

Linear slide cylinder Double acting/single rod

# LCR Series

● Bore size:  $\phi 6/\phi 8/\phi 12/\phi 16/\phi 20/\phi 25$



## Structure and material restriction

|           | Structure         | Model No.  |
|-----------|-------------------|------------|
| P7 Series | Exhaust treatment | <b>P72</b> |
|           | Vacuum treatment  | <b>P73</b> |

## Specifications

| Descriptions                |                | LCR-P7*                       |          |           |           |           |           |
|-----------------------------|----------------|-------------------------------|----------|-----------|-----------|-----------|-----------|
| Bore size                   | mm             | $\phi 6$                      | $\phi 8$ | $\phi 12$ | $\phi 16$ | $\phi 20$ | $\phi 25$ |
| Actuation                   |                | Double acting                 |          |           |           |           |           |
| Working fluid               |                | Compressed air                |          |           |           |           |           |
| Max. working pressure       | MPa            | 0.7                           |          |           |           |           |           |
| Min. working pressure       | MPa            | 0.15 (*2)                     |          |           |           |           |           |
| Proof pressure              | MPa            | 1.05                          |          |           |           |           |           |
| Ambient temperature         | °C             | -10 to 60 ( no freezing)      |          |           |           |           |           |
| Port size                   | Main body side | M3                            | M5       |           |           | Rc1/8     |           |
|                             | Main body rear | -                             | M3       |           |           | M5        | Rc1/8     |
| Port size (relief port)     |                | M3                            | M5       |           |           | Rc1/8     |           |
| Stroke tolerance            | mm             | +2.0<br>0 (*1)                |          |           |           |           |           |
| Working piston speed        | mm/s           | 50 to 500 (*3)                |          |           |           |           |           |
| Cushion                     |                | With rubber cushion           |          |           |           |           |           |
| Lubrication                 |                | Not available                 |          |           |           |           |           |
| Allowable energy absorption | J              | Refer to table 3 on page 132. |          |           |           |           |           |

\*1: Note that there will be a slight gap between the end plate and floating bush if no stopper is attached.

\*2: The stroke adjusting stopper for 0.3MPa and over working pressure is the metal sealing type.

\*3: Keep within 50 to 200 mm/s when using a stroke adjusting stopper.

## Stroke

| Bore size (mm) | Standard stroke (mm)                  |
|----------------|---------------------------------------|
| $\phi 6$       | 10, 20, 30, 40, 50                    |
| $\phi 8$       | 10, 20, 30, 40, 50, 75                |
| $\phi 12$      | 10, 20, 30, 40, 50, 75, 100           |
| $\phi 16$      | 10, 20, 30, 40, 50, 75, 100, 125      |
| $\phi 20$      | 10, 20, 30, 40, 50, 75, 100, 125, 150 |
| $\phi 25$      | 10, 20, 30, 40, 50, 75, 100, 125, 150 |

Note: The stroke other than above is not available.

## Theoretical thrust table

Refer to page 133.

### Switch specifications

- 1-color/2-color display

| Descriptions         | Reed 2-wire                    |            |   |               | Proximity 2-wire        |                             | Proximity 3-wire               |                          |                             |
|----------------------|--------------------------------|------------|---|---------------|-------------------------|-----------------------------|--------------------------------|--------------------------|-----------------------------|
|                      | T0H/T0V                        |            | T5H/T5V   |               | T2H/T2V                 | T2WH/<br>T2WV               | T3H/T3V                        | T3PH/<br>T3PV            | T3WH/<br>T3WV               |
| Applications         | Programmable controller, relay |            | Programmable controller, relay IC circuit (without indicator lamp), serial connection |               | Programmable controller |                             | Programmable controller, relay |                          |                             |
| Output method        | -                              |            | -   |               | -                       |                             | NPN output                     | PNP output               | NPN output                  |
| Power supply voltage | -                              |            | -   |               | -                       |                             | 10 to 28 VDC                   |                          |                             |
| Load voltage         | 12/24 VDC                      | 110 VAC    | 5/12/24 VDC   | 110 VAC       | 10 to 30 VDC            | 24 VDC ±10%                 | 30 VDC or less                 |                          |                             |
| Load current         | 5 to 50 mA                     | 7 to 20 mA | 50 mA or less   | 20 mA or less | 5 to 20 mA              |                             | 100 mA or less                 |                          | 50 mA or less               |
| Indicator lamp       | LED (Lit when ON)              |            | Without indicator lamp  |               | LED (Lit when ON)       | Red/green LED (Lit when ON) | LED (Lit when ON)              | Yellow LED (Lit when ON) | Red/green LED (Lit when ON) |
| Leakage current      | 0 mA                           |            |   |               | 1 mA or less            |                             | 10 µA or less                  |                          |                             |
| Weight               | g                              |            |   |               | 1 m: 18 3 m: 49 5 m: 80 |                             |                                |                          |                             |

| Descriptions         | Proximity 2-wire        |  | Proximity 3-wire               |  | Proximity 2-wire        |                             | Proximity 3-wire               |                             |                             |
|----------------------|-------------------------|--|--------------------------------|--|-------------------------|-----------------------------|--------------------------------|-----------------------------|-----------------------------|
|                      | F2S                     |  | F3S                            |  | F2H/F2V                 | F2YH/<br>F2YV               | F3H/F3V                        | F3PH/F3PV<br>(custom order) | F3YH/<br>F3YV               |
| Applications         | Programmable controller |  | Programmable controller, relay |  | Programmable controller |                             | Programmable controller, relay |                             |                             |
| Output method        | -                       |  | NPN output                     |  | -                       |                             | NPN output                     | PNP output                  | NPN output                  |
| Power supply voltage | -                       |  | 10 to 28 VDC                   |  | -                       |                             | 10 to 28 VDC                   | 4.5 to 28 VDC               | 10 to 28 VDC                |
| Load voltage         | 10 to 30 VDC            |  | 30 VDC or less                 |  | 10 to 30 VDC            | 24 VDC ±10%                 | 30 VDC or less                 |                             |                             |
| Load current         | 5 to 20 mA              |  | 50 mA or less                  |  | 5 to 20 mA (*2)         |                             | 100 mA or less                 | 50 mA or less               |                             |
| Indicator lamp       | Red LED (Lit when ON)   |  |                                |  | LED (Lit when ON)       | Red/green LED (Lit when ON) | LED (Lit when ON)              | Yellow LED (Lit when ON)    | Red/green LED (Lit when ON) |
| Leakage current      | 1 mA or less            |  | 10 µA or less                  |  | 1 mA or less            |                             | 10 µA or less                  |                             |                             |
| Weight               | g                       |  | 1 m: 10 3 m: 29                |  |                         |                             |                                |                             |                             |

\*1: Refer to page 309 for detailed switch specifications and dimensions.

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

\*3: The F type switch uses a bend-resistant lead wire.

### Cylinder weight

- Clean room specifications

(Unit: g)

| Bore size (mm) | Fine speed stroke (mm) |       |       |       |       |       |       |       |       |
|----------------|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
|                | 10                     | 20    | 30    | 40    | 50    | 75    | 100   | 125   | 150   |
| ø6             | 130                    | 130   | 150   | 180   | 200   | -     | -     | -     | -     |
| ø8             | 220                    | 220   | 240   | 290   | 320   | 380   | -     | -     | -     |
| ø12            | 400                    | 410   | 410   | 450   | 480   | 610   | 700   | -     | -     |
| ø16            | 620                    | 630   | 630   | 680   | 740   | 970   | 1,100 | 1,240 | -     |
| ø20            | 1,160                  | 1,170 | 1,180 | 1,260 | 1,350 | 1,650 | 1,860 | 2,070 | 2,280 |
| ø25            | 2,010                  | 2,030 | 2,040 | 2,150 | 2,250 | 2,740 | 3,010 | 3,280 | 3,550 |

- Weight of variation/option (stopper)

(Unit: g)

| Bore size (mm) | Option/stopper Code |       |
|----------------|---------------------|-------|
|                | S1 to S4            | S5/S6 |
| ø6             | 30                  | 40    |
| ø8             | 40                  | 60    |
| ø12            | 70                  | 100   |
| ø16            | 110                 | 150   |
| ø20            | 170                 | 250   |
| ø25            | 290                 | 380   |

# LCR Series

- SCPD3
- SCM
- SSD2
- MDC2
- SMG
- LCM
- LCR**
- LCG
- LCX
- STM
- STG
- STR2
- MRL2
- GRC
- Cylinder switch
- MN3E  
MN4E
- 4GA/B
- M4GA/B
- MN4GA/B
- F.R (module unit)
- Clean F.R
- Precision R
- Press gauge  
Diff. press gauge
- Electro-pneumatic R
- Speed controller
- Auxiliary valve
- Fitting/tube
- Clean air unit
- Pressure sensor
- Flow rate sensor
- Valve for air blow
- Ending

## How to order

Without switch (Magnet for switch incorporated)

**LCR - 8 - 40** ————— **S506 DT P72**

With switch (Magnet for switch incorporated)

**LCR - 12 - 40 - F2H\* - R** ————— **S506 DT P72**

Model No.

**A** Bore size

**B** Stroke

**C** Switch model No.

**G** Clean room specifications

**D** Switch quantity

**E** Stopper

**F** Option

### ⚠ Precautions for model No. selection

- \*1: For the port position, refer to the stopper dimensions on page 126.
- \*2: The port positions of the standard without stopper are (1) and (3) in the figure below.
- \*3: Can be selected for the type with stopper only.
- \*4: When two switches are necessary in the type with S\*\*\* of ø6 to ø8 with 30 mm stroke or less, select the F□H switch.
- \*5: Select when using rear piping.
- \*6: The stroke adjusting stopper for 0.3 MPa and over working pressure is the metal sealing.
- \*7: When changing the stopper position from the head side to the rod side, another discrete stopper may be required to be purchased depending on the stroke or the stroke adjustment amount. For details, please consult our sales staff. For some strokes, the adjustment amount of 15 mm or 25 mm is not allowed.

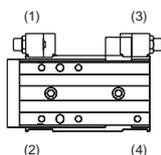
[Example of model No.]

### LCR-12-40-F2H-R-S1DTP72

Model: Linear slide cylinder Double acting/single rod (clean room specifications) LCR-P7\*

- A** Bore size : ø12
- B** Stroke : 40 mm
- C** Switch model No. : Proximity/2 wires/Lead wire 1 m Lead wire straight
- D** Switch quantity: 1 (on rod end)
- E** Stopper : Stroke adjusting stopper Stopper position (1)
- F** Option : Side port on stopper/Bottom port on stopper. Stopper block material: steel (nitriding)
- G** Clean room specifications : Exhaust treatment

● Stopper position



| Code               | Content |
|--------------------|---------|
| <b>A Bore size</b> |         |
| 6                  | ø6      |
| 8                  | ø8      |
| 12                 | ø12     |
| 16                 | ø16     |
| 20                 | ø20     |
| 25                 | ø25     |

|     |     | Bore size (ø) |   |    |    |    |    |
|-----|-----|---------------|---|----|----|----|----|
|     |     | 6             | 8 | 12 | 16 | 20 | 25 |
| 10  | 10  | ●             | ● | ●  | ●  | ●  | ●  |
| 20  | 20  | ●             | ● | ●  | ●  | ●  | ●  |
| 30  | 30  | ●             | ● | ●  | ●  | ●  | ●  |
| 40  | 40  | ●             | ● | ●  | ●  | ●  | ●  |
| 50  | 50  | ●             | ● | ●  | ●  | ●  | ●  |
| 75  | 75  |               | ● | ●  | ●  | ●  | ●  |
| 100 | 100 |               |   | ●  | ●  | ●  | ●  |
| 125 | 125 |               |   |    | ●  | ●  | ●  |
| 150 | 150 |               |   |    |    | ●  | ●  |

| C Switch model No. |                    |           |  |           |                                |    |     |     |     |     |  |
|--------------------|--------------------|-----------|--|-----------|--------------------------------|----|-----|-----|-----|-----|--|
| Lead wire straight | Lead wire L-shaped | Contact   | Display                                  | Lead wire | Bore size                      |    |     |     |     |     |  |
|                    |                    |           |  |           | ø6                             | ø8 | ø12 | ø16 | ø20 | ø25 |  |
| —                  | F2S*               | Proximity | 1-color display                          | 2 wires   |                                |    |     |     |     |     |  |
| —                  | F3S*               |           |  | 3 wires   |                                |    |     |     |     |     |  |
| F2H*               | F2V*               |           |  | 2 wires   |                                |    |     |     |     |     |  |
| F3H*               | F3V*               |           |  | 3 wires   | 1-color display (custom order) | ●  | ●   | ●   |     |     |  |
| F3PH*              | F3PV*              |           |  |           | 2-color display                |    |     |     |     |     |  |
| F2YH*              | F2YV*              |           |  | 2 wires   |                                |    |     |     |     |     |  |
| F3YH*              | F3YV*              | 3 wires   |  |           |                                |    |     |     |     |     |  |
| T0H*               | T0V*               | Reed      | 1-color display (Without indicator lamp) | 2 wires   |                                |    |     |     |     |     |  |
| T5H*               | T5V*               |           | 2 wires                                  |           |                                |    |     |     |     |     |  |
| T2H*               | T2V*               |           | 3 wires                                  |           |                                |    |     |     |     |     |  |
| T3H*               | T3V*               | Proximity | 1-color display (PNP output)             | 3 wires   |                                |    |     | ●   | ●   | ●   |  |
| T3PH*              | T3PV*              |           |  | 2 wires   | 2-color display                |    |     |     |     |     |  |
| T2WH*              | T2WV*              |           |  |           | 3 wires                        |    |     |     |     |     |  |
| T3WH*              | T3WV*              |           |  |           |                                |    |     |     |     |     |  |

