

# Speed Controller with One-touch Fittings

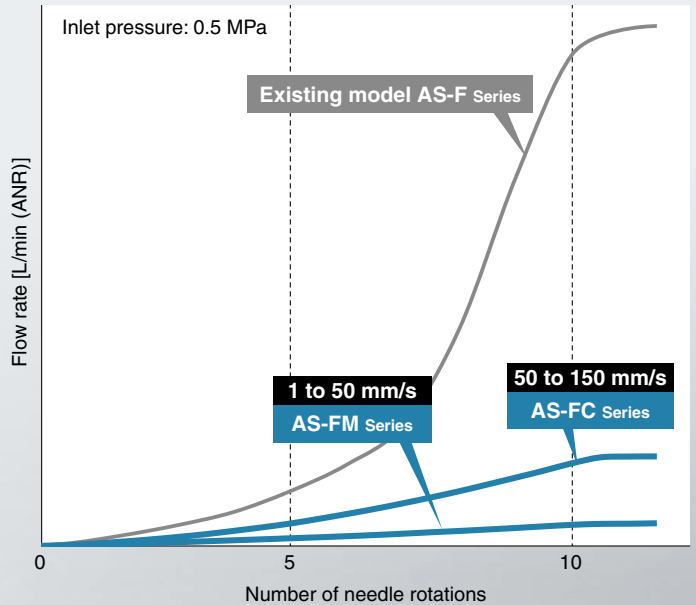
New

RoHS

1 to 50 mm/s AS-FM Series

50 to 150 mm/s AS-FC Series

Finer adjustment and greater accuracy of actuator speed is available within specified control range.



## Variations

|                              | Push-lock type   | With Indicator/Push-lock type   | Port size    | Applicable tubing O.D. |                 |
|------------------------------|--|---|--------------|------------------------|-----------------|
|                              |  |   |              | Metric                 | Inch            |
| Elbow type<br>Universal type | <p>1 to 50 mm/s AS-FM Series <a href="#">▶ page 1</a></p> <p>50 to 150 mm/s AS-FC Series</p>     | <p>1 to 50 mm/s AS-FSM Series <a href="#">▶ page 19</a></p> <p>50 to 150 mm/s AS-FSC Series</p>     | M5, 10-32UNF | ø2 to ø6               | ø1/8" to ø1/4"  |
|                              |  |   | 1/8, 1/4     | ø3.2 to ø10            | ø1/8" to ø3/8"  |
| In-line type                 | <p>1 to 50 mm/s AS□2-FM Series <a href="#">▶ page 3</a></p> <p>50 to 150 mm/s AS□2-FC Series</p> | <p>1 to 50 mm/s AS□2-FSM Series <a href="#">▶ page 21</a></p> <p>50 to 150 mm/s AS□2-FSC Series</p> | —            | ø3.2 to ø8             | ø1/8" to ø5/16" |

AS-FM/FC Series AS-FSM/FSC Series



CAT.ES20-267A

# Speed Controller with One-touch Fittings

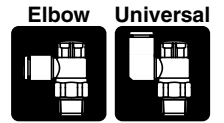
Push-lock Type Elbow Type/Universal Type

1 to 50 mm/s

50 to 150 mm/s

RoHS

# AS-FM/FC Series



## Model

| Model               | Port size |     | Seal method                    | Applicable tubing O.D. |     |   |   |   |    |           |       |      |       |      |   |   |   |   |   |   |
|---------------------|-----------|-----|--------------------------------|------------------------|-----|---|---|---|----|-----------|-------|------|-------|------|---|---|---|---|---|---|
|                     |           |     |                                | Metric size            |     |   |   |   |    | Inch size |       |      |       |      |   |   |   |   |   |   |
|                     |           |     |                                | 2*2                    | 3.2 | 4 | 6 | 8 | 10 | 1/8"      | 5/32" | 1/4" | 5/16" | 3/8" |   |   |   |   |   |   |
| AS1□□1FM/FC-M5□     | M5 x 0.8  |     | Gasket seal                    | ●*3                    | ●   | ● | ● |   |    |           |       |      |       |      |   |   |   |   |   |   |
| AS1□□1FM/FC-U10/32□ | 10-32UNF  |     |                                |                        |     |   |   |   |    |           |       | ●    | ●     | ●    |   |   |   |   |   |   |
| AS2□□1FM/FC-□01     | R         | 1/8 | Sealant (R)*1<br>Face seal (G) |                        | ●   | ● | ● | ● | ●  | ●*3       |       |      |       |      |   |   |   |   |   |   |
| AS2□□1FM/FC-□02     | G         | 1/4 |                                |                        | ●*3 | ● | ● | ● | ●  | ●         |       |      |       |      |   |   |   |   |   |   |
| AS2□□1FM/FC-□01     | NPT       | 1/8 | Sealant*1                      |                        |     |   |   |   |    |           |       | ●    | ●     | ●    | ● | ● | ● | ● | ● | ● |
| AS2□□1FM/FC-□02     |           | 1/4 |                                |                        |     |   |   |   |    |           |       |      | ●*3   | ●    | ● | ● | ● | ● | ● | ● |

\*1 "Without sealant" type can be selected as a standard option.

\*2 Only polyurethane tubing is applicable for ø2.

\*3 The universal type is not available.

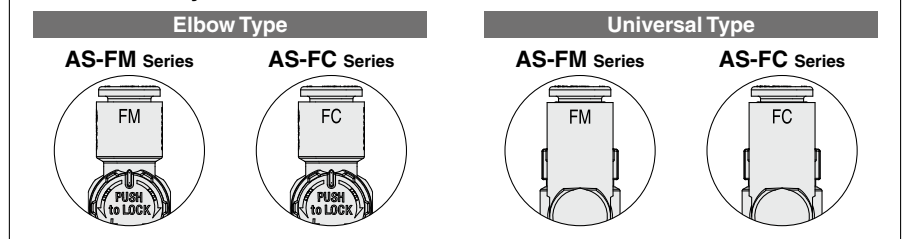
1 to 50 mm/s 50 to 150 mm/s

Finer adjustment and greater accuracy of actuator speed is available within specified control range.

1 to 50 mm/s AS-FM Series

50 to 150 mm/s AS-FC Series

## How to Identify



## Specifications

|                                |   |
|--------------------------------|---|
| Fluid                          | Air   |
| Proof pressure                 | 1.5 MPa                                     |
| Max. operating pressure        | 1 MPa                                       |
| Min. operating pressure        | 0.1 MPa                                     |
| Ambient and fluid temperatures | -5 to 60°C (No freezing)                    |
| Applicable tubing material     | Nylon, Soft nylon, Polyurethane*1, FEP, PFA |

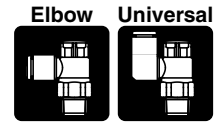
\*1 Use caution at the max. operating pressure when using soft nylon or polyurethane tubing. (Refer to the Web Catalog for details.)

## Flow Rate and Sonic Conductance

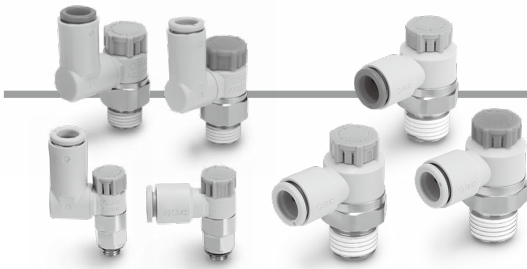
| Model   | AS12□1FM-M5<br>AS13□1FM-M5 |      | AS22□1FM-□01<br>AS23□1FM-□01 |       |       |                 | AS22□1FM-□02<br>AS23□1FM-□02 |       |     |                          | AS12□1FC-M5<br>AS13□1FC-M5 |                          |       | AS22□1FC-□01<br>AS23□1FC-□01 |                 |       | AS22□1FC-□02<br>AS23□1FC-□02 |     |                          |       |       |     |                          |
|---|----------------------------|------|------------------------------|-------|-------|-----------------|------------------------------|-------|-----|--------------------------|----------------------------|--------------------------|-------|------------------------------|-----------------|-------|------------------------------|-----|--------------------------|-------|-------|-----|--------------------------|
|   | Metric size                | ø2   | ø3.2                         | ø4    | ø6    | ø8              | ø10                          | ø3.2  | ø4  | ø6                       | ø8                         | ø10                      | ø2    | ø3.2                         | ø4              | ø6    | ø8                           | ø10 | ø3.2                     | ø4    | ø6    | ø8  | ø10                      |
| Tubing O.D.   | Inch size                  | —    | ø1/8"<br>ø5/32"<br>ø1/4"     | ø1/8" | 5/32" | ø1/4"<br>ø5/16" | ø1/8"                        | 5/32" | —   | ø1/4"<br>ø5/16"<br>ø3/8" | —                          | ø1/8"<br>ø5/32"<br>ø1/4" | ø1/8" | 5/32"                        | ø1/4"<br>ø5/16" | ø1/8" | 5/32"                        | —   | ø1/4"<br>ø5/16"<br>ø3/8" | ø1/8" | 5/32" | —   | ø1/4"<br>ø5/16"<br>ø3/8" |
| C values:<br>Sonic<br>conductance<br>dm <sup>3</sup> /(s·bar) | Free flow                  | 0.2  | 0.3                          | 0.4   | 0.6   | 0.6             | 0.7                          | 1.0   | 1.3 | 1.5                      | 0.2                        | 0.3                      | 0.4   | 0.6                          | 0.6             | 0.7   | 1.0                          | 1.3 | 1.5                      |       |       |     |                          |
|   | Controlled flow            | 0.01 |                              | 0.03  |       |                 |                              | 0.1   |     |                          |                            | 0.05                     |       |                              | 0.1             |       |                              | 0.3 |                          |       |       |     |                          |
| b values:<br>Critical<br>pressure<br>ratio                    | Free flow                  | 0.3  | 0.4                          | 0.2   | 0.3   | 0.3             | 0.3                          | 0.4   | 0.3 | 0.4                      | 0.3                        | 0.4                      | 0.2   | 0.3                          | 0.3             | 0.3   | 0.3                          | 0.3 | 0.4                      | 0.3   | 0.3   | 0.4 | 0.4                      |
|   | Controlled flow            | 0.3  |                              | 0.3   |       |                 |                              | 0.3   |     |                          |                            | 0.2                      |       |                              | 0.3             |       |                              | 0.3 |                          |       |       |     |                          |

\* 10-32UNF has the same specification as M5.

\* C and b values are for controlled flow with the needle fully open and free flow with the needle fully closed.



## How to Order



### Applicable tubing O.D.\*1

| Metric size |        | Inch size |        |
|-------------|--------|-----------|--------|
| 02          | ø2     | 01        | ø1/8"  |
| 23          | ø3.2*2 | 03        | ø5/32" |
| 04          | ø4     | 07        | ø1/4"  |
| 06          | ø6     |           |        |

\*1 For selecting applicable tubing O.D., refer to the "Model" on page 1. Metric size and inch size types can be visually identified by color of the release button.

Metric size: Light gray  
Inch size: Orange

\*2 Use ø1/8" tubing.

### Width across flats (H)

|     |      |
|-----|------|
| E   | 8 mm |
| Nil | 9 mm |

### Body size

|   |                      |
|---|----------------------|
| 1 | M5 x 0.8<br>10-32UNF |
|---|----------------------|

### Port size

|        |          |
|--------|----------|
| M5     | M5 x 0.8 |
| U10/32 | 10-32UNF |

Body size 1

AS 1 2 0 1 FM - M5 E - 06 A -

Body size 2

AS 2 2 0 1 FM - 01 - 06 S A -

### Body size

|   |          |
|---|----------|
| 2 | 1/8, 1/4 |
|---|----------|

### Type

|   |           |
|---|-----------|
| 2 | Elbow     |
| 3 | Universal |

### Control type\*1

|   |           |
|---|-----------|
| 0 | Meter-out |
| 1 | Meter-in  |

\*1 Meter-out and meter-in types can be visually identified by color of the knob.  
Meter-out: Gray  
Meter-in: Light blue

### Control range

|    |                |
|----|----------------|
| FM | 1 to 50 mm/s   |
| FC | 50 to 150 mm/s |

### Thread type

|     |     |
|-----|-----|
| Nil | R   |
| N   | NPT |
| G   | G   |

### Port size

|    |     |
|----|-----|
| 01 | 1/8 |
| 02 | 1/4 |

### Applicable tubing O.D.\*2

| Metric size |        | Inch size |        |
|-------------|--------|-----------|--------|
| 23          | ø3.2*3 | 01        | ø1/8"  |
| 04          | ø4     | 03        | ø5/32" |
| 06          | ø6     | 07        | ø1/4"  |
| 08          | ø8     | 09        | ø5/16" |
| 10          | ø10    | 11        | ø3/8"  |

\*2 For selecting applicable tubing O.D., refer to the "Model" on page 1.

\*3 Use ø1/8" tubing.

Made to Order

Refer to page 17 for details.

Push-lock type

### Seal method

|     |                 |
|-----|-----------------|
| Nil | Without sealant |
| S   | With sealant    |

### Flow Direction Symbols on Body

|        | Meter-out | Meter-in |
|--------|-----------|----------|
| Symbol |           |          |



**Made to Order**  
(For details, refer to page 17.)

| Symbol | Specifications   |
|--------|--|
| -X12   | Lubricant: Vaseline  |
| -X21   | Grease-free (Seal: Fluorine-coated) + Restrictor (Without check valve) |
| -X214  | Restrictor (Without check valve)                                       |
| 10-    | Clean series   |

## Caution

Be sure to read this before handling the products. Refer to the back cover for Safety Instructions. For the Flow Control Equipment Precautions, please refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website. For the Specific Product Precautions, please refer to the catalogs for the Push-lock Type Speed Controller with One-touch Fitting and the Speed Controller with Indicator on the website, <https://www.smcworld.com>

# Speed Controller with One-touch Fittings

Push-lock Type In-line Type

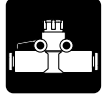
1 to 50 mm/s

50 to 150 mm/s

RoHS

# AS-FM/FC Series

In-line



1 to 50 mm/s

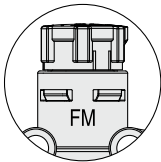
50 to 150 mm/s

Finer adjustment and greater accuracy of actuator speed is available within specified control range.

## How to Identify

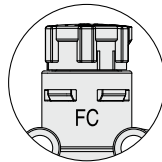
1 to 50 mm/s

AS-FM Series



50 to 150 mm/s

AS-FC Series



## Model

| Model       | Applicable tubing O.D. |   |   |   |           |       |      |       |
|-------------|------------------------|---|---|---|-----------|-------|------|-------|
|             | Metric size            |   |   |   | Inch size |       |      |       |
|             | 3.2                    | 4 | 6 | 8 | 1/8"      | 5/32" | 1/4" | 5/16" |
| AS1002FM/FC | ●                      | ● | ● |   | ●         | ●     | ●    |       |
| AS2002FM/FC |                        | ● | ● |   |           | ●     | ●    |       |
| AS2052FM/FC |                        |   | ● | ● |           |       | ●    | ●     |

## Specifications

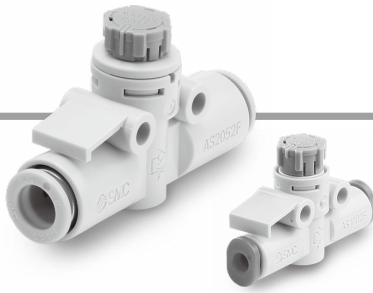
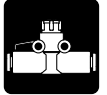
|                                |   |
|--------------------------------|---|
| Fluid                          | Air   |
| Proof pressure                 | 1.5 MPa                                     |
| Max. operating pressure        | 1 MPa                                       |
| Min. operating pressure        | 0.1 MPa                                     |
| Ambient and fluid temperatures | -5 to 60°C (No freezing)                    |
| Applicable tubing material     | Nylon, Soft nylon, Polyurethane*1, FEP, PFA |

\*1 Use caution at the max. operating pressure when using soft nylon or polyurethane tubing. (Refer to the **Web Catalog** for details.)

## Flow Rate and Sonic Conductance

| Model  |                 | AS1002FM-□A |       |       | AS2002FM-□A |       | AS2052FM-□A |        | AS1002FC-□A |       |       | AS2002FC-□A |       | AS2052FC-□A |        |
|--|-----------------|-------------|-------|-------|-------------|-------|-------------|--------|-------------|-------|-------|-------------|-------|-------------|--------|
| Tubing O.D.  | Metric size     | ø3.2        | ø4    | ø6    | ø4          | ø6    | ø6          | ø8     | ø3.2        | ø4    | ø6    | ø4          | ø6    | ø6          | ø8     |
|  | Inch size       | ø1/8"       | 5/32" | ø1/4" | 5/32"       | ø1/4" | ø1/4"       | ø5/16" | ø1/8"       | 5/32" | ø1/4" | 5/32"       | ø1/4" | ø1/4"       | ø5/16" |
| C values: Sonic conductance dm <sup>3</sup> /(s·bar) | Free flow       | 0.3         | 0.4   | 0.6   | 0.4         | 0.6   | 1.0         | 1.2    | 0.3         | 0.4   | 0.6   | 0.4         | 0.6   | 1.0         | 1.2    |
|  | Controlled flow | 0.01        |       |       | 0.03        |       | 0.1         |        | 0.05        |       |       | 0.1         |       | 0.3         |        |
| b values: Critical pressure ratio                    | Free flow       | 0.3         | 0.2   |       | 0.3         | 0.1   | 0.2         |        | 0.3         | 0.2   |       | 0.3         | 0.1   | 0.2         |        |
|  | Controlled flow | 0.4         |       |       | 0.3         |       | 0.3         |        | 0.3         |       |       | 0.4         |       | 0.4         |        |

\* C and b values are for controlled flow with the needle fully open and free flow with the needle fully closed.



**How to Order**

**AS 200 2 FM - 06 A -**  

• **Body size**

|            |              |
|------------|--------------|
| <b>100</b> | M5 standard  |
| <b>200</b> | 1/8 standard |
| <b>205</b> | 1/4 standard |

• **Control range**

|           |                |
|-----------|----------------|
| <b>FM</b> | 1 to 50 mm/s   |
| <b>FC</b> | 50 to 150 mm/s |

• **Made to Order**

• **Push-lock type**

• **Applicable tubing O.D.\*1**

| Metric size |        | Inch size |        |
|-------------|--------|-----------|--------|
| <b>23</b>   | ø3.2*2 | <b>01</b> | ø1/8"  |
| <b>04</b>   | ø4     | <b>03</b> | ø5/32" |
| <b>06</b>   | ø6     | <b>07</b> | ø1/4"  |
| <b>08</b>   | ø8     | <b>09</b> | ø5/16" |

\*1 For selecting applicable tubing O.D., refer to the "Model" on page 3.

\*2 Use ø1/8" tubing.

**Flow Direction Symbols on Body**

| Symbol |
|--------|
|        |

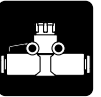


**Made to Order**  
(For details, refer to page 17.)

| Symbol       | Specifications   |
|--------------|--|
| <b>-X12</b>  | Lubricant: Vaseline  |
| <b>-X21</b>  | Grease-free (Seal: Fluorine-coated) + Restrictor (Without check valve) |
| <b>-X214</b> | Restrictor (Without check valve)                                       |
| <b>10-</b>   | Clean series   |

**⚠ Caution**

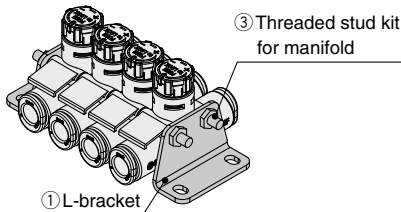
Be sure to read this before handling the products. Refer to the back cover for Safety Instructions. For the Flow Control Equipment Precautions, please refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website. For the Specific Product Precautions, please refer to the catalogs for the Push-lock Type Speed Controller with One-touch Fitting and the Speed Controller with Indicator on the website, <https://www.smcworld.com>



Options/ **In-line Type**

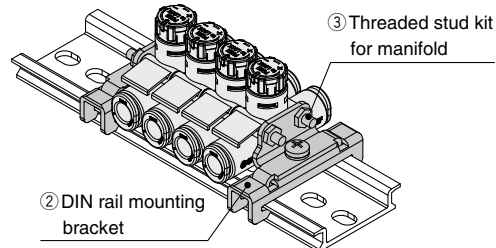
① L-Bracket

| Part number   | Applicable model |
|---------------|------------------|
| <b>AS-10L</b> | AS1002FM/FC      |
| <b>AS-20L</b> | AS2002FM/FC      |
| <b>AS-25L</b> | AS2052FM/FC      |



② DIN Rail Mounting Bracket

| Part number   | Applicable model |
|---------------|------------------|
| <b>AS-10D</b> | AS1002FM/FC      |
| <b>AS-20D</b> | AS2002FM/FC      |
| <b>AS-25D</b> | AS2052FM/FC      |



\* Prepare a DIN rail by the customer.

