing                | Nitrile rubber  |               |
| 5                                                                 | Cushion rubber (H)            | Urethane rubber        |               | 5                                                                | Cushion rubber (H)            | Urethane rubber |               |
| 6                                                                 | O-ring                        | Nitrile rubber         |               | 6                                                                | O-ring                        | Nitrile rubber  |               |
| 7                                                                 | Wear ring                     | Acetal resin           |               | 7                                                                | Wear ring                     | Acetal resin    |               |
| 8                                                                 | Adaptor B                     | Aluminum alloy         | Alumite       | 16                                                               | Adaptor B                     | Aluminum alloy  | Alumite       |
| 9                                                                 | Hexagon socket head cap screw | Alloy steel            | Zinc chromate | 17                                                               | Hexagon socket head cap screw | Alloy steel     | Zinc chromate |
| 10                                                                | Rubber scraper                | Nitrile rubber + steel |               | 18                                                               | Coil scraper                  | Phosphor bronze |               |
| 11                                                                | Adaptor A                     | Aluminum alloy         | Alumite       | 19                                                               | Adaptor A                     | Aluminum alloy  | Alumite       |
| 12                                                                | Hexagon socket head cap screw | Alloy steel            | Zinc chromate | 20                                                               | Hexagon socket head cap screw | Alloy steel     | Zinc chromate |
| 13                                                                | Rubber scraper                | Nitrile rubber + steel |               | 21                                                               | Coil scraper                  | Phosphor bronze |               |
| 14                                                                | Adaptor C                     | Aluminum alloy         | Alumite       | 22                                                               | Adaptor C                     | Aluminum alloy  | Alumite       |
| 15                                                                | Rubber scraper                | Nitrile rubber + steel |               | 23                                                               | Coil scraper                  | Phosphor bronze |               |

**Repair parts list** (Note: specify the kit No. when ordering repair parts.)

● STS-MG/STL-MG (Rubber scraper)

| Bore size (mm) | Kit No.    | Repair parts No.                                                                                                                                              |
|----------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| φ20            | STS-MG-20K | <div> <div>1</div> <div>2</div> <div>3</div> </div> <div> <div>4</div> <div>5</div> <div>6</div> </div> <div> <div>7</div> <div>10</div> <div>13</div> </div> |
| φ25            | STS-MG-25K |                                                                                                                                                               |
| φ32            | STS-MG-32K |                                                                                                                                                               |
| φ40            | STS-MG-40K |                                                                                                                                                               |
| φ50            | STS-MG-50K |                                                                                                                                                               |
| φ63            | STS-MG-63K |                                                                                                                                                               |
| φ80            | STS-MG-80K |                                                                                                                                                               |

● STS-BG/STL-BG (Rubber scraper)

| Bore size (mm) | Kit No.    | Repair parts No.                                                                                                                                              |
|----------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| φ20            | STS-BG-20K | <div> <div>1</div> <div>2</div> <div>3</div> </div> <div> <div>4</div> <div>5</div> <div>6</div> </div> <div> <div>7</div> <div>13</div> <div>15</div> </div> |
| φ25            | STS-BG-25K |                                                                                                                                                               |
| φ32            | STS-BG-32K |                                                                                                                                                               |
| φ40            | STS-BG-40K |                                                                                                                                                               |
| φ50            | STS-BG-50K |                                                                                                                                                               |
| φ63            | STS-BG-63K |                                                                                                                                                               |
| φ80            | STS-BG-80K |                                                                                                                                                               |

● STS-MG1/STL-MG1 (Coil scraper)

| Bore size (mm) | Kit No.     | Repair parts No.                                                                                                                                              |
|----------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| φ20            | STS-MG1-20K | <div> <div>1</div> <div>2</div> <div>3</div> </div> <div> <div>4</div> <div>5</div> <div>6</div> </div> <div> <div>7</div> <div>18</div> <div>21</div> </div> |
| φ25            | STS-MG1-25K |                                                                                                                                                               |
| φ32            | STS-MG1-32K |                                                                                                                                                               |
| φ40            | STS-MG1-40K |                                                                                                                                                               |
| φ50            | STS-MG1-50K |                                                                                                                                                               |
| φ63            | STS-MG1-63K |                                                                                                                                                               |
| φ80            | STS-MG1-80K |                                                                                                                                                               |

● STS-BG1/STL-BG1 (Coil scraper)

| Bore size (mm) | Kit No.     | Repair parts No.                                                                                                                                              |
|----------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| φ20            | STS-BG1-20K | <div> <div>1</div> <div>2</div> <div>3</div> </div> <div> <div>4</div> <div>5</div> <div>6</div> </div> <div> <div>7</div> <div>21</div> <div>23</div> </div> |
| φ25            | STS-BG1-25K |                                                                                                                                                               |
| φ32            | STS-BG1-32K |                                                                                                                                                               |
| φ40            | STS-BG1-40K |                                                                                                                                                               |
| φ50            | STS-BG1-50K |                                                                                                                                                               |
| φ63            | STS-BG1-63K |                                                                                                                                                               |
| φ80            | STS-BG1-80K |                                                                                                                                                               |

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MechHand/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

# STS-M-B-G/G1 Series



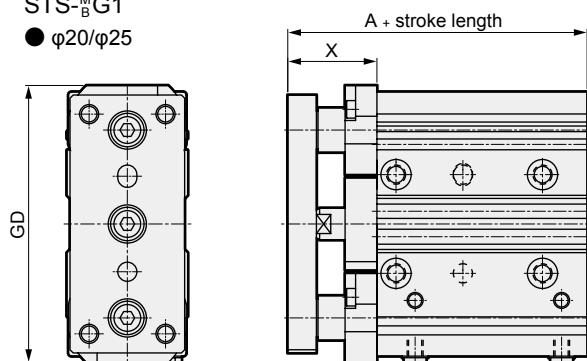
## Dimensions

● Coil scraper (Dimensions not listed below are the same as those of the double acting/single rod on pages 455 to 458.)

● Rubber scraper (Dimensions not listed below are the same as those of the double acting/single rod on pages 455 to 458.)

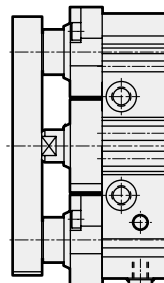
### STS-M-B-G1

●  $\phi 20/\phi 25$



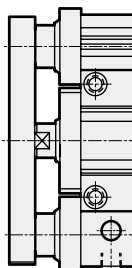
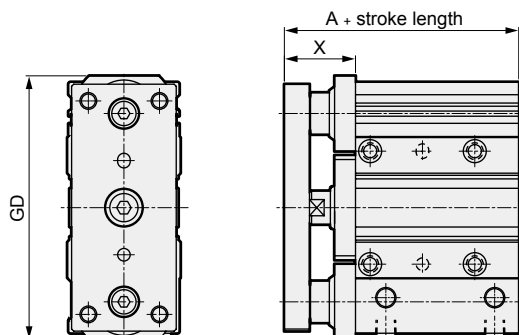
### STS-M-B-G

●  $\phi 20/\phi 25$



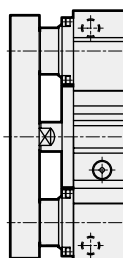
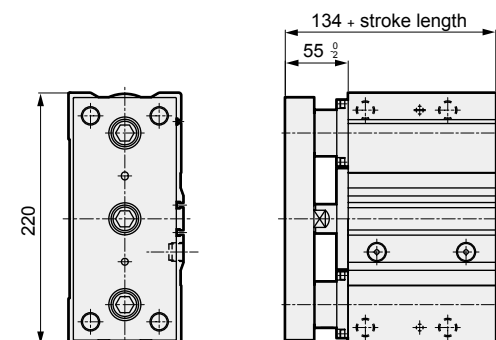
●  $\phi 32/\phi 40/\phi 50/\phi 63$

●  $\phi 32/\phi 40/\phi 50/\phi 63$



●  $\phi 80$

●  $\phi 80$



| Code           | A   | X  | GD  |
|----------------|-----|----|-----|
| Bore size (mm) |     |    |     |
| $\phi 20$      | 68  | 28 | 87  |
| $\phi 25$      | 69  | 28 | 91  |
| $\phi 32$      | 83  | 34 | 117 |
| $\phi 40$      | 87  | 34 | 126 |
| $\phi 50$      | 92  | 37 | 152 |
| $\phi 63$      | 98  | 37 | 166 |
| $\phi 80$      | 134 | 55 | 220 |

\*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

\*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

## Dimensions

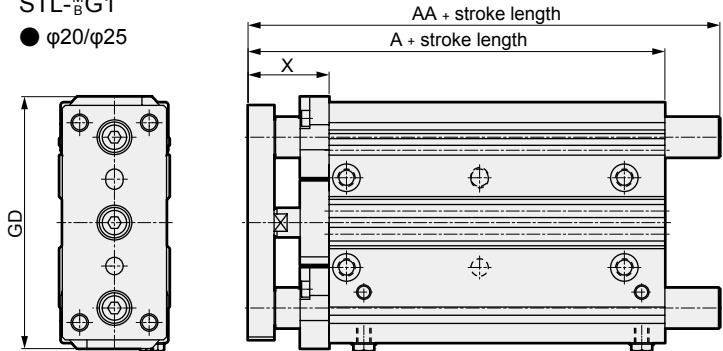


### ● Coil scrapper

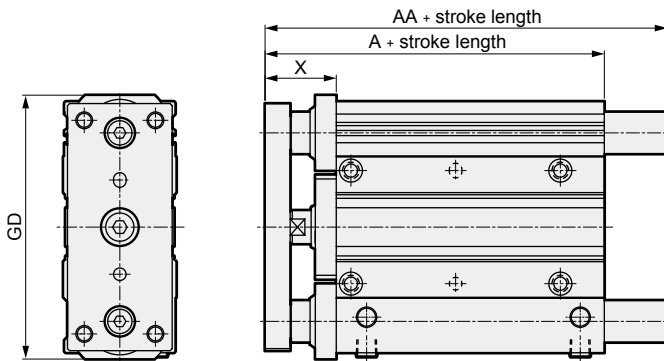
(Dimensions not listed below are the same as those of double acting/single rod on pages 460 to 463.)

STL-M<sub>B</sub>G1

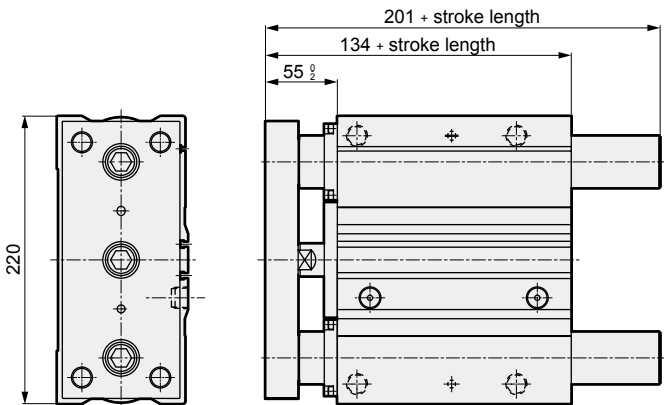
●  $\phi 20/\phi 25$



●  $\phi 32/\phi 40/\phi 50/\phi 63$



●  $\phi 80$

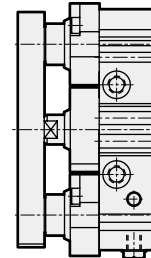


### ● Rubber scrapper

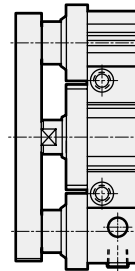
(Dimensions not listed below are the same as those of double acting/single rod on pages 460 to 463.)

STL-M<sub>B</sub>G

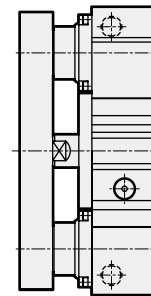
●  $\phi 20/\phi 25$



●  $\phi 32/\phi 40/\phi 50/\phi 63$



●  $\phi 80$



| Code           | A   | AA  | X                   | GD  |
|----------------|-----|-----|---------------------|-----|
| Bore size (mm) |     |     |                     |     |
| $\phi 20$      | 68  | 87  | 28 $\frac{0}{-0.2}$ | 87  |
| $\phi 25$      | 69  | 87  | 28 $\frac{0}{-0.2}$ | 91  |
| $\phi 32$      | 83  | 117 | 34 $\frac{0}{-0.2}$ | 117 |
| $\phi 40$      | 87  | 117 | 34 $\frac{0}{-0.2}$ | 126 |
| $\phi 50$      | 92  | 140 | 37 $\frac{0}{-0.2}$ | 152 |
| $\phi 63$      | 98  | 140 | 37 $\frac{0}{-0.2}$ | 166 |
| $\phi 80$      | 134 | 201 | 55 $\frac{0}{-0.2}$ | 220 |

\*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

\*2 : Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

|                      |
|----------------------|
| LCW                  |
| LCR                  |
| LCG                  |
| LCX                  |
| LCM                  |
| STM                  |
| STG                  |
| ST <sub>S</sub> /STL |
| STR2                 |
| UCA2                 |
| ULK*                 |
| JSK/M2               |
| JSG                  |
| JSC3/JSC4            |
| USSD                 |
| UFCD                 |
| USC                  |
| JSB3                 |
| LMB                  |
| LML                  |
| HCM                  |
| HCA                  |
| LBC                  |
| CAC4                 |
| UCAC2                |
| CAC-N                |
| UCAC-N               |
| RCC2                 |
| RCS                  |
| PCC                  |
| SHC                  |
| MCP                  |
| GLC                  |
| MFC                  |
| BBS                  |
| RRC                  |
| GRC                  |
| RV3*                 |
| NHS                  |
| HR                   |
| LN                   |
| Hand                 |
| Chuk                 |
| MecHnd/Chuk          |
| ShkAbs               |
| FJ                   |
| FK                   |
| SpdContr             |
| Ending               |

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MedHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending



Guided cylinder Double acting/coolant proof

# STS/STL-<sup>M</sup><sub>B</sub>G<sup>2</sup><sub>3</sub> Series

● Bore size: φ20/φ25/φ32/φ40/φ50/φ63/φ80

JIS symbol



## Specifications

| Descriptions              |      | STS/STL- <sup>M</sup> <sub>B</sub> G <sup>2</sup> <sub>3</sub>               |       |       |                         |       |           |       |
|---------------------------|------|------------------------------------------------------------------------------|-------|-------|-------------------------|-------|-----------|-------|
| Bore size                 | mm   | φ20                                                                          | φ25   | φ32   | φ40                     | φ50   | φ63       | φ80   |
| Actuation                 |      | Double acting/coolant proof                                                  |       |       |                         |       |           |       |
| Working fluid             |      | Compressed air                                                               |       |       |                         |       |           |       |
| Max. working pressure     | MPa  | 1.0 (≈150 psi, 10 bar)                                                       |       |       |                         |       |           |       |
| Min. working pressure     | MPa  | 0.2 (≈29 psi, 2 bar)                                                         |       |       | 0.15 (≈22 psi, 1.5 bar) |       |           |       |
| Proof pressure            | MPa  | 1.6 (≈230 psi, 16 bar)                                                       |       |       |                         |       |           |       |
| Ambient temperature       |      | °C -10 (14°F) to 60 (140°F) (no freezing)                                    |       |       |                         |       |           |       |
| Port size                 |      | M5                                                                           |       | Rc1/8 |                         | Rc1/4 |           | Rc3/8 |
| Stroke tolerance          | mm   | <sup>+2.0</sup> <sub>0</sub>                                                 |       |       |                         |       |           |       |
| Working piston speed      | mm/s | 50 to 500                                                                    |       |       |                         |       | 50 to 300 |       |
| Cushion                   |      | Rubber cushioned (urethane rubber)                                           |       |       |                         |       |           |       |
| Lubrication               |      | Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication) |       |       |                         |       |           |       |
| Allowable absorbed energy | J    | 0.157                                                                        | 0.157 | 0.401 | 0.627                   | 0.980 | 1.560     | 2.510 |

## Stroke length

● Scraper

· Short stroke length STS

| Bore size (mm) | Standard stroke length (mm) | Max. stroke length (mm) | Min. stroke length (mm) | Min. stroke with switch (mm)  |
|----------------|-----------------------------|-------------------------|-------------------------|-------------------------------|
| φ20            | 25, 50                      | 50                      | 5                       | 5<br>With one or two switches |
| φ25            |                             |                         |                         |                               |
| φ32            |                             |                         |                         |                               |
| φ40            |                             |                         |                         |                               |
| φ50            |                             |                         |                         |                               |
| φ63            | 25, 50, 75, 100             | 100                     |                         |                               |
| φ80            |                             |                         |                         |                               |

· Long stroke length STL

| Bore size (mm) | Standard stroke length (mm)                                                   | Max. stroke length (mm) | Min. stroke length (mm) | Min. stroke with switch (mm)   |
|----------------|-------------------------------------------------------------------------------|-------------------------|-------------------------|--------------------------------|
| φ20            | 50, 75, 100, 125, 150<br>175, 200, 225, 250<br>275, 300, 325, 350<br>375, 400 | 400                     | 30                      | 30<br>With one or two switches |
| φ25            |                                                                               |                         |                         |                                |
| φ32            |                                                                               |                         |                         |                                |
| φ40            |                                                                               |                         |                         |                                |
| φ50            |                                                                               |                         | 55                      | 55<br>With one or two switches |
| φ63            |                                                                               |                         |                         |                                |
| φ80            | 75, 100, 125, 150, 175<br>200, 225, 250, 275, 300<br>325, 350, 375, 400       |                         |                         |                                |

\*1 : The custom stroke length is available in 5mm increments.  
However, the total length is the same as that of the next longer standard stroke length.  
\*2 : Stroke length over standard to maximum is available in increments of 25.  
**CAUTION:** The rod side with scraper is coolant proof but the head side without scraper is not.  
Therefore, protect it with a cover.