| Lead wire length |                | Bore size |  |  |  |  |   |
|------------------|----------------|-----------|--|--|--|--|---|
| Blank            | 1 m (standard) |           |  |  |  |  | ● |
| 3                | 3 m (option)   |           |  |  |  |  | ● |
| 5                | 5 m (option)   |           |  |  |  |  | ● |

| D Switch quantity |                 | Bore size |  |  |  |  |   |
|-------------------|-----------------|-----------|--|--|--|--|---|
| R                 | 1 (on rod end)  |           |  |  |  |  | ● |
| H                 | 1 (on head end) |           |  |  |  |  | ● |
| D                 | 2               |           |  |  |  |  | ● |

| E Stopper |           | Bore size |  |  |  |  |   |
|-----------|-----------|-----------|--|--|--|--|---|
| Blank     | No option |           |  |  |  |  | ● |

| S Stroke adjusting stopper         |  | Bore size                 |  |  |  |  |   |
|------------------------------------|--|---------------------------|--|--|--|--|---|
| 5 mm stroke adjustment on one side |  | *4                        |  |  |  |  |   |
| S1**                               | Stopper position (1) (can be changed to (4)) | Stopper mounting position |  |  |  |  | ● |
| S2**                               | Stopper position (2) (can be changed to (3)) |                           |  |  |  |  | ● |
| S3**                               | Stopper position (3) (can be changed to (2)) |                           |  |  |  |  | ● |
| S4**                               | Stopper position (4) (can be changed to (1)) |                           |  |  |  |  | ● |
| S5**                               | Stopper position (1), (3)                    |                           |  |  |  |  | ● |
| S6**                               | Stopper position (2), (4)                    |                           |  |  |  |  | ● |

| Section ** Adjustable stroke range ● Applies to all. ▲ Applies to some. *3 |               | Bore size     |  |  |  |  |   |
|--|---------------|---------------|--|--|--|--|---|
|  | Extended end  | Return end    |  |  |  |  |   |
| Blank  | 5 mm or none  | 5 mm or none  |  |  |  |  | ● |
| 02   | 15 mm or none | 15 mm or none |  |  |  |  | ● |
| 03   | 25 mm or none | 25 mm or none |  |  |  |  | ● |
| 04   | 15 mm         | 5 mm          |  |  |  |  | ▲ |
| 05   | 25 mm         | 5 mm          |  |  |  |  | ▲ |
| 06   | 5 mm          | 15 mm         |  |  |  |  | ▲ |
| 07   | 5 mm          | 25 mm         |  |  |  |  | ▲ |

| F Option |  | Bore size |  |  |  |  |          |
|----------|--|-----------|--|--|--|--|----------|
| Blank    | Port on the stopper: No port               |           |  |  |  |  | ●        |
| D        | Port on the stopper: Side and bottom ports |           |  |  |  |  | ● *1, *3 |
| Blank    | Stopper block material: steel              |           |  |  |  |  | ●        |
| T        | Stopper block material: steel (nitriding)  |           |  |  |  |  | ● *3     |

| Plug attached |   | Bore size |  |  |  |  |    |
|---------------|---|-----------|--|--|--|--|----|
| Blank         | None  |           |  |  |  |  |    |
| N             | With side piping port plug (not available for ø6 and ø25) |           |  |  |  |  | *5 |

| G Clean room specifications |                   | Structure |  |  |  |  |  |
|-----------------------------|-------------------|-----------|--|--|--|--|--|
| P72                         | Exhaust treatment |           |  |  |  |  |  |
| P73                         | Vacuum treatment  |           |  |  |  |  |  |

### How to select stopper

#### Stopper combination table

Model No. - [(1) (2) stopper] [(3) adjustable stroke range]

Example) LCR-8-40-[S5] [06]-P7\*

Stroke adjusting stopper S

|   |       | Stopper adjusting range |               | Stopper model No. [(1) (2)] |      |      |      |      |      |
|---|-------|-------------------------|---------------|-----------------------------|------|------|------|------|------|
|   |       | Extended end            | Return end    | [S1]                        | [S2] | [S3] | [S4] | [S5] | [S6] |
| Adjustable stroke range model No. [(3)] | Blank | 5 mm or none            | 5 mm or none  |                             |      |      |      |      |      |
|   | [02]  | 15 mm or none           | 15 mm or none |                             |      |      |      |      |      |
|   | [03]  | 25 mm or none           | 25 mm or none |                             |      |      |      |      |      |
|   | [04]  | 15 mm                   | 5 mm          |                             |      |      |      |      |      |
|   | [05]  | 25 mm                   | 5 mm          |                             |      |      |      |      |      |
|   | [06]  | 5 mm                    | 15 mm         |                             |      |      |      |      |      |
|   | [07]  | 5 mm                    | 25 mm         |                             |      |      |      |      |      |

- : Stroke adjusting stopper (adjusting range: 5 mm)
- : Stroke adjusting stopper (adjusting range: 15 mm)
- : Stroke adjusting stopper (adjusting range: 25 mm)

▲ shows the piping direction.

#### Available combination table

| Bore size (mm) |              | Stopper code           |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |    |    |    |       |    |    |    |    |    |    |  |  |  |  |  |  |    |  |  |  |  |  |  |
|----------------|--------------|------------------------|----|----|-------|----|----|-------|----|----|-------|----|----|-------|----|----|-------|----|----|----|----|----|----|-------|----|----|----|----|----|----|--|--|--|--|--|--|----|--|--|--|--|--|--|
|                |              | S1                     |    |    |       |    |    |       | S2 |    |       |    |    |       |    | S3 |       |    |    |    |    |    | S4 |       |    |    |    |    |    | S5 |  |  |  |  |  |  | S6 |  |  |  |  |  |  |
|                |              | Adjustment length code |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |    |    |    |       |    |    |    |    |    |    |  |  |  |  |  |  |    |  |  |  |  |  |  |
|                |              | Blank                  | 02 | 03 | Blank | 02 | 03 | Blank | 02 | 03 | Blank | 02 | 03 | Blank | 02 | 03 | Blank | 02 | 03 | 04 | 05 | 06 | 07 | Blank | 02 | 03 | 04 | 05 | 06 | 07 |  |  |  |  |  |  |    |  |  |  |  |  |  |
| ø6, ø8         | 10st         | ●                      | -  | -  | ●     | -  | -  | ●     | ●  | -  | ●     | ●  | -  | ●     | ●  | -  | ●     | ●  | -  | ●  | ●  | -  | ●  | ●     | -  | ●  | ●  | -  | ●  | ●  |  |  |  |  |  |  |    |  |  |  |  |  |  |
|                | 20st or more | ●                      | ●  | -  | ●     | ●  | -  | ●     | ●  | -  | ●     | ●  | -  | ●     | ●  | -  | ●     | ●  | -  | ●  | ●  | -  | ●  | ●     | -  | ●  | ●  | -  | ●  | ●  |  |  |  |  |  |  |    |  |  |  |  |  |  |
| ø12 to ø25     | 10st         | ●                      | -  | -  | ●     | -  | -  | ●     | ●  | -  | ●     | ●  | -  | ●     | ●  | -  | ●     | ●  | -  | ●  | ●  | -  | ●  | ●     | -  | ●  | ●  | -  | ●  | ●  |  |  |  |  |  |  |    |  |  |  |  |  |  |
|                | 20st         | ●                      | ●  | -  | ●     | ●  | -  | ●     | ●  | -  | ●     | ●  | -  | ●     | ●  | -  | ●     | ●  | -  | ●  | ●  | -  | ●  | ●     | -  | ●  | ●  | -  | ●  | ●  |  |  |  |  |  |  |    |  |  |  |  |  |  |
|                | 30st or more | ●                      | ●  | ●  | ●     | ●  | ●  | ●     | ●  | ●  | ●     | ●  | ●  | ●     | ●  | ●  | ●     | ●  | ●  | ●  | ●  | ●  | ●  | ●     | ●  | ●  | ●  | ●  | ●  | ●  |  |  |  |  |  |  |    |  |  |  |  |  |  |

●: Available -: Unavailable

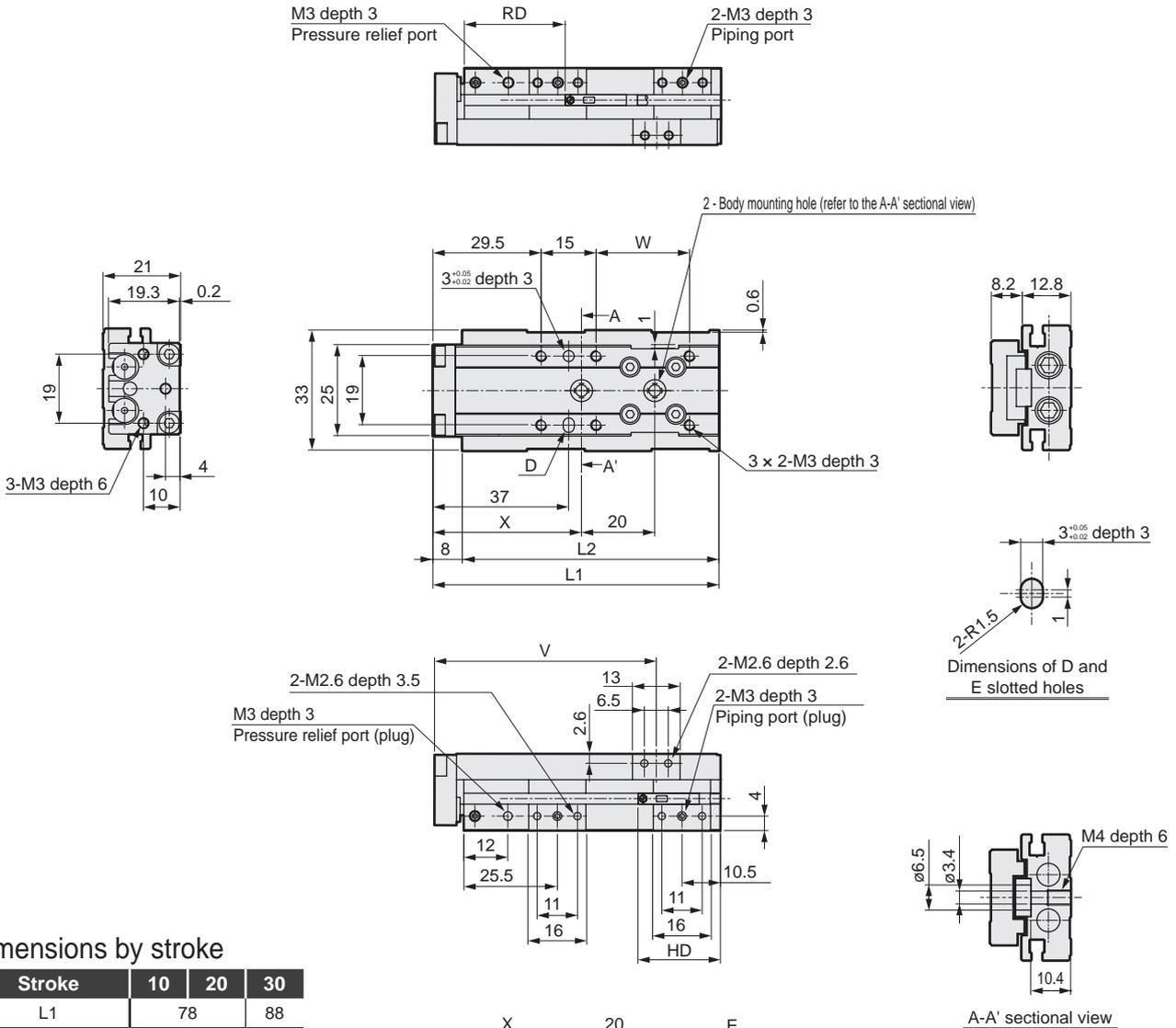
- SCPD3
- SCM
- SSD2
- MDC2
- SMG
- LCM
- LCR**
- LCG
- LCX
- STM
- STG
- STR2
- MRL2
- GRC
- Cylinder Switch
- MN3E MN4E
- 4GA/B
- M4GA/B
- MN4GA/B
- F.R. (module unit)
- Clean F.R
- Precision R
- Press gauge Diff. press gauge
- Electro-pneumatic R
- Speed controller
- Auxiliary valve
- Fitting/tube
- Clean air unit
- Pressure sensor
- Flow rate sensor
- Valve for air blow
- Ending

## Dimensions (bore size: $\phi 6$ )

### ● LCR-6-P7\*

Stroke: 10, 20, 30

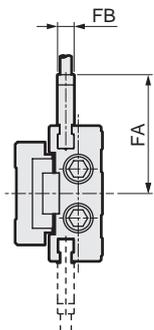
(Body mounting hole in the figure shows 20 mm stroke)



