

Speed Controller with One-touch Fittings

Series AS

Elbow Style, Universal Style

Minimizes installation time and cost

Reduces the mounting height and enables compact machinery design. Effective area is larger than the former model.

Tube swivels 360°

Universal style permits 360° piping swivel.

Application to inch size tubing

- Metric size (Release bushing: White color)
ø3.2, ø4, ø6, ø8, ø10, ø12
- Inch size (Release bushing: Orange color)
ø1/8", ø5/32", ø3/16", ø1/4", ø5/16", ø3/8", ø1/2"

Operating pressure 1MPa max.

Accepts

Nylon, Soft nylon and Polyurethane tubing.

Retainer prevents accidental loss of needle

Optional: Hexagonal lock nut, Nickel plated option

Number of needle rotations has been increased (8 to 10 turns)

The increased number of needle rotations (8 to 10 turns) permits easier control at lower speed.

Model

| Elbow | Universal | Port size | Applicable tube O.D. | | | | | | | | | | | | | | Applicable cylinder bore size (mm) | | | |
|----------------|----------------|-----------|----------------------|-----|---|---|---|----|----|-----------|-------|-------|------|-------|------|------|------------------------------------|---|--|----------------|
| | | | Metric size | | | | | | | Inch size | | | | | | | | | | |
| | | | 2 | 3.2 | 4 | 6 | 8 | 10 | 12 | 1/8" | 5/32" | 3/16" | 1/4" | 5/16" | 3/8" | 1/2" | | | | |
| AS12□1F-M3 | AS13□1F-M3 | M3 | ● | ● | ● | | | | | | | ● | ● | | | | | | | 2.5, 4, 6 |
| AS12□1F-M5 | AS13□1F-M5 | M5 | ● | ● | ● | ● | | | | | | ● | ● | | | | | | | 6, 10, 16, 20 |
| AS12□1F-U10/32 | AS13□1F-U10/32 | 10-32UNF | ● | ● | ● | | | | | | | ● | ● | | | | | | | 6, 10, 16, 20 |
| AS22□1F-01 | AS23□1F-01 | R(PT)1/8 | | ● | ● | ● | ● | ●* | | | | ● | ● | ● | ● | | | | | 20, 25, 32 |
| AS22□1F-02 | AS23□1F-02 | R(PT)1/4 | | | ● | ● | ● | ● | | | | ● | ● | ● | ● | ● | | | | 20, 25, 32, 40 |
| AS32□1F-02 | AS33□1F-02 | R(PT)1/4 | | | | ● | ● | ● | ● | | | | ● | ● | ● | | | | | 40, 50, 63 |
| AS32□1F-03 | AS33□1F-03 | R(PT)3/8 | | | | | ● | ● | ● | ● | | | | ● | ● | ● | | | | 40, 50, 63 |
| AS42□1F-04 | AS43□1F-04 | R(PT)1/2 | | | | | | | ● | ● | | | | | | | ● | ● | | 63, 80, 100 |

Note 1) *Only elbow style.

Note 2) Distinction between meter-out/meter-in types by appearance.

They are distinguished by the lock nut. The lock nut on the meter-out type is zinc chromated, while the meter-in type is black zinc chromate plated.

Note 3) ●: Brass parts are electroless nickel plated, provided as standard (N specifications).

Note 4) AS12□1F-M5-02 applicable cylinder bore sizes are 2.5, 4, 6.

Specifications

| | |
|---------------------------------|---|
| Proof pressure | 1.5MPa |
| Max. operating pressure | 1MPa |
| Min. operating pressure | 0.1MPa |
| Ambient and fluid temperature | -5 to 60°C (No freezing) |
| Number of needle rotations | 10 turns (8 turns ⁽¹⁾) |
| Applicable tubes ⁽²⁾ | Nylon, Soft nylon, Polyurethane |
| Option | Sealant ⁽³⁾ , Hexagon lock nut, Electroless nickel plated ⁽⁴⁾ |

Note 1) AS12□1F-M5, AS12□1F-U10/32

AS13□1F-M5, AS13□1F-U10/32

Note 2) Pay attention to the maximum operating pressure when soft nylon or Polyurethane is used. (Refer to p.7-146 and 7-147 in "Best Pneumatics" for further information.)

Note 3) Nickel plated AS12□1F and AS13□1F are standard, not equipped with a seal.

Note 4) Brass parts are all electroless nickel plated.

Air Flow/Effective Area

| Model | AS12□1F-M3 AS13□1F-M3 AS12□1F-M5-02 | AS12□1F-M5 AS13□1F-M5 | AS22□1F-01 AS23□1F-01 | AS22□1F-02 AS23□1F-02 | AS32□1F AS33□1F | AS42□1F AS43□1F | | | | | | | |
|------------------------|--|---|--------------------------|--------------------------|---------------------|----------------------|------------|----------|-----------|-----------|-----------|------------|------------|
| | Tube O.D. | Metric size ø2, ø3.2, ø4 Inch size ø1/8", ø5/32" | ø3.2, ø4, ø6 | ø3.2, ø4 ø6, ø8, ø10 | ø4 ø6 ø8, ø10 | ø6 ø8 ø10, ø12 | ø10 ø12 | | | | | | |
| Controlled (Free) flow | Air (l/min(ANR)) Eff. area (mm ²) | 20 0.3 | 100 1.5 | 180 2.7 | 230 3.5 | 260 4 | 390 6 | 460 7 | 660 10 | 790 12 | 920 14 | 1580 24 | 1710 26 |

Notes) Supply pressure: 0.5MPa, Temperature: 20°C.
U10/32 has the same specification as M5.

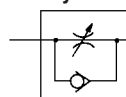
Elbow style



Universal style



JIS Symbol



Indication of air flow direction on body

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

With One-touch Fittings: Elbow/Universal Style *Series AS*

How to Order

AS 2 2 1 1F — **01** — **06** **S** — —

Body size

| | |
|---|-------------------|
| 1 | M3, M5 standard |
| 2 | 1/8, 1/4 standard |
| 3 | 3/8 standard |
| 4 | 1/2 standard |

Style

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

Control

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

With One-touch fittings

Thread

| | |
|---|---------------------------|
| — | Meter thread (M3, M5) |
| — | Unified thread (10-32UNF) |
| N | R(PT) |
| N | NPT |

Port size

| | |
|--------|----------|
| M3 | M3 |
| M5 | M5 |
| U10/32 | 10-32UNF |
| 01 | 1/8 |
| 02 | 1/4 |
| 03 | 3/8 |
| 04 | 1/2 |

Lock nut option

| | |
|---|------------------|
| — | Hexagon lock nut |
| J | Round lock nut |

Option

| | |
|---|----------------------------|
| — | None |
| S | With sealant |
| N | Electroless nickel plating |

*If more than one option is required, write option parts numbers in the order of "S", "K", "N".

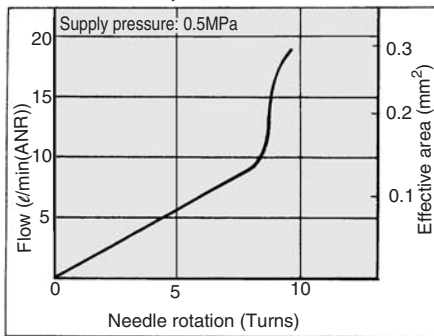
Applicable tube O.D.

| Millimeter | | Inch | |
|------------|-------|------|--------|
| 23 | ø3.2* | 01 | ø1/8" |
| 04 | ø4 | 03 | ø5/32" |
| 06 | ø6 | 05 | ø3/16" |
| 08 | ø8 | 07 | ø1/4" |
| 10 | ø10 | 09 | ø5/16" |
| 12 | ø12 | 11 | ø3/8" |
| | | 13 | ø1/2" |

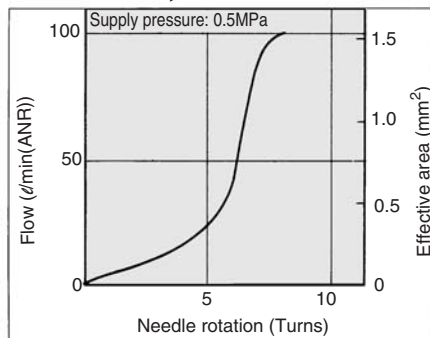
*ø1/8" tube should be used.

Needle Valve/Flow Characteristics

**AS1201F-M3, AS1211F-M3
AS1301F-M3, AS1311F-M3**

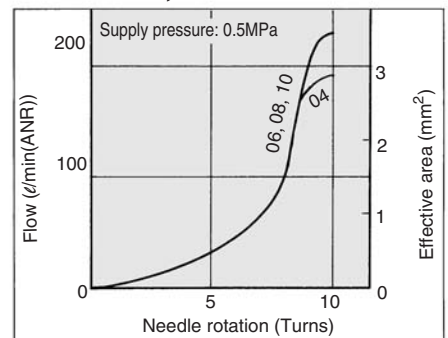


**AS1201F-M5, AS1211F-M5
AS1301F-M5, AS1311F-M5**

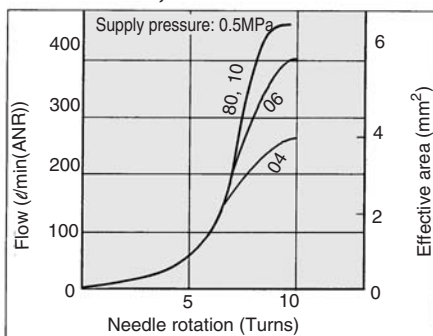


Note: "-U10/32" is the same as "M5".

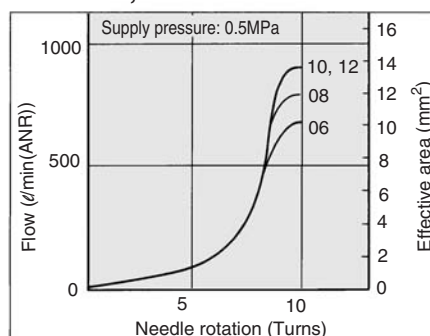
**AS2201F-01, AS2211F-01
AS2301F-01, AS2311F-01**



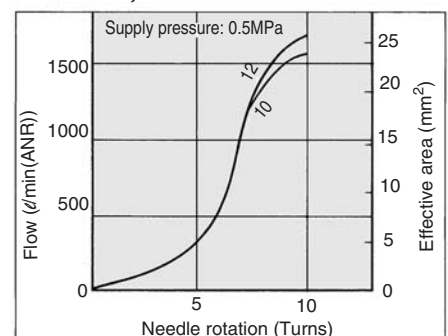
**AS2201F-02, AS2211F-02
AS2301F-02, AS2311F-02**



**AS3201F, AS3211F
AS3301F, AS3311F**



**AS4201F, AS4211F
AS4301F, AS4311F**



Series AS

Made to Order

1 Lubricant: Vaseline X12

Ex.) AS2201F-01-04S-X12

2 Grease-free (Seal: Fluorine Coating) + Throttle Valve (Without Check Valve) X21

Ex.) AS2201F-01-04S-X21

Note 1) Not particle-free

Note 2) Throttle valve is only compatible with the part no. of the meter-out type.

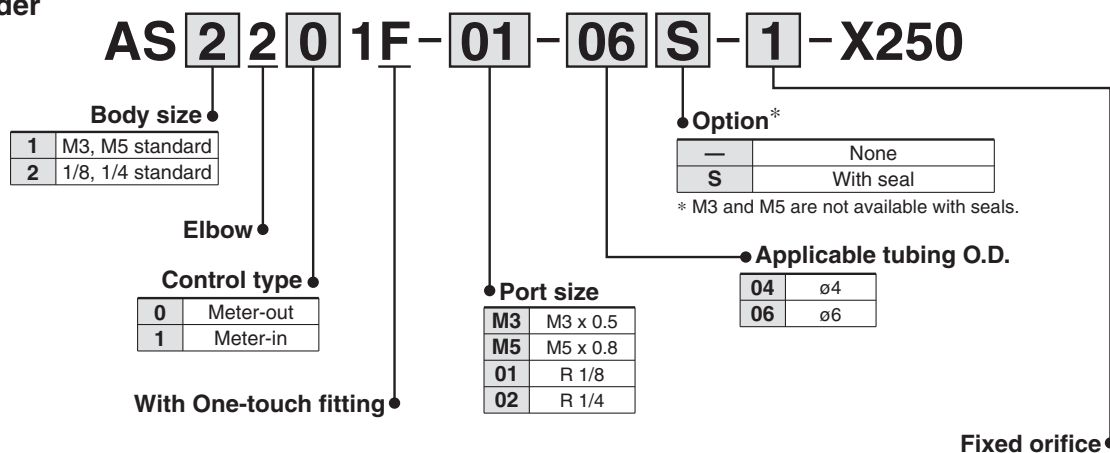
3 Throttle Valve (Without Check Valve) X214

Ex.) AS2201F-01-04S-X214

Note) Throttle valve is only compatible with the part no. of the meter-out type.

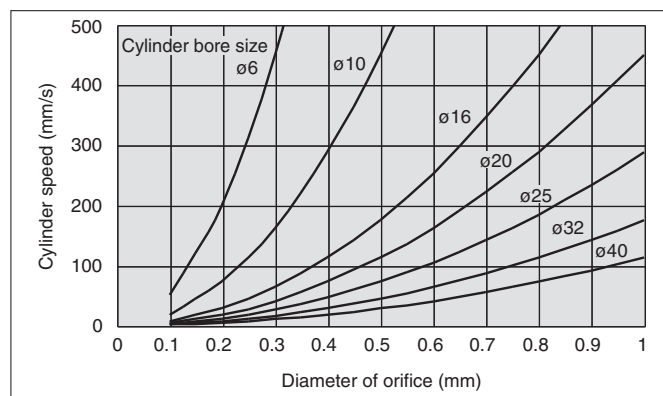
4 Fixed Throttle (No needle function) X250

How to Order



| Symbol | Fixed orifice | Applicable model | | | |
|--------|---------------|------------------|--------------------------------|--------------------------------|---------------|
| | | AS12□1F-M3-04 | AS12□1F-M5-04 AS12□1F-M5-06 | AS22□1F-01-04 AS22□1F-01-06 | AS22□1F-02-06 |
| 1 | ø0.1 | ● | ● | ● | ● |
| 2 | ø0.2 | ● | ● | ● | ● |
| 3 | ø0.3 | ● | ● | ● | ● |
| 4 | ø0.4 | ● | ● | ● | ● |
| 5 | ø0.5 | ● | ● | ● | ● |
| 6 | ø0.6 | ● | ● | ● | ● |
| 7 | ø0.7 | ● | ● | ● | ● |
| 8 | ø0.8 | ● | ● | ● | ● |
| 9 | ø0.9 | ● | ● | ● | ● |
| 10 | ø1.0 | ● | ● | ● | ● |

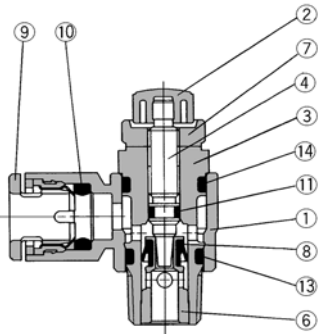
The graph below shows the relationship between orifices for each cylinder bore and cylinder speed. Please refer to it during selection. The cylinder speeds on the graph are theoretical values. Actual values may differ depending on the piping conditions or sliding friction, so please use this graph as a guideline only.



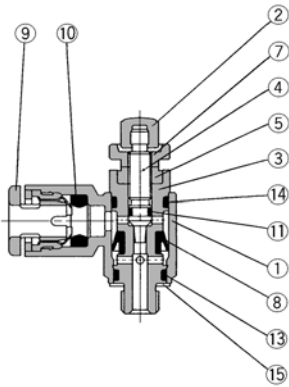
With One-touch Fittings: Elbow/Universal Style *Series AS*

Construction

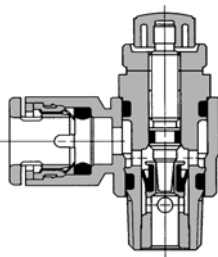
**Elbow style
Meter-out**



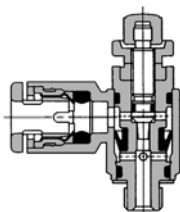
**M3 port
M5 port
U10/32 port**



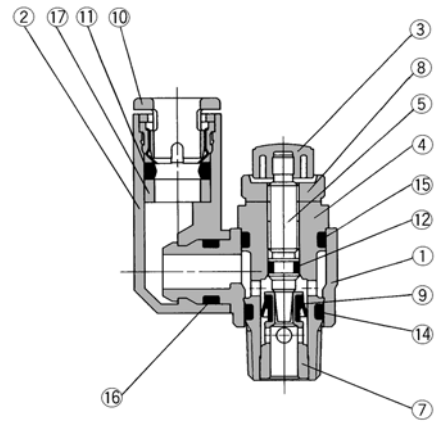
Meter-in



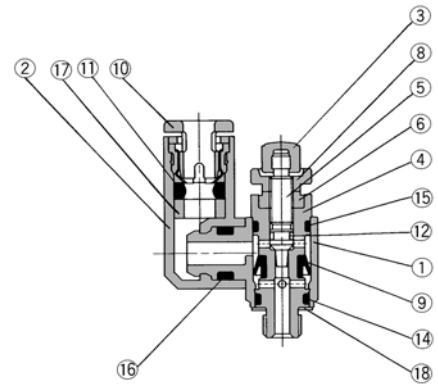
**M3 port
M5 port
U10/32 port**



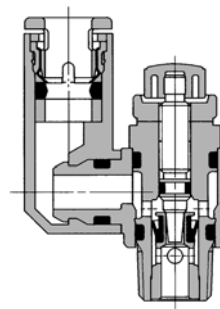
**Universal style
Meter-out**



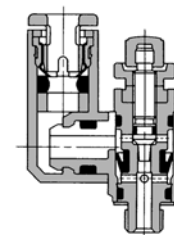
**M3 port
M5 port
U10/32 port**



Meter-in



**M3 port
M5 port
U10/32 port**

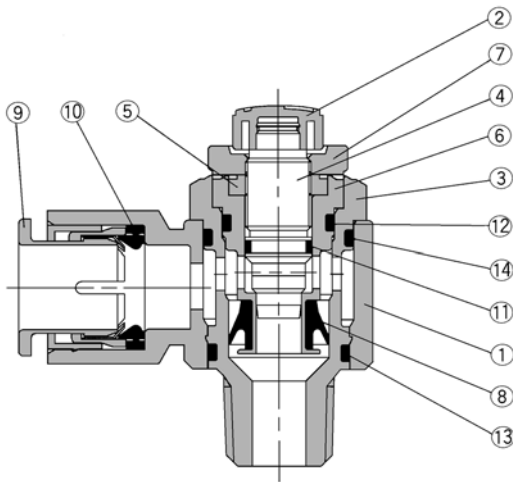


Series AS

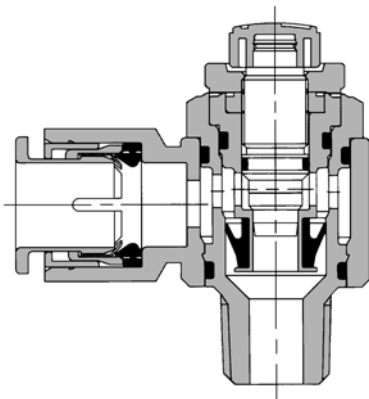
Construction

Elbow style

Meter-out AS3201F-02



Meter-in AS3211F-02



Component Parts

| No. | Description | Material | Note |
|-----|--------------|----------------------|-------------------------------|
| ① | Body A | PBT | |
| ② | Handle | PBT ⁽¹⁾ | |
| ③ | Body B | Brass ⁽²⁾ | Electroless nickel plated |
| ④ | Needle | Brass | Electroless nickel plated |
| ⑤ | Needle guide | Brass | Electroless nickel plated |
| ⑥ | Seat ring | Brass | See Note 3 |
| ⑦ | Lock nut | Steel | Zinc chromated ⁽⁴⁾ |
| ⑧ | U-packing | HNBR | |
| ⑨ | Cassette | POM, Stainless steel | |
| ⑩ | Packing | NBR | |
| ⑪ | O ring | NBR | |
| ⑫ | O ring | NBR | |
| ⑬ | O ring | NBR | |
| ⑭ | O ring | NBR | |
| ⑮ | Gasket | NBR, Stainless steel | |

Note 1) AS12□1F-M3-02 and AS12□1F-M5-02 are made of electroless nickel plated brass.