### Switch specifications

| Type/model No.       | Proximity switch specifications       |                                |
|----------------------|---------------------------------------|--------------------------------|
| Descriptions         | T2YLH/T2YLV                           | T3YLH/T3YLV                    |
| Applications         | Dedicated for programmable controller | Programmable controller, relay |
| Output method        | -                                     | NPN output                     |
| Power supply voltage | -                                     | 10 to 28 VDC                   |
| Load voltage/current | 10 to 30 VDC, 5 to 20 mA              | 30 VDC or less, 50 mA or less  |
| Indicator lamp       | Red/green LED (Lit when ON)           |                                |
| Leakage current      | 1 mA or less                          | 10 µA or less                  |
| Shock resistance     | 980 m/S <sup>2</sup>                  |                                |
| Weight               | 1 m:33 3 m:87 5 m:142                 |                                |

\*1 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

### Theoretical thrust table

(Unit: N)

| Bore size (mm) | Operating direction | Working pressure MPa |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
|----------------|---------------------|----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                |                     | 0.1                  | 0.15               | 0.2                | 0.3                | 0.4                | 0.5                | 0.6                | 0.7                | 0.8                | 0.9                | 1.0                |
| φ20            | Push                | -                    | -                  | 62.8               | 94.2               | $1.26 \times 10^2$ | $1.57 \times 10^2$ | $1.88 \times 10^2$ | $2.20 \times 10^2$ | $2.51 \times 10^2$ | $2.83 \times 10^2$ | $3.14 \times 10^2$ |
|                | Pull                | -                    | -                  | 47.1               | 70.7               | 94.2               | $1.18 \times 10^2$ | $1.41 \times 10^2$ | $1.65 \times 10^2$ | $1.88 \times 10^2$ | $2.12 \times 10^2$ | $2.36 \times 10^2$ |
| φ25            | Push                | -                    | -                  | 98.2               | $1.47 \times 10^2$ | $1.96 \times 10^2$ | $2.45 \times 10^2$ | $2.95 \times 10^2$ | $3.44 \times 10^2$ | $3.93 \times 10^2$ | $4.42 \times 10^2$ | $4.91 \times 10^2$ |
|                | Pull                | -                    | -                  | 75.6               | $1.13 \times 10^2$ | $1.51 \times 10^2$ | $1.89 \times 10^2$ | $2.27 \times 10^2$ | $2.64 \times 10^2$ | $3.02 \times 10^2$ | $3.40 \times 10^2$ | $3.78 \times 10^2$ |
| φ32            | Push                | 80.4                 | $1.21 \times 10^2$ | $1.61 \times 10^2$ | $2.41 \times 10^2$ | $3.22 \times 10^2$ | $4.02 \times 10^2$ | $4.83 \times 10^2$ | $5.63 \times 10^2$ | $6.43 \times 10^2$ | $7.24 \times 10^2$ | $8.04 \times 10^2$ |
|                | Pull                | 60.3                 | 90.5               | $1.21 \times 10^2$ | $1.81 \times 10^2$ | $2.41 \times 10^2$ | $3.02 \times 10^2$ | $3.62 \times 10^2$ | $4.22 \times 10^2$ | $4.83 \times 10^2$ | $5.43 \times 10^2$ | $6.03 \times 10^2$ |
| φ40            | Push                | $1.26 \times 10^2$   | $1.88 \times 10^2$ | $2.51 \times 10^2$ | $3.77 \times 10^2$ | $5.03 \times 10^2$ | $6.28 \times 10^2$ | $7.54 \times 10^2$ | $8.80 \times 10^2$ | $1.01 \times 10^3$ | $1.13 \times 10^3$ | $1.26 \times 10^3$ |
|                | Pull                | $1.06 \times 10^2$   | $1.58 \times 10^2$ | $2.11 \times 10^2$ | $3.17 \times 10^2$ | $4.22 \times 10^2$ | $5.28 \times 10^2$ | $6.33 \times 10^2$ | $7.39 \times 10^2$ | $8.44 \times 10^2$ | $9.50 \times 10^2$ | $1.06 \times 10^3$ |
| φ50            | Push                | $1.96 \times 10^2$   | $2.95 \times 10^2$ | $3.93 \times 10^2$ | $5.89 \times 10^2$ | $7.85 \times 10^2$ | $9.82 \times 10^2$ | $1.18 \times 10^3$ | $1.37 \times 10^3$ | $1.57 \times 10^3$ | $1.77 \times 10^3$ | $1.96 \times 10^3$ |
|                | Pull                | $1.65 \times 10^2$   | $2.47 \times 10^2$ | $3.30 \times 10^2$ | $4.95 \times 10^2$ | $6.60 \times 10^2$ | $8.25 \times 10^2$ | $9.90 \times 10^2$ | $1.15 \times 10^3$ | $1.32 \times 10^3$ | $1.48 \times 10^3$ | $1.65 \times 10^3$ |
| φ63            | Push                | $3.12 \times 10^2$   | $4.68 \times 10^2$ | $6.23 \times 10^2$ | $9.35 \times 10^2$ | $1.25 \times 10^3$ | $1.56 \times 10^3$ | $1.87 \times 10^3$ | $2.18 \times 10^3$ | $2.49 \times 10^3$ | $2.81 \times 10^3$ | $3.12 \times 10^3$ |
|                | Pull                | $2.80 \times 10^2$   | $4.20 \times 10^2$ | $5.61 \times 10^2$ | $8.41 \times 10^2$ | $1.12 \times 10^3$ | $1.40 \times 10^3$ | $1.68 \times 10^3$ | $1.96 \times 10^3$ | $2.24 \times 10^3$ | $2.52 \times 10^3$ | $2.80 \times 10^3$ |
| φ80            | Push                | $5.03 \times 10^2$   | $7.54 \times 10^2$ | $1.01 \times 10^3$ | $1.51 \times 10^3$ | $2.01 \times 10^3$ | $2.51 \times 10^3$ | $3.02 \times 10^3$ | $3.52 \times 10^3$ | $4.02 \times 10^3$ | $4.52 \times 10^3$ | $5.03 \times 10^3$ |
|                | Pull                | $4.54 \times 10^2$   | $6.80 \times 10^2$ | $9.07 \times 10^2$ | $1.36 \times 10^3$ | $1.81 \times 10^3$ | $2.27 \times 10^3$ | $2.72 \times 10^3$ | $3.17 \times 10^3$ | $3.63 \times 10^3$ | $4.08 \times 10^3$ | $4.54 \times 10^3$ |

For cylinder weight, refer to pages 554 to 557.

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

# STS/STL-<sup>M</sup><sub>B</sub>G2/G3 Series

## How to order

### ● Short stroke length

Without switch (built-in magnet for switch)

**STS - M G2 - 20 - 50 - E**

With switch (built-in magnet for switch)

**STS - M G2 - 20 - 50 - T2YLH - R - E**

### ● Long stroke length

Without switch (built-in magnet for switch)

**STL - M G2 - 20 - 50 - E**

With switch (built-in magnet for switch)

**STL - M G2 - 20 - 50 - T2YLH - R - E**

**A** Bearing

**B** Degree of protection level

**C** Bore size

**D** Port thread

**E** Stroke length

■ Custom stroke length

Available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke length.

**F** Switch model No.

\*2

**G** Switch quantity

**H** Option

### ⚠ Precautions for model No. selection

\*1 : Refer to pages 440 to 443 for combinations of variations/options.

\*2 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

### [Example of model No.]

#### STS-MG2-20-50-T2YLH-R

Model: Guided cylinder, short stroke length

- A** Bearing : Metal bush bearing
- B** Degree of protection level : Coolant proof scraper + packing NBR
- C** Bore size :  $\phi 20$  mm
- D** Port thread : Rc thread
- E** Stroke length : 50 mm
- F** Switch model No. : Proximity switch T2YLH, lead wire 1 m
- G** Switch quantity : 1 on rod side

| Code | Content |
|------|---------|
|------|---------|

| <b>A Bearing</b> |                    |
|------------------|--------------------|
| <b>M</b>         | Metal bush bearing |
| <b>B</b>         | Ball bearing       |

| <b>B Degree of protection level</b> |                                     |
|-------------------------------------|-------------------------------------|
| <b>G2</b>                           | Coolant proof scraper + packing NBR |
| <b>G3</b>                           | Coolant proof scraper + packing FKM |

| <b>C Bore size (mm)</b> |           |
|-------------------------|-----------|
| <b>20</b>               | $\phi 20$ |
| <b>25</b>               | $\phi 25$ |
| <b>32</b>               | $\phi 32$ |
| <b>40</b>               | $\phi 40$ |
| <b>50</b>               | $\phi 50$ |
| <b>63</b>               | $\phi 63$ |
| <b>80</b>               | $\phi 80$ |

| <b>D Port thread</b> |                                                       |
|----------------------|-------------------------------------------------------|
| <b>Blank</b>         | Rc thread                                             |
| <b>NN</b>            | NPT thread ( $\phi 32$ and over) custom order product |
| <b>GN</b>            | G thread ( $\phi 32$ and over) custom order product   |

| <b>E Stroke length (mm)</b>                             |  |
|---------------------------------------------------------|--|
| Refer to the stroke length table on the following page. |  |

| <b>F Switch model No.</b> |                  |           |         |                 |           |
|---------------------------|------------------|-----------|---------|-----------------|-----------|
| Axial lead wire           | Radial lead wire | Contact   | Voltage | Indicator       | Lead wire |
| <b>T2YLH*</b>             | <b>T2YLV*</b>    | Proximity | DC      | 2-color display | 2-wire    |
| <b>T3YLH*</b>             | <b>T3YLV*</b>    |           |         |                 | 3-wire    |

| <b>* Lead wire length</b> |                |
|---------------------------|----------------|
| <b>Blank</b>              | 1 m (standard) |
| <b>3</b>                  | 3 m (option)   |
| <b>5</b>                  | 5 m (option)   |

| <b>G Switch quantity</b> |                |
|--------------------------|----------------|
| <b>R</b>                 | 1 on rod side  |
| <b>H</b>                 | 1 on head side |
| <b>D</b>                 | 2              |

| <b>H Option</b> |                                                                    |
|-----------------|--------------------------------------------------------------------|
| <b>M1</b>       | Corrosion proof (Piston rod, guide rod SUS) (custom order product) |

### E Stroke length

| Series | Stroke length (mm)     | Applicable bore size |     |     |     |     |     |     |
|--------|------------------------|----------------------|-----|-----|-----|-----|-----|-----|
|        |                        | φ20                  | φ25 | φ32 | φ40 | φ50 | φ63 | φ80 |
| STS    | Standard stroke length | 25                   | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 50                   | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 75                   |     |     |     |     |     | ●   |
|        |                        | 100                  |     |     |     |     |     | ●   |
|        | Min. stroke length *1  | 5                    |     |     |     |     |     |     |
| STL    | Custom stroke *1, *2   | In 5 mm increments   |     |     |     |     |     |     |
|        | Standard stroke length | 50                   | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 75                   | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 100                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 125                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 150                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 175                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 200                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 225                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 250                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 275                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 300                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 325                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 350                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 375                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        |                        | 400                  | ●   | ●   | ●   | ●   | ●   | ●   |
|        | Min. stroke length *1  | 30                   |     |     |     |     |     | 55  |
|        | Custom stroke *1, *2   | In 5 mm increments   |     |     |     |     |     |     |

\*1 : The total dimensions are the same as the longer standard stroke length.

\*2 : Special total length for custom stroke length can be provided when a custom stroke length is used. (Custom order)

### How to order switch

**SW - T2YLH**

Switch model No.  
(Item ⑤ on the previous page)

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS-STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MedHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

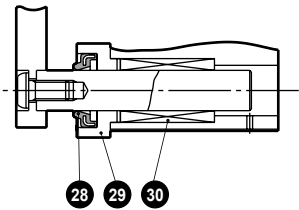
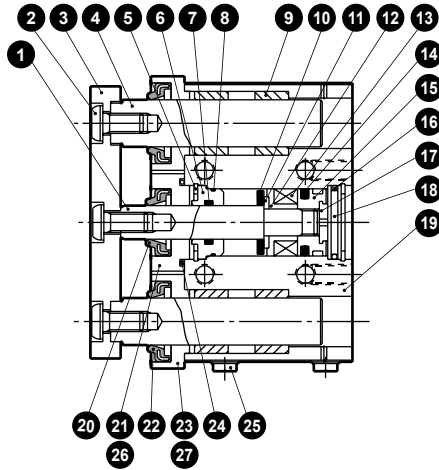
Internal structure and parts list

● Degree of protection: Packing NBR/FKM

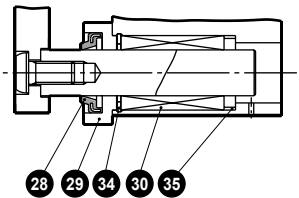
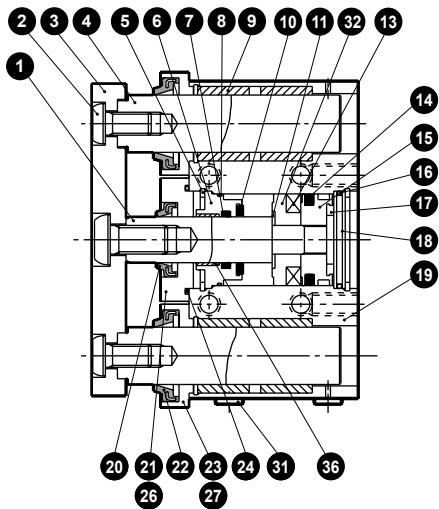
STS-<sup>M</sup><sub>B</sub>G2

STS-<sup>M</sup><sub>B</sub>G3

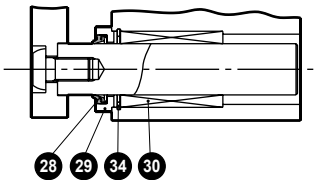
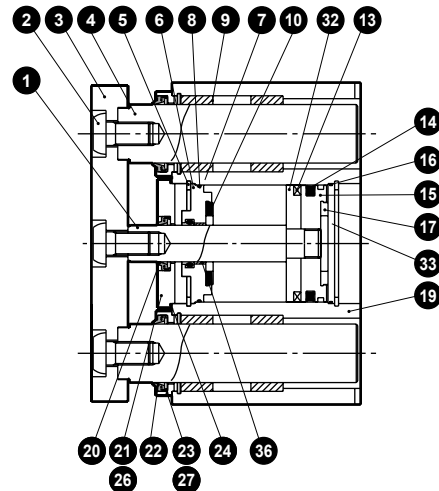
●  $\phi 20/\phi 25$



●  $\phi 32/\phi 40/\phi 50/\phi 63$



●  $\phi 80$



### Parts list

| No. | Part name                       | Material                      | Remarks                   | No. | Part name                     | Material                     | Remarks           |
|-----|---------------------------------|-------------------------------|---------------------------|-----|-------------------------------|------------------------------|-------------------|
| 1   | Piston rod                      | Stainless steel               | Industrial chrome plating | 19  | Tube body                     | Aluminum alloy               | Hard alumite      |
| 2   | Hexagon socket button head bolt | Stainless steel               |                           | 20  | Scraper                       | G2 Nitrile rubber            |                   |
| 3   | End plate                       | Aluminum alloy                | Alumite                   |     |                               | G3 Fluoro rubber             |                   |
| 4   | Guide rod                       | Stainless steel               | Industrial chrome plating | 21  | Adaptor A                     | Aluminum alloy               | Alumite           |
| 5   | C type snap ring for hole       | Stainless steel               |                           | 22  | Scraper                       | G2 Nitrile rubber            |                   |
| 6   | Rod metal                       | Special aluminum              | Alumite                   |     |                               | G3 Fluoro rubber             |                   |
| 7   | Rod packing                     | G2 Nitrile rubber             |                           | 23  | Adaptor B                     | Aluminum alloy               | Alumite           |
|     |                                 | G3 Fluoro rubber              |                           | 24  | O-ring                        | G2 Nitrile rubber            |                   |
| 8   | Metal gasket                    | G2 Nitrile rubber             |                           |     |                               | G3 Fluoro rubber             |                   |
|     |                                 | G3 Fluoro rubber              |                           | 25  | Plug                          | Copper alloy                 | Nickeling         |
| 9   | Metal                           | Oil impregnated bearing alloy |                           | 26  | Hexagon socket head cap screw | Stainless steel              |                   |
| 10  | Cushion rubber (R)              | Urethane rubber               |                           | 27  | Hexagon socket head cap screw | Stainless steel              |                   |
| 11  | Spacer washer                   | Stainless steel               | φ20 to φ50                | 28  | Scraper                       | G2 Nitrile rubber            |                   |
| 12  | Spacer                          | Polyamide                     | φ20 to φ50                |     |                               | G3 Fluoro rubber             |                   |
| 13  | Magnet                          | Plastic                       |                           | 29  | Adaptor C                     | Aluminum alloy               | Alumite           |
| 14  | Piston packing                  | G2 Nitrile rubber             |                           | 30  | Bearing                       | Stainless steel              |                   |
|     |                                 | G3 Fluoro rubber              |                           | 31  | Hexagon socket flush plug     | Stainless steel              | φ32 to φ63        |
| 15  | Piston                          | Aluminum alloy                | Chromate                  | 32  | Spacer                        | Aluminum alloy               | φ63.φ80           |
| 16  | O-ring                          | G2 Nitrile rubber             |                           | 33  | Base plate                    | Steel                        | Zinc chromate φ80 |
|     |                                 | G3 Fluoro rubber              |                           | 34  | C type snap ring for hole     | Stainless steel              | φ32 to φ80        |
| 17  | Cushion rubber (H)              | Urethane rubber               |                           | 35  | Collar                        | Aluminum alloy               | φ32 to φ63        |
| 18  | Base plate                      | Aluminum alloy                | φ20 to φ63                | 36  | Bush                          | Multi-layered, oilless metal | φ32 to φ80        |

### Repair parts list

#### ● STS-MG2 (metal bush bearing, nitrile rubber packing)

| Bore size (mm) | Kit No.     | Repair parts No. |
|----------------|-------------|------------------|
| φ20            | STS-MG2-20K |                  |
| φ25            | STS-MG2-25K | 7 8 10           |
| φ32            | STS-MG2-32K | 14 16 17         |
| φ40            | STS-MG2-40K | 20 22 24         |
| φ50            | STS-MG2-50K |                  |
| φ63            | STS-MG2-63K |                  |
| φ80            | STS-MG2-80K |                  |

#### ● STS-BG2 (ball bearing, nitrile rubber packing)

| Bore size (mm) | Kit No.     | Repair parts No. |
|----------------|-------------|------------------|
| φ20            | STS-BG2-20K |                  |
| φ25            | STS-BG2-25K | 7 8 10           |
| φ32            | STS-BG2-32K | 14 16 17         |
| φ40            | STS-BG2-40K | 20 24 28         |
| φ50            | STS-BG2-50K |                  |
| φ63            | STS-BG2-63K |                  |
| φ80            | STS-BG2-80K |                  |

#### ● STS-MG3 (metal bush bearing, fluoro rubber packing)

| Bore size (mm) | Kit No.     | Repair parts No. |
|----------------|-------------|------------------|
| φ20            | STS-MG3-20K |                  |
| φ25            | STS-MG3-25K | 7 8 10           |
| φ32            | STS-MG3-32K | 14 16 17         |
| φ40            | STS-MG3-40K | 20 22 24         |
| φ50            | STS-MG3-50K |                  |
| φ63            | STS-MG3-63K |                  |
| φ80            | STS-MG3-80K |                  |

#### ● STS-BG3 (ball bearing, fluoro rubber packing)

| Bore size (mm) | Kit No.     | Repair parts No. |
|----------------|-------------|------------------|
| φ20            | STS-BG3-20K |                  |
| φ25            | STS-BG3-25K | 7 8 10           |
| φ32            | STS-BG3-32K | 14 16 17         |
| φ40            | STS-BG3-40K | 20 24 28         |
| φ50            | STS-BG3-50K |                  |
| φ63            | STS-BG3-63K |                  |
| φ80            | STS-BG3-80K |                  |

Note : Specify the kit No. when placing an order.