### Dimensions by stroke

| Stroke | 10   | 20   | 30 |
|--------|------|------|----|
| L1     | 78   | 88   |    |
| L2     | 70   | 80   |    |
| V      | 60.5 | 70.5 |    |
| W      | 25.5 | 35.5 |    |
| X      | 40.5 | 38   |    |
| Y      | 45.5 | 43   |    |
| RD     | 27   |      |    |
| HD     | 33   | 23   |    |

### ● Dimensions of projecting section when F2S or F3S cylinder switch is mounted



| Stroke | 10   | 20 | 30 |
|--------|------|----|----|
| FA     | 29.1 |    |    |
| FB     | 4    |    |    |
| RD     | 26   |    |    |
| HD     | 34   | 24 |    |

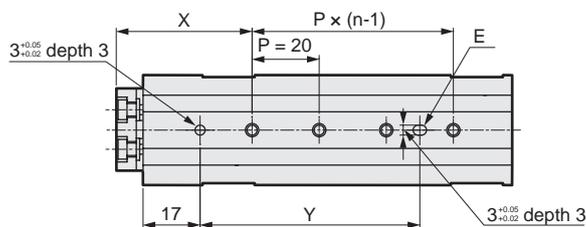
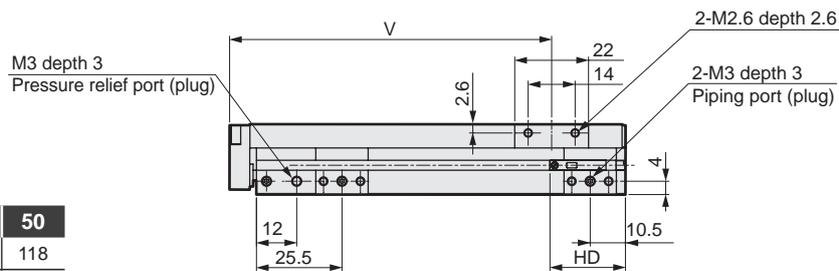
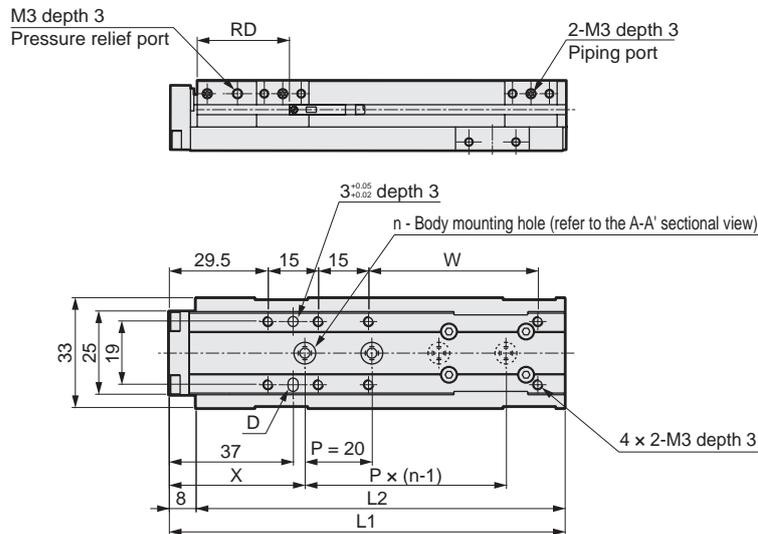
Note 1: When using a positioning hole, use a pin of the dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

### Dimensions (bore size: $\phi 6$ )

● LCR-6-P7\*

Stroke: 40, 50

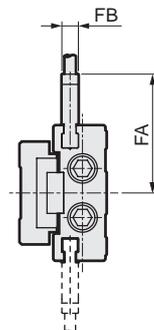
(Mounting holes in the figure indicate when stroke is 50)



#### Dimensions by stroke

| Stroke | 40   | 50   |
|--------|------|------|
| L1     | 108  | 118  |
| L2     | 100  | 110  |
| n      | 3    | 4    |
| V      | 86   | 96   |
| W      | 40.5 | 50.5 |
| X      | 39   | 40.5 |
| Y      | 44   | 65.5 |
| RD     | 27   |      |
| HD     | 23   |      |

● Dimensions of projecting section when F2S or F3S cylinder switch is mounted



| Stroke | 40   | 50 |
|--------|------|----|
| FA     | 29.1 |    |
| FB     | 4    |    |
| RD     | 26   |    |
| HD     | 24   |    |

Note 1: When using a positioning hole, use a pin of the dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

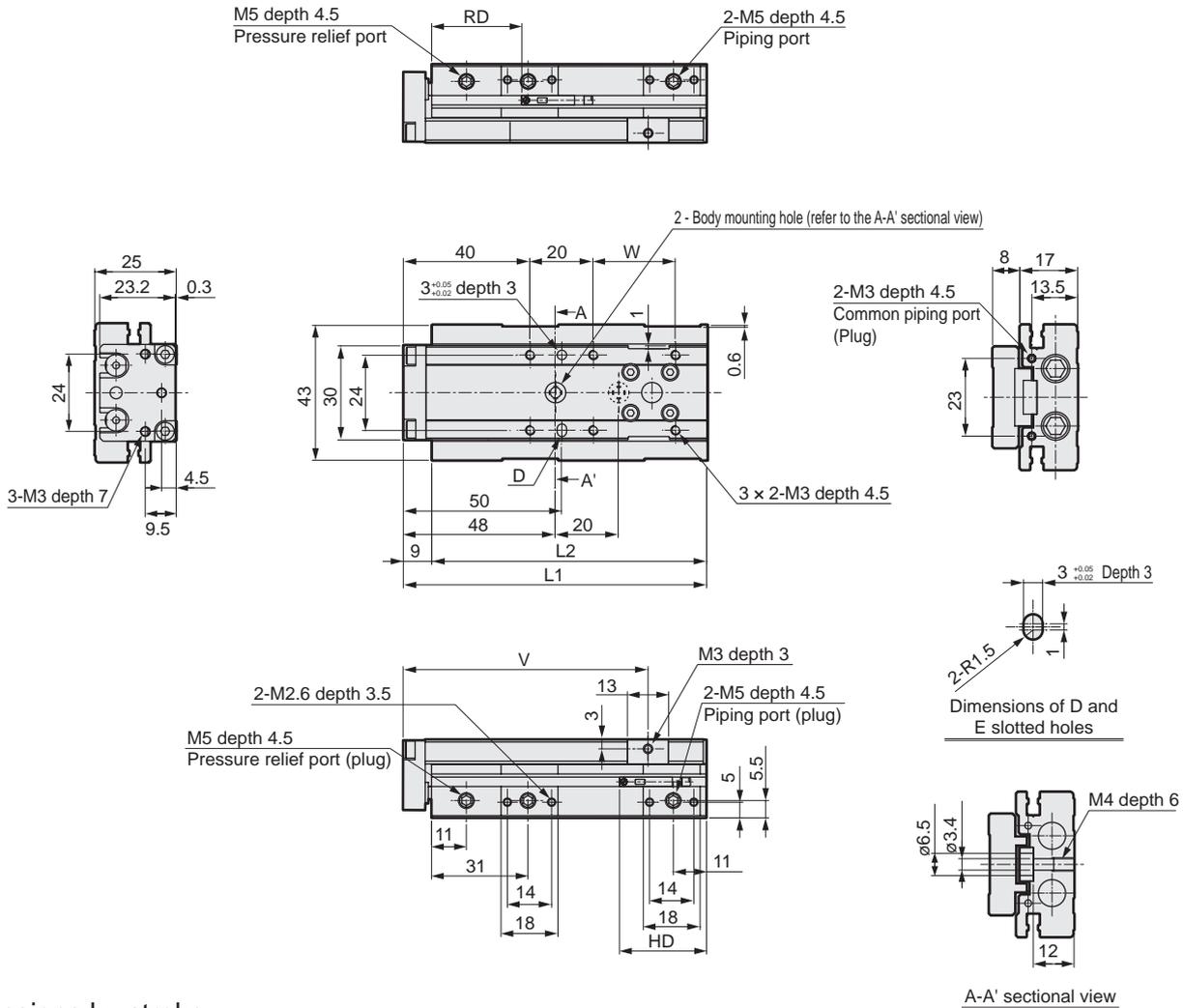
|                                  |
|----------------------------------|
| SCPD3                            |
| SCM                              |
| SSD2                             |
| MDC2                             |
| SMG                              |
| LCM                              |
| <b>LCR</b>                       |
| LCG                              |
| LCX                              |
| STM                              |
| STG                              |
| STR2                             |
| MRL2                             |
| GRC                              |
| Cylinder Switch                  |
| MN3E<br>MN4E                     |
| 4GA/B                            |
| M4GA/B                           |
| MN4GA/B                          |
| F.R. (module unit)               |
| Clean F.R                        |
| Precision R                      |
| Press gauge<br>Diff. press gauge |
| Electro-pneumatic R              |
| Speed controller                 |
| Auxiliary valve                  |
| Fitting/tube                     |
| Clean air unit                   |
| Pressure sensor                  |
| Flow rate sensor                 |
| Valve for air blow               |
| Ending                           |

## Dimensions (bore size: $\varnothing 8$ )

### ● LCR-8-P7\*

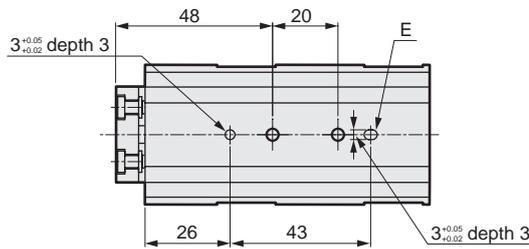
Stroke: 10, 20, 30

(Mounting holes in the figure indicate when stroke is 30)

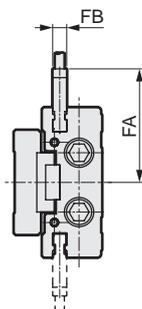


### Dimensions by stroke

| Stroke | 10   | 20   | 30 |
|--------|------|------|----|
| L1     | 86   | 96   |    |
| L2     | 77   | 87   |    |
| V      | 67.5 | 77.5 |    |
| W      | 16   | 26   |    |
| RD     | 33   |      |    |
| HD     | 34   | 24   |    |



### ● Dimensions of projecting section when F2S or F3S cylinder switch is mounted



| Stroke | 10   | 20 | 30 |
|--------|------|----|----|
| FA     | 32.6 |    |    |
| FB     | 4    |    |    |
| RD     | 32   |    |    |
| HD     | 35   | 25 |    |

Note 1: When using a positioning hole, use a pin of the dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

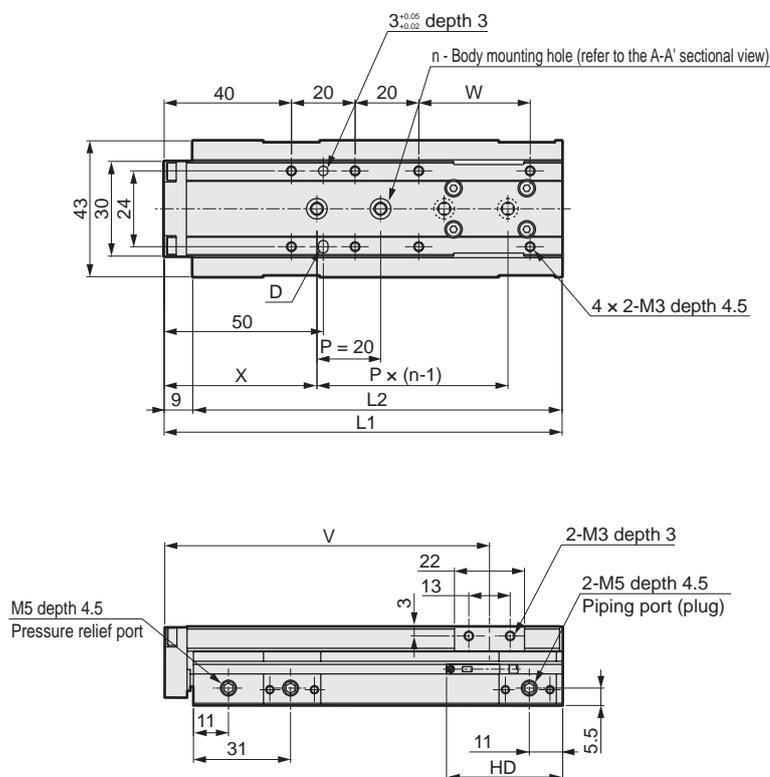
Note 2: When using rear piping, refer to the cautions of (1. Common; when piping) on page 140.

## Dimensions (bore size: ø8)

### ● LCR-8-P7\*

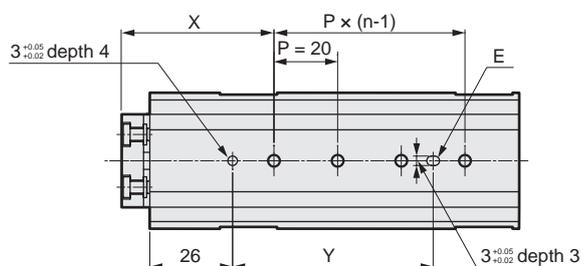
Stroke: 40, 50, 75

(Mounting holes in the figure indicate when stroke is 50)

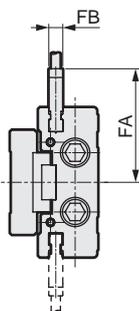


### Dimensions by stroke

| Stroke | 40   | 50  | 75  |
|--------|------|-----|-----|
| L1     | 115  | 125 | 150 |
| L2     | 106  | 116 | 141 |
| n      | 3    | 4   | 5   |
| V      | 92   | 102 | 127 |
| W      | 25   | 35  | 60  |
| X      | 46.5 | 48  | 45  |
| Y      | 41.5 | 63  | 80  |
| RD     | 33   |     |     |
| HD     | 33   |     |     |



### ● Dimensions of projecting section when F2S or F3S cylinder switch is mounted



| Stroke | 40   | 50 | 75 |
|--------|------|----|----|
| FA     | 32.6 |    |    |
| FB     | 4    |    |    |
| RD     | 32   |    |    |
| HD     | 34   |    |    |

Note 1: When using a positioning hole, use a pin of the dimensions that do not require press fitting.

