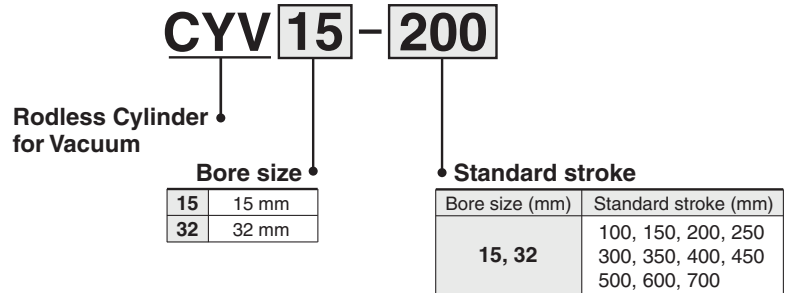


# Rodless Cylinder for Vacuum

## Series *CYV*



### How to Order



### Specifications

| Bore size (mm)   | 15   | 32          |
|--|--|-------------|
| <b>Operating environment pressure</b>                            | Atmosphere to $1.3 \times 10^{-4}$ Pa (ABS)  |             |
| <b>Operating atmosphere</b> <small>Note 1)</small>               | Air/Inert gas  |             |
| <b>Fluid</b> <small>Note 1)</small>                              | Air/Inert gas  |             |
| <b>Action</b>  | Double acting  |             |
| <b>Proof pressure</b>  | 0.5 MPa  |             |
| <b>Operating pressure range</b>                                  | 0.05 to 0.3 MPa  |             |
| <b>Leakage</b>   | $1.3 \times 10^{-7}$ Pa $\cdot$ m <sup>3</sup> /sec or less (at normal temperatures, excluding gas permeation) |             |
| <b>Maximum baking temperature</b> <small>Note 2) Note 3)</small> | 100°C  |             |
| <b>Ambient and fluid temperature</b>                             | -10 to 60°C (No freezing)  |             |
| <b>Piston speed (MAX.)</b> <small>Note 4)</small>                | 50 to 300 mm/s   |             |
| <b>Stroke adjustment</b>   | -2 to 0 mm on each side (-4 to 0 mm total)   |             |
| <b>Cushion</b>   | Sine cushion (Air cushion)   |             |
| <b>Port size</b>   | 5/16-24 UNF  | 7/16-20 UNF |
| <b>Lubrication</b>   | Vacuum grease for linear guide unit and inside the cylinder tube   |             |

Note 1) Air is recommended as the operational atmosphere and fluid, but contact SMC if other inert gasses are used, as the product life may change.

Note 2) Baking is limited to baking before cylinder operation. Cylinder operation should be with a temperature range of -10 to 60°C.

Note 3) Contact SMC if the baking temperature will exceed 100°C.

Note 4) The piston speed listed above is the maximum piston speed. When the slide table on the stroke edge starts moving, it will take approximately 0.5 seconds (each end) or 1 second (both ends) to slip out of the cushion stroke.

### Weight

| Model        | Standard stroke (mm) |     |     |     |     |     |     |     |     |     |     |
|--------------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|              | 100                  | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | 700 |
| <b>CYV15</b> | 1.2                  | 1.4 | 1.6 | 1.7 | 1.9 | 2.0 | 2.2 | 2.4 | 2.5 | 2.8 | 3.2 |
| <b>CYV32</b> | 4.2                  | 4.6 | 5.0 | 5.5 | 5.9 | 6.3 | 6.7 | 7.1 | 7.5 | 8.3 | 9.1 |

(kg)

### Magnetic Holding Force

| Bore size (mm) | Magnetic holding force (N) |
|----------------|----------------------------|
| <b>15</b>      | 59                         |
| <b>32</b>      | 268                        |