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MechHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/USC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

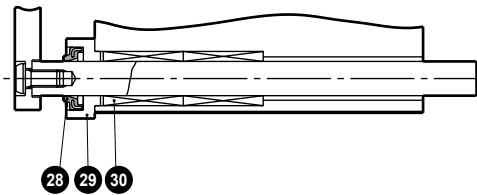
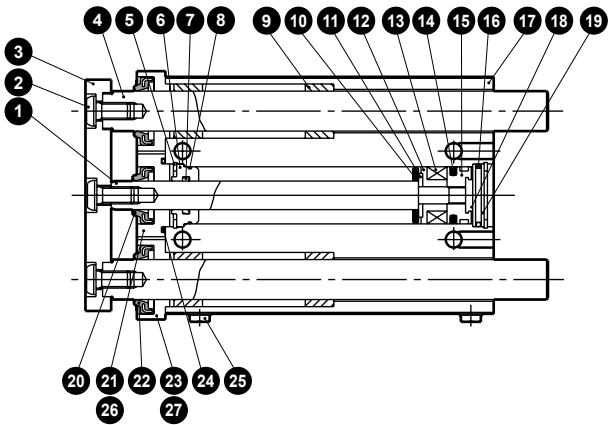
Internal structure and parts list

● Degree of protection: Packing NBR/FKM

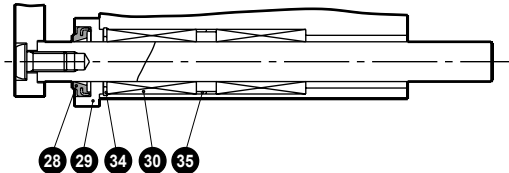
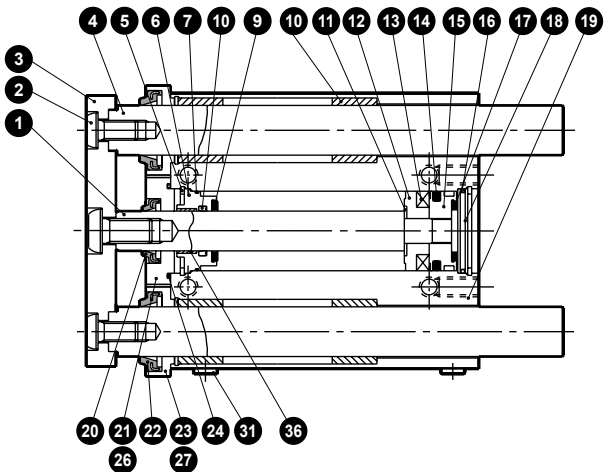
STL-<sup>M</sup><sub>B</sub>G2

STL-<sup>M</sup><sub>B</sub>G3

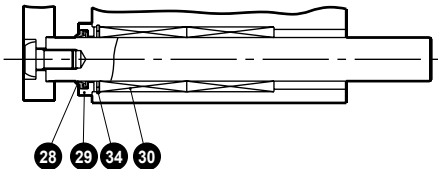
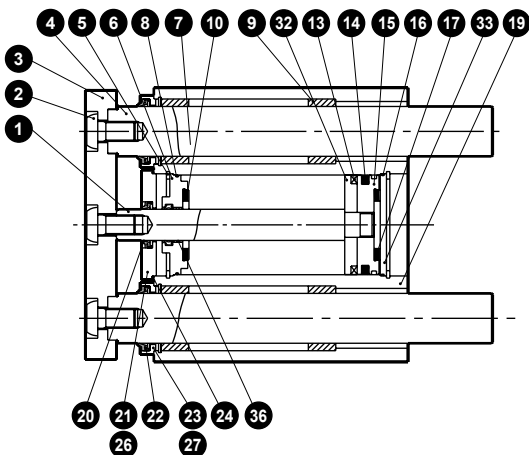
●  $\varnothing 20/\varnothing 25$



●  $\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63$



●  $\varnothing 80$



## Parts list

| No. | Part name                       | Material                      | Remarks                   | No. | Part name                     | Material                     | Remarks           |
|-----|---------------------------------|-------------------------------|---------------------------|-----|-------------------------------|------------------------------|-------------------|
| 1   | Piston rod                      | Stainless steel               | Industrial chrome plating | 19  | Tube body                     | Aluminum alloy               | Hard alumite      |
| 2   | Hexagon socket button head bolt | Stainless steel               |                           | 20  | Scraper                       | G2 Nitrile rubber            |                   |
| 3   | End plate                       | Aluminum alloy                | Alumite                   |     |                               | G3 Fluoro rubber             |                   |
| 4   | Guide rod                       | Stainless steel               | Industrial chrome plating | 21  | Adaptor A                     | Aluminum alloy               | Alumite           |
| 5   | C type snap ring for hole       | Stainless steel               |                           | 22  | Scraper                       | G2 Nitrile rubber            |                   |
| 6   | Rod metal                       | Special aluminum              | Alumite                   |     |                               | G3 Fluoro rubber             |                   |
| 7   | Rod packing                     | G2 Nitrile rubber             |                           | 23  | Adaptor B                     | Aluminum alloy               | Alumite           |
|     |                                 | G3 Fluoro rubber              |                           | 24  | O-ring                        | G2 Nitrile rubber            |                   |
| 8   | Metal gasket                    | G2 Nitrile rubber             |                           |     |                               | G3 Fluoro rubber             |                   |
|     |                                 | G3 Fluoro rubber              |                           | 25  | Plug                          | Copper alloy                 | Nickeling         |
| 9   | Metal                           | Oil impregnated bearing alloy |                           | 26  | Hexagon socket head cap screw | Stainless steel              |                   |
| 10  | Cushion rubber (R)              | Urethane rubber               |                           | 27  | Hexagon socket head cap screw | Stainless steel              |                   |
| 11  | Spacer washer                   | Stainless steel               | φ20 to φ50                | 28  | Scraper                       | G2 Nitrile rubber            |                   |
| 12  | Spacer                          | Polyamide                     | φ20 to φ50                |     |                               | G3 Fluoro rubber             |                   |
| 13  | Magnet                          | Plastic                       |                           | 29  | Adaptor C                     | Aluminum alloy               | Alumite           |
| 14  | Piston packing                  | G2 Nitrile rubber             |                           | 30  | Bearing                       | Stainless steel              |                   |
|     |                                 | G3 Fluoro rubber              |                           | 31  | Hexagon socket flush plug     | Stainless steel              | φ32 to φ63        |
| 15  | Piston                          | Aluminum alloy                | Chromate                  | 32  | Spacer                        | Aluminum alloy               | φ63.φ80           |
| 16  | O-ring                          | G2 Nitrile rubber             |                           | 33  | Base plate                    | Steel                        | Zinc chromate φ80 |
|     |                                 | G3 Fluoro rubber              |                           | 34  | C type snap ring for hole     | Stainless steel              | φ32 to φ80        |
| 17  | Cushion rubber (H)              | Urethane rubber               |                           | 35  | Collar                        | Aluminum alloy               | φ32 to φ63        |
| 18  | Base plate                      | Aluminum alloy                | φ20 to φ63                | 36  | Bush                          | Multi-layered, oilless metal | φ32 to φ80        |

## Repair parts list

### ● STS-MG2 (metal bush bearing, nitrile rubber packing)

| Bore size (mm) | Kit No.     | Repair parts No. |
|----------------|-------------|------------------|
| φ20            | STS-MG2-20K |                  |
| φ25            | STS-MG2-25K | 7 8 10           |
| φ32            | STS-MG2-32K |                  |
| φ40            | STS-MG2-40K | 14 16 17         |
| φ50            | STS-MG2-50K |                  |
| φ63            | STS-MG2-63K | 20 22 24         |
| φ80            | STS-MG2-80K |                  |

### ● STS-BG2 (ball bearing, nitrile rubber packing)

| Bore size (mm) | Kit No.     | Repair parts No. |
|----------------|-------------|------------------|
| φ20            | STS-BG2-20K |                  |
| φ25            | STS-BG2-25K | 7 8 10           |
| φ32            | STS-BG2-32K |                  |
| φ40            | STS-BG2-40K | 14 16 17         |
| φ50            | STS-BG2-50K |                  |
| φ63            | STS-BG2-63K | 20 24 28         |
| φ80            | STS-BG2-80K |                  |

### ● STS-MG3 (metal bush bearing, fluoro rubber packing)

| Bore size (mm) | Kit No.     | Repair parts No. |
|----------------|-------------|------------------|
| φ20            | STS-MG3-20K |                  |
| φ25            | STS-MG3-25K | 7 8 10           |
| φ32            | STS-MG3-32K |                  |
| φ40            | STS-MG3-40K | 14 16 17         |
| φ50            | STS-MG3-50K |                  |
| φ63            | STS-MG3-63K | 20 22 24         |
| φ80            | STS-MG3-80K |                  |

### ● STS-BG3 (ball bearing, fluoro rubber packing)

| Bore size (mm) | Kit No.     | Repair parts No. |
|----------------|-------------|------------------|
| φ20            | STS-BG3-20K |                  |
| φ25            | STS-BG3-25K | 7 8 10           |
| φ32            | STS-BG3-32K |                  |
| φ40            | STS-BG3-40K | 14 16 17         |
| φ50            | STS-BG3-50K |                  |
| φ63            | STS-BG3-63K | 20 24 28         |
| φ80            | STS-BG3-80K |                  |

Note : Specify the kit No. when placing an order.

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

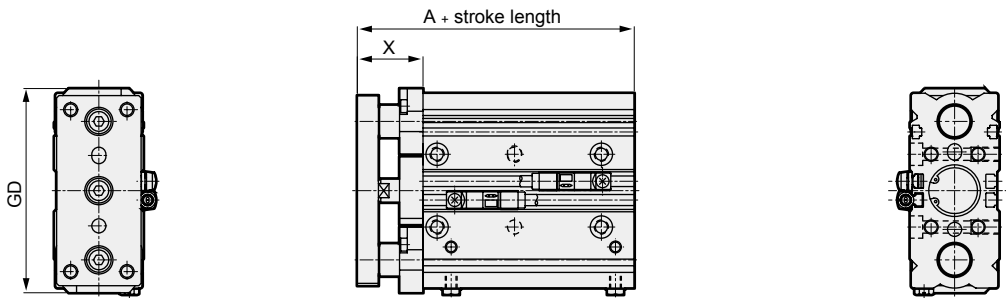
STS-<sup>M</sup><sub>B</sub>G2/G3 Series



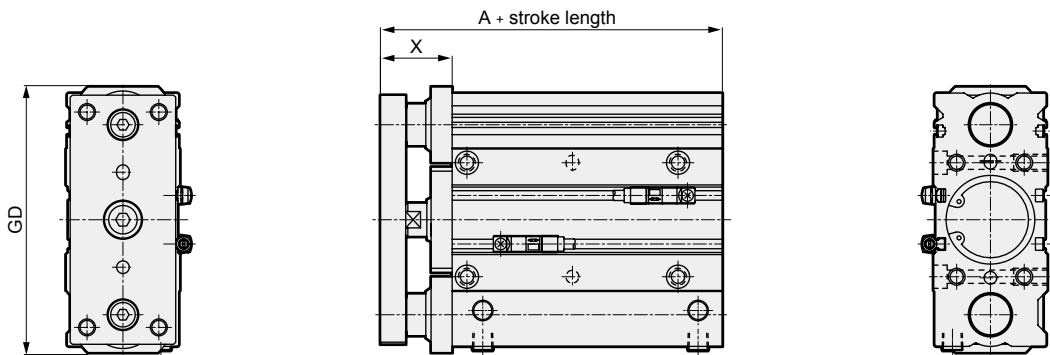
Dimensions

● Coolant proof (Dimensions not listed below are the same as those of the double acting/single rod.)  
STS-<sup>M</sup><sub>B</sub>G2/G3

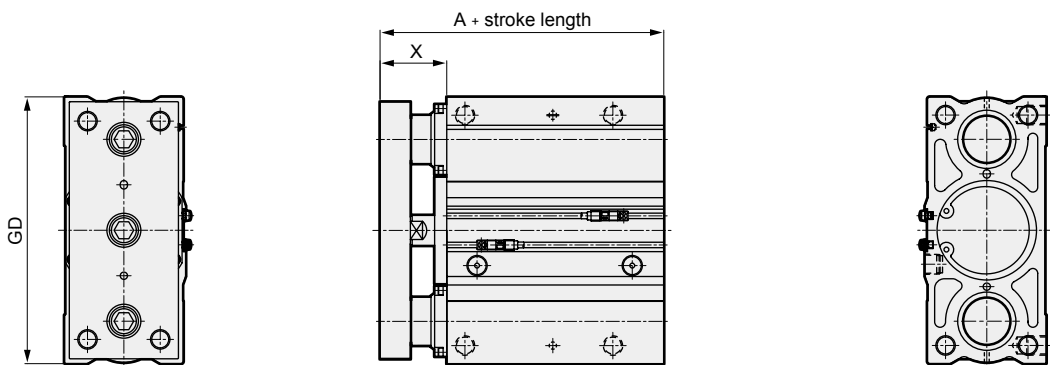
●  $\phi 20/\phi 25$



●  $\phi 32/\phi 40/\phi 50/\phi 63$



●  $\phi 80$



\*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

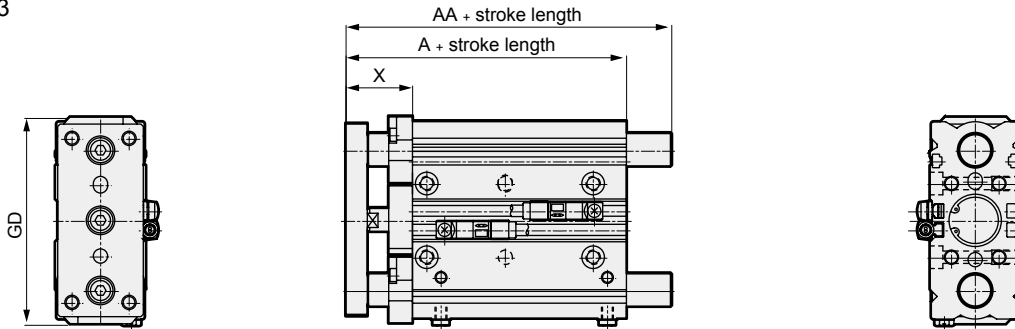
| Code           | A   | GD  | X                |
|----------------|-----|-----|------------------|
| Bore size (mm) |     |     |                  |
| $\phi 20$      | 68  | 87  | $28 \frac{0}{2}$ |
| $\phi 25$      | 69  | 91  | $28 \frac{0}{2}$ |
| $\phi 32$      | 83  | 117 | $34 \frac{0}{2}$ |
| $\phi 40$      | 87  | 126 | $34 \frac{0}{2}$ |
| $\phi 50$      | 92  | 152 | $37 \frac{0}{2}$ |
| $\phi 63$      | 98  | 166 | $37 \frac{0}{2}$ |
| $\phi 80$      | 134 | 220 | $55 \frac{0}{2}$ |

## Dimensions

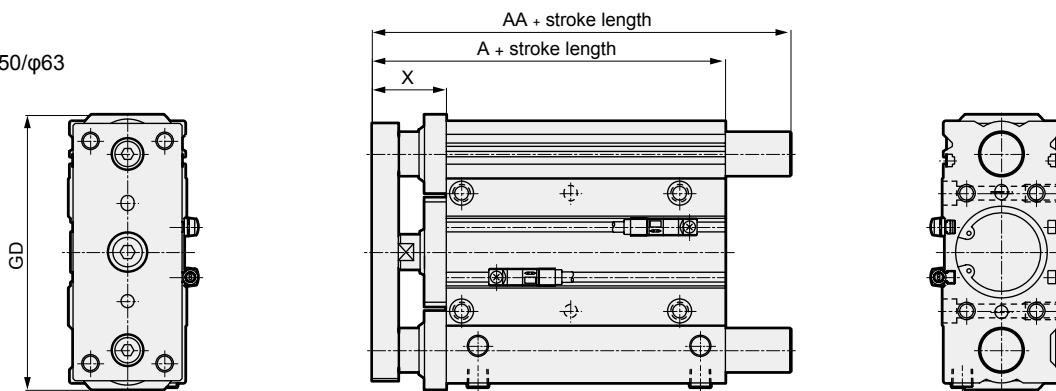


- Coolant proof (Dimensions not listed below are the same as those of the double acting/single rod.)  
STL-B<sup>M</sup>G2/G3

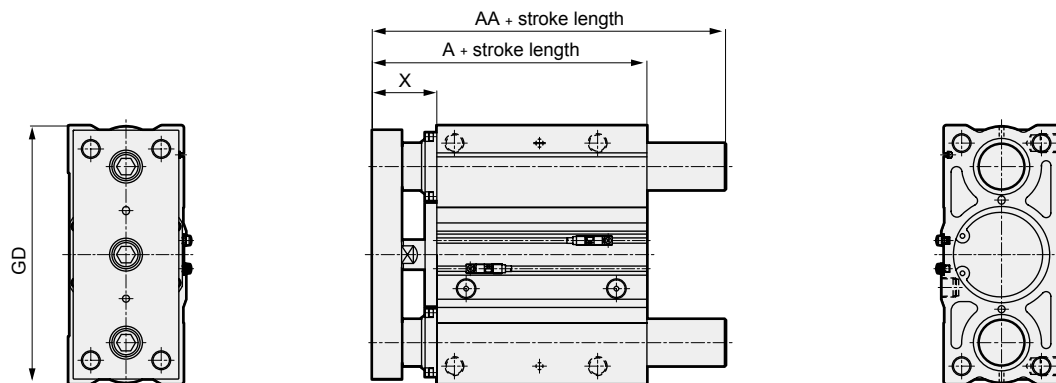
- $\phi 20/\phi 25$



- $\phi 32/\phi 40/\phi 50/\phi 63$



- $\phi 80$

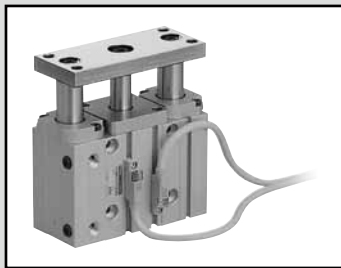


\*1 : When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

| Code<br>Bore size (mm) | A   | AA  | GD  | X                             |
|------------------------|-----|-----|-----|-------------------------------|
| $\phi 20$              | 68  | 87  | 87  | 28 <sup>0</sup> <sub>-2</sub> |
| $\phi 25$              | 69  | 87  | 91  | 28 <sup>0</sup> <sub>-2</sub> |
| $\phi 32$              | 83  | 117 | 117 | 34 <sup>0</sup> <sub>-2</sub> |
| $\phi 40$              | 87  | 117 | 126 | 34 <sup>0</sup> <sub>-2</sub> |
| $\phi 50$              | 92  | 140 | 152 | 37 <sup>0</sup> <sub>-2</sub> |
| $\phi 63$              | 98  | 140 | 166 | 37 <sup>0</sup> <sub>-2</sub> |
| $\phi 80$              | 134 | 201 | 220 | 55 <sup>0</sup> <sub>-2</sub> |

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| ST5/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MedHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending



Guided cylinder Anti-spatter adherence

# STS/STL-G4 Series

● Bore size:  $\phi 40/\phi 50/\phi 63/\phi 80$

JIS symbol ● Double acting



## Specifications

| Descriptions              |     | STS/STL-G4                                                                   |       |           |       |
|---------------------------|-----|------------------------------------------------------------------------------|-------|-----------|-------|
| Bore size                 | mm  | φ40                                                                          | φ50   | φ63       | φ80   |
| Actuation                 |     | Double acting                                                                |       |           |       |
| Working fluid             |     | Compressed air                                                               |       |           |       |
| Max. working pressure     | MPa | 1.0 (≈150 psi, 10 bar)                                                       |       |           |       |
| Min. working pressure     | MPa | 0.15 (≈22 psi, 1.5 bar)                                                      |       |           |       |
| Proof pressure            | MPa | 1.6 (≈230 psi, 16 bar)                                                       |       |           |       |
| Ambient temperature       |     | -10 (14°F) to 60 (140°F) (no freezing)                                       |       |           |       |
| Port size                 |     | Rc1/8                                                                        | Rc1/4 |           | Rc3/8 |
| Stroke tolerance          |     | +2.0<br>0                                                                    |       |           |       |
| Working piston speed      |     | 50 to 500                                                                    |       | 50 to 300 |       |
| Cushion                   |     | With rubber cushion                                                          |       |           |       |
| Lubrication               |     | Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication) |       |           |       |
| Allowable absorbed energy | J   | 0.627                                                                        | 0.980 | 1.560     | 2.510 |

## Stroke length

· Short stroke length STS

| Bore size (mm) | Standard stroke length (mm) | Max. stroke length (mm) | Min. stroke length (mm) | Min. stroke with switch (mm)             |
|----------------|-----------------------------|-------------------------|-------------------------|------------------------------------------|
| $\phi 40$      | 25, 50                      | 50                      | 5                       | 5<br>With one switch<br>or two switches. |
| $\phi 50$      |                             |                         |                         |                                          |
| $\phi 63$      |                             |                         |                         |                                          |
| $\phi 80$      | 25, 50, 75, 100             | 100                     |                         |                                          |

· Long stroke length STL

| Bore size (mm) | Standard stroke length (mm)                                             | Max. stroke length (mm) | Min. stroke length (mm) | Min. stroke with switch (mm)      |
|----------------|-------------------------------------------------------------------------|-------------------------|-------------------------|-----------------------------------|
| $\phi 40$      | 50, 75, 100, 125, 150                                                   | 400                     | 30                      | 30<br>With one or two<br>switches |
| $\phi 50$      | 175, 200, 225, 250, 275,<br>300, 325, 350, 375, 400                     |                         |                         |                                   |
| $\phi 63$      | 75, 100, 125, 150, 175<br>200, 225, 250, 275, 300<br>325, 350, 375, 400 |                         |                         |                                   |
| $\phi 80$      |                                                                         |                         | 55                      | 55<br>With one or two<br>switches |

\*1: The custom stroke length is available in 5mm increments.

However, the total length is the same as that of the next longer standard stroke length.

## Switch specifications

| Descriptions          | Proximity 2-wire                      |
|-----------------------|---------------------------------------|
|                       | T2YD                                  |
| Applications          | Dedicated for programmable controller |
| Indicator lamp        | Red/green LED (Lit when ON)           |
| Load voltage          | 24 VDC $\pm 10\%$                     |
| Load current          | DC5 to 20 mA                          |
| Internal voltage drop | 6 V or less                           |
| Leakage current       | 1.0 mA or less                        |
| Weight g              | 1 m:61 3 m:166 5 m:272                |

\*1 : Flame-resistant lead wires are available as options.

\*2 : This switch cannot be used in DC magnetic field.

\*3 : Refer to Ending Page 1 for other switch specifications.