The recommended tolerance of a pin is JIS tolerance m6 or less.

Note 2: When using rear piping, refer to the cautions of [1. Common; when piping](#) on page 140.

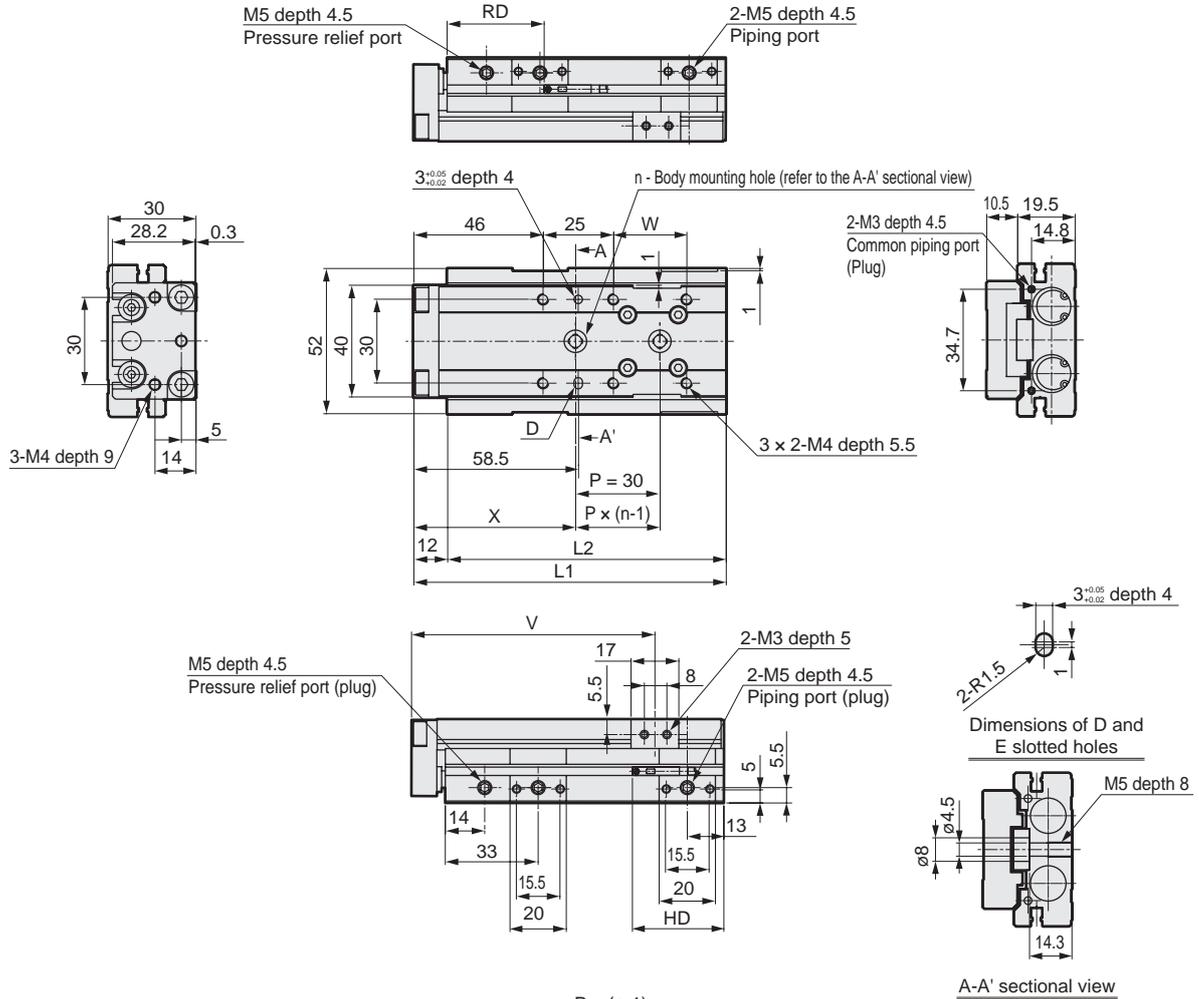
|                                  |
|----------------------------------|
| SCPD3                            |
| SCM                              |
| SSD2                             |
| MDC2                             |
| SMG                              |
| LCM                              |
| <b>LCR</b>                       |
| LCG                              |
| LCX                              |
| STM                              |
| STG                              |
| STR2                             |
| MRL2                             |
| GRC                              |
| Cylinder Switch                  |
| MN3E<br>MN4E                     |
| 4GA/B                            |
| M4GA/B                           |
| MN4GA/B                          |
| F.R. (module unit)               |
| Clean F.R                        |
| Precision R                      |
| Press gauge<br>Diff. press gauge |
| Electro-pneumatic R              |
| Speed controller                 |
| Auxiliary valve                  |
| Fitting/tube                     |
| Clean air unit                   |
| Pressure sensor                  |
| Flow rate sensor                 |
| Valve for air blow               |
| Ending                           |

## Dimensions (bore size: $\varnothing 12$ )

### ● LCR-12-P7\*

Stroke: 10, 20, 30, 40, 50

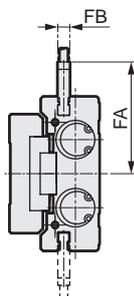
(Mounting holes in the figure indicate when stroke is 30)



### Dimensions by stroke

| Stroke | 10   | 20   | 30 | 40   | 50    |
|--------|------|------|----|------|-------|
| L1     |      | 111  |    | 121  | 131   |
| L2     |      | 99   |    | 109  | 119   |
| n      |      | 2    |    | 3    |       |
| V      |      | 88.5 |    | 96.5 | 106.5 |
| W      |      | 26   |    | 36   | 46    |
| X      |      | 57.5 |    | 56   | 52    |
| Y      |      | 32.5 |    | 31   | 57    |
| RD     |      | 36.5 |    |      |       |
| HD     | 52.5 | 42.5 |    | 32.5 |       |

### ● Dimensions of projecting section when F2S or F3S cylinder switch is mounted



| Stroke | 10   | 20   | 30   | 40   | 50 |
|--------|------|------|------|------|----|
| FA     |      |      | 37.8 |      |    |
| FB     |      |      | 4    |      |    |
| RD     |      |      | 35.5 |      |    |
| HD     | 53.5 | 43.5 |      | 33.5 |    |

Note 1: When using a positioning hole, use a pin of the dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

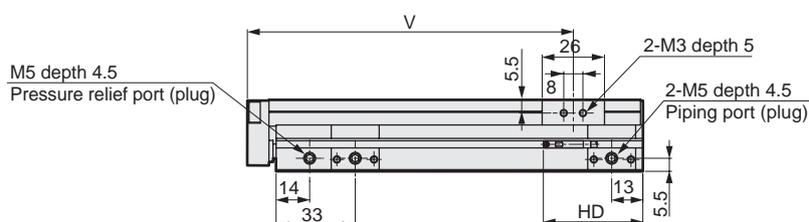
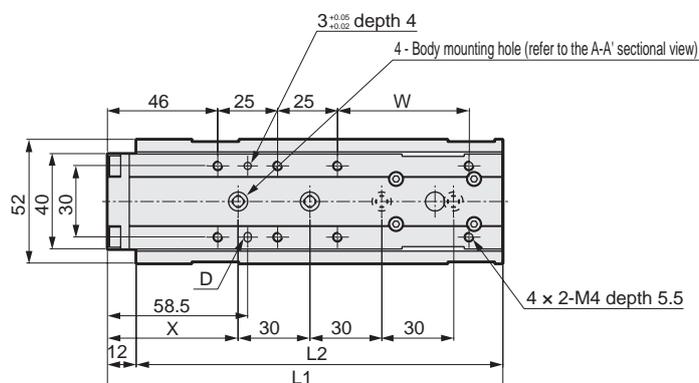
Note 2: When using rear piping, refer to the cautions of (1. Common; when piping) on page 140.

## Dimensions (bore size: $\phi 12$ )

### ● LCR-12-P7\*

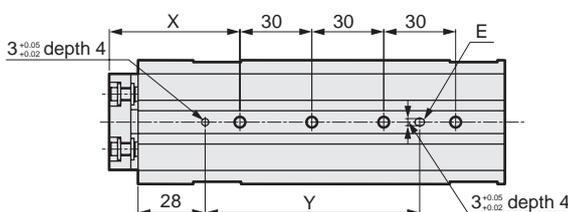
Stroke: 75, 100

(Mounting holes in the figure indicate when stroke is 75)

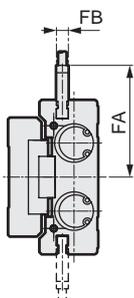


### Dimensions by stroke

| Stroke | 75   | 100 |
|--------|------|-----|
| L1     | 165  | 190 |
| L2     | 153  | 178 |
| V      | 136  | 161 |
| W      | 55   | 80  |
| X      | 54.5 | 67  |
| Y      | 89.5 | 102 |
| RD     | 36.5 |     |
| HD     | 41.5 |     |



### ● Dimensions of projecting section when F2S or F3S cylinder switch is mounted



| Stroke | 75   | 100 |
|--------|------|-----|
| FA     | 37.8 |     |
| FB     | 4    |     |
| RD     | 35.5 |     |
| HD     | 42.5 |     |

Note 1: When using a positioning hole, use a pin of the dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

Note 2: When using rear piping, refer to the cautions of [1. Common, when piping](#) on page 140.

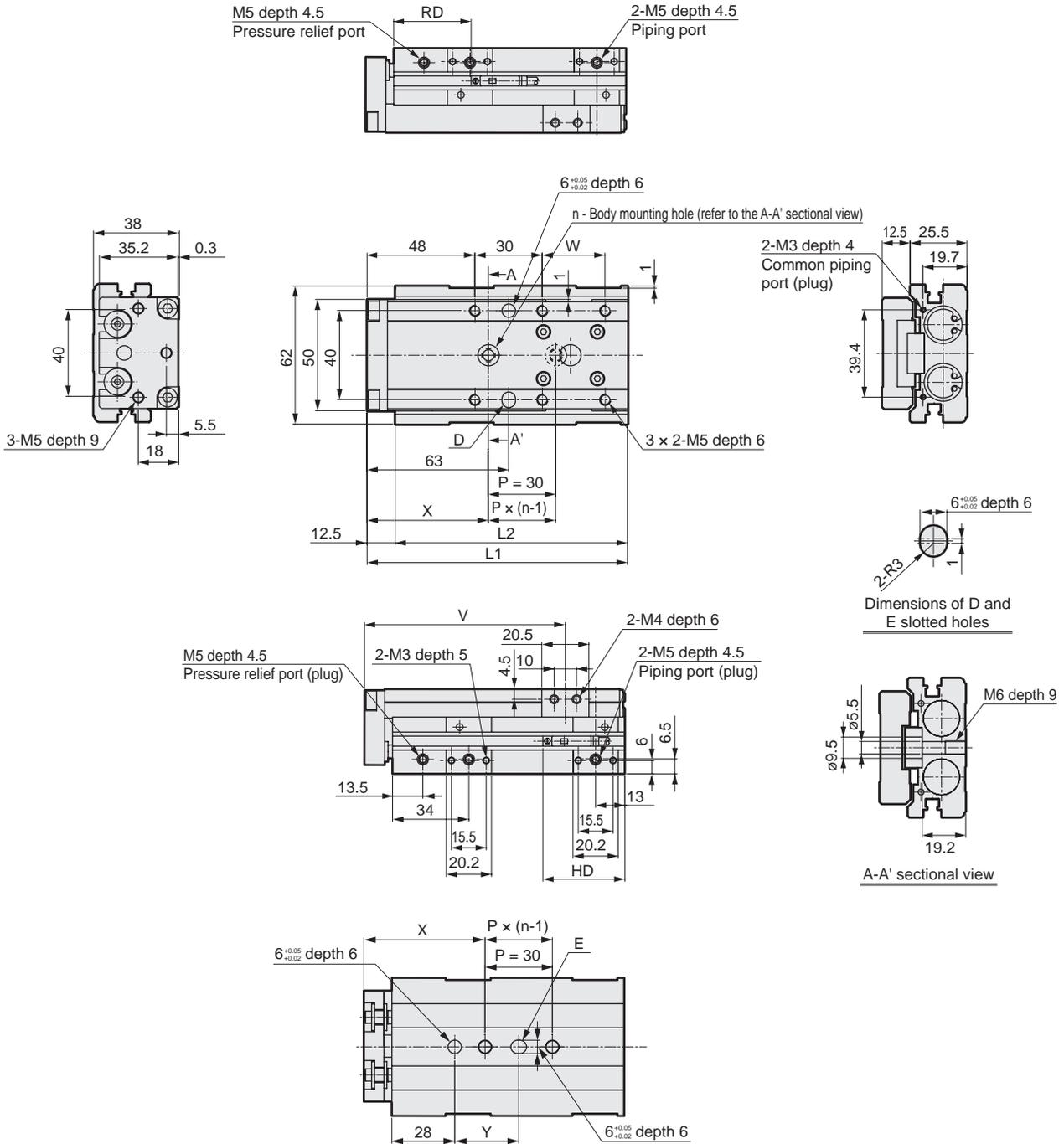
|                                  |
|----------------------------------|
| SCPD3                            |
| SCM                              |
| SSD2                             |
| MDC2                             |
| SMG                              |
| LCM                              |
| <b>LCR</b>                       |
| LCG                              |
| LCX                              |
| STM                              |
| STG                              |
| STR2                             |
| MRL2                             |
| GRC                              |
| Cylinder Switch                  |
| MN3E<br>MN4E                     |
| 4GA/B                            |
| M4GA/B                           |
| MN4GA/B                          |
| F.R. (module unit)               |
| Clean F.R.                       |
| Precision R                      |
| Press gauge<br>Diff. press gauge |
| Electro-pneumatic R              |
| Speed controller                 |
| Auxiliary valve                  |
| Fitting/tube                     |
| Clean air unit                   |
| Pressure sensor                  |
| Flow rate sensor                 |
| Valve for air blow               |
| Ending                           |

