

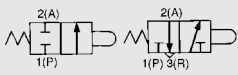
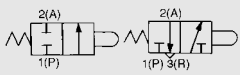
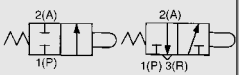


# Mechanical Valves

## Series VM

|                 |                                                        |                                                        |              |
|-----------------|--------------------------------------------------------|--------------------------------------------------------|--------------|
| Model           | <b>VM1000</b>                                          | <b>VM100</b>                                           | <b>VM200</b> |
| Dimensions (mm) | Side ported 11 x 36 x 16<br>Bottom ported 11 x 28 x 25 | Side ported 17 x 44 x 25<br>Bottom ported 17 x 44 x 30 | 25 x 40 x 52 |

|                             |                                                                                     |                                                                                    |                                                                                     |
|-----------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Basic                       |    |  |  |
| Roller lever                |    | ●                                                                                  | ●                                                                                   |
| One way roller lever        |   | ●                                                                                  | ●                                                                                   |
| Straight plunger            |  | ●                                                                                  | ●                                                                                   |
| Roller plunger              |  | ●                                                                                  | ●                                                                                   |
| Cross roller plunger        |  | ●                                                                                  | ●                                                                                   |
| Toggle lever                |  | ●                                                                                  | ●                                                                                   |
| Push button (Mushroom)      |  | ●                                                                                  | ●                                                                                   |
| Push button (Extended)      |  | ●                                                                                  | ●                                                                                   |
| Push button (Flush)         |  | ●                                                                                  | ●                                                                                   |
| Twist selector (2 position) |  | ●                                                                                  | ●                                                                                   |
| Key selector (2 position)   |  | ●                                                                                  | ●                                                                                   |
| Twist selector (3 position) |  | ●                                                                                  | ●                                                                                   |
| Foot pedal                  |  | ●                                                                                  | ●                                                                                   |
| Push-pull                   |  | ●                                                                                  | ●                                                                                   |

|                                   |                                                                                     |                                                                                      |                                                                                       |
|-----------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                                   | P. 5-6-8                                                                            | P. 5-6-12                                                                            | P. 5-6-20                                                                             |
| Effective area (mm <sup>2</sup> ) | 1                                                                                   | 2.5                                                                                  | 19                                                                                    |
| Number of ports                   | 2, 3                                                                                | 2, 3                                                                                 | 2, 3                                                                                  |
|                                   | Poppet                                                                              | Poppet                                                                               | Poppet                                                                                |
| Function                          |  |  |  |

## Mechanical Valves

### VM400

21 x 35 x 53



### VZM500

18 x 28 x 87



### VZM400

18 x 30 x 91



### VFM300

26 x 35 x 94



### VFM200

23 x 40 x 115



### VM800

30 x 40 x 57



S□A

V□A

S□A

V□A

VM

VR

VH

VHS

#### Roller lever



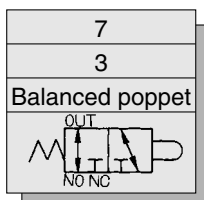
#### Adjustable roller lever



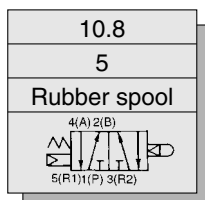
#### Adjustable rod lever



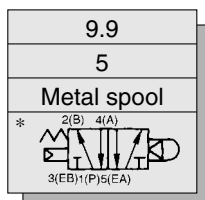
P. 5-6-26



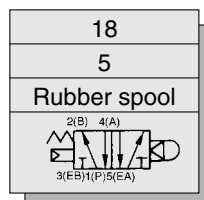
P. 5-6-41



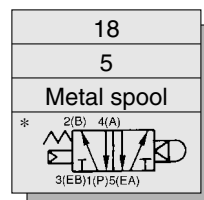
P. 5-6-35



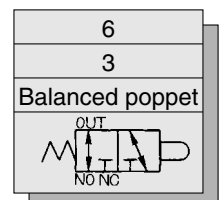
P. 5-6-48



P. 5-6-54



P. 5-6-32



## ⚠ Precautions

Be sure to read before handling. Refer to pages 5-12-2 to 6 for Safety Instructions and Solenoid Valve Precautions.

### Mounting

#### ⚠ Warning

##### 1. Conditions for mechanical operation

Do not move the mechanical operation beyond the operating limit position, as this could damage the mechanical valve itself and lead to equipment malfunction.

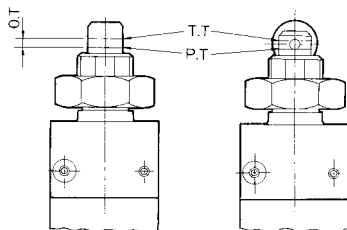
##### • Actuator stroke

Operate the mechanism within the stroke range that has been obtained through the formula given below. (Do not move beyond the operating limit position.)

Operating stroke: (P.T. + 0.5 x O.T.) to (P.T. + O.T. - 0.1)

| Series                               | Actuator                                  | Actuator stroke (mm)       |
|--------------------------------------|-------------------------------------------|----------------------------|
| VM1000                               | Basic<br>T.T. = 4.8 mm<br>(T.T. = 2.5 mm) | 3.7 to 4.7<br>(2.2 to 2.4) |
|                                      | Roller lever                              | 3.5 to 4.4                 |
|                                      | One way roller lever                      | 3.5 to 4.4                 |
| VM100                                | Basic                                     | 2.2 to 2.9                 |
|                                      | Roller lever                              | 4.3 to 5.3                 |
|                                      | One way roller lever                      | 4.3 to 5.3                 |
|                                      | Straight plunger                          | 2.7 to 3.4                 |
|                                      | Roller plunger                            | 2.7 to 3.4                 |
|                                      | Cross roller plunger                      | 2.7 to 3.4                 |
|                                      | Basic                                     | 4.0 to 4.9                 |
| VM200                                | Roller lever                              | 8.7 to 10.7                |
|                                      | One way roller lever                      | 9.5 to 11.7                |
|                                      | Straight plunger                          | 4.5 to 5.4                 |
|                                      | Roller plunger                            | 4.5 to 5.4                 |
|                                      | Cross roller plunger                      | 4.5 to 5.4                 |
| VM400                                | Basic                                     | 2.5 to 3.4                 |
|                                      | Roller lever                              | 6.2 to 8.2                 |
|                                      | One way roller lever                      | 6.5 to 8.7                 |
|                                      | Straight plunger                          | 4.5 to 5.4                 |
|                                      | Roller plunger                            | 4.5 to 5.4                 |
| VZM500<br>VZM400<br>VFM300<br>VFM200 | Cross roller plunger                      | 4.5 to 5.4                 |
|                                      | Basic                                     | 2.0 to 2.9                 |
|                                      | Roller lever                              | 4.2 to 6.0                 |
|                                      | One way roller lever                      | 4.7 to 6.7                 |
|                                      | Straight plunger                          | 2.5 to 3.4                 |
|                                      | Roller plunger                            | 2.5 to 3.4                 |

For straight and roller plunger types, there is a groove indicating P.T. and T.T. for stroke adjustment.



### Pressure Source

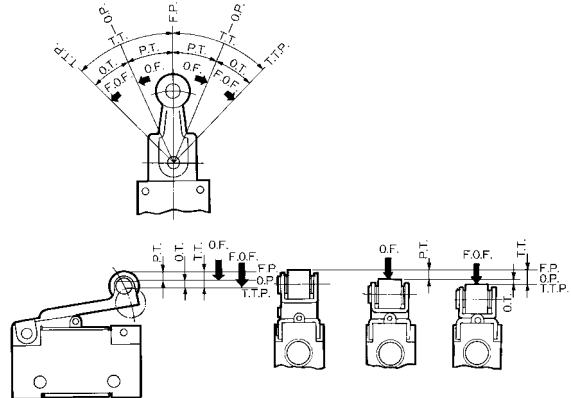
#### ⚠ Warning

Operable fluid is either air or inert gas only. It cannot be used for corrosive gas and fluid.

#### ⚠ Caution

When using vacuum pressure for VM100, supply vacuum pressure to P port.

### Definition of Symbol



- F.P. (Free Position) ..... No external force applied.  
O.P. (Operating Position) ..... Internal valve opening position.  
T.T.P. (Total Travel Position).... Includes over travel.  
O.F. (Operating Force)..... Operating force required to initial valve opening position.  
F.O.F. (Full Operating Force) .. Required force to total travel position.  
P.T. (Pre-travel) ..... From free position to initial valve operating position.  
O.T. (Over Travel)..... From initial valve operating position to total travel position.  
T.T. (Total Travel) ..... From free position to total travel position.

### Caution

This product cannot be used for applications in which the pressure must be sealed because there will be a slight leakage. Please consult with SMC for this type of application.

## ⚠ Precautions

Be sure to read before handling. Refer to pages 5-12-2 to 6 for Safety Instructions and Solenoid Valve Precautions.

### Mounting

#### ⚠ Warning

##### 2. Conditions for mechanical operation

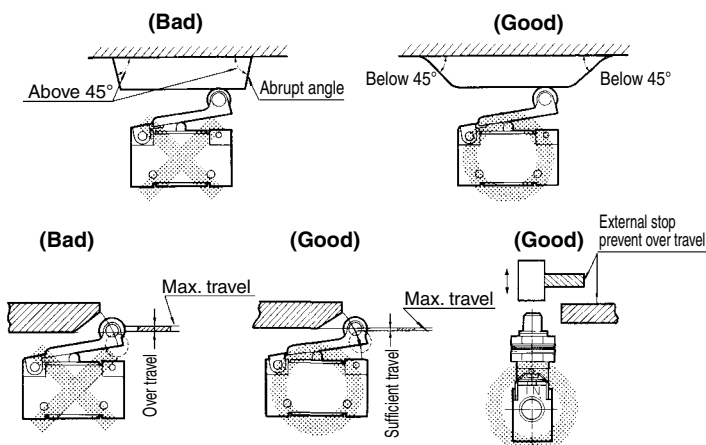
- Cam and dog angle and maximum speed

Select the angle and the maximum speed of the operating cam and the dog of the mechanism from within the selection range given in the table below.

If they are operated beyond the selection range, the cam and the dog could apply impact shocks to the actuator, leading to damage.

| Series                               | Actuator                | Angle limit switch actuator | Max. speed limit switch actuator (m/s) |
|--------------------------------------|-------------------------|-----------------------------|----------------------------------------|
| VM1000                               | Roller lever            | 30°                         | 0.7                                    |
|                                      |                         | 45°                         | 0.3                                    |
|                                      | One way roller lever    | 30°                         | 0.7                                    |
|                                      |                         | 45°                         | 0.3                                    |
| VM100<br>VM200<br>VM400              | Roller lever            | 30°                         | 0.7                                    |
|                                      |                         | 45°                         | 0.3                                    |
|                                      | One way roller lever    | 30°                         | 0.7                                    |
|                                      |                         | 45°                         | 0.3                                    |
|                                      | Straight plunger        | —                           | 0.2                                    |
|                                      | Roller plunger          | 30°                         | 0.3                                    |
| VZM500<br>VZM400<br>VFM300<br>VFM200 | Roller lever            | 30°                         | 1.5                                    |
|                                      |                         | 45°                         | 0.7                                    |
|                                      | One way roller lever    | 30°                         | 0.7                                    |
|                                      |                         | 45°                         | 0.3                                    |
|                                      | Straight plunger        | —                           | 0.4                                    |
|                                      | Roller plunger          | 30°                         | 0.7                                    |
| VM800                                | Roller lever            | 30°                         | 0.5                                    |
|                                      |                         | 45°                         | 0.2                                    |
|                                      | Adjustable roller lever | 30°                         | 0.2                                    |
|                                      |                         | 45°                         | 0.1                                    |
|                                      | Adjustable rod lever    | —                           | 0.2                                    |

Avoid abrupt angles on limit switch actuator.



### Cam and Dog Material

| Roller material | Plunger material | Plunger surface finish |
|-----------------|------------------|------------------------|
| Polyacetal      | Steel            | ▽▽▽                    |
| Steel           | Steel, Resin     | ▽▽                     |

#### 3. Never perform additional machining such as enlarging the body mounting holes.

As doing so could lead to abnormal conditions such as air leakage.

#### 4. Operate all manual valves such as the push pin types, the selector types, and the flip toggle types with your finger.

If a hammer or other tools are used, or it is operated mechanically through the use of a cylinder or the like, damage could result.

### Environments

#### ⚠ Caution

- Do not operate it in an area in which fluids such as oil, coolant, or water splash on it or dust comes in contact with it. Because it does not have a waterproof or dustproof construction, fluids or dust could enter the valve, leading to malfunction. Therefore, take measures such as providing a protective cover to prevent direct exposure.

### Maintenance

#### ⚠ Warning

- Perform inspections on a regular basis as necessary, such as at the beginning of an operation, to make sure that the mechanical valve operates properly.

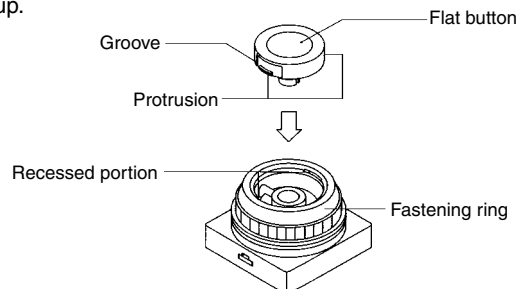
Failure to observe this precaution could lead to unsafe operation, such as unintended operation or malfunction.

### How to Change the Buttons

Replace the button in the following manner to change color of the button.

#### 1. Push button (Flush type)

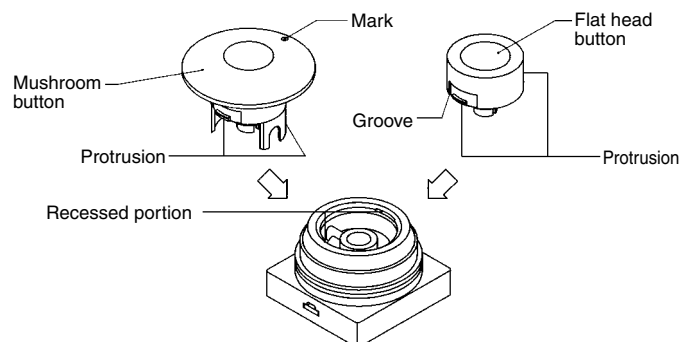
- Installation .... Of the four colors, red, green, black, and yellow, select and align the protruding portion of the button with the recessed portion of the body and push in.
- Removal .... Remove the fastening ring and insert the tip of a small flat screwdriver into the groove of the button to pry it up.



#### 2. Push button (Mushroom and extended types)

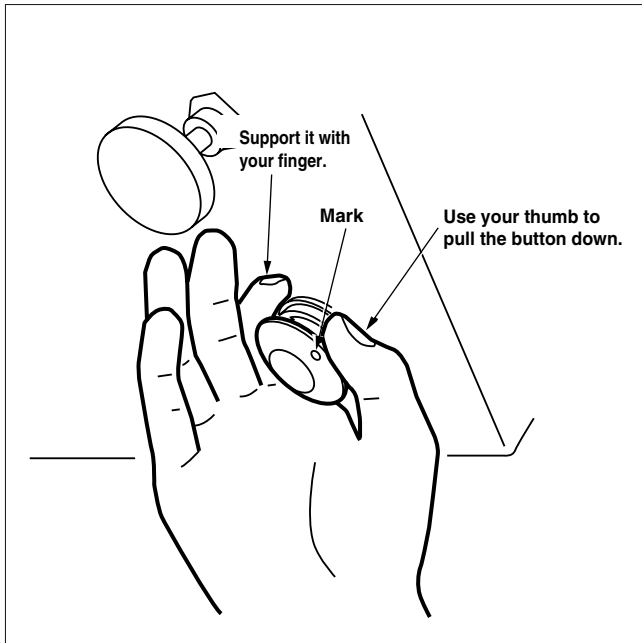
At the time of shipment, only 1 button of the color that you specified is attached to the body.

|          | Mushroom type                                                                                                                                                           | Extended type                                                                                                        |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Mounting | Align the protruding portion of the button with the recessed portion of the body and push in. (Use the mark on the button as a reference to align the protruding part.) | Align the protruding portion of the button with the recessed portion of the body and push in.                        |
| Removal  | Placing your finger under the collar of the button on the side of the mark, tilt it upward.                                                                             | Remove the fastening ring and insert the tip of a small flat screwdriver into the groove of the button to pry it up. |



## How to remove a mushroom button

How to remove at panel mount



## Replacement parts

1. Use the part numbers listed below to order individual mushroom head or flat head buttons.

| Color  | Mushroom button | Extended button |
|--------|-----------------|-----------------|
| Red    | 3402186R        | 3402187R        |
| Black  | 3402186B        | 3402187B        |
| Green  | 3402186G        | 3402187G        |
| Yellow | 3402186Y        | 3402187Y        |

| Color  | Push button (Flush) |
|--------|---------------------|
| Red    | 3402188R            |
| Black  | 3402188B            |
| Green  | 3402188G            |
| Yellow | 3402188Y            |

2. To order single fastening ring, use the part number below.  
Fastening ring: 3402184

3. To order a single push button for series VM1000 and a single cover use the part number below.

| Color | Push button | Cover for push button   |
|-------|-------------|-------------------------|
| Red   | 3410701-R   | 3410703<br>(White only) |
| Black | 3410701-B   |                         |
| Green | 3410701-G   |                         |

S□A

V□A

S□A

V□A

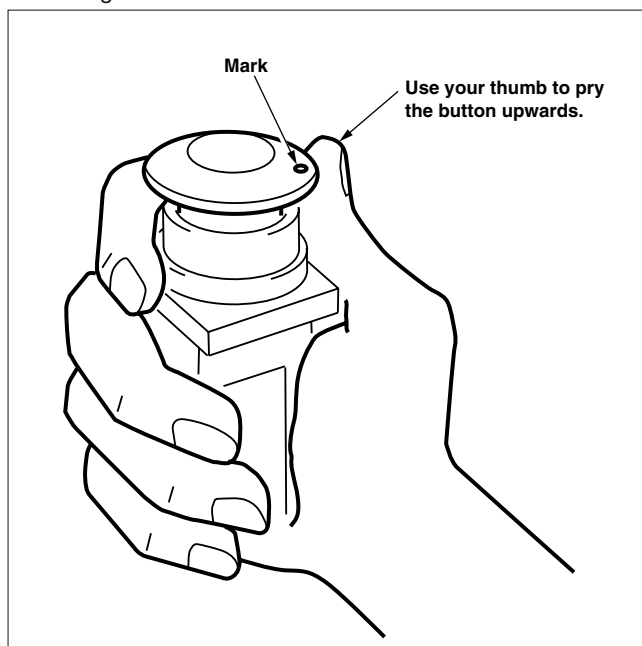
VM

VR

VH

VHS

Removing the valve as a unit



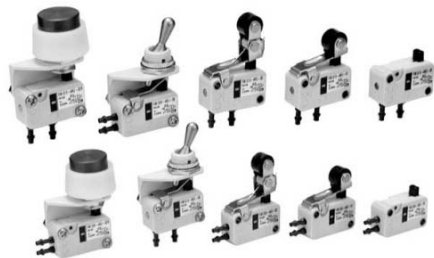
# Micro Mechanical Valve

## Series VM1000

Miniature structure requires little mounting space.