## Theoretical thrust table

(Unit: N)

| Bore size (mm) | Operating direction | Working pressure MPa |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
|----------------|---------------------|----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                |                     | 0.1                  | 0.15               | 0.2                | 0.3                | 0.4                | 0.5                | 0.6                | 0.7                | 0.8                | 0.9                | 1.0                |
| $\phi 40$      | Push                | $1.26 \times 10^2$   | $1.88 \times 10^2$ | $2.51 \times 10^2$ | $3.77 \times 10^2$ | $5.03 \times 10^2$ | $6.28 \times 10^2$ | $7.54 \times 10^2$ | $8.80 \times 10^2$ | $1.01 \times 10^3$ | $1.13 \times 10^3$ | $1.26 \times 10^3$ |
|                | Pull                | $1.06 \times 10^2$   | $1.58 \times 10^2$ | $2.11 \times 10^2$ | $3.17 \times 10^2$ | $4.22 \times 10^2$ | $5.28 \times 10^2$ | $6.33 \times 10^2$ | $7.39 \times 10^2$ | $8.44 \times 10^2$ | $9.50 \times 10^2$ | $1.06 \times 10^3$ |
| $\phi 50$      | Push                | $1.96 \times 10^2$   | $2.95 \times 10^2$ | $3.93 \times 10^2$ | $5.89 \times 10^2$ | $7.85 \times 10^2$ | $9.82 \times 10^2$ | $1.18 \times 10^3$ | $1.37 \times 10^3$ | $1.57 \times 10^3$ | $1.77 \times 10^3$ | $1.96 \times 10^3$ |
|                | Pull                | $1.65 \times 10^2$   | $2.47 \times 10^2$ | $3.30 \times 10^2$ | $4.95 \times 10^2$ | $6.60 \times 10^2$ | $8.25 \times 10^2$ | $9.90 \times 10^2$ | $1.15 \times 10^3$ | $1.32 \times 10^3$ | $1.48 \times 10^3$ | $1.65 \times 10^3$ |
| $\phi 63$      | Push                | $3.12 \times 10^2$   | $4.68 \times 10^2$ | $6.23 \times 10^2$ | $9.35 \times 10^2$ | $1.25 \times 10^3$ | $1.56 \times 10^3$ | $1.87 \times 10^3$ | $2.18 \times 10^3$ | $2.49 \times 10^3$ | $2.81 \times 10^3$ | $3.12 \times 10^3$ |
|                | Pull                | $2.80 \times 10^2$   | $4.20 \times 10^2$ | $5.61 \times 10^2$ | $8.41 \times 10^2$ | $1.12 \times 10^3$ | $1.40 \times 10^3$ | $1.68 \times 10^3$ | $1.96 \times 10^3$ | $2.24 \times 10^3$ | $2.52 \times 10^3$ | $2.80 \times 10^3$ |
| $\phi 80$      | Push                | $5.03 \times 10^2$   | $7.54 \times 10^2$ | $1.01 \times 10^3$ | $1.51 \times 10^3$ | $2.01 \times 10^3$ | $2.51 \times 10^3$ | $3.02 \times 10^3$ | $3.52 \times 10^3$ | $4.02 \times 10^3$ | $4.52 \times 10^3$ | $5.03 \times 10^3$ |
|                | Pull                | $4.54 \times 10^2$   | $6.80 \times 10^2$ | $9.07 \times 10^2$ | $1.36 \times 10^3$ | $1.81 \times 10^3$ | $2.27 \times 10^3$ | $2.72 \times 10^3$ | $3.17 \times 10^3$ | $3.63 \times 10^3$ | $4.08 \times 10^3$ | $4.54 \times 10^3$ |

### How to order

#### ● Short stroke length

Without switch (built-in magnet for switch)

**STS - M G4 - L1 - 40 - 50 - F**

With switch (built-in magnet for switch)

**STS - M G4 - L1 - 40 - 50 - T2YD - R - F**

#### ● Long stroke length

Without switch (built-in magnet for switch)

**STL - M G4 - L1 - 40 - 100 - F**

With switch (built-in magnet for switch)

**STL - M G4 - L1 - 40 - 100 - T2YD - D - F**

Series model No.

A Bearing

B Bore size

C Port thread

D Stroke length  
 Custom stroke length  
 Available in 5 mm increments.  
 However, the total length is the same as that of the next longer standard stroke length.

E Switch model No.  
 \*2

F Switch quantity

G Option

#### ⚠ Precautions for model No. selection

\*1 : Refer to pages 440 to 443 for combinations of variations/options.

\*2 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

#### D Stroke length

| Series              | Stroke length (mm)     | Bore size             |                    |     |     |    |
|---------------------|------------------------|-----------------------|--------------------|-----|-----|----|
|                     |                        | φ40                   | φ50                | φ63 | φ80 |    |
| STS                 | Standard stroke length | 25                    | ●                  | ●   | ●   | ●  |
|                     |                        | 50                    | ●                  | ●   | ●   | ●  |
|                     |                        | 75                    |                    |     |     | ●  |
|                     |                        | 100                   |                    |     |     | ●  |
|                     | Min. stroke length *1  | 5                     |                    |     |     |    |
| Custom stroke *1, 2 | In 5 mm increments     |                       |                    |     |     |    |
| STL                 | Standard stroke length | 50                    | ●                  | ●   | ●   |    |
|                     |                        | 75                    | ●                  | ●   | ●   | ●  |
|                     |                        | 100                   | ●                  | ●   | ●   | ●  |
|                     |                        | 125                   | ●                  | ●   | ●   | ●  |
|                     |                        | 150                   | ●                  | ●   | ●   | ●  |
|                     |                        | 175                   | ●                  | ●   | ●   | ●  |
|                     |                        | 200                   | ●                  | ●   | ●   | ●  |
|                     |                        | 225                   | ●                  | ●   | ●   | ●  |
|                     |                        | 250                   | ●                  | ●   | ●   | ●  |
|                     |                        | 275                   | ●                  | ●   | ●   | ●  |
|                     |                        | 300                   | ●                  | ●   | ●   | ●  |
|                     |                        | 325                   | ●                  | ●   | ●   | ●  |
|                     |                        | 350                   | ●                  | ●   | ●   | ●  |
|                     |                        | 375                   | ●                  | ●   | ●   | ●  |
|                     |                        | 400                   | ●                  | ●   | ●   | ●  |
|                     |                        | Min. stroke length *1 | 30                 |     |     | 55 |
|                     |                        | Custom stroke *1, 2   | In 5 mm increments |     |     |    |

\*1: The total dimensions are the same as the longer standard stroke length.

\*2: Special total length for custom stroke length can be provided when a custom stroke length is used. (Custom order)

\* For cylinder weight, refer to pages 554 to 557.

| Code                                    |                                                                    | Remarks   |         |                   |           |
|-----------------------------------------|--------------------------------------------------------------------|-----------|---------|-------------------|-----------|
| A Bearing                               |                                                                    |           |         |                   |           |
| M                                       | Metal bush bearing                                                 |           |         |                   |           |
| B                                       | Ball bearing                                                       |           |         |                   |           |
| B Bore size (mm)                        |                                                                    |           |         |                   |           |
| 40                                      | φ40                                                                |           |         |                   |           |
| 50                                      | φ50                                                                |           |         |                   |           |
| 63                                      | φ63                                                                |           |         |                   |           |
| 80                                      | φ80                                                                |           |         |                   |           |
| C Port thread                           |                                                                    |           |         |                   |           |
| Blank                                   | Rc thread                                                          |           |         |                   |           |
| NN                                      | NPT thread Custom order product                                    |           |         |                   |           |
| GN                                      | G thread Custom order product                                      |           |         |                   |           |
| D Stroke length (mm)                    |                                                                    |           |         |                   |           |
| Refer to the stroke length table below. |                                                                    |           |         |                   |           |
| E Switch model No.                      |                                                                    |           |         |                   |           |
| Axial lead wire                         | Radial lead wire                                                   | Contact   | Voltage | Indicator         | Lead wire |
| T2YD*                                   | —                                                                  | Proximity | DC      | 2-color display   | 2-wire    |
| T2YDT*                                  | —                                                                  |           |         | AC magnetic field |           |
| * Lead wire length                      |                                                                    |           |         |                   |           |
| Blank                                   | 1 m (standard)                                                     |           |         |                   |           |
| 3                                       | 3 m (option)                                                       |           |         |                   |           |
| 5                                       | 5 m (option)                                                       |           |         |                   |           |
| F Switch quantity                       |                                                                    |           |         |                   |           |
| R                                       | 1 on rod side                                                      |           |         |                   |           |
| H                                       | 1 on head side                                                     |           |         |                   |           |
| D                                       | 2                                                                  |           |         |                   |           |
| T                                       | 3                                                                  |           |         |                   |           |
| G Option                                |                                                                    |           |         |                   |           |
| F                                       | End plate material: steel                                          |           |         |                   |           |
| M                                       | Corrosion proof (Piston rod, guide rod SUS) (custom order product) |           |         |                   |           |
| M1                                      | Corrosion proof (M + end plate SUS) (custom order product)         |           |         |                   |           |

### How to order switch

**SW - T2YD**

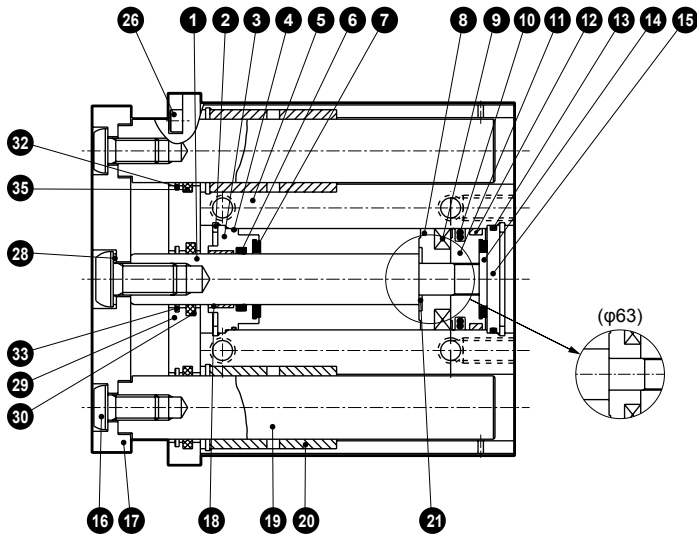
Switch model No.  
 (Item E above)

LCW  
 LCR  
 LCG  
 LCX  
 LCM  
 STM  
 STG  
 STS/STL  
 STR2  
 UCA2  
 ULK\*  
 JSK/M2  
 JSG  
 JSC3/JSC4  
 USSD  
 UFCD  
 USC  
 JSB3  
 LMB  
 LML  
 HCM  
 HCA  
 LBC  
 CAC4  
 UCAC2  
 UCAC-N  
 UCAC-N  
 RCC2  
 RCS  
 PCC  
 SHC  
 MCP  
 GLC  
 MFC  
 BBS  
 RRC  
 GRC  
 RV3\*  
 NHS  
 HR  
 LN  
 Hand  
 Chuk  
 MecHnd/Chuk  
 ShkAbs  
 FJ  
 FK  
 SpdContr  
 Ending

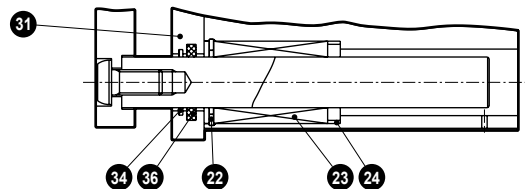
|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/USC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

Internal structure and parts list

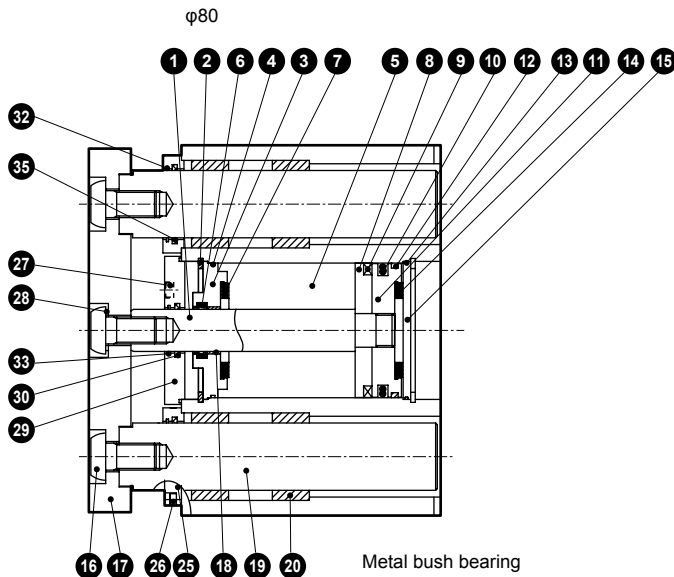
● Double acting/standard       $\phi 40/\phi 50/\phi 63$   
single rod STS-<sup>M</sup><sub>B</sub>G4



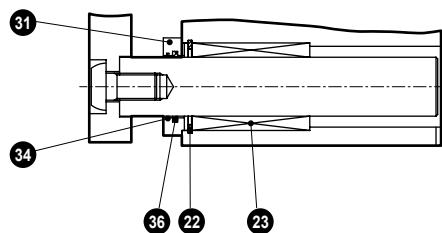
Metal bush bearing



Ball bearing



Metal bush bearing

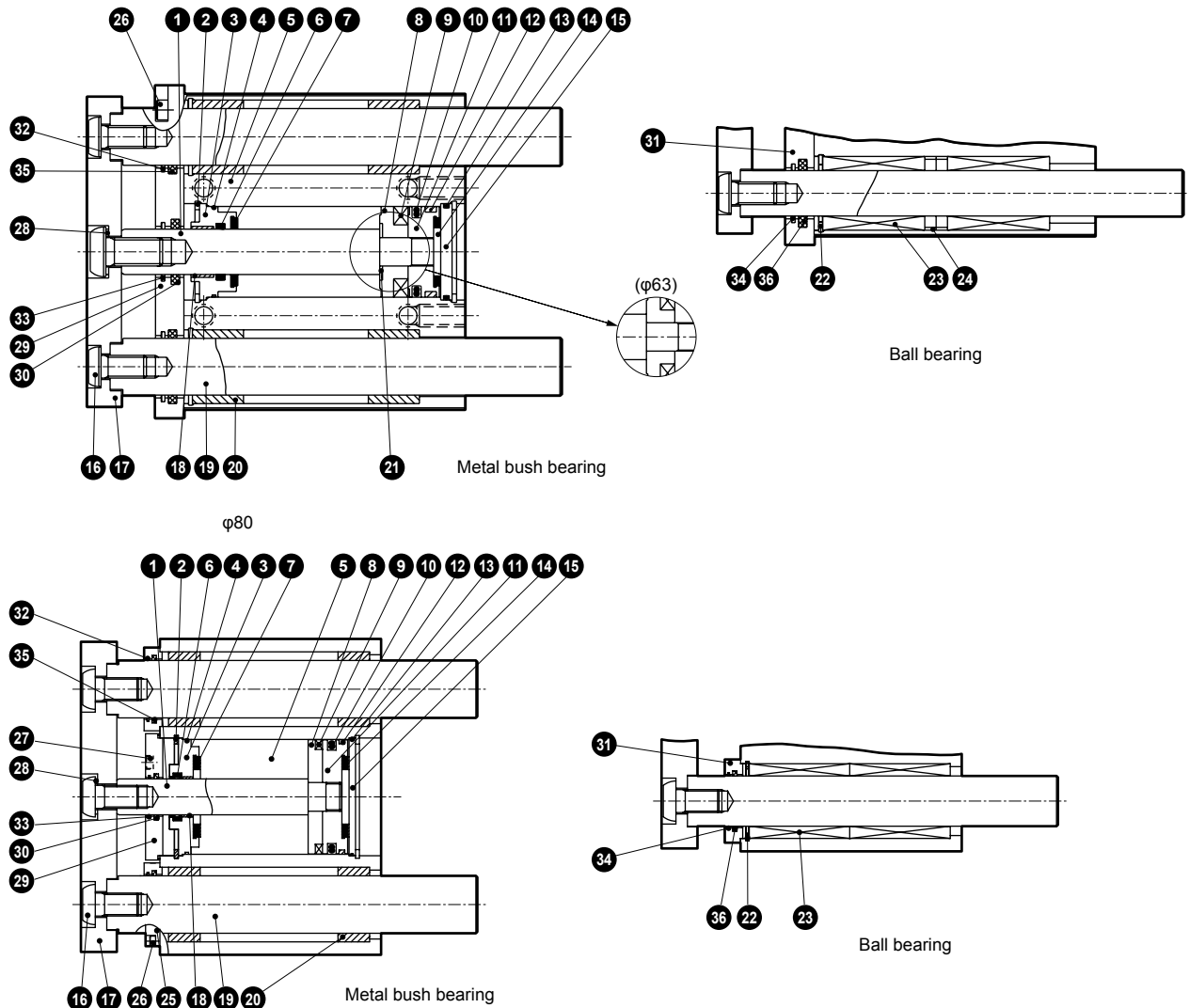


Ball bearing

| No. | Part name                       | Material                                                                | Remarks                                                            | No. | Part name                     | Material                      | Remarks                   |
|-----|---------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------|-----|-------------------------------|-------------------------------|---------------------------|
| 1   | Piston rod                      | Steel                                                                   | Industrial chrome plating                                          | 18  | Bush                          | Dry bearing                   |                           |
| 2   | C type snap ring                | Steel                                                                   | Zinc phosphate                                                     | 19  | Guide rod                     | Steel                         | Industrial chrome plating |
| 3   | Rod metal                       | Special aluminum alloy                                                  | Alumite                                                            | 20  | Metal                         | Oil impregnated bearing alloy |                           |
| 4   | Metal gasket                    | Nitrile rubber                                                          |                                                                    | 21  | Spacer washer                 | Stainless steel               |                           |
| 5   | Cylinder body                   | Aluminum alloy                                                          | Hard alumite                                                       | 22  | C type snap ring              | Steel                         | Zinc phosphate            |
| 6   | Rod packing                     | Nitrile rubber                                                          |                                                                    | 23  | Ball bushing                  |                               |                           |
| 7   | Cushion rubber (R)              | Urethane rubber                                                         |                                                                    | 24  | Collar                        | Aluminum alloy                |                           |
| 8   | Spacer                          | Polyamide ( $\phi 40/\phi 50$ )<br>Aluminum alloy ( $\phi 63/\phi 80$ ) | Chromate ( $\phi 63/\phi 80$ )                                     | 25  | Adaptor B                     | Aluminum alloy                | Alumite                   |
| 9   | Magnet                          | Plastic                                                                 |                                                                    | 26  | Hexagon socket head cap screw | Alloy steel                   | Zinc chromate             |
| 10  | Piston packing                  | Nitrile rubber                                                          |                                                                    | 27  | Hexagon socket head cap screw | Alloy steel                   | Zinc chromate             |
| 11  | Piston                          | Aluminum alloy                                                          | Chromate                                                           | 28  | Conical spring washer         | Steel                         |                           |
| 12  | Wear ring                       | Acetal resin                                                            |                                                                    | 29  | Adaptor A                     | Aluminum alloy                | Alumite                   |
| 13  | O-ring                          | Nitrile rubber                                                          |                                                                    | 30  | Lube keeping structure        | Special rubber                |                           |
| 14  | Cushion rubber (H)              | Urethane rubber                                                         |                                                                    | 31  | Adaptor C                     | Aluminum alloy                | Alumite                   |
| 15  | Base plate                      | Aluminum alloy ( $\phi 40$ to $\phi 63$ )<br>Steel ( $\phi 80$ )        | Chromate ( $\phi 40$ to $\phi 63$ )<br>Zinc chromate ( $\phi 80$ ) | 32  | Coil scraper                  | Phosphor bronze               |                           |
| 16  | Hexagon socket button head bolt | Steel                                                                   | Zinc chromate                                                      | 33  | Coil scraper                  | Phosphor bronze               |                           |
| 17  | End plate                       | Aluminum alloy                                                          | Alumite                                                            | 34  | Coil scraper                  | Phosphor bronze               |                           |
|     |                                 |                                                                         |                                                                    | 35  | Lube keeping structure        | Special rubber                |                           |
|     |                                 |                                                                         |                                                                    | 36  | Lube keeping structure        | Special rubber                |                           |

### Internal structure and parts list

- Double acting/standard  $\phi 40/\phi 50/\phi 63$   
single rod STL-<sup>M</sup><sub>B</sub>G4