## Dimensions (bore size: $\varnothing 16$ )

### ● LCR-16-P7\*

Stroke: 10, 20, 30, 40, 50

(Mounting holes in the figure indicate when stroke is 30)



### Dimensions by stroke

| Stroke | 10 | 20    | 30   | 40    | 50    |
|--------|----|-------|------|-------|-------|
| L1     |    | 116   |      | 126   | 136   |
| L2     |    | 103.5 |      | 113.5 | 123.5 |
| n      |    |       | 2    |       | 3     |
| V      |    | 89.8  |      | 99.8  | 109.8 |
| W      |    | 28    |      | 38    | 48    |
| X      |    | 54    |      | 65.5  | 55.5  |
| Y      |    | 28.5  |      | 40    | 60    |
| T0/5*  | RD | 37    |      |       |       |
|        | HD | 56.5  | 46.5 | 36.5  |       |
| T2/3*  | RD | 39.5  |      |       |       |
|        | HD | 54    | 44   | 34    |       |

Note 1: When using a positioning hole, use a pin of the dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

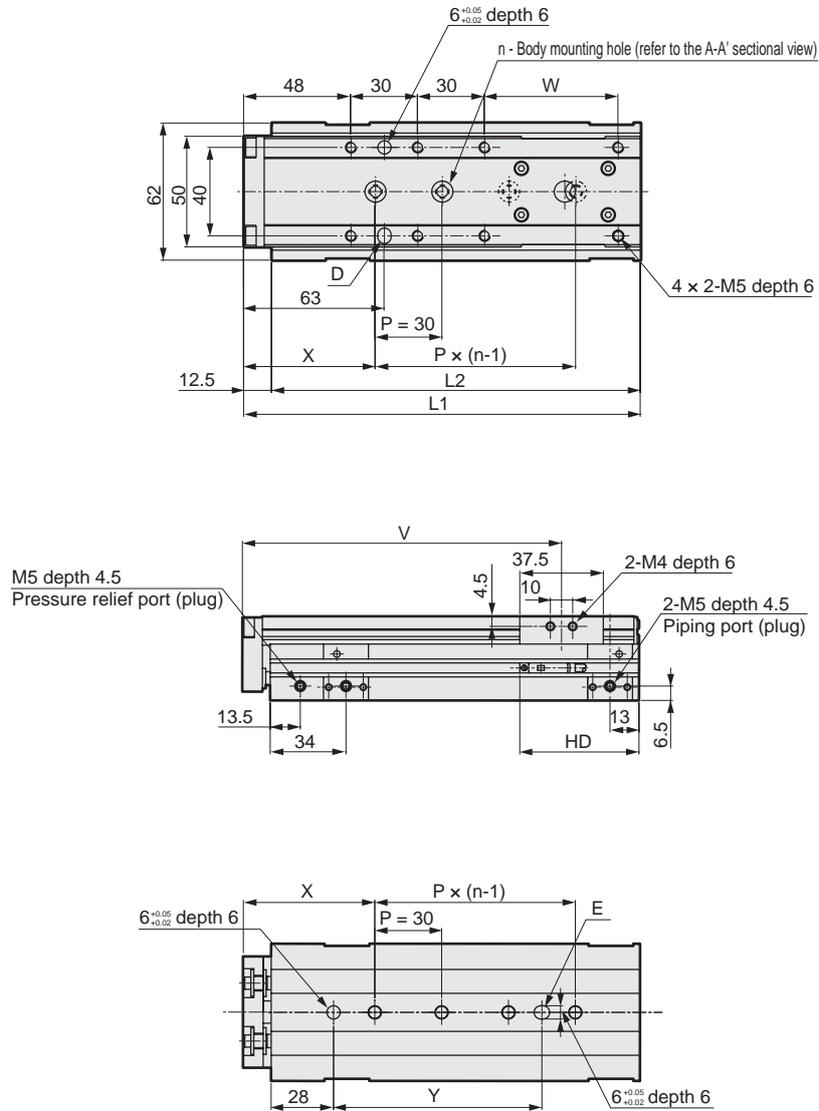
Note 2: When using rear piping, refer to the cautions of [1. Common; when piping](#) on page 140.

## Dimensions (bore size: $\phi 16$ )

● LCR-16-P7\*

Stroke: 75, 100, 125

(Mounting holes in the figure indicate when stroke is 75)



### Dimensions by stroke

| Stroke | 75    | 100   | 125   |
|--------|-------|-------|-------|
| L1     | 178   | 203   | 228   |
| L2     | 165.5 | 190.5 | 215.5 |
| n      | 4     | 5     |       |
| V      | 143.3 | 168.3 | 193.3 |
| W      | 60    | 85    | 110   |
| X      | 59    | 57    | 69    |
| Y      | 93.5  | 121.5 | 133.5 |
| T0/5*  | RD    | 37    |       |
| T2/3*  | HD    | 53.5  |       |
| T2/3W* | RD    | 39.5  |       |
|        | HD    | 51    |       |

Note 1: When using a positioning hole, use a pin of the dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

Note 2: When using rear piping, refer to the cautions of (1. Common; when piping) on page 140.

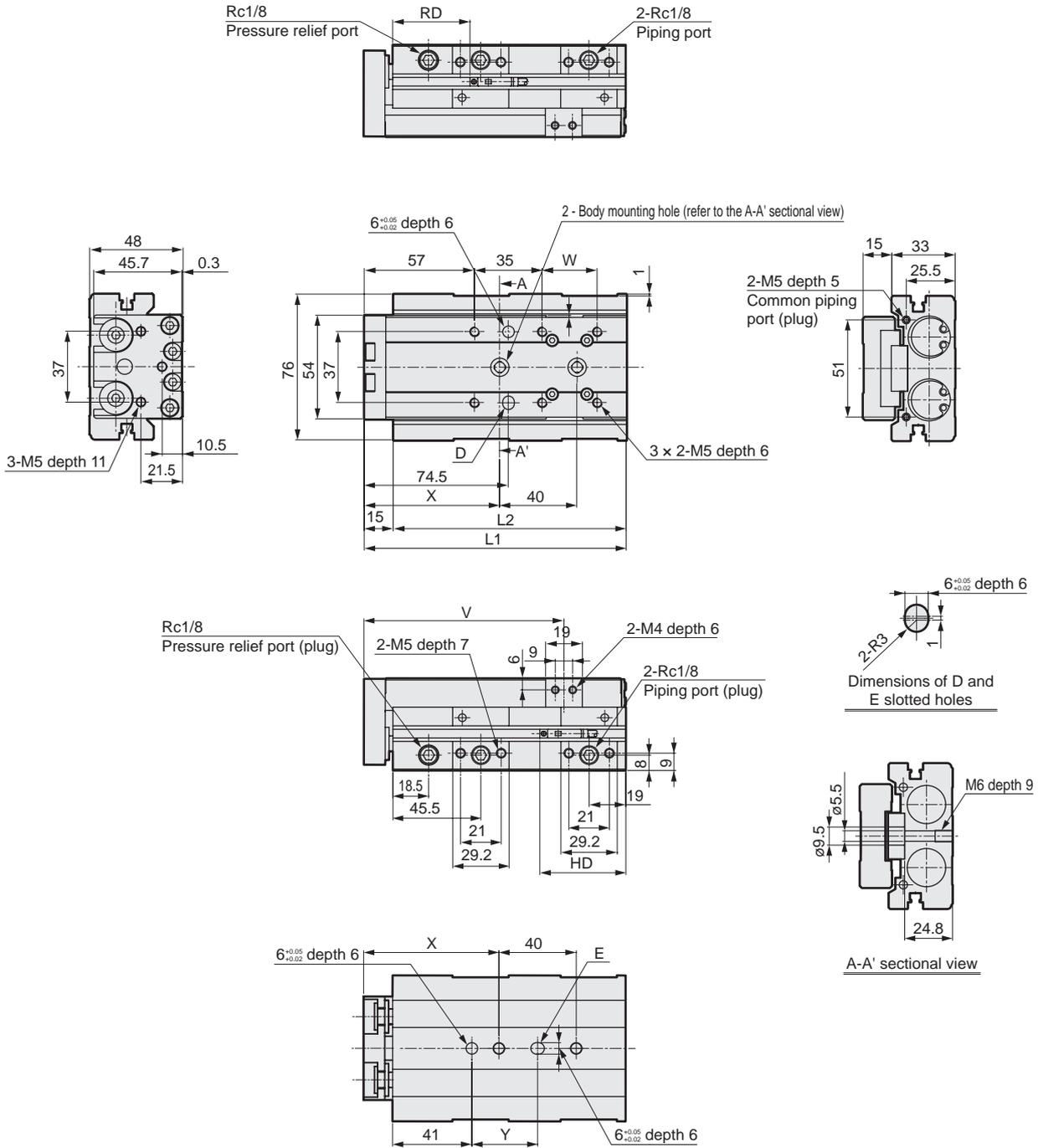
|                                  |
|----------------------------------|
| SCPD3                            |
| SCM                              |
| SSD2                             |
| MDC2                             |
| SMG                              |
| LCM                              |
| <b>LCR</b>                       |
| LCG                              |
| LCX                              |
| STM                              |
| STG                              |
| STR2                             |
| MRL2                             |
| GRC                              |
| Cylinder Switch                  |
| MN3E<br>MN4E                     |
| 4GA/B                            |
| M4GA/B                           |
| MN4GA/B                          |
| F.R. (module unit)               |
| Clean F.R                        |
| Precision R                      |
| Press gauge<br>Diff. press gauge |
| Electro-pneumatic R              |
| Speed controller                 |
| Auxiliary valve                  |
| Fitting/tube                     |
| Clean air unit                   |
| Pressure sensor                  |
| Flow rate sensor                 |
| Valve for air blow               |
| Ending                           |

## Dimensions (bore size: $\varnothing 20$ )

### ● LCR-20-P7\*

Stroke: 10, 20, 30, 40, 50

(Mounting holes in the figure indicate when stroke is 30)



## Dimensions by stroke

| Stroke | 10 | 20    | 30 | 40    | 50    |
|--------|----|-------|----|-------|-------|
| L1     |    | 135.5 |    | 145.5 | 155.5 |
| L2     |    | 120.5 |    | 130.5 | 140.5 |
| V      |    | 103.5 |    | 113.5 | 123.5 |
| W      |    | 28.5  |    | 38.5  | 48.5  |
| X      |    | 70    |    | 76    | 74    |
| Y      |    | 34    |    | 40    | 38    |
| T0/5*  | RD | 45.5  |    |       |       |
| T2/3*  | HD | 65    | 55 | 45    |       |
| T2/3W* | RD | 47    |    |       |       |
|        | HD | 63    | 53 | 43    |       |

Note 1: When using a positioning hole, use a pin of the dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

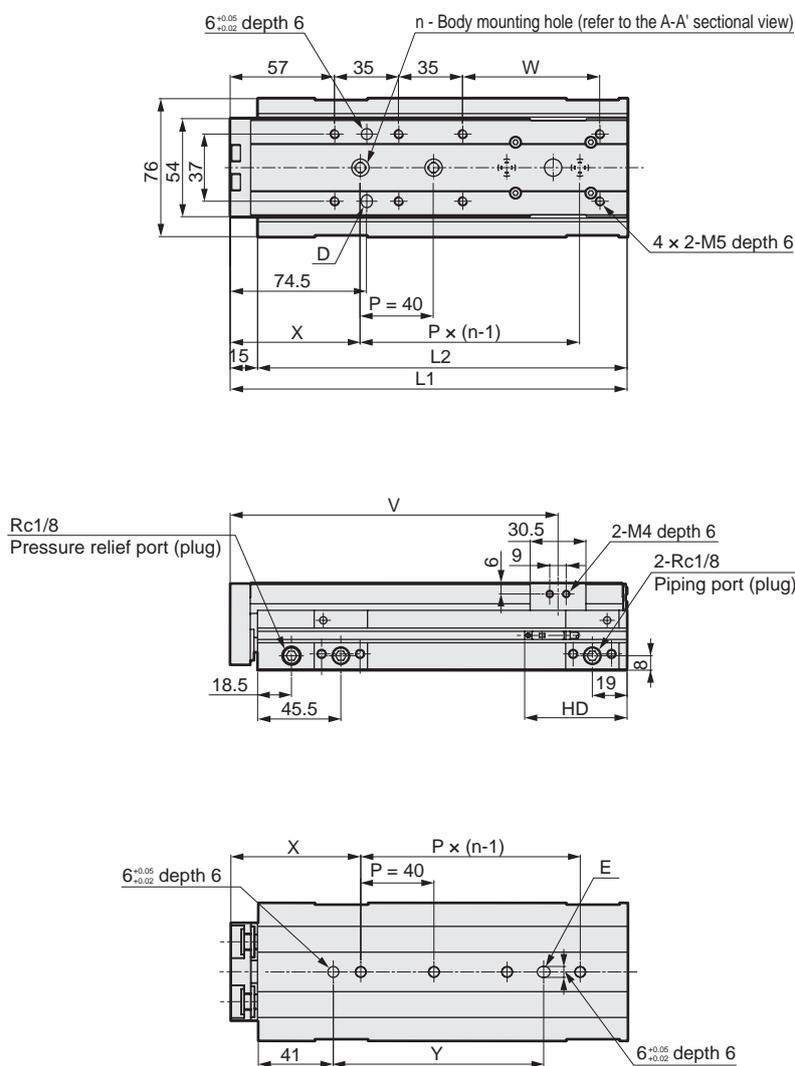
Note 2: When using rear piping, refer to the cautions of (1. Common; when piping) on page 140.