### Theoretical Output

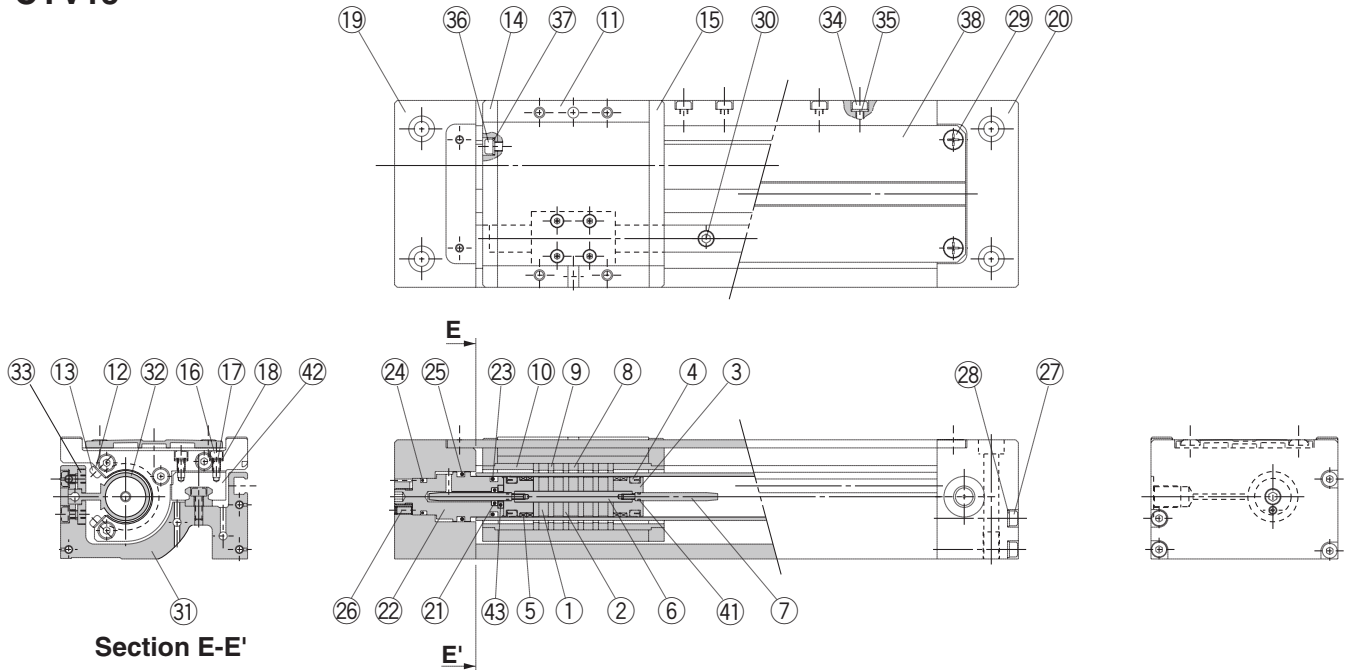
| Bore size (mm) | Piston area (mm <sup>2</sup> ) | Operating pressure (MPa) |     |     |
|----------------|--------------------------------|--------------------------|-----|-----|
|                |                                | 0.1                      | 0.2 | 0.3 |
| <b>15</b>      | 176                            | 18                       | 35  | 53  |
| <b>32</b>      | 804                            | 80                       | 161 | 241 |

(N)