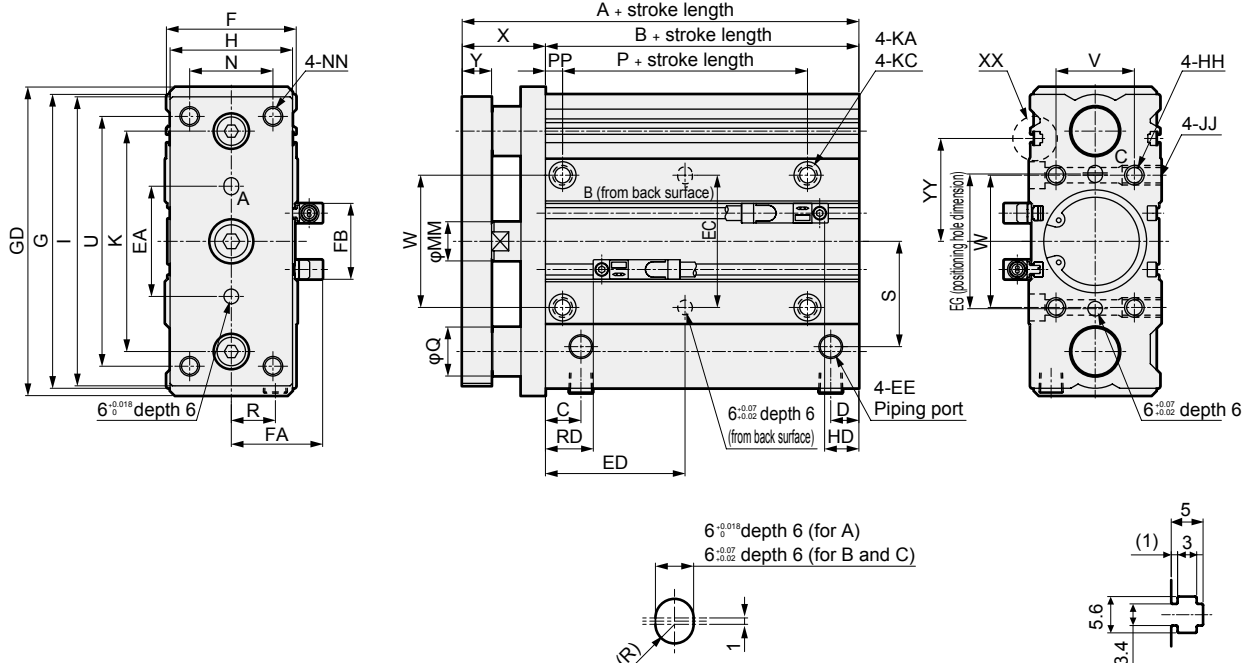
| No. | Part name                       | Material                                                                | Remarks                                                            | No. | Part name                     | Material                      | Remarks                   |
|-----|---------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------|-----|-------------------------------|-------------------------------|---------------------------|
| 1   | Piston rod                      | Steel                                                                   | Industrial chrome plating                                          | 18  | Bush                          | Dry bearing                   |                           |
| 2   | C type snap ring                | Steel                                                                   | Zinc phosphate                                                     | 19  | Guide rod                     | Steel                         | Industrial chrome plating |
| 3   | Rod metal                       | Special aluminum alloy                                                  | Alumite                                                            | 20  | Metal                         | Oil impregnated bearing alloy |                           |
| 4   | Metal gasket                    | Nitrile rubber                                                          |                                                                    | 21  | Spacer washer                 | Stainless steel               |                           |
| 5   | Cylinder body                   | Aluminum alloy                                                          | Hard alumite                                                       | 22  | C type snap ring              | Steel                         | Zinc phosphate            |
| 6   | Rod packing                     | Nitrile rubber                                                          |                                                                    | 23  | Ball bushing                  |                               |                           |
| 7   | Cushion rubber (R)              | Urethane rubber                                                         |                                                                    | 24  | Collar                        | Aluminum alloy                |                           |
| 8   | Spacer                          | Polyamide ( $\phi 40/\phi 50$ )<br>Aluminum alloy ( $\phi 63/\phi 80$ ) | Chromate ( $\phi 63/\phi 80$ )                                     | 25  | Adaptor B                     | Aluminum alloy                | Alumite                   |
| 9   | Magnet                          | Plastic                                                                 |                                                                    | 26  | Hexagon socket head cap screw | Alloy steel                   | Zinc chromate             |
| 10  | Piston packing                  | Nitrile rubber                                                          |                                                                    | 27  | Hexagon socket head cap screw | Alloy steel                   | Zinc chromate             |
| 11  | Piston                          | Aluminum alloy                                                          | Chromate                                                           | 28  | Conical spring washer         | Steel                         |                           |
| 12  | Wear ring                       | Acetal resin                                                            |                                                                    | 29  | Adaptor A                     | Aluminum alloy                | Alumite                   |
| 13  | O-ring                          | Nitrile rubber                                                          |                                                                    | 30  | Lube keeping structure        | Special rubber                |                           |
| 14  | Cushion rubber (H)              | Urethane rubber                                                         |                                                                    | 31  | Adaptor C                     | Aluminum alloy                | Alumite                   |
| 15  | Base plate                      | Aluminum alloy ( $\phi 40$ to $\phi 63$ )<br>Steel ( $\phi 80$ )        | Chromate ( $\phi 40$ to $\phi 63$ )<br>Zinc chromate ( $\phi 80$ ) | 32  | Coil scraper                  | Phosphor bronze               |                           |
| 16  | Hexagon socket button head bolt | Steel                                                                   | Zinc chromate                                                      | 33  | Coil scraper                  | Phosphor bronze               |                           |
| 17  | End plate                       | Aluminum alloy                                                          | Alumite                                                            | 34  | Coil scraper                  | Phosphor bronze               |                           |
|     |                                 |                                                                         |                                                                    | 35  | Lube keeping structure        | Special rubber                |                           |
|     |                                 |                                                                         |                                                                    | 36  | Lube keeping structure        | Special rubber                |                           |

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STB/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

## Dimensions: $\phi 40/\phi 50/\phi 63$



- Double acting/standard
- single rod STS-<sup>M</sup><sub>B</sub>G4



Slot dimensions for A, B and C

XX section details

\*1: When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

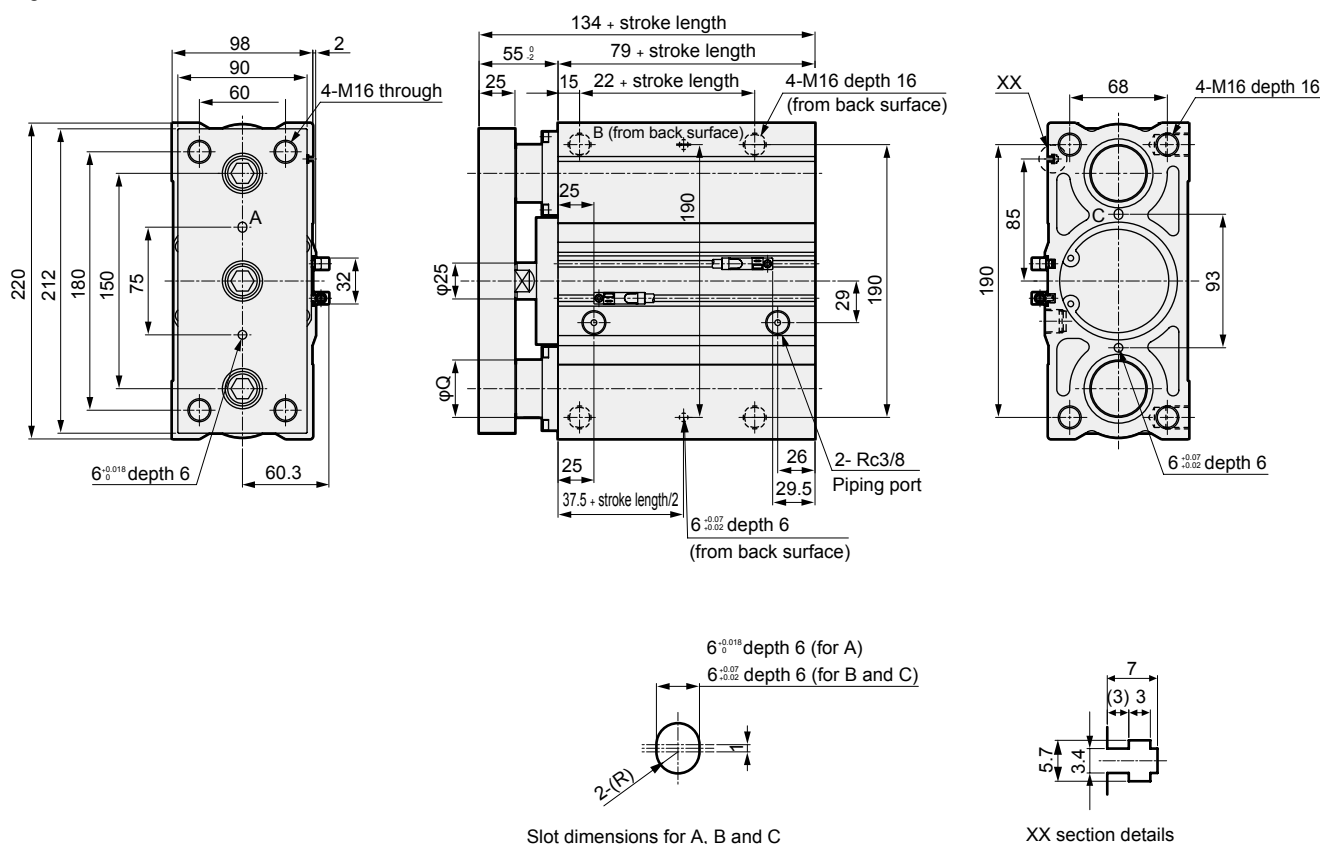
| STS- <sup>M</sup> <sub>B</sub> -G4 |    |    |      |      |     |       |    |    |    |                                             |    |     |     |    |              |     |              |     |             |
|------------------------------------|----|----|------|------|-----|-------|----|----|----|---------------------------------------------|----|-----|-----|----|--------------|-----|--------------|-----|-------------|
| Code                               | A  | B  | C    | D    | E   | EE    | EA | EC | EG | ED                                          | F  | G   | GD  | H  | HH           | I   | JJ           | K   | KA          |
| Bore size (mm)                     |    |    |      |      |     |       |    |    |    |                                             |    |     |     |    |              |     |              |     |             |
| φ40                                | 87 | 53 | 14.5 | 12   | 5.6 | Rc1/8 | 45 | 54 | 55 | 19.5+<br><small>Stroke length<br/>2</small> | 54 | 120 | 126 | 50 | M8 depth 16  | 118 | M8 depth 16  | 90  | 6.3 through |
| φ50                                | 92 | 55 | 16   | 12.5 | 5.6 | Rc1/4 | 55 | 66 | 69 | 19.5+<br><small>Stroke length<br/>2</small> | 66 | 147 | 152 | 64 | M10 depth 20 | 145 | M10 depth 20 | 110 | 8.6 through |
| φ63                                | 98 | 61 | 17.5 | 17.5 | 5.6 | Rc1/4 | 62 | 79 | 82 | 22.5+<br><small>Stroke length<br/>2</small> | 79 | 162 | 166 | 75 | M10 depth 20 | 160 | M10 depth 20 | 124 | 8.6 through |

| STS- <sup>M</sup> <sub>B</sub> -G4 |                        |   |     |    |    |             |    |    |    |    |    |   |     |    |    |                               |    |    |   |      |      |      |    |
|------------------------------------|------------------------|---|-----|----|----|-------------|----|----|----|----|----|---|-----|----|----|-------------------------------|----|----|---|------|------|------|----|
| Code                               | KC                     | L | M   | MM | N  | NN          | P  | PP | Q  | R  | S  | T | U   | V  | W  | X                             | Y  | YY | Z | RD   | HD   | FA   | FB |
| Bore size (mm)                     |                        |   |     |    |    |             |    |    |    |    |    |   |     |    |    |                               |    |    |   |      |      |      |    |
| φ40                                | 11 spot face depth 6.5 | 1 | 3.4 | 16 | 34 | M8 through  | 25 | 7  | 20 | 18 | 43 | 5 | 102 | 32 | 54 | 34 <sup>0</sup> <sub>-2</sub> | 12 | 42 | 3 | 19.5 | 12.5 | 32.3 | 31 |
| φ50                                | 14 spot face depth 8.6 | 1 | 3.4 | 20 | 44 | M10 through | 26 | 8  | 25 | 22 | 49 | 5 | 125 | 38 | 66 | 37 <sup>0</sup> <sub>-2</sub> | 16 | 45 | 3 | 21.5 | 13.5 | 38.3 | 32 |
| φ63                                | 14 spot face depth 8.6 | 1 | 3.4 | 20 | 55 | M10 through | 26 | 8  | 25 | 26 | 56 | 5 | 140 | 50 | 79 | 37 <sup>0</sup> <sub>-2</sub> | 16 | 52 | 3 | 18.5 | 21.5 | 44.8 | 32 |

## Dimensions: $\phi 80$



- Double acting/standard single rod STS-<sup>M</sup><sub>B</sub>G4



Dimension Q is  $\phi 40$  for M (metal bush bearing) and  $\phi 35$  for B (ball bearing).

Note: When using a custom stroke length, the dimensions are the same as the longer standard stroke length. The standard stroke lengths of  $\phi 80$  are 25, 50, 75 and 100 mm.

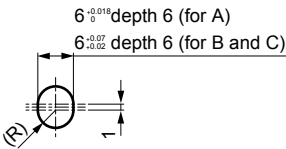
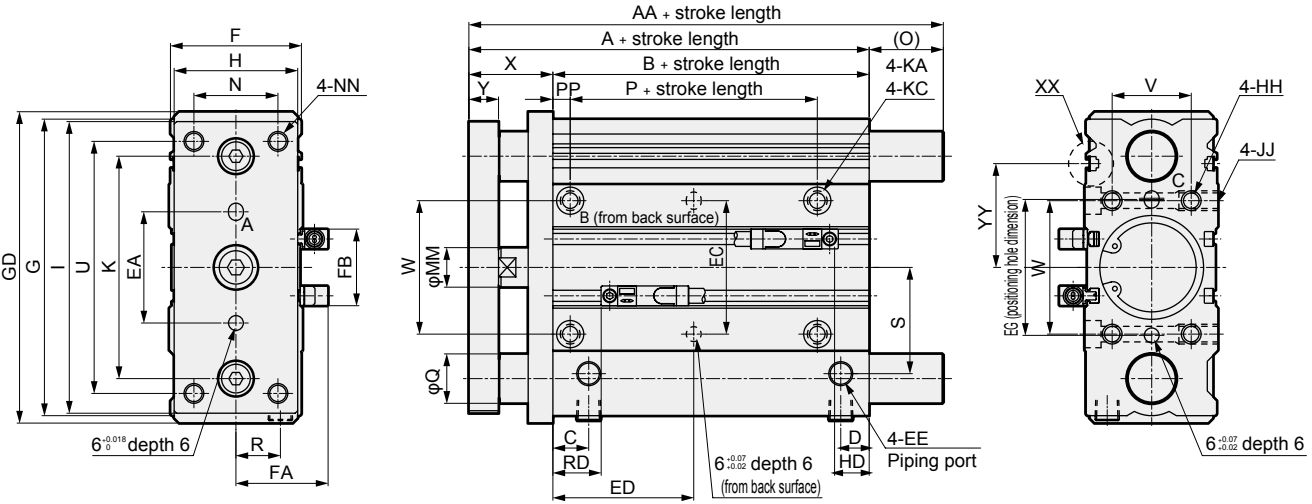
|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

# STL-G4 Series

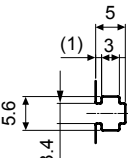
Dimensions:  $\phi 40/\phi 50/\phi 63$



- Double acting/standard single rod STL-<sup>M</sup><sub>B</sub>G4



Slot dimensions for A, B and C



XX section details

\*1: When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

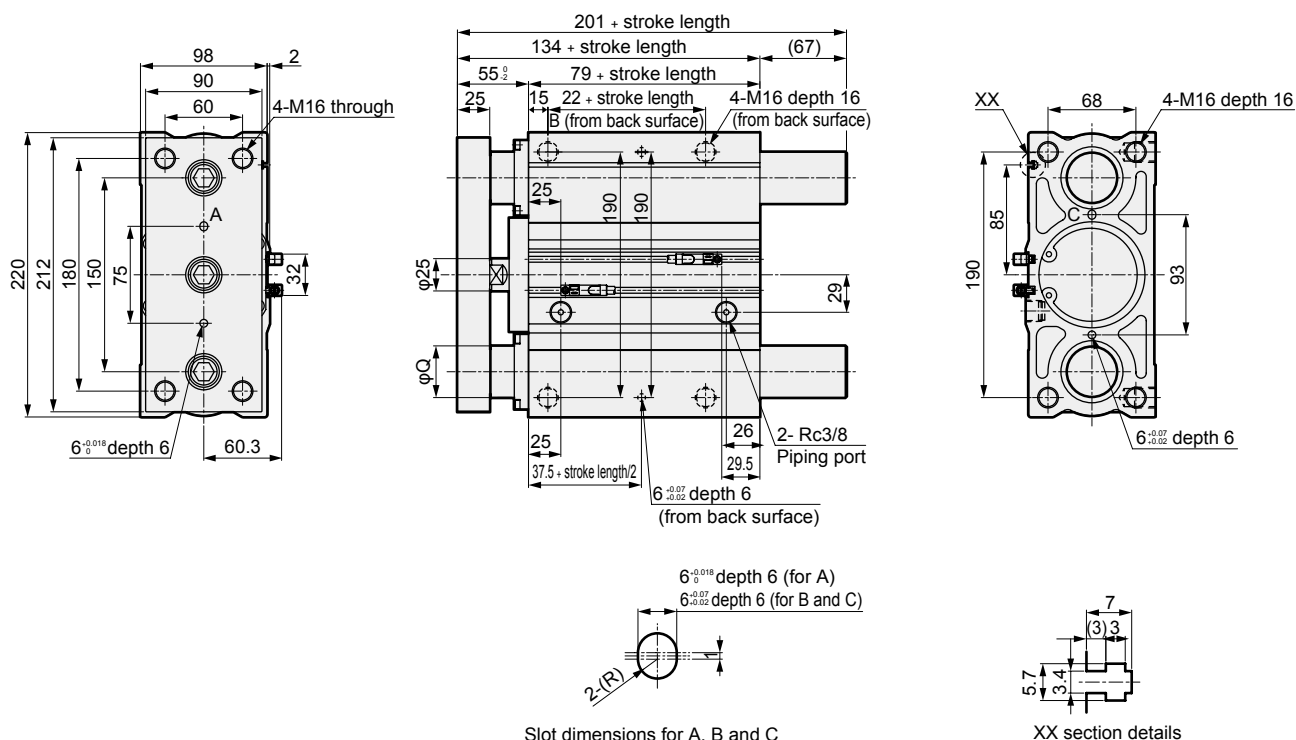
| STL- <sup>M</sup> <sub>B</sub> -G4 |    |     |    |      |      |     |       |    |    |    |                                         |    |     |     |    |              |     |              |     |             |
|------------------------------------|----|-----|----|------|------|-----|-------|----|----|----|-----------------------------------------|----|-----|-----|----|--------------|-----|--------------|-----|-------------|
| Code                               | A  | AA  | B  | C    | D    | E   | EE    | EA | EC | EG | ED                                      | F  | G   | GD  | H  | HH           | I   | JJ           | K   | KA          |
| Bore size (mm)                     |    |     |    |      |      |     |       |    |    |    |                                         |    |     |     |    |              |     |              |     |             |
| $\phi 40$                          | 87 | 117 | 53 | 14.5 | 12   | 5.6 | Rc1/8 | 45 | 54 | 55 | $19.5 + \frac{\text{Stroke length}}{2}$ | 54 | 120 | 126 | 50 | M8 depth 16  | 118 | M8 depth 16  | 90  | 6.3 through |
| $\phi 50$                          | 92 | 140 | 55 | 16   | 12.5 | 5.6 | Rc1/4 | 55 | 66 | 69 | $19.5 + \frac{\text{Stroke length}}{2}$ | 66 | 147 | 152 | 64 | M10 depth 20 | 145 | M10 depth 20 | 110 | 8.6 through |
| $\phi 63$                          | 98 | 140 | 61 | 17.5 | 17.5 | 5.6 | Rc1/4 | 62 | 79 | 82 | $22.5 + \frac{\text{Stroke length}}{2}$ | 79 | 162 | 166 | 75 | M10 depth 20 | 160 | M10 depth 20 | 124 | 8.6 through |

| STL- <sup>M</sup> <sub>B</sub> -G4 |                        |   |     |    |    |             |    |    |    |    |    |    |   |     |    |    |                   |    |    |   |
|------------------------------------|------------------------|---|-----|----|----|-------------|----|----|----|----|----|----|---|-----|----|----|-------------------|----|----|---|
| Code                               | KC                     | L | M   | MM | N  | NN          | O  | P  | PP | Q  | R  | S  | T | U   | V  | W  | X                 | Y  | YY | Z |
| Bore size (mm)                     |                        |   |     |    |    |             |    |    |    |    |    |    |   |     |    |    |                   |    |    |   |
| $\phi 40$                          | 11 spot face depth 6.5 | 1 | 3.4 | 16 | 34 | M8 through  | 30 | 25 | 7  | 20 | 18 | 43 | 5 | 102 | 32 | 54 | $34 \frac{0}{-2}$ | 12 | 42 | 3 |
| $\phi 50$                          | 14 spot face depth 8.6 | 1 | 3.4 | 20 | 44 | M10 through | 48 | 26 | 8  | 25 | 22 | 49 | 5 | 125 | 38 | 66 | $37 \frac{0}{-2}$ | 16 | 45 | 3 |
| $\phi 63$                          | 14 spot face depth 8.6 | 1 | 3.4 | 20 | 55 | M10 through | 42 | 26 | 8  | 25 | 26 | 56 | 5 | 140 | 50 | 79 | $37 \frac{0}{-2}$ | 16 | 52 | 3 |

### Dimensions: $\phi 80$



- Double acting/standard single rod STL-<sup>M</sup><sub>B</sub>G4

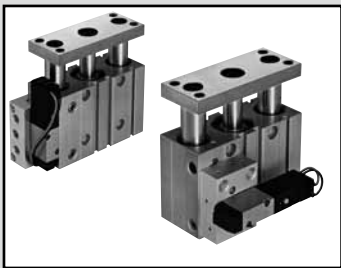


Dimension Q is  $\phi 40$  for M (metal bush bearing) and  $\phi 35$  for B (ball bearing).