③ Threaded Stud Kit for Manifold: Metric Size

| Part number   |               |               |               | Applicable model |                 |
|---------------|---------------|---------------|---------------|------------------|-----------------|
| 4 stations    | 6 stations    | 8 stations    | 10 stations   |                  |                 |
| <b>AS-32B</b> | <b>AS-33B</b> | <b>AS-35B</b> | <b>AS-36B</b> | AS1002FM/FC-23A  |                 |
|               |               |               | <b>AS-37B</b> | AS1002FM/FC-04A  |                 |
|               | <b>AS-34B</b> | <b>AS-36B</b> | <b>AS-38B</b> | AS1002FM/FC-06A  |                 |
|               |               |               | —             | —                |                 |
| <b>AS-32B</b> | <b>AS-34B</b> | <b>AS-36B</b> | <b>AS-37B</b> | AS2002FM/FC-04A  |                 |
|               |               |               | <b>AS-38B</b> | AS2002FM/FC-06A  |                 |
|               | <b>AS-41B</b> | <b>AS-42B</b> | <b>AS-44B</b> | <b>AS-45B</b>    | AS2052FM/FC-06A |
|               |               |               |               | —                | —               |
|               |               |               |               | AS2052FM/FC-08A  |                 |

Details of Threaded Stud Kit for Manifold

| Threaded stud |        |          | Accessories |          |             |          |
|---------------|--------|----------|-------------|----------|-------------|----------|
| Part number   | Length | Quantity | Hexagon nut | Quantity | Flat washer | Quantity |
| <b>AS-32B</b> | 62     | 2        | M3          | 4        | M3          | 4        |
| <b>AS-33B</b> | 72     | 2        |             |          |             |          |
| <b>AS-34B</b> | 90     | 2        |             |          |             |          |
| <b>AS-35B</b> | 104    | 2        |             |          |             |          |
| <b>AS-36B</b> | 114    | 2        |             |          |             |          |
| <b>AS-37B</b> | 135    | 2        |             |          |             |          |
| <b>AS-38B</b> | 140    | 2        |             |          |             |          |
| <b>AS-41B</b> | 78     | 2        |             |          |             |          |

③ Threaded Stud Kit for Manifold: Inch Size

| Part number   |               |               |               | Applicable model |                 |
|---------------|---------------|---------------|---------------|------------------|-----------------|
| 4 stations    | 6 stations    | 8 stations    | 10 stations   |                  |                 |
| <b>AS-32B</b> | <b>AS-33B</b> | <b>AS-35B</b> | <b>AS-36B</b> | AS1002FM/FC-01A  |                 |
|               |               |               | <b>AS-37B</b> | AS1002FM/FC-03A  |                 |
|               | <b>AS-34B</b> | <b>AS-36B</b> | <b>AS-38B</b> | AS1002FM/FC-07A  |                 |
|               |               |               | —             | —                |                 |
| <b>AS-32B</b> | <b>AS-34B</b> | <b>AS-36B</b> | <b>AS-37B</b> | AS2002FM/FC-03A  |                 |
|               |               |               | <b>AS-38B</b> | AS2002FM/FC-07A  |                 |
|               | <b>AS-41B</b> | <b>AS-42B</b> | <b>AS-44B</b> | <b>AS-45B</b>    | AS2052FM/FC-07A |
|               |               |               |               | —                | AS2052FM/FC-09A |

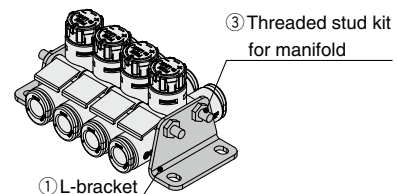
Ordering Example

Threaded studs for manifold are not included when L-bracket and DIN rail mounting bracket are ordered. Please order them according to the number of stations.

Ex.) AS2002FM-04A

When connecting 4 pcs. and mounting L-brackets on both sides

- Speed controller  
**AS2002FM-04A** ..... 4 pcs.
- L-bracket  
**AS-20L** ..... 2 pcs.
- Threaded stud kit for manifold  
**AS-32B** ..... 1 set

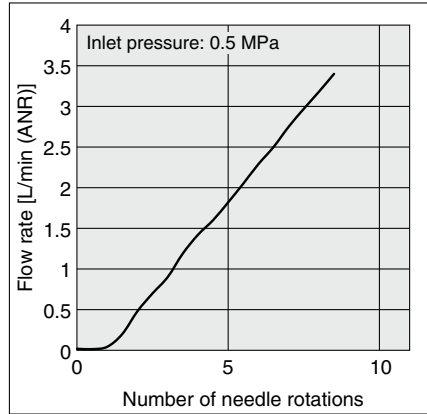




**Needle Valve: Flow Rate Characteristics**

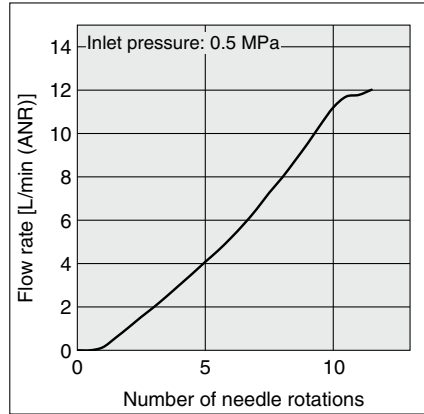
**1 to 50 mm/s**

AS1201FM-M5□, AS1211FM-M5□  
AS1301FM-M5□, AS1311FM-M5□  
AS1002FM-□A

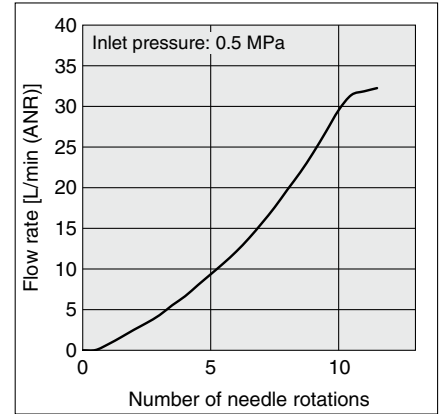


\* -U10/32 has the same specification as M5.

AS2201FM-01, AS2211FM-01  
AS2301FM-01, AS2311FM-01  
AS2002FM-□A

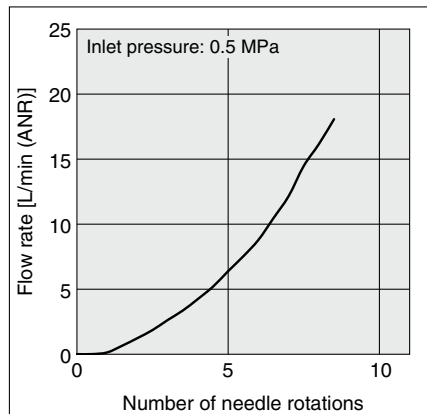


AS2201FM-02, AS2211FM-02  
AS2301FM-02, AS2311FM-02  
AS2052FM-□A

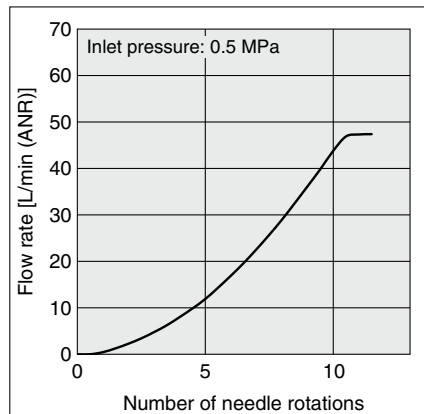


**50 to 150 mm/s**

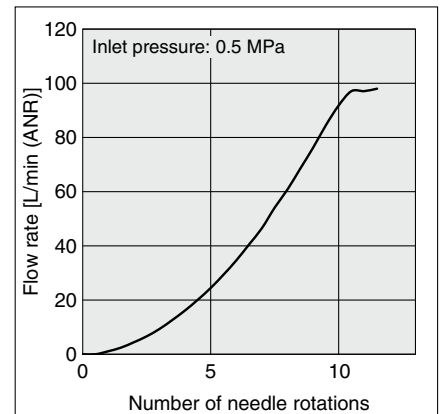
AS1201FC-M5□, AS1211FC-M5□  
AS1301FC-M5□, AS1311FC-M5□  
AS1002FC-□A



AS2201FC-01, AS2211FC-01  
AS2301FC-01, AS2311FC-01  
AS2002FC-□A



AS2201FC-02, AS2211FC-02  
AS2301FC-02, AS2311FC-02  
AS2052FC-□A

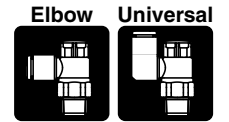


AS-FM/FC  
Elbow/Universal

In-line

AS-FSM/FSC  
Elbow/Universal

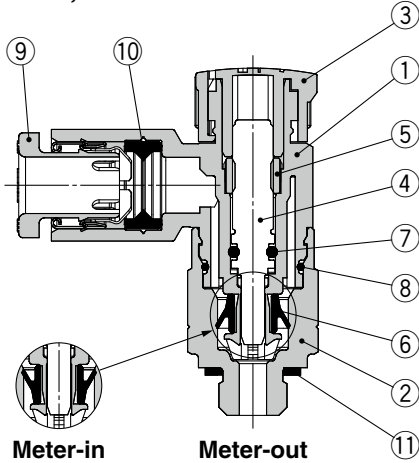
With Indicator  
In-line



**Construction**

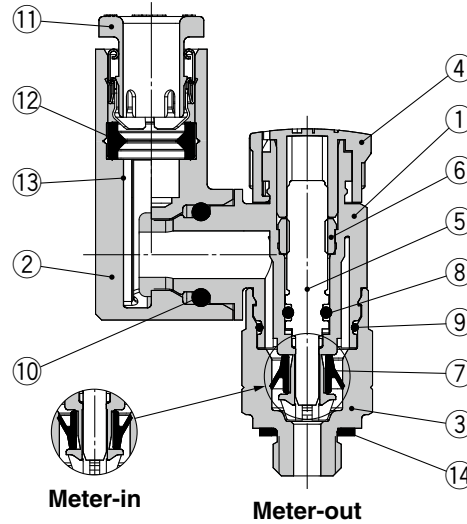
**Elbow Type**

Seal method: Gasket seal  
 For M5, 10-32UNF

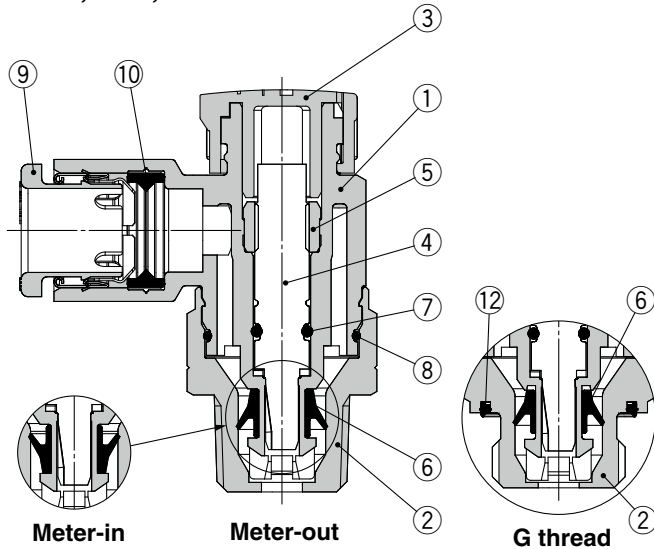


**Universal Type**

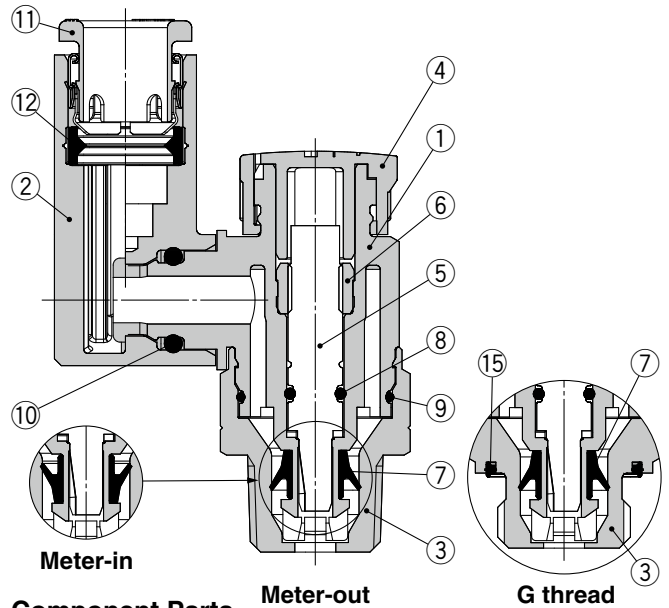
Seal method: Gasket seal  
 For M5, 10-32UNF



Seal method: Sealant, Face seal  
 For R, NPT, G thread



Seal method: Sealant, Face seal  
 For R, NPT, G thread



**Component Parts**

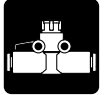
| No. | Description  | Material            | Note                       |
|-----|--------------|---------------------|----------------------------|
| 1   | Body A       | PBT                 |                            |
| 2   | Body B       | Brass               | Electroless nickel plating |
| 3   | Knob         | POM                 |                            |
| 4   | Needle       | PBT                 |                            |
| 5   | Needle guide | Brass               | Electroless nickel plating |
| 6   | U-seal       | HNBR                |                            |
| 7   | O-ring       | NBR                 |                            |
| 8   | O-ring       | NBR                 |                            |
| 9   | Cassette     | —                   |                            |
| 10  | Seal         | NBR                 |                            |
| 11  | Gasket       | NBR/Stainless steel |                            |
| 12  | Seal         | NBR                 |                            |

**Component Parts**

| No. | Description  | Material            | Note                       |
|-----|--------------|---------------------|----------------------------|
| 1   | Body A       | PBT                 |                            |
| 2   | Elbow body   | PBT                 |                            |
| 3   | Body B       | Brass               | Electroless nickel plating |
| 4   | Knob         | POM                 |                            |
| 5   | Needle       | PBT                 |                            |
| 6   | Needle guide | Brass               | Electroless nickel plating |
| 7   | U-seal       | HNBR                |                            |
| 8   | O-ring       | NBR                 |                            |
| 9   | O-ring       | NBR                 |                            |
| 10  | O-ring       | NBR                 |                            |
| 11  | Cassette     | —                   |                            |
| 12  | Seal         | NBR                 |                            |
| 13  | Spacer       | PBT*1               |                            |
| 14  | Gasket       | NBR/Stainless steel |                            |
| 15  | Seal         | NBR                 |                            |

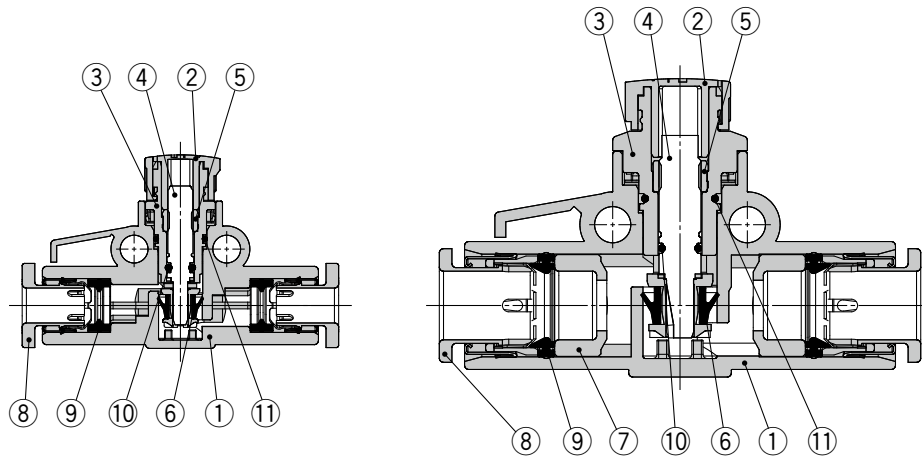
\*1 A spacer is included only for the applicable tubing O.D.  $\phi 3.2$  and  $\phi 1/8"$ .





## Construction

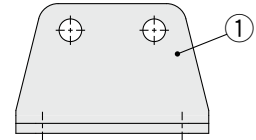
### In-line Type



#### Component Parts

| No. | Description  | Material | Note                       |
|-----|--------------|----------|----------------------------|
| 1   | Body A       | PBT      |                            |
| 2   | Knob         | POM      |                            |
| 3   | Body B       | PBT      |                            |
| 4   | Needle       | PBT      |                            |
| 5   | Needle guide | Brass    | Electroless nickel plating |
| 6   | U-seal       | HNBR     |                            |
| 7   | Spacer       | PBT      |                            |
| 8   | Gasket       | —        |                            |
| 9   | Seal         | NBR      |                            |
| 10  | O-ring       | NBR      |                            |
| 11  | O-ring       | NBR      |                            |

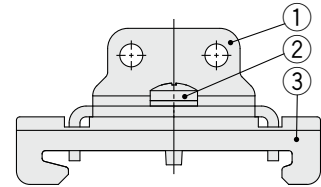
#### L-Bracket



#### Component Parts

| No. | Description | Material    |
|-----|-------------|-------------|
| 1   | Bracket     | Steel strip |

#### DIN Rail Mounting Bracket

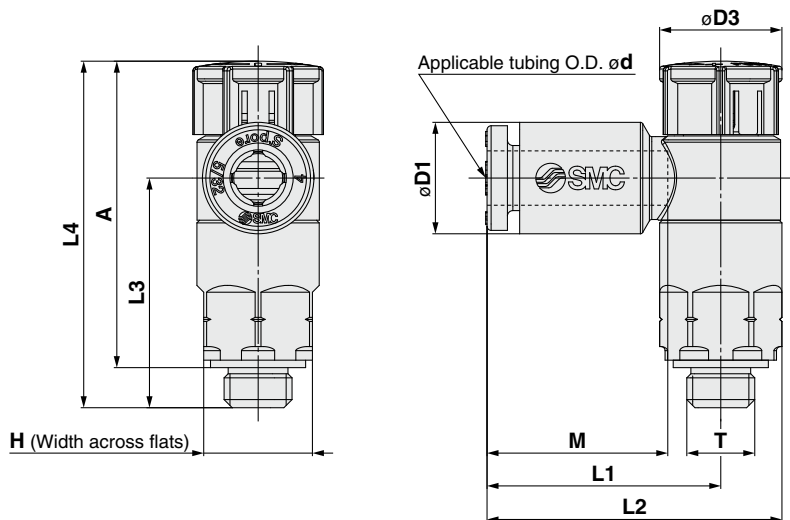


#### Component Parts

| No. | Description                     | Material    |
|-----|---------------------------------|-------------|
| 1   | Bracket                         | Steel strip |
| 2   | Cross recessed round head screw | Steel wire  |
| 3   | Clasp                           | Steel strip |

**Dimensions/ Elbow Type**

Seal method: Gasket seal  
 For M5, 10-32UNF



**Metric Size**

| Model               | d   | T        | H*1      | D1   | D3  | L1   | L2   | L3   | L4*2     |        | A*3      |        | M    | Weight [g] |
|---------------------|-----|----------|----------|------|-----|------|------|------|----------|--------|----------|--------|------|------------|
|                     |     |          |          |      |     |      |      |      | Unlocked | Locked | Unlocked | Locked |      |            |
| AS12□1FM/FC-M5E-02A | 2   | M5 x 0.8 | 8<br>(9) | 5.8  | 9.4 | 15.8 | 20.3 | 16.9 | 26.5     | 25.4   | 23.5     | 22.4   | 13.3 | 11.9       |
| AS12□1FM/FC-M5E-23A | 3.2 |          |          | 7.2  |     | 17.2 | 21.7 |      |          |        |          |        |      | 5          |
| AS12□1FM/FC-M5E-04A | 4   |          |          | 8.2  |     | 18.6 | 23.1 |      |          |        |          |        |      | 6          |
| AS12□1FM/FC-M5E-06A | 6   |          |          | 10.4 |     | 16.5 |      |      |          |        |          |        |      |            |

\*1 The value in ( ) indicates that the dimension for the width across flats is 9 mm.