## Dimensions (bore size: $\varnothing 20$ )

### ● LCR-20-P7\*

Stroke: 75, 100, 125, 150

(Mounting holes in the figure indicate when stroke is 100)



### Dimensions by stroke

| Stroke | 75    | 100   | 125   | 150   |
|--------|-------|-------|-------|-------|
| L1     | 192   | 217   | 242   | 267   |
| L2     | 177   | 202   | 227   | 252   |
| n      | 3     | 4     | 5     |       |
| V      | 154.3 | 179.3 | 204.3 | 229.3 |
| W      | 50    | 75    | 100   | 125   |
| X      | 71    | 78    | 76    |       |
| Y      | 75    | 115   | 122   | 160   |
| T0/5*  | RD    | 45.5  |       |       |
| T2/3*  | HD    | 57.5  |       |       |
| T2/3W* | RD    | 47    |       |       |
|        | HD    | 55.5  |       |       |

Note 1: When using a positioning hole, use a pin of the dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

Note 2: When using rear piping, refer to the cautions of (1. Common; when piping) on page 140.

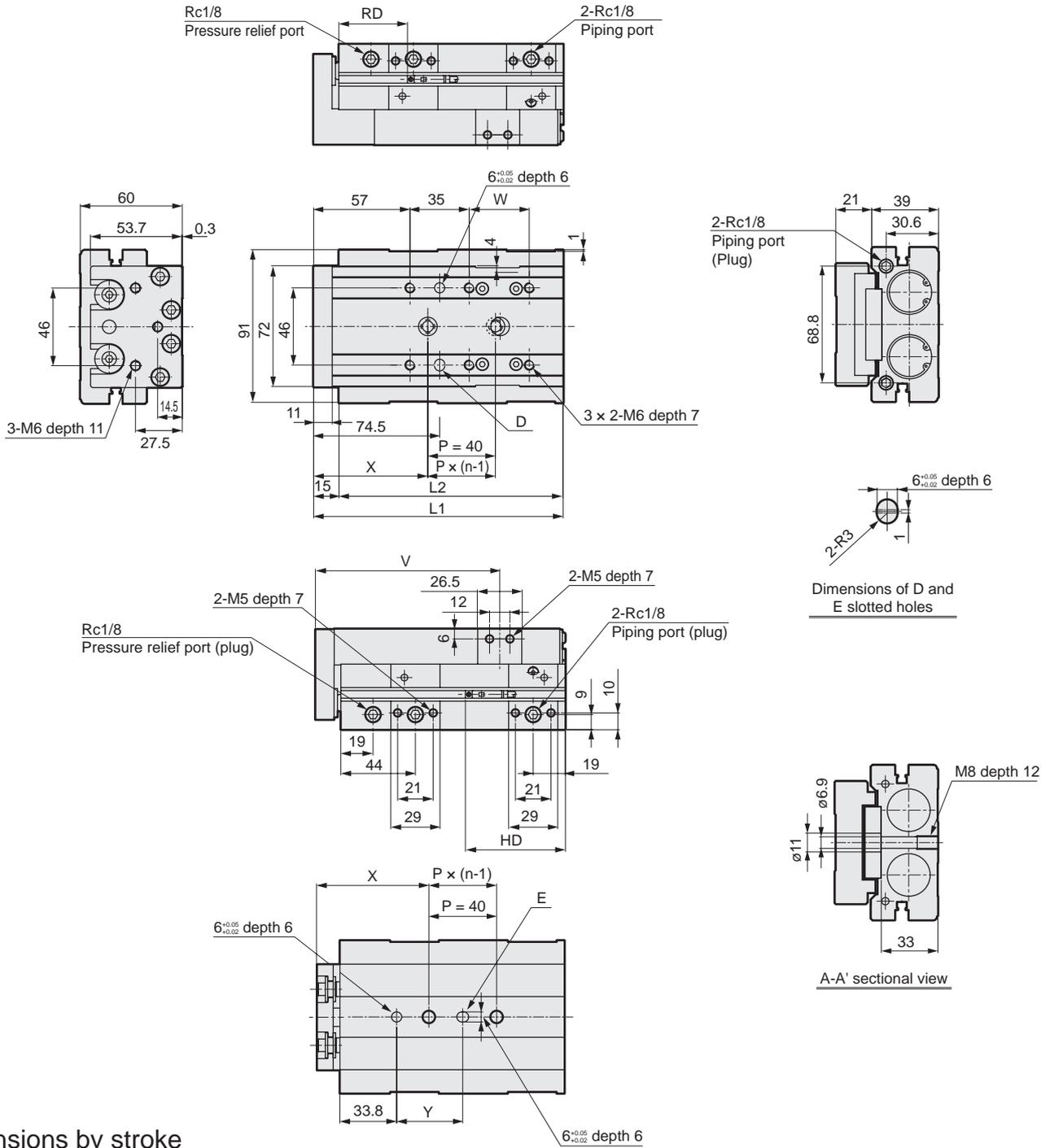
|                                  |
|----------------------------------|
| SCPD3                            |
| SCM                              |
| SSD2                             |
| MDC2                             |
| SMG                              |
| LCM                              |
| <b>LCR</b>                       |
| LCG                              |
| LCX                              |
| STM                              |
| STG                              |
| STR2                             |
| MRL2                             |
| GRC                              |
| Cylinder Switch                  |
| MN3E<br>MN4E                     |
| 4GA/B                            |
| M4GA/B                           |
| MN4GA/B                          |
| F.R. (module unit)               |
| Clean F.R                        |
| Precision R                      |
| Press gauge<br>Diff. press gauge |
| Electro-pneumatic R              |
| Speed controller                 |
| Auxiliary valve                  |
| Fitting/tube                     |
| Clean air unit                   |
| Pressure sensor                  |
| Flow rate sensor                 |
| Valve for air blow               |
| Ending                           |

## Dimensions (bore size: $\varnothing 25$ )

### ● LCR-25-P7\*

Stroke: 10, 20, 30, 40, 50

(Mounting holes in the figure indicate when stroke is 30)



Dimensions of D and E slotted holes

A-A' sectional view

### Dimensions by stroke

| Stroke | 10 | 20    | 30   | 40    | 50    |
|--------|----|-------|------|-------|-------|
| L1     |    | 147.5 |      | 157.5 | 167.5 |
| L2     |    | 132.5 |      | 142.5 | 152.5 |
| n      |    | 2     |      | 3     | 2     |
| V      |    | 108.8 |      | 118.8 | 128.8 |
| W      |    | 35.5  |      | 45.5  | 55.5  |
| X      |    | 67.5  |      | 70.5  | 85.5  |
| Y      |    | 39    |      | 42    | 57    |
| T0/5*  | RD | 44    |      |       |       |
| T2/3*  | HD | 78.5  | 68.5 | 58.5  |       |
| T2/3W* | RD | 46    |      |       |       |
|        | HD | 76.5  | 66.5 | 56.5  |       |

Note 1: When using a positioning hole, use a pin of the dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

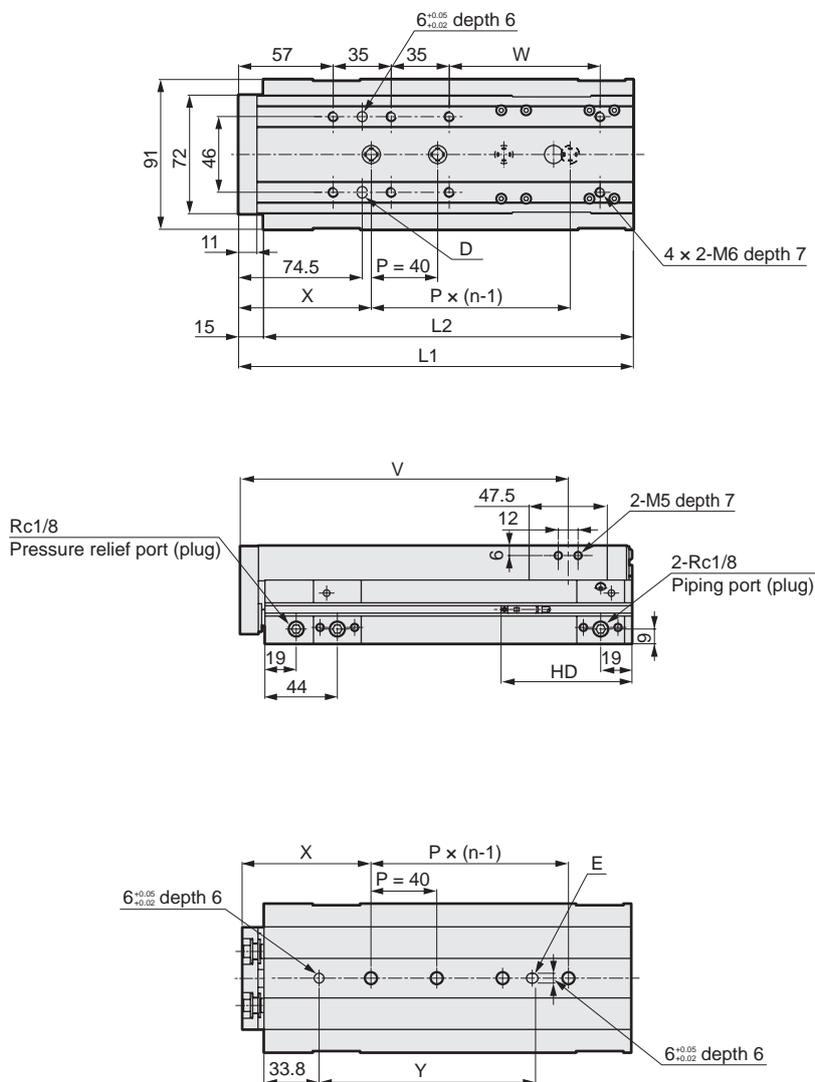
Note 2: When using rear piping, refer to the cautions of 1. Common; when piping on page 140.

## Dimensions (bore size: $\varnothing 25$ )

### ● LCR-25-P7\*

Stroke: 75, 100, 125, 150

(Mounting holes in the figure indicate when stroke is 100)



### Dimensions by stroke

| Stroke | 75    | 100   | 125   | 150   |
|--------|-------|-------|-------|-------|
| L1     | 213   | 238   | 263   | 288   |
| L2     | 198   | 223   | 248   | 273   |
| n      | 3     | 4     | 5     |       |
| V      | 163.8 | 188.8 | 213.8 | 238.8 |
| W      | 66    | 91    | 116   | 141   |
| X      | 85    | 80    | 70    | 85    |
| Y      | 96.5  | 131.5 | 161.5 | 176.5 |
| T0/5*  | RD    | 44    |       |       |
|        | HD    | 79    |       |       |
| T2/3*  | RD    | 46    |       |       |
|        | HD    | 77    |       |       |

Note 1: When using a positioning hole, use a pin of the dimensions that do not require press fitting. The recommended tolerance of a pin is JIS tolerance m6 or less.