Note: When using a custom stroke length, the dimensions are the same as the longer standard stroke length. The standard stroke length of  $\phi 80$  can be selected from 75 to 400 mm in 25 mm increments.

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MedHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

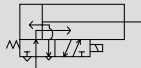


Guided cylinder/valve equipped

# STS/STL-V<sup>M</sup><sub>B</sub> Series

● Bore size:φ20/φ25/φ32/φ40/φ50/φ63

JIS symbol



## Specifications

| Descriptions                |      | STS-MV, STS-BV (short stroke length)/STL-MV/STL-BV (long stroke length)      |       |       |             |       |           |
|-----------------------------|------|------------------------------------------------------------------------------|-------|-------|-------------|-------|-----------|
| Bore size                   | mm   | φ20                                                                          | φ25   | φ32   | φ40         | φ50   | φ63       |
| Actuation                   |      | Double acting                                                                |       |       |             |       |           |
| Working fluid               |      | Compressed air                                                               |       |       |             |       |           |
| Max. working pressure       | MPa  | 0.7 (≈100 psi, 7 bar)                                                        |       |       |             |       |           |
| Min. working pressure       | MPa  | 0.15 (≈22 psi, 1.5 bar)                                                      |       |       |             |       |           |
| Proof pressure              | MPa  | 1.0 (≈150 psi, 10 bar)                                                       |       |       |             |       |           |
| Ambient temperature         | °C   | -5 (23°F) to 50 (122°F) (no freezing)                                        |       |       |             |       |           |
| Port size                   |      | Rc1/8                                                                        |       |       | Rc1/4       |       |           |
| Stroke tolerance            | mm   | +2.0<br>0                                                                    |       |       |             |       |           |
| Working piston speed        | mm/s | 50 to 500                                                                    |       |       |             |       | 50 to 300 |
| Cushion                     |      | With rubber cushion                                                          |       |       |             |       |           |
| Lubrication                 |      | Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication) |       |       |             |       |           |
| Incorporated solenoid valve |      | 4KB1 Series                                                                  |       |       | 4KB2 Series |       |           |
| Allowable absorbed energy   | J    | 0.157                                                                        | 0.157 | 0.401 | 0.627       | 0.980 | 1.560     |

Note: Refer to “Pneumatic Valves (CB-23SA)” for details on valves.

## Stroke length

| Bore size (mm) | Standard stroke length (mm) |           | Max. stroke length (mm) | Min. stroke length (mm) |
|----------------|-----------------------------|-----------|-------------------------|-------------------------|
| φ20/φ25/φ32    | STS                         | 25/50     | 100                     | 5                       |
| φ40/φ50/φ63    | STL                         | 50/75/100 |                         |                         |

### Custom stroke length

Custom stroke lengths other than the standard are available in 5 mm increments.  
However, the total length is the same as that of the next longer standard stroke length.  
(Example) For STS-MV1-25-35, a spacer is mounted inside the STS-MV1-25-50 body to obtain a total length the same as that of the 50-stroke.

## Switch specifications

● 1-color/2-color display/for AC magnetic field proof

| Descriptions    | Proximity 2-wire                                           | Proximity 2-wire                      |                                   |                                   | Proximity 3-wire                   |                                |                                   |                                   | Reed 2-wire                        |             |                                                                                       |             |                                    |            |            | Proximity 2-wire                  |
|-----------------|------------------------------------------------------------|---------------------------------------|-----------------------------------|-----------------------------------|------------------------------------|--------------------------------|-----------------------------------|-----------------------------------|------------------------------------|-------------|---------------------------------------------------------------------------------------|-------------|------------------------------------|------------|------------|-----------------------------------|
|                 | T1H/<br>T1V                                                | T2H/T2V/<br>T2JH/T2JV                 | T2YH/<br>T2YV                     | T2WH/<br>T2WV                     | T3H/<br>T3V                        | T3PH/T3PV<br>(custom)          | T3YH/<br>T3YV                     | T3WH/<br>T3WV                     | T0H/T0V                            |             | T5H/T5V                                                                               |             | T8H/T8V                            |            |            | T2YD                              |
| Applications    | For programmable controller, relay, compact solenoid valve | Dedicated for programmable controller |                                   |                                   | For programmable controller, relay |                                |                                   |                                   | For programmable controller, relay |             | For programmable controller, relay, IC circuit (no indicator lamp), serial connection |             | For programmable controller, relay |            |            | For programmable controller       |
| Output method   | -                                                          |                                       |                                   |                                   | NPN output                         | PNP output                     | NPN output                        | NPN output                        | -                                  |             |                                                                                       |             |                                    |            |            |                                   |
| Pwr. supp. V.   | -                                                          |                                       |                                   |                                   | 10 to 28 VDC                       |                                |                                   |                                   | -                                  |             |                                                                                       |             |                                    |            |            |                                   |
| Load voltage    | 85 to 265 VAC                                              | 10 to 30 VDC                          |                                   | 24 VDC ±10%                       | 30 VDC or less                     |                                |                                   |                                   | 12/24 VDC                          | 100/110 VAC | 5/12/24 VDC                                                                           | 100/110 VAC | 12/24 VDC                          | 110 VAC    | 220 VAC    | 24 VDC ±10%                       |
| Load current    | 5 to 100 mA                                                | 5 to 20 mA (*2)                       |                                   |                                   | 100 mA or less                     |                                | 50 mA or less                     |                                   | 5 to 50 mA                         | 7 to 20 mA  | ≤50 mA                                                                                | ≤20 mA      | 5 to 50 mA                         | 7 to 20 mA | 7 to 10 mA | 5 to 20 mA                        |
| Indicator lamp  | LED<br>(Lit when ON)                                       | LED<br>(Lit when ON)                  | Red/green<br>LED<br>(Lit when ON) | Red/green<br>LED<br>(Lit when ON) | LED<br>(Lit when ON)               | Yellow<br>LED<br>(Lit when ON) | Red/green<br>LED<br>(Lit when ON) | Red/green<br>LED<br>(Lit when ON) | LED<br>(Lit when ON)               |             | Without<br>indicator lamp                                                             |             | LED<br>(Lit when ON)               |            |            | Red/green<br>LED<br>(Lit when ON) |
| Leakage current | ≤1 mA at 100 VAC,<br>≤2 mA at 200 VAC                      | 1 mA or less                          |                                   |                                   | 10 μA or less                      |                                |                                   |                                   | 0 mA                               |             |                                                                                       |             |                                    |            |            | 1 mA or less                      |
| Weight g        | 1 m:33                                                     | 1 m:18                                | 1 m:33                            | 1 m:18                            | 1 m:18                             |                                | 1 m:33                            | 1 m:18                            | 1 m:18 3 m:49 5 m:80               |             |                                                                                       |             | 1 m:33 3 m:87 5 m:142              |            |            | 1 m:61                            |
|                 | 3 m:87                                                     | 3 m:49                                | 3 m:87                            | 3 m:49                            | 3 m:49                             |                                | 3 m:87                            | 3 m:49                            |                                    |             |                                                                                       |             |                                    |            |            | 3 m:166                           |
|                 | 5 m:142                                                    | 5 m:80                                | 5 m:142                           | 5 m:80                            | 5 m:80                             |                                | 5 m:142                           | 5 m:80                            |                                    |             |                                                                                       |             |                                    |            |            | 5 m:272                           |

\*1 : Refer to Ending Page 1 for other switch specifications.

\*2 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C.  
(5 to 10 mA at 60°C)

\*3 : The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

\*4 : This switch cannot be used in DC magnetic field.

\*5 : Dimensions depend on switch model No. Refer to Ending Page 18 for details.

### Valve specifications

| Descriptions                                                    | ST <sup>s/L</sup> - <sup>M</sup> / <sub>B</sub> V1 <sup>20</sup><br>V2 <sup>-25</sup><br>32 |                  |       | ST <sup>s/L</sup> - <sup>M</sup> / <sub>B</sub> V1 <sup>40</sup><br>V2 <sup>-50</sup><br>63 |                  |       |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------|-------|---------------------------------------------------------------------------------------------|------------------|-------|
| Applicable valve series                                         | 4KB1 Series                                                                                 |                  |       | 4KB2 Series                                                                                 |                  |       |
| Position Number of solenoids                                    | 2-position single                                                                           |                  |       | 2-position single                                                                           |                  |       |
| Valve effective cross-sectional area (mm <sup>2</sup> )<br>(Cv) | 4<br>(0.22)                                                                                 |                  |       | 14<br>(0.76)                                                                                |                  |       |
| Rated voltage (V)                                               | 100 AC(50/60 Hz)                                                                            | 200 AC(50/60 Hz) | 24 DC | 100 AC(50/60 Hz)                                                                            | 200 AC(50/60 Hz) | 24 DC |
| Starting current (A)                                            | 0.056/0.044                                                                                 | 0.034/0.026      | 0.075 | 0.056/0.044                                                                                 | 0.028/0.022      | 0.075 |
| Holding current (A)                                             | 0.028/0.022                                                                                 | 0.017/0.013      |       | 0.028/0.022                                                                                 | 0.014/0.011      |       |
| Power consumption (W)                                           | 1.8/1.4                                                                                     | 2.1/1.6          | 1.8   | 1.8/1.4                                                                                     |                  | 1.8   |
| Voltage fluctuation range                                       | ±10%                                                                                        |                  |       | ±10%                                                                                        |                  |       |
| Thermal class                                                   | Class B molded coil                                                                         |                  |       | Class B molded coil                                                                         |                  |       |

Note: Refer to "Pneumatic Valves (CB-023SA)" for details on valves.

### Theoretical thrust table

(Unit: N)

| Bore size<br>(mm) | Operating<br>direction | Working pressure MPa   |                        |                        |                        |                        |                        |                        |                        |                        |                        |                        |
|-------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|                   |                        | 0.1                    | 0.15                   | 0.2                    | 0.3                    | 0.4                    | 0.5                    | 0.6                    | 0.7                    | 0.8                    | 0.9                    | 1.0                    |
| φ20               | Push                   | -                      | -                      | 62.8                   | 94.2                   | 1.26 × 10 <sup>2</sup> | 1.57 × 10 <sup>2</sup> | 1.88 × 10 <sup>2</sup> | 2.20 × 10 <sup>2</sup> | 2.51 × 10 <sup>2</sup> | 2.83 × 10 <sup>2</sup> | 3.14 × 10 <sup>2</sup> |
|                   | Pull                   | -                      | -                      | 47.1                   | 70.7                   | 94.2                   | 1.18 × 10 <sup>2</sup> | 1.41 × 10 <sup>2</sup> | 1.65 × 10 <sup>2</sup> | 1.88 × 10 <sup>2</sup> | 2.12 × 10 <sup>2</sup> | 2.36 × 10 <sup>2</sup> |
| φ25               | Push                   | -                      | -                      | 98.2                   | 1.47 × 10 <sup>2</sup> | 1.96 × 10 <sup>2</sup> | 2.45 × 10 <sup>2</sup> | 2.95 × 10 <sup>2</sup> | 3.44 × 10 <sup>2</sup> | 3.93 × 10 <sup>2</sup> | 4.42 × 10 <sup>2</sup> | 4.91 × 10 <sup>2</sup> |
|                   | Pull                   | -                      | -                      | 75.6                   | 1.13 × 10 <sup>2</sup> | 1.51 × 10 <sup>2</sup> | 1.89 × 10 <sup>2</sup> | 2.27 × 10 <sup>2</sup> | 2.64 × 10 <sup>2</sup> | 3.02 × 10 <sup>2</sup> | 3.40 × 10 <sup>2</sup> | 3.78 × 10 <sup>2</sup> |
| φ32               | Push                   | 80.4                   | 1.21 × 10 <sup>2</sup> | 1.61 × 10 <sup>2</sup> | 2.41 × 10 <sup>2</sup> | 3.22 × 10 <sup>2</sup> | 4.02 × 10 <sup>2</sup> | 4.83 × 10 <sup>2</sup> | 5.63 × 10 <sup>2</sup> | 6.43 × 10 <sup>2</sup> | 7.24 × 10 <sup>2</sup> | 8.04 × 10 <sup>2</sup> |
|                   | Pull                   | 60.3                   | 90.5                   | 1.21 × 10 <sup>2</sup> | 1.81 × 10 <sup>2</sup> | 2.41 × 10 <sup>2</sup> | 3.02 × 10 <sup>2</sup> | 3.62 × 10 <sup>2</sup> | 4.22 × 10 <sup>2</sup> | 4.83 × 10 <sup>2</sup> | 5.43 × 10 <sup>2</sup> | 6.03 × 10 <sup>2</sup> |
| φ40               | Push                   | 1.26 × 10 <sup>2</sup> | 1.88 × 10 <sup>2</sup> | 2.51 × 10 <sup>2</sup> | 3.77 × 10 <sup>2</sup> | 5.03 × 10 <sup>2</sup> | 6.28 × 10 <sup>2</sup> | 7.54 × 10 <sup>2</sup> | 8.80 × 10 <sup>2</sup> | 1.01 × 10 <sup>3</sup> | 1.13 × 10 <sup>3</sup> | 1.26 × 10 <sup>3</sup> |
|                   | Pull                   | 1.06 × 10 <sup>2</sup> | 1.58 × 10 <sup>2</sup> | 2.11 × 10 <sup>2</sup> | 3.17 × 10 <sup>2</sup> | 4.22 × 10 <sup>2</sup> | 5.28 × 10 <sup>2</sup> | 6.33 × 10 <sup>2</sup> | 7.39 × 10 <sup>2</sup> | 8.44 × 10 <sup>2</sup> | 9.50 × 10 <sup>2</sup> | 1.06 × 10 <sup>3</sup> |
| φ50               | Push                   | 1.96 × 10 <sup>2</sup> | 2.95 × 10 <sup>2</sup> | 3.93 × 10 <sup>2</sup> | 5.89 × 10 <sup>2</sup> | 7.85 × 10 <sup>2</sup> | 9.82 × 10 <sup>2</sup> | 1.18 × 10 <sup>3</sup> | 1.37 × 10 <sup>3</sup> | 1.57 × 10 <sup>3</sup> | 1.77 × 10 <sup>3</sup> | 1.96 × 10 <sup>3</sup> |
|                   | Pull                   | 1.65 × 10 <sup>2</sup> | 2.47 × 10 <sup>2</sup> | 3.30 × 10 <sup>2</sup> | 4.95 × 10 <sup>2</sup> | 6.60 × 10 <sup>2</sup> | 8.25 × 10 <sup>2</sup> | 9.90 × 10 <sup>2</sup> | 1.15 × 10 <sup>3</sup> | 1.32 × 10 <sup>3</sup> | 1.48 × 10 <sup>3</sup> | 1.65 × 10 <sup>3</sup> |
| φ63               | Push                   | 3.12 × 10 <sup>2</sup> | 4.68 × 10 <sup>2</sup> | 6.23 × 10 <sup>2</sup> | 9.35 × 10 <sup>2</sup> | 1.25 × 10 <sup>3</sup> | 1.56 × 10 <sup>3</sup> | 1.87 × 10 <sup>3</sup> | 2.18 × 10 <sup>3</sup> | 2.49 × 10 <sup>3</sup> | 2.81 × 10 <sup>3</sup> | 3.12 × 10 <sup>3</sup> |
|                   | Pull                   | 2.80 × 10 <sup>2</sup> | 4.20 × 10 <sup>2</sup> | 5.61 × 10 <sup>2</sup> | 8.41 × 10 <sup>2</sup> | 1.12 × 10 <sup>3</sup> | 1.40 × 10 <sup>3</sup> | 1.68 × 10 <sup>3</sup> | 1.96 × 10 <sup>3</sup> | 2.24 × 10 <sup>3</sup> | 2.52 × 10 <sup>3</sup> | 2.80 × 10 <sup>3</sup> |

For cylinder weight, refer to pages 554 to 557.

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

## How to order

### ● Short stroke length

Without switch (built-in magnet for switch)

**STS-M V1 S-20-25-B-1-F**

With switch (built-in magnet for switch)

**STS-M V1 S-20-25-B-1-T0H-R-F**

### ● Long stroke length

Without switch (built-in magnet for switch)

**STL-M V1 S-50-50-B-1-F**

With switch (built-in magnet for switch)

**STL-M V1 S-50-50-B-1-T0H-R-F**

**A** Bearing

**D** Bore size

**B** Operating direction

**C** Valve mounting direction \*1/\*2

**E** Port thread

**G** Electrical connections

**F** Stroke length

■ The custom stroke length is available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke length.