\*2 Reference dimensions

\*3 Reference dimensions of threads after installation

**Inch Size**

| Model                   | d     | T        | H*1      | D1   | D3  | L1   | L2   | L3   | L4*2     |        | A*3      |        | M    | Weight [g] |
|-------------------------|-------|----------|----------|------|-----|------|------|------|----------|--------|----------|--------|------|------------|
|                         |       |          |          |      |     |      |      |      | Unlocked | Locked | Unlocked | Locked |      |            |
| AS12□1FM/FC-U10/32E-01A | 1/8"  | 10/32UNF | 8<br>(9) | 7.2  | 9.4 | 17.2 | 21.7 | 16.9 | 26.5     | 25.4   | 23.5     | 22.4   | 13.3 | 5          |
| AS12□1FM/FC-U10/32E-03A | 5/32" |          |          | 8.2  |     | 18.6 | 23.1 |      |          |        |          |        |      | 6          |
| AS12□1FM/FC-U10/32E-07A | 1/4"  |          |          | 11.2 |     |      |      |      |          |        |          |        |      |            |

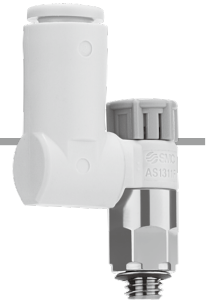
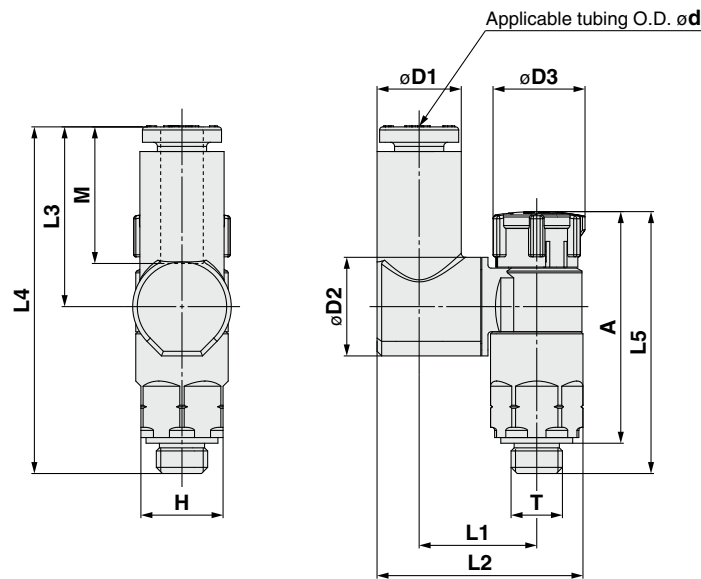
\*1 The value in ( ) indicates that the dimension for the width across flats is 9 mm.

\*2 Reference dimensions

\*3 Reference dimensions of threads after installation

Dimensions/ **Universal Type**

Seal method: Gasket seal  
For M5, 10-32UNF



**Metric Size**

| Model               | d   | T        | H*1      | D1   | D2  | D3  | L1   | L2   | L3   | L4   | L5*2     |        | A*3      |        | M    | Weight [g] |      |      |
|---------------------|-----|----------|----------|------|-----|-----|------|------|------|------|----------|--------|----------|--------|------|------------|------|------|
|                     |     |          |          |      |     |     |      |      |      |      | Unlocked | Locked | Unlocked | Locked |      |            |      |      |
| AS13□1FM/FC-M5E-23A | 3.2 | M5 x 0.8 | 8<br>(9) | 7.2  | 9.6 | 9.4 | 11.6 | 19.4 | 17.5 | 33.8 | 26.5     | 25.4   | 23.5     | 22.4   | 13.3 | 6          |      |      |
| AS13□1FM/FC-M5E-04A | 4   |          |          | 8.2  |     |     |      |      |      |      |          |        |          |        |      |            | 19.8 | 20.9 |
| AS13□1FM/FC-M5E-06A | 6   |          |          | 10.4 |     |     |      |      |      |      |          |        |          |        |      |            | 20.4 | 36.6 |

\*1 The value in ( ) indicates that the dimension for the width across flats is 9 mm.  
\*2 Reference dimensions  
\*3 Reference dimensions of threads after installation

**Inch Size**

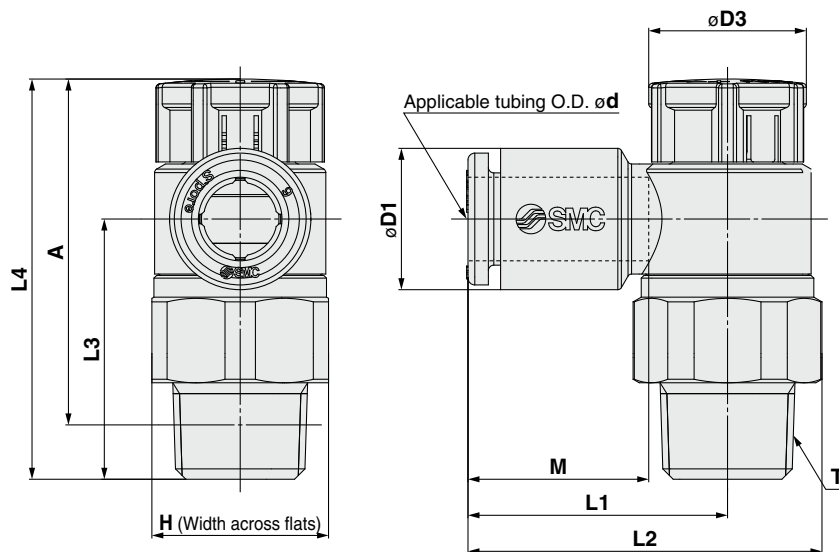
| Model                   | d     | T        | H*1      | D1   | D2  | D3  | L1   | L2   | L3   | L4   | L5*2     |        | A*3      |        | M    | Weight [g] |      |      |
|-------------------------|-------|----------|----------|------|-----|-----|------|------|------|------|----------|--------|----------|--------|------|------------|------|------|
|                         |       |          |          |      |     |     |      |      |      |      | Unlocked | Locked | Unlocked | Locked |      |            |      |      |
| AS13□1FM/FC-U10/32E-01A | 1/8"  | 10/32UNF | 8<br>(9) | 7.2  | 9.6 | 9.4 | 11.6 | 19.4 | 17.5 | 33.8 | 26.5     | 25.4   | 23.5     | 22.4   | 13.3 | 6          |      |      |
| AS13□1FM/FC-U10/32E-03A | 5/32" |          |          | 8.2  |     |     |      |      |      |      |          |        |          |        |      |            | 19.8 | 21.3 |
| AS13□1FM/FC-U10/32E-07A | 1/4"  |          |          | 11.2 |     |     |      |      |      |      |          |        |          |        |      |            | 20.2 | 36.5 |

\*1 The value in ( ) indicates that the dimension for the width across flats is 9 mm.  
\*2 Reference dimensions  
\*3 Reference dimensions of threads after installation

1 to 50 mm/s 50 to 150 mm/s  
**AS-FM/FC Series**

**Dimensions/ Elbow Type**

Seal method: Sealant  
 For R, NPT thread



**Metric Size**

| Model                 | d   | T   | H  | D1   | D3 | L1   | L2   | L3   | L4*1     |        | A*2      |        | M    | Weight [g] |
|-----------------------|-----|-----|----|------|----|------|------|------|----------|--------|----------|--------|------|------------|
|                       |     |     |    |      |    |      |      |      | Unlocked | Locked | Unlocked | Locked |      |            |
| AS22□1FM/FC-01-23(S)A | 3.2 | 1/8 | 13 | 7.2  | 12 | 19.1 | 26.2 | 19.1 | 30.6     | 29.2   | 27.5     | 26.1   | 13.3 | 9          |
| AS22□1FM/FC-01-04(S)A | 4   |     |    | 8.2  |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-01-06(S)A | 6   |     |    | 10.4 |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-01-08(S)A | 8   |     |    | 13.2 |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-01-10(S)A | 10  |     |    | 15.9 |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-02-23(S)A | 3.2 | 1/4 | 17 | 7.2  | 13 | 20.9 | 30.2 | 22.6 | 36.6     | 35     | 31.1     | 29.5   | 13.3 | 18         |
| AS22□1FM/FC-02-04(S)A | 4   |     |    | 8.2  |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-02-06(S)A | 6   |     |    | 10.4 |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-02-08(S)A | 8   |     |    | 13.2 |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-02-10(S)A | 10  |     |    | 15.9 |    |      |      |      |          |        |          |        |      |            |

\*1 Reference dimensions

\*2 Reference dimensions of threads after installation

**Inch Size**

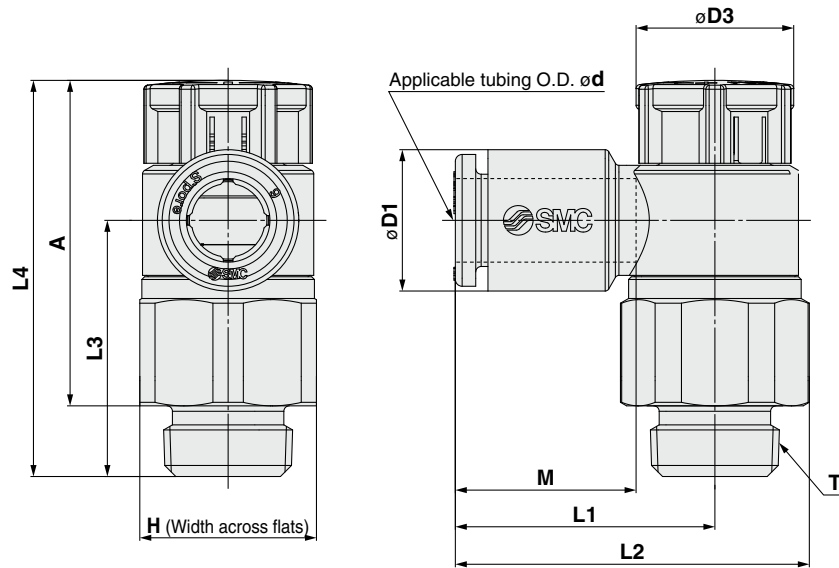
| Model                  | d     | T   | H    | D1   | D3 | L1   | L2   | L3   | L4*1     |        | A*2      |        | M    | Weight [g] |
|------------------------|-------|-----|------|------|----|------|------|------|----------|--------|----------|--------|------|------------|
|                        |       |     |      |      |    |      |      |      | Unlocked | Locked | Unlocked | Locked |      |            |
| AS22□1FM/FC-N01-01(S)A | 1/8"  | 1/8 | 12.7 | 7.2  | 12 | 19.1 | 26.2 | 19.1 | 30.6     | 29.2   | 27.5     | 26.1   | 13.3 | 9          |
| AS22□1FM/FC-N01-03(S)A | 5/32" |     |      | 8.2  |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-N01-07(S)A | 1/4"  |     |      | 11.2 |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-N01-09(S)A | 5/16" |     |      | 13.2 |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-N02-01(S)A | 1/8"  | 1/4 | 17.5 | 7.2  | 13 | 20.9 | 30.3 | 22.6 | 36.6     | 35     | 31.1     | 29.5   | 13.3 | 19         |
| AS22□1FM/FC-N02-03(S)A | 5/32" |     |      | 8.2  |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-N02-07(S)A | 1/4"  |     |      | 11.2 |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-N02-09(S)A | 5/16" |     |      | 13.2 |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-N02-11(S)A | 3/8"  |     |      | 15.5 |    |      |      |      |          |        |          |        |      |            |

\*1 Reference dimensions

\*2 Reference dimensions of threads after installation

**Dimensions/ Elbow Type**

Seal method: Face seal  
For G thread



**Metric Size**

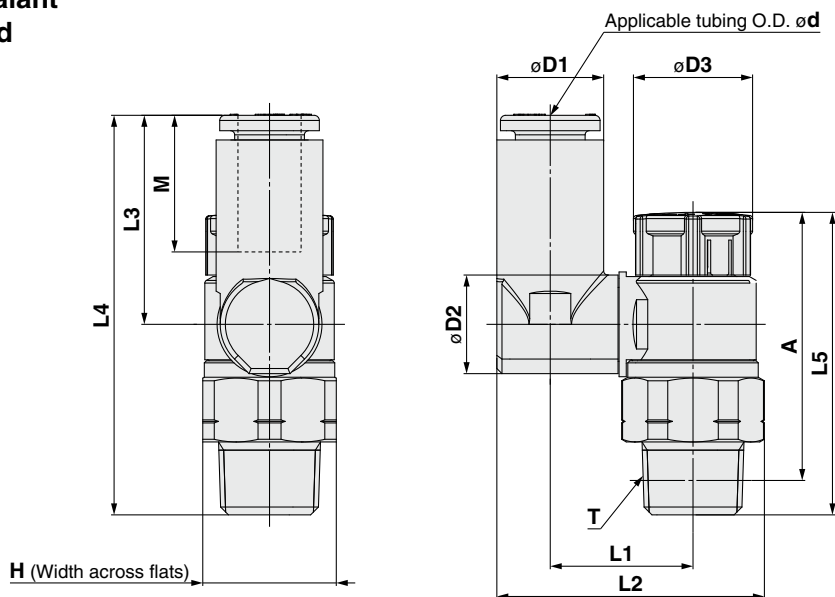
| Model               | d   | T   | H  | D1   | D3 | L1   | L2   | L3   | L4       |        | A        |        | M    | Weight [g] |
|---------------------|-----|-----|----|------|----|------|------|------|----------|--------|----------|--------|------|------------|
|                     |     |     |    |      |    |      |      |      | Unlocked | Locked | Unlocked | Locked |      |            |
| AS22□1FM/FC-G01-23A | 3.2 | 1/8 | 13 | 7.2  | 12 | 19.1 | 26.2 | 18.8 | 30.3     | 28.9   | 24.8     | 23.4   | 13.3 | 10         |
| AS22□1FM/FC-G01-04A | 4   |     |    | 8.2  |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-G01-06A | 6   |     |    | 10.4 |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-G01-08A | 8   |     |    | 13.2 |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-G01-10A | 10  |     |    | 15.9 |    | 25.3 | 32.4 |      |          |        |          |        | 14.2 | 11         |
| AS22□1FM/FC-G02-23A | 3.2 | 1/4 | 17 | 7.2  | 13 | 20.9 | 30.2 | 22.6 | 36.6     | 35     | 30.1     | 28.5   | 13.3 | 21         |
| AS22□1FM/FC-G02-04A | 4   |     |    | 8.2  |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-G02-06A | 6   |     |    | 10.4 |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-G02-08A | 8   |     |    | 13.2 |    |      |      |      |          |        |          |        |      |            |
| AS22□1FM/FC-G02-10A | 10  |     |    | 15.9 |    | 26.9 | 36.2 |      |          |        |          |        | 14.2 | 22         |
|                     |     |     |    |      |    |      |      |      |          |        |          |        | 15.6 | 23         |

AS-FM/FC  
Elbow/Universal  
In-line

With Indicator AS-FSM/FSC  
Elbow/Universal  
In-line

**Dimensions/ Universal Type**

Seal method: Sealant  
 For R, NPT thread



**Metric Size**

| Model                 | d   | T   | H  | D1   | D2   | D3 | L1   | L2   | L3   | L4   | L5*1     |        | A*2      |        | M    | Weight [g] |
|-----------------------|-----|-----|----|------|------|----|------|------|------|------|----------|--------|----------|--------|------|------------|
|                       |     |     |    |      |      |    |      |      |      |      | Unlocked | Locked | Unlocked | Locked |      |            |
| AS23□1FM/FC-01-23(S)A | 3.2 | 1/8 | 13 | 7.2  | 9.6  | 12 | 13.3 | 24   | 17.5 | 36   | 30.6     | 29.2   | 27.5     | 26.1   | 13.3 | 10         |
| AS23□1FM/FC-01-04(S)A | 4   |     |    | 8.2  |      |    | 25.1 |      |      |      |          |        |          |        |      |            |
| AS23□1FM/FC-01-06(S)A | 6   |     |    | 10.4 |      |    | 26.2 |      |      |      |          |        |          |        |      |            |
| AS23□1FM/FC-01-08(S)A | 8   |     |    | 13.2 |      |    | 20.4 |      |      |      |          |        |          |        |      |            |
| AS23□1FM/FC-02-04(S)A | 4   | 1/4 | 17 | 8.2  | 12.9 | 13 | 16.5 | 29.9 | 17.5 | 40.1 | 36.6     | 35     | 31.1     | 29.5   | 13.3 | 19         |
| AS23□1FM/FC-02-06(S)A | 6   |     |    | 11.2 |      |    | 33.8 |      |      |      |          |        |          |        |      |            |
| AS23□1FM/FC-02-08(S)A | 8   |     |    | 13.2 |      |    | 21.4 |      |      |      |          |        |          |        |      |            |
| AS23□1FM/FC-02-10(S)A | 10  |     |    | 15.9 |      |    | 23.5 |      |      |      |          |        |          |        |      |            |
|                       |     |     |    |      |      |    | 20.9 | 38.1 | 24.7 | 47.3 |          |        |          |        | 14.2 | 12         |
|                       |     |     |    |      |      |    |      |      |      |      |          |        |          |        | 15.6 | 23         |

\*1 Reference dimensions

\*2 Reference dimensions of threads after installation

**Inch Size**

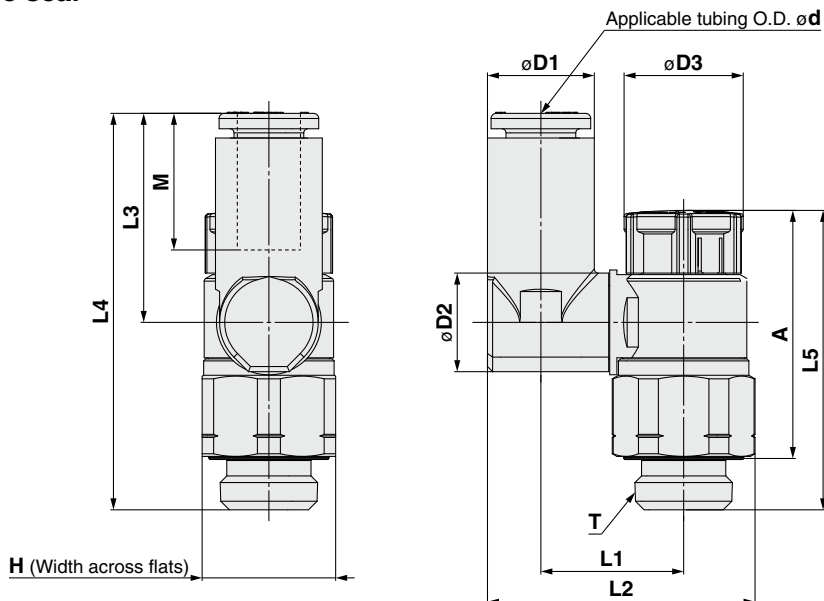
| Model                  | d     | T   | H    | D1   | D2   | D3 | L1   | L2   | L3   | L4   | L5*1     |        | A*2      |        | M    | Weight [g] |
|------------------------|-------|-----|------|------|------|----|------|------|------|------|----------|--------|----------|--------|------|------------|
|                        |       |     |      |      |      |    |      |      |      |      | Unlocked | Locked | Unlocked | Locked |      |            |
| AS23□1FM/FC-N01-01(S)A | 1/8"  | 1/8 | 12.7 | 7.2  | 9.6  | 12 | 13.3 | 24   | 17.5 | 36   | 30.6     | 29.2   | 27.5     | 26.1   | 13.3 | 10         |
| AS23□1FM/FC-N01-03(S)A | 5/32" |     |      | 8.2  |      |    | 25.1 |      |      |      |          |        |          |        |      |            |
| AS23□1FM/FC-N01-07(S)A | 1/4"  |     |      | 11.2 |      |    | 29.1 |      |      |      |          |        |          |        |      |            |
| AS23□1FM/FC-N01-09(S)A | 5/16" |     |      | 13.2 |      |    | 20.2 |      |      |      |          |        |          |        |      |            |
| AS23□1FM/FC-N02-03(S)A | 5/32" | 1/4 | 17.5 | 8.2  | 12.9 | 13 | 16.5 | 30   | 17.5 | 40.1 | 36.6     | 35     | 31.1     | 29.5   | 13.3 | 20         |
| AS23□1FM/FC-N02-07(S)A | 1/4"  |     |      | 11.2 |      |    | 33.9 |      |      |      |          |        |          |        |      |            |
| AS23□1FM/FC-N02-09(S)A | 5/16" |     |      | 13.2 |      |    | 21.4 |      |      |      |          |        |          |        |      |            |
| AS23□1FM/FC-N02-11(S)A | 3/8"  |     |      | 15.9 |      |    | 23.5 |      |      |      |          |        |          |        |      |            |
|                        |       |     |      |      |      |    | 20.9 | 38.2 | 24.7 | 47.3 |          |        |          |        | 14.2 | 22         |
|                        |       |     |      |      |      |    |      |      |      |      |          |        |          |        | 15.6 | 24         |

\*1 Reference dimensions

\*2 Reference dimensions of threads after installation

Dimensions/ **Universal Type**

Seal method: Face seal  
For G thread



**Metric Size**

| Model               | d   | T   | H  | D1   | D2   | D3 | L1   | L2   | L3   | L4   | L5       |        | A        |        | M    | Weight [g] |
|---------------------|-----|-----|----|------|------|----|------|------|------|------|----------|--------|----------|--------|------|------------|
|                     |     |     |    |      |      |    |      |      |      |      | Unlocked | Locked | Unlocked | Locked |      |            |
| AS23□1FM/FC-G01-23A | 3.2 | 1/8 | 13 | 7.2  | 9.6  | 12 | 13.3 | 24.0 | 17.5 | 35.7 | 30.3     | 28.9   | 24.8     | 23.4   | 13.3 | 10         |
| AS23□1FM/FC-G01-04A | 4   |     |    | 8.2  |      |    | 25.1 | 11   |      |      |          |        |          |        |      |            |
| AS23□1FM/FC-G01-06A | 6   |     |    | 10.4 |      |    | 26.2 | 11   |      |      |          |        |          |        |      |            |
| AS23□1FM/FC-G01-08A | 8   |     |    | 13.2 |      |    | 30.1 | 12   |      |      |          |        |          |        |      |            |
| AS23□1FM/FC-G02-04A | 4   | 1/4 | 17 | 8.2  | 12.9 | 13 | 16.5 | 29.9 | 17.5 | 40.1 | 36.6     | 35     | 30.1     | 28.5   | 13.3 | 22         |
| AS23□1FM/FC-G02-06A | 6   |     |    | 10.4 |      |    | 33.8 | 24   |      |      |          |        |          |        |      |            |
| AS23□1FM/FC-G02-08A | 8   |     |    | 13.2 |      |    | 34.9 | 25   |      |      |          |        |          |        |      |            |
| AS23□1FM/FC-G02-10A | 10  |     |    | 15.9 |      |    | 38.1 | 26   |      |      |          |        |          |        |      |            |