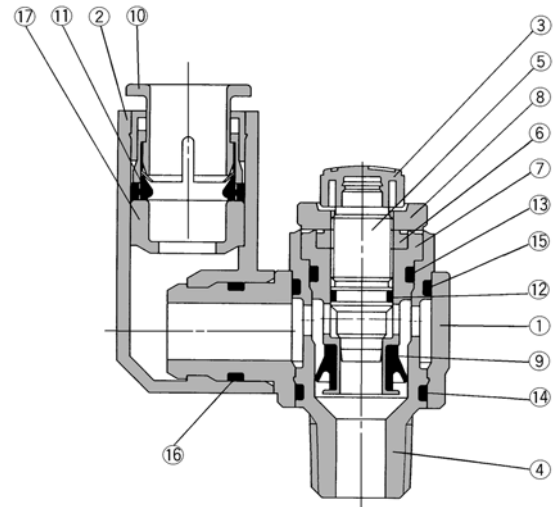
Note 2) AS12□1F-M3: Stainless

Note 3) AS22□1F, AS32□1F-02: Electroless nickel plated

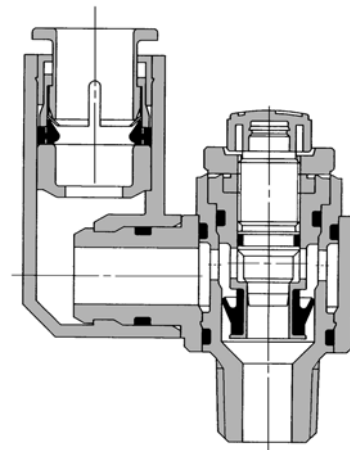
Note 4) Meter-in type: Black zinc chromated

Universal style

Meter-out AS3301F-02



Meter-in AS3311F-02



Component Parts

| No. | Description | Material | Note |
|-----|--------------|----------------------|-------------------------------|
| ① | Body A | PBT | |
| ② | Elbow body | PBT | |
| ③ | Handle | PBT | |
| ④ | Body B | Brass ⁽¹⁾ | Electroless nickel plated |
| ⑤ | Needle | Brass | Electroless nickel plated |
| ⑥ | Needle guide | Brass | Electroless nickel plated |
| ⑦ | Seat ring | Brass | See Note 2 |
| ⑧ | Lock nut | Steel | Zinc chromated ⁽³⁾ |
| ⑨ | U-packing | HNBR | |
| ⑩ | Cassette | POM, Stainless steel | |
| ⑪ | Packing | NBR | |
| ⑫ | O ring | NBR | |
| ⑬ | O ring | NBR | |
| ⑭ | O ring | NBR | |
| ⑮ | O ring | NBR | |
| ⑯ | O ring | NBR | |
| ⑰ | Spacer | POM | |
| ⑱ | Gasket | NBR, Stainless steel | |

Note 1) AS13□1F-M3: Stainless

Note 2) AS23□1F, AS33□1F-02: Electroless nickel plated

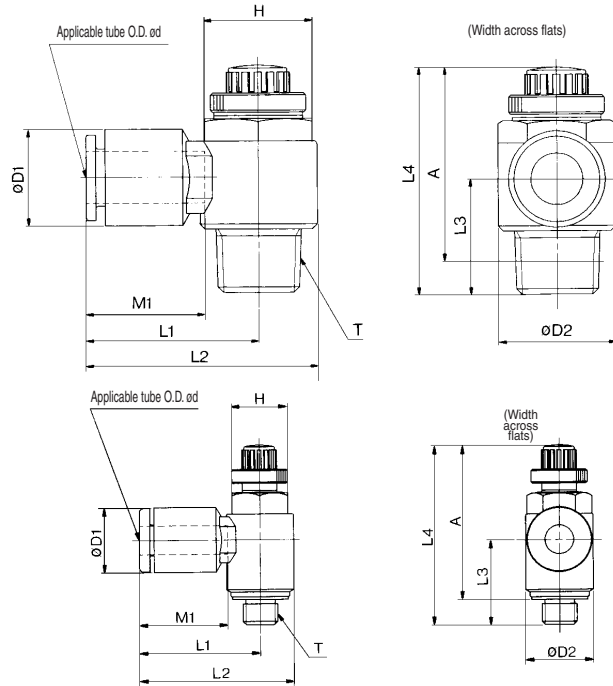
Note 3) Meter-in type: Black zinc chromated

With One-touch Fittings: Elbow/Universal Style *Series AS*



Elbow Style

M3 port
M5 port
U10/32 port



Metric

| Model | Tube O.D. d | T | H ⁽¹⁾ | D1 | D2 | L1 | L2 | L3 | L4 | | A ⁽²⁾ | | M1 | Weight (g) |
|-------------------|-------------|-----------|------------------|----------|------|------|------|------|------|------|------------------|------|------|------------|
| | | | | | | | | | MAX. | MIN. | MAX. | MIN. | | |
| AS12□1F-M3-02 | 2 | M3 | 5.5 | 6 | 5.2 | 11.4 | — | 11 | 26.8 | 24.3 | 24.3 | 21.8 | 8.8 | 2.4 |
| AS12□1F-M3-02 | | M5 | 7 | — | — | — | — | 11.5 | 27.3 | 24.8 | — | — | — | 3 |
| AS12□1F-M3-23 | 3.2 | M3 | 5.5 | 8.4 | 7.2 | 16.1 | 19.7 | 10.5 | 26.6 | 24.1 | 24 | 21.5 | 12.7 | 4 |
| AS12□1F-M3-04 | | | | 9.3 | | | | | | | | | | |
| AS12□1F-M5-23 | 3.2 | M5 | 8 | 8.4 | 9.6 | 17.3 | 22.1 | 12.3 | 28.6 | 25.8 | 25 | 22.2 | 12.7 | 7 |
| AS12□1F-U10/32-23 | | | | 10-32UNF | | | | | | | | | | |
| AS12□1F-M5-04 | 4 | M5 | 8 | 9.3 | 9.6 | 17.3 | 22.1 | 12.3 | 28.6 | 25.8 | 25 | 22.2 | 12.7 | 7 |
| AS12□1F-U10/32-04 | | | | 10-32UNF | | | | | | | | | | |
| AS12□1F-M5-06 | 6 | M5 | 11.6 | 9.6 | 18.1 | 22.9 | 11.7 | 13.5 | 28.6 | 25.8 | 25 | 22.2 | 12.7 | 7 |
| AS12□1F-U10/32-06 | | | | | | | | | | | | | | |
| AS22□1F-01-23 | 3.2 | R(PT) 1/8 | 12 (12.7) | 9.3 | 14.2 | 20.4 | 27.5 | 13.4 | 35.2 | 30.2 | 32.1 | 27.1 | 12.7 | 16 |
| AS22□1F-01-04 | 4 | | | 9.3 | | | | | | | | | | 20.4 |
| AS22□1F-01-06 | 6 | R(PT) 1/8 | 12 (12.7) | 11.6 | 14.2 | 20.4 | 27.5 | 13.4 | 35.2 | 30.2 | 32.1 | 27.1 | 12.7 | 13.5 |
| AS22□1F-01-08 | 8 | | | 15.2 | | | | | | | | | | 25.3 |
| AS22□1F-01-10 | 10 | R(PT) 1/8 | 12 (12.7) | 18.5 | 14.2 | 33.1 | 40.2 | 14.1 | 35.2 | 30.2 | 32.1 | 27.1 | 12.7 | 21 |
| AS22□1F-02-04 | 4 | | | 10.4 | | | | | | | | | | 25.2 |
| AS22□1F-02-06 | 6 | R(PT) 1/8 | 17 (17.5) | 12.8 | 18.5 | 25.2 | 34.4 | 17.7 | 39.9 | 34.9 | 34.4 | 29.4 | 12.7 | 17 |
| AS22□1F-02-08 | 8 | | | 15.2 | | | | | | | | | | 27.2 |
| AS22□1F-02-10 | 10 | R(PT) 1/8 | 17 (17.5) | 18.5 | 14.2 | 33.9 | 43.2 | 19.5 | 39.9 | 34.9 | 34.4 | 29.4 | 12.7 | 21 |
| AS22□1F-02-06 | 6 | | | 12.8 | | | | | | | | | | 27.8 |
| AS32□1F-02-08 | 8 | R(PT) 1/4 | 19 | 15.2 | 23 | 29.5 | 41 | 21.3 | 48.3 | 43.3 | 42.8 | 37.8 | 12.7 | 18.5 |
| AS32□1F-02-10 | 10 | | | 18.5 | | | | | | | | | | 31.8 |
| AS32□1F-02-12 | 12 | R(PT) 1/4 | 19 | 20.9 | 23 | 32.8 | 44.3 | 21.3 | 48.3 | 43.3 | 42.8 | 37.8 | 12.7 | 22 |
| AS32□1F-03-06 | 6 | | | 12.8 | | | | | | | | | | 27.8 |
| AS32□1F-03-08 | 8 | R(PT) 3/8 | 23 | 15.2 | 19.8 | 29.5 | 41 | 19.8 | 45.4 | 40.4 | 40.2 | 35.2 | 12.7 | 18.5 |
| AS32□1F-03-10 | 10 | | | 18.5 | | | | | | | | | | 31.8 |
| AS32□1F-03-12 | 12 | R(PT) 3/8 | 23 | 20.9 | 19.8 | 32.8 | 44.3 | 21.3 | 48.3 | 43.3 | 42.8 | 37.8 | 12.7 | 22 |
| AS42□1F-04-10 | 10 | | | 12.8 | | | | | | | | | | 27.8 |
| AS42□1F-04-12 | 12 | R(PT) 1/2 | 24 (23.8) | 18.5 | 28.6 | 33.6 | 47.9 | 24.5 | 56.7 | 49.2 | 49.6 | 42.1 | 12.7 | 21 |
| AS42□1F-04-12 | 12 | | | 20.9 | | | | | | | | | | 34.6 |

Note 1) () are the dimensions of NPT thread.

Note 2) Reference thread dimensions after being screwed in.

Inch

| Model | Tube O.D. d | T | H ⁽¹⁾ | D1 | D2 | L1 | L2 | L3 | L4 | | A ⁽²⁾ | | M1 | Weight (g) |
|-------------------|----------------|-----|------------------|------|------|------|------|------|------|------|------------------|------|------|------------|
| | | | | | | | | | MAX. | MIN. | MAX. | MIN. | | |
| AS12□1F-M3-01 | 1/8" | M3 | 5.5 | 8.4 | 7.2 | 16.1 | 19.7 | 10.5 | 26.6 | 24.1 | 24 | 21.5 | 12.7 | 4 |
| AS12□1F-M3-03 | 5/32" | | | 9.3 | | | | | | | | | | |
| AS12□1F-M5-01 | 1/8" | M5 | 8 | 8.4 | 9.6 | 17.3 | 22.1 | 12.3 | 28.6 | 25.8 | 25 | 22.2 | 12.7 | 7 |
| AS12□1F-U10/32-01 | 1/8" 10-32UNF | | | — | | | | | | | | | | |
| AS12□1F-M5-03 | 5/32" | M5 | 8 | 9.3 | 9.6 | 17.3 | 22.1 | 12.3 | 28.6 | 25.8 | 25 | 22.2 | 12.7 | 7 |
| AS12□1F-U10/32-03 | 5/32" 10-32UNF | | | — | | | | | | | | | | |
| AS22□1F-01-01 | 1/8" | 1/8 | 12 (12.7) | 9.3 | 14.2 | 20.4 | 27.5 | 13.4 | 35.2 | 30.2 | 32.1 | 27.1 | 12.7 | 16 |
| AS22□1F-01-03 | 5/32" | | | 9.3 | | | | | | | | | | 20.4 |
| AS22□1F-01-05 | 3/16" | 1/8 | 12 (12.7) | 11.4 | 14.2 | 23.1 | 30.2 | 13.4 | 35.2 | 30.2 | 32.1 | 27.1 | 12.7 | 16.5 |
| AS22□1F-01-07 | 1/4" | | | 13.2 | | | | | | | | | | 23.9 |
| AS22□1F-01-09 | 5/16" | 1/8 | 12 (12.7) | 15.2 | 14.2 | 25.3 | 32.4 | 14.1 | 35.2 | 30.2 | 32.1 | 27.1 | 12.7 | 21 |
| AS22□1F-01-09 | 5/16" | | | 15.2 | | | | | | | | | | 25.3 |
| AS22□1F-02-03 | 5/32" | 1/4 | 17 (17.5) | 10.4 | 18.5 | 25.2 | 34.4 | 17.7 | 39.9 | 34.9 | 34.4 | 29.4 | 12.7 | 16 |
| AS22□1F-02-05 | 3/16" | | | 11.4 | | | | | | | | | | 24.9 |
| AS22□1F-02-07 | 1/4" | 1/4 | 17 (17.5) | 13.2 | 14.2 | 25.2 | 34.5 | 19.5 | 39.9 | 34.9 | 34.4 | 29.4 | 12.7 | 18.5 |
| AS22□1F-02-09 | 5/16" | | | 15.2 | | | | | | | | | | 27.2 |
| AS22□1F-02-11 | 3/8" | 1/4 | 17 (17.5) | 17.9 | 14.2 | 33.9 | 43.2 | 19.5 | 39.9 | 34.9 | 34.4 | 29.4 | 12.7 | 21 |
| AS22□1F-02-11 | 3/8" | | | 17.9 | | | | | | | | | | 33.9 |
| AS32□1F-02-07 | 1/4" | 3/8 | 19 | 13.2 | 23 | 27.8 | 39.3 | 21.3 | 48.3 | 43.3 | 42.8 | 37.8 | 12.7 | 17 |
| AS32□1F-02-09 | 5/16" | | | 15.2 | | | | | | | | | | 29.5 |
| AS32□1F-02-11 | 3/8" | 3/8 | 19 | 17.9 | 23 | 31.8 | 43.3 | 19.8 | 45.4 | 40.4 | 40.2 | 35.2 | 12.7 | 21 |
| AS32□1F-02-11 | 3/8" | | | 17.9 | | | | | | | | | | 31.8 |
| AS32□1F-03-07 | 1/4" | 3/8 | 19 | 13.2 | 23 | 27.8 | 39.3 | 21.3 | 48.3 | 43.3 | 42.8 | 37.8 | 12.7 | 17 |
| AS32□1F-03-09 | 5/16" | | | 15.2 | | | | | | | | | | 29.5 |
| AS32□1F-03-11 | 3/8" | 3/8 | 19 | 17.9 | 23 | 31.8 | 43.3 | 19.8 | 45.4 | 40.4 | 40.2 | 35.2 | 12.7 | 21 |
| AS32□1F-03-11 | 3/8" | | | 17.9 | | | | | | | | | | 31.8 |
| AS42□1F-04-11 | 3/8" | 1/2 | 24 (23.8) | 17.9 | 28.6 | 33.6 | 47.9 | 24.5 | 56.7 | 49.2 | 49.6 | 42.1 | 12.7 | 21 |
| AS42□1F-04-13 | 1/2" | | | 21.7 | | | | | | | | | | 35.2 |

Note 1) () are the dimensions of NPT thread.

Note 2) Reference thread dimensions after being screwed in.

Elbow Style

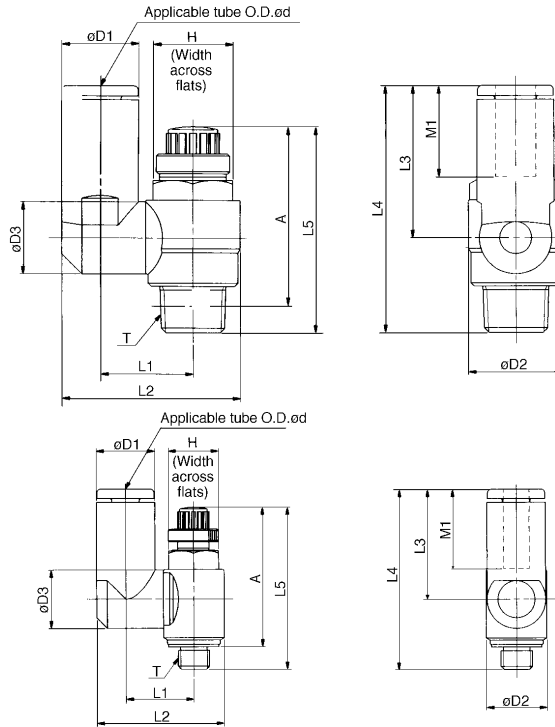
| File | Model | Port size | Detail No. | | | | | | | | |
|----------|---------------|-----------|------------|-----|-----|-----|-----|-----|---|---|---|
| | | | Tube O.D. | | | | | | | | |
| | | | 3.2 | 4 | 6 | 8 | 10 | 12 | — | — | |
| SAS21F1N | AS12□1F-M3-□ | M3 | #1 | #2 | — | — | — | — | — | — | — |
| | AS12□1F-M5-□ | M5 | #3 | #4 | #5 | — | — | — | — | — | |
| | AS22□1F-01-□S | R(PT)1/8 | #6 | #7 | #8 | #9 | #10 | — | — | — | |
| | AS22□1F-02-□S | R(PT)1/4 | — | #11 | #12 | #13 | #14 | — | — | — | |
| | AS32□1F-03-□S | R(PT)3/8 | — | — | #15 | #16 | #17 | #18 | — | — | |
| | AS42□1F-04-□S | R(PT)1/2 | — | — | — | — | #19 | #20 | — | — | |

Series AS



Universal Style

M3 port
M5 port
U10/32 port



Metric

| Model | d | T | H ⁽¹⁾ | D1 | D2 | D3 | L1 | L2 | L3 | L4 | L5 | | A ⁽²⁾ | | M1 | Weight (g) |
|-------------------|-----|----------|------------------|--------|------|------|------|------|------|------|------|------|------------------|------|------|------------|
| | | | | | | | | | | | MAX. | MIN. | MAX. | MIN. | | |
| AS13□1F-M3-23 | 3.2 | M3 | 5.5 | 8.4 | 7.2 | 7.2 | 10.1 | 17.9 | 17.6 | 28.3 | 26.6 | 24.1 | 24 | 21.5 | 12.7 | 4 |
| AS13□1F-M3-04 | 4 | | | 9.3 | | | | 18.3 | 17.9 | 28.6 | | | | | | 5 |
| AS13□1F-M5-23 | 3.2 | M5 | 8 | 8.4 | 9.6 | 9.3 | 10.8 | 20.3 | 17.5 | 28.7 | 28.6 | 25.8 | 25 | 22.2 | 7 | 12.7 |
| AS13□1F-U10/32-23 | | 10-32UNF | | | | | | | | | | | | | | |
| AS13□1F-M5-04 | 4 | M5 | 8 | 9.3 | 9.6 | 9.3 | 10.8 | 20.3 | 17.5 | 28.7 | 28.6 | 25.8 | 25 | 22.2 | 7 | 12.7 |
| AS13□1F-U10/32-04 | | 10-32UNF | | | | | | | | | | | | | | |
| AS13□1F-M5-06 | 6 | M5 | 8 | 11.6 | 9.6 | 9.3 | 10.8 | 20.3 | 17.5 | 28.7 | 28.6 | 25.8 | 25 | 22.2 | 7 | 12.7 |
| AS13□1F-U10/32-06 | | 10-32UNF | | | | | | | | | | | | | | |
| AS23□1F-01-23 | 3.2 | 1/8 | 12 | 8.4 | 14.2 | 9.3 | 13.1 | 24.4 | 17.5 | 30.9 | 35.2 | 30.2 | 32.1 | 27.1 | 12.7 | 17 |
| AS23□1F-01-04 | 4 | | | 9.3 | | | | 24.9 | | | | | | | | 17.5 |
| AS23□1F-01-06 | 6 | 1/8 | 12 | 11.6 | 14.2 | 10.9 | 14 | 26.9 | 22.9 | 36.3 | 35.2 | 30.2 | 32.1 | 27.1 | 13.5 | 21 |
| AS23□1F-01-08 | 8 | | | 15.2 | | | | 28.2 | | | | | | | | 40.8 |
| AS23□1F-02-04 | 4 | 1/4 | 17 | 10.4 | 18.5 | 10.9 | 16.2 | 30.6 | 21.9 | 39.6 | 39.9 | 34.9 | 34.4 | 29.4 | 16 | 32 |
| AS23□1F-02-06 | 6 | | | 12.8 | | | | 18.4 | | | | | | | | 34 |
| AS23□1F-02-08 | 8 | 1/4 | 17 | 15.2 | 18.5 | 12.9 | 18.3 | 35.2 | 28.2 | 45.1 | 39.9 | 34.9 | 34.4 | 29.4 | 18.5 | 36 |
| AS23□1F-02-10 | 10 | | | 18.5 | | | | 20.2 | | | | | | | | 38.7 |
| AS33□1F-02-06 | 6 | 3/8 | 19 | 12.8 | 23 | 12.9 | 20.6 | 38.5 | 25.2 | 46.5 | 48.3 | 43.3 | 42.8 | 37.8 | 17 | 60 |
| AS33□1F-02-08 | 8 | | | 15.2 | | | | 12.9 | | | | | | | | 20.6 |
| AS33□1F-02-10 | 10 | 3/8 | 19 | 18.5 | 23 | 16.2 | 23 | 43.7 | 32.6 | 53.9 | 48.3 | 43.3 | 42.8 | 37.8 | 21 | 67 |
| AS33□1F-02-12 | 12 | | | 20.9 | | | | 23 | | | | | | | | 44.9 |
| AS33□1F-03-06 | 6 | 3/8 | 19 | 12.8 | 23 | 12.9 | 20.6 | 38.5 | 25.2 | 45 | 45.4 | 40.4 | 40 | 35 | 17 | 56 |
| AS33□1F-03-08 | 8 | | | 15.2 | | | | 12.9 | | | | | | | | 20.6 |
| AS33□1F-03-10 | 10 | 3/8 | 19 | 18.5 | 23 | 16.2 | 23 | 43.7 | 32.6 | 52.4 | 45.4 | 40.4 | 40 | 35 | 21 | 63 |
| AS33□1F-03-12 | 12 | | | 20.9 | | | | 23 | | | | | | | | 44.9 |
| AS43□1F-04-10 | 10 | 1/2 | 24 | 18.5 | 28.6 | 16.2 | 25.8 | 49.4 | 32.6 | 57.1 | 56.7 | 49.2 | 49.6 | 42.1 | 21 | 104 |
| AS43□1F-04-12 | 12 | | | (23.8) | | | | 21.7 | | | | | | | | 19.4 |