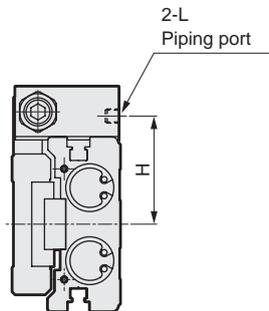
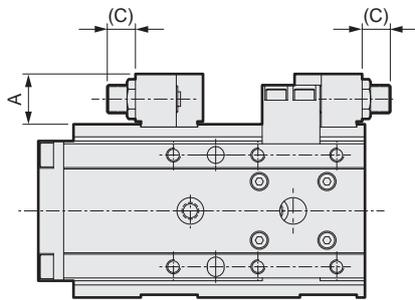
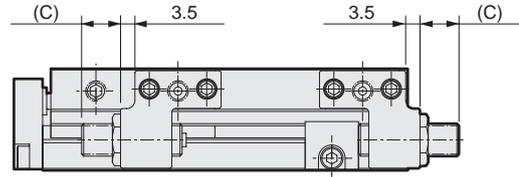
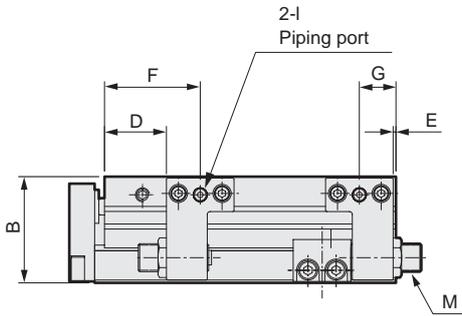
Note 2: When using rear piping, refer to the cautions of [1. Common, when piping](#) on page 140.

- SCPD3
- SCM
- SSD2
- MDC2
- SMG
- LCM
- LCR**
- LCG
- LCX
- STM
- STG
- STR2
- MRL2
- GRC
- Cylinder Switch
- MN3E  
MN4E
- 4GA/B
- M4GA/B
- MN4GA/B
- F.R. (module unit)
- Clean F.R
- Precision R
- Press gauge  
Diff. press gauge
- Electro-pneumatic R
- Speed controller
- Auxiliary valve
- Fitting/tube
- Clean air unit
- Pressure sensor
- Flow rate sensor
- Valve for air blow
- Ending

## Dimensions: Option

● Stroke adjusting stopper (S1 to S6)

• For ø8



\*1: F, G, H, I and L dimensions are only for the types with port on the stopper (S\*D\*).

| Code | A    | B    | C                          |       |       | D    | E   | F    | G    | H    | I          | L          | M         |
|------|------|------|----------------------------|-------|-------|------|-----|------|------|------|------------|------------|-----------|
|      |      |      | Adjustable range of stroke |       |       |      |     |      |      |      |            |            |           |
|      |      |      | 5 mm                       | 15 mm | 25 mm |      |     |      |      |      |            |            |           |
| ø6   | 14   | 19.5 | 11                         | 21    | -     | 16   | 1   | 25.5 | 10.5 | 24   | M3 depth 3 | M3 depth 3 | M8 x 0.75 |
| ø8   | 15.6 | 24.5 | 9.5                        | 19.5  | -     | 20.5 | 0.5 | 30.5 | 10.5 | 27.3 | M5 depth 4 | M5 depth 4 | M8 x 0.75 |
| ø12  | 15.5 | 29   | 12                         | 22    | 32    | 21   | 1   | 33   | 13   | 31   | M5 depth 4 | M5 depth 4 | M8 x 0.75 |
| ø16  | 18   | 37   | 10                         | 20    | 30    | 22   | 1   | 34   | 13   | 39   | M5 depth 4 | M5 depth 4 | M10 x 1   |
| ø20  | 20.5 | 45   | 14.5                       | 24.5  | 34.5  | 29   | 2.5 | 45.5 | 19   | 46   | Rc1/8      | M5 depth 4 | M12 x 1   |
| ø25  | 20.5 | 57   | 11.5                       | 21.5  | 31.5  | 27.5 | 2.5 | 44   | 19   | 54.5 | Rc1/8      | M5 depth 4 | M12 x 1   |

SCPD3

SCM

SSD2

MDC2

SMG

LCM

**LCR**

LCG

LCX

STM

STG

STR2

MRL2

GRC

Cylinder  
Switch

MN3E  
MN4E

4GA/B

M4GA/B

MN4GA/B

F.R. (module  
unit)

Clean  
F.R

Precision  
R

Press gauge  
Diff. press gauge

Electro-  
pneumatic R

Speed  
controller

Auxiliary  
valve

Fitting/  
tube

Clean  
air unit

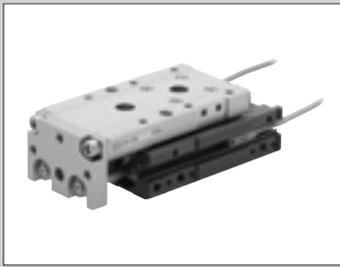
Pressure  
sensor

Flow rate  
sensor

Valve for  
air blow

Ending

SCPD3  
SCM  
SSD2  
MDC2  
SMG  
LCM  
LCR  
LCG  
LCX  
STM  
STG  
STR2  
MRL2  
GRC  
Cylinder switch  
MN3E  
MN4E  
4GA/B  
M4GA/B  
MN4GA/B  
F.R (module unit)  
Clean F.R  
Precision R  
Press gauge  
Diff. press gauge  
Electro-pneumatic R  
Speed controller  
Auxiliary valve  
Fitting/tube  
Clean air unit  
Pressure sensor  
Flow rate sensor  
Valve for air blow  
Ending



Linear slide cylinder Double acting/fine speed

# LCR-F Series

● Bore size:  $\varnothing 12/\varnothing 16/\varnothing 20/\varnothing 25$

JIS symbol



## Structure and material restriction

|           | Structure         | Model No.  |
|-----------|-------------------|------------|
| P7 Series | Exhaust treatment | <b>P72</b> |
|           | Vacuum treatment  | <b>P73</b> |

## Specifications

| Descriptions                |                | LCR-F                           |                  |                  |                  |
|-----------------------------|----------------|---------------------------------|------------------|------------------|------------------|
| Bore size                   | mm             | $\varnothing 12$                | $\varnothing 16$ | $\varnothing 20$ | $\varnothing 25$ |
| Actuation                   |                | Double acting                   |                  |                  |                  |
| Working fluid               |                | Compressed air                  |                  |                  |                  |
| Max. working pressure       | MPa            | 0.7                             |                  |                  |                  |
| Min. working pressure       | MPa            | 0.15 (*3)                       |                  |                  |                  |
| Proof pressure              | MPa            | 1.05                            |                  |                  |                  |
| Ambient temperature         | °C             | 5 to 60                         |                  |                  |                  |
| Port size                   | Main body side | M5                              |                  | Rc1/8            |                  |
|                             | Main body rear | M3                              | M5               | Rc1/8            |                  |
| Port size (relief port)     |                | M5                              |                  | Rc1/8            |                  |
| Stroke tolerance            | mm             | +2.0 (*1)<br>0                  |                  |                  |                  |
| Working piston speed        | mm/s           | 5 to 200 (0.5 MPa with no load) |                  |                  |                  |
| Cushion                     |                | With rubber cushion             |                  |                  |                  |
| Lubrication                 |                | Not available                   |                  |                  |                  |
| Allowable energy absorption | J              | Refer to table 2 on page 132.   |                  |                  |                  |

\*1: Note that there will be a slight gap between the end plate and floating bush if no stopper is attached.

\*2: The stroke adjusting stopper for 0.3 MPa and over working pressure is the metal sealing.

## Stroke

| Bore size (mm)   | Standard stroke (mm)                  |
|------------------|---------------------------------------|
| $\varnothing 12$ | 10, 20, 30, 40, 50, 75, 100           |
| $\varnothing 16$ | 10, 20, 30, 40, 50, 75, 100, 125      |
| $\varnothing 20$ | 10, 20, 30, 40, 50, 75, 100, 125, 150 |
| $\varnothing 25$ | 10, 20, 30, 40, 50, 75, 100, 125, 150 |

Note: The stroke other than above is not available.

## Dimensions

Same as double acting/single rod clean room specifications. Refer to pages 118 to 126.

## Theoretical thrust table

Refer to page 133.

### Switch specifications

- 1-color/2-color display

| Descriptions         | Reed 2-wire                    |            |   |               | Proximity 2-wire        |                             | Proximity 3-wire               |                          |                             |
|----------------------|--------------------------------|------------|---|---------------|-------------------------|-----------------------------|--------------------------------|--------------------------|-----------------------------|
|                      | T0H/T0V                        |            | T5H/T5V   |               | T2H/T2V                 | T2WH/T2WV                   | T3H/T3V                        | T3PH/T3PV                | T3WH/T3WV                   |
| Applications         | Programmable controller, relay |            | Programmable controller, relay IC circuit (without indicator lamp), serial connection |               | Programmable controller |                             | Programmable controller, relay |                          |                             |
| Output method        | -                              |            | -   |               | -                       |                             | NPN output                     | PNP output               | NPN output                  |
| Power supply voltage | -                              |            | -   |               | -                       |                             | 10 to 28 VDC                   |                          |                             |
| Load voltage         | 12/24 VDC                      | 110 VAC    | 5/12/24 VDC   | 110 VAC       | 10 to 30 VDC            | 24 VDC ±10%                 | 30 VDC or less                 |                          |                             |
| Load current         | 5 to 50 mA                     | 7 to 20 mA | 50 mA or less   | 20 mA or less | 5 to 20 mA (*2)         |                             | 100 mA or less                 |                          | 50 mA or less               |
| Indicator lamp       | LED (Lit when ON)              |            | Without indicator lamp  |               | LED (Lit when ON)       | Red/green LED (Lit when ON) | LED (Lit when ON)              | Yellow LED (Lit when ON) | Red/green LED (Lit when ON) |
| Leakage current      | 0 mA                           |            |   |               | 1 mA or less            |                             | 10 µA or less                  |                          |                             |
| Weight               | g 1 m: 18 3 m: 49 5 m: 80      |            |   |               |                         |                             |                                |                          |                             |

| Descriptions         | Proximity 2-wire        | Proximity 3-wire               | Proximity 2-wire        |                             | Proximity 3-wire               |                          |                             |
|----------------------|-------------------------|--------------------------------|-------------------------|-----------------------------|--------------------------------|--------------------------|-----------------------------|
|                      | F2S                     | F3S                            | F2H/F2V                 | F2YH/F2YV                   | F3H/F3V                        | F3PH/F3PV (custom order) | F3YH/F3YV                   |
| Applications         | Programmable controller | Programmable controller, relay | Programmable controller |                             | Programmable controller, relay |                          |                             |
| Output method        | -                       | NPN output                     | -                       |                             | NPN output                     | PNP output               | NPN output                  |
| Power supply voltage | -                       | 10 to 28 VDC                   | -                       |                             | 10 to 28 VDC                   | 4.5 to 28 VDC            | 10 to 28 VDC                |
| Load voltage         | 10 to 30 VDC            | 30 VDC or less                 | 10 to 30 VDC            | 24 VDC ±10%                 | 30 VDC or less                 |                          |                             |
| Load current         | 5 to 20 mA              | 50 mA or less                  | 5 to 20 mA (*2)         |                             | 100 mA or less                 | 50 mA or less            |                             |
| Indicator lamp       | Red LED (Lit when ON)   |                                | LED (Lit when ON)       | Red/green LED (Lit when ON) | LED (Lit when ON)              | Yellow LED (Lit when ON) | Red/green LED (Lit when ON) |
| Leakage current      | 1 mA or less            | 10 µA or less                  | 1 mA or less            |                             | 10 µA or less                  |                          |                             |
| Weight               | g 1 m: 10 3 m: 29       |                                |                         |                             |                                |                          |                             |

\*1: Refer to page 309 for detailed switch specifications and dimensions.

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

\*3: The F type switch uses a bend-resistant lead wire.

### Cylinder weight

- Clean room specifications

(Unit: g)

| Bore size (mm) | Fine speed stroke (mm) |       |       |       |       |       |       |       |       |
|----------------|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
|                | 10                     | 20    | 30    | 40    | 50    | 75    | 100   | 125   | 150   |
| ø12            | 400                    | 410   | 410   | 450   | 480   | 610   | 700   | -     | -     |
| ø16            | 620                    | 630   | 630   | 680   | 740   | 970   | 1,100 | 1,240 | -     |
| ø20            | 1,160                  | 1,170 | 1,180 | 1,260 | 1,350 | 1,650 | 1,860 | 2,070 | 2,280 |
| ø25            | 2,010                  | 2,030 | 2,040 | 2,150 | 2,250 | 2,740 | 3,010 | 3,280 | 3,550 |

- Weight of variation/option (stopper)

(Unit: g)

| Bore size (mm) | Option/stopper code |       |
|----------------|---------------------|-------|
|                | S1 to S4            | S5/S6 |
| ø12            | 70                  | 100   |
| ø16            | 110                 | 150   |
| ø20            | 170                 | 250   |
| ø25            | 290                 | 380   |

# LCR-F Series

- SCPD3
- SCM
- SSD2
- MDC2
- SMG
- LCM
- LCR
- LCG
- LCX
- STM
- STG
- STR2
- MRL2
- GRC
- Cylinder switch
- MN3E  
MN4E
- 4GA/B
- M4GA/B
- MN4GA/B
- F.R (module unit)
- Clean F.R
- Precision R
- Press gauge  
Diff. press gauge
- Electro-pneumatic R
- Speed controller
- Auxiliary valve
- Fitting/tube
- Clean air unit
- Pressure sensor
- Flow rate sensor
- Valve for air blow
- Ending

## How to order

Without switch (Magnet for switch incorporated)

**LCR-F-12-40-S506-DT-P72**

With switch (Magnet for switch incorporated)

**LCR-F-12-40-F2H\*-R-S506-DT-P72**

Model No.