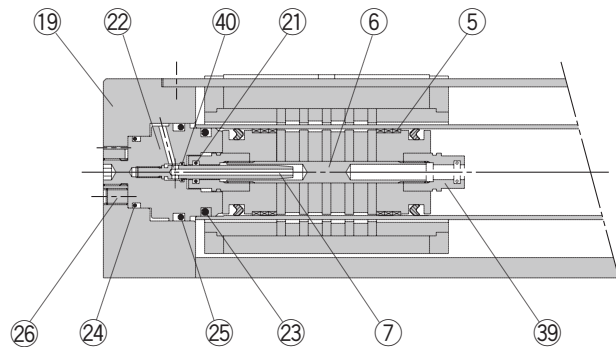
# Series CYV

## Construction

### CYV15



### CYV32



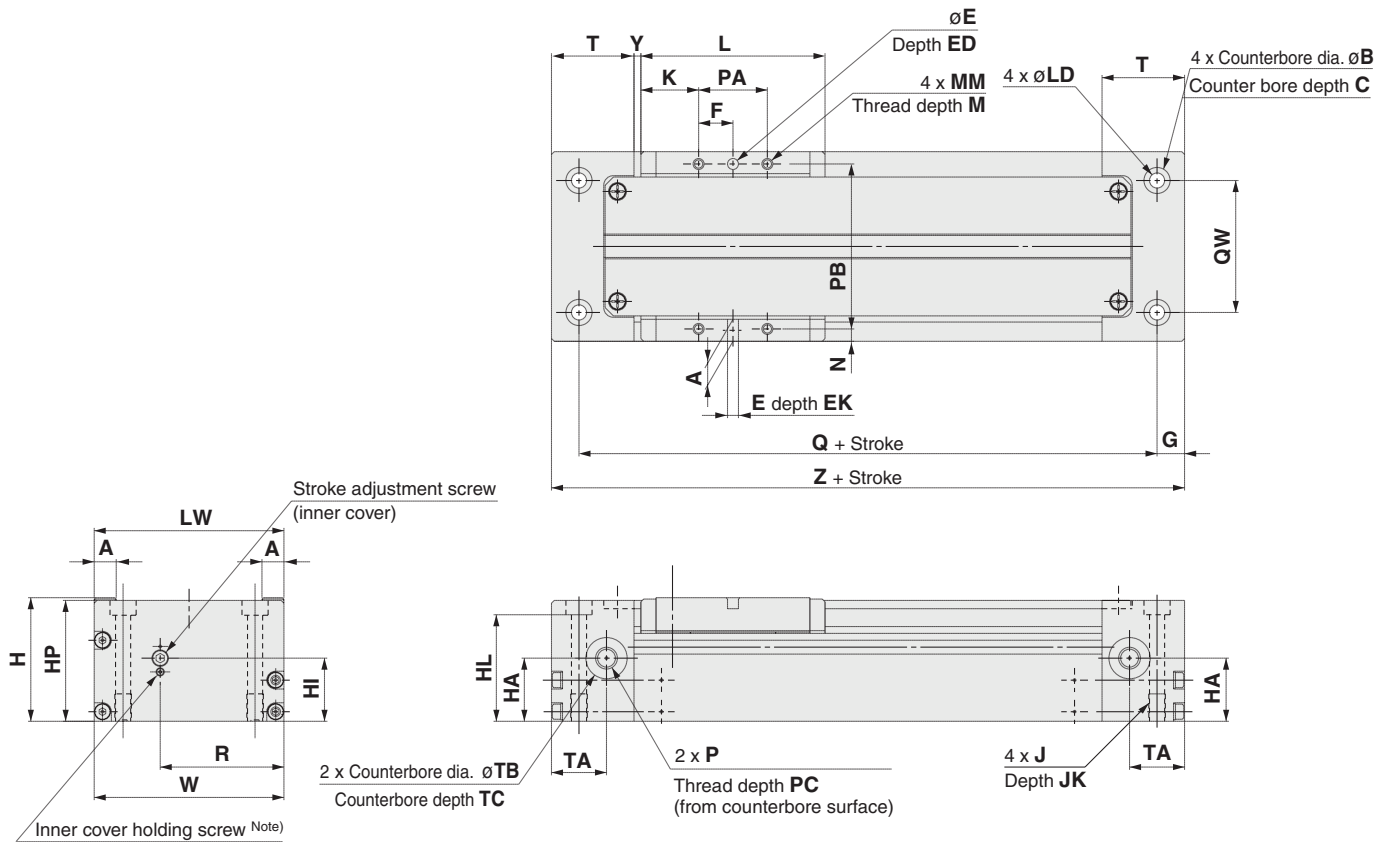
### Component Parts

| No. | Description                   | Material              | Note                                |
|-----|-------------------------------|-----------------------|-------------------------------------|
| 1   | Magnet A                      | —                     |                                     |
| 2   | Piston side yoke              | Rolled steel plate    | Zinc chromated                      |
| 3   | Piston                        | Brass/ Aluminum alloy | Electroless nickel plated/Chromated |
| 4   | Piston seal                   | Fluororubber          |                                     |
| 5   | Wear ring                     | Special bearing       |                                     |
| 6   | Shaft                         | Stainless steel       |                                     |
| 7   | Cushion ring                  | Stainless steel/Brass | —/Electroless nickel plated         |
| 8   | Magnet B                      | —                     | Titanium nitride coating            |
| 9   | External slider side yoke     | Rolled steel          | Electroless nickel plated           |
| 10  | Hold spacer                   | Aluminum alloy        | Electroless nickel plated           |
| 11  | Slide table                   | Aluminum alloy        | Electroless nickel plated           |
| 12  | Insertion guide plate         | Stainless steel       |                                     |
| 13  | Round head Phillips screw     | Stainless steel       |                                     |
| 14  | Side plate A                  | Aluminum alloy        | Electroless nickel plated           |
| 15  | Side plate B                  | Aluminum alloy        | Electroless nickel plated           |
| 16  | Hexagon socket head cap screw | Stainless steel       |                                     |
| 17  | Spring washer                 | Stainless steel       |                                     |
| 18  | Flat washer                   | Stainless steel       |                                     |
| 19  | Plate A                       | Aluminum alloy        | Electroless nickel plated           |
| 20  | Plate B                       | Aluminum alloy        | Electroless nickel plated           |
| 21  | Cushion seal                  | Fluororubber          |                                     |