Note 1) () are the dimensions of NPT thread

Note 2) Reference thread dimensions after being screwed in

Inch

| Model | Tube O.D. d | T | H ⁽¹⁾ | D1 | D2 | D3 | L1 | L2 | L3 | L4 | L5 | | A ⁽²⁾ | | M1 | Weight (g) |
|-------------------|-------------|-----|------------------|------|--------|------|------|------|------|------|------|------|------------------|------|------|------------|
| | | | | | | | | | | | MAX. | MIN. | MAX. | MIN. | | |
| AS13□1F-M3-01 | 1/8" | M3 | 5.5 | 8.4 | 7.2 | 7.2 | 10.1 | 17.9 | 17.6 | 28.3 | 26.6 | 24.1 | 24 | 21.5 | 12.7 | 4 |
| AS13□1F-M3-03 | 5/32" | | | 9.3 | | | | 18.3 | 17.9 | 28.6 | | | | | | 5 |
| AS13□1F-M5-01 | 1/8" | M5 | 8 | 8.4 | 9.6 | 9.3 | 10.8 | 20.3 | 17.5 | 28.7 | 28.6 | 25.8 | 25 | 22.2 | 7 | 12.7 |
| AS13□1F-U10/32-01 | 1/8" | | | | | | | | | | | | | | | |
| AS13□1F-M5-03 | 5/32" | M5 | 8 | 9.3 | 9.6 | 9.3 | 10.8 | 20.3 | 17.5 | 28.7 | 28.6 | 25.8 | 25 | 22.2 | 7 | 12.7 |
| AS13□1F-U10/32-03 | 5/32" | | | | | | | | | | | | | | | |
| AS23□1F-01-01 | 1/8" | 1/8 | 12 | 8.4 | 14.2 | 9.3 | 13.1 | 24.4 | 17.5 | 30.9 | 35.2 | 30.2 | 32.1 | 27.1 | 12.7 | 17 |
| AS23□1F-01-03 | 5/32" | | | 9.3 | | | | 24.9 | | | | | | | | 17.5 |
| AS23□1F-01-05 | 3/16" | 1/8 | 12 | 11.6 | 14.2 | 10.9 | 14 | 26.8 | 23.9 | 30.9 | 35.2 | 30.2 | 32.1 | 27.1 | 16.5 | 18 |
| AS23□1F-01-07 | 1/4" | | | 13.2 | | | | 22.9 | | | | | | | | 25.6 |
| AS23□1F-01-09 | 5/16" | 1/8 | 12 | 15.2 | 14.2 | 12.9 | 16.2 | 30.9 | 28.2 | 40.8 | 35.2 | 30.2 | 32.1 | 27.1 | 18.5 | 21 |
| AS23□1F-02-03 | 5/32" | | | 10.4 | | | | 10.9 | | | | | | | | 16.2 |
| AS23□1F-02-05 | 3/16" | 1/4 | 17 | 11.6 | 18.5 | 10.9 | 16.2 | 31.1 | 23.9 | 42.1 | 39.9 | 34.9 | 34.4 | 29.4 | 16.5 | 33 |
| AS23□1F-02-07 | 1/4" | | | 13.2 | | | | 18.3 | | | | | | | | 34.2 |
| AS23□1F-02-09 | 5/16" | 1/4 | 17 | 15.2 | 18.5 | 12.9 | 18.3 | 35.2 | 28.2 | 47.4 | 39.9 | 34.9 | 34.4 | 29.4 | 18.5 | 39 |
| AS23□1F-02-11 | 3/8" | | | 18.5 | | | | 20.2 | | | | | | | | 38.7 |
| AS33□1F-02-07 | 1/4" | 3/8 | 19 | 13.2 | 23 | 12.9 | 20.6 | 38.7 | 25.6 | 50 | 48.3 | 43.8 | 42.8 | 37.8 | 17 | 60 |
| AS33□1F-02-09 | 5/16" | | | 15.2 | | | | 12.9 | | | | | | | | 20.6 |
| AS33□1F-02-11 | 3/8" | 3/8 | 19 | 18.5 | 23 | 16.2 | 23 | 43.7 | 32.6 | 56.2 | 48.3 | 43.8 | 42.8 | 37.8 | 21 | 69 |
| AS33□1F-03-07 | 1/4" | | | 13.2 | | | | 12.9 | | | | | | | | 20.6 |
| AS33□1F-03-09 | 5/16" | 3/8 | 19 | 15.2 | 23 | 12.9 | 20.6 | 39.7 | 28.2 | 48 | 45.4 | 40.4 | 40.2 | 35.2 | 18.5 | 59 |
| AS33□1F-03-11 | 3/8" | | | 18.5 | | | | 16.2 | | | | | | | | 23 |
| AS43□1F-04-11 | 3/8" | 1/2 | 24 | 18.5 | (23.8) | 16.2 | 25.8 | 49.4 | 32.6 | 54.4 | 56.7 | 49.2 | 49.6 | 42.1 | 21 | 104 |
| AS43□1F-04-13 | 1/2" | | | 21.7 | | | | 19.4 | | | | | | | | 26.8 |

Note 1) () are the dimensions of NPT thread

Note 2) Reference thread dimensions after being screwed in

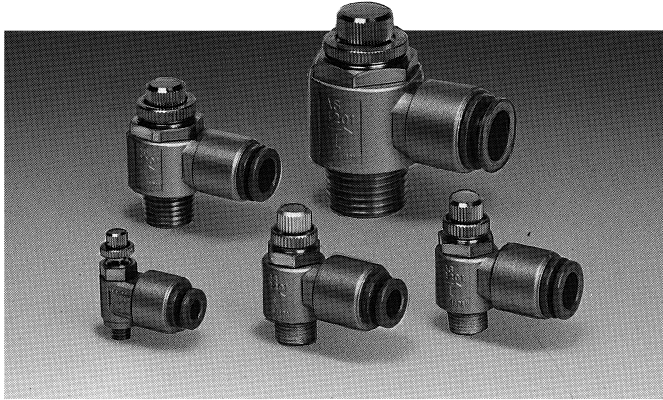
Universal Style

| File | Model | Port size | Detail No. | | | | | |
|----------|----------------|-----------|------------|-----|-----|-----|-----|-----|
| | | | Tube O.D. | | | | | |
| | | | 3.2 | 4 | 6 | 8 | 10 | 12 |
| SAS31F1N | AS13 □1F-M3-□ | M3 | #1 | #2 | — | — | — | — |
| | AS13 □1F-M5-□ | M5 | #3 | #4 | #5 | — | — | — |
| | AS23 □1F-01-□S | R(PT)1/8 | #6 | #7 | #8 | #9 | — | — |
| | AS23 □1F-02-□S | R(PT)1/4 | — | #10 | #11 | #12 | #13 | — |
| | AS33 □1F-03-□S | R(PT)3/8 | — | — | #14 | #15 | #16 | #17 |
| | AS43 □1F-04-□S | R(PT)1/2 | — | — | — | — | #18 | #19 |

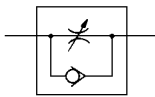
Speed Controller with One-touch Fittings

Series AS

Metal Body Elbow Style



JIS Symbol

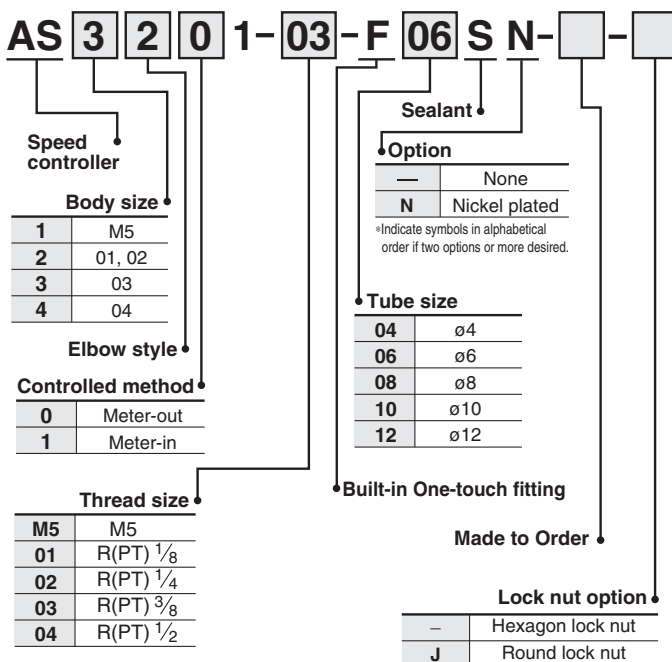


Model

| Model | Port size | Applicable tube O.D. | | | | | Applicable cylinder bore (mm) |
|-----------|-----------|----------------------|---|---|----|----|-------------------------------|
| | | 4 | 6 | 8 | 10 | 12 | |
| AS12□1-M5 | M5 | ☉ | ☉ | | | | 6, 10, 16, 20 |
| AS22□1-01 | R(PT) 1/8 | | ☉ | ☉ | | | 20, 25, 32 |
| AS22□1-02 | R(PT) 1/4 | | ☉ | ☉ | | | 20, 25, 32, 40 |
| AS32□1-03 | R(PT) 3/8 | | | ● | ● | | 40, 50, 63 |
| AS42□1-04 | R(PT) 1/2 | | | | ● | ● | 63, 80, 100 |

Note 1) ☉: Nickel plated model is standard.

How to Order



Speed controller with built-in One-touch fitting for metal body specifications

- Uses flame resistant resin as standard. (UL standard V-0)

Specifications

| | |
|-------------------------------|--|
| Proof pressure | 1.5MPa |
| Max. operating pressure | 1MPa |
| Min. operating pressure | 0.1MPa |
| Ambient and fluid temperature | -5 to 60°C |
| Number of needle rotations | 10 turns (8 turns ⁽¹⁾) |
| Applicable tubes | Nylon, Soft nylon, Polyurethane |
| Option | Hexagon lock nut, Electroless nickel plated ⁽²⁾ |

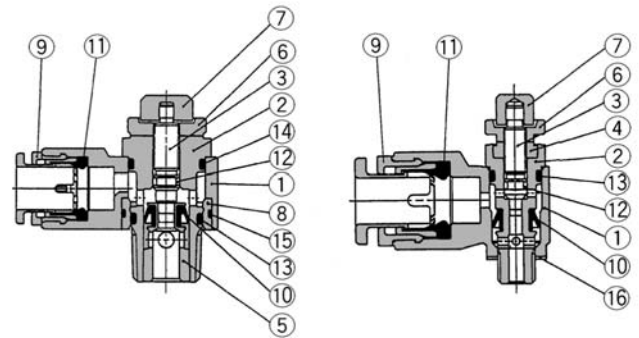
Distinction between meter-out/meter-in types by appearance. They are distinguished by the lock nut.

The lock nut on the meter-out type is zinc chromated while the meter-in type is black zinc chromate plated.

Note 1) M5 size

Note 2) All the brass parts are electroless nickel plated.

Construction



Component Parts

| No. | Description | Material | Notes |
|-----|--------------|---------------------|-------------------------------|
| ① | Body A | Zinc alloy | Chromated |
| ② | Body B | Brass | Electroless nickel plated |
| ③ | Needle | Brass | Electroless nickel plated |
| ④ | Needle guide | Brass | M5: Electroless nickel plated |
| ⑤ | Seat ring | Brass | (1) |
| ⑥ | Lock nut | Steel | Zinc chromated ⁽²⁾ |
| ⑦ | Handle | Brass | Electroless nickel plated |
| ⑧ | Bushing | PBT | |
| ⑨ | Cassette | POM/Stainless steel | |
| ⑩ | U packing | NBR | |
| ⑪ | Packing | NBR | |
| ⑫ | O ring | NBR | |
| ⑬ | O ring | NBR | |
| ⑭ | O ring | NBR | |
| ⑮ | O ring | NBR | |
| ⑯ | Gasket | NBR/Stainless steel | Only M5 port |

Note 1) *AS2□□1*: Electroless nickel plated

Note 2) Meter-in type: Black zinc chromated

Series AS

Made to Order

1 Lubricant: Vaseline **X12**

Ex.) AS1201-M5-F04-X12

3 Throttle Valve (Without Check Valve) **X214**

Ex.) AS1201-M5-F04-X214

Note) Throttle valve is only compatible with the part no. of the meter-out type.

2 Grease-free (Seal: Fluorine Coating) + Throttle Valve (Without Check Valve) **X21**

Ex.) AS1201-M5-F04-X21

Note 1) Not particle-free

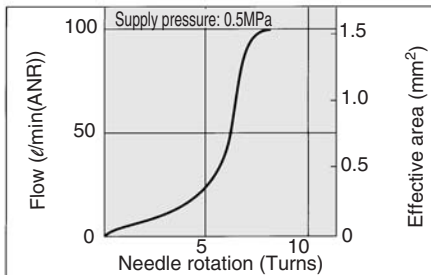
Note 2) Throttle valve is only compatible with the part no. of the meter-out type.

Flow/Effective area

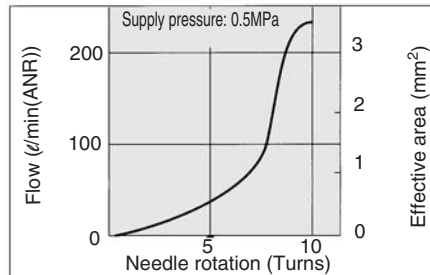
| Model | | AS12□1-M5 | AS22□1-01 | AS22□1-02 | | AS32□1-03 | | AS42□1-04 | |
|------------------------|-----------------------------------|-----------|-----------|-----------|-----|-----------|-----|-----------|------|
| Tube O.D | | ø4, ø6 | ø6, ø8 | ø6 | ø8 | ø8 | ø10 | ø10 | ø12 |
| Controlled (Free) flow | Flow (ℓ/min (ANR)) | 100 | 230 | 390 | 460 | 790 | 920 | 1580 | 1710 |
| | Effective area (mm ²) | 1.5 | 3.5 | 6 | 7 | 12 | 14 | 24 | 26 |

Needle Valve/Flow Characteristics

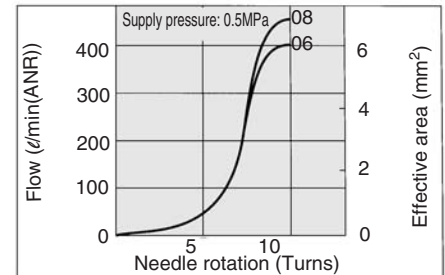
AS12□1



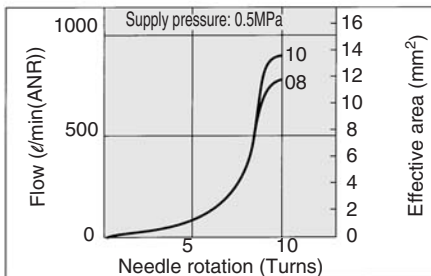
AS22□1-01



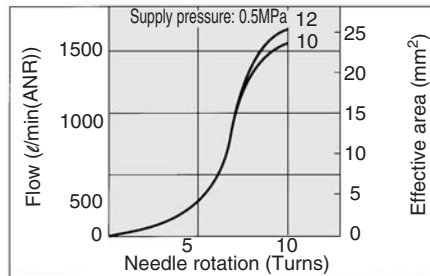
AS22□1-02



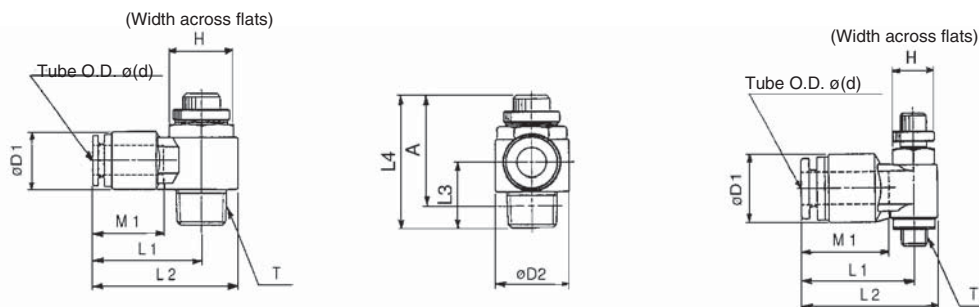
AS32□1



AS42□1



Dimensions



| Model | Applicable tube O.D. ød | T | H | D1 | D2 | L1 | L2 | L3 | L4 | | A ⁽¹⁾ | | M1 | Weight (g) |
|----------------|-------------------------|------------|----|------|------|------|------|------|------|------|------------------|------|------|------------|
| | | | | | | | | | MAX | MIN | MAX | MIN | | |
| AS12□1-M5-F04 | 4 | M5 | 8 | 13 | 9 | 21 | 25.5 | 11.2 | 28.3 | 25.5 | 25 | 22.2 | 16 | 12.7 |
| AS12□1-M5-F06 | 6 | | | | | 21.5 | 26 | | | | | | 17 | 12.5 |
| AS22□1-01-F06S | 6 | R (PT) 1/8 | 12 | 15.5 | 14.6 | 26.6 | 33.9 | 14.7 | 35.5 | 30.5 | 32.4 | 27.4 | 17 | 33.7 |
| AS22□1-01-F08S | 8 | | | | | | | | | | | | 18.5 | 30.7 |
| AS22□1-02-F06S | 6 | R (PT) 1/4 | 17 | 15.5 | 19.5 | 28.7 | 38.5 | 17.7 | 40.3 | 35.3 | 34.8 | 29.8 | 17 | 56.3 |
| AS22□1-02-F08S | 8 | | | | | | | | | | | | 18.5 | 52.1 |
| AS22□1-02-F10S | 10 | | | | | | | | | | | | 21 | 56.2 |
| AS32□1-03-F08S | 8 | | | | | | | | | | | | 27.4 | 21 |
| AS32□1-03-F10S | 10 | R (PT) 3/8 | 19 | 18.2 | 24.3 | 32.7 | 44.9 | 20.1 | 45.8 | 40.8 | 40.6 | 35.6 | 18.5 | 92.9 |
| AS32□1-03-F10S | 10 | | | | | 33.3 | 45.5 | | | | | | 21 | 87.6 |
| AS42□1-04-F10S | 10 | R (PT) 1/2 | 24 | 22.3 | 28.5 | 36.1 | 50.4 | 25.5 | 54.7 | 49.7 | 47.4 | 42.4 | 21 | 153.8 |
| AS42□1-04-F12S | 12 | | | | | | | | | | | | 22 | 145.5 |

Note 1) Reference dimensions of thread M5, R (PT) after being screwed in

Speed Controller with One-touch Fittings

Series AS

In-line Style

Minimizes installation time and cost

Reduce the mounting height and enables compact machinery design. Effective area is larger than the former model.

Application to inch size tubing

- **Metric size** (Release bushing: White color)
 $\phi 3.2, \phi 4, \phi 6, \phi 8, \phi 10, \phi 12$
- **Inch size** (Release bushing: Orange color)
 $\phi 1/8", \phi 5/32", \phi 3/16", \phi 1/4", \phi 5/16", \phi 3/8", \phi 1/2"$

Operating pressure 1MPa max.

Applicable tube material

Nylon, Soft nylon and Polyurethane tubing

Retainer prevents accidental loss of needle

Optional: Hexagonal lock nut, Nickel plated option

Number of needle rotations has been increased (8 to 10 turns)

The increased number of needle rotations (8 to 10 turns) permits easy control at low speed.

In-line style

Model

| Model | Applicable tube O.D. | | | | | | | | | | | Applicable cylinder bore size (mm) | | |
|---------|----------------------|---|---|---|----|----|-----------|-------|-------|------|-------|------------------------------------|------|----------------|
| | Metric size | | | | | | Inch size | | | | | | | |
| | 3.2 | 4 | 6 | 8 | 10 | 12 | 1/8" | 5/32" | 3/16" | 1/4" | 5/16" | | 3/8" | 1/2" |
| AS1001F | ● | ● | ● | | | | ● | ● | | | | | | 6, 10, 16, 20 |
| AS2001F | | ● | ● | | | | ● | ● | ● | | | | | 20, 25, 32 |
| AS2051F | | | ● | ● | | | | ● | ● | ● | | | | 20, 25, 32, 40 |
| AS3001F | | | ● | ● | ● | ● | | | ● | ● | ● | | | 40, 50, 63 |
| AS4001F | | | | | ● | ● | | | | | | ● | ● | 63, 80, 100 |

Note) ●: Nickel plated model is standard.