**A** Bore size

**B** Stroke

**C** Switch model No.

**G** Clean room specifications

**D** Switch quantity

**E** Stopper

**F** Option

## ⚠ Precautions for model No. selection

- \*1: For the port position, refer to the stopper dimensions on page 126.
- \*2: The port positions of the standard without stopper are (1) and (3) in the figure below.
- \*3: Can be selected for the type with stopper only.
- \*4: Select when using rear piping.
- \*5: The stroke adjusting stopper for 0.3 MPa and over working pressure is the metal sealing.
- \*6: When changing the stopper position from the head side to the rod side, another discrete stopper may be required to be purchased depending on the stroke or the stroke adjustment amount. For details, please consult our sales staff. For some strokes, the adjustment amount of 15 mm or 25 mm is not allowed.

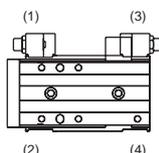
[Example of model No.]

### LCR-F-12-40-F2H-R-S1DTP72

Model: Linear slide cylinder Double acting/single rod/Fine speed (clean room specifications) LCR-P7\*

- A** Bore size :  $\phi 12$
- B** Stroke : 40 mm
- C** Switch model No. : Proximity/2 wires/Lead wire 1 m  
Lead wire straight
- D** Switch quantity : 1 (on rod end)
- E** Stopper : Stroke adjusting stopper  
Stopper position (1)
- F** Option : Side port on stopper/Bottom port on stopper.  
Stopper block material: steel (nitriding)
- G** Clean room specifications : Exhaust treatment

● Stopper position



| Code   | Content   |                      |                                |           |           |           |           |           |
|--|---|----------------------|--------------------------------|-----------|-----------|-----------|-----------|-----------|
| <b>A Bore size</b>   |   |                      |                                |           |           |           |           |           |
| 12   | $\phi 12$   |                      |                                |           |           |           |           |           |
| 16   | $\phi 16$   |                      |                                |           |           |           |           |           |
| 20   | $\phi 20$   |                      |                                |           |           |           |           |           |
| 25   | $\phi 25$   |                      |                                |           |           |           |           |           |
| <b>B Stroke (mm)</b>   |   |                      |                                |           |           |           |           |           |
|  |   | Bore size ( $\phi$ ) |                                |           |           |           |           |           |
|  |   | 12                   | 16                             | 20        | 25        |           |           |           |
| 10   | 10  | ●                    | ●                              | ●         | ●         |           |           |           |
| 20   | 20  | ●                    | ●                              | ●         | ●         |           |           |           |
| 30   | 30  | ●                    | ●                              | ●         | ●         |           |           |           |
| 40   | 40  | ●                    | ●                              | ●         | ●         |           |           |           |
| 50   | 50  | ●                    | ●                              | ●         | ●         |           |           |           |
| 75   | 75  | ●                    | ●                              | ●         | ●         |           |           |           |
| 100  | 100   | ●                    | ●                              | ●         | ●         |           |           |           |
| 125  | 125   |                      | ●                              | ●         | ●         |           |           |           |
| 150  | 150   |                      |                                | ●         | ●         |           |           |           |
| <b>C Switch model No.</b>  |   |                      |                                |           |           |           |           |           |
| Lead wire straight   | Lead wire L-shaped  | Contact              | Display                        | Lead wire | Bore size |           |           |           |
|  |   |                      |                                |           | $\phi 12$ | $\phi 16$ | $\phi 20$ | $\phi 25$ |
| <b>F2S*</b>  |   | Proximity            | 1-color display                | 2 wires   |           |           |           |           |
| <b>F3S*</b>  |   |                      |                                | 3 wires   |           |           |           |           |
| <b>F2H*</b>  | <b>F2V*</b>   |                      |                                | 2 wires   | ●         |           |           |           |
| <b>F3H*</b>  | <b>F3V*</b>   |                      |                                | 2 wires   |           |           |           |           |
| <b>F3PH*</b>   | <b>F3PV*</b>  | Proximity            | 1-color display (custom order) | 3 wires   |           |           |           |           |
| <b>F2YH*</b>   | <b>F2YV*</b>  |                      | 2-color display                | 2 wires   |           |           |           |           |
| <b>F3YH*</b>   | <b>F3YV*</b>  |                      |                                | 3 wires   |           |           |           |           |
| <b>T0H*</b>  | <b>T0V*</b>   | Reed                 | 1-color display                | 2 wires   |           |           |           |           |
| <b>T5H*</b>  | <b>T5V*</b>   |                      | Without indicator lamp         | 2 wires   |           |           |           |           |
| <b>T2H*</b>  | <b>T2V*</b>   |                      | 1-color display                | 2 wires   |           |           |           |           |
| <b>T3H*</b>  | <b>T3V*</b>   |                      |                                | 3 wires   |           |           |           |           |
| <b>T3PH*</b>   | <b>T3PV*</b>  | Proximity            | 1-color display (PNP output)   | 3 wires   |           | ●         | ●         | ●         |
| <b>T2WH*</b>   | <b>T2WV*</b>  |                      | 2-color display                | 2 wires   |           |           |           |           |
| <b>T3WH*</b>   | <b>T3WV*</b>  |                      |                                | 3 wires   |           |           |           |           |
| <b>Lead wire length</b>  |   |                      |                                |           |           |           |           |           |
| <b>Blank</b>   | 1 m (standard)  |                      |                                |           |           |           | ●         |           |
| <b>3</b>   | 3 m (option)  |                      |                                |           |           |           | ●         |           |
| <b>5</b>   | 5 m (option)  |                      |                                |           |           |           | ●         |           |
| <b>D Switch quantity</b>   |   |                      |                                |           |           |           |           |           |
| <b>R</b>   | 1 (on rod end)  |                      |                                |           |           |           | ●         |           |
| <b>H</b>   | 1 (on head end)   |                      |                                |           |           |           | ●         |           |
| <b>D</b>   | 2   |                      |                                |           |           |           | ●         |           |
| <b>E Stopper</b>   |   |                      |                                |           |           |           |           |           |
| <b>Blank</b>   | No option   |                      |                                |           |           |           | ●         |           |
| <b>S Stroke adjusting stopper</b>  |   |                      |                                |           |           |           |           |           |
| <b>5 mm stroke adjustment on one side</b>                                      |   |                      |                                |           |           |           |           |           |
| <b>S1**</b>  | Stopper position (1) (can be changed to (4))              |                      | Stopper mounting position      |           |           |           | ●         |           |
| <b>S2**</b>  | Stopper position (2) (can be changed to (3))              |                      |                                |           |           |           | ●         |           |
| <b>S3**</b>  | Stopper position (3) (can be changed to (2))              |                      |                                |           |           |           | ●         |           |
| <b>S4**</b>  | Stopper position (4) (can be changed to (1))              |                      |                                |           |           |           | ●         |           |
| <b>S5**</b>  | Stopper position (1), (3)                                 |                      |                                |           |           |           | ●         |           |
| <b>S6**</b>  | Stopper position (2), (4)                                 |                      |                                |           |           |           | ●         |           |
| <b>** Part Adjustable stroke range ● Applies to all. ▲ Applies to some. *3</b> |   |                      |                                |           |           |           |           |           |
|  | Extended end  | Return end           |                                |           |           |           |           |           |
| <b>Blank</b>   | 5 mm or none  | 5 mm or none         |                                |           |           |           | ●         |           |
| <b>02</b>  | 15 mm or none   | 15 mm or none        |                                |           |           |           | ●         |           |
| <b>03</b>  | 25 mm or none   | 25 mm or none        |                                |           |           |           | ●         |           |
| <b>04</b>  | 15 mm   | 5 mm                 |                                |           |           |           | ▲         |           |
| <b>05</b>  | 25 mm   | 5 mm                 |                                |           |           |           | ▲         |           |
| <b>06</b>  | 5 mm  | 15 mm                |                                |           |           |           | ▲         |           |
| <b>07</b>  | 5 mm  | 25 mm                |                                |           |           |           | ▲         |           |
| <b>F Option</b>  |   |                      |                                |           |           |           |           |           |
| <b>Blank</b>   | Port on the stopper: No port                              |                      |                                |           |           |           | ●         |           |
| <b>D</b>   | Port on the stopper: Side and bottom ports                |                      |                                |           |           |           | ● *1, *3  |           |
| <b>Blank</b>   | Stopper block material: steel                             |                      |                                |           |           |           | ●         |           |
| <b>T</b>   | Stopper block material: steel (nitriding)                 |                      |                                |           |           |           | ● *3      |           |
| <b>Plug attached</b>   |   |                      |                                |           |           |           |           |           |
| <b>Blank</b>   | None  |                      |                                |           |           |           |           |           |
| <b>N</b>   | With side piping port plug (not available for $\phi 25$ ) |                      |                                |           |           |           | *4        |           |
| <b>G Clean room specifications</b>   |   |                      |                                |           |           |           |           |           |
| <b>Structure</b>   |   |                      |                                |           |           |           |           |           |
| <b>P72</b>   | Exhaust treatment   |                      |                                |           |           |           |           |           |
| <b>P73</b>   | Vacuum treatment  |                      |                                |           |           |           |           |           |

### How to select stopper

#### Stopper combination table

Model No. - [(1) (2) stopper] [(3) adjustable stroke range]

Example) LCR-8-40-[S5] [06]-P7\*

Stroke adjusting stopper S

|   |       | Stopper adjusting range |               | Stopper model No. [(1) (2)] |      |      |      |      |      |
|---|-------|-------------------------|---------------|-----------------------------|------|------|------|------|------|
|   |       | Extended end            | Return end    | [S1]                        | [S2] | [S3] | [S4] | [S5] | [S6] |
| Adjustable stroke range model No. [(3)] | Blank | 5 mm or none            | 5 mm or none  |                             |      |      |      |      |      |
|   | [02]  | 15 mm or none           | 15 mm or none |                             |      |      |      |      |      |
|   | [03]  | 25 mm or none           | 25 mm or none |                             |      |      |      |      |      |
|   | [04]  | 15 mm                   | 5 mm          |                             |      |      |      |      |      |
|   | [05]  | 25 mm                   | 5 mm          |                             |      |      |      |      |      |
|   | [06]  | 5 mm                    | 15 mm         |                             |      |      |      |      |      |
|   | [07]  | 5 mm                    | 25 mm         |                             |      |      |      |      |      |

- : Stroke adjusting stopper (adjusting range: 5 mm)
- : Stroke adjusting stopper (adjusting range: 15 mm)
- : Stroke adjusting stopper (adjusting range: 25 mm)

▲ shows the piping direction.

#### Available combination table

| Bore size (mm) |              | Stopper code           |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |    |    |    |       |    |    |    |    |    |    |   |  |  |  |  |  |    |  |  |  |  |  |  |
|----------------|--------------|------------------------|----|----|-------|----|----|-------|----|----|-------|----|----|-------|----|----|-------|----|----|----|----|----|----|-------|----|----|----|----|----|----|---|--|--|--|--|--|----|--|--|--|--|--|--|
|                |              | S1                     |    |    |       |    |    |       | S2 |    |       |    |    |       |    | S3 |       |    |    |    |    |    | S4 |       |    |    |    |    |    | S5 |   |  |  |  |  |  | S6 |  |  |  |  |  |  |
|                |              | Adjustment length code |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |    |    |    |       |    |    |    |    |    |    |   |  |  |  |  |  |    |  |  |  |  |  |  |
|                |              | Blank                  | 02 | 03 | Blank | 02 | 03 | Blank | 02 | 03 | Blank | 02 | 03 | Blank | 02 | 03 | Blank | 02 | 03 | 04 | 05 | 06 | 07 | Blank | 02 | 03 | 04 | 05 | 06 | 07 |   |  |  |  |  |  |    |  |  |  |  |  |  |
| ø12 to ø25     | 10st         | ●                      | -  | -  | ●     | -  | -  | ●     | ●  | -  | ●     | ●  | -  | ●     | -  | -  | -     | -  | -  | -  | -  | ●  | -  | ●     | -  | -  | -  | -  | ●  | -  |   |  |  |  |  |  |    |  |  |  |  |  |  |
|                | 20st         | ●                      | ●  | -  | ●     | ●  | -  | ●     | ●  | ●  | ●     | ●  | ●  | ●     | ●  | ●  | ●     | ●  | ●  | ●  | ●  | ●  | ●  | ●     | ●  | ●  | ●  | ●  | ●  | ●  | ● |  |  |  |  |  |    |  |  |  |  |  |  |
|                | 30st or more | ●                      | ●  | ●  | ●     | ●  | ●  | ●     | ●  | ●  | ●     | ●  | ●  | ●     | ●  | ●  | ●     | ●  | ●  | ●  | ●  | ●  | ●  | ●     | ●  | ●  | ●  | ●  | ●  | ●  | ● |  |  |  |  |  |    |  |  |  |  |  |  |

●: Available -: Unavailable

- SCPD3
- SCM
- SSD2
- MDC2
- SMG
- LCM
- LCR**
- LCG
- LCX
- STM
- STG
- STR2
- MRL2
- GRC
- Cylinder Switch
- MN3E
- MN4E
- 4GA/B
- M4GA/B
- MN4GA/B
- F.R. (module unit)
- Clean F.R
- Precision R
- Press gauge
- Diff. press gauge
- Electro-pneumatic R
- Speed controller
- Auxiliary valve
- Fitting/tube
- Clean air unit
- Pressure sensor
- Flow rate sensor
- Valve for air blow
- Ending