Built-in hose nipple connection.

Piping options:  
Side piping, Bottom piping  
Over Travel after actuation  
(mechanical operated types)



### Specifications

|                               |                                                                 |
|-------------------------------|-----------------------------------------------------------------|
| Valve type                    | N.C. poppet                                                     |
| Number of ports               | 2 or 3                                                          |
| Piping                        | Side or bottom ported                                           |
| Fluid                         | Air/Inert gas                                                   |
| Operating pressure            | 0 to 0.8 MPa                                                    |
| Ambient and fluid temperature | -5 to 60°C (No freezing)                                        |
| Effective area                | 1 mm <sup>2</sup>                                               |
| Lubrication                   | Not required (Use turbine oil Class 1 ISO VG32, if lubricated.) |
| Fitting                       | With hose nipple                                                |
| Weight (Basic)                | 6 g                                                             |

### Option

|                     |                |
|---------------------|----------------|
| Total travel (T.T.) | 2.5 mm (Basic) |
|---------------------|----------------|

- A commercially available actuator for the V microswitch can be installed.
- However, be aware that there are different microswitches, such as the P.T./O.T. or F.O.F. types.
- T.T. 2.5 mm is available for basic style only.

### Model

|                      | Actuator             | Piping        | Number of ports | Applicable tubing |                | Note  |
|----------------------|----------------------|---------------|-----------------|-------------------|----------------|-------|
|                      |                      |               |                 | T0425             | TU0425/ET0403  |       |
| Mechanical operation | Basic                | Side ported   | 3 port          | VM1000-4N-00      | VM1000-4NU-00  |       |
|                      |                      |               | 2 port          | VM1100-4N-00      | VM1100-4NU-00  |       |
|                      |                      | Bottom ported | 3 port          | VM1010-4N-00      | VM1010-4NU-00  |       |
|                      |                      |               | 2 port          | VM1110-4N-00      | VM1110-4NU-00  |       |
|                      | Roller lever         | Side ported   | 3 port          | VM1000-4N-01      | VM1000-4NU-01  |       |
|                      |                      |               | 2 port          | VM1100-4N-01      | VM1100-4NU-01  |       |
|                      |                      | Bottom ported | 3 port          | VM1010-4N-01      | VM1010-4NU-01  |       |
|                      |                      |               | 2 port          | VM1110-4N-01      | VM1110-4NU-01  |       |
|                      | One way roller lever | Side ported   | 3 port          | VM1000-4N-02      | VM1000-4NU-02  |       |
|                      |                      |               | 2 port          | VM1100-4N-02      | VM1100-4NU-02  |       |
|                      |                      | Bottom ported | 3 port          | VM1010-4N-02      | VM1010-4NU-02  |       |
|                      |                      |               | 2 port          | VM1110-4N-02      | VM1110-4NU-02  |       |
| Manual operation     | Toggle lever         | Side ported   | 3 port          | VM1000-4N-08      | VM1000-4NU-08  |       |
|                      |                      |               | 2 port          | VM1100-4N-08      | VM1100-4NU-08  |       |
|                      |                      | Bottom ported | 3 port          | VM1010-4N-08      | VM1010-4NU-08  |       |
|                      |                      |               | 2 port          | VM1110-4N-08      | VM1110-4NU-08  |       |
|                      | Push button          | Side ported   | 3 port          | VM1000-4N-32R     | VM1000-4NU-32R | Red   |
|                      |                      |               | 2 port          | VM1100-4N-32R     | VM1100-4NU-32R | Red   |
|                      |                      | Bottom ported | 3 port          | VM1010-4N-32R     | VM1010-4NU-32R | Red   |
|                      |                      |               | 2 port          | VM1110-4N-32R     | VM1110-4NU-32R | Red   |
|                      |                      | Side ported   | 3 port          | VM1000-4N-32B     | VM1000-4NU-32B | Black |
|                      |                      |               | 2 port          | VM1100-4N-32B     | VM1100-4NU-32B | Black |
|                      |                      | Bottom ported | 3 port          | VM1010-4N-32B     | VM1010-4NU-32B | Black |
|                      |                      |               | 2 port          | VM1110-4N-32B     | VM1110-4NU-32B | Black |
|                      |                      | Side ported   | 3 port          | VM1000-4N-32G     | VM1000-4NU-32G | Green |
|                      |                      |               | 2 port          | VM1100-4N-32G     | VM1100-4NU-32G | Green |
|                      |                      | Bottom ported | 3 port          | VM1010-4N-32G     | VM1010-4NU-32G | Green |
|                      |                      |               | 2 port          | VM1110-4N-32G     | VM1110-4NU-32G | Green |

Note) To replace the push button and push button cover alone, refer to page 5-6-7. Other parts and actuator cannot be replaced.

## How to Order

**VM1 0 0 0 4N 00 R**

- Applicable tubing (Material/Size)**

|     |                              |
|-----|------------------------------|
| 4N  | Nylon ø4/2.5 (T0425)         |
|     | Nylon ø4/3 (T0403)           |
| 4NU | Soft Nylon ø4/2.5 (TS0425)   |
|     | Polyurethane ø4/2.5 (TU0425) |
- Total travel/Basic (T.T.)**

|   |                  |
|---|------------------|
| 0 | 4.8 mm           |
| 1 | 2.5 mm (Option)* |

\* Basic only.
- Piping**

|   |               |
|---|---------------|
| 0 | Side ported   |
| 1 | Bottom ported |
- Number of ports**

|   |        |
|---|--------|
| 0 | 3 port |
| 1 | 2 port |
- Actuator type**

|    |                      |
|----|----------------------|
| 00 | Basic                |
| 01 | Roller lever         |
| 02 | One way roller lever |
| 08 | Toggle lever         |
| 32 | Push button          |
- Color of push button**

|   |       |
|---|-------|
| R | Red   |
| G | Green |
| B | Black |

S□A

V□A

S□A

V□A

VM

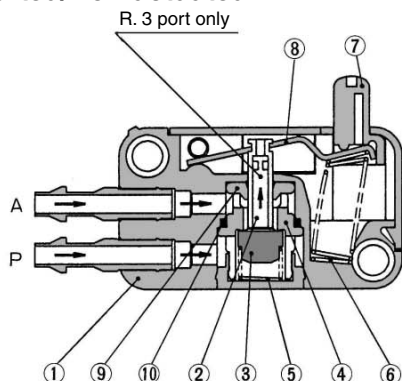
VR

VH

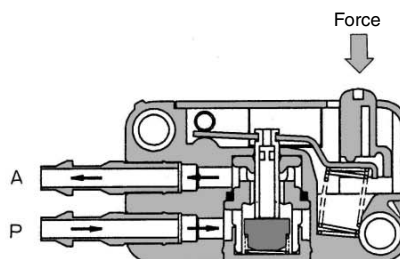
VHS

## Construction

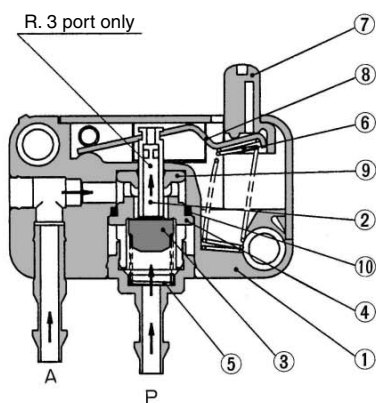
### Side ported/Non-actuated



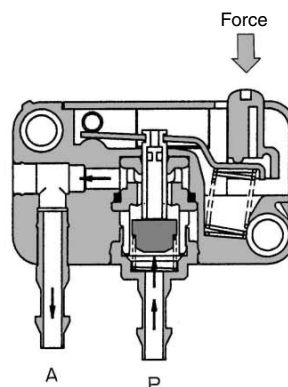
### Side ported/Actuated



### Bottom ported/Non-actuated



### Bottom ported/Actuated



## Component Parts

| No. | Description | Material        | Note |
|-----|-------------|-----------------|------|
| ①   | Body        | PBT             |      |
| ②   | Valve       | POM             |      |
| ③   | Valve       | NBR             |      |
| ④   | Retainer    | POM             |      |
| ⑤   | Spring      | Stainless steel |      |

| No. | Description | Material        | Note                          |
|-----|-------------|-----------------|-------------------------------|
| ⑥   | Spring      | Stainless steel |                               |
| ⑦   | Plunger     | POM             | T.T. = 2.5 mm only, w/threads |
| ⑧   | Lever       | Stainless steel |                               |
| ⑨   | Packing     | NBR             |                               |
| ⑩   | O-ring      | NBR             |                               |



# Series VM1000

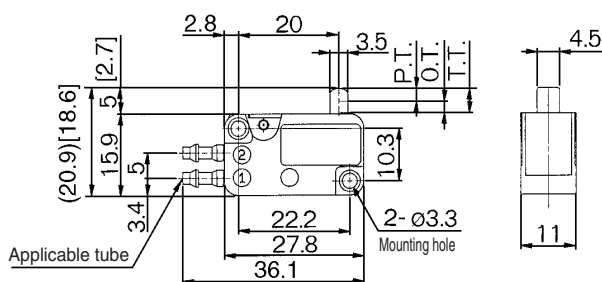
## Series VM1000/Side Ported

### Basic

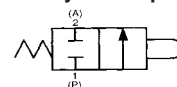
VM1000-4N-00  
VM1000-4NU-00  
VM1100-4N-00  
VM1100-4NU-00



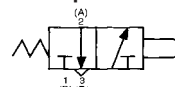
[ ]: T.T. = 2.5 mm



### JIS Symbol/2 port



### 3 port

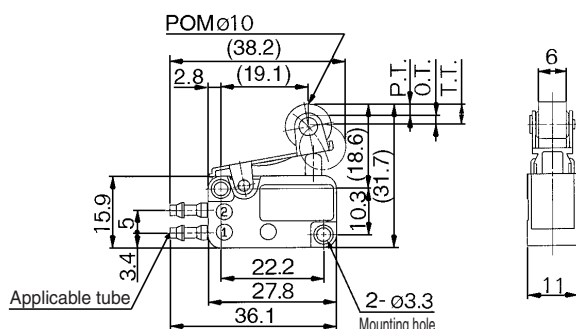


\* 0.5 MPa supply

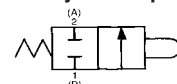
|             |        | Applicable tubing |                       |
|-------------|--------|-------------------|-----------------------|
|             |        | T0425             | TU0425, T0403, TS0425 |
| Side ported | 3 port | VM1000-4N-00      | VM1000-4NU-00         |
|             | 2 port | VM1100-4N-00      | VM1100-4NU-00         |
| F.O.F. *    |        | 6 N               |                       |
| P.T.        |        | 2.5 mm [2.0 mm]   |                       |
| O.T.        |        | 2.3 mm [0.5 mm]   |                       |
| T.T.        |        | 4.8 mm [2.5 mm]   |                       |

### Roller lever

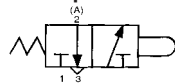
VM1000-4N-01  
VM1000-4NU-01  
VM1100-4N-01  
VM1100-4NU-01



### JIS Symbol/2 port



### 3 port

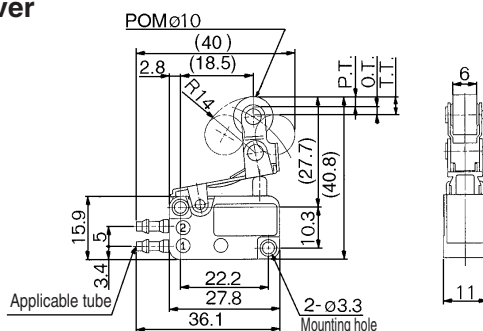


\* 0.5 MPa supply

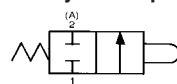
|             |        | Applicable tubing |                       |
|-------------|--------|-------------------|-----------------------|
|             |        | T0425             | TU0425, T0403, TS0425 |
| Side ported | 3 port | VM1000-4N-01      | VM1000-4NU-01         |
|             | 2 port | VM1100-4N-01      | VM1100-4NU-01         |
| F.O.F. *    |        | 6 N               |                       |
| P.T.        |        | 2.5 mm            |                       |
| O.T.        |        | 2.0 mm            |                       |
| T.T.        |        | 4.5 mm            |                       |

### One way roller lever

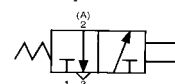
VM1000-4N-02  
VM1000-4NU-02  
VM1100-4N-02  
VM1100-4NU-02



### JIS Symbol/2 port



### 3 port

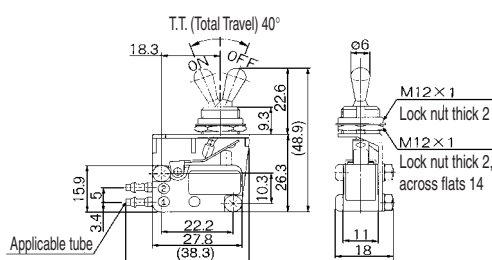


\* 0.5 MPa supply

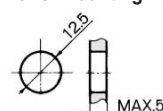
|             |        | Applicable tubing |                       |
|-------------|--------|-------------------|-----------------------|
|             |        | T0425             | TU0425, T0403, TS0425 |
| Side ported | 3 port | VM1000-4N-02      | VM1000-4NU-02         |
|             | 2 port | VM1100-4N-02      | VM1100-4NU-02         |
| F.O.F. *    |        | 6 N               |                       |
| P.T.        |        | 2.5 mm            |                       |
| O.T.        |        | 2.0 mm            |                       |
| T.T.        |        | 4.5 mm            |                       |

### Toggle lever

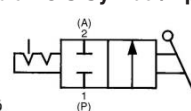
VM1000-4N-08  
VM1000-4NU-08  
VM1100-4N-08  
VM1100-4NU-08



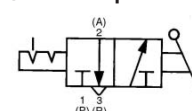
### Panel mounting hole



### JIS Symbol/2 port



### 3 port

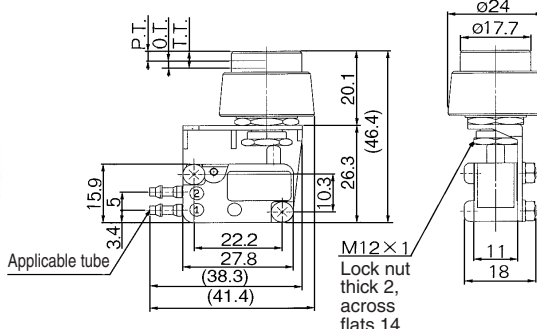


\* 0.5 MPa supply

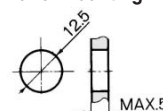
|             |        | Applicable tubing |                       |
|-------------|--------|-------------------|-----------------------|
|             |        | T0425             | TU0425, T0403, TS0425 |
| Side ported | 3 port | VM1000-4N-08      | VM1000-4NU-08         |
|             | 2 port | VM1100-4N-08      | VM1100-4NU-08         |
| F.O.F. *    |        | 4 N               |                       |
| P.T.        |        | 40°               |                       |

### Push button

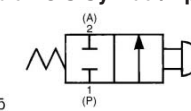
VM1000-4N-32  
VM1000-4NU-32  
VM1100-4N-32  
VM1100-4NU-32