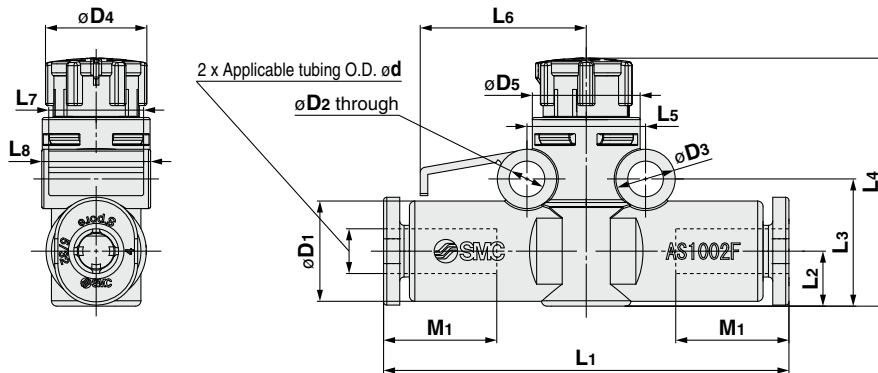
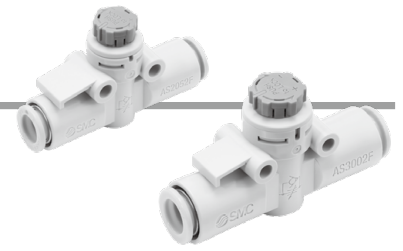
AS-FM/FC  
Elbow/Universal

In-line

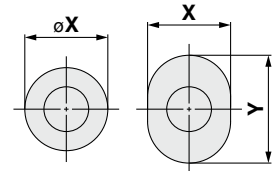
With Indicator AS-FSM/FC  
Elbow/Universal

In-line

**Dimensions/ In-line Type**



**Release button dimensions**



Applicable tubing O.D.:  $\phi 3.2$ ,  $\phi 4$ ,  $\phi 6$   
 $\phi 1/8$ ",  $\phi 5/32$ "

**Metric Size**

| Model           | Applicable tubing O.D.<br>$\phi d$ | $\phi D1$ | Release button |     | $\phi D2$ | $\phi D3$ | $\phi D4$ | $\phi D5$ | L1   | L2   | L3   | L4*1 |      | L5   | L6   | L7   | L8   | M1   | Weight [g] |
|-----------------|------------------------------------|-----------|----------------|-----|-----------|-----------|-----------|-----------|------|------|------|------|------|------|------|------|------|------|------------|
|                 |                                    |           | $\phi X(X)$    | Y   |           |           |           |           |      |      |      | Max. | Min. |      |      |      |      |      |            |
|                 |                                    |           |                |     |           |           |           |           |      |      |      |      |      |      |      |      |      |      |            |
| AS1002FM/FC-23A | 3.2                                | 8.4       | 6.7            | 9.5 | 3.3       | 5.5       | 9.4       | 10        | 36.6 | 5.1  | 11.8 | 24.1 | 23   | 11   | 15.4 | 8.8  | 10.1 | 13.5 | 3.7        |
| AS1002FM/FC-04A | 4                                  | 9.3       | 7.7            | 10  |           |           |           |           | 37.6 |      |      | 25.1 | 24   |      |      |      |      |      | 4          |
| AS1002FM/FC-06A | 6                                  | 11.6      | 9.7            | 12  |           |           |           |           | 40.1 |      |      | 6.1  | 12.8 |      |      |      |      |      | 12.3       |
| AS2002FM/FC-04A | 4                                  | 9.3       | 7.7            | 10  | 3.3       | 5.5       | 12        | 12        | 41.3 | 6.3  | 13.4 | 31.4 | 30   | 12.6 | 17   | 10.5 | 12.3 | 13.5 | 6.1        |
| AS2002FM/FC-06A | 6                                  | 11.6      | 9.7            | 12  |           |           |           |           | 43.1 |      |      | 31.4 | 30   |      |      |      |      |      | 6.9        |
| AS2052FM/FC-06A | 6                                  | 12.8      | 11.5           | —   |           |           |           |           | 4.3  |      |      | 7.8  | 13   |      |      |      |      |      | 16         |
| AS2052FM/FC-08A | 8                                  | 15.2      | 13.5           | —   | 57.2      | 8.5       | 18.1      | 37.1      |      | 35.5 | 19   |      |      | 13.8 |      |      |      |      |            |

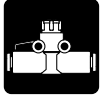
\*1 Reference dimensions

**Inch Size**

| Model           | Applicable tubing O.D.<br>$\phi d$ | $\phi D1$ | Release button |     | $\phi D2$ | $\phi D3$ | $\phi D4$ | $\phi D5$ | L1   | L2   | L3   | L4*1 |      | L5   | L6   | L7   | L8   | M1   | Weight [g] |
|-----------------|------------------------------------|-----------|----------------|-----|-----------|-----------|-----------|-----------|------|------|------|------|------|------|------|------|------|------|------------|
|                 |                                    |           | $\phi X(X)$    | Y   |           |           |           |           |      |      |      | Max. | Min. |      |      |      |      |      |            |
|                 |                                    |           |                |     |           |           |           |           |      |      |      |      |      |      |      |      |      |      |            |
| AS1002FM/FC-01A | 1/8"                               | 8.4       | 6.7            | 9.5 | 3.3       | 5.5       | 9.4       | 10        | 36.6 | 5.1  | 11.8 | 24.1 | 23   | 11   | 15.4 | 8.8  | 10.1 | 13.5 | 3.7        |
| AS1002FM/FC-03A | 5/32"                              | 9.3       | 7.7            | 10  |           |           |           |           | 37.6 |      |      | 25.2 | 24.1 |      |      |      |      |      | 4          |
| AS1002FM/FC-07A | 1/4"                               | 12        | 10.9           | —   |           |           |           |           | 40.1 |      |      | 6.2  | 12.9 |      |      |      |      |      | 12.8       |
| AS2002FM/FC-03A | 5/32"                              | 9.3       | 7.7            | 10  | 3.3       | 5.5       | 12        | 12        | 41.3 | 6.5  | 13.6 | 31.4 | 30   | 12.6 | 17   | 10.5 | 12.3 | 13.5 | 6.1        |
| AS2002FM/FC-07A | 1/4"                               | 12        | 10.9           | —   |           |           |           |           | 43.2 |      |      | 31.6 | 30.2 |      |      |      |      |      | 7.1        |
| AS2052FM/FC-07A | 1/4"                               | 13.2      | 12             | —   |           |           |           |           | 4.3  |      |      | 7.8  | 13   |      |      |      |      |      | 16         |
| AS2052FM/FC-09A | 5/16"                              | 15.2      | 13.5           | —   | 57.2      | 8.5       | 18.1      | 37.1      |      | 35.5 | 19   |      |      | 13.8 |      |      |      |      |            |

\*1 Reference dimensions

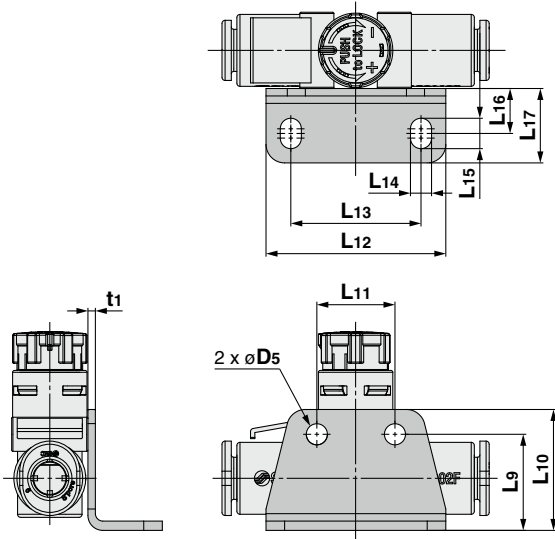




**Dimensions/ In-line Type**

**L-Bracket**

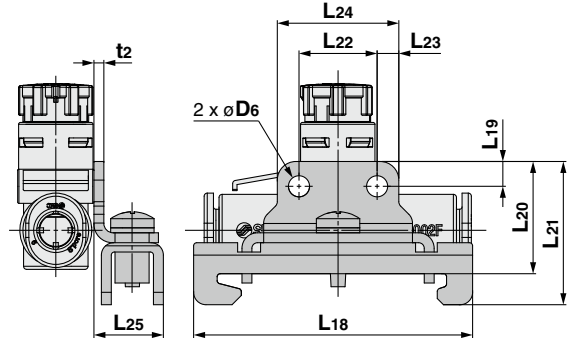
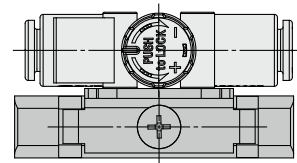
Bracket on a single side



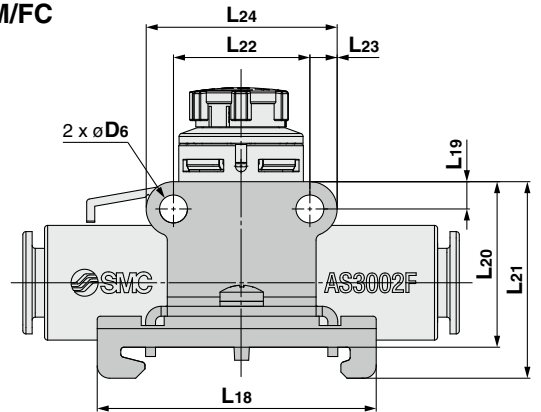
**DIN Rail Mounting Bracket**

Bracket on a single side

AS1002FM/FC  
AS2002FM/FC



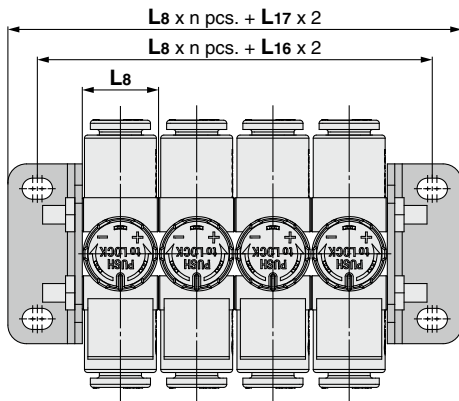
AS2052FM/FC



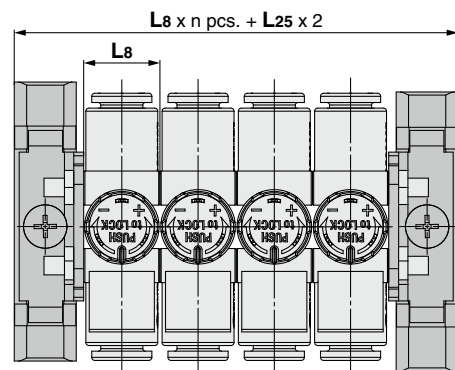
| Part number | Applicable model | D5  | L9   | L10  | L11  | L12  | L13  | L14 | L15 | L16 | L17  | t1  |
|-------------|------------------|-----|------|------|------|------|------|-----|-----|-----|------|-----|
| AS-10L      | AS1002FM/FC      | 3.4 | 14.8 | 18.3 | 11   | 27.5 | 19.5 | 3.4 | 4.9 | 7.3 | 12   | 1   |
| AS-20L      | AS2002FM/FC      |     | 15.6 | 19.6 | 12.6 | 29   | 21   |     |     |     |      |     |
| AS-25L      | AS2052FM/FC      | 4.5 | 19.6 | 24.6 | 17   | 38   | 28   | 4.5 | 6.5 | 9.5 | 15.5 | 1.2 |

| Part number | Applicable model | D6  | L18 | L19 | L20  | L21  | L22  | L23  | L24 | L25  | t2  |
|-------------|------------------|-----|-----|-----|------|------|------|------|-----|------|-----|
| AS-10D      | AS1002FM/FC      | 3.4 | 45  | 3.5 | 18.2 | 23.2 | 11   | 3.5  | 18  | 11.3 | 1.6 |
| AS-20D      | AS2002FM/FC      |     |     |     | 18.6 | 23.6 | 12.6 |      |     |      |     |
| AS-25D      | AS2052FM/FC      | 4.5 | 4.4 | 22  | 27   | 17   | 4.4  | 25.8 |     |      |     |

**Brackets on both sides**



**Brackets on both sides**



\* Refer to page 15 for L8.  
\* The figure above shows the manifold with speed controllers connected using two L-brackets and a threaded stud kit for manifold. Refer to page 5 for threaded stud kits for manifold.

\* Refer to page 15 for L8.  
\* The figure above shows the manifold with speed controllers connected using two DIN rail mounting brackets and a threaded stud kit for manifold. Refer to page 5 for threaded stud kits for manifold.

AS-FM/FC  
In-line  
Elbow/Universal

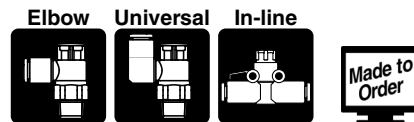
With Indicator AS-FSM/FSC  
In-line  
Elbow/Universal

1 to 50 mm/s 50 to 150 mm/s

# AS-FM/FC Series

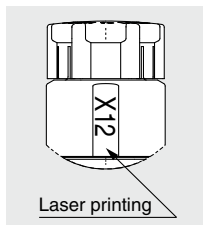
## Made to Order

Please contact SMC for detailed dimensions, specifications and lead times.



### 1 Lubricant: Vaseline

**-X12**

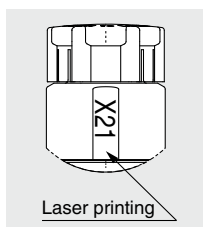


Example) AS2002FM/FC-06A-X12

- **Standard model number**  
( Elbow type/Universal type ⇔ page 2 )  
( In-line type ⇔ page 4 )

### 2 Grease-free (Seal: Fluorine-coated) + Restrictor (Without check valve)

**-X21**



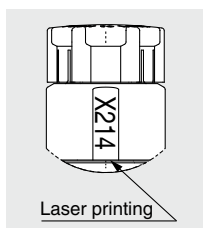
Example) AS2002FM/FC-06A-X21

- **Standard model number**  
( Elbow type/Universal type ⇔ page 2 )  
( In-line type ⇔ page 4 )

- \* Not particle-free
- \* Direction is not specified as there is no check valve. Products are available by the product number for meter-out type. Product number for meter-in type is not available. (For the elbow/universal type)
- \* Only the needle and O-ring are fluorine-coated.

### 3 Restrictor (Without check valve)

**-X214**



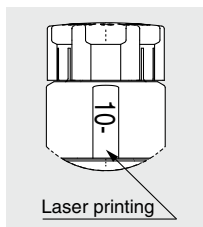
Example) AS2002FM/FC-06A-X214

- **Standard model number**  
( Elbow type/Universal type ⇔ page 2 )  
( In-line type ⇔ page 4 )

- \* Direction is not specified as there is no check valve. Products are available by the product number for meter-out type. Product number for meter-in type is not available. (For the elbow/universal type)

### 4 Clean series

**10-**



Example) 10-AS2002FM/FC-06A

- **Standard model number**  
( Elbow type/Universal type ⇔ page 2 )  
( In-line type ⇔ page 4 )

- \* Fluorine grease is used.
- \* The cleanliness class (ISO class) is 5.
- \* Excluding G thread type

With Indicator **AS-FSM/FSC**  
In-line Elbow/Universal

**AS-FM/FC**  
In-line Elbow/Universal

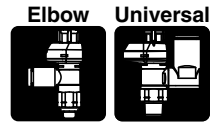
# Speed Controller with Indicator Elbow Type/Universal Type

1 to 50 mm/s

50 to 150 mm/s

RoHS

# AS-FSM/FSC Series



## Model

| Model                  | Port size      | Seal method                    | Applicable tubing O.D. |     |   |   |   |    |           |       |      |       |      | *3<br>Max.<br>number of<br>rotations |   |   |   |   |    |
|------------------------|----------------|--------------------------------|------------------------|-----|---|---|---|----|-----------|-------|------|-------|------|--------------------------------------|---|---|---|---|----|
|                        |                |                                | Metric size            |     |   |   |   |    | Inch size |       |      |       |      |                                      |   |   |   |   |    |
|                        |                |                                | 2*2                    | 3.2 | 4 | 6 | 8 | 10 | 1/8"      | 5/32" | 1/4" | 5/16" | 3/8" |                                      |   |   |   |   |    |
| AS1□□1FSM/FSC□-M5□     | M5 x 0.8       | Gasket seal                    | ●*4                    | ●   | ● | ● |   |    |           |       |      | ●     | ●    | ●                                    |   |   |   |   | 8  |
| AS1□□1FSM/FSC□-U10/32□ | 10-32UNF       |                                |                        |     |   |   |   |    |           |       |      |       |      |                                      |   |   |   |   |    |
| AS2□□1FSM/FSC□-□01     | R 1/8<br>G 1/4 | Sealant (R)*1<br>Face seal (G) |                        | ●   | ● | ● | ● | ●  | ●*4       |       |      |       |      |                                      |   |   |   |   | 10 |
| AS2□□1FSM/FSC□-□02     |                |                                |                        | ●*4 | ● | ● | ● | ●  | ●         |       |      |       |      |                                      |   |   |   |   |    |
| AS2□□1FSM/FSC□-□01     | NPT 1/8<br>1/4 | Sealant*1                      |                        |     |   |   |   |    |           |       |      | ●     | ●    | ●                                    | ● | ● |   |   |    |
| AS2□□1FSM/FSC□-□02     |                |                                |                        |     |   |   |   |    |           |       |      |       | ●*4  | ●                                    | ● | ● | ● | ● |    |

\*1 "Without sealant" type can be selected as a standard option.

\*3 There are differences in actual rate as by the indicator window over the maximum number of rotations depending on the individual product.

\*2 Only polyurethane tubing is applicable for ø2.

\*4 The universal type is not available.

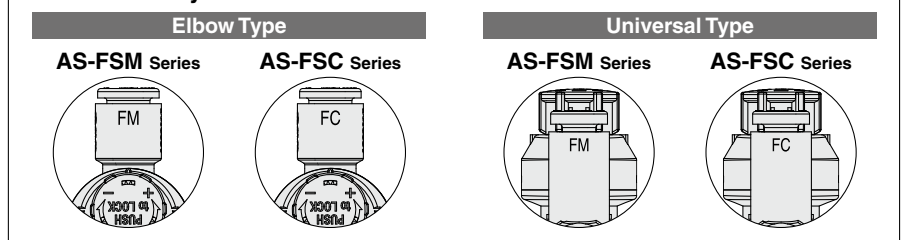
1 to 50 mm/s 50 to 150 mm/s

Finer adjustment and greater accuracy of actuator speed is available within specified control range.

1 to 50 mm/s AS-FSM Series

50 to 150 mm/s AS-FSC Series

## How to Identify



## Specifications

|                                |   |
|--------------------------------|---|
| Fluid                          | Air   |
| Proof pressure                 | 1.5 MPa                                     |
| Max. operating pressure        | 1 MPa                                       |
| Min. operating pressure        | 0.1 MPa                                     |
| Ambient and fluid temperatures | -5 to 60°C (No freezing)                    |
| Applicable tubing material     | Nylon, Soft nylon, Polyurethane*1, FEP, PFA |

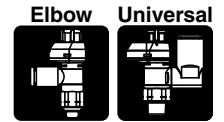
\*1 Use caution at the max. operating pressure when using soft nylon or polyurethane tubing.  
(Refer to the **Web Catalog** for details.)