Specifications

| | |
|---------------------------------|--|
| Proof pressure | 1.5MPa |
| Max. operating pressure | 1MPa |
| Min. operating pressure | 0.1MPa |
| Ambient and fluid temperature | -5 to 60°C (No freezing) |
| Number of needle rotations | 10 turns (8 turns ⁽¹⁾) |
| Applicable tubes ⁽²⁾ | Nylon, Soft nylon, Polyurethane |
| Option | Hexagonal lock nut, Nickel plated ⁽³⁾ |

Note 1) AS1001F

Note 2) Pay attention to the maximum operating pressure when soft nylon or polyurethane is used. (Refer to p. 7-146 and 7-147 in "Best Pneumatics for further information.)

Note 3) Brass parts are all electroless nickel plated.

Air Flow/Effective Area

| Model | AS1001F | AS2001F | AS2051F | AS3001F | AS4001F | | | | | | |
|------------------------|---|---|---------------------------------------|--|----------------------------|----------|------------|-----------|-----------|------------|------------|
| Applicable tube O.D. | Metric size $\phi 3.2, \phi 4, \phi 6$ | $\phi 4$ $\phi 6$ | $\phi 6$ $\phi 8$ | $\phi 6$ $\phi 8$ $\phi 10, \phi 12$ | $\phi 10$ $\phi 12$ | | | | | | |
| | Inch size $\phi 1/8", \phi 5/32"$ | $\phi 5/32"$ $\phi 3/16", \phi 1/4"$ | $\phi 3/16"$ $\phi 1/4, \phi 5/16$ | $\phi 1/4$ $\phi 5/16$ $\phi 3/8"$ | $\phi 3/8"$ $\phi 1/2"$ | | | | | | |
| Controlled (Free) Flow | Air flow ($\phi/\text{min(ANR)}$) Effective area (mm^2) | 100 1.5 | 130 2 | 230 3.5 | 290 4.5 | 460 7 | 420 6.5 | 660 10 | 920 14 | 1050 16 | 1390 21 |

Note) Supply pressure: 0.5MPa, Temperature: 20°C.

How to Order

AS 400 1F — 12 K

JIS Symbol

Body size

| | |
|-----|-----|
| 100 | M5 |
| 200 | 1/8 |
| 205 | 1/4 |
| 300 | 3/8 |
| 400 | 1/2 |

With One-touch fittings

Option*

| | |
|---|---------------------------|
| - | None |
| K | Hexagonal lock nut |
| N | Electroless nickel plated |

*Indicate symbols in alphabetical order if two options or more desired.

Applicable tube O.D.

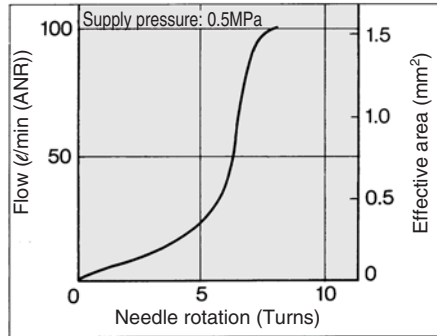
| Metric size | Inch size |
|-------------|--------------|
| 23 | $\phi 3.2^*$ |
| 01 | $\phi 1/8"$ |
| 04 | $\phi 4$ |
| 03 | $\phi 5/32"$ |
| 06 | $\phi 6$ |
| 05 | $\phi 3/16"$ |
| 08 | $\phi 8$ |
| 07 | $\phi 1/4"$ |
| 10 | $\phi 10$ |
| 09 | $\phi 5/16"$ |
| 11 | $\phi 3/8"$ |
| 13 | $\phi 1/2"$ |

*Use $\phi 1/8"$ tubing.

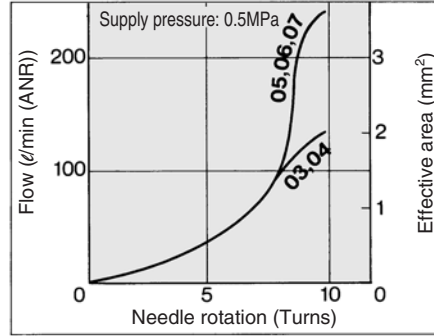
Series AS

Needle Valve/Flow Characteristic

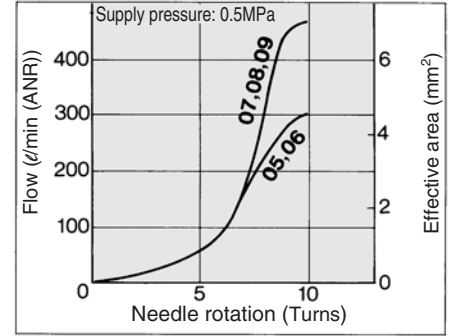
AS1001F



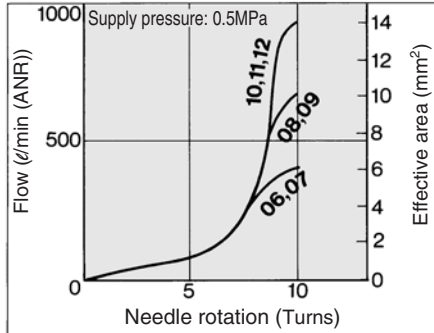
AS2001F



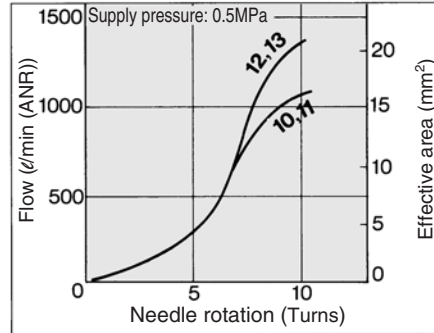
AS2051F



AS3001F

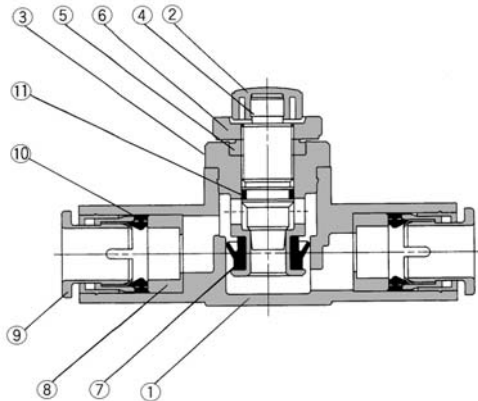


AS4001F



With One-touch Fittings: In-line Style *Series AS*

Construction

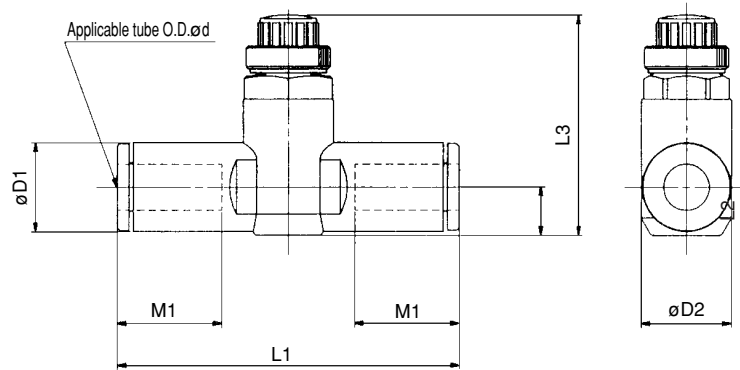
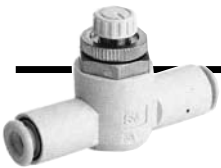


Component Parts

| No. | Description | Material | Note |
|-----|--------------|----------------------|---------------------------|
| ① | Body A | PBT | |
| ② | Handle | PBT | |
| ③ | Body B | Brass | Electroless nickel plated |
| ④ | Needle | Brass | Electroless nickel plated |
| ⑤ | Needle guide | Brass | Electroless nickel plated |
| ⑥ | Lock nut | Brass ⁽¹⁾ | Electroless nickel plated |
| ⑦ | U-packing | NBR | |
| ⑧ | Spacer | Brass ⁽²⁾ | |
| ⑨ | Cassette | POM, Stainless steel | |
| ⑩ | Packing | NBR | |
| ⑪ | O ring | NBR | |

Note 1) AS2 □□1F: Steel

Note 2) ø3.2, ø4, ø6, ø1/8", ø5/32" (Except for AS3001F-006): POM



Metric

| Model | Tube O.D. d | D1 | D2 | L1 | L2 | L3 | | M1 | Weight (g) |
|------------|-------------|------|------|------|------|------|------|------|------------|
| | | | | | | MAX. | MIN. | | |
| AS1001F-23 | 3.2 | 8.4 | 10 | 38.0 | 4.5 | 23.5 | 20.7 | 12.7 | 6 |
| AS1001F-04 | 4 | 9.3 | | 39.2 | 5.2 | 24.2 | 21.4 | 7 | |
| AS1001F-06 | 6 | 11.6 | | 40.7 | 6.2 | 25.2 | 22.4 | 13.5 | 8 |
| AS2001F-04 | 4 | 9.3 | 11.8 | 40.7 | 5.2 | 32.6 | 27.6 | 12.7 | 12 |
| AS2001F-06 | 6 | 11.6 | | 44.8 | 6.3 | 33.7 | 28.7 | 13.5 | 13 |
| AS2051F-06 | 6 | 12.8 | 14.8 | 53.2 | 6.7 | 35.2 | 30.2 | 17 | 26 |
| AS2051F-08 | 8 | 15.2 | | 59.8 | 8.1 | 36.5 | 31.5 | 18 | 31 |
| AS3001F-06 | 6 | 12.8 | 19.8 | 59 | 7.4 | 38.3 | 33.3 | 17 | 18 |
| AS3001F-08 | 8 | 15.2 | | 64.4 | 8.2 | 39.1 | 34.1 | 18 | 21 |
| AS3001F-10 | 10 | 18.5 | | 71.6 | 9.8 | 40.6 | 35.6 | 21 | 32 |
| AS3001F-12 | 12 | 20.9 | 26.5 | 76 | 11 | 41.8 | 36.8 | 22 | 33 |
| AS4001F-10 | 10 | 18.5 | | 82 | 11.3 | 51.1 | 43.6 | 21 | 36 |
| AS4001F-12 | 12 | 20.9 | | | | 52.1 | 44.6 | 22 | 40 |

Inch

| Model | Tube O.D. d | D1 | D2 | L1 | L2 | L3 | | M1 | Weight (g) |
|------------|-------------|------|------|------|------|------|------|------|------------|
| | | | | | | MAX. | MIN. | | |
| AS1001F-01 | 1/8" | 8.4 | 10 | 38 | 4.5 | 23.5 | 20.7 | 12.7 | 6 |
| AS1001F-03 | 5/32" | 9.3 | | 39.2 | 5.2 | 24.2 | 21.4 | 7 | |
| AS2001F-03 | 5/32" | 9.3 | 11.8 | 40.7 | 5.2 | 32.6 | 27.6 | 12.7 | 12 |
| AS2001F-05 | 3/16" | 11.4 | | 50 | 6.2 | 33.6 | 28.6 | 16.5 | 18 |
| AS2001F-07 | 1/4" | 13.2 | 14.8 | 52.2 | 7.1 | 34.5 | 29.5 | 17 | 21 |
| AS2051F-05 | 3/16" | 11.4 | | 52.2 | 6.2 | 34.6 | 29.6 | 16.5 | 24 |
| AS2051F-07 | 1/4" | 13.2 | 19.8 | 54.4 | 7.1 | 35.5 | 30.5 | 17 | 26 |
| AS2051F-09 | 5/16" | 15.2 | | 59.8 | 8.1 | 36.5 | 31.5 | 18 | 31 |
| AS3001F-07 | 1/4" | 13.2 | 19.8 | 59 | 7.4 | 38.3 | 33.3 | 17 | 42 |
| AS3001F-09 | 5/16" | 15.2 | | 64.4 | 8.2 | 39.1 | 34.1 | 18 | 46 |
| AS3001F-11 | 3/8" | 17.9 | 26.5 | 70.8 | 9.5 | 40.3 | 35.3 | 21 | 53 |
| AS4001F-11 | 3/8" | 17.9 | | 76.9 | 10.3 | 51 | 43.5 | 21 | 97 |
| AS4001F-13 | 1/2" | 21.7 | | 83.1 | 11.6 | 52.4 | 44.9 | 22 | 106 |

In-line Style

| File | Model | Detail No. | | | | | |
|----------|-----------|------------|----|----|----|-----|---------|
| | | Tube O.D. | | | | | |
| | | 3.2 | 4 | 6 | 8 | 10 | 12 |
| SAS01F1N | AS1001F-□ | #1 | #2 | #3 | — | — | — |
| | AS2001F-□ | — | #4 | #5 | — | — | — |
| | AS2051F-□ | — | — | #6 | #7 | — | — |
| | AS3001F-□ | — | — | — | #8 | #9 | #10 #11 |
| | AS4001F-□ | — | — | — | — | #12 | #13 |

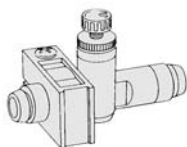
Holder Series *TMH*

A holder for securing a speed controller (in-line style) with a One-touch fitting.

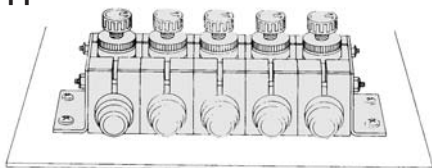
Universal mounting



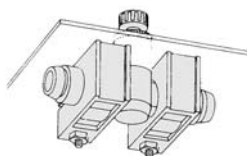
The holder can be used to secure an individual part.



Adaptable for a manifold application.⁽¹⁾



Can be mounted to a panel.



Specifications

| | |
|---------------------|---------------|
| Ambient temperature | -20 to 60°C |
| Material | Polypropylene |
| Color | White |

Accessory: Round head Phillips screw for mounting (Black zinc chromated).

| Model | | Size (nominal X height) | Piece |
|---------|---------|----------------------------|-------|
| Metric | Inch | | |
| TMH-23J | TMH-01J | M3 X 15 | 1 |
| TMH-04J | TMH-03J | | |
| TMH-06J | TMH-05 | | |
| TMH-06 | TMH-07 | M3 X 20 | |
| TMH-08 | TMH-09 | M4 X 25 | |
| TMH-10 | TMH-11 | M4 X 35 | |
| TMH-12 | TMH-13 | | |

Correspondence of In-line Speed Controller and Holder

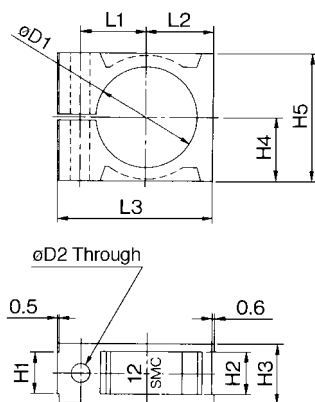
Metric

| Body size | Tube size | Applicable tube | | | | | |
|-----------|-----------|-----------------|---------|---------|--------|--------|--------|
| | | 23 | 04 | 06 | 08 | 10 | 12 |
| | | ø3.2 | ø4 | ø6 | ø8 | ø10 | ø12 |
| AS1001F | TMH-23J | | | | | | |
| AS2001F | | | TMH-04J | TMH-06J | | | |
| AS2051F | | | | | | | |
| AS3001F | | | | TMH-06 | TMH-08 | | |
| AS4001F | | | | | | TMH-10 | TMH-12 |

Inch

| Body size | Tube size | Applicable tube | | | | | | |
|-----------|-----------|-----------------|---------|--------|--------|--------|--------|--------|
| | | 01 | 03 | 05 | 07 | 09 | 11 | 13 |
| | | ø1/8" | ø5/32" | ø3/16" | ø1/4" | ø5/16" | ø3/8" | ø1/2" |
| AS1001F | TMH-01J | | | | | | | |
| AS2001F | | | TMH-03J | | | | | |
| AS2051F | | | | TMH-05 | TMH-07 | | | |
| AS3001F | | | | | | TMH-09 | | |
| AS4001F | | | | | | | TMH-11 | TMH-13 |

Dimensions



| Model | | øD1 | øD2 | H1 | H2 | H3 | H4 | H5 | L1 | L2 | L3 | Symbol |
|---------|---------|------|-----|-----|-----|-----|-----|------|------|------|------|--------|
| Metric | Inch | | | | | | | | | | | |
| TMH-23J | TMH-01J | 8.4 | | | | | | | | | | 1/8J |
| TMH-04J | TMH-03J | 9.3 | 3.3 | 4.5 | 4.6 | 7.5 | 6 | 12 | 7.2 | 6.6 | 18 | 1/32J |
| — | TMH-05 | 11.7 | | | | | | | | | | 3/16 |
| TMH-06J | — | 11.6 | 3.3 | 6.3 | 6.4 | 9.3 | 7.7 | 15.4 | 8.5 | 8.3 | 21 | 6 |
| — | TMH-07 | 13.1 | | | | | | | | | | 1/4 |
| — | TMH-07 | 13.5 | 4.3 | 7.1 | 7.2 | 11 | 10 | 20 | 11 | 10.6 | 26.5 | 8 |
| TMH-08 | TMH-09 | 15.5 | | | | | | | | | | 5/16 |
| TMH-10 | — | 18.5 | | | | | | | | | | 10 |
| — | TMH-11 | 18.8 | | | | | | | | | | 3/8 |
| TMH-12 | — | 21.2 | 4.3 | 9.5 | 9.6 | 14 | 14 | 28 | 14.2 | 14.6 | 34 | 12 |
| — | TMH-13 | 22 | | | | | | | | | | 1/2 |

Note 1) Mounting bracket is not available. This is an application example.

Dual Speed Controller with One-touch Fittings Series ASD

Enables bi-directional flow control.
Unrestricted 360° tube mounting direction.



Model

| Model | Port size | Applicable tube O.D. | | | | | | | | | | | | | |
|----------------|-----------|----------------------|----|----|-----|-----|-------|--------|--------|-------|--------|-------|--|--|--|
| | | Metric | | | | | Inch | | | | | | | | |
| | | ø4 | ø6 | ø8 | ø10 | ø12 | ø1/8" | ø5/32" | ø3/16" | ø1/4" | ø5/16" | ø3/8" | | | |
| ASD230F-M5 | M5 | ● | ● | | | | | | | | | | | | |
| ASD330F-01 | R(PT)1/8 | | ● | ● | | | | | | | | | | | |
| ASD430F-02 | R(PT)1/4 | | ● | ● | ● | | | | | | | | | | |
| ASD530F-02 | R(PT)1/4 | | ● | ● | ● | ● | | | | | | | | | |
| ASD530F-03 | R(PT)3/8 | | ● | ● | ● | ● | | | | | | | | | |
| ASD630F-04 | R(PT)1/2 | | | | ● | ● | | | | | | | | | |
| ASD230F-U10/32 | 10-32 UNF | | | | | ● | ● | ● | | | | | | | |
| ASD330F-N01 | NPT1/8 | | | | | | | | ● | ● | ● | | | | |
| ASD430F-N02 | NPT1/4 | | | | | | | | | ● | ● | ● | | | |
| ASD530F-N02 | NPT1/4 | | | | | | | | | ● | ● | ● | | | |
| ASD530F-N03 | NPT3/8 | | | | | | | | | ● | ● | ● | | | |
| ASD630F-N04 | NPT1/2 | | | | | | | | | | | ● | | | |

Specifications

| | |
|-------------------------------|------------------------------------|
| Proof pressure | 1.5MPa |
| Max. operating pressure | 1MPa |
| Min. operating pressure | 0.1MPa |
| Ambient and fluid temperature | -5 to 60°C (No freezing) |
| Needle rotation cycles | 10 turns (8 turns ⁽¹⁾) |
| Tube material ⁽²⁾ | Nylon, Soft nylon, Polyurethane |
| Option | Hexagon lock nut |



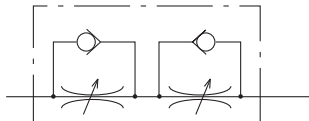
Note 1) In case of ASD230F.

Note 2) Use caution regarding the max. operating pressure when soft nylon or polyurethane tubing is used.

Note 3) Brass parts are all electroless nickel plated.

The lock nut on the meter-out type is zinc chromated, while the meter-in type is black zinc chromate plated.