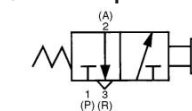
### Panel mounting hole



### JIS Symbol/2 port



### 3 port



\* 0.5 MPa supply

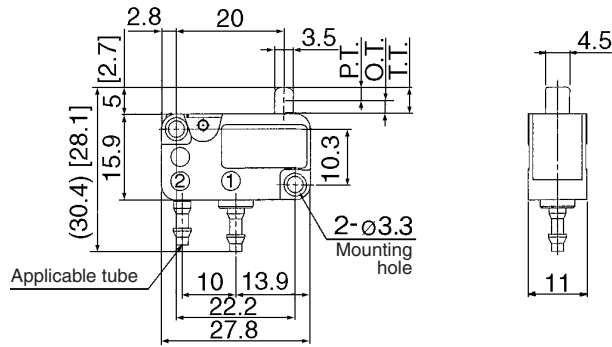
|             |        | Applicable tubing |                       |
|-------------|--------|-------------------|-----------------------|
|             |        | T0425             | TU0425, T0403, TS0425 |
| Side ported | 3 port | VM1000-4N-32      | VM1000-4NU-32         |
|             | 2 port | VM1100-4N-32      | VM1100-4NU-32         |
| F.O.F. *    |        | 6 N               |                       |
| P.T.        |        | 2.5 mm            |                       |
| O.T.        |        | 2.0 mm            |                       |
| T.T.        |        | 4.5 mm            |                       |



## Series VM1000/Bottom Ported

### Basic

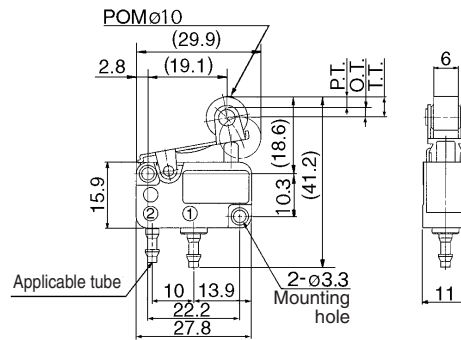
VM1010-4N-00  
VM1010-4NU-00  
VM1110-4N-00  
VM1110-4NU-00



|               |        | Applicable tubing |                       |
|---------------|--------|-------------------|-----------------------|
|               |        | T0425             | TU0425, T0403, TS0425 |
| Bottom ported | 3 port | VM1010-4N-00      | VM1010-4NU-00         |
|               | 2 port | VM1110-4N-00      | VM1110-4NU-00         |
| F.O.F. *      |        | 6 N               |                       |
| P.T.          |        | 2.5 mm            |                       |
| O.T.          |        | 2.3 mm [0.5 mm]   |                       |
| T.T.          |        | 4.8 mm [2.5 mm]   |                       |

### Roller lever

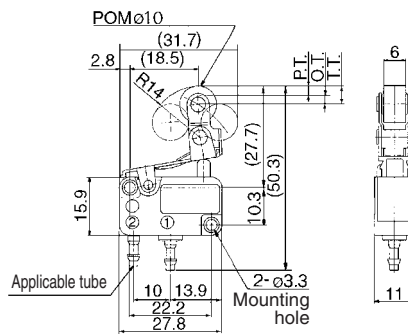
VM1010-4N-01  
VM1010-4NU-01  
VM1110-4N-01  
VM1110-4NU-01



|               |        | Applicable tubing |                       |
|---------------|--------|-------------------|-----------------------|
|               |        | T0425             | TU0425, T0403, TS0425 |
| Bottom ported | 3 port | VM1010-4N-01      | VM1010-4NU-01         |
|               | 2 port | VM1110-4N-01      | VM1110-4NU-01         |
| F.O.F. *      |        | 6 N               |                       |
| P.T.          |        | 2.5 mm            |                       |
| O.T.          |        | 2.0 mm            |                       |
| T.T.          |        | 4.5 mm            |                       |

### One way roller lever

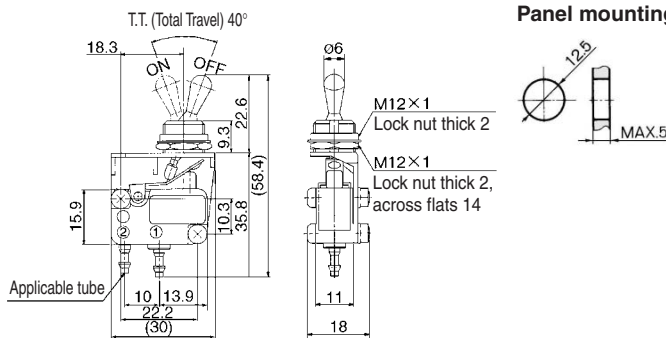
VM1010-4N-02  
VM1010-4NU-02  
VM1110-4N-02  
VM1110-4NU-02



|               |        | Applicable tubing |                       |
|---------------|--------|-------------------|-----------------------|
|               |        | T0425             | TU0425, T0403, TS0425 |
| Bottom ported | 3 port | VM1010-4N-02      | VM1010-4NU-02         |
|               | 2 port | VM1110-4N-02      | VM1110-4NU-02         |
| F.O.F. *      |        | 6 N               |                       |
| P.T.          |        | 2.5 mm            |                       |
| O.T.          |        | 2.0 mm            |                       |
| T.T.          |        | 4.5 mm            |                       |

### Toggle lever

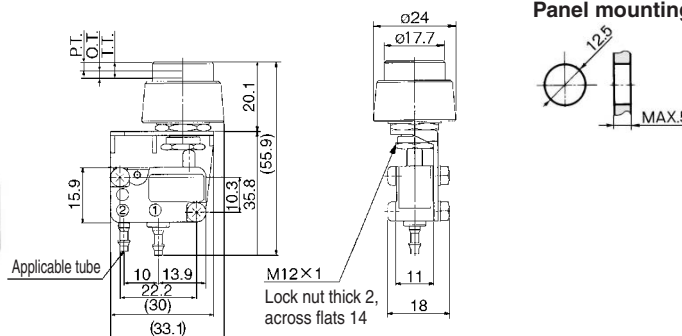
VM1010-4N-08  
VM1010-4NU-08  
VM1110-4N-08  
VM1110-4NU-08



|               |        | Applicable tubing |                       |
|---------------|--------|-------------------|-----------------------|
|               |        | T0425             | TU0425, T0403, TS0425 |
| Bottom ported | 3 port | VM1010-4N-08      | VM1010-4NU-08         |
|               | 2 port | VM1110-4N-08      | VM1110-4NU-08         |
| F.O.F. *      |        | 4 N               |                       |
| T.T.          |        | 40°               |                       |

### Push button

VM1010-4N-32  
VM1010-4NU-32  
VM1110-4N-32  
VM1110-4NU-32



|               |        | Applicable tubing |                       |
|---------------|--------|-------------------|-----------------------|
|               |        | T0425             | TU0425, T0403, TS0425 |
| Bottom ported | 3 port | VM1010-4N-32      | VM1010-4NU-32         |
|               | 2 port | VM1110-4N-32      | VM1110-4NU-32         |
| F.O.F. *      |        | 6 N               |                       |
| P.T.          |        | 2.5 mm            |                       |
| O.T.          |        | 2.0 mm            |                       |
| T.T.          |        | 4.5 mm            |                       |

# 2/3 Port Mechanical Valve

## Series VM100

**Compact size.**  
**Piping options:**  
**Side piping, Bottom piping**  
**A variety of actuator types.**



### Specifications

| Piping                        | Side ported                                                     | Bottom ported |
|-------------------------------|-----------------------------------------------------------------|---------------|
| Fluid                         | Air/Inert gas                                                   |               |
| Operating pressure            | -100 kPa to 1.0 MPa                                             |               |
| Ambient and fluid temperature | -5 to 60°C (No freezing)                                        |               |
| Effective area                | 2.5 mm <sup>2</sup>                                             |               |
| Lubrication                   | Not required (Use turbine oil Class 1 ISO VG32, if lubricated.) |               |
| Port size                     | 1/8                                                             | M5 x 0.8      |
| Weight (Basic)                | 95 g                                                            | 110 g         |

### Model

|                      |                             | Side ported  |              | Bottom ported |              | Actuator part no. | Application                             |
|----------------------|-----------------------------|--------------|--------------|---------------|--------------|-------------------|-----------------------------------------|
|                      |                             | 2 port       | 3 port       | 2 port        | 3 port       |                   |                                         |
| Mechanical operation | Basic                       | VM120-01-00  | VM130-01-00  | VM122-M5-00   | VM132-M5-00  | —                 |                                         |
|                      |                             | VM121-01-00  | VM131-01-00  | VM123-M5-00   | VM133-M5-00  | —                 |                                         |
|                      | Roller lever                | VM121-01-01  | VM131-01-01  | VM123-M5-01   | VM133-M5-01  | —                 | Polyacetal roller                       |
|                      |                             | VM121-01-01S | VM131-01-01S | VM123-M5-01S  | VM133-M5-01S | —                 | Hard steel roller                       |
|                      | One way roller lever        | VM121-01-02  | VM131-01-02  | VM123-M5-02   | VM133-M5-02  | —                 | Polyacetal roller                       |
|                      |                             | VM121-01-02S | VM131-01-02S | VM123-M5-02S  | VM133-M5-02S | —                 | Hard steel roller                       |
|                      | Straight plunger            | VM120-01-05  | VM130-01-05  | VM122-M5-05   | VM132-M5-05  | VM-05B            | —                                       |
|                      | Roller plunger              | VM120-01-06  | VM130-01-06  | VM122-M5-06   | VM132-M5-06  | VM-06B            | Polyacetal roller                       |
|                      |                             | VM120-01-06S | VM130-01-06S | VM122-M5-06S  | VM132-M5-06S | VM-06BS           | Hard steel roller                       |
|                      | Cross roller plunger        | VM120-01-07  | VM130-01-07  | VM122-M5-07   | VM132-M5-07  | VM-07B            | Polyacetal roller                       |
|                      |                             | VM120-01-07S | VM130-01-07S | VM122-M5-07S  | VM132-M5-07S | VM-07BS           | Hard steel roller                       |
| Manual operation     | Toggle lever                | VM120-01-08  | VM130-01-08  | VM122-M5-08   | VM132-M5-08  | VM-08B            |                                         |
|                      | Push button (Mushroom)      | VM120-01-30R | VM130-01-30R | VM122-M5-30R  | VM132-M5-30R | VM-30AR           | Red                                     |
|                      |                             | VM120-01-30B | VM130-01-30B | VM122-M5-30B  | VM132-M5-30B | VM-30AB           | Black                                   |
|                      |                             | VM120-01-30G | VM130-01-30G | VM122-M5-30G  | VM132-M5-30G | VM-30AG           | Green                                   |
|                      |                             | VM120-01-30Y | VM130-01-30Y | VM122-M5-30Y  | VM132-M5-30Y | VM-30AY           | Yellow                                  |
|                      | Push button (Extended)      | VM120-01-32R | VM130-01-32R | VM122-M5-32R  | VM132-M5-32R | VM-32AR           | Red                                     |
|                      |                             | VM120-01-32B | VM130-01-32B | VM122-M5-32B  | VM132-M5-32B | VM-32AB           | Black                                   |
|                      |                             | VM120-01-32G | VM130-01-32G | VM122-M5-32G  | VM132-M5-32G | VM-32AG           | Green                                   |
|                      |                             | VM120-01-32Y | VM130-01-32Y | VM122-M5-32Y  | VM132-M5-32Y | VM-32AY           | Yellow                                  |
|                      | Push button (Flush)         | VM120-01-33  | VM130-01-33  | VM122-M5-33   | VM132-M5-33  | VM-33A            | With a set of red, black, green, yellow |
|                      | Twist selector (2 position) | VM120-01-34R | VM130-01-34R | VM122-M5-34R  | VM132-M5-34R | VM-34AR           | Red                                     |
|                      |                             | VM120-01-34B | VM130-01-34B | VM122-M5-34B  | VM132-M5-34B | VM-34AB           | Black                                   |
|                      |                             | VM120-01-34G | VM130-01-34G | VM122-M5-34G  | VM132-M5-34G | VM-34AG           | Green                                   |
|                      |                             | VM120-01-34Y | VM130-01-34Y | VM122-M5-34Y  | VM132-M5-34Y | VM-34AY           | Yellow                                  |
|                      | Key selector (2 position)   | VM120-01-36  | VM130-01-36  | VM122-M5-36   | VM132-M5-36  | VM-36A            |                                         |
|                      | Twist selector (3 position) | VM131-01-35R | VM151-01-35R | VM133-M5-35R  | VM153-M5-35R | —                 | Red                                     |
|                      |                             | VM131-01-35B | VM151-01-35B | VM133-M5-35B  | VM153-M5-35B | —                 | Black                                   |
|                      |                             | VM131-01-35G | VM151-01-35G | VM133-M5-35G  | VM153-M5-35G | —                 | Green                                   |
|                      |                             | VM131-01-35Y | VM151-01-35Y | VM133-M5-35Y  | VM153-M5-35Y | —                 | Yellow                                  |
|                      |                             | (3 port)     | (5 port)     | (3 port)      | (5 port)     | —                 |                                         |



Note 1) Actuator replacement is available for all types except for roller lever, one way roller lever, and 3 position selector.

Note 2) For push button (mushroom), push button (extended), push button (flush) and a single unit of fastening ring, refer to pages 5-6-6 to 5-6-7. The other parts are not replaceable.

Note 3) The handle of the selector (2 position and 3 position) cannot be removed or replaced alone.

## How to Order

VM1 3 1 01 01 S

### Port size

|     |                          |
|-----|--------------------------|
| 01  | Rc 1/8                   |
| M5  | M5 x 0.8 (Female thread) |
| N01 | NPT 1/8                  |
| F01 | G 1/8                    |

### Piping direction and the length of push rod

|   | Long | Side ported   |
|---|------|---------------|
| 0 |      |               |
| 1 |      |               |
|   | Long | Bottom ported |
| 2 |      |               |
| 3 |      |               |

### Number of ports

|   |        |
|---|--------|
| 2 | 2 port |
| 3 | 3 port |

### Actuator type

|    |                             |
|----|-----------------------------|
| 00 | Basic                       |
| 01 | Roller lever                |
| 02 | One way roller lever        |
| 05 | Straight plunger            |
| 06 | Roller plunger              |
| 07 | Cross roller plunger        |
| 08 | Toggle lever                |
| 30 | Push button (Mushroom)      |
| 32 | Push button (Extended)      |
| 33 | Push button (Flush)         |
| 34 | Twist selector (2 position) |
| 36 | Key selector (2 position)   |
| 35 | Twist selector (3 position) |

### Suffix for actuator

|   |                   |
|---|-------------------|
| S | Hard steel roller |
| R | Red               |
| B | Black             |
| G | Green             |
| Y | Yellow            |

Color of push button selector

### Suffix for indicator light

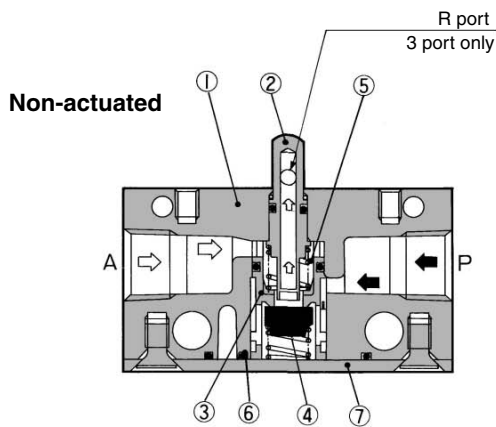
|   |                                                          |
|---|----------------------------------------------------------|
| Z | With miniature indicator light (Bottom piping type only) |
|---|----------------------------------------------------------|

| Actuator                    | Height of rod push | Side ported |       | Bottom ported |       |
|-----------------------------|--------------------|-------------|-------|---------------|-------|
|                             |                    | Long        | Short | Long          | Short |
| Basic                       | 00                 | ○           | ○     | ○             | ○     |
| Roller lever                | 01                 | x           | ○     | x             | ○     |
| One way roller lever        | 02                 | x           | ○     | x             | ○     |
| Straight plunger            | 05                 | ○           | x     | ○             | x     |
| Roller plunger              | 06                 | ○           | x     | ○             | x     |
| Cross roller plunger        | 07                 | ○           | x     | ○             | x     |
| Toggle lever                | 08                 | ○           | x     | ○             | x     |
| Push button (Mushroom)      | 30                 | ○           | x     | ○             | x     |
| Push button (Extended)      | 32                 | ○           | x     | ○             | x     |
| Push button (Flush)         | 33                 | ○           | x     | ○             | x     |
| Twist selector (2 position) | 34                 | ○           | x     | ○             | x     |
| Key selector (2 position)   | 36                 | ○           | x     | ○             | x     |
| Twist selector (3 position) | 35                 | x           | ○     | x             | ○     |

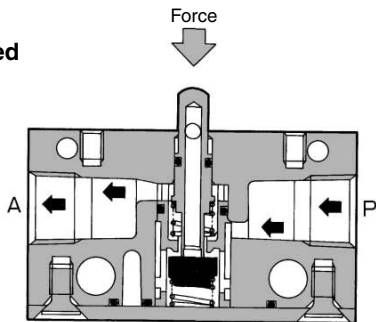
Combination possible: ○, Combination impossible: x

## Construction

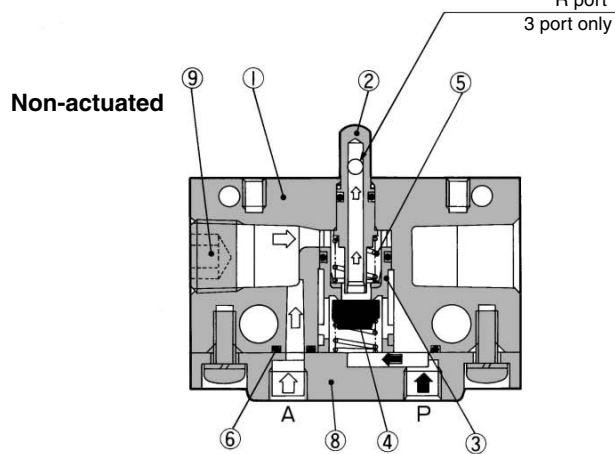
### Side ported



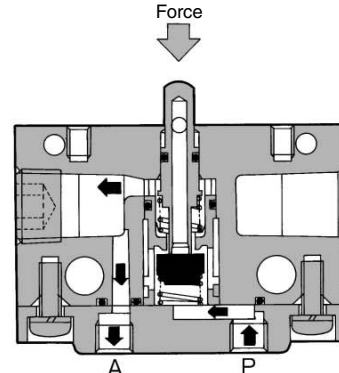
### Actuated



### Bottom ported



### Actuated



## Component Parts

| No. | Description | Material        | Note            |
|-----|-------------|-----------------|-----------------|
| ①   | Valve       | ZDC             | Metallic plated |
| ②   | Plunger     | POM             |                 |
| ③   | Valve sheet | POM             |                 |
| ④   | Valve       | NBR             |                 |
| ⑤   | Spring      | Stainless steel |                 |

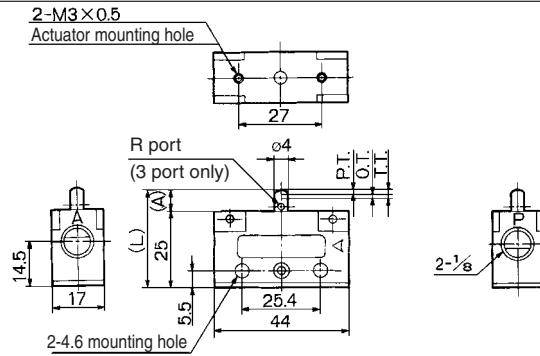
| No. | Description              | Material     | Note            |
|-----|--------------------------|--------------|-----------------|
| ⑥   | Gasket                   | NBR          |                 |
| ⑦   | Cover                    | Rolled steel |                 |
| ⑧   | Sub-plate                | ZDC          | Metallic plated |
| ⑨   | Hexagon socket head plug | Rolled steel |                 |

# Series VM100

## Series VM100/Side Ported

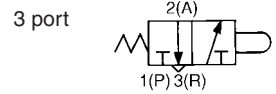
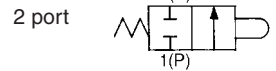
### Basic

VM120-01-00  
VM130-01-00  
VM121-01-00  
VM131-01-00



| Model                      | L    | A   |
|----------------------------|------|-----|
| VM120-01-00<br>VM130-01-00 | 32.5 | 7.5 |
| VM121-01-00<br>VM131-01-00 | 28.5 | 3.5 |

### JIS Symbol

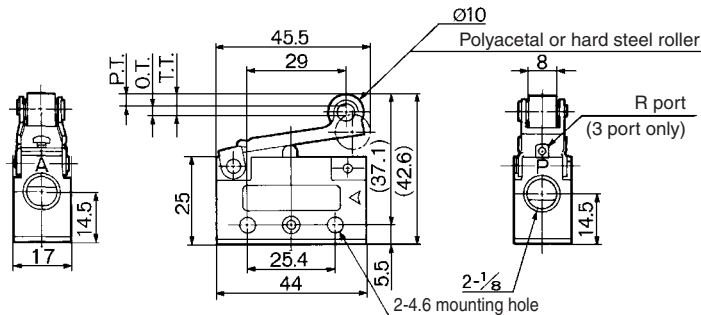


\* 0.5 MPa supply

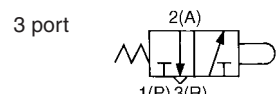
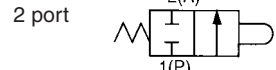
|          |        |
|----------|--------|
| F.O.F. * | 20 N   |
| P.T.     | 1.5 mm |
| O.T.     | 1.5 mm |
| T.T.     | 3.0 mm |

### Roller lever

VM121-01-01  
VM131-01-01  
VM121-01-01S  
VM131-01-01S



### JIS Symbol

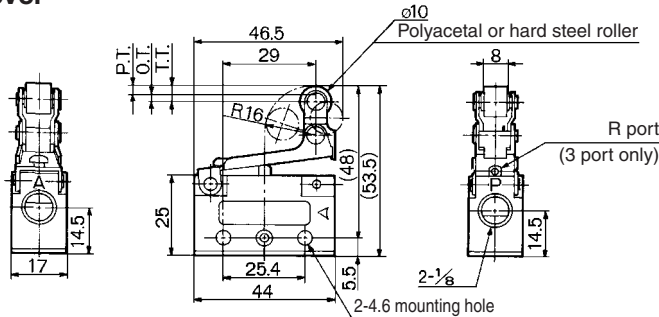


\* 0.5 MPa supply

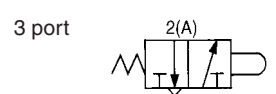
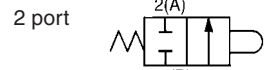
|          |        |
|----------|--------|
| F.O.F. * | 10 N   |
| P.T.     | 3.2 mm |
| O.T.     | 2.3 mm |
| T.T.     | 5.5 mm |

### One way roller lever

VM121-01-02  
VM131-01-02  
VM121-01-02S  
VM131-01-02S



### JIS Symbol

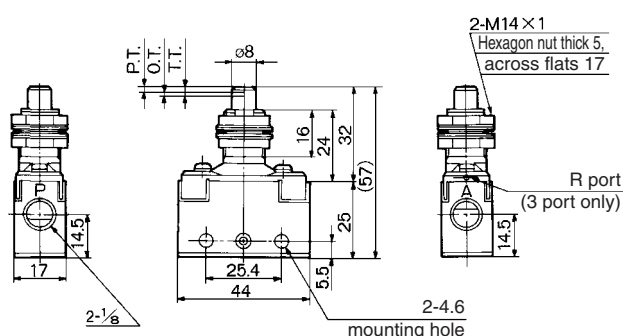


\* 0.5 MPa supply

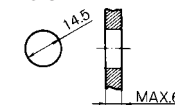
|          |        |
|----------|--------|
| F.O.F. * | 10 N   |
| P.T.     | 3.2 mm |
| O.T.     | 2.3 mm |
| T.T.     | 5.5 mm |

### Straight plunger

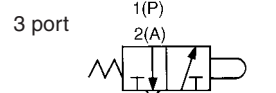
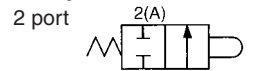
VM120-01-05  
VM130-01-05



### Panel mounting hole



### JIS Symbol

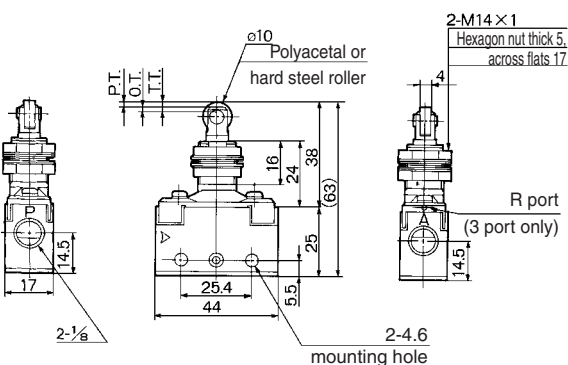


\* 0.5 MPa supply

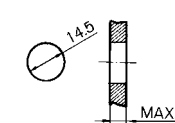
|          |        |
|----------|--------|
| F.O.F. * | 23 N   |
| P.T.     | 2.0 mm |
| O.T.     | 1.5 mm |
| T.T.     | 3.5 mm |

### Roller plunger

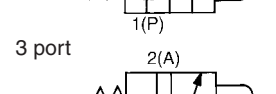
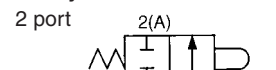
VM120-01-06  
VM130-01-06  
VM120-01-06S  
VM130-01-06S



### Panel mounting hole



### JIS Symbol



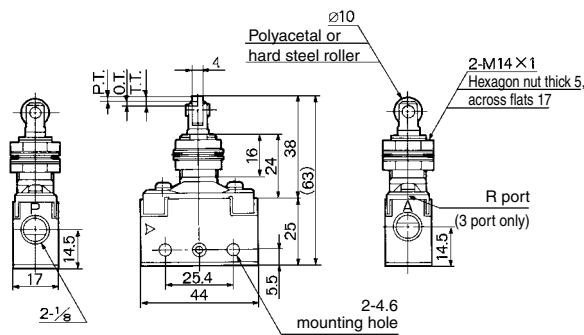
\* 0.5 MPa supply

|          |        |
|----------|--------|
| F.O.F. * | 23 N   |
| P.T.     | 2.0 mm |
| O.T.     | 1.5 mm |
| T.T.     | 3.5 mm |

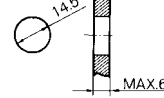
## Series VM100/Side Ported

### Cross roller plunger

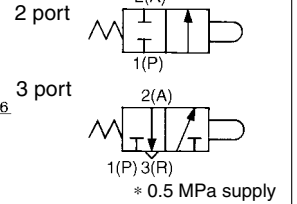
VM120-01-07  
VM130-01-07  
VM120-01-07S  
VM130-01-07S



#### Panel mounting hole



#### JIS Symbol



|          |        |
|----------|--------|
| F.O.F. * | 23 N   |
| P.T.     | 2 mm   |
| O.T.     | 1.5 mm |
| T.T.     | 3.5 mm |

S□A

V□A

S□A

V□A

VM

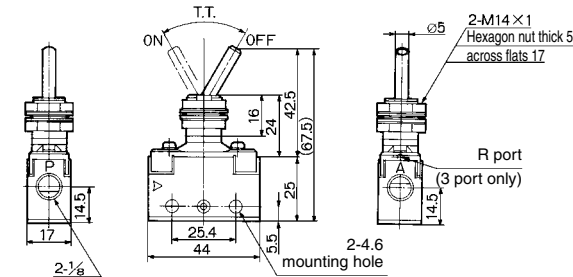
VR

VH

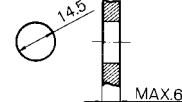
VHS

### Toggle lever

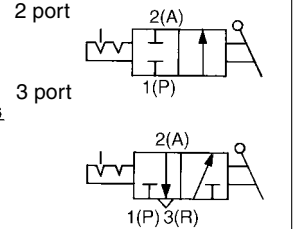
VM120-01-08  
VM130-01-08



#### Panel mounting hole



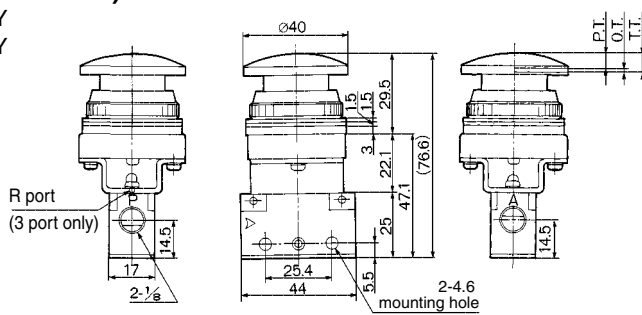
#### JIS Symbol



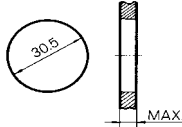
|          |      |
|----------|------|
| F.O.F. * | 10 N |
| T.T.     | 60°  |

### Push button (Mushroom)

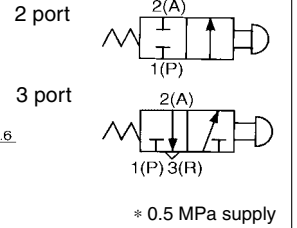
VM120-01-30R/B/G/Y  
VM130-01-30R/B/G/Y



#### Panel mounting hole



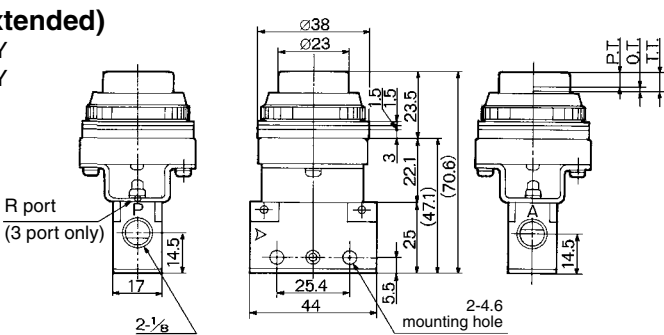
#### JIS Symbol



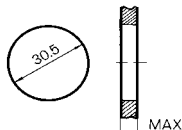
|          |        |
|----------|--------|
| F.O.F. * | 21 N   |
| P.T.     | 4.9 mm |
| O.T.     | 1.6 mm |
| T.T.     | 6.5 mm |

### Push button (Extended)

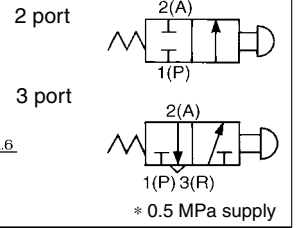
VM120-01-32R/B/G/Y  
VM130-01-32R/B/G/Y



#### Panel mounting hole



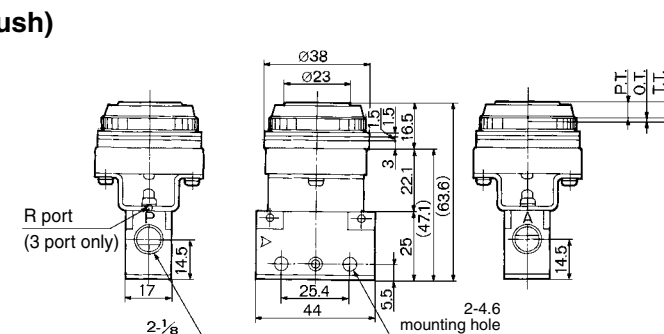
#### JIS Symbol



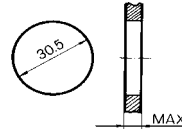
|          |        |
|----------|--------|
| F.O.F. * | 21 N   |
| P.T.     | 4.9 mm |
| O.T.     | 1.6 mm |
| T.T.     | 6.5 mm |

### Push button (Flush)

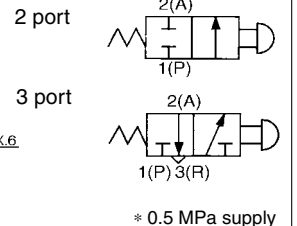
VM120-01-33  
VM130-01-33



#### Panel mounting hole



#### JIS Symbol



|          |        |
|----------|--------|
| F.O.F. * | 21 N   |
| P.T.     | 4.9 mm |
| O.T.     | 1.6 mm |
| T.T.     | 6.5 mm |

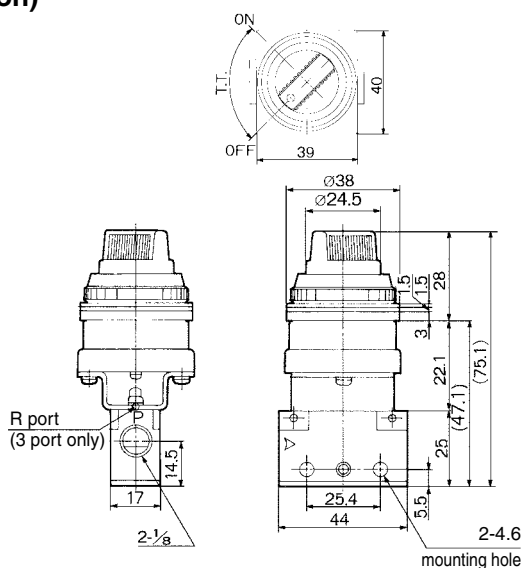


# Series VM100

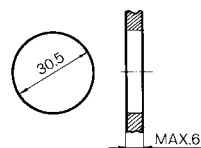
## Series VM100/Side Ported

### Twist selector (2 position)

VM120-01-34R/B/G/Y  
VM130-01-34R/B/G/Y

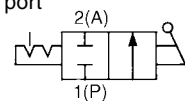


#### Panel mounting hole

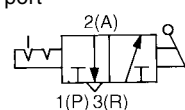


#### JIS Symbol

2 port



3 port

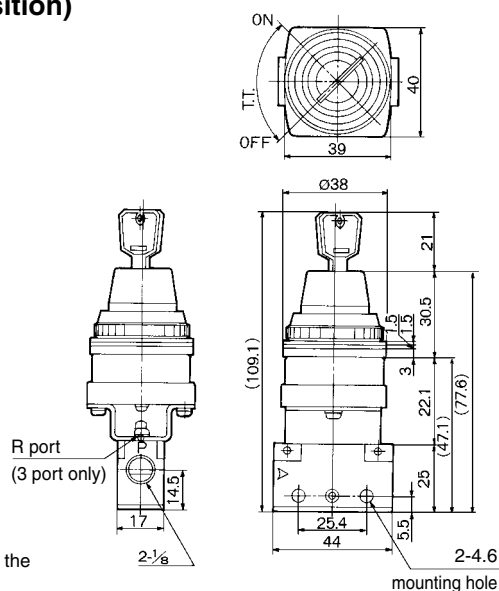


\* 0.5 MPa supply

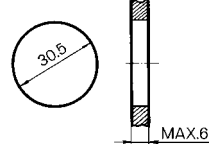
|          |      |
|----------|------|
| F.O.F. * | 15 N |
| T.T.     | 90°  |

### Key selector (2 position)

VM120-01-36  
VM130-01-36

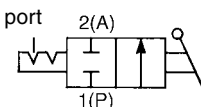


#### Panel mounting hole

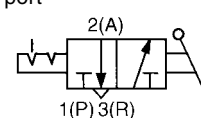


#### JIS Symbol

2 port



3 port



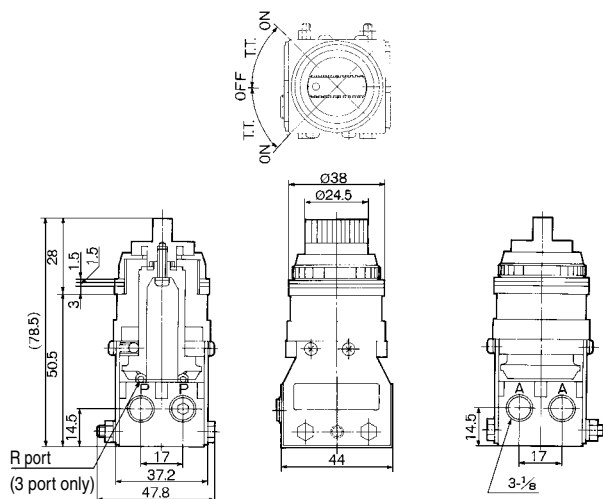
\* 0.5 MPa supply

|          |      |
|----------|------|
| F.O.F. * | 15 N |
| T.T.     | 90°  |

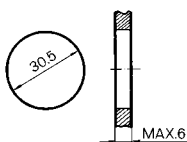
Key can be removed at the "on" and "off" positions.

### Twist selector (3 position)

VM131-01-35R/B/G/Y  
VM151-01-35R/B/G/Y

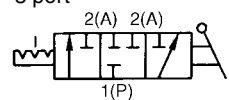


#### Panel mounting hole

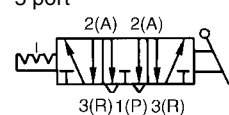


#### JIS Symbol

3 port



5 port



\* 0.5 MPa supply

|          |      |
|----------|------|
| F.O.F. * | 15 N |
| T.T.     | 45°  |



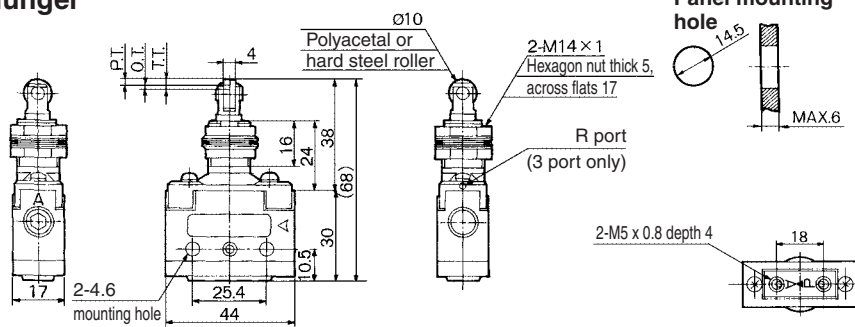


# Series VM100

## Series VM100/Bottom Ported

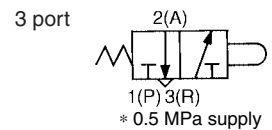
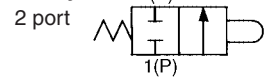
### Cross roller plunger

VM122-M5-07  
VM132-M5-07  
VM122-M5-07S  
VM132-M5-07S



### Panel mounting hole

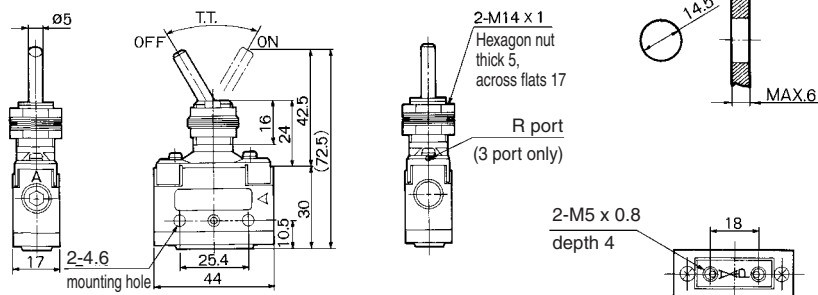
### JIS Symbol



|          |        |
|----------|--------|
| F.O.F. * | 23 N   |
| P.T.     | 2 mm   |
| O.T.     | 1.5 mm |
| T.T.     | 3.5 mm |

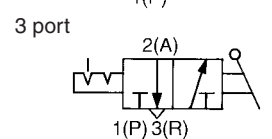
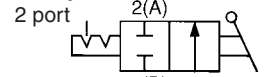
### Toggle lever

VM122-M5-08  
VM132-M5-08



### Panel mounting hole

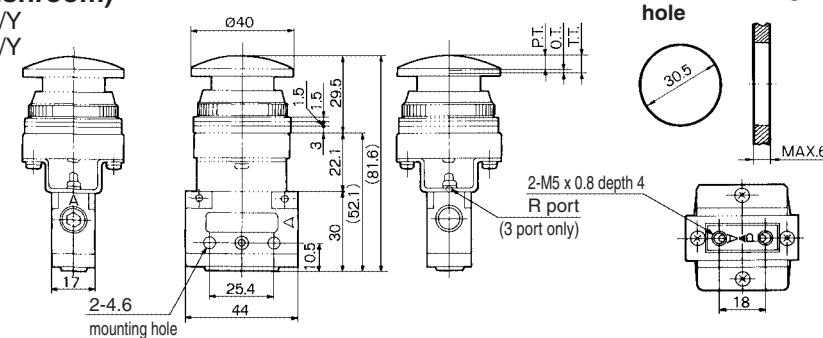
### JIS Symbol



|          |      |
|----------|------|
| F.O.F. * | 10 N |
| P.T.     | 60°  |

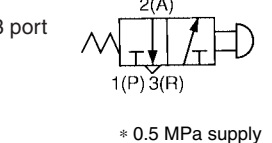
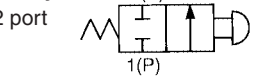
### Push button (Mushroom)

VM122-M5-30R/B/G/Y  
VM132-M5-30R/B/G/Y



### Panel mounting hole

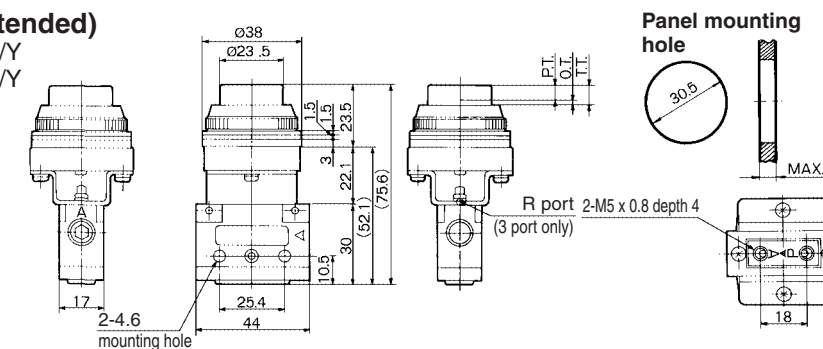
### JIS Symbol



|          |        |
|----------|--------|
| F.O.F. * | 21 N   |
| P.T.     | 4.9 mm |
| O.T.     | 1.6 mm |
| T.T.     | 6.5 mm |

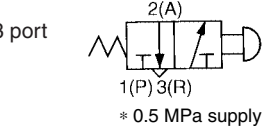
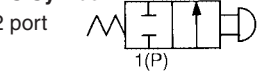
### Push button (Extended)

VM122-M5-32R/B/G/Y  
VM132-M5-32R/B/G/Y



### Panel mounting hole

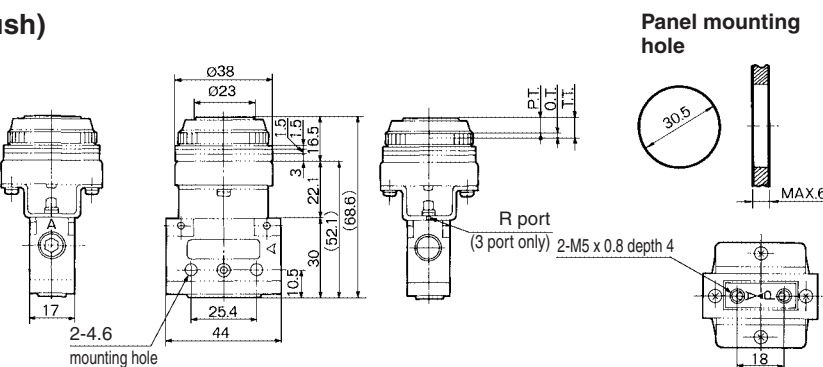
### JIS Symbol



|          |        |
|----------|--------|
| F.O.F. * | 21 N   |
| P.T.     | 4.9 mm |
| O.T.     | 1.6 mm |
| T.T.     | 6.5 mm |

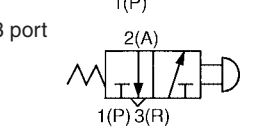
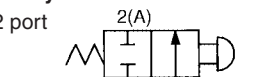
### Push button (Flush)

VM122-M5-33  
VM132-M5-33



### Panel mounting hole

### JIS Symbol



|          |        |
|----------|--------|
| F.O.F. * | 21 N   |
| P.T.     | 4.9 mm |
| O.T.     | 1.6 mm |
| T.T.     | 6.5 mm |



# 2/3 Port Mechanical Valve

## Series VM200

Large flow capacity.  
A variety of actuator types.



### Specifications

|                               |                                                                 |
|-------------------------------|-----------------------------------------------------------------|
| Fluid                         | Air/Inert gas                                                   |
| Operating pressure            | 0 to 1.0 MPa                                                    |
| Ambient and fluid temperature | -5 to 60°C (No freezing)                                        |
| Effective area                | 19 mm <sup>2</sup>                                              |
| Lubrication                   | Not required (Use turbine oil Class 1 ISO VG32, if lubricated.) |
| Port size                     | 1/4                                                             |
| Weight (Basic)                | 111 g                                                           |

### Model

| No. of ports         |                             | 2 port       | 3 port       | Actuator part no. | Application                             |
|----------------------|-----------------------------|--------------|--------------|-------------------|-----------------------------------------|
| Mechanical operation | Actuator                    |              |              |                   |                                         |
|                      | Basic                       | VM220-02-00  | VM230-02-00  | —                 | —                                       |
|                      | Roller lever                | VM220-02-01  | VM230-02-01  | VM-01A            | Polyacetal roller                       |
|                      |                             | VM220-02-01S | VM230-02-01S | VM-01AS           | Hard steel roller                       |
|                      | One way roller lever        | VM220-02-02  | VM230-02-02  | VM-02A            | Polyacetal roller                       |
|                      |                             | VM220-02-02S | VM230-02-02S | VM-02AS           | Hard steel roller                       |
|                      | Straight plunger            | VM220-02-05  | VM230-02-05  | VM-05A            | —                                       |
|                      | Roller plunger              | VM220-02-06  | VM230-02-06  | VM-06A            | Polyacetal roller                       |
|                      |                             | VM220-02-06S | VM230-02-06S | VM-06AS           | Hard steel roller                       |
|                      | Cross roller plunger        | VM220-02-07  | VM230-02-07  | VM-07A            | Polyacetal roller                       |
|                      |                             | VM220-02-07S | VM230-02-07S | VM-07AS           | Hard steel roller                       |
| Manual operation     | Toggle lever                | VM220-02-08  | VM230-02-08  | VM-08A            | —                                       |
|                      | Push button (Mushroom)      | VM220-02-30R | VM230-02-30R | VM-30AR           | Red                                     |
|                      |                             | VM220-02-30B | VM230-02-30B | VM-30AB           | Black                                   |
|                      |                             | VM220-02-30G | VM230-02-30G | VM-30AG           | Green                                   |
|                      |                             | VM220-02-30Y | VM230-02-30Y | VM-30AY           | Yellow                                  |
|                      | Push button (Extended)      | VM220-02-32R | VM230-02-32R | VM-32AR           | Red                                     |
|                      |                             | VM220-02-32B | VM230-02-32B | VM-32AB           | Black                                   |
|                      |                             | VM220-02-32G | VM230-02-32G | VM-32AG           | Green                                   |
|                      |                             | VM220-02-32Y | VM230-02-32Y | VM-32AY           | Yellow                                  |
|                      | Push button (Flush)         | VM220-02-33  | VM230-02-33  | VM-33A            | With a set of red, black, green, yellow |
|                      | Twist selector (2 position) | VM220-02-34R | VM230-02-34R | VM-34AR           | Red                                     |
|                      |                             | VM220-02-34B | VM230-02-34B | VM-34AB           | Black                                   |
|                      |                             | VM220-02-34G | VM230-02-34G | VM-34AG           | Green                                   |
|                      |                             | VM220-02-34Y | VM230-02-34Y | VM-34AY           | Yellow                                  |
|                      | Key selector (2 position)   | VM220-02-36  | VM230-02-36  | VM-36A            | —                                       |
|                      | Twist selector (3 position) | VM230-02-35R | VM250-02-35R | —                 | Red                                     |
|                      |                             | VM230-02-35B | VM250-02-35B | —                 | Black                                   |
|                      |                             | VM230-02-35G | VM250-02-35G | —                 | Green                                   |
|                      |                             | VM230-02-35Y | VM250-02-35Y | —                 | Yellow                                  |
|                      |                             | (3 port)     | (5 port)     | —                 | —                                       |
|                      | Foot pedal                  | VM220-02-40  | VM230-02-40  | —                 | —                                       |



Note 1) Actuator replacement is available for all types except twist selector (3 position) and foot pedal.

Note 2) For push button (mushroom), push button (extended), push button (flush) and a single unit of fastening ring, refer to pages 5-6-6 to 5-6-7. The other parts are not replaceable.

Note 3) The handle of the selector (2 position and 3 position) cannot be removed or replaced alone.

How to Order

VM2

3

0

02

01

S

Number of ports

|   |        |
|---|--------|
| 2 | 2 port |
| 3 | 3 port |

Port size

|     |         |
|-----|---------|
| 02  | Rc 1/4  |
| N02 | NPT 1/4 |
| F02 | G 1/4   |

Actuator type

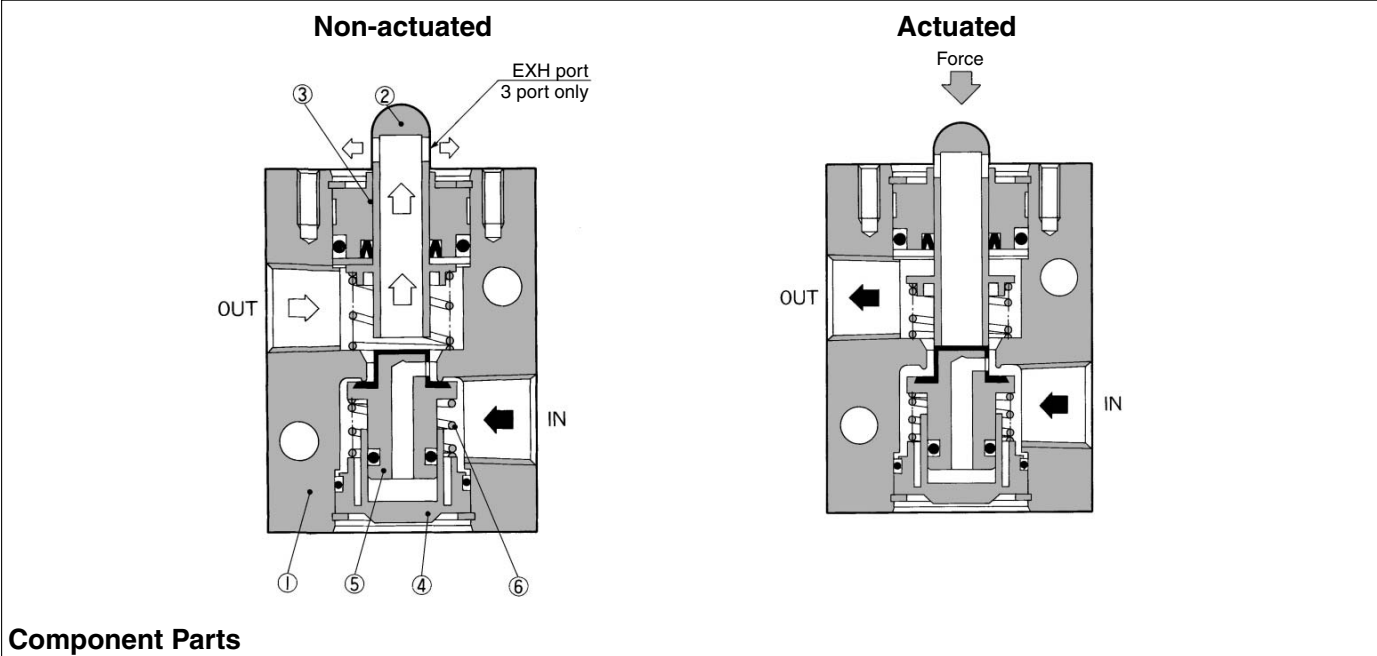
|    |                             |
|----|-----------------------------|
| 00 | Basic                       |
| 01 | Roller lever                |
| 02 | One way roller lever        |
| 05 | Straight plunger            |
| 06 | Roller plunger              |
| 07 | Cross roller plunger        |
| 08 | Toggle lever                |
| 30 | Push button (Mushroom)      |
| 32 | Push button (Extended)      |
| 33 | Push button (Flush)         |
| 34 | Twist selector (2 position) |
| 36 | Key selector (2 position)   |
| 35 | Twist selector (3 position) |
| 40 | Foot pedal                  |

Suffix for actuator

|   |                   |
|---|-------------------|
| S | Hard steel roller |
| R | Red               |
| B | Black             |
| G | Green             |
| Y | Yellow            |

Color of push button selector

Construction



Component Parts

| No. | Description      | Material | Note            |
|-----|------------------|----------|-----------------|
| ①   | Valve            | ADC      | Metallic plated |
| ②   | Plunger          | POM      |                 |
| ③   | Plunger retainer | PBT      |                 |

| No. | Description | Material   | Note |
|-----|-------------|------------|------|
| ④   | Cover       | POM        |      |
| ⑤   | Valve       | Brass, NBR |      |
| ⑥   | Spring      | Steel      |      |

# Series VM200

## Series VM200

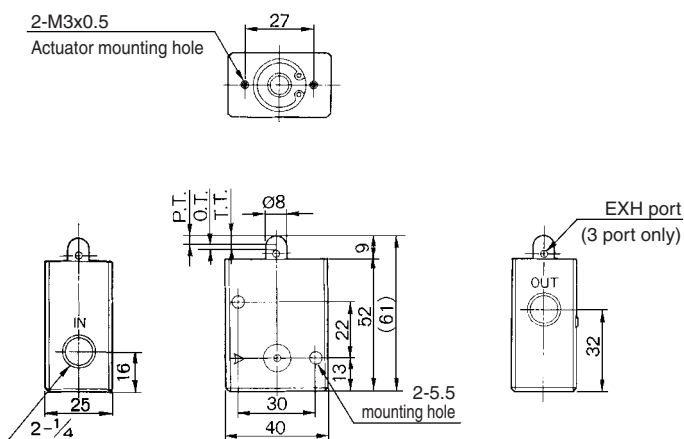
### Basic

VM220-02-00  
VM230-02-00



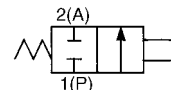
2-M3x0.5

Actuator mounting hole

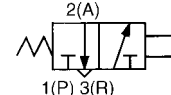


### JIS Symbol

2 port



3 port

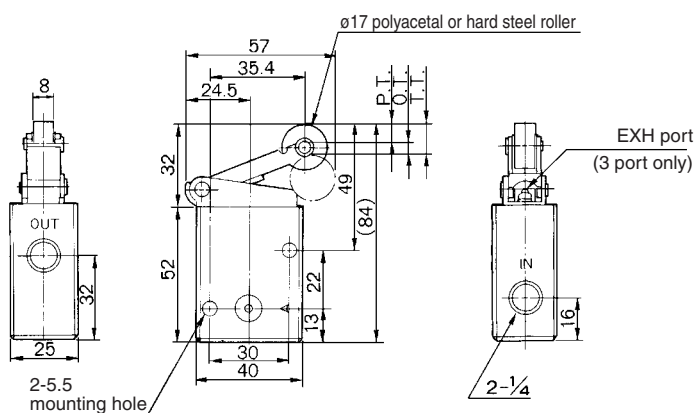


\* 0.5 MPa supply

|          |        |
|----------|--------|
| F.O.F. * | 52 N   |
| P.T.     | 3.0 mm |
| O.T.     | 2.0 mm |
| T.T.     | 5.0 mm |

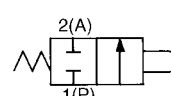
### Roller lever

VM220-02-01  
VM230-02-01  
VM220-02-01S  
VM230-02-01S

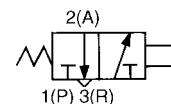


### JIS Symbol

2 port



3 port

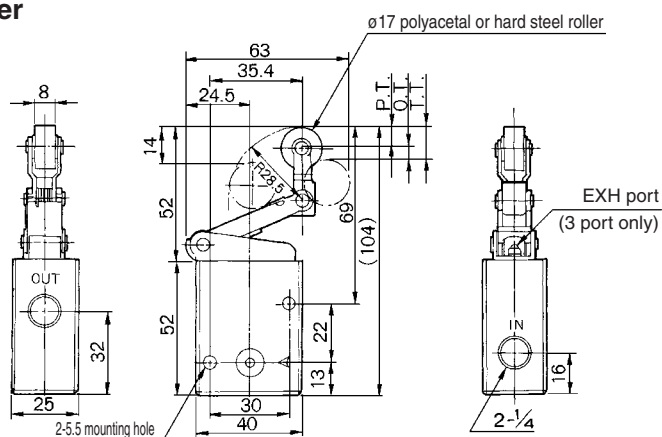


\* 0.5 MPa supply

|          |         |
|----------|---------|
| F.O.F. * | 24 N    |
| P.T.     | 6.5 mm  |
| O.T.     | 4.5 mm  |
| T.T.     | 11.0 mm |

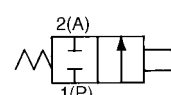
### One way roller lever

VM220-02-02  
VM230-02-02  
VM220-02-02S  
VM230-02-02S

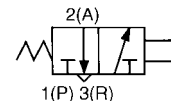


### JIS Symbol

2 port



3 port

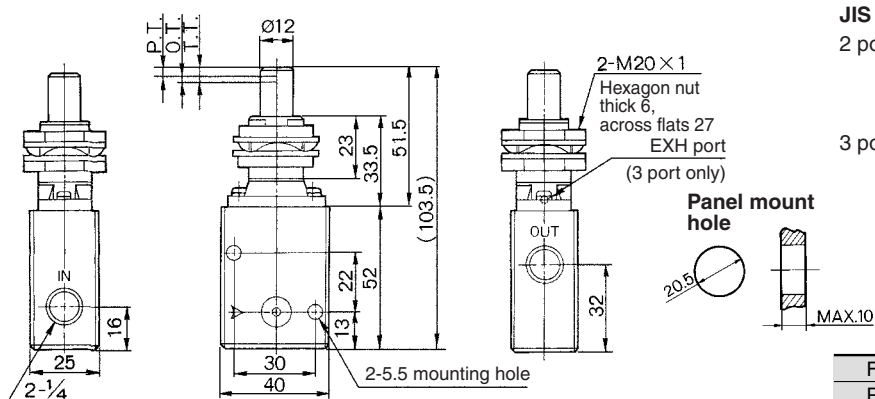


\* 0.5 MPa supply

|          |         |
|----------|---------|
| F.O.F. * | 22 N    |
| P.T.     | 7.0 mm  |
| O.T.     | 5.0 mm  |
| T.T.     | 12.0 mm |

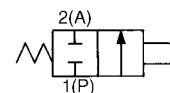
### Straight plunger

VM220-02-05  
VM230-02-05

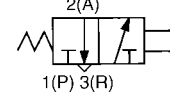


### JIS Symbol

2 port



3 port



\* 0.5 MPa supply

|          |        |
|----------|--------|
| F.O.F. * | 56 N   |
| P.T.     | 3.5 mm |
| O.T.     | 2.0 mm |
| T.T.     | 5.5 mm |

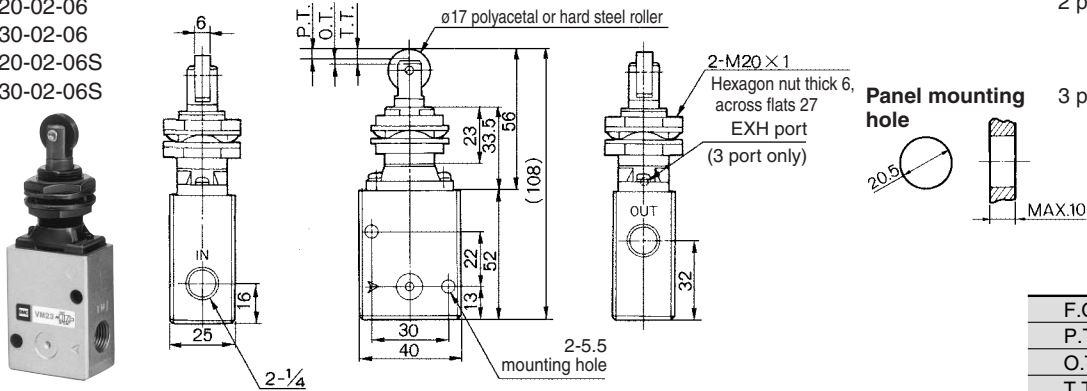


# 2/3 Port Mechanical Valve Series VM200

## Series VM200

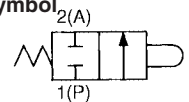
### Roller plunger

VM220-02-06  
VM230-02-06  
VM220-02-06S  
VM230-02-06S

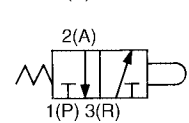


JIS Symbol

2 port



3 port

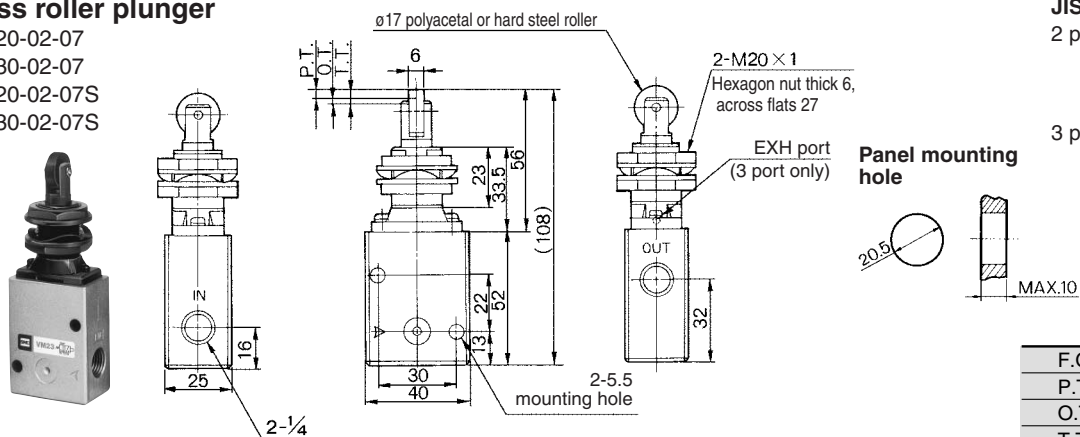


\* 0.5 MPa supply

|          |        |
|----------|--------|
| F.O.F. * | 56 N   |
| P.T.     | 3.5 mm |
| O.T.     | 2.0 mm |
| T.T.     | 5.5 mm |

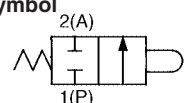
### Cross roller plunger

VM220-02-07  
VM230-02-07  
VM220-02-07S  
VM230-02-07S

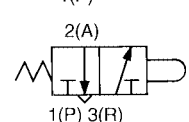


JIS Symbol

2 port



3 port

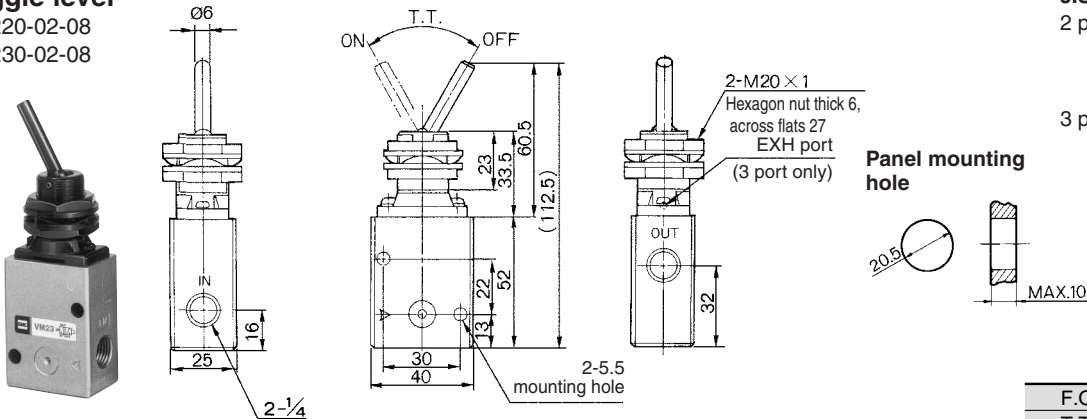


\* 0.5 MPa supply

|          |        |
|----------|--------|
| F.O.F. * | 56 N   |
| P.T.     | 3.5 mm |
| O.T.     | 2.0 mm |
| T.T.     | 5.5 mm |

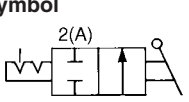
### Toggle lever

VM220-02-08  
VM230-02-08

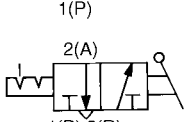


JIS Symbol

2 port



3 port

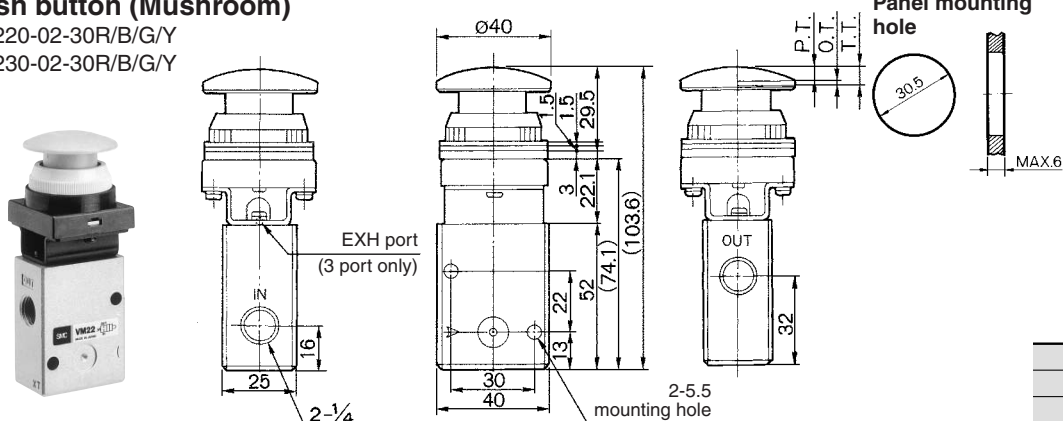


\* 0.5 MPa supply

|          |      |
|----------|------|
| F.O.F. * | 12 N |
| T.T.     | 60°  |

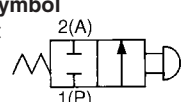
### Push button (Mushroom)

VM220-02-30R/B/G/Y  
VM230-02-30R/B/G/Y

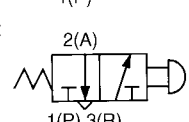


JIS Symbol

2 port



3 port



\* 0.5 MPa supply

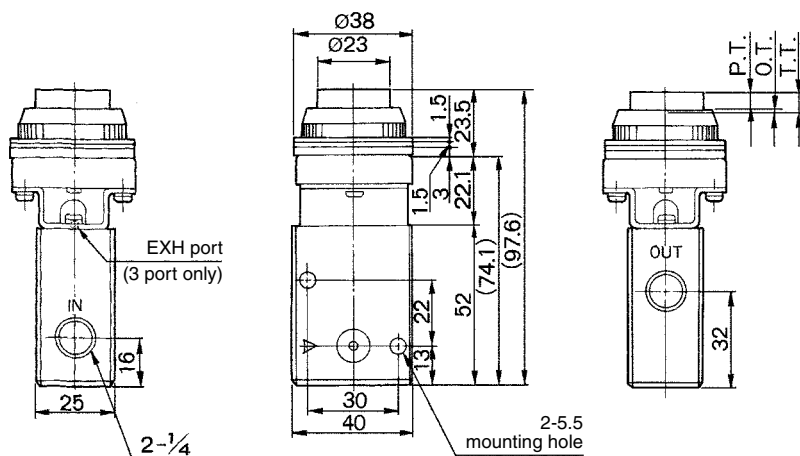
|          |        |
|----------|--------|
| F.O.F. * | 52 N   |
| P.T.     | 4.9 mm |
| O.T.     | 1.6 mm |
| T.T.     | 6.5 mm |

# Series VM200

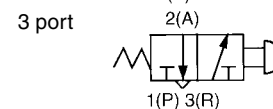
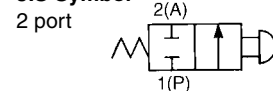
## Series VM200

### Push button (Extended)

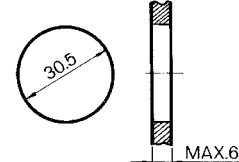
VM220-02-32R/B/G/Y  
VM230-02-32R/B/G/Y



#### JIS Symbol



#### Panel mounting hole

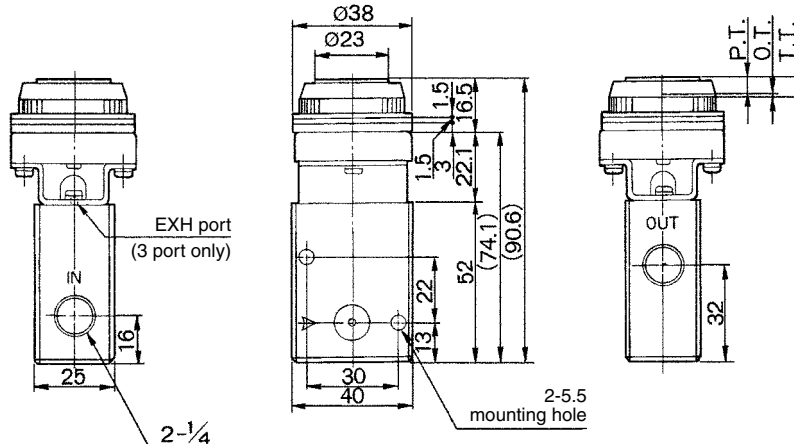


\* 0.5 MPa supply

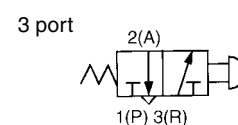
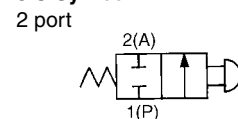
|          |        |
|----------|--------|
| F.O.F. * | 52 N   |
| P.T.     | 4.9 mm |
| O.T.     | 1.6 mm |
| T.T.     | 6.5 mm |

### Push button (Flush)

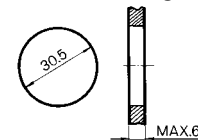
VM220-02-33  
VM230-02-33



#### JIS Symbol



#### Panel mounting hole

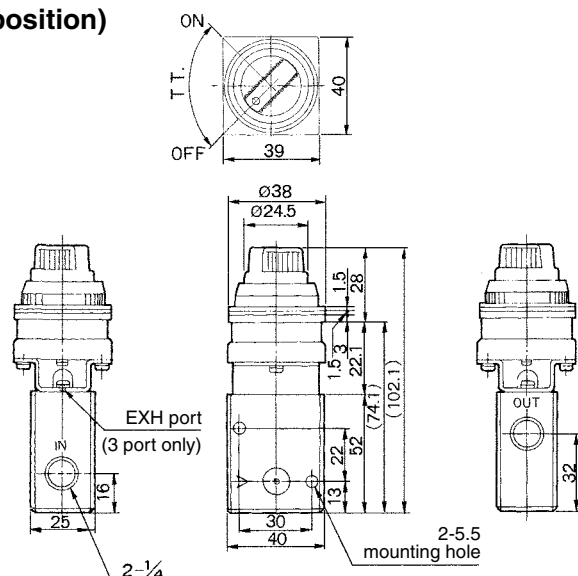


\* 0.5 MPa supply

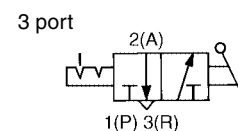
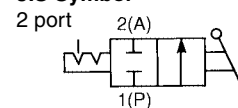
|          |        |
|----------|--------|
| F.O.F. * | 52 N   |
| P.T.     | 4.9 mm |
| O.T.     | 1.6 mm |
| T.T.     | 6.5 mm |

### Twist selector (2 position)

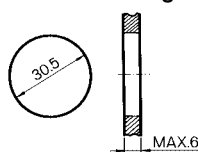
VM220-02-34R/B/G/Y  
VM230-02-34R/B/G/Y



#### JIS Symbol



#### Panel mounting hole



\* 0.5 MPa supply

|          |      |
|----------|------|
| F.O.F. * | 32 N |
| T.T.     | 90°  |

# 2/3 Port Mechanical Valve Series VM200

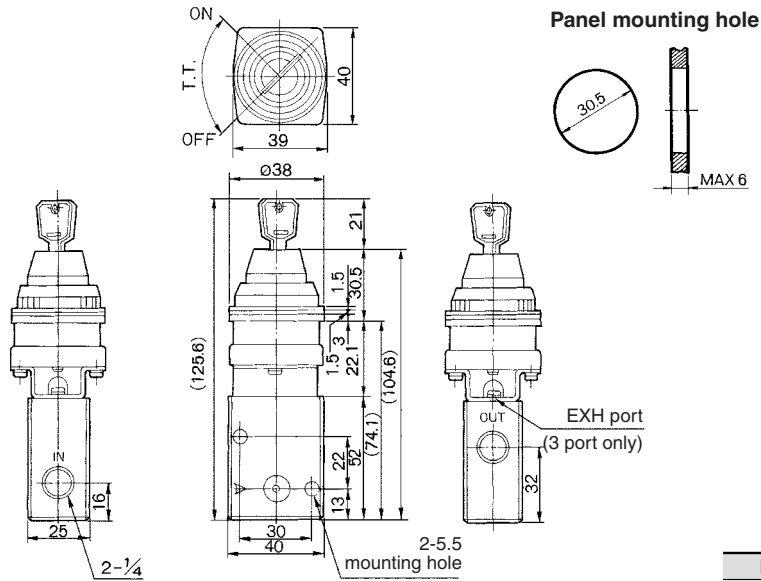
## Series VM200

### Key selector (2 position)

VM220-02-36  
VM230-02-36

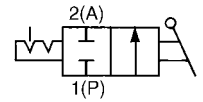


Key can be removed at the "on" and "off" positions.

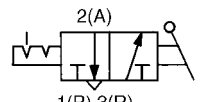


#### JIS Symbol

2 port



3 port

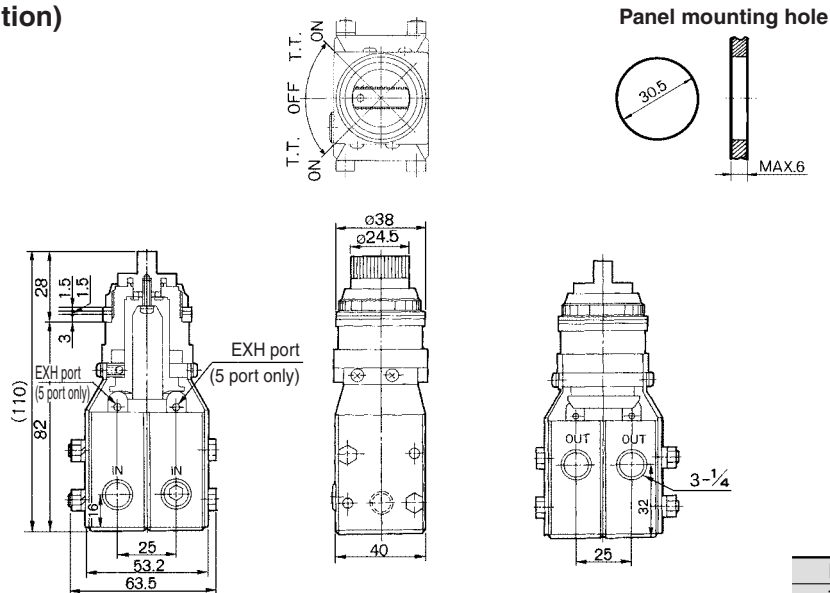


\* 0.5 MPa supply

|          |      |
|----------|------|
| F.O.F. * | 32 N |
| T.T.     | 90°  |

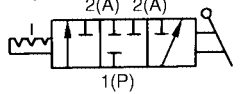
### Twist selector (3 position)

VM230-02-35R/B/G/Y  
VM250-02-35R/B/G/Y

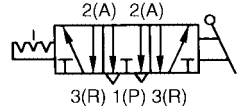


#### JIS Symbol

2 port



5 port

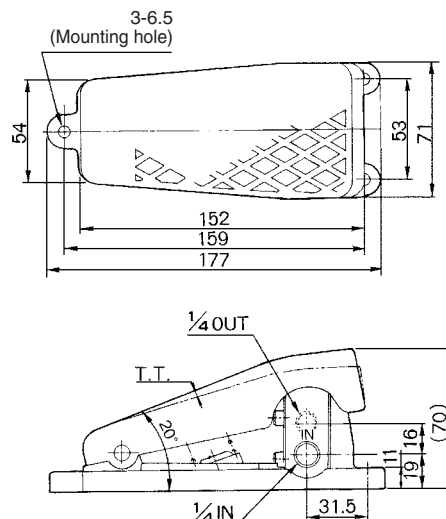


\* 0.5 MPa supply

|          |      |
|----------|------|
| F.O.F. * | 40 N |
| T.T.     | 45°  |

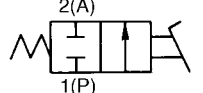
### Foot pedal

VM220-02-40  
VM230-02-40

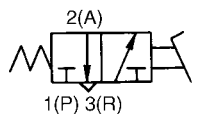


#### JIS Symbol

2 port



5 port



\* 0.5 MPa supply

|          |      |
|----------|------|
| F.O.F. * | 65 N |
| T.T.     | 1.2° |

# 3 Port Mechanical Valve

## Series VM400

Either N.C. or N.O. is available.

### Piping possible to any port.

Proper countermeasures can be taken for applications in which the noise of the exhaust could cause problems to the surroundings.

### Specifications

|                               |                                                                |
|-------------------------------|----------------------------------------------------------------|
| Fluid                         | Air/Inert gas                                                  |
| Operating pressure            | –100 kPa to 1.0 MPa                                            |
| Ambient and fluid temperature | –5 to 60°C (No freezing)                                       |
| Effective area                | 7 mm <sup>2</sup>                                              |
| Lubrication                   | Not required (Use turbine oil Class 1 ISO VG32, if lubricated) |
| Port size                     | 1/8                                                            |
| Weight (Basic)                | 110 g                                                          |

### Model

|                           | Actuator                    | Model        | Actuator part no. | Application                             |
|---------------------------|-----------------------------|--------------|-------------------|-----------------------------------------|
| Mechanical operation      | Basic                       | VM430-01-00  | —                 | —                                       |
|                           | Roller lever                | VM430-01-01  | VM-01A            | Polyacetal roller                       |
|                           |                             | VM430-01-01S | VM-01AS           | Hard steel roller                       |
|                           | One way roller lever        | VM430-01-02  | VM-02A            | Polyacetal roller                       |
|                           |                             | VM430-01-02S | VM-02AS           | Hard steel roller                       |
|                           | Straight plunger            | VM430-01-05  | VM-05A            | —                                       |
|                           | Roller plunger              | VM430-01-06  | VM-06A            | Polyacetal roller                       |
|                           |                             | VM430-01-06S | VM-06AS           | Hard steel roller                       |
| Cross roller plunger      | VM430-01-07                 | VM-07A       | Polyacetal roller |                                         |
|                           | VM430-01-07S                | VM-07AS      | Hard steel roller |                                         |
| Manual operation          | Toggle lever                | VM430-01-08  | VM-08A            | —                                       |
|                           | Push button (Mushroom)      | VM430-01-30R | VM-30AR           | Red                                     |
|                           |                             | VM430-01-30B | VM-30AB           | Black                                   |
|                           |                             | VM430-01-30G | VM-30AG           | Green                                   |
|                           |                             | VM430-01-30Y | VM-30AY           | Yellow                                  |
|                           | Push button (Extended)      | VM430-01-32R | VM-32AR           | Red                                     |
|                           |                             | VM430-01-32B | VM-32AB           | Black                                   |
|                           |                             | VM430-01-32G | VM-32AG           | Green                                   |
|                           |                             | VM430-01-32Y | VM-32AY           | Yellow                                  |
|                           | Push button (Flush)         | VM430-01-33  | VM-33A            | With a set of red, black, green, yellow |
|                           | Twist selector (2 position) | VM430-01-34R | VM-34AR           | Red                                     |
|                           |                             | VM430-01-34B | VM-34AB           | Black                                   |
| VM430-01-34G              |                             | VM-34AG      | Green             |                                         |
| VM430-01-34Y              |                             | VM-34AY      | Yellow            |                                         |
| Key selector (2 position) | VM430-01-36                 | VM-36A       | —                 |                                         |



Note 1) Actuator replacement is available for all types.

Note 2) For push button (mushroom), push button (extended), push button (flush) and a single unit of fastening ring, refer to pages 5-6-6 to 5-6-7. The other parts are not replaceable.

Note 3) The handle of the selector (2 position) cannot be removed or replaced alone.



## How to Order

**VM4 3 0-01-01 S**

- Number of ports**

|   |        |
|---|--------|
| 3 | 3 port |
|---|--------|
- Port size**

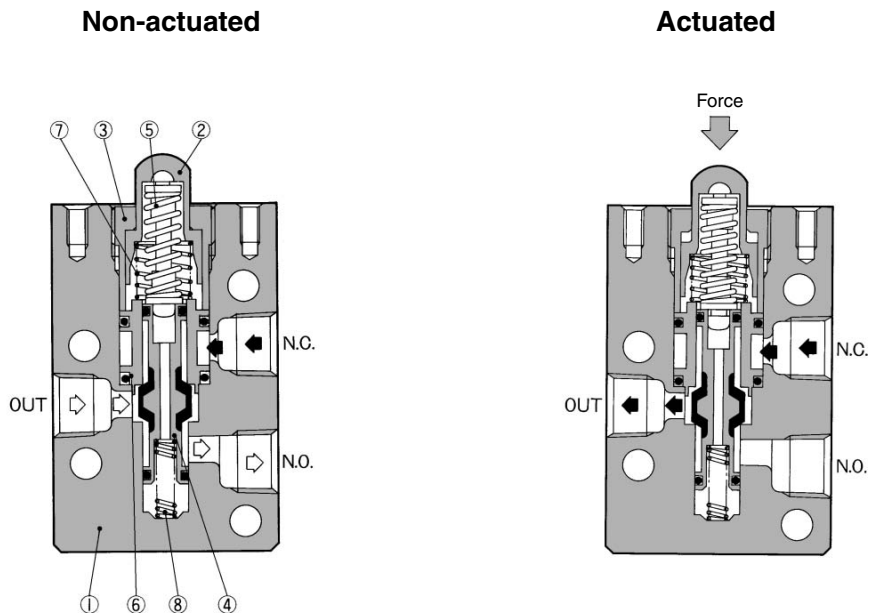
|     |         |
|-----|---------|
| 01  | Rc 1/8  |
| N01 | NPT 1/8 |
| F01 | G 1/8   |
- Actuator type**

|    |                             |
|----|-----------------------------|
| 00 | Basic                       |
| 01 | Roller lever                |
| 02 | One way roller lever        |
| 05 | Straight plunger            |
| 06 | Roller plunger              |
| 07 | Cross roller plunger        |
| 08 | Toggle lever                |
| 30 | Push button (Mushroom)      |
| 32 | Push button (Extended)      |
| 33 | Push button (Flush)         |
| 34 | Twist selector (2 position) |
| 36 | Key selector (2 position)   |
- Suffix for actuator**

|   |                   |
|---|-------------------|
| S | Hard steel roller |
| R | Red               |
| B | Black             |
| G | Green             |
| Y | Yellow            |

Color of push button selector

## Construction



## Component Parts

| No. | Description | Material       | Note                 |
|-----|-------------|----------------|----------------------|
| ①   | Body        | ADC            | Metallic plated      |
| ②   | Plunger     | POM            |                      |
| ③   | Upper lid   | Brass          | Black zinc chromated |
| ④   | Spool valve | Aluminum alloy | Rubber lined         |

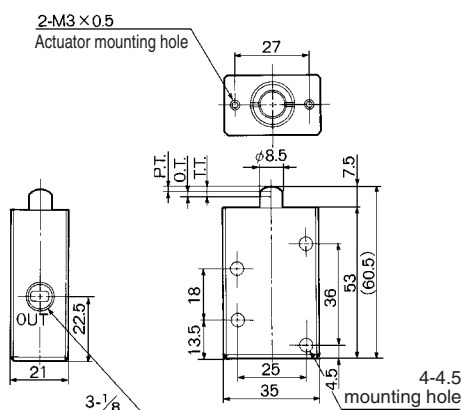
| No. | Description        | Material        | Note |
|-----|--------------------|-----------------|------|
| ⑤   | Over travel spring | Stainless steel |      |
| ⑥   | Retainer           | Brass           |      |
| ⑦   | Spring             | Stainless steel |      |
| ⑧   | Spring             | Stainless steel |      |

# Series VM400

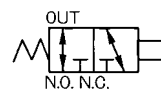
## Series VM400

### Basic

VM430-01-00



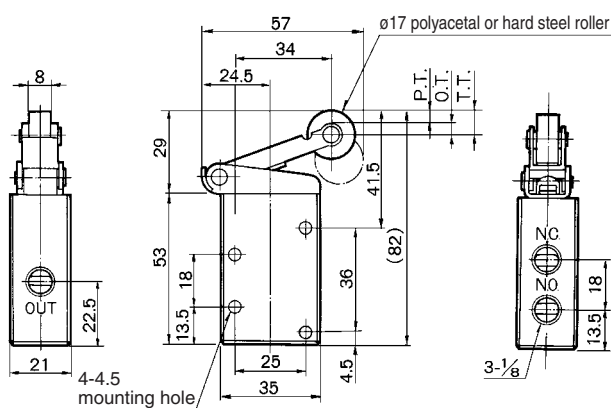
### JIS Symbol



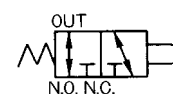
|        |        |
|--------|--------|
| F.O.F. | 26 N   |
| P.T.   | 1.5 mm |
| O.T.   | 2.0 mm |
| T.T.   | 3.5 mm |

### Roller lever

VM430-01-01  
VM430-01-01S



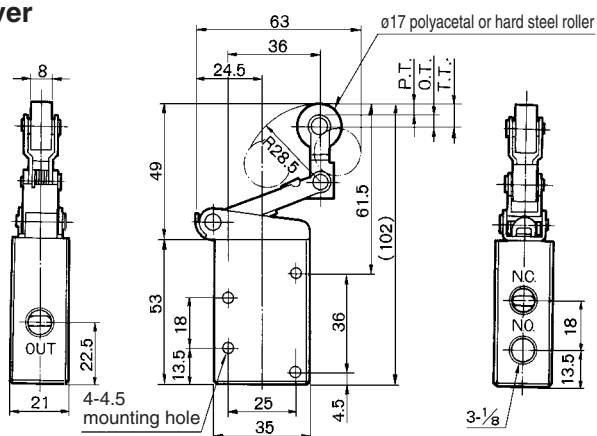
### JIS Symbol



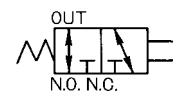
|        |        |
|--------|--------|
| F.O.F. | 12 N   |
| P.T.   | 4.0 mm |
| O.T.   | 4.5 mm |
| T.T.   | 8.5 mm |

### One way roller lever

VM430-01-02  
VM430-01-02S



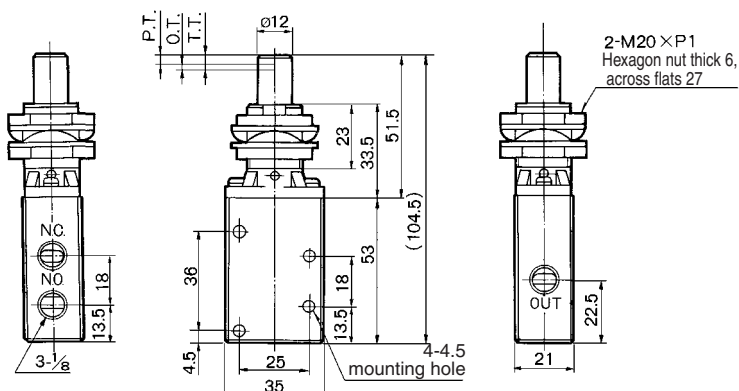
### JIS Symbol



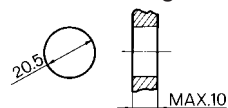
|        |        |
|--------|--------|
| F.O.F. | 11 N   |
| P.T.   | 4.0 mm |
| O.T.   | 5.0 mm |
| T.T.   | 9.0 mm |

### Straight plunger

VM430-01-05



### Panel mounting hole



### JIS Symbol



|        |        |
|--------|--------|
| F.O.F. | 30 N   |
| P.T.   | 3.5 mm |
| O.T.   | 2.0 mm |
| T.T.   | 5.5 mm |



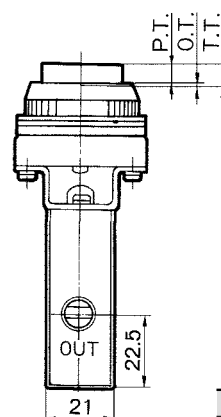
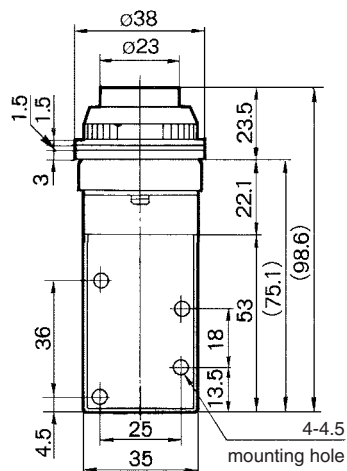
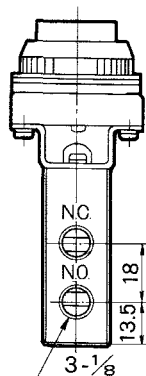


# Series VM400

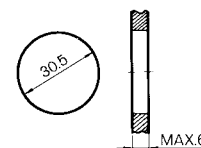
## Series VM400

### Push button (Extended)

VM430-01-32R/B/G/Y



#### Panel mounting hole



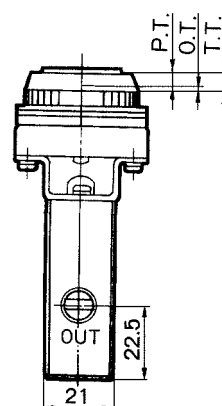
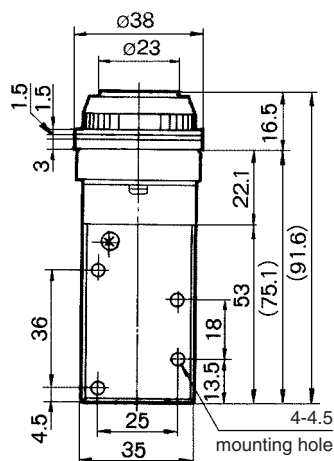
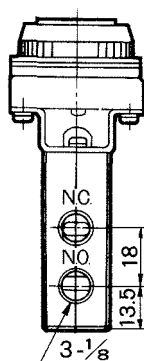
#### JIS Symbol



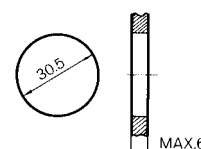
|        |        |
|--------|--------|
| F.O.F. | 26 N   |
| P.T.   | 5.4 mm |
| O.T.   | 1.6 mm |
| T.T.   | 6.5 mm |

### Push button (Flush)

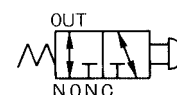
VM430-01-33



#### Panel mounting hole



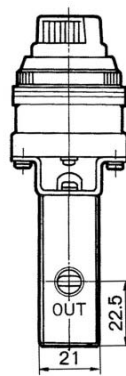
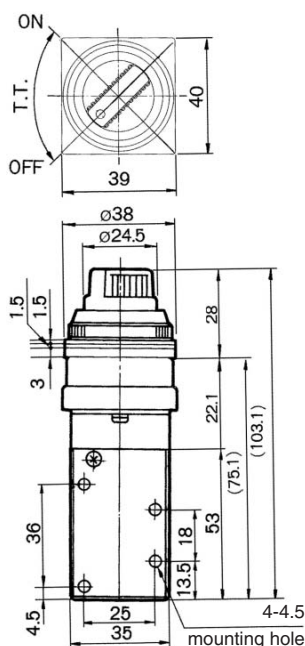
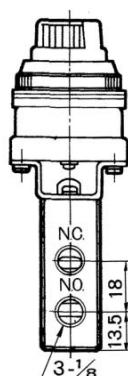
#### JIS Symbol



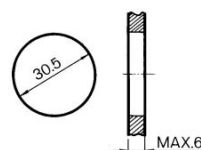
|        |        |
|--------|--------|
| F.O.F. | 26 N   |
| P.T.   | 4.9 mm |
| O.T.   | 1.6 mm |
| T.T.   | 6.5 mm |

### Twist selector (2 position)

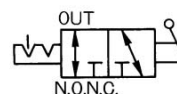
VM430-01-34R/B/G/Y



#### Panel mounting hole



#### JIS Symbol



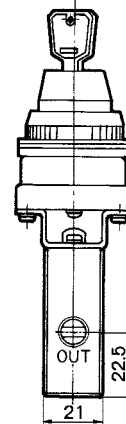
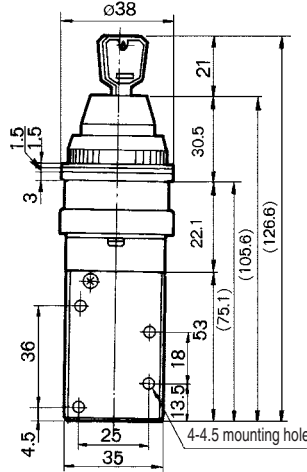
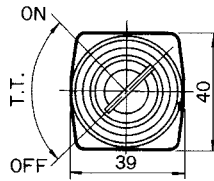
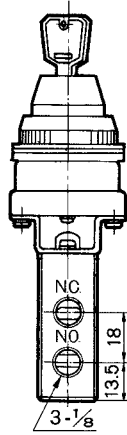
|        |      |
|--------|------|
| F.O.F. | 20 N |
| T.T.   | 90°  |

# 3 Port Mechanical Valve Series VM400

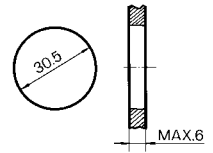
## Series VM400

### Key selector (2 position)

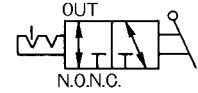
VM430-01-36



### Panel mounting hole



### JIS Symbol



|        |      |
|--------|------|
| F.O.F. | 20 N |
| T.T.   | 90°  |



Key can be removed at the "on" and "off" positions.

S□A

V□A

S□A

V□A

VM

VR

VH

VHS

# 3 Port Mechanical Valve: Heavy Duty Type

## Series VM800

**Sturdy construction.**

**Either N.C. or N.O. is available.**

**Piping possible to any port.**

Proper countermeasures can be taken for applications in which the noise of the exhaust could cause problems to the surroundings.

**Many actuator positions and orientation options.**



### Specifications

|                               |                                                                 |
|-------------------------------|-----------------------------------------------------------------|
| Fluid                         | Air/Inert gas                                                   |
| Operating pressure            | -100 kPa to 1.0 MPa                                             |
| Ambient and fluid temperature | -5 to 60°C (No freezing)                                        |
| Effective area                | 6 mm <sup>2</sup>                                               |
| Lubrication                   | Not required (Use turbine oil Class 1 ISO VG32, if lubricated.) |
| Port size                     | 1/8                                                             |
| Weight (Basic)                | 180 g                                                           |

### Model

| Actuator                | Model       | Actuator part no. |
|-------------------------|-------------|-------------------|
| Basic                   | VM830-01-00 | —                 |
| Roller lever            | VM830-01-01 | VM-01F            |
| Adjustable roller lever | VM830-01-13 | VM-13F            |
| Adjustable rod lever    | VM830-01-14 | VM-14F            |



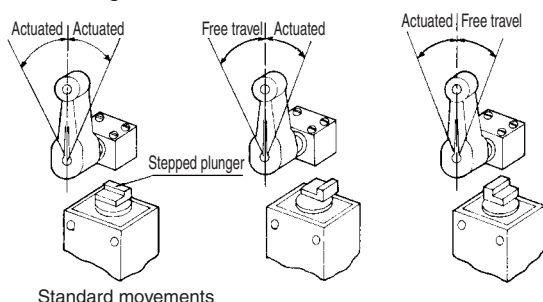
Actuator replacement is available.

### How to Order

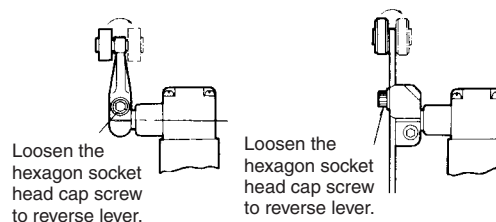
|                 |        |             |                            |
|-----------------|--------|-------------|----------------------------|
| VM830           |        | 01          | 01                         |
| Number of ports |        | Port size   | Actuator type              |
| 3               | 3 port | 01 Rc 1/8   | 00 Basic                   |
|                 |        | N01 NPT 1/8 | 01 Roller lever            |
|                 |        | F01 G 1/8   | 13 Adjustable roller lever |
|                 |        |             | 14 Adjustable rod lever    |

### Application

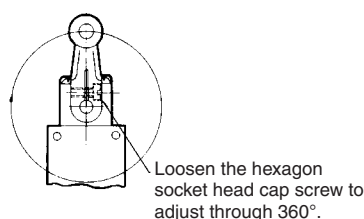
#### ● Movement is changeable.



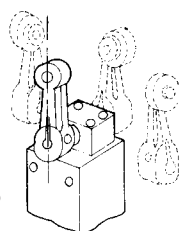
#### ● Roller can be mounted to inside of lever.



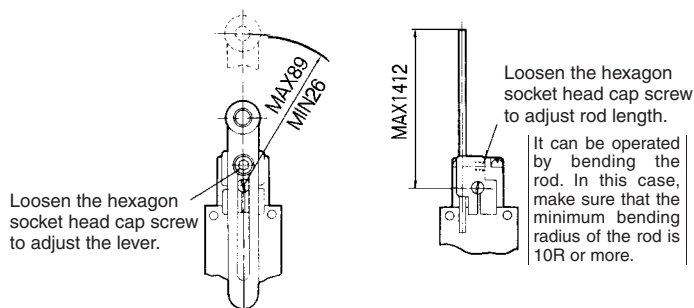
#### ● Lever location can be changed.



#### ● Head direction can be changed.

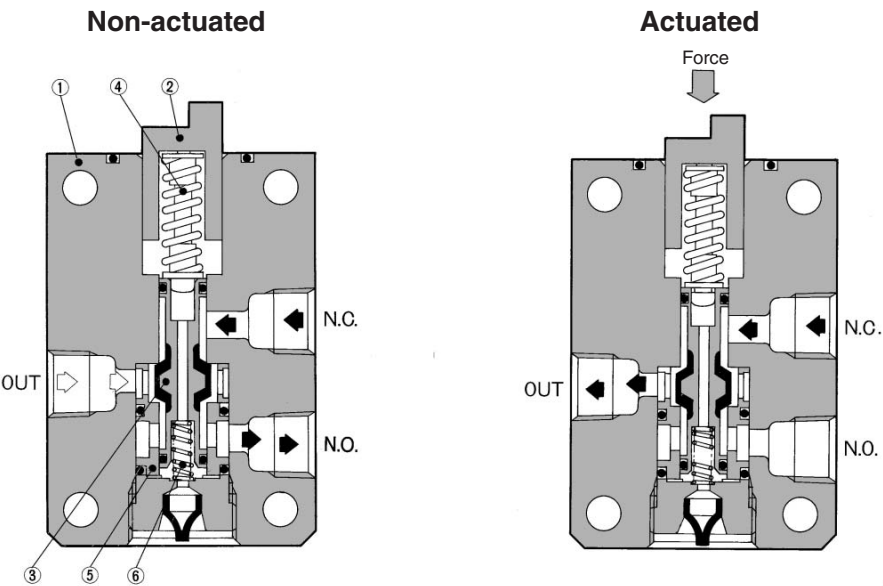


#### ● Lever length adjustment.



3 Port Mechanical Valve: Heavy Duty Type **Series VM800**

Construction



Component Parts

| No. | Description | Material            | Note            |
|-----|-------------|---------------------|-----------------|
| ①   | Body        | ADC                 | Metallic plated |
| ②   | Plunger     | POM                 |                 |
| ③   | Spool valve | Aluminum alloy, NBR | Rubber lined    |

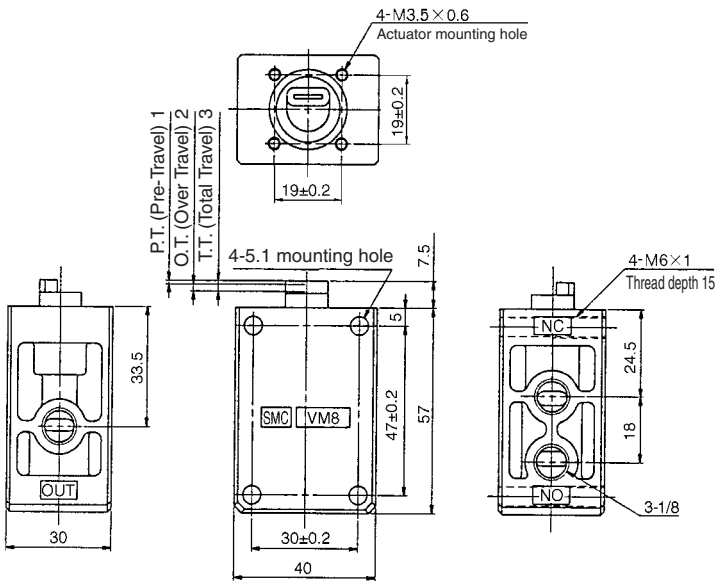
| No. | Description        | Material        | Note           |
|-----|--------------------|-----------------|----------------|
| ④   | Over travel spring | Stainless steel |                |
| ⑤   | Retainer           | Brass           |                |
| ⑥   | Spring             | Steel           | Zinc chromated |

- S□A
- V□A
- S□A
- V□A
- VM**
- VR
- VH
- VHS

Series VM800

Basic

VM830-01-00



JIS Symbol



|        |        |
|--------|--------|
| F.O.F. | 23 N   |
| P.T.   | 1.0 mm |
| O.T.   | 2.0 mm |
| T.T.   | 3.0 mm |