**H** Rated voltage

**I** Switch model No.  
\*4

### ⚠ Precautions for model No. selection

- \*1 : When selecting types with valve on side with a stroke length of 25 mm or less, the valve mounting dimensions (VC) may exceed the overall length of the cylinder (A + stroke). Check the measurements using the external dimensions chart.
- \*2 : The 2-color display and strong magnetic field proof switch cannot be mounted on the valve on front type.
- \*3 : Refer to pages 440 and 443 for combinations of variations/options.
- \*4 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

**STS-MV1S-20-25-B-1-T0H-R-F**

Model: Guided cylinder, short stroke length, valve equipped

- A** Bearing : Metal bush bearing
- B** Operating direction: Pushed out when energized
- C** Valve mounting direction: With valve on side
- D** Bore size : φ20 mm
- E** Port thread : Rc thread
- F** Stroke length : 25 mm
- G** Electrical connections: Compact terminal box, without lead wire
- H** Rated voltage : 100 VAC
- I** Switch model No.: Reed T0H, lead wire 1 m
- J** Switch quantity : 1 on rod side
- K** Option : End plate material (steel)

For the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches for φ40 and over, insert "L1" with "-" between **C** and **D**.  
Example) STS-MV1S-L1-50-50-B-1-T2YH3-D-F

## How to order switch

**SW-T0H**

Switch model No.  
(Item **I** above)

**J** Switch quantity

**K** Option

| Code             | Content            |
|------------------|--------------------|
| <b>A Bearing</b> |                    |
| <b>M</b>         | Metal bush bearing |
| <b>B</b>         | Ball bearing       |

|                              |                           |
|------------------------------|---------------------------|
| <b>B Operating direction</b> |                           |
| <b>V1</b>                    | Pushed out when energized |
| <b>V2</b>                    | Pull when energized       |

|                                   |                     |
|-----------------------------------|---------------------|
| <b>C Valve mounting direction</b> |                     |
| <b>Blank</b>                      | With valve on front |
| <b>S</b>                          | With valve on side  |

|                         |     |
|-------------------------|-----|
| <b>D Bore size (mm)</b> |     |
| <b>20</b>               | φ20 |
| <b>25</b>               | φ25 |
| <b>32</b>               | φ32 |
| <b>40</b>               | φ40 |
| <b>50</b>               | φ50 |
| <b>63</b>               | φ63 |

|                      |                                                |
|----------------------|------------------------------------------------|
| <b>E Port thread</b> |                                                |
| <b>Blank</b>         | Rc thread                                      |
| <b>NN</b>            | NPT thread (φ32 and over) custom order product |
| <b>GN</b>            | G thread (φ32 and over) custom order product   |

|                                                     |  |
|-----------------------------------------------------|--|
| <b>F Stroke length</b>                              |  |
| Refer to the stroke length table on following page. |  |

|                                 |                                         |
|---------------------------------|-----------------------------------------|
| <b>G Electrical connections</b> |                                         |
| <b>Blank</b>                    | Grommet lead wire (300 mm)              |
| <b>B</b>                        | Compact terminal box, without lead wire |
| <b>C</b>                        | C type connector, lead wire (300 mm)    |
| <b>D</b>                        | D type connector, lead wire (300 mm)    |

|                        |         |
|------------------------|---------|
| <b>H Rated voltage</b> |         |
| <b>1</b>               | 100 VAC |
| <b>2</b>               | 200 VAC |
| <b>3</b>               | 24 VDC  |

| ① Switch model No. |                  |           |         |    |                                       |           |
|--------------------|------------------|-----------|---------|----|---------------------------------------|-----------|
| Axial lead wire    | Radial lead wire | Contact   | Voltage |    | Display                               | Lead wire |
|                    |                  |           | AC      | DC |                                       |           |
| T0H*               | T0V*             | Reed      | ●       | ●  | 1-color display                       | 2-wire    |
| T5H*               | T5V*             |           | ●       | ●  | Without indicator lamp                |           |
| T8H*               | T8V*             |           | ●       | ●  | 1-color display                       |           |
| T1H*               | T1V*             |           | ●       |    |                                       |           |
| T2H*               | T2V*             | Proximity |         | ●  | 2-color display                       | 3-wire    |
| T3H*               | T3V*             |           |         | ●  |                                       |           |
| T3PH*              | T3PV*            |           |         | ●  | 1-color display (custom)              | 3-wire    |
| T2WH*              | T2WV*            |           |         | ●  | 2-color display                       | 2-wire    |
| T2YH*              | T2YV*            |           |         | ●  |                                       | 2-wire    |
| T3WH*              | T3WV*            |           |         | ●  |                                       | 3-wire    |
| T3YH*              | T3YV*            |           |         | ●  |                                       | 3-wire    |
| T2JH*              | T2JV*            |           |         | ●  | 1-color display off-delay             | 2-wire    |
| T2YD*              | -                |           |         | ●  | 2-color display for AC magnetic field | 2-wire    |
| T2YDT*             | -                |           |         | ●  |                                       |           |

|                               |                |
|-------------------------------|----------------|
| <b>* Lead wire length (m)</b> |                |
| <b>Blank</b>                  | 1 m (standard) |
| <b>3</b>                      | 3 m (option)   |
| <b>5</b>                      | 5 m (option)   |

|                          |                |
|--------------------------|----------------|
| <b>J Switch quantity</b> |                |
| <b>R</b>                 | 1 on rod side  |
| <b>H</b>                 | 1 on head side |
| <b>D</b>                 | 2              |

|                 |                            |
|-----------------|----------------------------|
| <b>K Option</b> |                            |
| <b>F</b>        | End plate material (steel) |

### F Stroke length

| Series | Stroke length (mm)    |     | Applicable bore size |     |     |     |     |     |
|--------|-----------------------|-----|----------------------|-----|-----|-----|-----|-----|
|        |                       |     | φ20                  | φ25 | φ32 | φ40 | φ50 | φ63 |
| STS    | Standard              | 25  | ●                    | ●   | ●   | ●   | ●   | ●   |
|        | stroke length         | 50  | ●                    | ●   | ●   | ●   | ●   | ●   |
|        | Min. stroke length *1 |     | 5                    |     |     |     |     |     |
|        | Custom stroke *1, 2   |     | In 5 mm increments   |     |     |     |     |     |
| STL    | Standard              | 50  | ●                    | ●   | ●   | ●   | ●   | ●   |
|        | stroke length         | 75  | ●                    | ●   | ●   | ●   | ●   | ●   |
|        |                       | 100 | ●                    | ●   | ●   | ●   | ●   | ●   |
|        | Min. stroke length*1  |     | 30                   |     |     |     |     |     |
|        | Custom stroke*1, 2    |     | In 5 mm increments   |     |     |     |     |     |

\*1: The total dimensions are the same as the longer standard stroke length.

\*2: Special total length for custom stroke length can be provided when a custom stroke length is used. (Custom order)

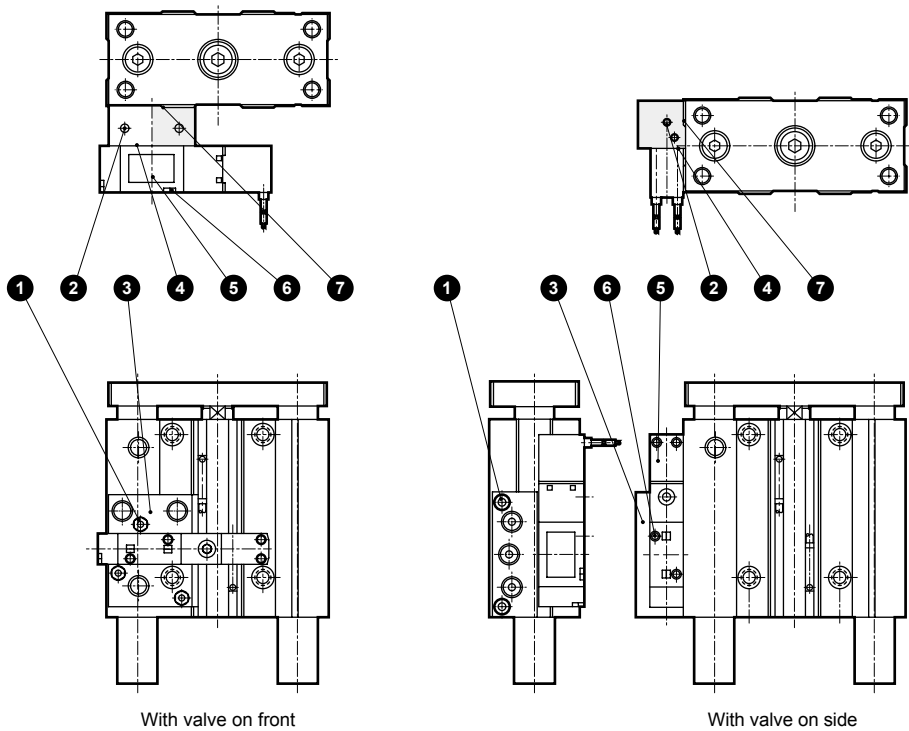
### Series variation

| Bore size<br>(mm) | Standard stroke length (mm) |    |     |    |     | Applicable valve series | Position<br>Number of solenoids | Valve effective cross-sectional area (mm <sup>2</sup> ) (Cv) |
|-------------------|-----------------------------|----|-----|----|-----|-------------------------|---------------------------------|--------------------------------------------------------------|
|                   | STS                         |    | STL |    |     |                         |                                 |                                                              |
|                   | 25                          | 50 | 50  | 75 | 100 |                         |                                 |                                                              |
| φ20               | ●                           | ●  | ●   | ●  | ●   | 4KB1 Series             | 2-position single               | 4(0.22)                                                      |
| φ25               | ●                           | ●  | ●   | ●  | ●   |                         |                                 |                                                              |
| φ32               | ●                           | ●  | ●   | ●  | ●   |                         |                                 |                                                              |
| φ40               | ●                           | ●  | ●   | ●  | ●   |                         |                                 |                                                              |
| φ50               | ●                           | ●  | ●   | ●  | ●   | 4KB2 Series             | 2-position single               | 14(0.76)                                                     |
| φ63               | ●                           | ●  | ●   | ●  | ●   |                         |                                 |                                                              |

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

Internal structure and parts list



| No. | Part name                | Material        | Remarks       |
|-----|--------------------------|-----------------|---------------|
| 1   | Hex socket screw         | Stainless steel |               |
| 2   | Hexagon socket set screw | Steel           | Black finish  |
| 3   | Sub-base                 | Aluminum alloy  | Alumite       |
| 4   | Gasket                   | Nitrile rubber  |               |
| 5   | Pneumatic valve          |                 |               |
| 6   | Set screw                | Steel           | Zinc chromate |
| 7   | O-ring                   | Nitrile rubber  |               |

Repair parts list

The repair parts list is common with the double acting/single rod.  
Refer to page 449 for STS Series and page 452 for STL Series.

Sub-base kit

| Bore size (mm)                                                     | Kit No. | Part No.  | Bore size (mm)                                                      | Kit No. | Part No.   |
|--------------------------------------------------------------------|---------|-----------|---------------------------------------------------------------------|---------|------------|
| STS-M/B-V1<br>(With valve on front<br>Pushed out when energized)   | φ20     | STS-V1-20 | STS-M/B-V1S<br>(With valve on side<br>Pushed out when energized)    | φ20     | STS-V1S-20 |
|                                                                    | φ25     |           |                                                                     | φ25     |            |
|                                                                    | φ32     |           |                                                                     | φ32     |            |
|                                                                    | φ40     |           |                                                                     | φ40     |            |
|                                                                    | φ50     |           |                                                                     | φ50     |            |
|                                                                    | φ63     |           |                                                                     | φ63     |            |
| STS-M/B-V2<br>(With valve on front<br>Retracted in when energized) | φ20     | STS-V2-20 | STS-M/B-V2S<br>(With valve on front<br>Retracted in when energized) | φ20     | STS-V2S-20 |
|                                                                    | φ25     |           |                                                                     | φ25     |            |
|                                                                    | φ32     |           |                                                                     | φ32     |            |
|                                                                    | φ40     |           |                                                                     | φ40     |            |
|                                                                    | φ50     |           |                                                                     | φ50     |            |
|                                                                    | φ63     |           |                                                                     | φ63     |            |

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# MEMO

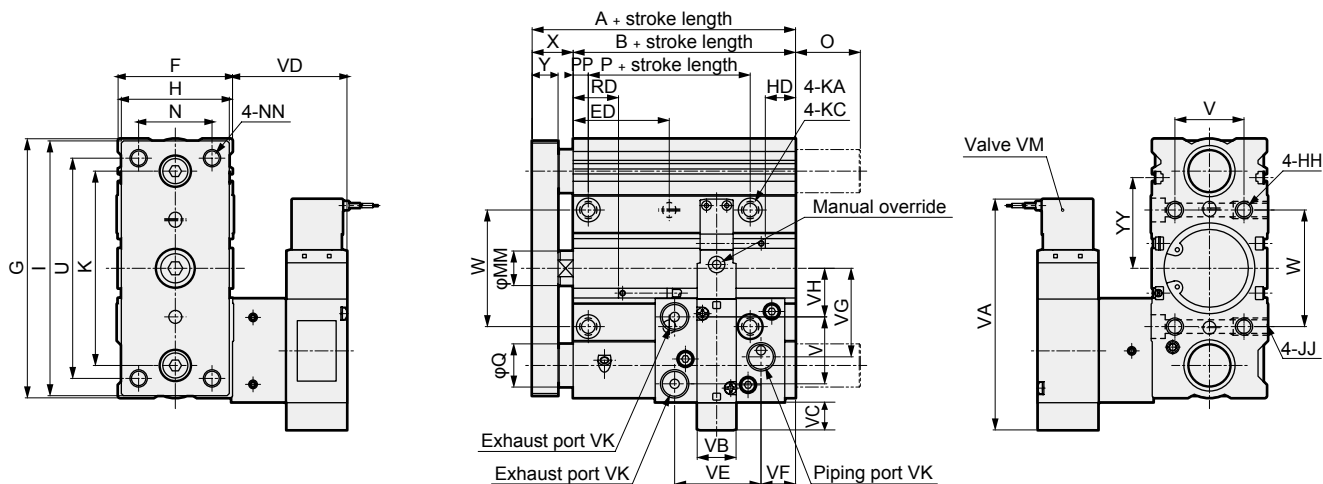
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|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |



## Dimensions

● With valve on front



\*1: When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

\*2: Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

| Code           | A  | B  | ED                                      | F  | G   | H  | HH           | I   | JJ           | K   | KA          | KC                      | MM | N  | NN          | O   |     | P  |
|----------------|----|----|-----------------------------------------|----|-----|----|--------------|-----|--------------|-----|-------------|-------------------------|----|----|-------------|-----|-----|----|
| Bore size (mm) |    |    |                                         |    |     |    |              |     |              |     |             |                         |    |    |             | STS | STL |    |
| φ20            | 53 | 40 | 14 + $\frac{\text{Stroke length}}{2}$   | 38 | 83  | 36 | M6 depth 12  | 81  | M6 depth 12  | 59  | 5.2 through | 9.5 spot face depth 5.4 | 10 | 24 | M6 through  | 0   | 18  | 20 |
| φ25            | 54 | 41 | 14.5 + $\frac{\text{Stroke length}}{2}$ | 42 | 86  | 38 | M6 depth 12  | 84  | M6 depth 12  | 63  | 5.2 through | 9.5 spot face depth 5.4 | 12 | 26 | M6 through  | 0   | 17  | 20 |
| φ32            | 68 | 49 | 17.5 + $\frac{\text{Stroke length}}{2}$ | 47 | 111 | 45 | M8 depth 16  | 109 | M8 depth 16  | 81  | 6.3 through | 11 spot face depth 6.5  | 16 | 29 | M8 through  | 0   | 34  | 22 |
| φ40            | 72 | 53 | 19.5 + $\frac{\text{Stroke length}}{2}$ | 54 | 120 | 50 | M8 depth 16  | 118 | M8 depth 16  | 90  | 6.3 through | 11 spot face depth 6.5  | 16 | 34 | M8 through  | 0   | 30  | 25 |
| φ50            | 77 | 55 | 19.5 + $\frac{\text{Stroke length}}{2}$ | 66 | 147 | 64 | M10 depth 20 | 145 | M10 depth 20 | 110 | 8.6 through | 14 spot face depth 8.6  | 20 | 44 | M10 through | 0   | 48  | 26 |
| φ63            | 83 | 61 | 22.5 + $\frac{\text{Stroke length}}{2}$ | 79 | 162 | 75 | M10 depth 20 | 160 | M10 depth 20 | 124 | 8.6 through | 14 spot face depth 8.6  | 20 | 55 | M10 through | 0   | 42  | 26 |

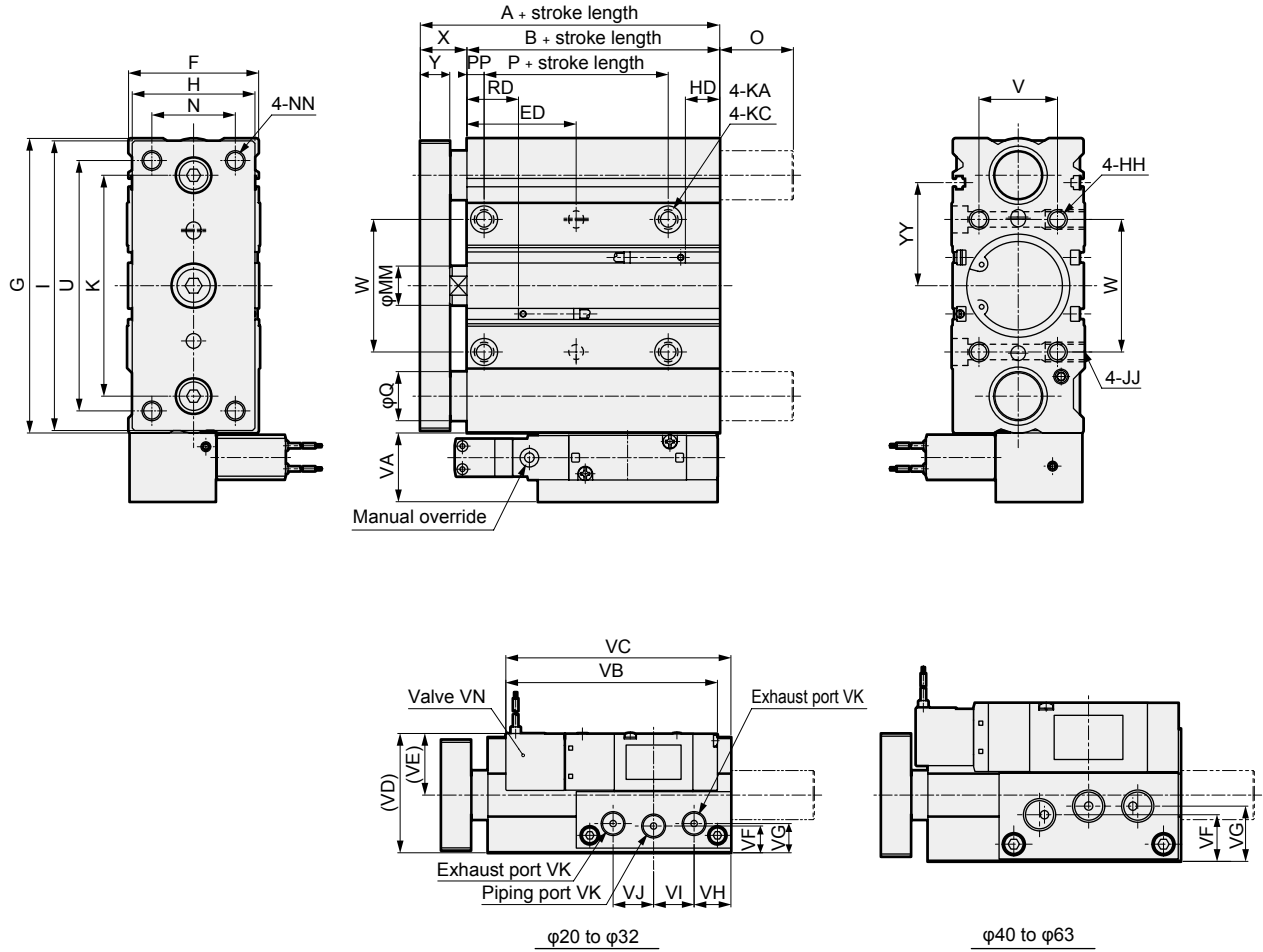
  

| Code           | PP | Q      |        | U   | V  | W  | X                 | Y  | YY | VA  | VB | VC  | VD   | VE   | VF   | VG   | VH   | VI | VK    | VM          | T0/T5/T2/T3 |      | T2W/T3W |      |
|----------------|----|--------|--------|-----|----|----|-------------------|----|----|-----|----|-----|------|------|------|------|------|----|-------|-------------|-------------|------|---------|------|
| Bore size (mm) |    | M type | B type |     |    |    |                   |    |    |     |    |     |      |      |      |      |      |    |       |             | RD          | HD   | RD      | HD   |
| φ20            | 6  | 14     | 12     | 69  | 20 | 31 | 13 $\frac{0}{-2}$ | 9  | 25 | 86  | 15 | 8.5 | 42.5 | 35.5 | 9.5  | 29.5 | 13   | 22 | Rc1/8 | 4KB1 Series | 12          | 9    | 12.5    | 12.5 |
| φ25            | 6  | 14     | 12     | 72  | 24 | 35 | 13 $\frac{0}{-2}$ | 9  | 27 | 86  | 15 | 8   | 42.5 | 35.5 | 10.5 | 30.5 | 14   | 22 | Rc1/8 | 4KB1 Series | 13          | 9    | 14.5    | 11   |
| φ32            | 7  | 20     | 16     | 93  | 25 | 45 | 19 $\frac{0}{-2}$ | 12 | 39 | 86  | 15 | 4   | 42.5 | 37.5 | 15.5 | 39   | 20.5 | 26 | Rc1/8 | 4KB1 Series | 17.5        | 13.5 | 19      | 15   |
| φ40            | 7  | 20     | 16     | 102 | 32 | 54 | 19 $\frac{0}{-2}$ | 12 | 42 | 107 | 18 | 15  | 52.5 | 40   | 16   | 41   | 22.5 | 31 | Rc1/4 | 4KB2 Series | 21          | 14   | 22.5    | 16   |
| φ50            | 8  | 25     | 20     | 125 | 38 | 66 | 22 $\frac{0}{-2}$ | 16 | 45 | 107 | 18 | 9   | 52.5 | 41   | 17   | 49   | 43   | 21 | Rc1/4 | 4KB2 Series | 22          | 16   | 23.5    | 16.5 |
| φ63            | 8  | 25     | 20     | 140 | 50 | 79 | 22 $\frac{0}{-2}$ | 16 | 52 | 107 | 18 | 8   | 52.5 | 41   | 23   | 55.5 | 49.5 | 21 | Rc1/4 | 4KB2 Series | 20          | 23   | 21.5    | 24.5 |

## Dimensions



● With valve on side



\*1: When using a custom stroke length, the dimensions are the same as the longer standard stroke length.