| No. | Description                   | Material        | Note                      |
|-----|-------------------------------|-----------------|---------------------------|
| 22  | Inner cover                   | Aluminum alloy  | Electroless nickel plated |
| 23  | Cylinder tube gasket          | Fluororubber    |                           |
| 24  | O-ring                        | Fluororubber    |                           |
| 25  | O-ring                        | Fluororubber    |                           |
| 26  | Hexagon socket head set screw | Stainless steel |                           |
| 27  | Hexagon socket head cap screw | Stainless steel |                           |
| 28  | Flat washer                   | Stainless steel |                           |
| 29  | Round head Phillips screw     | Stainless steel |                           |
| 30  | Hexagon socket head cap screw | Stainless steel |                           |
| 31  | Base                          | Aluminum alloy  | Electroless nickel plated |
| 32  | Cylinder tube                 | Aluminum alloy  | Electroless nickel plated |
| 33  | Tube attaching bracket        | Aluminum alloy  | Electroless nickel plated |
| 34  | Hexagon socket head cap screw | Stainless steel |                           |
| 35  | Flat washer                   | Stainless steel |                           |
| 36  | Hexagon socket head cap screw | Stainless steel |                           |
| 37  | Flat washer                   | Stainless steel |                           |
| 38  | Top cover                     | Aluminum alloy  | Electroless nickel plated |
| 39  | Cushion seal holder           | Aluminum alloy  | Chromated                 |
| 40  | O-ring                        | Fluororubber    |                           |
| 41  | O-ring                        | Fluororubber    |                           |
| 42  | Linear guide                  | Stainless steel |                           |
| 43  | Retaining plate               | Aluminum alloy  | Hard anodized             |

Note) In the material and note columns of the Component Parts list above, the first description is for CYV15 and the second description is for CYV32.

## Dimensions



- XL
- XLQ
- XM
- XY
- D-
- XVD
- XGT
- CYV**

| Model | A  | B    | C    | E                 | ED  | EK | F    | G  | H  | HA | HI | HL   | HP   | J         | JK | K  | L  | LD  |
|-------|----|------|------|-------------------|-----|----|------|----|----|----|----|------|------|-----------|----|----|----|-----|
| CYV15 | 8  | 10.5 | 6.4  | $4_{H9}^{+0.030}$ | 9.5 | 4  | 12.5 | 10 | 45 | 23 | 23 | 37.6 | 44   | M6 x 1    | 10 | 21 | 67 | 5.6 |
| CYV32 | 12 | 16   | 10.2 | $6_{H9}^{+0.030}$ | 13  | 6  | 25   | 9  | 75 | 39 | 39 | 63.3 | 73.5 | M10 x 1.5 | 12 | 20 | 90 | 9.2 |

| Model | LW  | MM       | M | N   | P           | PA | PB  | PC | Q   | QW | R    | T  | TA   | TB | TC  | W   | Y   | Z   |
|-------|-----|----------|---|-----|-------------|----|-----|----|-----|----|------|----|------|----|-----|-----|-----|-----|
| CYV15 | 69  | M4 x 0.7 | 6 | 4.5 | 5/16-24 UNF | 25 | 60  | 10 | 112 | 48 | 45   | 30 | 20   | 15 | 0.5 | 69  | 2.5 | 132 |
| CYV32 | 115 | M6 x 1   | 8 | 7.5 | 7/16-20 UNF | 50 | 100 | 12 | 147 | 83 | 79.5 | 34 | 22.5 | 20 | 0.5 | 115 | 3.5 | 165 |

Note) Refer to "Cushion Effect (Sine Cushion) and Stroke Adjustment" under Specific Product Precautions on page 1229.