JIS symbol



Symbol indication of flow direction on the body

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

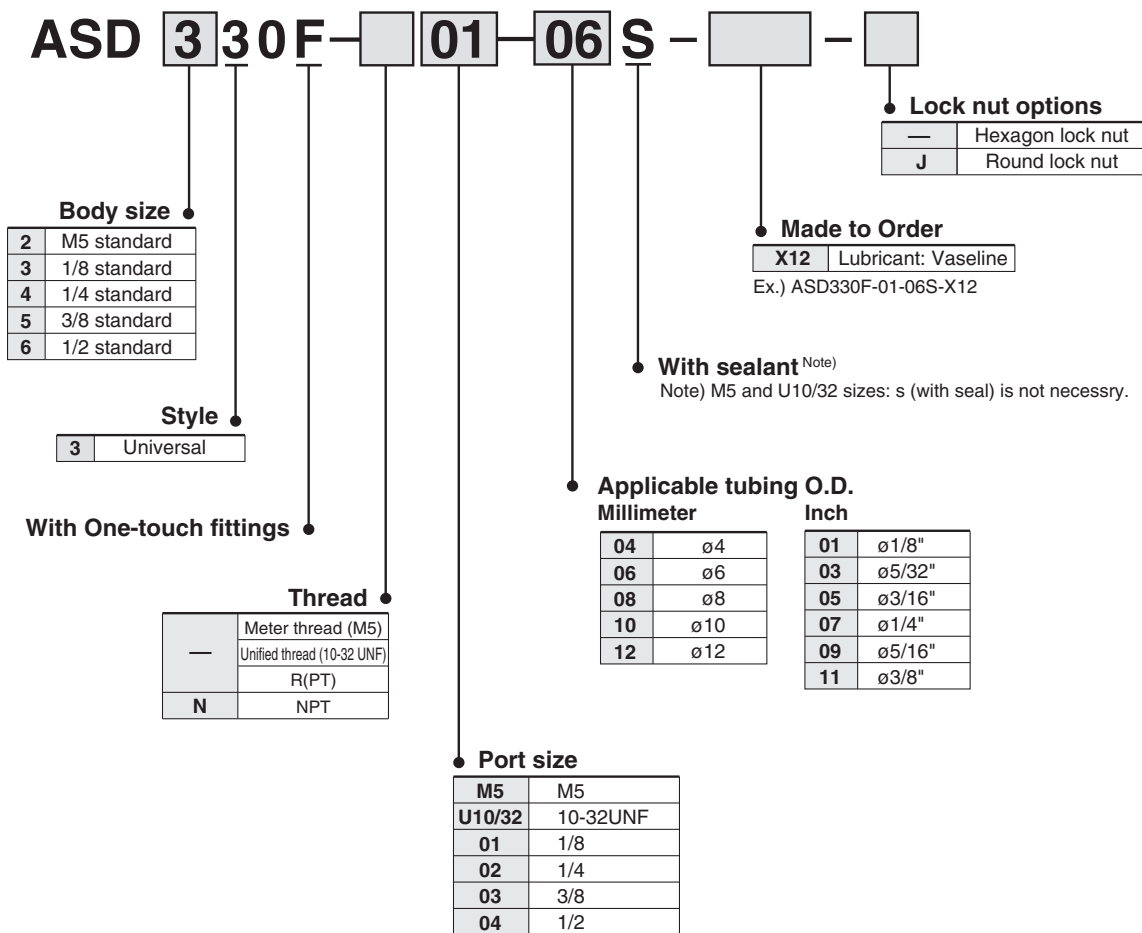
Air Flow/Effective Area

| Model | ASD230F | | ASD330F | | ASD430F | | ASD530F | | | ASD630F | |
|-----------|------------------------------|-----------------------|-----------------|-----|--------------------------|-------|---------|----------|------|---------|------|
| | Metric | ø4, ø6 | ø6, ø8 | ø6 | ø8, ø10 | ø6 | ø8 | ø10, ø12 | ø10 | ø12 | |
| Tube O.D. | Inch | ø1/8" ø5/32" | ø3/16" ø1/4" | - | ø1/4" ø5/16" ø3/8" | ø1/4" | ø5/16" | ø3/8" | - | ø3/8" | |
| | Controlled (free)/Flow | Air flow (l/min(ANR)) | 75 | 175 | 295 | 350 | 500 | 600 | 700 | 1200 | 1300 |
| | Eff. area (mm ²) | 1.1 | 2.7 | 4.5 | 5.3 | 7.6 | 9.1 | 10.7 | 18.3 | 19.8 | |



Note 1) Max. operating pressure: 0.5MPa, Temperature: 20°C

How to Order

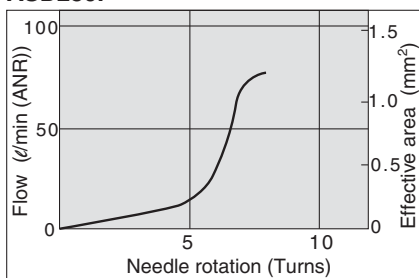


Made to Order

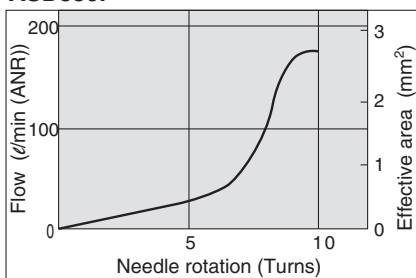
1 Lubricant: Vaseline **X12**

Needle Valve/Flow Characteristics

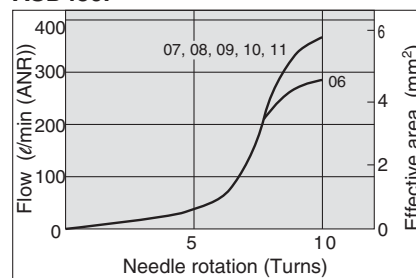
ASD230F



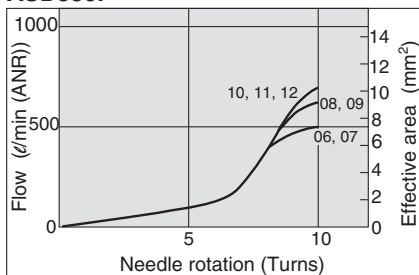
ASD330F



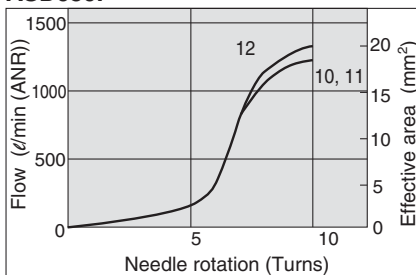
ASD430F



ASD530F



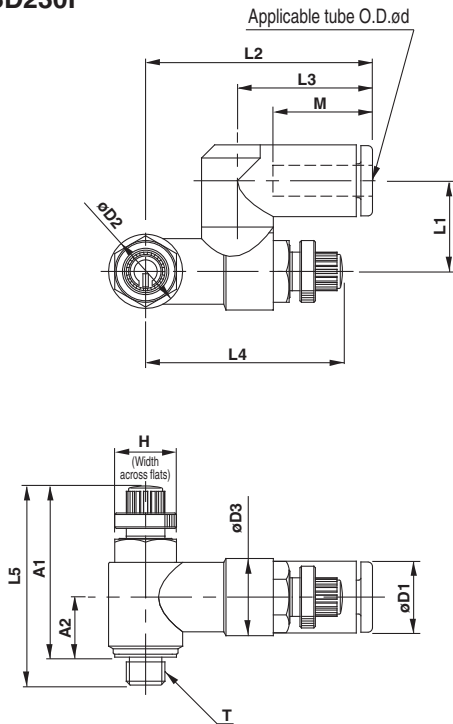
ASD630F



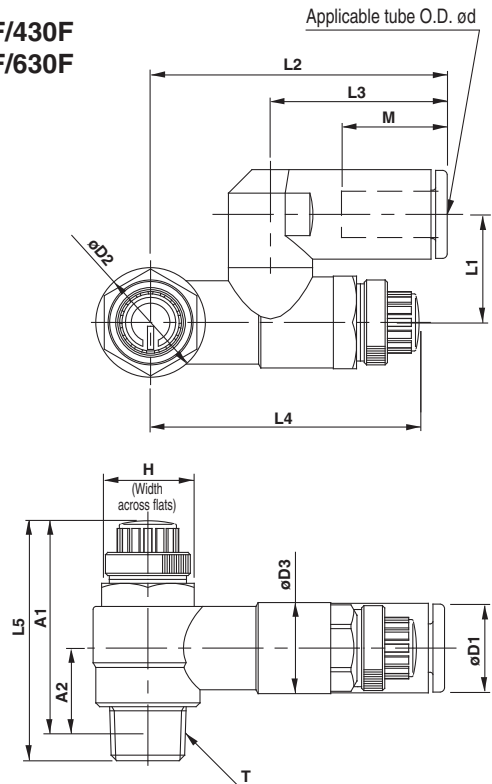
Dual Speed Controller with One-touch Fittings *Series ASD*

Dimensions/Metric

ASD230F



**ASD330F/430F
ASD530F/630F**



Metric

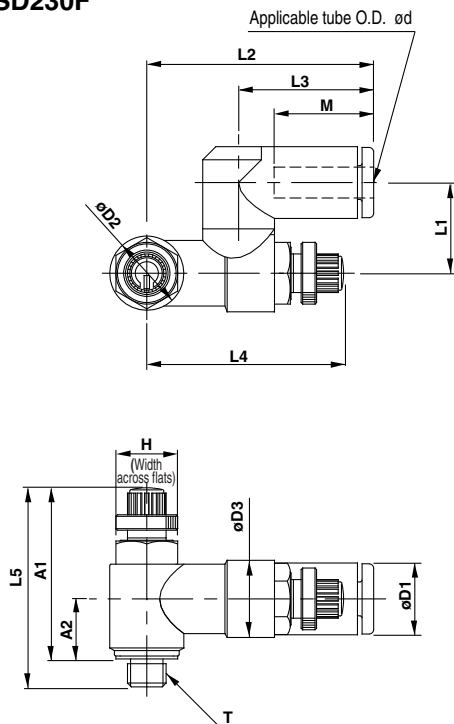
| Model | d | T | H | D1 | D2 | D3 | L1 | L2 | L3 | L4 | | L5 | | A1* | | A2* | M | Weight (g) |
|----------------|----|----------|----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------------|
| | | | | | | | | | | MAX. | MIN. | MAX. | MIN. | MAX. | MIN. | | | |
| ASD230F-M5-04 | 4 | M5 | 8 | 9.3 | 9.6 | 10 | 11.7 | 29.4 | 17.5 | 28.3 | 25.5 | 28.6 | 25.8 | 25 | 22.2 | 7.8 | 12.9 | 12 |
| ASD230F-M5-06 | 6 | | | 11.6 | | | | 20.6 | 13.7 | | | | | | | | 13 | |
| ASD330F-01-06S | 6 | R(PT)1/8 | 12 | 11.6 | 14.2 | 11.8 | 14 | 38.5 | 22.9 | 39.6 | 34.6 | 35.2 | 30.2 | 32.1 | 27.1 | 10.6 | 13.7 | 29 |
| ASD330F-01-08S | 8 | | | 15.2 | | | | 33.9 | 18.5 | | | | | | | | 31 | |
| ASD430F-02-06S | 6 | R(PT)1/4 | 17 | 12.8 | 18.5 | 15 | 18 | 43.5 | 25.2 | 41.7 | 36.7 | 39.9 | 34.9 | 34.4 | 29.4 | 11 | 17 | 53 |
| ASD430F-02-08S | 8 | | | 15.2 | | | | 28.2 | 18.5 | | | | | | | | 31 | |
| ASD430F-02-10S | 10 | | | 18.5 | | | 19.7 | 49.3 | 31 | | | | | | | | 21 | 58 |
| ASD530F-02-06S | 6 | R(PT)1/4 | 19 | 12.8 | 23 | 19.8 | 20.3 | 48.3 | 25.2 | 46.9 | 41.9 | 48.3 | 43.3 | 42.8 | 37.8 | 15.4 | 17 | 74 |
| ASD530F-02-08S | 8 | | | 15.2 | | | | 28.2 | 18.5 | | | | | | | | 32.6 | |
| ASD530F-02-10S | 10 | | | 18.5 | | | 23.1 | 54.1 | 32.6 | | | | | | | | 21 | 80 |
| ASD530F-02-12S | 12 | | | 20.9 | | | | 55.9 | 34.4 | | | | | | | | 22 | 83 |
| ASD530F-03-06S | 6 | R(PT)3/8 | 19 | 12.8 | 23 | 19.8 | 20.3 | 48.3 | 25.2 | 46.9 | 41.9 | 45.4 | 40.4 | 40 | 35 | 14 | 17 | 74 |
| ASD530F-03-08S | 8 | | | 15.2 | | | | 28.2 | 18.5 | | | | | | | | 32.6 | |
| ASD530F-03-10S | 10 | | | 18.5 | | | 23.1 | 54.1 | 32.6 | | | | | | | | 21 | 98 |
| ASD530F-03-12S | 12 | | | 20.9 | | | | 55.9 | 34.4 | | | | | | | | 22 | 101 |
| ASD630F-04-10S | 10 | R(PT)1/2 | 24 | 18.5 | 28.6 | 26.5 | 25.9 | 64.3 | 32.6 | 64.8 | 57.3 | 56.7 | 49.2 | 49.6 | 42.1 | 18.6 | 21 | 177 |
| ASD630F-04-12S | 12 | | | 20.9 | | | | 34.4 | 22 | | | | | | | | 179 | |

*Reference dimensions of M5, R(PT) thread after being screwed in.

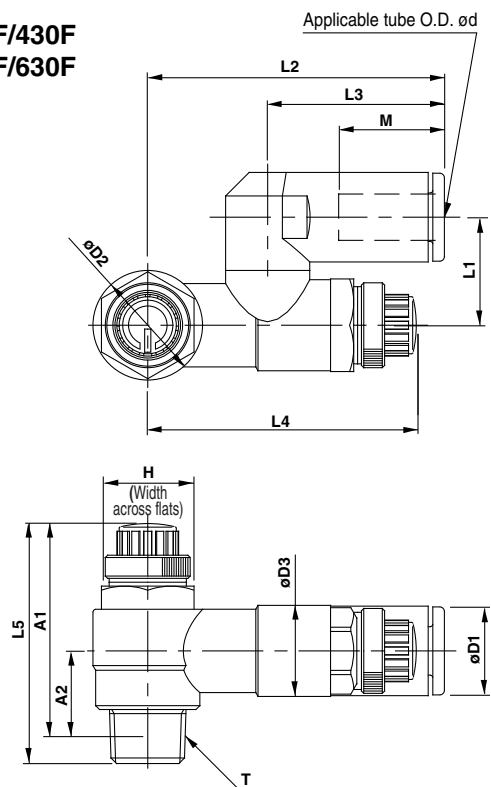
Series ASD

Dimensions/Inch

ASD230F



**ASD330F/430F
ASD530F/630F**



Inch Size

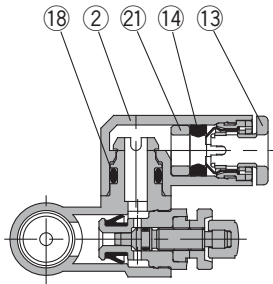
| Model | d | T | H | D1 | D2 | D3 | L1 | L2 | L3 | L4 | | L5 | | A1* | | A2* | M | Weight (g) | | | | | | | |
|-------------------|-------|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------------|------|------|------|------|------|------|-----|
| | | | | | | | | | | Max. | Min. | Max. | Min. | Max. | Min. | | | | | | | | | | |
| ASD230F-U10/32-01 | 1/8" | 10-32 UNF | 8 | 8.4 | 9.6 | 10 | 11.7 | 29.4 | 17.5 | 28.3 | 25.5 | 28.6 | 25.8 | 25 | 22.2 | 7.8 | 12.9 | 12 | | | | | | | |
| ASD230F-U10/32-03 | 5/32" | UNF | 8 | 9.3 | | | | | | | | | | | | | | 13 | | | | | | | |
| ASD230F-U10/32-05 | 3/16" | 10-32 UNF | 8 | 11.4 | 9.6 | 10 | 11.7 | 35.2 | 23.3 | 28.3 | 25.5 | 28.6 | 25.8 | 25 | 22.2 | 7.8 | 16.5 | 15 | | | | | | | |
| ASD230F-U10/32-07 | 1/4" | | | 12 | | | | 32.6 | 20.7 | | | | | | | | | 13.5 | | | | | | | |
| ASD330F-N01-05S | 3/16" | NPT 1/8 | 12.7 | 11.6 | 14.2 | 11.8 | 14 | 39.5 | 23.9 | 39.6 | 34.6 | 35.2 | 30.2 | 32 | 27 | 10.6 | 17 | 30 | | | | | | | |
| ASD330F-N01-07S | 1/4" | | | 13.2 | | | 42.2 | 25.6 | 38.9 | 33.9 | 35.2 | | | | | | | 30.2 | 32 | 27 | 10.6 | 17 | 31 | | |
| ASD330F-N01-09S | 5/16" | | | 15.2 | | | 44.8 | 28.2 | 38.9 | 33.9 | 35.2 | | | | | | | 30.2 | 32 | 27 | 10.6 | 18.5 | 31 | | |
| ASD430F-N02-07S | 1/4" | NPT 1/4 | 17.5 | 13.2 | 18.5 | 15 | 18 | 43.9 | 25.6 | 41.7 | 36.7 | 39.9 | 34.9 | 34.6 | 29.6 | 11 | 17 | 55 | | | | | | | |
| ASD430F-N02-09S | 5/16" | | | 15.2 | | | 46.5 | 28.2 | 41.7 | | | | | | | | | 36.7 | 39.9 | 34.9 | 34.6 | 29.6 | 11 | 18.5 | 55 |
| ASD430F-N02-11S | 3/8" | | | 18.5 | | | 49.3 | 31 | 41.7 | | | | | | | | | 36.7 | 39.9 | 34.9 | 34.6 | 29.6 | 11 | 21 | 62 |
| ASD530F-N02-07S | 1/4" | NPT 1/4 | 19 | 13.2 | 23 | 19.8 | 20.3 | 48.7 | 25.6 | 46.9 | 41.9 | 48.3 | 43.3 | 43 | 38 | 15.4 | 17 | 76 | | | | | | | |
| ASD530F-N02-09S | 5/16" | | | 15.2 | | | 51.3 | 28.2 | 46.9 | | | | | | | | | 41.9 | 48.3 | 43.3 | 43 | 38 | 15.4 | 18.5 | 76 |
| ASD530F-N02-11S | 3/8" | | | 18.5 | | | 54.1 | 32.6 | 46.9 | | | | | | | | | 41.9 | 48.3 | 43.3 | 43 | 38 | 15.4 | 21 | 84 |
| ASD530F-N03-07S | 1/4" | NPT 3/8 | 19 | 13.2 | 23 | 19.8 | 20.3 | 48.7 | 25.6 | 46.9 | 41.9 | 45.4 | 40.4 | 40.3 | 35.3 | 14 | 17 | 93 | | | | | | | |
| ASD530F-N03-09S | 5/16" | | | 15.2 | | | 51.3 | 28.2 | 46.9 | | | | | | | | | 41.9 | 45.4 | 40.4 | 40.3 | 35.3 | 14 | 18.5 | 93 |
| ASD530F-N03-11S | 3/8" | | | 18.5 | | | 54.1 | 32.6 | 46.9 | | | | | | | | | 41.9 | 45.4 | 40.4 | 40.3 | 35.3 | 14 | 21 | 102 |
| ASD630F-N04-11S | 3/8" | NPT 1/2 | 23.8 | 18.5 | 28.6 | 26.5 | 25.9 | 64.3 | 32.6 | 64.8 | 57.3 | 56.7 | 49.2 | 49.6 | 42.1 | 18.6 | 21 | 180 | | | | | | | |

*Reference dimensions of M5, R(PT) thread after being screwed in.