\*2: Refer to pages 548 and 549 for RD, HD and protruding dimensions of the 2-color display (except for T2WH/V and T3WH/V), off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

| Code           | A  | B  | ED    |   |                                  | F  | G   | H  | HH           |     | I            | JJ  |             | K                       | KA |    | KC          |   | MM | N  | NN |  | O   |     | P |
|----------------|----|----|-------|---|----------------------------------|----|-----|----|--------------|-----|--------------|-----|-------------|-------------------------|----|----|-------------|---|----|----|----|--|-----|-----|---|
| Bore size (mm) |    |    |       |   |                                  |    |     |    |              |     |              |     |             |                         |    |    |             |   |    |    |    |  | STS | STL |   |
| φ20            | 53 | 40 | 14    | + | $\frac{\text{Stroke length}}{2}$ | 38 | 83  | 36 | M6 depth 12  | 81  | M6 depth 12  | 59  | 5.2 through | 9.5 spot face depth 5.4 | 10 | 24 | M6 through  | 0 | 18 | 20 |    |  |     |     |   |
| φ25            | 54 | 41 | 14.5+ |   | $\frac{\text{Stroke length}}{2}$ | 42 | 86  | 38 | M6 depth 12  | 84  | M6 depth 12  | 63  | 5.2 through | 9.5 spot face depth 5.4 | 12 | 26 | M6 through  | 0 | 17 | 20 |    |  |     |     |   |
| φ32            | 68 | 49 | 17.5+ |   | $\frac{\text{Stroke length}}{2}$ | 47 | 111 | 45 | M8 depth 16  | 109 | M8 depth 16  | 81  | 6.3 through | 11 spot face depth 6.5  | 16 | 29 | M8 through  | 0 | 34 | 22 |    |  |     |     |   |
| φ40            | 72 | 53 | 19.5+ |   | $\frac{\text{Stroke length}}{2}$ | 54 | 120 | 50 | M8 depth 16  | 118 | M8 depth 16  | 90  | 6.3 through | 11 spot face depth 6.5  | 16 | 34 | M8 through  | 0 | 30 | 25 |    |  |     |     |   |
| φ50            | 77 | 55 | 19.5+ |   | $\frac{\text{Stroke length}}{2}$ | 66 | 147 | 64 | M10 depth 20 | 145 | M10 depth 20 | 110 | 8.6 through | 14 spot face depth 8.6  | 20 | 44 | M10 through | 0 | 48 | 26 |    |  |     |     |   |
| φ63            | 83 | 61 | 22.5+ |   | $\frac{\text{Stroke length}}{2}$ | 79 | 162 | 75 | M10 depth 20 | 160 | M10 depth 20 | 124 | 8.6 through | 14 spot face depth 8.6  | 20 | 55 | M10 through | 0 | 42 | 26 |    |  |     |     |   |

| Code           | PP | Q      |        | U   | V  | W  | X                 | Y  | YY | VA | VB  | VC  | VD   | VE   | VF   | VG   | VH   | VI   | VJ   | VK    | VN          |      | T0/T5/T2/T3 |      | T2W/T3W |    |
|----------------|----|--------|--------|-----|----|----|-------------------|----|----|----|-----|-----|------|------|------|------|------|------|------|-------|-------------|------|-------------|------|---------|----|
| Bore size (mm) |    | M type | B type |     |    |    |                   |    |    |    |     |     |      |      |      |      |      |      |      |       |             |      | RD          | HD   | RD      | HD |
| φ20            | 6  | 14     | 12     | 69  | 20 | 31 | 13 $\frac{0}{-2}$ | 9  | 25 | 23 | 86  | 92  | 47.5 | 28.5 | 10   | 11   | 15   | 16.5 | 16.5 | Rc1/8 | 4KB1 Series | 12   | 9           | 12.5 | 12.5    |    |
| φ25            | 6  | 14     | 12     | 72  | 24 | 35 | 13 $\frac{0}{-2}$ | 9  | 27 | 23 | 86  | 92  | 49.5 | 28.5 | 12   | 13   | 15   | 16.5 | 16.5 | Rc1/8 | 4KB1 Series | 13   | 9           | 14.5 | 11      |    |
| φ32            | 7  | 20     | 16     | 93  | 25 | 45 | 19 $\frac{0}{-2}$ | 12 | 39 | 23 | 86  | 92  | 48.5 | 25   | 11   | 12   | 15   | 16.5 | 16.5 | Rc1/8 | 4KB1 Series | 17.5 | 13.5        | 19   | 15      |    |
| φ40            | 7  | 20     | 16     | 102 | 32 | 54 | 19 $\frac{0}{-2}$ | 12 | 42 | 28 | 107 | 108 | 64.5 | 37.5 | 19   | 22.5 | 17.5 | 20   | 20   | Rc1/4 | 4KB2 Series | 21   | 14          | 22.5 | 16      |    |
| φ50            | 8  | 25     | 20     | 125 | 38 | 66 | 22 $\frac{0}{-2}$ | 16 | 45 | 28 | 107 | 108 | 66.5 | 33.5 | 21   | 24.5 | 17.5 | 20   | 20   | Rc1/4 | 4KB2 Series | 22   | 16          | 23.5 | 16.5    |    |
| φ63            | 8  | 25     | 20     | 140 | 50 | 79 | 22 $\frac{0}{-2}$ | 16 | 52 | 28 | 107 | 108 | 68   | 28.5 | 22.5 | 26   | 17   | 20   | 20   | Rc1/4 | 4KB2 Series | 20   | 23          | 21.5 | 24.5    |    |

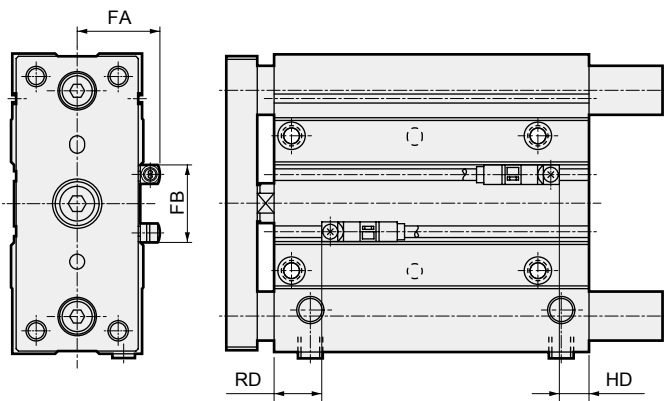
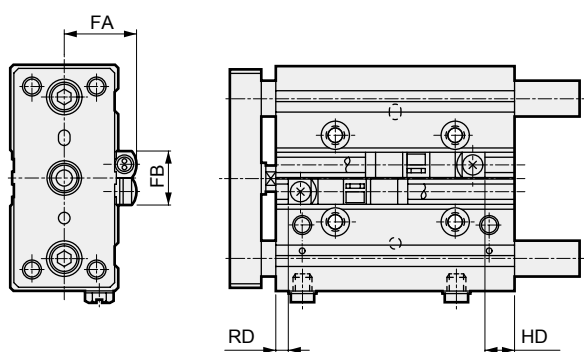
|             |
|-------------|
| LCW         |
| LCR         |
| LCG         |
| LCX         |
| LCM         |
| STM         |
| STG         |
| STS/STL     |
| STR2        |
| UCA2        |
| ULK*        |
| JSK/M2      |
| JSG         |
| JSC3/JSC4   |
| USSD        |
| UFCD        |
| USC         |
| JSB3        |
| LMB         |
| LML         |
| HCM         |
| HCA         |
| LBC         |
| CAC4        |
| UCAC2       |
| CAC-N       |
| UCAC-N      |
| RCC2        |
| RCS         |
| PCC         |
| SHC         |
| MCP         |
| GLC         |
| MFC         |
| BBS         |
| RRC         |
| GRC         |
| RV3*        |
| NHS         |
| HR          |
| LN          |
| Hand        |
| Chuk        |
| MecHnd/Chuk |
| ShkAbs      |
| FJ          |
| FK          |
| SpdContr    |
| Ending      |

# STS/STL Series

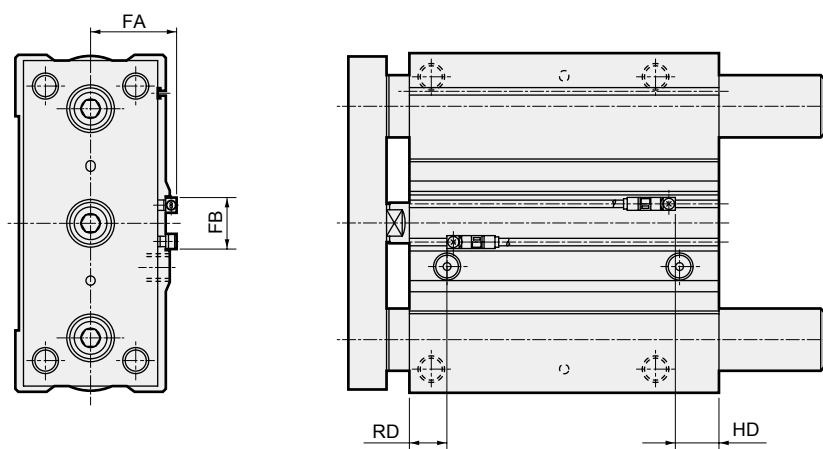
## STS/STL Series common/dimensions: 2-color display, off-delay, T8H/V switch mounting method

● Bore size:  $\phi 8$  to  $\phi 16$

● Bore size:  $\phi 20$  to  $\phi 63$



● Bore size:  $\phi 80$



### STS/STL (standard)

| Code<br>Bore size (mm) | FA   | FB | T*YH/V, T2JH/V |      | T8H/V |      |
|------------------------|------|----|----------------|------|-------|------|
|                        |      |    | RD             | HD   | RD    | HD   |
| $\phi 8$               | 17.6 | 16 | 5.5            | 1.5  | -     | -    |
| $\phi 12$              | 18.8 | 16 | 4              | 7.5  | -     | -    |
| $\phi 16$              | 20.8 | 16 | 3.5            | 8.5  | -     | -    |
| $\phi 20$              | 24.3 | 16 | 9.5            | 8    | 5     | 3.5  |
| $\phi 25$              | 26.3 | 17 | 11.5           | 7.5  | 7     | 3    |
| $\phi 32$              | 28.8 | 24 | 16             | 12   | 11.5  | 7.5  |
| $\phi 40$              | 32.3 | 31 | 19.5           | 12.5 | 15    | 8    |
| $\phi 50$              | 38.3 | 32 | 21.5           | 13.5 | 16    | 10   |
| $\phi 63$              | 44.8 | 32 | 18.5           | 21.5 | 14    | 17   |
| $\phi 80$              | 55.3 | 32 | 25             | 33   | 20.5  | 24.5 |
| $\phi 100$             | 65   | 32 | 24             | 34   | 19    | 29   |

### STS/STL-Q-R (rod side position locking)

| Code<br>Bore size (mm) | FA   | FB | RD   | HD   |
|------------------------|------|----|------|------|
| $\phi 20$              | 24.3 | 16 | 34.5 | 8    |
| $\phi 25$              | 26.3 | 17 | 36.5 | 7.5  |
| $\phi 32$              | 28.8 | 24 | 41   | 12   |
| $\phi 40$              | 32.3 | 31 | 69.5 | 13   |
| $\phi 50$              | 38.3 | 32 | 71.5 | 13.5 |
| $\phi 63$              | 44.8 | 32 | 68.5 | 21.5 |
| $\phi 80$              | 55.3 | 32 | 100  | 33   |

\*1: T8H/V switch cannot be installed.

### STS/STL-Q-H (head side position locking)

| Code<br>Bore size (mm) | FA   | FB | RD   | HD   |
|------------------------|------|----|------|------|
| $\phi 20$              | 24.3 | 16 | 9.5  | 33   |
| $\phi 25$              | 26.3 | 17 | 11.5 | 32.5 |
| $\phi 32$              | 28.8 | 24 | 16   | 37   |
| $\phi 40$              | 32.3 | 31 | 19.5 | 63   |
| $\phi 50$              | 38.3 | 32 | 21.5 | 63.5 |
| $\phi 63$              | 44.8 | 32 | 18.5 | 71.5 |
| $\phi 80$              | 55.3 | 32 | 25   | 108  |

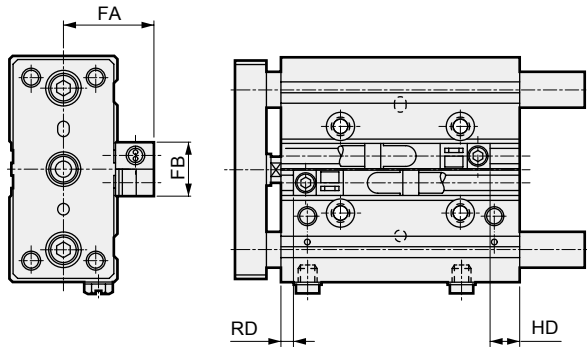
\*1: T8H/V switch cannot be installed.

### STS/STL-C (air-cushioned)

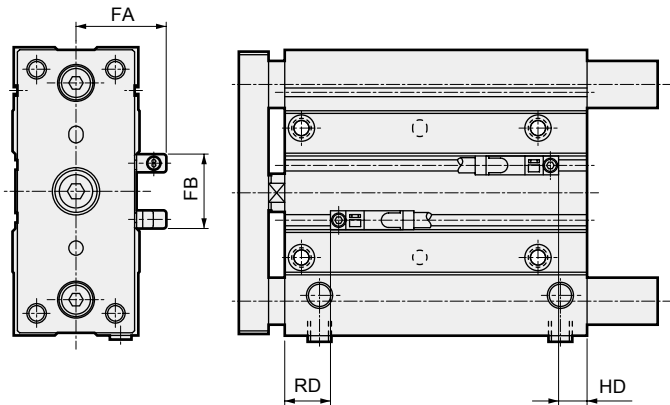
| Code<br>Bore size (mm) | FA   | FB | T*YH/V, T2JH/V |      | T8H/V |      |
|------------------------|------|----|----------------|------|-------|------|
|                        |      |    | RD             | HD   | RD    | HD   |
| $\phi 25$              | 26.3 | 17 | 26.5           | 17.5 | 20.5  | 11.5 |
| $\phi 32$              | 28.8 | 24 | 33             | 20   | 27    | 14   |
| $\phi 40$              | 32.3 | 31 | 36.5           | 21   | 30.5  | 15   |
| $\phi 50$              | 38.3 | 32 | 37             | 22   | 31    | 16   |
| $\phi 63$              | 44.8 | 32 | 42.5           | 24.5 | 36.5  | 18.5 |
| $\phi 80$              | 55.3 | 32 | 59             | 49   | 53    | 43   |

### STS/STL Series common dimensions: AC magnetic field, T1H/V switch installation dimensions

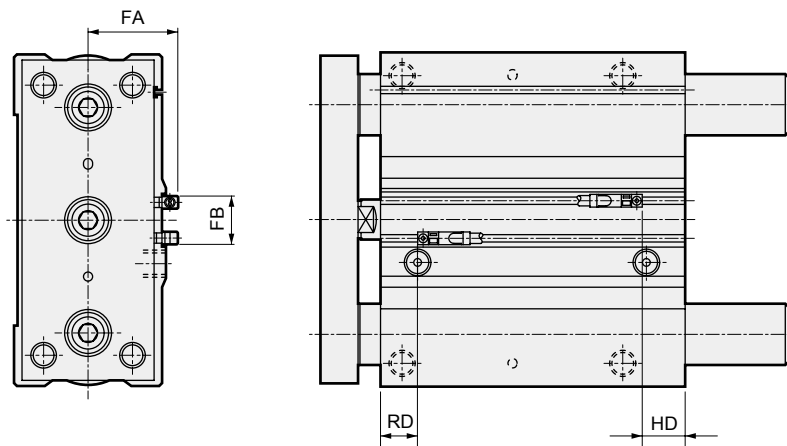
● Bore size:  $\phi 8$  to  $\phi 16$



● Bore size:  $\phi 20$  to  $\phi 63$



● Bore size:  $\phi 80$



#### STS/STL (standard)

| Code<br>Bore size (mm) | FA   | FB | RD   | HD   |
|------------------------|------|----|------|------|
| $\phi 8$               | 22.6 | 16 | 5.5  | 1.5  |
| $\phi 12$              | 23.8 | 16 | 4    | 7.5  |
| $\phi 16$              | 25.8 | 16 | 3.5  | 8.5  |
| $\phi 20$              | 29.3 | 16 | 9.5  | 8    |
| $\phi 25$              | 31.3 | 17 | 11.5 | 7.5  |
| $\phi 32$              | 33.8 | 24 | 16   | 12   |
| $\phi 40$              | 37.3 | 31 | 19.5 | 12.5 |
| $\phi 50$              | 43.3 | 32 | 21.5 | 13.5 |
| $\phi 63$              | 49.8 | 32 | 18.5 | 21.5 |
| $\phi 80$              | 60.3 | 32 | 25   | 29.5 |
| $\phi 100$             | 70.9 | 32 | 24   | 34   |

#### STS/STL-Q-R (rod side position locking)

| Code<br>Bore size (mm) | FA   | FB | RD   | HD   |
|------------------------|------|----|------|------|
| $\phi 20$              | 29.3 | 16 | 34.5 | 8    |
| $\phi 25$              | 31.3 | 17 | 36.5 | 7.5  |
| $\phi 32$              | 33.8 | 24 | 41   | 12   |
| $\phi 40$              | 37.3 | 31 | 69.5 | 13   |
| $\phi 50$              | 43.3 | 32 | 71.5 | 13.5 |
| $\phi 63$              | 49.8 | 32 | 68.5 | 21.5 |
| $\phi 80$              | 60.3 | 32 | 100  | 33   |

#### STS/STL-Q-H (head side position locking)

| Code<br>Bore size (mm) | FA   | FB | RD   | HD   |
|------------------------|------|----|------|------|
| $\phi 20$              | 29.3 | 16 | 9.5  | 33   |
| $\phi 25$              | 31.3 | 17 | 11.5 | 32.5 |
| $\phi 32$              | 33.8 | 24 | 16   | 37   |
| $\phi 40$              | 37.3 | 31 | 19.5 | 63   |
| $\phi 50$              | 43.3 | 32 | 21.5 | 63.5 |
| $\phi 63$              | 49.8 | 32 | 18.5 | 71.5 |
| $\phi 80$              | 60.3 | 32 | 25   | 108  |

#### STS/STL-C (air cushion)

| Code<br>Bore size (mm) | FA   | FB | RD   | HD   |
|------------------------|------|----|------|------|
| $\phi 25$              | 31.3 | 17 | 26.5 | 17.5 |
| $\phi 32$              | 33.8 | 24 | 33   | 20   |
| $\phi 40$              | 37.3 | 31 | 36.5 | 21   |
| $\phi 50$              | 43.3 | 32 | 37   | 22   |
| $\phi 63$              | 49.8 | 32 | 42.5 | 24.5 |
| $\phi 80$              | 60.3 | 32 | 59   | 49   |

LCW  
LCR  
LCG  
LCX  
LCM  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCC2  
RCS  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HR  
LN  
Hand  
Chuk  
MecHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending