

# 2/3 Port Mechanical Valve

## VM100 Series

RoHS

A more compact and lightweight VM100F series with a built-in One-touch fitting and resin body has been added. [Click here](#) for details.

- Compact size
- Piping options:  
Side ported, Bottom ported
- Possible to choose mounting method with side ported:  
Side mounting, bottom mounting using screws, or mounting with special bracket
- A variety of actuator types



### Specifications

| Piping                                 | Side ported              |               | Bottom ported |               |
|----------------------------------------|--------------------------|---------------|---------------|---------------|
| Fluid                                  | Air                      |               |               |               |
| Operating pressure range               | -100 kPa to 1 MPa        |               |               |               |
| Ambient and fluid temperature          | -5 to 60°C (No freezing) |               |               |               |
| Flow rate characteristics              | 1 (P) ⇒ 2 (A)            | 2 (A) ⇒ 3 (R) | 1 (P) ⇒ 2 (A) | 2 (A) ⇒ 3 (R) |
| C [dm <sup>3</sup> /(s·bar)]           | 0.6                      | 0.5           | 0.5           | 0.45          |
| b                                      | 0.2                      | 0.15          | 0.2           | 0.15          |
| Cv                                     | 0.11                     | 0.1           | 0.11          | 0.1           |
| Lubrication <sup>Note 1)</sup>         | Not required             |               |               |               |
| Port size                              | 1/8 (Rc, NPT, G)         |               | M5            |               |
| Weight (Basic)                         | 60 g                     |               | 67 g          |               |
| Bracket part number <sup>Note 2)</sup> | VM1-B                    |               | —             |               |

Note 1) Use turbine oil Class 1 ISO VG32, if lubricated.

Note 2) The bracket can only be used for side mounting of side ported type.

### Model

|                      | Piping direction            |                                         | Side ported   |               |                             |                | Bottom ported |               | Actuator             |                                |
|----------------------|-----------------------------|-----------------------------------------|---------------|---------------|-----------------------------|----------------|---------------|---------------|----------------------|--------------------------------|
|                      | Body option                 |                                         | Standard      |               | With bottom mounting thread |                | —             |               | Actuator part number | Additional weight for actuator |
|                      | Number of ports             |                                         | 2 port        | 3 port        | 2 port                      | 3 port         | 2 port        | 3 port        |                      |                                |
| Mechanical operation | Basic                       |                                         | VM120-01-00A  | VM130-01-00A  | VM120U-01-00A               | VM130U-01-00A  | VM122-M5-00A  | VM132-M5-00A  | —                    | —                              |
|                      | Roller lever                | Polycetal roller                        | VM121-01-00A  | VM131-01-00A  | VM121U-01-00A               | VM131U-01-00A  | VM123-M5-00A  | VM133-M5-00A  | —                    | —                              |
|                      |                             | Hard steel roller                       | VM121-01-01A  | VM131-01-01A  | VM121U-01-01A               | VM131U-01-01A  | VM123-M5-01A  | VM133-M5-01A  | —                    | 11 g                           |
|                      | One way roller lever        | Polycetal roller                        | VM121-01-01SA | VM131-01-01SA | VM121U-01-01SA              | VM131U-01-01SA | VM123-M5-01SA | VM133-M5-01SA | —                    | 16 g                           |
|                      |                             | Hard steel roller                       | VM121-01-02A  | VM131-01-02A  | VM121U-01-02A               | VM131U-01-02A  | VM123-M5-02A  | VM133-M5-02A  | —                    | 15 g                           |
|                      | Straight plunger            | Polycetal roller                        | VM121-01-02SA | VM131-01-02SA | VM121U-01-02SA              | VM131U-01-02SA | VM123-M5-02SA | VM133-M5-02SA | —                    | 20 g                           |
|                      |                             | Hard steel roller                       | VM120-01-05A  | VM130-01-05A  | VM120U-01-05A               | VM130U-01-05A  | VM122-M5-05A  | VM132-M5-05A  | VM-05B               | 43 g                           |
|                      | Roller plunger              | Polycetal roller                        | VM120-01-06A  | VM130-01-06A  | VM120U-01-06A               | VM130U-01-06A  | VM122-M5-06A  | VM132-M5-06A  | VM-06B               | 43 g                           |
|                      |                             | Hard steel roller                       | VM120-01-06SA | VM130-01-06SA | VM120U-01-06SA              | VM130U-01-06SA | VM122-M5-06SA | VM132-M5-06SA | VM-06BS              | 45 g                           |
|                      | Cross roller plunger        | Polycetal roller                        | VM120-01-07A  | VM130-01-07A  | VM120U-01-07A               | VM130U-01-07A  | VM122-M5-07A  | VM132-M5-07A  | VM-07B               | 43 g                           |
|                      |                             | Hard steel roller                       | VM120-01-07SA | VM130-01-07SA | VM120U-01-07SA              | VM130U-01-07SA | VM122-M5-07SA | VM132-M5-07SA | VM-07BS              | 45 g                           |
| Manual operation     | Toggle lever                |                                         | VM120-01-08A  | VM130-01-08A  | VM120U-01-08A               | VM130U-01-08A  | VM122-M5-08A  | VM132-M5-08A  | VM-08B               | 41 g                           |
|                      | Push button (Mushroom)      | Red                                     | VM120-01-30RA | VM130-01-30RA | VM120U-01-30RA              | VM130U-01-30RA | VM122-M5-30RA | VM132-M5-30RA | VM-30AR              | 58 g                           |
|                      |                             | Black                                   | VM120-01-30BA | VM130-01-30BA | VM120U-01-30BA              | VM130U-01-30BA | VM122-M5-30BA | VM132-M5-30BA | VM-30AB              |                                |
|                      |                             | Green                                   | VM120-01-30GA | VM130-01-30GA | VM120U-01-30GA              | VM130U-01-30GA | VM122-M5-30GA | VM132-M5-30GA | VM-30AG              |                                |
|                      |                             | Yellow                                  | VM120-01-30YA | VM130-01-30YA | VM120U-01-30YA              | VM130U-01-30YA | VM122-M5-30YA | VM132-M5-30YA | VM-30AY              |                                |
|                      | Push button (Extended)      | Red                                     | VM120-01-32RA | VM130-01-32RA | VM120U-01-32RA              | VM130U-01-32RA | VM122-M5-32RA | VM132-M5-32RA | VM-32AR              | 52 g                           |
|                      |                             | Black                                   | VM120-01-32BA | VM130-01-32BA | VM120U-01-32BA              | VM130U-01-32BA | VM122-M5-32BA | VM132-M5-32BA | VM-32AB              |                                |
|                      |                             | Green                                   | VM120-01-32GA | VM130-01-32GA | VM120U-01-32GA              | VM130U-01-32GA | VM122-M5-32GA | VM132-M5-32GA | VM-32AG              |                                |
|                      |                             | Yellow                                  | VM120-01-32YA | VM130-01-32YA | VM120U-01-32YA              | VM130U-01-32YA | VM122-M5-32YA | VM132-M5-32YA | VM-32AY              |                                |
|                      | Push button (Flush)         | With a set of red, black, green, yellow | VM120-01-33A  | VM130-01-33A  | VM120U-01-33A               | VM130U-01-33A  | VM122-M5-33A  | VM132-M5-33A  | VM-33A               | 50 g                           |
|                      |                             |                                         |               |               |                             |                |               |               |                      |                                |
|                      | Twist selector (2 position) | Red                                     | VM120-01-34RA | VM130-01-34RA | VM120U-01-34RA              | VM130U-01-34RA | VM122-M5-34RA | VM132-M5-34RA | VM-34AR              | 56 g                           |
|                      |                             | Black                                   | VM120-01-34BA | VM130-01-34BA | VM120U-01-34BA              | VM130U-01-34BA | VM122-M5-34BA | VM132-M5-34BA | VM-34AB              |                                |
|                      |                             | Green                                   | VM120-01-34GA | VM130-01-34GA | VM120U-01-34GA              | VM130U-01-34GA | VM122-M5-34GA | VM132-M5-34GA | VM-34AG              |                                |
|                      |                             | Yellow                                  | VM120-01-34YA | VM130-01-34YA | VM120U-01-34YA              | VM130U-01-34YA | VM122-M5-34YA | VM132-M5-34YA | VM-34AY              |                                |
|                      | Key selector (2 position)   |                                         | VM120-01-36A  | VM130-01-36A  | VM120U-01-36A               | VM130U-01-36A  | VM122-M5-36A  | VM132-M5-36A  | VM-36A               | 78 g                           |
|                      | Twist selector (3 position) |                                         | 3 port        | 5 port        | 3 port                      | 5 port         | 3 port        | 5 port        | —                    | 111 g (Add to 2 basic units.)  |
|                      |                             | Red                                     | VM131-01-35RA | VM151-01-35RA | VM131U-01-35RA              | VM151U-01-35RA | VM133-M5-35RA | VM153-M5-35RA |                      |                                |
|                      |                             | Black                                   | VM131-01-35BA | VM151-01-35BA | VM131U-01-35BA              | VM151U-01-35BA | VM133-M5-35BA | VM153-M5-35BA |                      |                                |
|                      |                             | Green                                   | VM131-01-35GA | VM151-01-35GA | VM131U-01-35GA              | VM151U-01-35GA | VM133-M5-35GA | VM153-M5-35GA |                      |                                |
|                      |                             | Yellow                                  | VM131-01-35YA | VM151-01-35YA | VM131U-01-35YA              | VM151U-01-35YA | VM133-M5-35YA | VM153-M5-35YA |                      |                                |

Note 1) It is possible to change the actuator assembly and mount to basic type when an actuator part number is specified in the column.

Note 2) For push button (mushroom), push button (flush), push button (extended) and individual fastening ring, refer to page 1612.

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

Note 4) Color of plunger: Gray (2 port), White (3 port)

## How to Order

A more compact and lightweight VM100F series with a built-in One-touch fitting and resin body has been added.  
[Click here](#) for details.

**VM1 3 1 - 01 - 01 A - -**

### Number of ports

|   |                                               |
|---|-----------------------------------------------|
| 2 | 2 port                                        |
| 3 | 3 port                                        |
| 5 | 5 port<br>(Twist selector<br>3 position only) |

### Piping direction and the height of plunger

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

### Body option

|     |                             |
|-----|-----------------------------|
| NII | Side mounting               |
| U   | With bottom mounting thread |

Note) U: Applicable only to side ported type

### Port size

|     |          |                    |
|-----|----------|--------------------|
| 01  | Rc1/8    |                    |
| N01 | NPT1/8   | Side ported only   |
| F01 | G1/8     |                    |
| M5  | M5 x 0.8 | Bottom ported only |

### Actuator type\*

| Actuator type | Side ported                 |       | Bottom ported |       |
|---------------|-----------------------------|-------|---------------|-------|
|               | Long                        | Short | Long          | Short |
| 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) | ×     | ○             | ×     |

Combination possible: ○ Combination impossible: ×

### Made to Order (Pages1608, 1609)

|       |                                                 |
|-------|-------------------------------------------------|
| X207A | Alternate type, Mushroom push button            |
| X219A | Push-lock turn-reset type, Mushroom push button |

Note) Applicable only to push button (mushroom)

### Bracket option

|     |              |
|-----|--------------|
| NII | None         |
| B   | With bracket |

Note) Applicable only to side ported, side mounting type.  
 However, not applicable to twist selector (3 position).  
 Bracket is shipped together, but not assembled.

### Suffix for indicator

|     |                          |
|-----|--------------------------|
| NII | None                     |
| Z   | With miniature indicator |

Note) Applicable only to bottom ported type

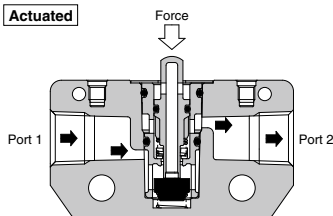
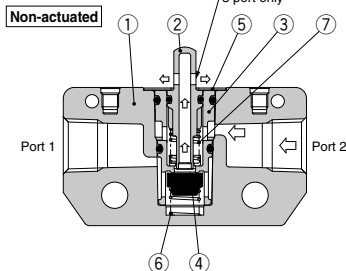
### Suffix for actuator\*

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

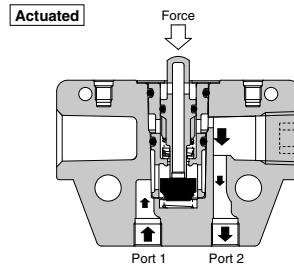
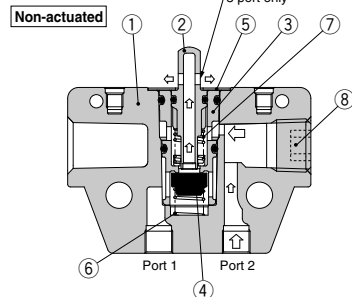
\* Refer to the table on page 1588 for combinations of actuator type and suffix.

## Construction

### Side ported



### Bottom ported



## Component Parts

| No. | Description | Material   | Note                        |
|-----|-------------|------------|-----------------------------|
| 1   | Valve       | ZDC        | White coated                |
| 2   | Plunger     | Polyacetal | 2 port Gray<br>3 port White |
| 3   | Valve sheet | PBT        |                             |
| 4   | Valve       | NBR        |                             |

| No. | Description                    | Material        | Note |
|-----|--------------------------------|-----------------|------|
| 5   | Plunger retainer               | Stainless steel |      |
| 6   | Spring                         | Stainless steel |      |
| 7   | Spring                         | Spring steel    |      |
| 8   | Hexagon socket head taper plug | Rolled steel    |      |

## VM100 Series/Bottom Ported

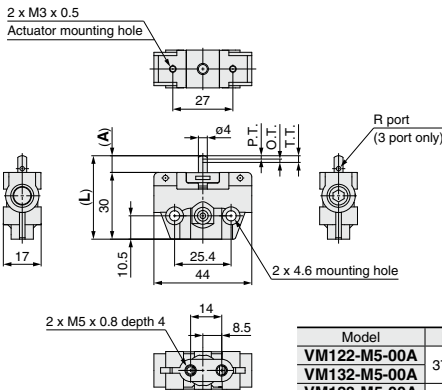
## Basic

**VM122-M5-00A**

**VM132-M5-00A**

**VM123-M5-00A**

**VM133-M5-00A**

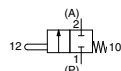


| Model        | L    | A   |
|--------------|------|-----|
| VM122-M5-00A | 37.5 | 7.5 |
| VM132-M5-00A |      |     |
| VM123-M5-00A | 33.5 | 3.5 |
| VM133-M5-00A |      |     |

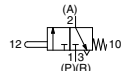
| * 0.5 MPa supply |        |
|------------------|--------|
| F.O.F.*          | 26 N   |
| P.T.             | 1.5 mm |
| O.T.             | 1.5 mm |
| T.T.             | 3 mm   |

**Symbol**

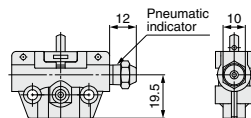
2 port



3 port



### With miniature indicator



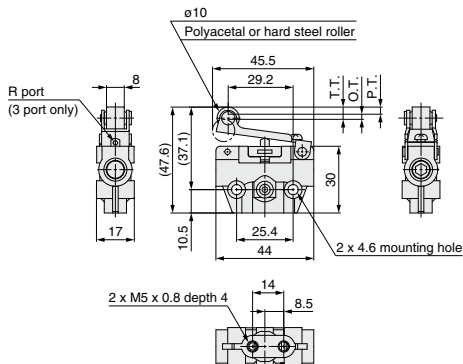
## Roller lever

**VM123-M5-01A**

**VM133-M5-01A**

**VM123-M5-01SA**

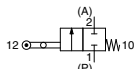
**VM133-M5-01SA**



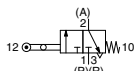
| * 0.5 MPa supply |        |
|------------------|--------|
| F.O.F.*          | 13 N   |
| P.T.             | 3.2 mm |
| O.T.             | 2.3 mm |
| T.T.             | 5.5 mm |

Symbol

2 port



3 port



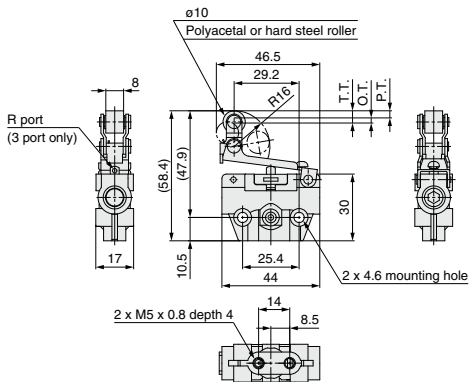
### One way roller lever

VM123-M5-02A

**VM133-M5-02A**

**VM123-M5-02SA**

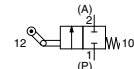
**VM133-M5-02SA**



| * 0.5 MPa supply |        |
|------------------|--------|
| F.O.F.*          | 13 N   |
| P.T.             | 3.2 mm |
| O.T.             | 2.3 mm |
| T.T.             | 5.5 mm |

**Symbol**

2 port



3 port