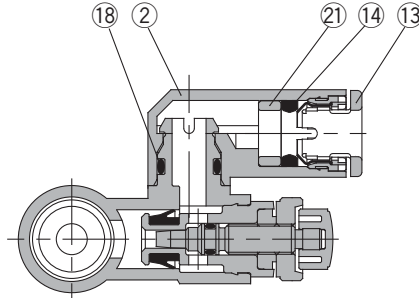
Dual Speed Controller with One-touch Fittings *Series ASD*

Construction

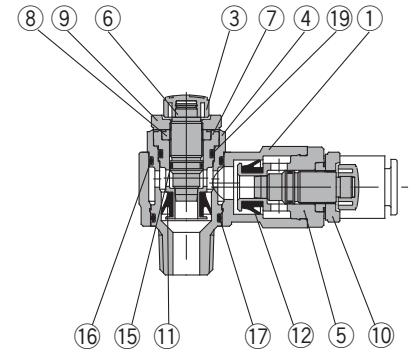
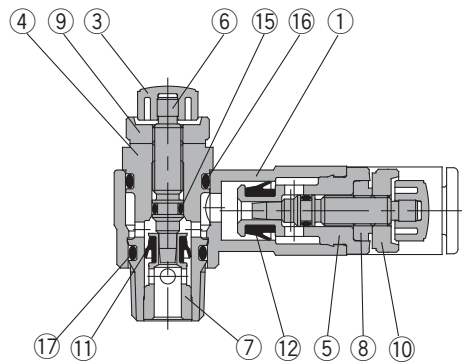
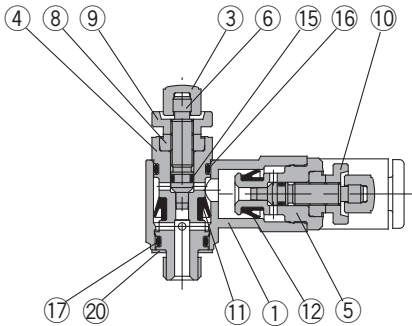
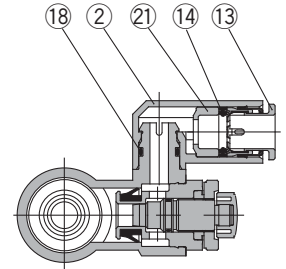
ASD230F



ASD330F/430F ASD530F/630F



ASD530F-02



Component Parts

| No. | Description | Material | Note |
|-----|--------------|----------------------|---------------------------|
| ① | Body A | PBT | |
| ② | Elbow body | PBT | |
| ③ | Handle | PBT | |
| ④ | Body B | Brass | Electroless nickel plated |
| ⑤ | Body B | Brass | Electroless nickel plated |
| ⑥ | Needle | Brass | Electroless nickel plated |
| ⑦ | Seat ring | Brass | Electroless nickel plated |
| ⑧ | Needle guide | Brass | Electroless nickel plated |
| ⑨ | Lock nut | Brass ⁽³⁾ | Electroless nickel plated |
| ⑩ | Lock nut | Brass ⁽³⁾ | Black zinc chromated |

Component Parts

| No. | Description | Material | Note |
|-----|-------------|----------------|--------------|
| ⑪ | U packing | HNBR | |
| ⑫ | U packing | HNBR | |
| ⑬ | Cassette | — | |
| ⑭ | Packing | NBR | |
| ⑮ | O ring | NBR | |
| ⑯ | O ring | NBR | |
| ⑰ | O ring | NBR | |
| ⑱ | O ring | NBR | |
| ⑲ | O ring | NBR | |
| ⑳ | Gasket | Stainless, NBR | ASD230F only |
| ㉑ | Spacer | — | |

 Note 1) ASD330 F and 430F: Steel

Speed Controller Standard

Series AS

Metal Body Elbow Style

Minimizes installation time and cost

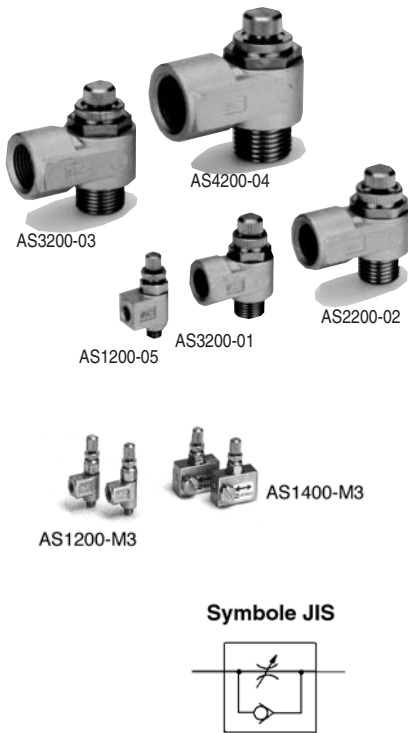
Fittings and tubes are not necessary because this type screws directly into the actuator. Thus, piping labour and cost can be eliminated.

Body swivels 360°

Swivel type allows free setting of piping.

Speed can be accurately controlled even at low speeds.

Constant speed control is possible. Retainer prevents accidental loss of needle



Specifications

| Specifications | Model | AS1200-M3 | AS1400-M3 | AS12□0-M5 | AS12□0-U10/32 | AS22□0-01 | AS22□0-02 | AS32□0-03 | AS42□0-04 |
|------------------------------------|-----------------------------------|--------------------------|-----------|--------------------|---------------|--|-----------|----------------|-----------|
| Port size | | M3 | | M5 | 10-32UNF | 1/8 | 1/4 | 3/8 | 1/2 |
| Applicable cylinder bore size (mm) | | 2.5, 4, 6 | | 6, 10, 15, 20, 25 | | 20, 25, 32, 40 | | 32, 40, 50, 63 | |
| Proof pressure | | 1.05MPa | | 1.5MPa | | | | | |
| Max. operating pressure | | 0.7MPa | | 1MPa | | | | | |
| Min. operating pressure | | 0.1MPa | | 0.1MPa | | | | | |
| Ambient and fluid temperature | | -5 to 60°C (No freezing) | | | | | | | |
| Number of needle rotations | | 10 turns | | 8 turns | | 10 turns | | | |
| Option | | — | | Hexagonal lock nut | | Sealant, Hexagonal lock nut, Nickel plated | | | |
| Weight (g) | | 3 | 6 | 10 | | 29 | 64 | 106 | 181 |
| Controlled flow (Free flow) | Air flow (l/min(ANR)) | 20 | | 105 | | 230 | 460 | 920 | 1700 |
| | Effective area (mm ²) | 0.3 | | 1.6 | | 3.5 | 7 | 14 | 26 |

Note 1) Supply pressure: 0.5MPa. Temperature: 20°C.

Note 2) Meter-in type not available on AS1200-M3, AS1400-M3

Note 3) Distinction between meter-out/meter-in types by appearance.

They are distinguished by the lock nut. The meter-out types is zinc chromated, while the meter-in type is black zinc chromate plated.

Note 4) AS12□0, AS1400, AS22□0: Brass parts are electroless nickel plated, provided as standard (N specification).

How to Order

AS 2 2 0 0 - [] 01 - S [] - []

Body size

| | |
|---|----------|
| 1 | M3, M5 |
| 2 | 1/8, 1/4 |
| 3 | 3/8 |
| 4 | 1/2 |

Style

| | |
|---|------------------------------|
| 2 | Direct connection elbow |
| 4 | Direct connection flat elbow |

Controlled

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

Thread

| Symbol | Cylinder side | Tubing side |
|--------|---------------------------|-------------|
| - | R(PT) | Rc(PT) |
| | Metric thread (M3, M5) | |
| | Unified thread (10-32UNF) | |
| N | NPT | |
| F | G* | |

* Male thread comes with R thread

Made to Order

Lock nut option

| | |
|---|------------------|
| - | Hexagon lock nut |
| J | Round lock nut |

Options

| | |
|---|---------------------------|
| - | None |
| S | Sealant |
| N | Electroless nickel plated |

*Indicate symbols in alphabetical order if two options or more desired.

Port size

| Symbol | Port size | Model |
|--------|-----------|------------------------|
| M3 | M3 | AS1200-M3 AS1400-M3 |
| M5 | M5 | AS12□0-M5 |
| U10/32 | 10-32UNF | AS12□0-U10/32 |
| 01 | 1/8 | AS22□0-01 |
| 02 | 1/4 | AS22□0-02 |
| 03 | 3/8 | AS32□0-03 |
| 04 | 1/2 | AS42□0-04 |

Standard: Metal Body Elbow Style *Series AS*

Made to Order

1 Lubricant: Vaseline **X12**

2 Grease-free (Seal: Fluorine Coating) + Throttle Valve (Without Check Valve) **X21**

Ex.) AS2200-01-X12

Ex.) AS2200-01-X21

Note 1) Not particle-free

Note 2) Throttle valve is only compatible with the part no. of the meter-out type.

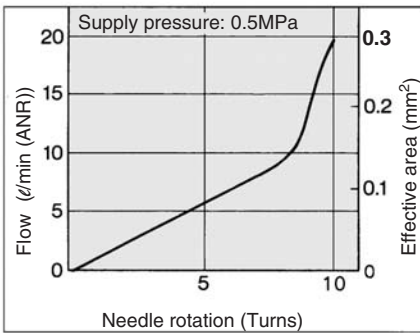
3 Throttle Valve (Without Check Valve) **X214**

Ex.) AS2200-01-X214

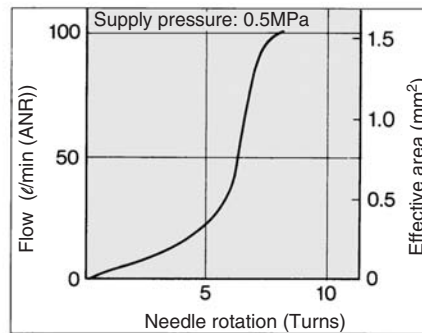
Note) Throttle valve is only compatible with the part no. of the meter-out type.

Needle Valve/Flow Characteristics

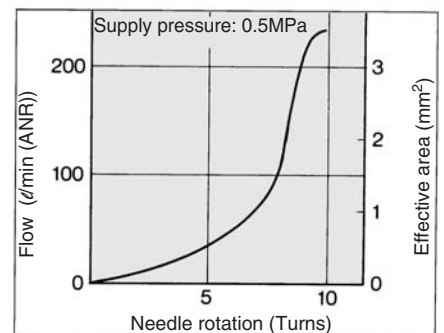
AS1200-M3, AS1400-M3



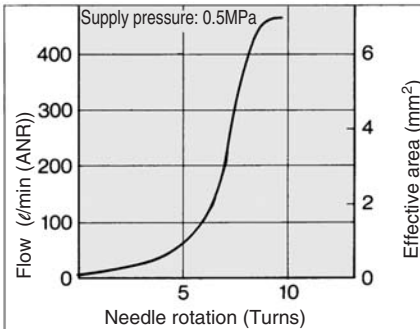
AS12□0-M5, AS12□0-U10/32



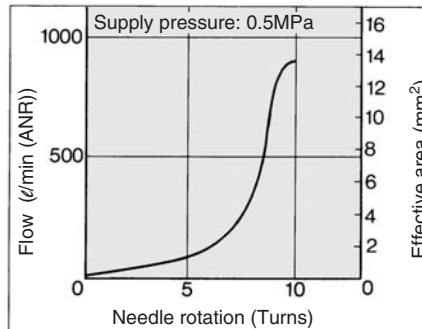
AS22□0-01



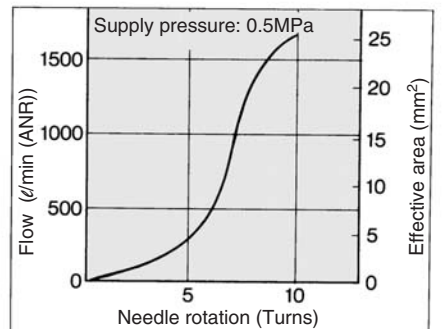
AS22□0-02



AS32□0

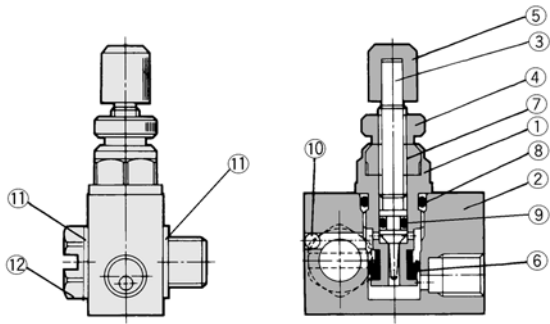


AS42□0



Series AS

AS1400-M3/Construction



Component Parts

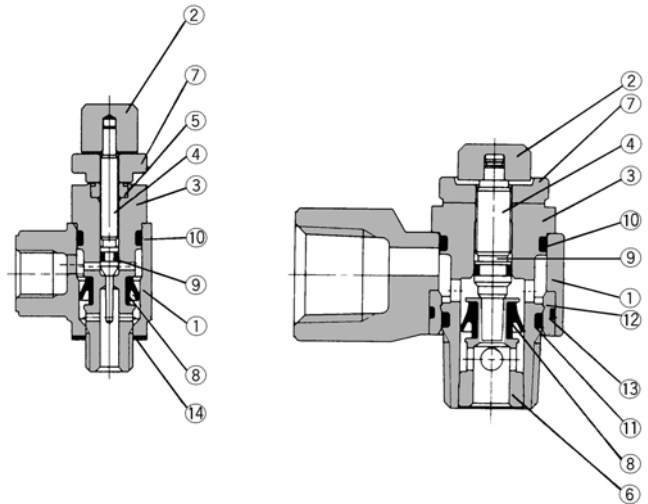
| No. | Description | Material | Note |
|-----|--------------|------------------------|---------------------------|
| ① | Body B | Brass | Electroless nickel plated |
| ② | Body A | Brass | Electroless nickel plated |
| ③ | Needle | Brass | Electroless nickel plated |
| ④ | Lock nut | Steel | Zinc chromated |
| ⑤ | Handle | Brass | Electroless nickel plated |
| ⑥ | U-packing | NBR | |
| ⑦ | Needle guide | Brass | Electroless nickel plated |
| ⑧ | O ring | NBR | |
| ⑨ | O ring | NBR | |
| ⑩ | Steel ball | Chromium bearing steel | |
| ⑪ | Gasket | PVC | |
| ⑫ | Joint | Brass | Electroless nickel plated |

AS1200-M3, AS12□0-M5, AS22□0/32□0/42□0/Construction

Meter out

AS1200-M3, M5, U10/32

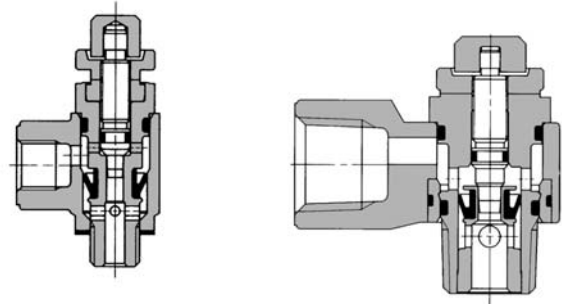
AS2200/3200/4200



Meter in

AS1210-M5, U10/32

AS2210/3210/4210



Component Parts

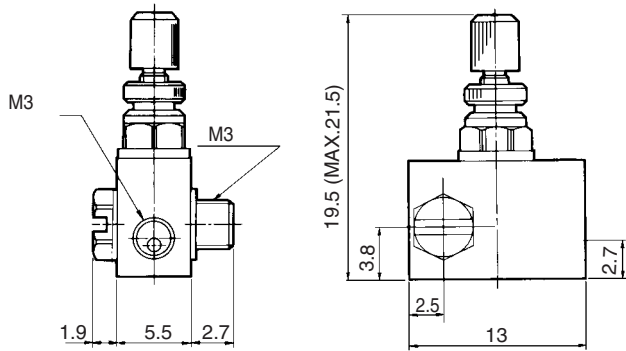
| No. | Description | Material | Note |
|-----|--------------|----------------------|-------------------------------|
| ① | Body A | Zinc alloy | |
| ② | Handle | Brass | Electroless nickel plated |
| ③ | Body B | Brass | Electroless nickel plated |
| ④ | Needle | Brass | Electroless nickel plated |
| ⑤ | Needle guide | Brass | Electroless nickel plated |
| ⑥ | Seat ring | Brass | ⁽¹⁾ |
| ⑦ | Lock nut | Steel | Zinc chromated ⁽²⁾ |
| ⑧ | U-seal | HNBR | |
| ⑨ | O ring | NBR | |
| ⑩ | O ring | NBR | |
| ⑪ | O ring | NBR | |
| ⑫ | Bush | PBT | 01 to 04 type |
| ⑬ | O ring | NBR | 01 to 04 type |
| ⑭ | Gasket | PVC | M3 type |
| | | NBR, Stainless steel | M5, U10/32 types |

Note 1) AS22□0 type is electroless nickel plated

Note 2) Meter-in type: Black zinc chromated

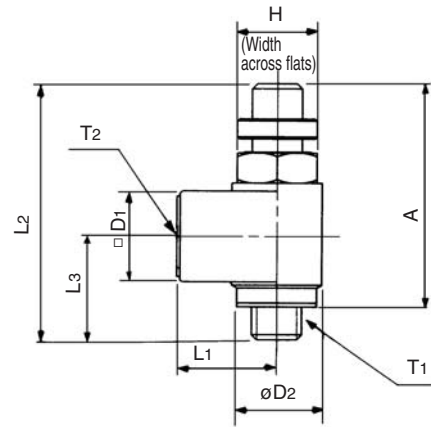
Standard: Metal Body Elbow Style *Series AS*

AS1400-M3/Dimensions

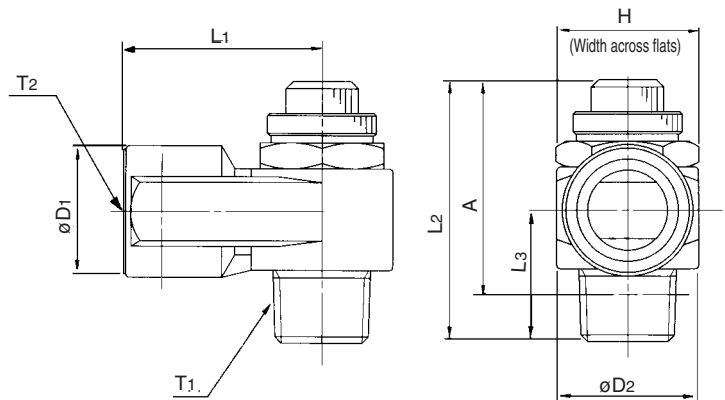


AS-1200-M3, AS12□0-M5, AS22□0, 32□0, 42□0/Dimensions

AS1200-M3 AS12□0-M5



AS22□0/32□0/42□0



Dimensions

| Model | T1 | T2 | H ⁽¹⁾ | L1 | L2 | | L3 | D1 | D2 | A | |
|---------------|----------|----------|------------------|------|------|------|------|------|------|------|------|
| | | | | | MAX. | MIN. | | | | MAX. | MIN. |
| AS1200-M3 | M3 | M3 | 4.5 | 6.6 | 23.5 | 21.5 | 8 | 5 | 5 | 20.5 | 18.5 |
| AS1200-M5 | M5 | M5 | 8 | 10 | 28.3 | 25.5 | 10.3 | 9 | 9 | 25 | 22.2 |
| AS1200-U10/32 | 10-32UNF | 10-32UNF | | | | | | | | | |
| AS22□0-01 | 1/8 | 1/8 | 12(12.7) | 18 | 35.5 | 30.5 | 13.2 | 14.3 | 14.6 | 32.4 | 27.4 |
| AS22□0-02 | 1/4 | 1/4 | 17(17.5) | 27.2 | 40.3 | 35.3 | 17.5 | 18 | 19.5 | 34.8 | 29.8 |
| AS32□0-03 | 3/8 | 3/8 | 19 | 30 | 45.8 | 40.8 | 19.7 | 22.5 | 24.3 | 40.6 | 35.6 |
| AS42□0-04 | 1/2 | 1/2 | 24(23.8) | 38.5 | 54.7 | 49.7 | 25.8 | 27.5 | 28.5 | 47.4 | 42.4 |

Note 1) () are the dimensions of "NPT" thread.

Speed Controller Standard

Series AS

In-line Style

Compact size saves space.
 Speed may be accurately controlled even at low speeds.
 Constant speed easily set.
 Retainer prevents accidental loss of needle.



Model

| Model | Port size | Free flow | | Controlled flow | | Applicable cylinder bore size (mm) | Weight (g) |
|-----------|-----------|-----------------------|-----------------------------------|-----------------------|-----------------------------------|------------------------------------|------------|
| | | Air flow (l/min(ANR)) | Effective area (mm ²) | Air flow (l/min(ANR)) | Effective area (mm ²) | | |
| AS1000-M3 | M3 | 20 | 0.3 | 20 | 0.3 | 2.5, 4, 6 | 4.7 |
| AS1000-M5 | M5 | 90 | 1.4 | 80 | 1.2 | 6, 10, 16, 20, 25 | 33 |
| AS2000-01 | 1/8 | 340 | 5.2 | 250 | 3.8 | 20, 25, 32, 40 | 90 |
| AS2000-02 | 1/4 | 340 | 5.2 | 250 | 3.8 | | 115 |
| AS3000-02 | 1/4 | 810 | 12.3 | 810 | 12.3 | 32, 40, 50, 63 | 130 |
| AS3000-03 | 3/8 | 810 | 12.3 | 810 | 12.3 | | 124 |
| AS4000-02 | 1/4 | 1,670 | 25.5 | 1,670 | 25.5 | 40, 50, 63 80, 100 | 221 |
| AS4000-03 | 3/8 | 1,670 | 25.5 | 1,670 | 25.5 | | 214 |
| AS4000-04 | 1/2 | 1,670 | 25.5 | 1,670 | 25.5 | | 205 |
| AS5000-02 | 1/4 | 2,840 | 44 | 2,840 | 44 | 40, 50, 63 80, 100 | 242 |
| AS5000-03 | 3/8 | 4,270 | 66 | 4,270 | 66 | | 233 |
| AS5000-04 | 1/2 | 4,270 | 66 | 4,270 | 66 | | 224 |

Note) Supply pressure: 0.5MPa, Temperature: 20°C.

Specifications

| | |
|--|--------------------------|
| Proof pressure ⁽¹⁾ | 1.5MPa (1.05MPa) |
| Max. operating pressure ⁽¹⁾ | 1MPa (0.7MPa) |
| Min. operating pressure ⁽¹⁾ | 0.05MPa (0.1MPa) |
| Ambient and fluid temperature | -5 to 60°C (No freezing) |
| Number of needle rotation ⁽¹⁾ | 8 turns (10 turns) |

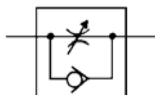
Note 1) (): Values for AS1000.

Accessories

| Description | Part No. | Applicable model |
|-------------|----------|------------------|
| Nipple | M-5N | AS1000 |

Note) AS1000 with nipple: AS1000-M5-N

Symbol JIS



How to Order

E AS 1 000 - [] M5 [] []

- Body size**

| | |
|---|----------|
| 1 | M3, M5 |
| 2 | 1/8, 1/4 |
| 3 | 3/8 |
| 4 | 1/2 |
| 5 | 1/2 |
- Ordering source area code**

| | |
|---|--------------------------|
| - | Japan, Asia Australia |
| E | Europe |
| N | North America |
- Thread**

| | |
|---|--------|
| - | M3, M5 |
| N | NPT |
| F | G (PF) |
- Lock nut option**

| | |
|------------------|------------------|
| - | Hexagon lock nut |
| J ⁽³⁾ | Round lock nut |

Note 3) Only for AS1000
- Option**

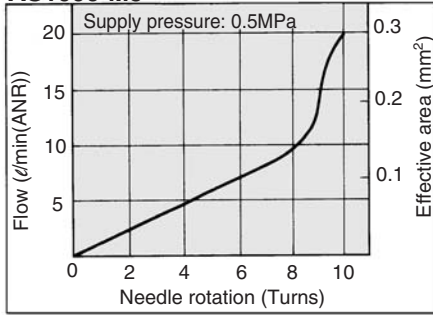
| | |
|------------------|-------------------------------|
| H ⁽¹⁾ | High temperature (-5 to 80°C) |
| L ⁽²⁾ | Low temperature (-30 to 60°C) |

Note 1) AS5000 is available as special AS1000 is not applicable
 Note 2) AS1000, AS2000 are not applicable
- Port size**

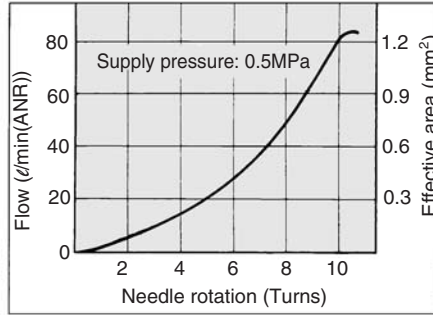
| Port size | Applicable model |
|-----------|------------------------------|
| M3 | M3 AS1000 |
| M5 | M5 AS1000 |
| 01 | 1/8 AS2000 |
| 02 | 1/4 AS2000, 3000, 4000, 5000 |
| 03 | 3/8 AS3000, 4000, 5000 |
| 04 | 1/2 AS4000, 5000 |

Needle Valve/Flow Characteristics

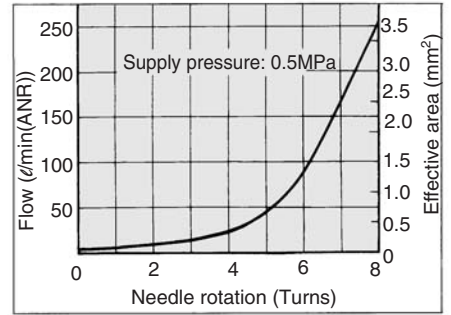
AS1000-M3



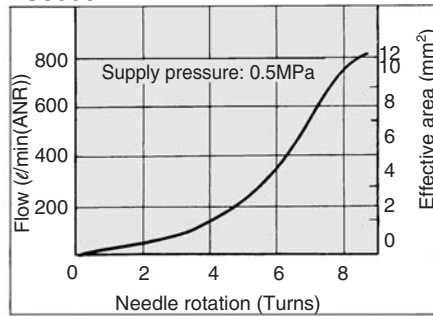
AS1000-M5



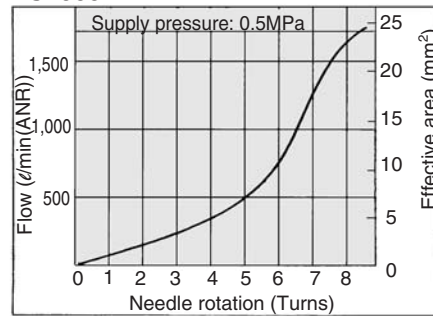
AS2000



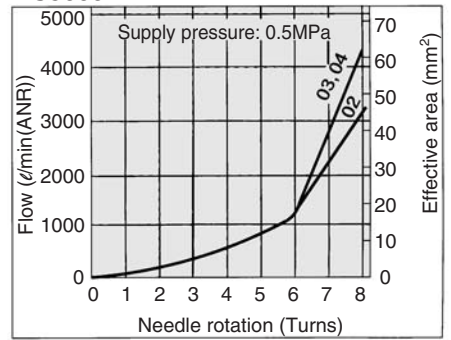
AS3000



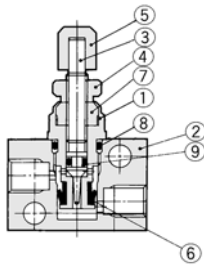
AS4000



AS5000



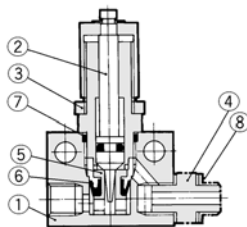
AS1000-M3/Construction



Component Parts

| No. | Description | Material | Note |
|-----|--------------|----------|---------------------------|
| ① | Body B | Brass | Electroless nickel plated |
| ② | Body | Brass | Electroless nickel plated |
| ③ | Needle | Brass | Electroless nickel plated |
| ④ | Lock nut | Steel | Zinc chromated |
| ⑤ | Handle | Brass | Electroless nickel plated |
| ⑥ | U seal | HNBR | |
| ⑦ | Needle guide | Brass | Electroless nickel plated |
| ⑧ | O ring | NBR | 4.5 X 3 X 0.75 |
| ⑨ | O ring | NBR | 2.2 X 0.8 X 0.7 |

AS1000-M5/Construction



Component Parts

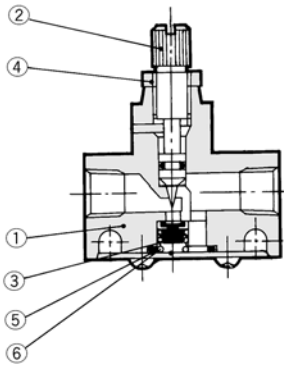
| No. | Description | Material |
|-----|-------------|-----------------|
| ① | Body | Zinc alloy |
| ② | Needle | Stainless steel |
| ③ | Lock nut* | Steel |
| ④ | Nipple | Stainless steel |

*Zinc chromated

| No. | Description | Material |
|-----|-------------|----------|
| ⑤ | Valve seat | Brass |
| ⑥ | U-packing | NBR |
| ⑦ | O ring | NBR |
| ⑧ | Gasket | PVC |

Series AS

AS2000, 3000/Construction

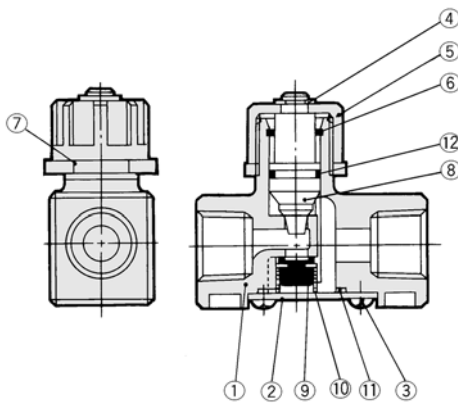


Component Parts

| No. | Description | Model | |
|-----|-------------|------------|----------------|
| | | AS2000 | AS3000 |
| ① | Body | Zinc alloy | Aluminum alloy |
| ② | Needle* | Brass | Brass |
| ④ | Lock nut* | Brass | Carbon steel |
| ③ | Valve | | |
| ⑤ | O ring | | |
| ⑥ | Spring | | |

*Electroless nickel plated

AS4000/Construction

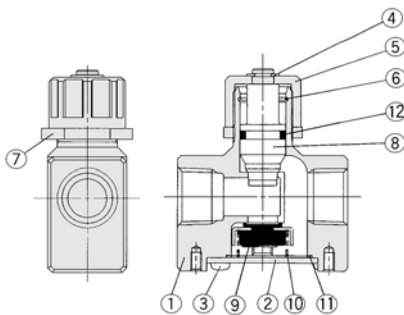


Component Parts

| No. | Description | Material | Note |
|-----|------------------|-----------------|---------------------|
| ① | Body | Aluminum alloy | Chromated |
| ② | Cap | Rolled steel | Zinc chromated |
| ③ | Head cap screw | Steel wire | 4 X 0.7 X 8 |
| ④ | E type snap ring | Stainless steel | JIS B2805 Nominal 6 |
| ⑤ | Handle | Zinc | Chromated |
| ⑥ | Ring | Steel wire | Zinc chromated |
| ⑦ | Lock nut | Zinc alloy | |
| ⑧ | Needle | Aluminum alloy | |
| ⑫ | O ring | NBR | |

| No. | Description | Material |
|-----|-------------|-----------------|
| ⑨ | Valve | NBR, Brass |
| ⑩ | Spring | Stainless steel |
| ⑪ | O ring | NBR |

AS5000/Construction



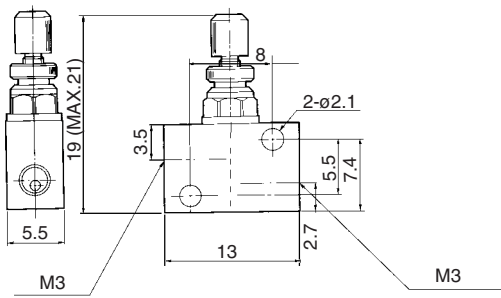
Component Parts

| No. | Description | Material | Note |
|-----|------------------|-----------------|----------------------|
| ① | Body | Aluminum alloy | Chromated |
| ② | Cap | Rolled steel | Nickel plated |
| ③ | Head cap screw | Steel wire | M4 X 8 Nickel plated |
| ④ | E type snap ring | Stainless steel | JIS B 2805 Nominal 6 |
| ⑤ | Handle | Zinc alloy | Chromated |
| ⑥ | Ring | Stainless steel | |
| ⑦ | Lock nut | Zinc alloy | Chromated |
| ⑧ | Needle | Aluminum alloy | Chromated |
| ⑫ | O ring | NBR | JIS B2401 P12 |

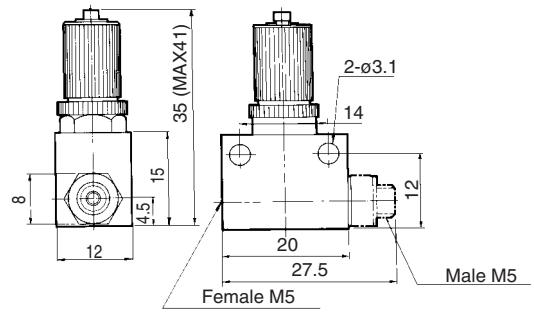
| No. | Description | Material |
|-----|-------------|----------------------|
| ⑨ | Valve | NBR, Stainless steel |
| ⑩ | Spring | Stainless steel |
| ⑪ | Packing | NBR |

Standard: In-line Style *Series AS*

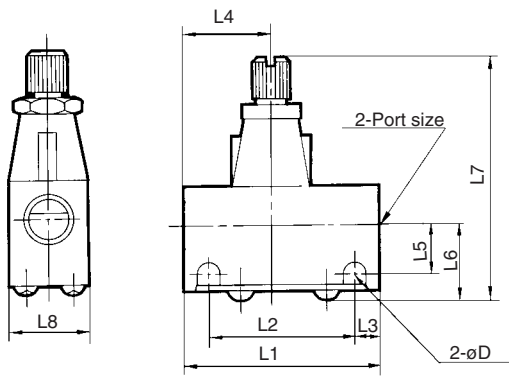
AS1000-M3/Dimensions



AS1000-M5/Dimensions



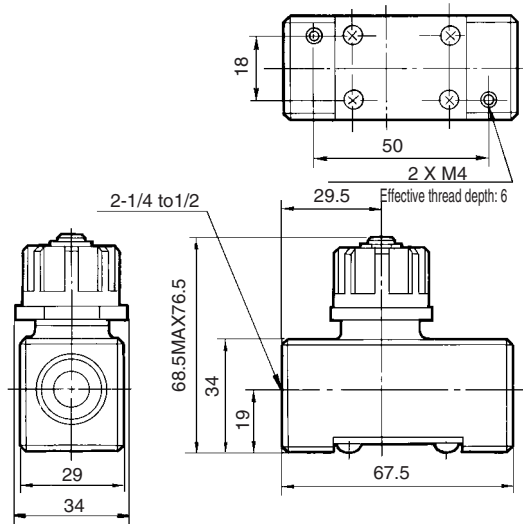
AS2000-3000/Dimensions



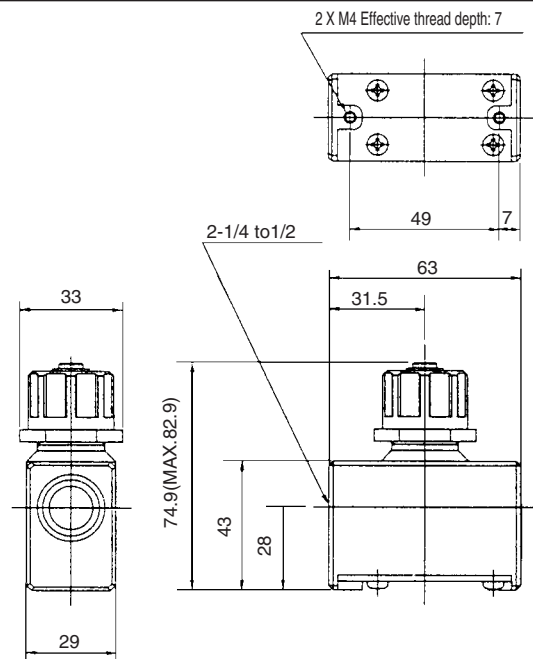
Dimensions

| Model | Port size | L1 | L2 | L3 | L4 | L5 | L6 | L7 | | L8 | D |
|---------------|-----------|----|------|------|----|------|------|------|------|----|-----|
| | | | | | | | | MAX. | MIN. | | |
| AS2000-01 | 1/8 | 40 | 30 | 5 | 17 | 10 | 15.5 | 54.5 | 50 | 16 | 4.5 |
| AS2000-02 | 1/4 | 40 | 30 | 5 | 23 | 11.5 | 17 | 56 | 51.5 | 20 | 4.5 |
| AS3000-02, 03 | 1/4, 3/8 | 56 | 45.5 | 5.25 | 25 | 13.2 | 20.6 | 68 | 61 | 26 | 5.5 |

AS4000/Dimensions



AS5000/Dimensions



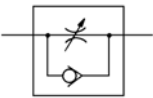
Speed Controller Standard Series AS

Large Flow In-line Style

Constant speed easily set.
Speed may be accurately controlled
even at low speeds.
Retainer prevents accidental loss
of needle.



JIS Symbol



Model

| Model | Port size | Free flow | | Controlled flow | | Applicable cylinder bore size (mm) | Weight (kg) |
|----------|-----------|------------------------|-----------------------------------|------------------------|-----------------------------------|------------------------------------|-------------|
| | | Air flow (l/min (ANR)) | Effective area (mm ²) | Air flow (l/min (ANR)) | Effective area (mm ²) | | |
| AS420-02 | 1/4 | 2,500 | 38 | 3,600 | 55 | 63, 80, 100, 125 | 0.34 |
| AS420-03 | 3/8 | 5,000 | 77 | 4,800 | 74 | | 0.33 |
| AS420-04 | 1/2 | 6,600 | 100 | 6,700 | 102 | | 0.32 |
| AS500-06 | 3/4 | 10,100 | 154 | 8,100 | 123 | 140, 160, 180, 200 | 0.36 |
| AS600-10 | 1 | 15,100 | 230 | 16,900 | 258 | 160, 180, 200, 250 | 0.7 |
| AS800-12 | 1 1/4 | 35,400 | 540 | 38,500 | 586 | 300 | 1.4 |
| AS900-14 | 1 1/2 | 52,000 | 792 | 47,500 | 724 | | 3.3 |
| AS900-20 | 2 | 57,800 | 880 | 60,800 | 926 | | 3.3 |

Note) Supply pressure: 0.5MPa, Temperature: 20°C.

Specifications

| | |
|-------------------------------|-------------------------------------|
| Proof pressure | 1.5MPa |
| Max. operating pressure | 1MPa |
| Min. operating pressure | 0.05MPa |
| Ambient and fluid temperature | -5 to 60°C (No freezing) |
| Number of needle rotations | 10 turns (12 turns ⁽¹⁾) |

Note 1) (): Values for AS800, AS900.

How to Order

E **AS** **42** **0** — **02**

Body size

| | |
|----|-------|
| 42 | 1/2 |
| 50 | 3/4 |
| 60 | 1 |
| 80 | 1 1/4 |
| 90 | 1 1/2 |

Port size

| Port size | Applicable model |
|-----------|------------------|
| 02 | AS420 |
| 03 | |
| 04 | |
| 06 | AS500 |
| 10 | AS600 |
| 12 | AS800 |
| 14 | AS900 |
| 20 | |

Ordering source area code

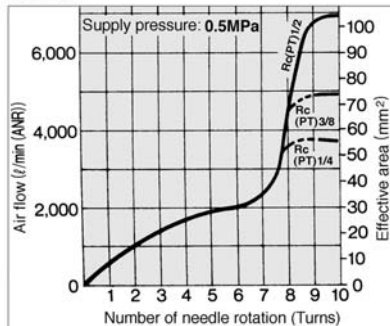
| | |
|---|--------------------------|
| - | Japan, Asia Australia |
| E | Europe |
| N | North America |

Port thread

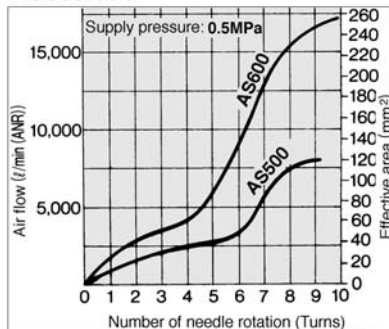
| | |
|---|--------|
| - | Rc(PT) |
| N | NPT |
| F | PF |

Needle/Flow Characteristics

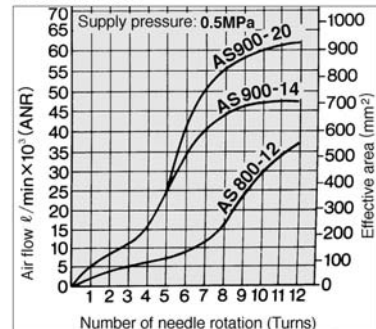
AS420



AS500/600

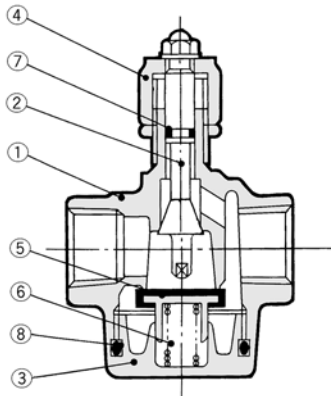


AS800/900



Standard: Large Flow In-line Style *Series AS*

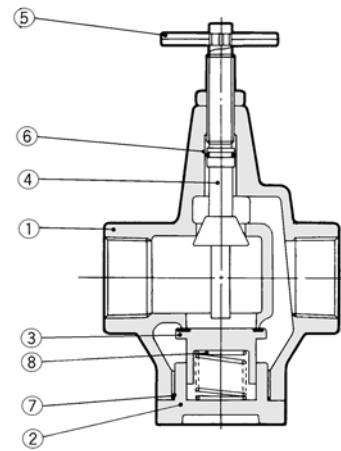
AS420, 500, 600/Construction



Component Parts

| No. | Description | Material | Note |
|-----|--------------|-----------------|-----------|
| ① | Body | Aluminum alloy | Chromated |
| ② | Needle | Brass | — |
| ③ | Bottom cover | Aluminum alloy | Chromated |
| ④ | Handle | Zinc | Chromated |
| ⑤ | Check valve | Brass | |
| ⑥ | Spring | Stainless steel | |
| ⑦ | O ring | NBR | |
| ⑧ | O ring | NBR | |

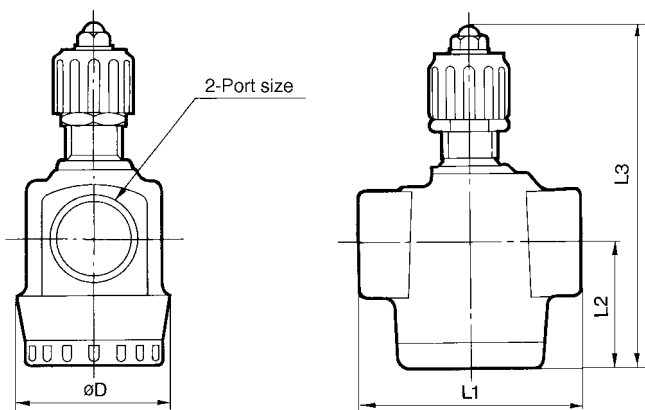
AS800, 900/Construction



Component Parts

| No. | Description | Material | Note |
|-----|-------------|-----------------|---------------|
| ① | Body | Aluminum alloy | Chromated |
| ② | Valve guide | Aluminum alloy | Chromated |
| ③ | Check valve | Brass | Rubber lining |
| ④ | Needle | Brass | |
| ⑤ | Handle | Carbon steel | Chromated |
| ⑥ | O ring | NBR | |
| ⑦ | O ring | NBR | |
| ⑧ | Spring | Stainless steel | |

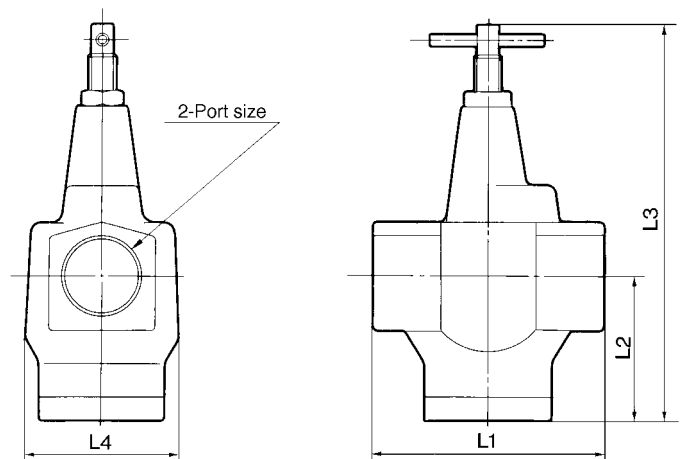
AS420, 500, 600/Dimensions



Dimensions

| Model | Port size | L1 | L2 | L3 | | D |
|-------|---------------|------|----|------|------|----|
| | | | | MAX. | MIN. | |
| AS420 | 1/4, 3/8, 1/2 | 67.5 | 38 | 122 | 112 | 50 |
| AS500 | 3/4 | 74 | 42 | 115 | 105 | 50 |
| AS600 | 1 | 90 | 55 | 158 | 148 | 62 |

AS800, 900/Dimensions



Dimensions

| Model | Port size | L1 | L2 | L3 | | L4 |
|-------|-----------|-----|----|------|------|----|
| | | | | MAX. | MIN. | |
| AS800 | 1 1/4 | 120 | 74 | 204 | 192 | 80 |
| AS900 | 1 1/2, 2 | 150 | 93 | 262 | 250 | 94 |

Speed Controller Standard

Series AS

In-line Push locking Style

Lock speed setting, with the touch of a button
It can be locked only by pushing the handle after adjustment.