## Flow Rate and Sonic Conductance

| Model   | AS12□1FSM-M5<br>AS13□1FSM-M5 |      | AS22□1FSM-□01<br>AS23□1FSM-□01 |       |       |                 | AS22□1FSM-□02<br>AS23□1FSM-□02 |       |     |                          | AS12□1FSC-M5<br>AS13□1FSC-M5 |                          |       | AS22□1FSC-□01<br>AS23□1FSC-□01 |                 |       | AS22□1FSC-□02<br>AS23□1FSC-□02 |     |                          |     |     |     |     |
|---|------------------------------|------|--------------------------------|-------|-------|-----------------|--------------------------------|-------|-----|--------------------------|------------------------------|--------------------------|-------|--------------------------------|-----------------|-------|--------------------------------|-----|--------------------------|-----|-----|-----|-----|
|   | Metric size                  | ø2   | ø3.2                           | ø4    | ø6    | ø8              | ø10                            | ø3.2  | ø4  | ø6                       | ø8                           | ø10                      | ø2    | ø3.2                           | ø4              | ø6    | ø8                             | ø10 | ø3.2                     | ø4  | ø6  | ø8  | ø10 |
| Tubing O.D.   | Inch size                    | —    | ø1/8"<br>ø5/32"<br>ø1/4"       | ø1/8" | 5/32" | ø1/4"<br>ø5/16" | ø1/8"                          | 5/32" | —   | ø1/4"<br>ø5/16"<br>ø3/8" | —                            | ø1/8"<br>ø5/32"<br>ø1/4" | ø1/8" | 5/32"                          | ø1/4"<br>ø5/16" | ø1/8" | 5/32"                          | —   | ø1/4"<br>ø5/16"<br>ø3/8" | —   | —   | —   | —   |
|   | Free flow                    | 0.2  | 0.3                            | 0.4   | 0.6   | 0.6             | 0.7                            | 1.0   | 1.3 | 1.5                      | 0.2                          | 0.3                      | 0.4   | 0.6                            | 0.6             | 0.7   | 1.0                            | 1.3 | 1.5                      | 0.2 | 0.3 | 0.4 | 0.6 |
| C values:<br>Sonic<br>conductance<br>dm <sup>3</sup> /(s·bar) | Controlled flow              | 0.01 |                                | 0.03  |       |                 |                                | 0.1   |     |                          |                              | 0.05                     |       |                                | 0.1             |       |                                | 0.3 |                          |     |     |     |     |
|   | Free flow                    | 0.3  | 0.4                            | 0.2   | 0.3   | 0.3             | 0.3                            | 0.4   | 0.3 | 0.4                      | 0.3                          | 0.4                      | 0.2   | 0.3                            | 0.3             | 0.3   | 0.4                            | 0.3 | 0.4                      | 0.3 | 0.4 | 0.3 | 0.4 |
| b values:<br>Critical<br>pressure<br>ratio                    | Free flow                    | 0.3  |                                | 0.3   |       |                 |                                | 0.3   |     |                          |                              | 0.2                      |       |                                | 0.3             |       |                                | 0.3 |                          |     |     |     |     |
|   | Controlled flow              | 0.3  |                                | 0.3   |       |                 |                                | 0.3   |     |                          |                              | 0.2                      |       |                                | 0.3             |       |                                | 0.3 |                          |     |     |     |     |

\* 10-32UNF has the same specification as M5.

\* C and b values are for controlled flow with the needle fully open and free flow with the needle fully closed.



### How to Order



• **Applicable tubing O.D.\*1**

| Metric size |        | Inch size |        |
|-------------|--------|-----------|--------|
| 02          | ø2     | 01        | ø1/8"  |
| 23          | ø3.2*2 | 03        | ø5/32" |
| 04          | ø4     | 07        | ø1/4"  |
| 06          | ø6     |           |        |

\*1 For selecting applicable tubing O.D., refer to the "Model" on page 19. Metric size and inch size types can be visually identified by color of the release button.  
Metric size: Light gray  
Inch size: Orange  
\*2 Use ø1/8" tubing.

• **Width across flats (H)**

|     |      |
|-----|------|
| E   | 8 mm |
| Nil | 9 mm |

• **Body size**

|   |                      |
|---|----------------------|
| 1 | M5 x 0.8<br>10-32UNF |
|---|----------------------|

• **Port size**

|        |          |
|--------|----------|
| M5     | M5 x 0.8 |
| U10/32 | 10-32UNF |

**Body size 1**

**AS 1 2 0 1 FSM** - **M5 E** - **06**

**Body size 2**

**AS 2 2 0 1 FSM** - **01** - **06 S**

• **Body size**

|   |          |
|---|----------|
| 2 | 1/8, 1/4 |
|---|----------|

• **Type**

|   |           |
|---|-----------|
| 2 | Elbow     |
| 3 | Universal |

• **Control type\*1**

|   |           |
|---|-----------|
| 0 | Meter-out |
| 1 | Meter-in  |

• **Control range**

|     |                |
|-----|----------------|
| FSM | 1 to 50 mm/s   |
| FSC | 50 to 150 mm/s |

\*1 Meter-out and meter-in types can be visually identified by color of the knob.  
Meter-out: Gray  
Meter-in: Light blue

• **Made to Order**  
Refer to page 35 for details.

• **Seal method**

|     |                 |
|-----|-----------------|
| Nil | Without sealant |
| S   | With sealant    |

\* Face seal type is used for the G thread type. Select "Nil/Without sealant."  
Example) AS2201FSM-G01-06

• **Indicator window direction**

|     |      |  | Elbow | Universal |
|-----|------|--|-------|-----------|
| Nil | 0°   |  | •     | —         |
| 1   | 180° |  | •     | •         |
| 2   | 90°  |  | •     | —         |
| 3   | 270° |  | •     | —         |

\* Orientation of indicator direction is fixed when manufacturing, and cannot be changed by the user. In addition, the universal type is only available with 180° setting.

• **Applicable tubing O.D.\*2**

| Metric size |        | Inch size*4 |        |
|-------------|--------|-------------|--------|
| 23          | ø3.2*3 | 01          | ø1/8"  |
| 04          | ø4     | 03          | ø5/32" |
| 06          | ø6     | 07          | ø1/4"  |
| 08          | ø8     | 09          | ø5/16" |
| 10          | ø10    | 11          | ø3/8"  |

\*2 For selecting applicable tubing O.D., refer to the "Model" on page 19.  
\*3 Use ø1/8" tubing.  
\*4 Only the metric size is available for the G thread type.

• **Thread type**

|     |     |
|-----|-----|
| Nil | R   |
| N   | NPT |
| G   | G   |

• **Port size**

|    |     |
|----|-----|
| 01 | 1/8 |
| 02 | 1/4 |

**Flow Direction Symbols on Body**

|        | Meter-out | Meter-in |
|--------|-----------|----------|
| Symbol |           |          |

### Caution

Be sure to read this before handling the products. Refer to the back cover for Safety Instructions. For the Flow Control Equipment Precautions, please refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website. For the Specific Product Precautions, please refer to the catalogs for the Push-lock Type Speed Controller with One-touch Fitting and the Speed Controller with Indicator on the website, <https://www.smcworld.com>



**Made to Order**  
(For details, refer to page 35.)

| Symbol | Specifications   |
|--------|--|
| -X12   | Lubricant: Vaseline  |
| -X21   | Grease-free (Seal: Fluorine-coated) + Restrictor (Without check valve) |
| -X214  | Restrictor (Without check valve)                                       |
| 10-    | Clean series   |

# Speed Controller with Indicator In-line Type

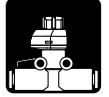
1 to 50 mm/s

50 to 150 mm/s

RoHS

# AS-FSM/FSC Series

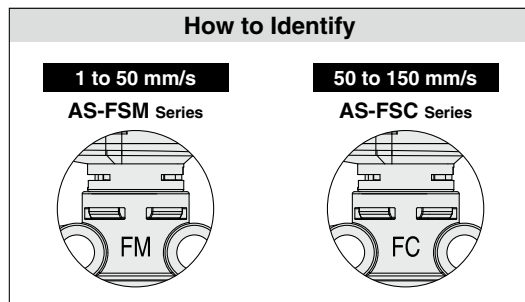
In-line



1 to 50 mm/s

50 to 150 mm/s

Finer adjustment and greater accuracy of actuator speed is available within specified control range.



## Model

| Model          | Applicable tubing O.D. |   |   |   |           |       |      |       |
|----------------|------------------------|---|---|---|-----------|-------|------|-------|
|                | Metric size            |   |   |   | Inch size |       |      |       |
|                | 3.2                    | 4 | 6 | 8 | 1/8"      | 5/32" | 1/4" | 5/16" |
| AS1002FSM/FSC□ | ●                      | ● | ● |   | ●         | ●     | ●    |       |
| AS2002FSM/FSC□ |                        | ● | ● |   |           | ●     | ●    |       |
| AS2052FSM/FSC□ |                        |   | ● | ● |           |       | ●    | ●     |

## Specifications

|                                |   |
|--------------------------------|---|
| Fluid                          | Air   |
| Proof pressure                 | 1.5 MPa                                     |
| Max. operating pressure        | 1 MPa                                       |
| Min. operating pressure        | 0.1 MPa                                     |
| Ambient and fluid temperatures | -5 to 60°C (No freezing)                    |
| Applicable tubing material     | Nylon, Soft nylon, Polyurethane*1, FEP, PFA |

\*1 Use caution at the max. operating pressure when using soft nylon or polyurethane tubing. (Refer to the **Web Catalog** for details.)

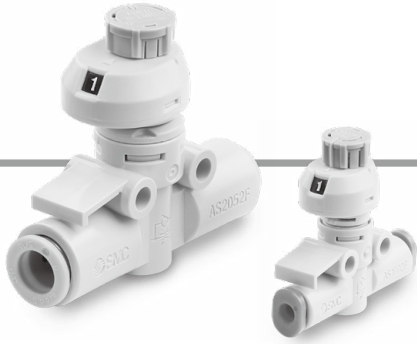
## Flow Rate and Sonic Conductance

| Model  |                 | AS1002FSM-□ |       |       | AS2002FSM-□ |       | AS2052FSM-□ |        | AS1002FSC-□ |       |       | AS2002FSC-□ |       | AS2052FSC-□ |        |
|--|-----------------|-------------|-------|-------|-------------|-------|-------------|--------|-------------|-------|-------|-------------|-------|-------------|--------|
| Tubing O.D.  | Metric size     | ø3.2        | ø4    | ø6    | ø4          | ø6    | ø6          | ø8     | ø3.2        | ø4    | ø6    | ø4          | ø6    | ø6          | ø8     |
|  | Inch size       | ø1/8"       | 5/32" | ø1/4" | 5/32"       | ø1/4" | ø1/4"       | ø5/16" | ø1/8"       | 5/32" | ø1/4" | 5/32"       | ø1/4" | ø1/4"       | ø5/16" |
| C values: Sonic conductance dm <sup>3</sup> /(s·bar) | Free flow       | 0.3         | 0.4   | 0.6   | 0.4         | 0.6   | 1.0         | 1.2    | 0.3         | 0.4   | 0.6   | 0.4         | 0.6   | 1.0         | 1.2    |
|  | Controlled flow | 0.01        |       |       | 0.03        |       | 0.1         |        | 0.05        |       |       | 0.1         |       | 0.3         |        |
| b values: Critical pressure ratio                    | Free flow       | 0.3         | 0.2   |       | 0.3         | 0.1   | 0.2         |        | 0.3         | 0.2   |       | 0.3         | 0.1   | 0.2         |        |
|  | Controlled flow | 0.4         |       |       | 0.3         |       | 0.3         |        | 0.3         |       |       | 0.4         |       | 0.4         |        |

\* C and b values are for controlled flow with the needle fully open and free flow with the needle fully closed.

1 to 50 mm/s

50 to 150 mm/s



## How to Order

**AS 200 2 FSM 1 - 06 -**  

### Body size

|            |              |
|------------|--------------|
| <b>100</b> | M5 standard  |
| <b>200</b> | 1/8 standard |
| <b>205</b> | 1/4 standard |

### Control range

|            |                |
|------------|----------------|
| <b>FSM</b> | 1 to 50 mm/s   |
| <b>FSC</b> | 50 to 150 mm/s |

### Made to Order

### Applicable tubing O.D.\*1

| Metric size |        | Inch size |        |
|-------------|--------|-----------|--------|
| <b>23</b>   | ø3.2*2 | <b>01</b> | ø1/8"  |
| <b>04</b>   | ø4     | <b>03</b> | ø5/32" |
| <b>06</b>   | ø6     | <b>07</b> | ø1/4"  |
| <b>08</b>   | ø8     | <b>09</b> | ø5/16" |

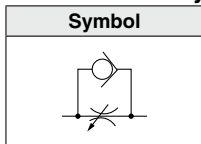
\*1 For selecting applicable tubing O.D., refer to the "Model" on page 21.

\*2 Use ø1/8" tubing.

### Indicator window direction

|            |      |                                 |          |      |                                 |
|------------|------|---------------------------------|----------|------|---------------------------------|
| <b>Nil</b> | 0°   | Indicator window<br>In-line<br> | <b>2</b> | 90°  | In-line<br>                     |
|            |      | Indicator window<br>In-line<br> |          |      | In-line<br>                     |
| <b>1</b>   | 180° | Indicator window<br>In-line<br> | <b>3</b> | 270° | Indicator window<br>In-line<br> |
|            |      | Indicator window<br>In-line<br> |          |      | In-line<br>                     |

### Flow Direction Symbols on Body



Made to Order

### Made to Order (For details, refer to page 35.)

| Symbol       | Specifications   |
|--------------|--|
| <b>-X12</b>  | Lubricant: Vaseline  |
| <b>-X21</b>  | Grease-free (Seal: Fluorine-coated) + Restrictor (Without check valve) |
| <b>-X214</b> | Restrictor (Without check valve)                                       |
| <b>10-</b>   | Clean series   |

### Caution

Be sure to read this before handling the products. Refer to the back cover for Safety Instructions. For the Flow Control Equipment Precautions, please refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website. For the Specific Product Precautions, please refer to the catalogs for the Push-lock Type Speed Controller with One-touch Fitting and the Speed Controller with Indicator on the website, <https://www.smcworld.com>

AS-FM/FSC

Elbow/Universal

In-line

With Indicator AS-FSM/FSC

Elbow/Universal

In-line

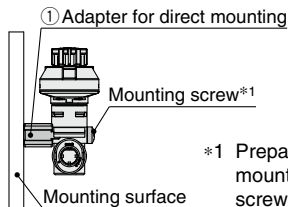


**Options/ In-line Type**

**① Adapter for Direct Mounting**

\* For use when the mounting surface interferes with the bonnet.

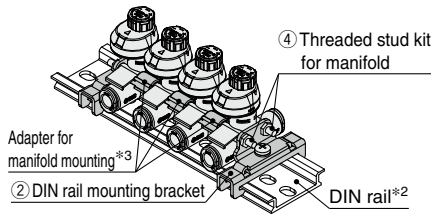
| Part number    | Applicable model |
|----------------|------------------|
| <b>AS-10A1</b> | AS1002FSM/FSC□   |
| <b>AS-20A1</b> | AS2002FSM/FSC□   |
| <b>AS-25A1</b> | AS2052FSM/FSC□   |



\*1 Prepare a mounting screw by the customer.

**② DIN Rail Mounting Bracket**

| Part number   | Applicable model |
|---------------|------------------|
| <b>AS-10D</b> | AS1002FSM/FSC□   |
| <b>AS-20D</b> | AS2002FSM/FSC□   |
| <b>AS-25D</b> | AS2052FSM/FSC□   |

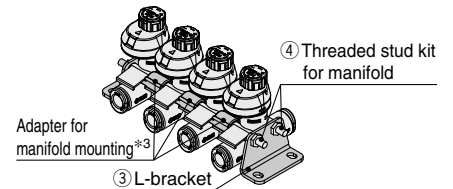


\*2 Prepare a DIN rail by the customer.

\*3 It is included in the threaded stud kit for manifold. Refer to the following details of the kit.

**③ L-Bracket**

| Part number   | Applicable model |
|---------------|------------------|
| <b>AS-10L</b> | AS1002FSM/FSC□   |
| <b>AS-20L</b> | AS2002FSM/FSC□   |
| <b>AS-25L</b> | AS2052FSM/FSC□   |



**④ Threaded Stud Kit for Manifold**

| Part number    |                |                |                | Applicable model  |                   |
|----------------|----------------|----------------|----------------|-------------------|-------------------|
| 4 stations     | 6 stations     | 8 stations     | 10 stations    | Metric size       | Inch size         |
| <b>AS-1AB</b>  | <b>AS-3AB</b>  | <b>AS-5AB</b>  | <b>AS-7AB</b>  | AS1002FSM/FSC□-23 | AS1002FSM/FSC□-01 |
|                |                |                |                | AS1002FSM/FSC□-04 | AS1002FSM/FSC□-03 |
| <b>AS-2AB</b>  | <b>AS-4AB</b>  | <b>AS-6AB</b>  | <b>AS-8AB</b>  | AS1002FSM/FSC□-06 | —                 |
|                |                |                |                | AS1002FSM/FSC□-07 | —                 |
| <b>AS-9AB</b>  | <b>AS-10AB</b> | <b>AS-11AB</b> | <b>AS-12AB</b> | AS2002FSM/FSC□-04 | AS2002FSM/FSC□-03 |
|                |                |                |                | AS2002FSM/FSC□-06 | —                 |
| <b>AS-13AB</b> | <b>AS-14AB</b> | <b>AS-15AB</b> | <b>AS-16AB</b> | AS2052FSM/FSC□-06 | —                 |
|                |                |                |                | AS2052FSM/FSC□-08 | AS2052FSM/FSC□-07 |
|                |                |                |                | AS2052FSM/FSC□-09 | AS2052FSM/FSC□-09 |

**Details of Threaded Stud Kit for Manifold**

| Part number    | Adapter for manifold mounting |          | Threaded stud |          | Accessories |          |             |          |
|----------------|-------------------------------|----------|---------------|----------|-------------|----------|-------------|----------|
|                | Part number                   | Quantity | Length        | Quantity | Hexagon nut | Quantity | Flat washer | Quantity |
| <b>AS-1AB</b>  | AS-10A                        | 3        | 72            | 2        | M3          | 4        | M3          | 4        |
| <b>AS-2AB</b>  |                               |          | 90            | 2        |             |          |             |          |
| <b>AS-3AB</b>  |                               |          | 104           | 2        |             |          |             |          |
| <b>AS-4AB</b>  |                               | 5        | 114           | 2        |             |          |             |          |
| <b>AS-5AB</b>  |                               |          | 135           | 2        |             |          |             |          |
| <b>AS-6AB</b>  |                               |          | 143           | 2        |             |          |             |          |
| <b>AS-7AB</b>  |                               | 7        | 167           | 2        |             |          |             |          |
| <b>AS-8AB</b>  |                               |          | 170           | 2        |             |          |             |          |
| <b>AS-23AB</b> |                               |          | 180           | 2        |             |          |             |          |
| <b>AS-9AB</b>  | AS-20A                        | 3        | 90            | 2        |             |          |             |          |
| <b>AS-10AB</b> |                               |          | 135           | 2        |             |          |             |          |
| <b>AS-11AB</b> |                               |          | 180           | 2        |             |          |             |          |
| <b>AS-12AB</b> |                               |          | 220           | 2        |             |          |             |          |
| <b>AS-13AB</b> | AS-25A                        | 3        | 111           | 2        | M4          | 4        | M4          | 4        |
| <b>AS-14AB</b> |                               |          | 147           | 2        |             |          |             |          |
| <b>AS-15AB</b> |                               |          | 191           | 2        |             |          |             |          |
| <b>AS-16AB</b> |                               |          | 236           | 2        |             |          |             |          |

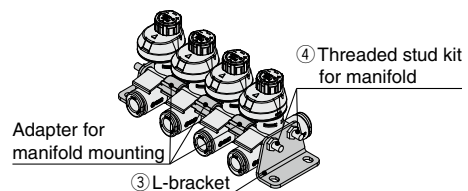
**Ordering Example**

Threaded studs for manifold are not included when L-bracket and DIN rail mounting bracket are ordered. Please order them according to the number of stations.

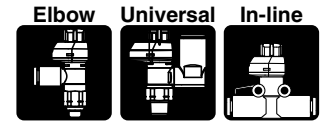
**Ex.) AS2002FSM-06**

When connecting 4 pcs. and mounting L-brackets on both sides

- Speed controller **AS2002FSM-06** ..... 4 pcs.
- L-bracket **AS-20L** ..... 2 pcs.
- Threaded stud kit for manifold **AS-9AB** ..... 1 set (Adapter for manifold mounting is included.)



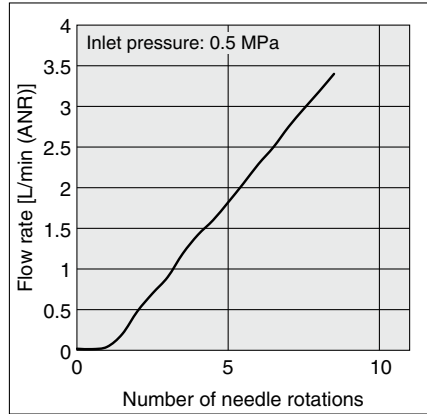




## Needle Valve: Flow Rate Characteristics

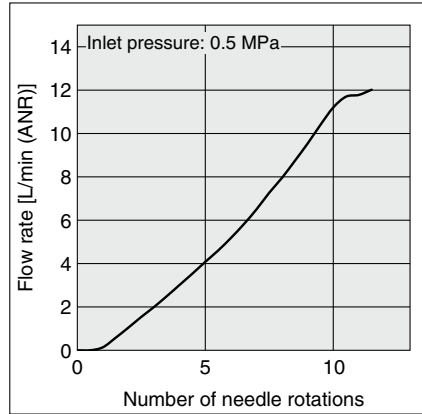
### 1 to 50 mm/s

AS1201FSM-M5□, AS1211FSM-M5□  
 AS1301FSM-M5□, AS1311FSM-M5□  
 AS1002FSM□-□

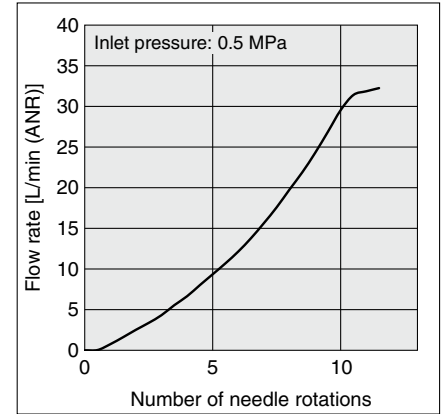


\* -U10/32 has the same specification as M5.

AS2201FSM-01, AS2211FSM-01  
 AS2301FSM-01, AS2311FSM-01  
 AS2002FSM□-□

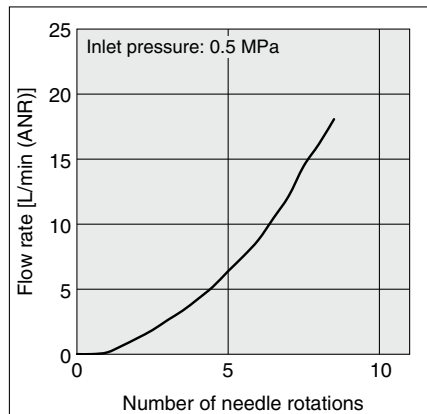


AS2201FSM-02, AS2211FSM-02  
 AS2301FSM-02, AS2311FSM-02  
 AS2052FSM□-□

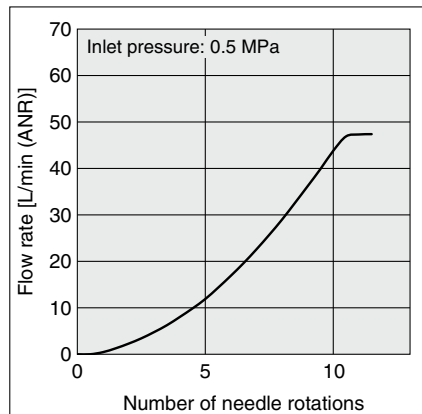


### 50 to 150 mm/s

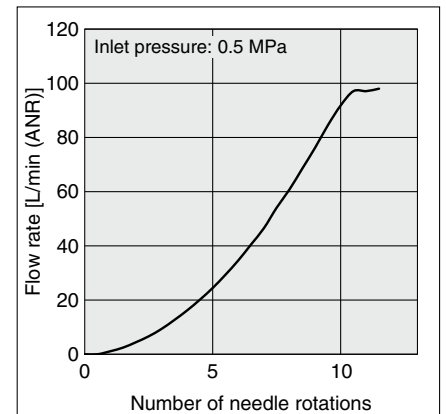
AS1201FSC-M5□, AS1211FSC-M5□  
 AS1301FSC-M5□, AS1311FSC-M5□  
 AS1002FSC□-□



AS2201FSC-01, AS2211FSC-01  
 AS2301FSC-01, AS2311FSC-01  
 AS2002FSC□-□



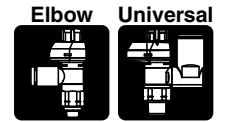
AS2201FSC-02, AS2211FSC-02  
 AS2301FSC-02, AS2311FSC-02  
 AS2052FSC□-□



AS-FM/FC  
Elbow/Universal

AS-FSM/FSC  
Elbow/Universal

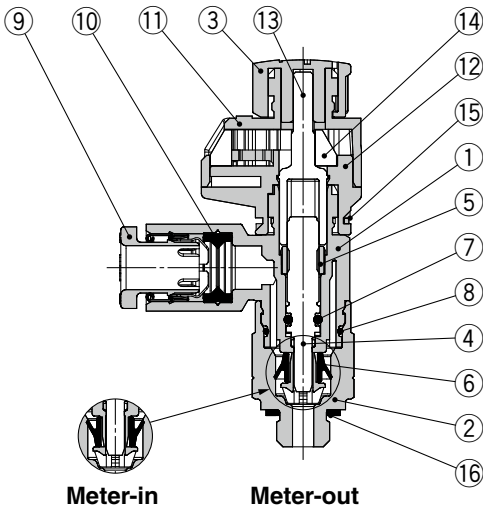
With Indicator  
In-line



**Construction**

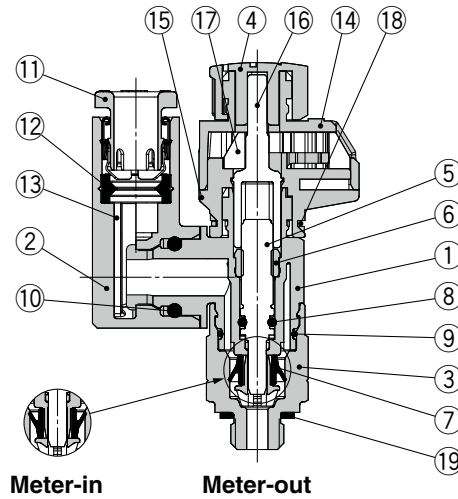
**Elbow Type**

Seal method: Gasket seal  
 For M5, 10-32UNF

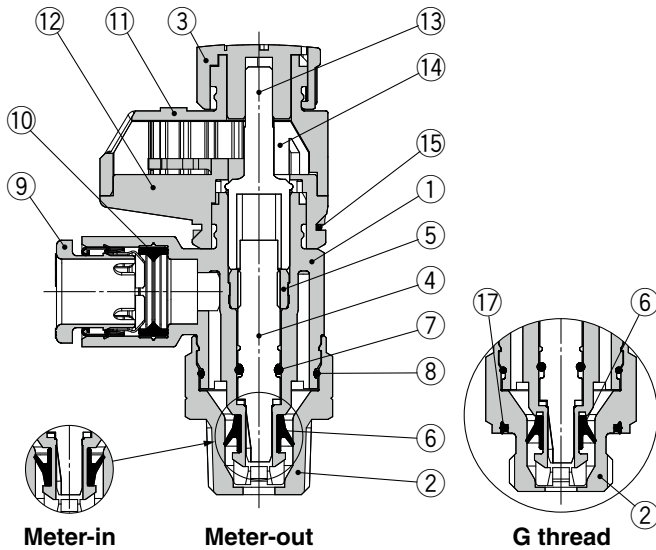


**Universal Type**

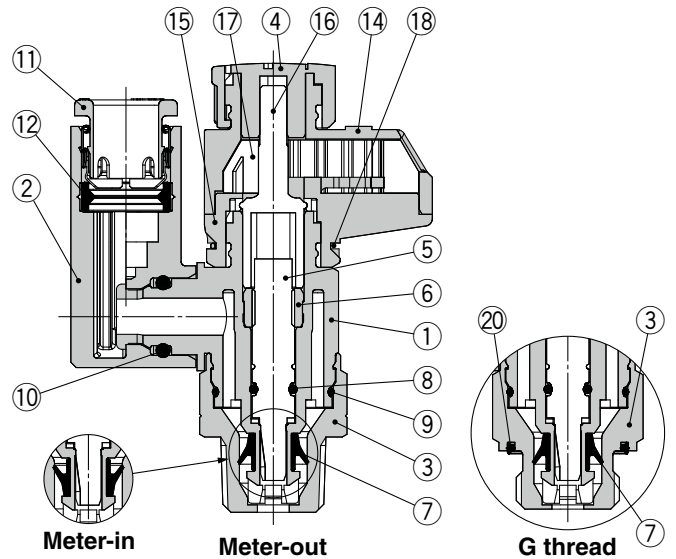
Seal method: Gasket seal  
 For M5, 10-32UNF



Seal method: Sealant, Face seal  
 For R, NPT, G thread



Seal method: Sealant, Face seal  
 For R, NPT, G thread



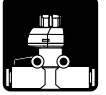
**Component Parts**

| No. | Description    | Material            | Note                       |
|-----|----------------|---------------------|----------------------------|
| 1   | Body A         | PBT                 |                            |
| 2   | Body B         | Brass               | Electroless nickel plating |
| 3   | Knob           | POM                 |                            |
| 4   | Needle         | PBT                 |                            |
| 5   | Needle guide   | Brass               | Electroless nickel plating |
| 6   | U-seal         | HNBR                |                            |
| 7   | O-ring         | NBR                 |                            |
| 8   | O-ring         | NBR                 |                            |
| 9   | Cassette       | —                   |                            |
| 10  | Seal           | NBR                 |                            |
| 11  | Bonnet A       | POM                 |                            |
| 12  | Bonnet B       | POM                 |                            |
| 13  | Gear           | POM                 |                            |
| 14  | Indicator gear | POM                 |                            |
| 15  | Clip           | Stainless steel     |                            |
| 16  | Gasket         | NBR/Stainless steel |                            |
| 17  | Seal           | NBR                 |                            |

**Component Parts**

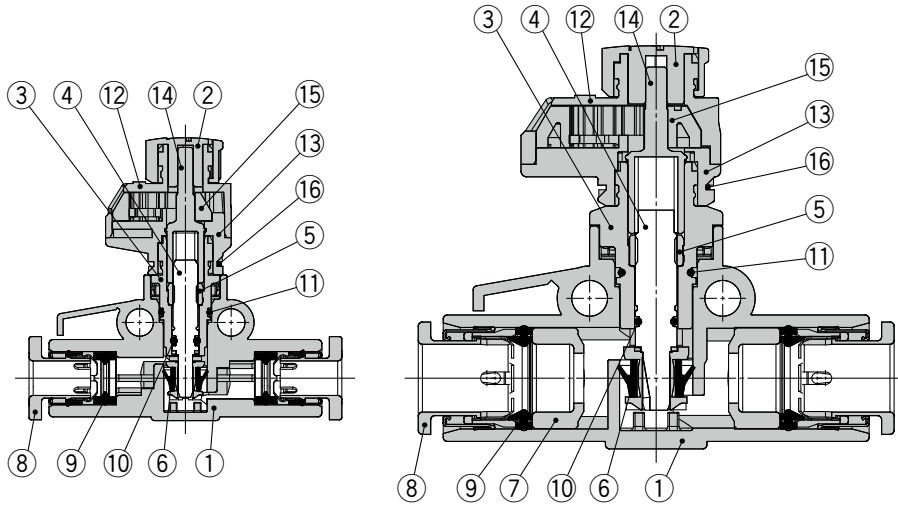
| No. | Description    | Material            | Note                       |
|-----|----------------|---------------------|----------------------------|
| 1   | Body A         | PBT                 |                            |
| 2   | Elbow body     | PBT                 |                            |
| 3   | Body B         | Brass               | Electroless nickel plating |
| 4   | Knob           | POM                 |                            |
| 5   | Needle         | PBT                 |                            |
| 6   | Needle guide   | Brass               | Electroless nickel plating |
| 7   | U-seal         | HNBR                |                            |
| 8   | O-ring         | NBR                 |                            |
| 9   | O-ring         | NBR                 |                            |
| 10  | O-ring         | NBR                 |                            |
| 11  | Cassette       | —                   |                            |
| 12  | Seal           | NBR                 |                            |
| 13  | Spacer         | PBT                 | ø3.2 and ø1/8" only        |
| 14  | Bonnet A       | POM                 |                            |
| 15  | Bonnet B       | POM                 |                            |
| 16  | Gear           | POM                 |                            |
| 17  | Indicator gear | POM                 |                            |
| 18  | Clip           | Stainless steel     |                            |
| 19  | Gasket         | NBR/Stainless steel |                            |
| 20  | Seal           | NBR                 |                            |

In-line

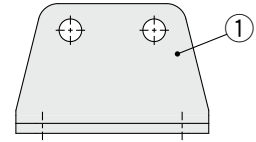


## Construction

### In-line Type



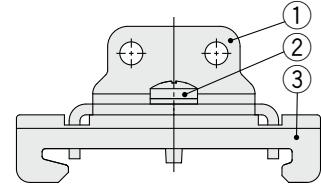
### L-Bracket



### Component Parts

| No. | Description | Material    |
|-----|-------------|-------------|
| 1   | Bracket     | Steel strip |

### DIN Rail Mounting Bracket



### Component Parts

| No. | Description                     | Material    |
|-----|---------------------------------|-------------|
| 1   | Bracket                         | Steel strip |
| 2   | Cross recessed round head screw | Steel wire  |
| 3   | Clasp                           | Steel strip |

### Component Parts

| No. | Description    | Material        | Note                       |
|-----|----------------|-----------------|----------------------------|
| 1   | Body A         | PBT             |                            |
| 2   | Knob           | POM             |                            |
| 3   | Body B         | PBT             |                            |
| 4   | Needle         | PBT             |                            |
| 5   | Needle guide   | Brass           | Electroless nickel plating |
| 6   | U-seal         | HNBR            |                            |
| 7   | Spacer         | PBT             |                            |
| 8   | Cassette       | —               |                            |
| 9   | Seal           | NBR             |                            |
| 10  | O-ring         | NBR             |                            |
| 11  | O-ring         | NBR             |                            |
| 12  | Bonnet A       | POM             |                            |
| 13  | Bonnet B       | POM             |                            |
| 14  | Gear           | PPS             |                            |
| 15  | Indicator gear | POM             |                            |
| 16  | Clip           | Stainless steel |                            |

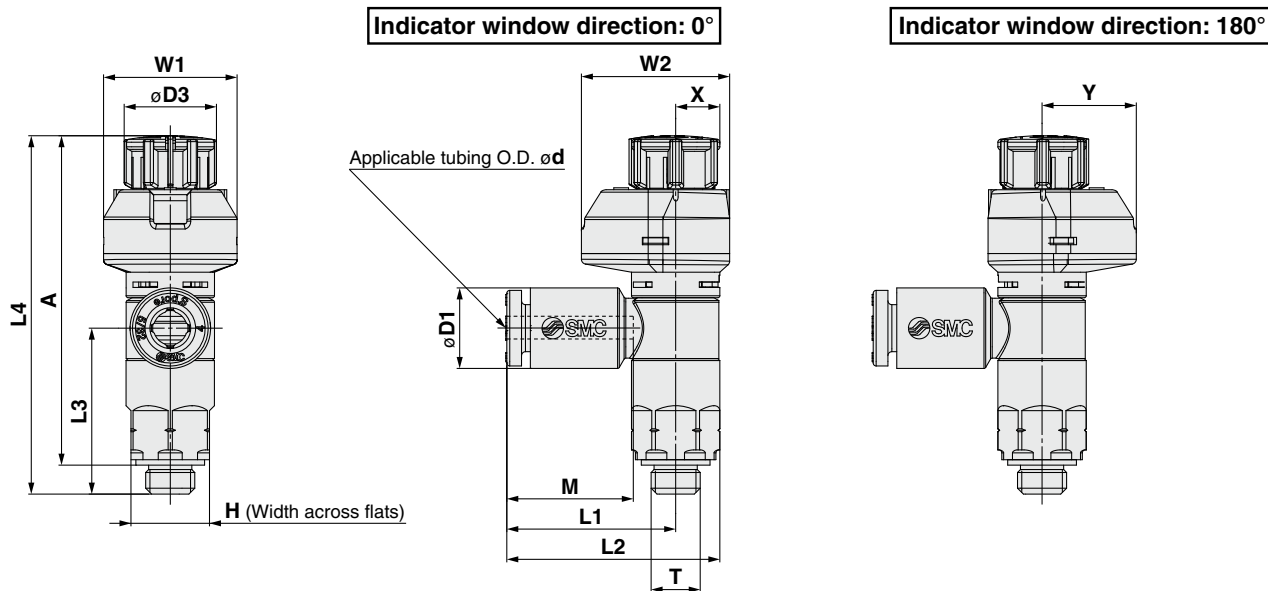
AS-FM/FC  
Elbow/Universal  
In-line

With Indicator AS-FSM/FSC  
Elbow/Universal  
In-line

1 to 50 mm/s 50 to 150 mm/s  
**AS-FSM/FSC Series**

**Dimensions/ Elbow Type**

Seal method: Gasket seal  
 For M5, 10-32UNF



**Metric Size**

| Model                 | d   | T        | H*1      | D1   | D3  | L1   | L2   | L3   | L4*2     |        | A*3      |        | M    | W1   | W2   | X   | Y   | Weight [g] |
|-----------------------|-----|----------|----------|------|-----|------|------|------|----------|--------|----------|--------|------|------|------|-----|-----|------------|
|                       |     |          |          |      |     |      |      |      | Unlocked | Locked | Unlocked | Locked |      |      |      |     |     |            |
| AS12□1FSM/FSC□-M5E-02 | 2   | M5 x 0.8 | 8<br>(9) | 5.8  | 9.4 | 15.8 | 20.3 | 16.9 | 39       | 36.5   | 35       | 33.5   | 11.9 | 13.6 | 15.1 | 5.5 | 9.6 | 7          |
| AS12□1FSM/FSC□-M5E-23 | 3.2 |          |          | 7.2  |     | 17.2 | 21.7 |      |          |        |          |        |      |      |      |     |     |            |
| AS12□1FSM/FSC□-M5E-04 | 4   |          |          | 8.2  |     | 18.6 | 23.1 |      |          |        |          |        |      |      |      |     |     |            |
| AS12□1FSM/FSC□-M5E-06 | 6   |          |          | 10.4 |     | 16.5 | 8    |      |          |        |          |        |      |      |      |     |     |            |

\*1 The value in ( ) indicates that the dimension for the width across flats is 9 mm.

\*2 Reference dimensions

\*3 Reference dimensions of threads after installation

**Inch Size**

| Model                     | d     | T        | H*1      | D1   | D3  | L1   | L2   | L3   | L4*2     |        | A*3      |        | M    | W1   | W2   | X   | Y   | Weight [g] |
|---------------------------|-------|----------|----------|------|-----|------|------|------|----------|--------|----------|--------|------|------|------|-----|-----|------------|
|                           |       |          |          |      |     |      |      |      | Unlocked | Locked | Unlocked | Locked |      |      |      |     |     |            |
| AS12□1FSM/FSC□-U10/32E-01 | 1/8"  | 10/32UNF | 8<br>(9) | 7.2  | 9.4 | 17.2 | 21.7 | 16.9 | 39       | 36.5   | 35       | 33.5   | 13.3 | 13.6 | 15.1 | 5.5 | 9.6 | 7          |
| AS12□1FSM/FSC□-U10/32E-03 | 5/32" |          |          | 8.2  |     | 18.6 | 23.1 |      |          |        |          |        |      |      |      |     |     |            |
| AS12□1FSM/FSC□-U10/32E-07 | 1/4"  |          |          | 11.2 |     | 16.5 | 8    |      |          |        |          |        |      |      |      |     |     |            |

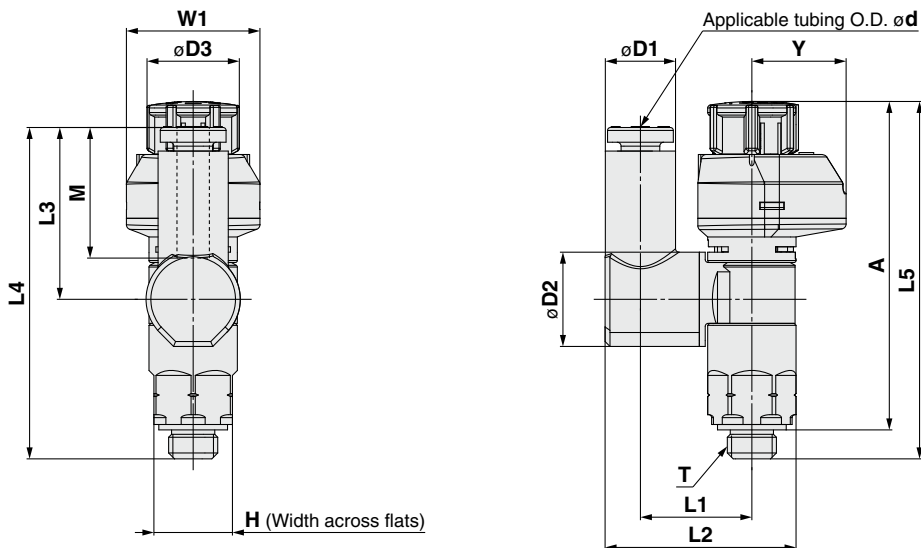
\*1 The value in ( ) indicates that the dimension for the width across flats is 9 mm.

\*2 Reference dimensions

\*3 Reference dimensions of threads after installation

Dimensions/ **Universal Type**

Seal method: Gasket seal  
For M5, 10-32UNF



**Metric Size**

| Model                 | d   | T        | H* <sup>1</sup> | D1   | D2  | D3  | L1   | L2   | L3   | L4   | L5* <sup>2</sup> |        | A* <sup>3</sup> |        | M    | W1   | Y   | Weight [g] |
|-----------------------|-----|----------|-----------------|------|-----|-----|------|------|------|------|------------------|--------|-----------------|--------|------|------|-----|------------|
|                       |     |          |                 |      |     |     |      |      |      |      | Unlocked         | Locked | Unlocked        | Locked |      |      |     |            |
| AS13□1FSM/FSC1-M5E-23 | 3.2 | M5 x 0.8 | 8<br>(9)        | 7.2  | 9.6 | 9.4 | 11.6 | 19.4 | 17.5 | 33.8 | 39               | 36.5   | 35              | 33.5   | 13.3 | 13.6 | 9.6 | 7          |
| AS13□1FSM/FSC1-M5E-04 | 4   |          |                 | 8.2  |     |     | 11.5 | 19.8 |      |      |                  |        |                 |        |      |      |     |            |
| AS13□1FSM/FSC1-M5E-06 | 6   |          |                 | 10.4 |     |     | 20.9 | 20.4 |      |      |                  |        |                 |        |      |      |     |            |

\*1 The value in ( ) indicates that the dimension for the width across flats is 9 mm.

\*2 Reference dimensions

\*3 Reference dimensions of threads after installation

**Inch Size**

| Model                    | d    | T        | H* <sup>1</sup> | D1   | D2  | D3  | L1   | L2   | L3   | L4   | L5* <sup>2</sup> |        | A* <sup>3</sup> |        | M    | W1   | Y   | Weight [g] |
|--------------------------|------|----------|-----------------|------|-----|-----|------|------|------|------|------------------|--------|-----------------|--------|------|------|-----|------------|
|                          |      |          |                 |      |     |     |      |      |      |      | Unlocked         | Locked | Unlocked        | Locked |      |      |     |            |
| AS13□1FSM/FSC1-U10/32-01 | 1/8  | 10/32UNF | 8<br>(9)        | 7.2  | 9.6 | 9.4 | 11.6 | 19.4 | 17.5 | 33.8 | 39               | 36.5   | 35              | 33.5   | 13.3 | 13.6 | 9.6 | 7          |
| AS13□1FSM/FSC1-U10/32-03 | 5/32 |          |                 | 8.2  |     |     | 11.5 | 19.8 |      |      |                  |        |                 |        |      |      |     |            |
| AS13□1FSM/FSC1-U10/32-07 | 1/4  |          |                 | 11.2 |     |     | 21.3 | 20.4 |      |      |                  |        |                 |        |      |      |     |            |

\*1 The value in ( ) indicates that the dimension for the width across flats is 9 mm.

\*2 Reference dimensions

\*3 Reference dimensions of threads after installation

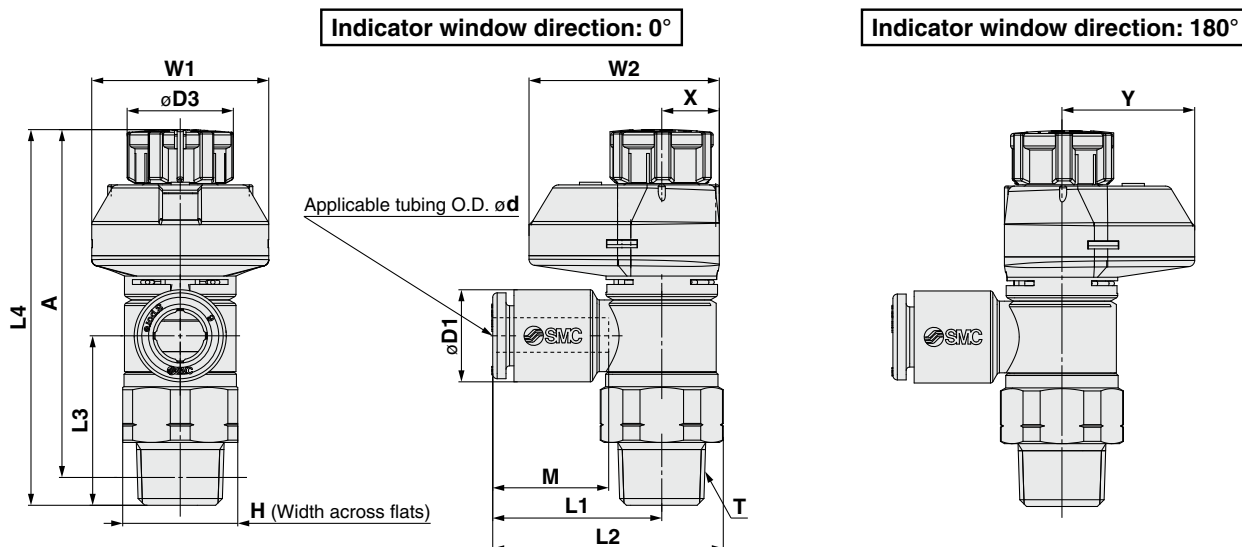
AS-FM/FC  
Elbow/Universal  
In-line

With Indicator AS-FSM/FSC  
Elbow/Universal  
In-line

1 to 50 mm/s 50 to 150 mm/s  
**AS-FSM/FSC Series**

**Dimensions/ Elbow Type**

Seal method: Sealant  
 For R, NPT thread



**Metric Size**

| Model                   | d   | T   | H  | D1   | D3 | L1   | L2   | L3   | L4*1     |        | A*2      |        | M    | W1   | W2   | X   | Y    | Weight [g] |
|-------------------------|-----|-----|----|------|----|------|------|------|----------|--------|----------|--------|------|------|------|-----|------|------------|
|                         |     |     |    |      |    |      |      |      | Unlocked | Locked | Unlocked | Locked |      |      |      |     |      |            |
| AS22□1FSM/FSC□-01-23(S) | 3.2 | 1/8 | 13 | 7.2  | 12 | 19.1 | 26.2 | 19.1 | 43.9     | 42.4   | 40.8     | 39.3   | 13.3 | 20   | 21.5 | 6.5 | 15   | 13         |
| AS22□1FSM/FSC□-01-04(S) | 4   |     |    | 8.2  |    |      |      |      |          |        |          |        |      |      |      |     |      |            |
| AS22□1FSM/FSC□-01-06(S) | 6   |     |    | 10.4 |    |      |      |      |          |        |          |        |      |      |      |     |      |            |
| AS22□1FSM/FSC□-01-08(S) | 8   |     |    | 13.2 |    |      |      |      |          |        |          |        |      |      |      |     |      |            |
| AS22□1FSM/FSC□-01-10(S) | 10  |     |    | 15.9 |    |      |      |      |          |        |          |        |      |      |      |     |      |            |
| AS22□1FSM/FSC□-02-23(S) | 3.2 | 1/4 | 17 | 7.2  | 13 | 23.4 | 32.7 | 22.6 | 49.7     | 48.3   | 44.2     | 42.8   | 13.3 | 21.5 | 24   | 7.8 | 16.2 | 23         |
| AS22□1FSM/FSC□-02-04(S) | 4   |     |    | 8.2  |    |      |      |      |          |        |          |        |      |      |      |     |      |            |
| AS22□1FSM/FSC□-02-06(S) | 6   |     |    | 10.4 |    |      |      |      |          |        |          |        |      |      |      |     |      |            |
| AS22□1FSM/FSC□-02-08(S) | 8   |     |    | 13.2 |    |      |      |      |          |        |          |        |      |      |      |     |      |            |
| AS22□1FSM/FSC□-02-10(S) | 10  |     |    | 15.9 |    |      |      |      |          |        |          |        |      |      |      |     |      |            |

\*1 Reference dimensions

\*2 Reference dimensions of threads after installation

**Inch Size**

| Model                    | d     | T   | H    | D1   | D3 | L1   | L2   | L3   | L4*1     |        | A*2      |        | M    | W1   | W2   | X   | Y    | Weight [g] |
|--------------------------|-------|-----|------|------|----|------|------|------|----------|--------|----------|--------|------|------|------|-----|------|------------|
|                          |       |     |      |      |    |      |      |      | Unlocked | Locked | Unlocked | Locked |      |      |      |     |      |            |
| AS22□1FSM/FSC□-N01-01(S) | 1/8"  | 1/8 | 12.7 | 7.2  | 12 | 19.1 | 26.2 | 19.1 | 43.9     | 42.4   | 40.8     | 39.3   | 13.3 | 20   | 21.5 | 6.5 | 15   | 13         |
| AS22□1FSM/FSC□-N01-03(S) | 5/32" |     |      | 8.2  |    |      |      |      |          |        |          |        |      |      |      |     |      |            |
| AS22□1FSM/FSC□-N01-07(S) | 1/4"  |     |      | 11.2 |    |      |      |      |          |        |          |        |      |      |      |     |      |            |
| AS22□1FSM/FSC□-N01-09(S) | 5/16" |     |      | 13.2 |    |      |      |      |          |        |          |        |      |      |      |     |      |            |
| AS22□1FSM/FSC□-N02-01(S) | 1/8"  | 1/4 | 17.5 | 7.2  | 13 | 23.4 | 32.8 | 22.6 | 49.7     | 48.3   | 44.2     | 42.8   | 13.3 | 21.5 | 24   | 7.8 | 16.2 | 24         |
| AS22□1FSM/FSC□-N02-03(S) | 5/32" |     |      | 8.2  |    |      |      |      |          |        |          |        |      |      |      |     |      |            |
| AS22□1FSM/FSC□-N02-07(S) | 1/4"  |     |      | 11.2 |    |      |      |      |          |        |          |        |      |      |      |     |      |            |
| AS22□1FSM/FSC□-N02-09(S) | 5/16" |     |      | 13.2 |    |      |      |      |          |        |          |        |      |      |      |     |      |            |
| AS22□1FSM/FSC□-N02-11(S) | 3/8"  |     |      | 15.5 |    | 26.4 | 35.8 |      |          |        |          |        | 15.6 |      |      |     |      | 26         |

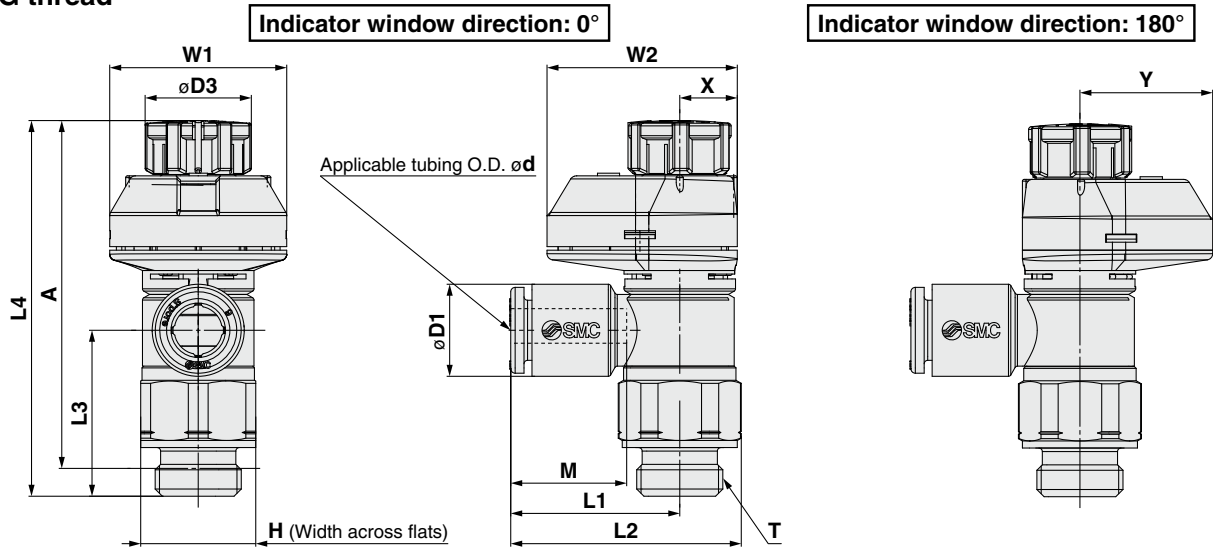
\*1 Reference dimensions

\*2 Reference dimensions of threads after installation



## Dimensions/ Elbow Type

Seal method: Face seal  
For G thread



### Metric Size

| Model                 | d   | T   | H  | D1   | D3 | L1   | L2   | L3   | L4*1     |        | A*2      |        | M    | W1   | W2   | X   | Y    | Weight [g] |      |
|-----------------------|-----|-----|----|------|----|------|------|------|----------|--------|----------|--------|------|------|------|-----|------|------------|------|
|                       |     |     |    |      |    |      |      |      | Unlocked | Locked | Unlocked | Locked |      |      |      |     |      |            |      |
| AS22□1FSM/FSC□-G01-23 | 3.2 | 1/8 | 13 | 7.2  | 12 | 19.1 | 26.2 | 18.8 | 43.8     | 42.4   | 38.3     | 36.9   | 13.3 | 20   | 21.5 | 6.5 | 15   | 14         |      |
| AS22□1FSM/FSC□-G01-04 | 4   |     |    | 8.2  |    |      |      |      |          |        |          |        |      |      |      |     |      |            | 14.2 |
| AS22□1FSM/FSC□-G01-06 | 6   |     |    | 10.4 |    |      |      |      |          |        |          |        |      |      |      |     |      |            | 15.6 |
| AS22□1FSM/FSC□-G01-08 | 8   |     |    | 13.2 |    |      |      |      |          |        |          |        |      |      |      |     |      |            | 15.9 |
| AS22□1FSM/FSC□-G01-10 | 10  |     |    | 15.9 |    | 25.3 | 32.4 |      |          |        |          |        | 15.6 |      |      |     |      | 16         |      |
| AS22□1FSM/FSC□-G02-23 | 3.2 | 1/4 | 17 | 7.2  | 13 | 20.9 | 30.2 | 22.6 | 49.7     | 48.3   | 43.2     | 41.8   | 13.3 | 21.5 | 24   | 7.8 | 16.2 | 26         |      |
| AS22□1FSM/FSC□-G02-04 | 4   |     |    | 8.2  |    |      |      |      |          |        |          |        |      |      |      |     |      |            | 14.2 |
| AS22□1FSM/FSC□-G02-06 | 6   |     |    | 10.4 |    |      |      |      |          |        |          |        |      |      |      |     |      |            | 15.6 |
| AS22□1FSM/FSC□-G02-08 | 8   |     |    | 13.2 |    |      |      |      |          |        |          |        |      |      |      |     |      |            | 15.9 |
| AS22□1FSM/FSC□-G02-10 | 10  |     |    | 15.9 |    |      |      |      |          |        |          |        |      |      |      |     |      |            | 26.9 |

\*1 Reference dimensions

\*2 Reference dimensions of threads after installation

AS-FM/FC  
Elbow/Universal

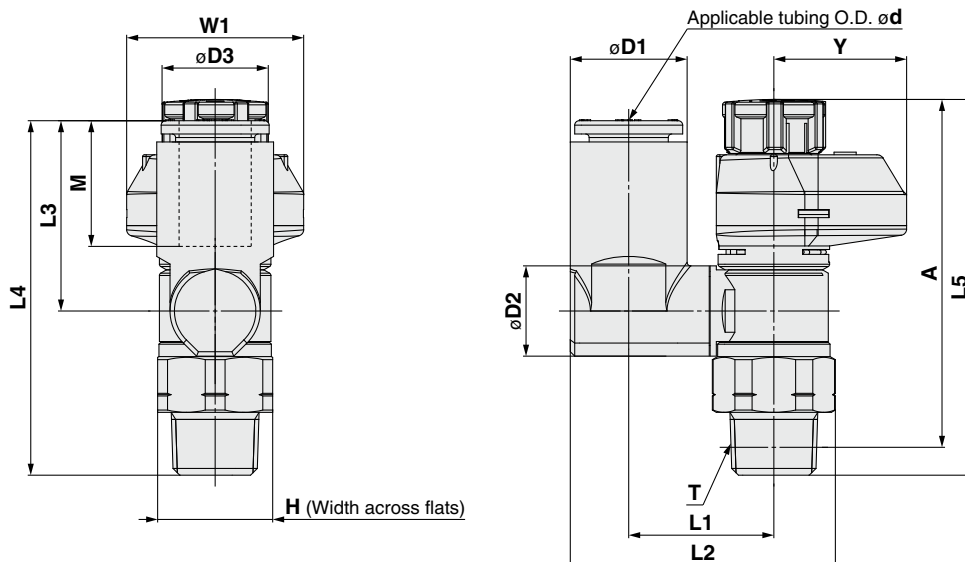
With Indicator AS-FSM/FSC  
Elbow/Universal

1 to 50 mm/s 50 to 150 mm/s  
**AS-FSM/FSC Series**



**Dimensions/ Universal Type**

Seal method: Sealant  
 For R, NPT thread



**Metric Size**

| Model                   | d   | T   | H  | D1   | D2   | D3 | L1   | L2   | L3   | L4   | L5*1     |        | A*2      |        | M    | W1   | Y    | Weight [g] |      |
|-------------------------|-----|-----|----|------|------|----|------|------|------|------|----------|--------|----------|--------|------|------|------|------------|------|
|                         |     |     |    |      |      |    |      |      |      |      | Unlocked | Locked | Unlocked | Locked |      |      |      |            |      |
| AS23□1FSM/FSC1-01-23(S) | 3.2 | 1/8 | 13 | 7.2  | 9.6  | 12 | 13.3 | 24   | 17.5 | 36   | 43.9     | 42.4   | 40.8     | 39.3   | 13.3 | 20   | 15   | 14         |      |
| AS23□1FSM/FSC1-01-04(S) | 4   |     |    | 8.2  |      |    | 13.9 | 25.1 |      |      |          |        |          |        |      |      |      |            |      |
| AS23□1FSM/FSC1-01-06(S) | 6   |     |    | 10.4 |      |    | 26.2 | 20.4 |      |      |          |        |          |        |      |      |      |            | 38.8 |
| AS23□1FSM/FSC1-01-08(S) | 8   |     |    | 13.2 |      |    | 30.1 | 21.5 |      |      |          |        |          |        |      |      |      |            | 40   |
| AS23□1FSM/FSC1-02-04(S) | 4   | 1/4 | 17 | 8.2  | 12.9 | 13 | 16.5 | 29.9 | 17.5 | 40.1 | 49.7     | 48.3   | 44.2     | 42.8   | 13.3 | 21.5 | 16.2 | 24         |      |
| AS23□1FSM/FSC1-02-06(S) | 6   |     |    | 11.2 |      |    | 33.8 | 21.4 |      |      |          |        |          |        |      |      |      |            | 43.9 |
| AS23□1FSM/FSC1-02-08(S) | 8   |     |    | 13.2 |      |    | 34.9 | 23.5 |      |      |          |        |          |        |      |      |      |            | 46   |
| AS23□1FSM/FSC1-02-10(S) | 10  |     |    | 15.9 |      |    | 38.1 | 24.7 |      |      |          |        |          |        |      |      |      |            | 47.3 |

\*1 Reference dimensions  
 \*2 Reference dimensions of threads after installation

**Inch Size**

| Model                    | d    | T   | H    | D1   | D2   | D3 | L1   | L2   | L3   | L4   | L5*1     |        | A*2      |        | M    | W1   | Y    | Weight [g] |      |
|--------------------------|------|-----|------|------|------|----|------|------|------|------|----------|--------|----------|--------|------|------|------|------------|------|
|                          |      |     |      |      |      |    |      |      |      |      | Unlocked | Locked | Unlocked | Locked |      |      |      |            |      |
| AS23□1FSM/FSC1-N01-01(S) | 1/8  | 1/8 | 12.7 | 7.2  | 9.6  | 12 | 13.3 | 24   | 17.5 | 36   | 43.9     | 42.4   | 40.8     | 39.3   | 13.3 | 20   | 15   | 14         |      |
| AS23□1FSM/FSC1-N01-03(S) | 5/32 |     |      | 8.2  |      |    | 13.9 | 25.1 |      |      |          |        |          |        |      |      |      |            |      |
| AS23□1FSM/FSC1-N01-07(S) | 1/4  |     |      | 11.2 |      |    | 29.1 | 20.2 |      |      |          |        |          |        |      |      |      |            | 38.7 |
| AS23□1FSM/FSC1-N01-09(S) | 5/16 |     |      | 13.2 |      |    | 30.1 | 21.5 |      |      |          |        |          |        |      |      |      |            | 40   |
| AS23□1FSM/FSC1-N02-03(S) | 5/32 | 1/4 | 17.5 | 8.2  | 12.9 | 13 | 16.5 | 29.9 | 17.5 | 40.1 | 49.7     | 48.3   | 44.2     | 42.8   | 13.3 | 21.5 | 16.2 | 24         |      |
| AS23□1FSM/FSC1-N02-07(S) | 1/4  |     |      | 11.2 |      |    | 33.8 | 21.4 |      |      |          |        |          |        |      |      |      |            | 43.9 |
| AS23□1FSM/FSC1-N02-09(S) | 5/16 |     |      | 13.2 |      |    | 34.9 | 23.5 |      |      |          |        |          |        |      |      |      |            | 46   |
| AS23□1FSM/FSC1-N02-11(S) | 3/8  |     |      | 15.9 |      |    | 38.1 | 24.7 |      |      |          |        |          |        |      |      |      |            | 47.3 |

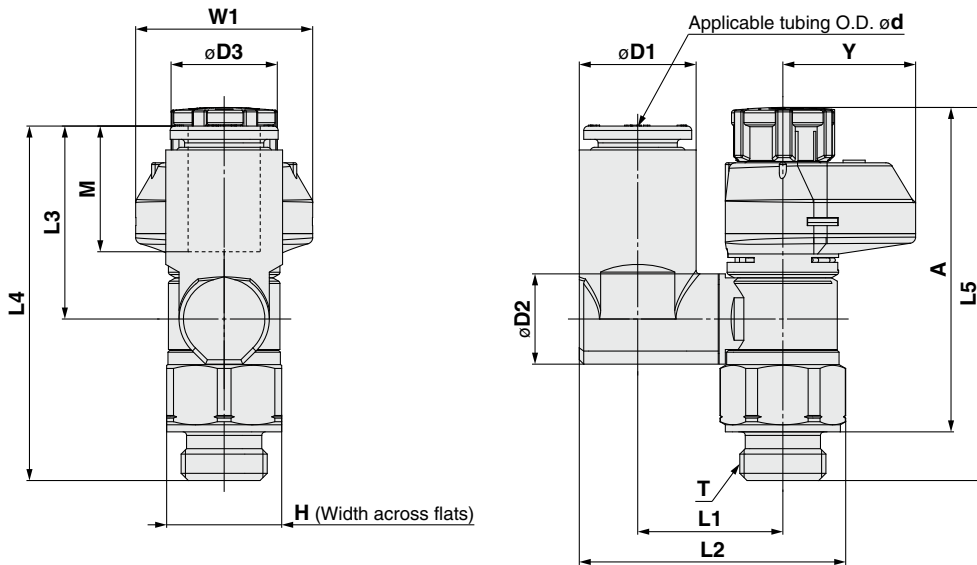
\*1 Reference dimensions  
 \*2 Reference dimensions of threads after installation





**Dimensions/ Universal Type**

Seal method: Face seal  
For G thread



**Metric Size**

| Model                 | d  | T    | H    | D1   | D2   | D3 | L1   | L2   | L3   | L4   | L5*1                  |        | A*2      |        | M    | W1   | Y    | Weight [g] |
|-----------------------|----|------|------|------|------|----|------|------|------|------|-----------------------|--------|----------|--------|------|------|------|------------|
|                       |    |      |      |      |      |    |      |      |      |      | Unlocked              | Locked | Unlocked | Locked |      |      |      |            |
|                       |    |      |      |      |      |    |      |      |      |      | AS23□1FSM/FSC1-G01-23 | 3.2    | 1/8      | 13     |      |      |      |            |
| AS23□1FSM/FSC1-G01-04 | 4  | 8.2  | 13.9 | 25.1 | 15   |    |      |      |      |      |                       |        |          |        |      |      |      |            |
| AS23□1FSM/FSC1-G01-06 | 6  | 10.4 | 26.2 | 20.4 | 15   |    |      |      |      |      |                       |        |          |        |      |      |      |            |
| AS23□1FSM/FSC1-G01-08 | 8  |      |      | 13.2 | 10.2 |    | 16.4 | 30.1 | 21.5 | 39.7 |                       |        |          |        | 14.2 |      |      | 16         |
| AS23□1FSM/FSC1-G02-04 | 4  | 1/4  | 17   | 8.2  | 12.9 | 13 | 16.5 | 29.9 | 17.5 | 40.1 | 49.7                  | 48.3   | 43.2     | 41.8   | 13.3 | 21.5 | 16.2 | 26         |
| AS23□1FSM/FSC1-G02-06 | 6  |      |      | 10.4 |      |    | 19   | 33.8 | 21.4 | 43.9 |                       |        |          |        |      |      |      | 28         |
| AS23□1FSM/FSC1-G02-08 | 8  |      |      | 13.2 |      |    |      | 34.9 | 23.5 | 46   |                       |        |          |        |      |      |      | 29         |
| AS23□1FSM/FSC1-G02-10 | 10 |      |      | 15.9 |      |    | 20.9 | 38.1 | 24.7 | 47.3 |                       |        |          |        |      |      |      | 32         |

\*1 Reference dimensions

\*2 Reference dimensions of threads after installation

**AS-FM/FC**  
 In-line  
**AS-FSM/FSC**  
 Elbow/Universal  
**With Indicator AS-FSM/FSC**  
 In-line

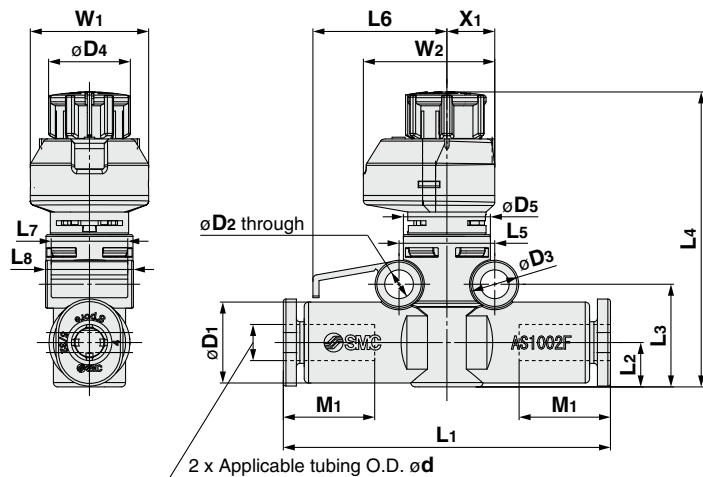
1 to 50 mm/s 50 to 150 mm/s  
**AS-FSM/FSC Series**

**Dimensions/ In-line Type**

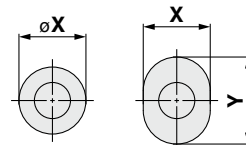


Indicator window direction: 0°

Indicator window direction: 180°



Release button dimensions



Applicable tubing O.D.:  $\phi 3.2$ ,  $\phi 4$ ,  $\phi 6$ ,  $\phi 1/8"$ ,  $\phi 5/32"$

Front view

Right side view

**Metric Size**

| Model             | Applicable tubing O.D. $\phi d$ | D1   | Release button    |     | D2  | D3  | D4  | D5 | L1   | L2  | L3   | L4*1 |      | L5   | L6   | L7   | L8   | M1   | W1   | W2   | X1   | X2   | Weight [g] |     |
|-------------------|---------------------------------|------|-------------------|-----|-----|-----|-----|----|------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------------|-----|
|                   |                                 |      | $\phi X(X)$       | Y   |     |     |     |    |      |     |      | Max. | Min. |      |      |      |      |      |      |      |      |      |            |     |
|                   |                                 |      | AS1002FSM/FSC□-23 | 3.2 |     |     |     |    |      |     |      | 8.4  | 6.7  |      |      |      |      |      |      |      |      |      |            | 9.5 |
| AS1002FSM/FSC□-04 | 4                               | 9.3  | 7.7               | 10  | 3.3 | 5.5 | 9.4 | 10 | 37.6 | 6.1 | 12.8 | 37.4 | 34.9 |      |      |      | 12.3 | 13.5 | 13.6 | 15.1 | 5.5  | 9.6  | 5.5        |     |
| AS1002FSM/FSC□-06 | 6                               | 11.6 | 9.7               | 12  |     |     |     |    | 40.1 | 6.1 | 12.8 | 37.4 | 34.9 |      |      |      | 12.3 | 13.5 | 13.6 | 15.1 | 5.5  | 9.6  | 6.6        |     |
| AS2002FSM/FSC□-04 | 4                               | 9.3  | 7.7               | 10  | 3.3 | 5.5 | 12  | 12 | 41.3 | 6.3 | 13.4 | 44.5 | 43   | 12.6 | 17   | 10.5 | 12.3 | 13.5 | 20   | 21.5 | 6.5  | 15   | 9.5        |     |
| AS2002FSM/FSC□-06 | 6                               | 11.6 | 9.7               | 12  |     |     |     |    | 43.1 | 6.3 | 13.4 | 44.5 | 43   | 12.6 | 17   | 10.5 | 12.3 | 13.5 | 20   | 21.5 | 6.5  | 15   | 10.4       |     |
| AS2052FSM/FSC□-06 | 6                               | 12.8 | 11.5              | —   | 4.3 | 7.8 | 13  | 16 | 54.2 | 7.6 | 17.2 | 49.0 | 47.6 | 17   | 22.5 | 12   | 16.1 | 17   | 21.5 | 24   | 7.8  | 16.2 | 16         |     |
| AS2052FSM/FSC□-08 | 8                               | 15.2 | 13.5              | —   |     |     |     |    | 57.2 | 8.5 | 18.1 | 49.9 | 48.5 |      |      |      | 19   | 21.5 | 24   | 7.8  | 16.2 | 18.4 | 18.4       |     |

\*1 Reference dimensions

**Inch Size**

| Model             | Applicable tubing O.D. $\phi d$ | D1   | Release button    |      | D2  | D3  | D4  | D5 | L1   | L2  | L3   | L4*1 |      | L5   | L6   | L7   | L8   | M1   | W1   | W2   | X1   | X2   | Weight [g] |     |
|-------------------|---------------------------------|------|-------------------|------|-----|-----|-----|----|------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------------|-----|
|                   |                                 |      | $\phi X(X)$       | Y    |     |     |     |    |      |     |      | Max. | Min. |      |      |      |      |      |      |      |      |      |            |     |
|                   |                                 |      | AS1002FSM/FSC□-01 | 1/8" |     |     |     |    |      |     |      | 8.4  | 6.7  |      |      |      |      |      |      |      |      |      |            | 9.5 |
| AS1002FSM/FSC□-03 | 5/32"                           | 9.3  | 7.7               | 10   | 3.3 | 5.5 | 9.4 | 10 | 37.6 | 6.1 | 12.8 | 37.4 | 34.9 |      |      |      | 12.3 | 13.5 | 13.6 | 15.1 | 5.5  | 9.6  | 5.5        |     |
| AS1002FSM/FSC□-07 | 1/4"                            | 12   | 10.9              | —    |     |     |     |    | 40.1 | 6.2 | 12.9 | 37.5 | 35   |      |      |      | 12.8 | 13.5 | 13.6 | 15.1 | 5.5  | 9.6  | 6.7        |     |
| AS2002FSM/FSC□-03 | 5/32"                           | 9.3  | 7.7               | 10   | 3.3 | 5.5 | 12  | 12 | 41.3 | 6.3 | 13.4 | 44.5 | 43   | 12.6 | 17   | 10.5 | 12.3 | 13.5 | 20   | 21.5 | 6.5  | 15   | 9.5        |     |
| AS2002FSM/FSC□-07 | 1/4"                            | 12   | 10.9              | —    |     |     |     |    | 43.2 | 6.5 | 13.6 | 44.7 | 43.2 | 12.6 | 17   | 10.5 | 12.8 | 13.5 | 20   | 21.5 | 6.5  | 15   | 10.6       |     |
| AS2052FSM/FSC□-07 | 1/4"                            | 13.2 | 12                | —    | 4.3 | 7.8 | 13  | 16 | 53.4 | 7.6 | 17.2 | 49   | 47.6 | 17   | 22.5 | 12   | 16.1 | 17   | 21.5 | 24   | 7.8  | 16.2 | 16.4       |     |
| AS2052FSM/FSC□-09 | 5/16"                           | 15.2 | 13.5              | —    |     |     |     |    | 57.2 | 8.5 | 18.1 | 49.9 | 48.5 |      |      |      | 19   | 21.5 | 24   | 7.8  | 16.2 | 18.4 | 18.4       |     |

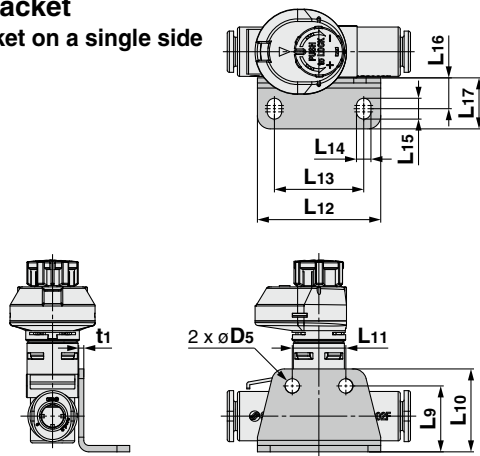
\*1 Reference dimensions



**Dimensions/ In-line Type**

**L-Bracket**

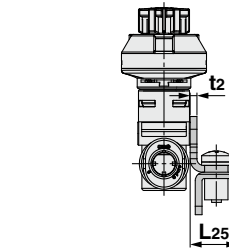
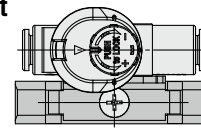
Bracket on a single side



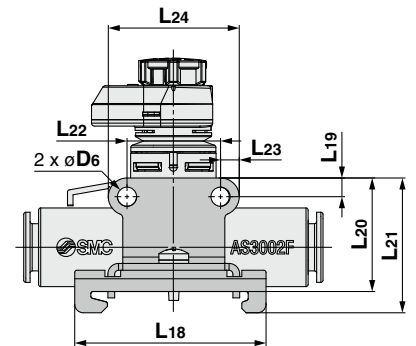
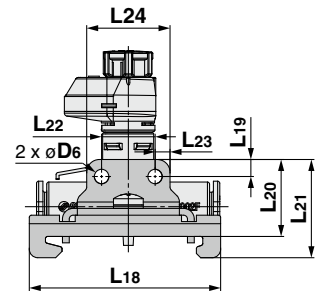
**DIN Rail Mounting Bracket**

Bracket on a single side

AS1002FSM/FSC □  
AS2002FSM/FSC □



AS2052FSM/FSC □

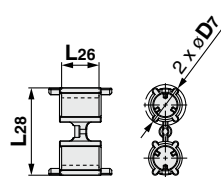


| Part number | Applicable model | D5  | L9   | L10  | L11  | L12  | L13  | L14 | L15 | L16 | L17  | t1  |
|-------------|------------------|-----|------|------|------|------|------|-----|-----|-----|------|-----|
| AS-10L      | AS1002FSM/FSC □  | 3.4 | 14.8 | 18.3 | 11   | 27.5 | 19.5 | 3.4 | 4.9 | 7.3 | 12   | 1   |
| AS-20L      | AS2002FSM/FSC □  |     | 15.6 | 19.6 | 12.6 | 29   | 21   |     |     |     |      |     |
| AS-25L      | AS2052FSM/FSC □  | 4.5 | 19.6 | 24.6 | 17   | 38   | 28   | 4.5 | 6.5 | 9.5 | 15.5 | 1.2 |

| Part number | Applicable model | D6  | L18 | L19 | L20  | L21  | L22  | L23  | L24 | L25  | t2  |
|-------------|------------------|-----|-----|-----|------|------|------|------|-----|------|-----|
| AS-10D      | AS1002FSM/FSC □  | 3.4 | 45  | 3.5 | 18.2 | 23.2 | 11   | 3.5  | 18  | 11.3 | 1.6 |
| AS-20D      | AS2002FSM/FSC □  |     |     |     | 18.6 | 23.6 | 12.6 |      |     |      |     |
| AS-25D      | AS2052FSM/FSC □  | 4.5 | 4.4 | 22  | 27   | 17   | 4.4  | 25.8 |     |      |     |

**Adapter for Manifold Mounting**

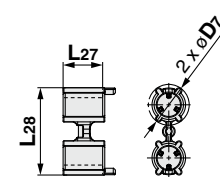
Part number: AS-□□A



| Part number | Applicable model | D7   | L26 | L28  |
|-------------|------------------|------|-----|------|
| AS-10A      | AS1002FSM/FSC □  | 9.2  | 4   | 18.7 |
| AS-20A      | AS2002FSM/FSC □  | 9.4  | 8.8 | 20.4 |
| AS-25A      | AS2052FSM/FSC □  | 11.4 | 6.3 | 27   |

**Adapter for Direct Mounting**

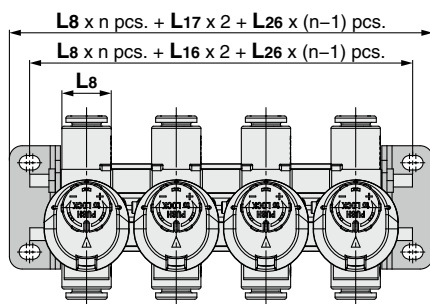
Part number: AS-□□A1



| Part number | Applicable model | D7   | L27 | L28  |
|-------------|------------------|------|-----|------|
| AS-10A1     | AS1002FSM/FSC □  | 9.2  | 4.5 | 18.7 |
| AS-20A1     | AS2002FSM/FSC □  | 9.4  | 9.3 | 20.4 |
| AS-25A1     | AS2052FSM/FSC □  | 11.4 | 7.1 | 27   |

**L-Bracket**

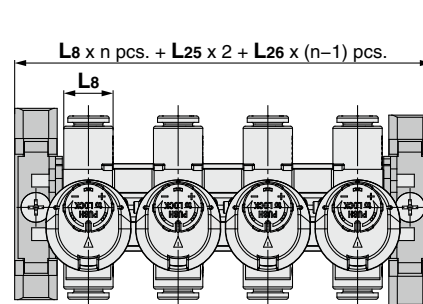
Brackets on both sides



- \* Refer to page 33 for L8.
- \* The figure above shows the manifold with speed controllers connected using two L-brackets, adapters and a threaded stud kit for manifold. Refer to page 23 for threaded stud kits for manifold.
- \* Cannot connect the speed controller when the indicator window direction is 90° or 270°.

**DIN Rail Mounting Bracket**

Brackets on both sides

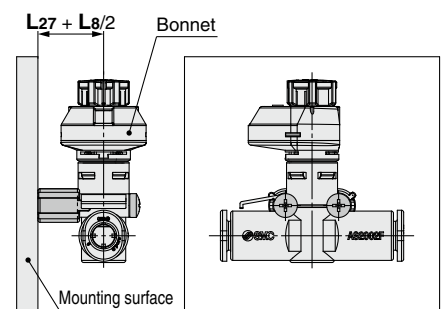


- \* Refer to page 33 for L8.
- \* The figure above shows the manifold with speed controllers connected using two DIN rail mounting brackets, adapters and a threaded stud kit for manifold. Refer to page 23 for threaded stud kits for manifold.
- \* Cannot connect the speed controller when the indicator window direction is 90° or 270°.

**Adapter**

Direct mounting

\* For use when the mounting surface interferes with the bonnet.



- \* Refer to page 33 for L8.

AS-FM/FC  
Elbow/Universal  
In-line

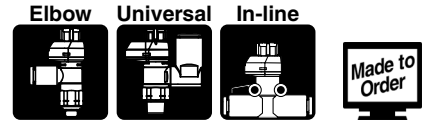
With Indicator AS-FSM/FSC  
Elbow/Universal  
In-line

1 to 50 mm/s 50 to 150 mm/s

# AS-FSM/FSC Series

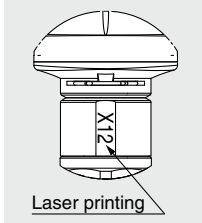
## Made to Order

Please contact SMC for detailed dimensions, specifications and lead times.



### 1 Lubricant: Vaseline

**-X12**

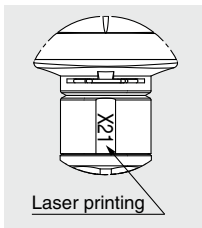


Example) AS2002FSM/FSC1-06-X12

- **Standard model number**  
(Elbow type/Universal type ⇨ page 20)  
(In-line type ⇨ page 22)

### 2 Grease-free (Seal: Fluorine-coated) + Restrictor (Without check valve)

**-X21**



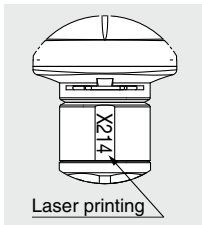
Example) AS2002FSM/FSC1-06-X21

- **Standard model number**  
(Elbow type/Universal type ⇨ page 20)  
(In-line type ⇨ page 22)

- \* Not particle-free
- \* Direction is not specified as there is no check valve. Products are available by the product number for meter-out type. Product number for meter-in type is not available. (For the elbow/universal type)
- \* Only the needle and O-ring are fluorine-coated.

### 3 Restrictor (Without check valve)

**-X214**



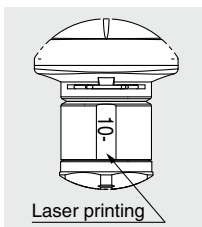
Example) AS2002FSM/FSC1-06-X214

- **Standard model number**  
(Elbow type/Universal type ⇨ page 20)  
(In-line type ⇨ page 22)

- \* Direction is not specified as there is no check valve. Products are available by the product number for meter-out type. Product number for meter-in type is not available. (For the elbow/universal type)

### 4 Clean series

**10-**




Example) 10-AS2002FSM/FSC1-06


- **Standard model number**  
(Elbow type/Universal type ⇨ page 20)  
(In-line type ⇨ page 22)


- \* Fluorine grease is used.
- \* The cleanliness class (ISO class) is 5.

## Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “**Caution**,” “**Warning**” or “**Danger**.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)\*1), and other safety regulations.

 **Caution:** **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

 **Warning:** **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

 **Danger:** **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

\*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.  
ISO 4413: Hydraulic fluid power – General rules relating to systems.  
IEC 60204-1: Safety of machinery – Electrical equipment of machines.  
(Part 1: General requirements)  
ISO 10218-1: Manipulating industrial robots – Safety.  
etc.

### Warning

#### 1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

#### 2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

#### 3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

#### 4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

### Caution

#### 1. The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.  
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.  
If anything is unclear, contact your nearest sales branch.

### Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.

Read and accept them before using the product.

#### Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.\*2)  
Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.  
This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

##### \*2) Vacuum pads are excluded from this 1 year warranty.

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.  
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

#### Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

### Caution

#### SMC products are not intended for use as instruments for legal metrology.

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

## Safety Instructions

Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.