Convenient opening indication scale
The opening indication scale for the needle valve is provided on the handle to facilitate speed adjustments.

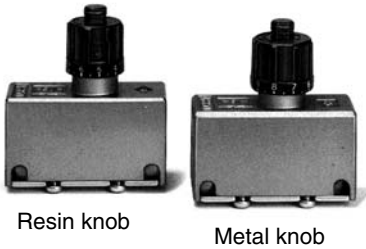
Easy speed control at low flow volume ranges

Possible to control the mass velocity

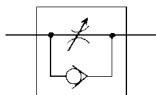
Constant knob constructed of metal to withstand heavy usage

In addition to the standard handle made of resin, a heavy-duty metal handle is also available.

Retainer prevents accidental loss of needle



JIS Symbol

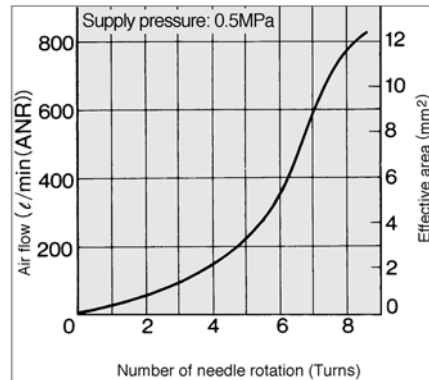


Specifications

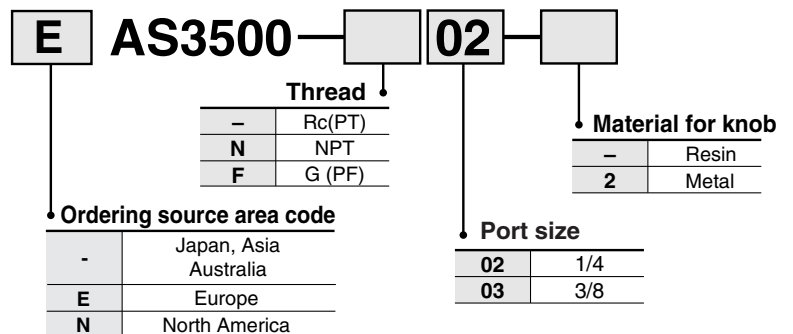
| Specifications | | Model | AS3500-02 | AS3500-03 |
|------------------------------------|-----------------------------------|------------|------------------------------|-------------|
| | | Resin knob | AS3500-02-2 | AS3500-03-2 |
| | | Metal knob | | |
| Port size | | | 1/4 | 3/8 |
| Applicable cylinder bore size (mm) | | | 40, 50, 63 | |
| Proof pressure | | | 1.5MPa | |
| Max. operating pressure | | | 1MPa | |
| Min. operating pressure | | | 0.05MPa | |
| Ambient and fluid temperature | | | -5 to 60°C (No freezing) | |
| Number of needle rotations | | | 8 turns | |
| Weight | | | 130g (Metallic handle: 140g) | |
| Free flow | Air flow (ℓ/min(ANR)) | | 810 | |
| | Effective area (mm ²) | | 12.3 | |
| Controlled flow | Air flow (ℓ/min(ANR)) | | 810 | |
| | Effective area (mm ²) | | 12.3 | |

Note) Supply pressure: 0.5MPa, Temperature: 20°C.

Needle/Flow Characteristics AS3500

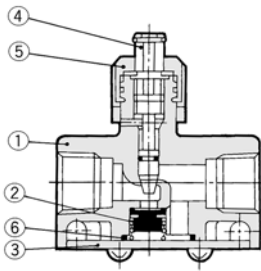


How to Order

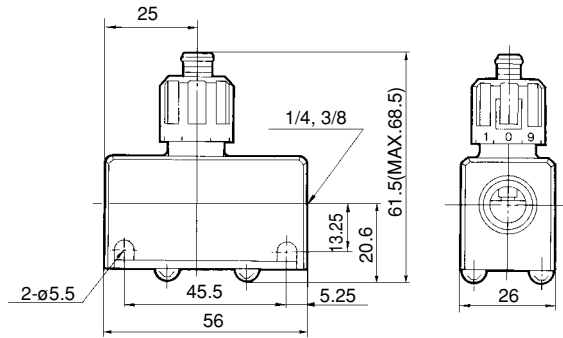


Standard: In-line Push Locking Style *Series AS*

Construction



Dimensions



Component Parts

| No. | Description | Material | Note |
|-----|-------------|----------------|---------------------------|
| ① | Body | Aluminum alloy | Chromated |
| ② | Valve | NBR | |
| ③ | Cap | Rolled steel | Electroless nickel plated |
| ④ | Needle | Brass | |
| ⑤ | Handle | POM | Black |
| | | Zinc alloy | Black |
| ⑥ | O ring | NBR | |

Speed Controller with Residual Pressure Release Valve

Series AS□□□□FE

With One-touch Fittings

Residual pressure can be easily released with one push of button.

Eye-catching red colour release button.



Model

| Elbow style | Universal style | Port size in cylinder side | Applicable tube O.D (mm) | | | | | Cylinder bore size (mm) |
|-------------|-----------------|----------------------------|--------------------------|-----|-----|------------------|------|-------------------------|
| | | | ø 4 | ø 6 | ø 8 | ø 10 | ø 12 | |
| AS22□1FE-01 | AS23□1FE-01 | R(PT)1/8 | ● | ● | ● | ● ⁽¹⁾ | | 20, 25, 32 |
| AS22□1FE-02 | AS23□1FE-02 | R(PT)1/4 | ● | ● | ● | ● | | 20, 25, 32, 40 |
| AS32□1FE-03 | AS33□1FE-03 | R(PT)3/8 | | ● | ● | ● | ● | 40, 50, 63 |
| AS42□1FE-04 | AS43□1FE-04 | R(PT)1/2 | | | | ● | ● | 63, 80, 100 |

Note 1) Only elbow type

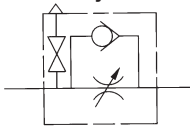
Notes) Distinction between meter-out/meter-in types by appearance

They are distinguished by the lock nut. The meter-out types is electroless nickel plated, while the meter-in type is black zinc chromate plated.

Specifications

| | |
|---|---------------------------------|
| Proof pressure | 1.5MPa |
| Max. operating pressure | 1.0MPa |
| Min. operating pressure | 0.1MPa |
| Ambient and fluid temperature | -5 to 60°C (No freezing) |
| Number of needle rotations | 10 turns |
| Effective area of residual pressure release valve | 0.8mm ² |
| Applicable tubing | Nylon, Soft nylon, Polyurethane |

JIS Symbol



Air Flow/Effective Area

| Model | | AS22□1FE-01 AS23□1FE-01 | | | AS22□1FE-02 AS23□1FE-02 | | | AS32□1FE AS33□1FE | | | AS42□1FE AS43□1FE | |
|------------------------|-----------------------------------|----------------------------|-----------------|-----|----------------------------|-----------|-----|----------------------|------------|------|----------------------|--|
| Tube O.D. | Metric size | ø4 | ø6 ø8 ø10 | ø4 | ø6 | ø8 ø10 | ø6 | ø8 | ø10 ø12 | ø10 | ø12 | |
| Controlled (Free) flow | Air flow (d/min(ANR)) | 180 | 230 | 260 | 390 | 460 | 660 | 790 | 920 | 1580 | 1710 | |
| | Effective area (mm ²) | 2.7 | 3.5 | 4 | 6 | 7 | 10 | 12 | 14 | 24 | 26 | |

Note) Supply pressure: 0.5MPa, Temperature: 20°C.

Indication of air flow direction on body

| | Sistema de salida | Sistema de entrada |
|---------|-------------------|--------------------|
| Simbolo | | |
| Simbolo | | |

How to Order

AS **2** **2** **1** **1** FE **01** **06** SK **□**

- Body size**

| | |
|---|----------|
| 2 | 1/8, 1/4 |
| 3 | 3/8 |
| 4 | 1/2 |
- Style**

| | |
|---|-----------|
| 2 | Elbow |
| 3 | Universal |
- Controlled method**

| | |
|---|-----------|
| 0 | Meter-out |
| 1 | Meter-in |
- Applicable tube O.D.**

| | |
|----|-----|
| 04 | ø4 |
| 06 | ø6 |
| 08 | ø8 |
| 10 | ø10 |
| 12 | ø12 |
- Hexagonal lock nut**
- Sealant**
- With residual pressure release valve**
- With One-touch fittings**
- Made to Order**

Made to Order

1 Lubricant: Vaseline

X12

Ex.) AS2201FE-01-04SK-X12

2 Grease-free (Seal: Fluorine Coating) + Throttle Valve (Without Check Valve)

X21

Ex.) AS2201FE-01-04SK-X21

Note 1) Not particle-free

Note 2) Throttle valve is only compatible with the part no. of the meter-out type.

3 Throttle Valve (Without Check Valve)

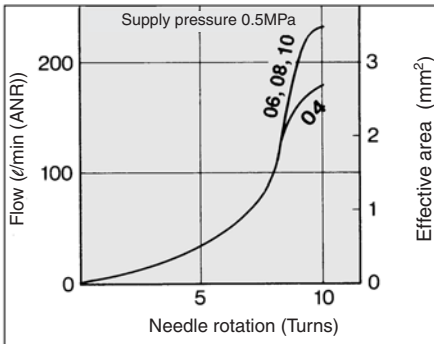
X214

Ex.) AS2201FE-01-04SK-X214

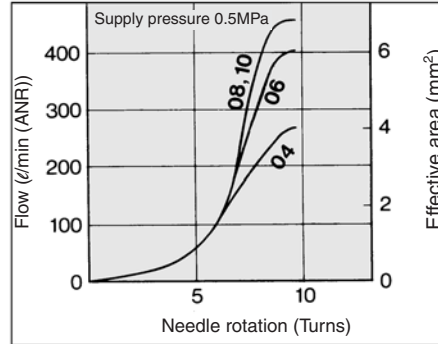
Note) Throttle valve is only compatible with the part no. of the meter-out type.

Needle Valve/Flow Characteristics

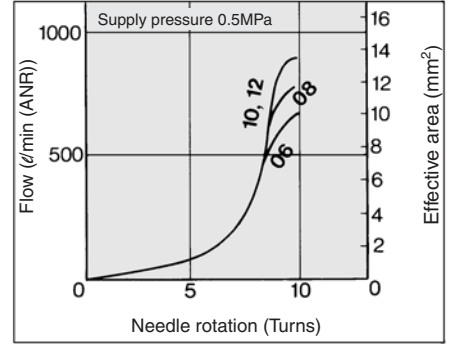
**AS2201FE-01, AS2211FE-01
AS2301FE-01, AS2311FE-01**



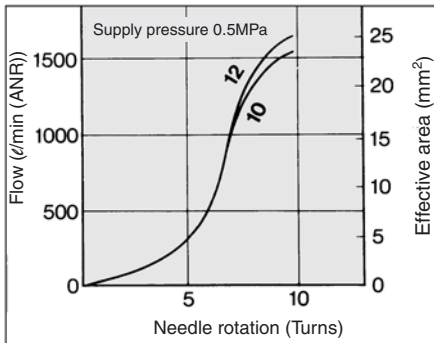
**AS2201FE-02, AS2211FE-02
AS2301FE-02, AS2311FE-02**



**AS3201FE, AS3211FE
AS3301FE, AS3311FE**



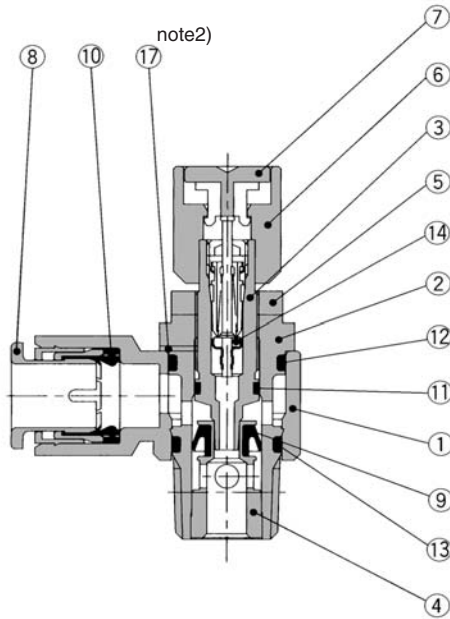
**AS4201FE, AS4211FE
AS4301FE, AS4311FE**



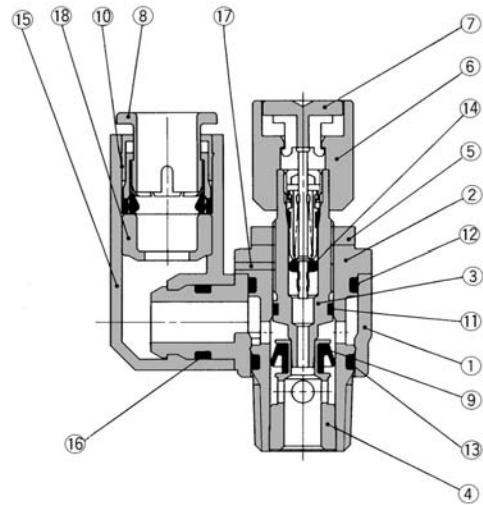
Series AS□□□□FE

Construction

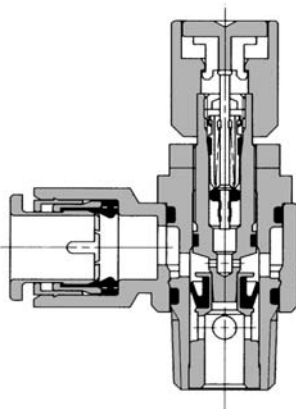
Elbow style Meter-out



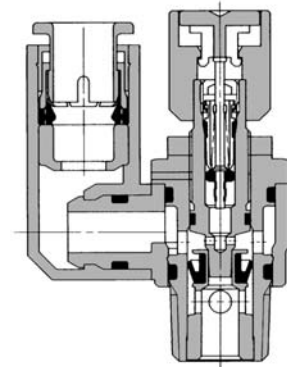
Universal style Meter-out



Meter-in



Meter-in



Component Parts

| No. | Description | Material | Note |
|-----|------------------------------|-----------------------------|----------------------------------|
| ① | Body A | PBT | White |
| ② | Body B | Brass | Electroless nickel plated |
| ③ | Needle | Brass | Electroless nickel plated |
| ④ | Seat ring | Brass | (1) |
| ⑤ | Lock nut | Steel ⁽²⁾ | Zinc chromated ⁽²⁾⁽³⁾ |
| ⑥ | Handle | Aluminum alloy | Red painted |
| ⑦ | Push button | POM | Red |
| ⑧ | Cassette | POM, Stainless steel | |
| ⑨ | U-packing | NBR | |
| ⑩ | Packing | NBR | |
| ⑪ | O ring | NBR | |
| ⑫ | O ring | NBR | |
| ⑬ | O ring | NBR | |
| ⑭ | Valve core | NBR, Brass, Stainless steel | |
| ⑮ | Elbow body | PBT | |
| ⑯ | O ring | NBR | |
| ⑰ | Jumping out preventing screw | Stainless steel | |
| ⑱ | Spacer | POM | |

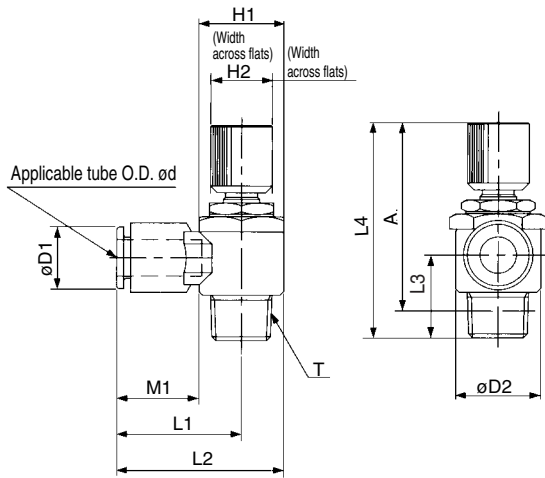
Note 1) AS2□□1FE type is electroless nickel plated

Note 2) Brass parts of AS2201FE-01 are electroless nickel plated.

Note 3) Meter-in type: Black zinc chromated

Dimensions

Elbow style

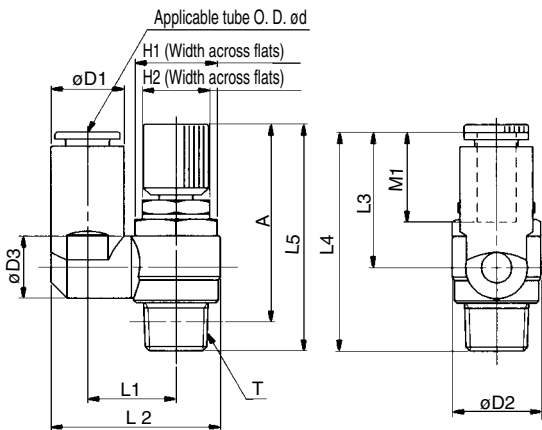


| Model | Tube O.D. d | T | H1 | H2 | D1 | D2 | L1 | L2 | L3 | L4 | | A* | | M1 | Wgt. (g) |
|------------------|-------------|-----|----|----|------|------|------|------|------|------|------|------|------|------|----------|
| | | | | | | | | | | MAX. | MIN. | MAX. | MIN. | | |
| AS22□1FE-01-04SK | 4 | 1/8 | 12 | 12 | 9.3 | 14.2 | 20.4 | 27.5 | 13.4 | 53 | 48 | 49.9 | 44.9 | 12.7 | 26 |
| AS22□1FE-01-06SK | 6 | | | | 11.6 | | 20.4 | 27.5 | | | | | | 13.5 | 27 |
| AS22□1FE-01-08SK | 8 | | | | 15.2 | | 25.3 | 32.4 | | | | | | 18.5 | 29 |
| AS22□1FE-01-10SK | 10 | | | | 18.5 | | 33.1 | 40.2 | | | | | | 21 | 31 |
| AS22□1FE-02-04SK | 4 | 1/4 | 17 | 14 | 10.4 | 18.5 | 25.2 | 34.4 | 17.7 | 51.7 | 46.7 | 46.2 | 41.2 | 16 | 36 |
| AS22□1FE-02-06SK | 6 | | | | 12.8 | | 25.2 | 34.4 | | | | | | 17 | 37 |
| AS22□1FE-02-08SK | 8 | | | | 15.2 | | 27.2 | 36.4 | | | | | | 18.5 | 39 |
| AS22□1FE-02-10SK | 10 | | | | 18.5 | | 33.9 | 43.2 | | | | | | 21 | 42 |
| AS32□1FE-03-06SK | 6 | 3/8 | 19 | 14 | 12.8 | 23 | 27.8 | 39.3 | 19.8 | 56.7 | 51.7 | 51.5 | 46.5 | 16 | 57 |
| AS32□1FE-03-08SK | 8 | | | | 15.2 | | 29.5 | 41 | | | | | | 18.5 | 60 |
| AS32□1FE-03-10SK | 10 | | | | 18.5 | | 31.9 | 43.3 | | | | | | 21 | 62 |
| AS32□1FE-03-12SK | 12 | | | | 20.9 | | 32.8 | 44.3 | | | | | | 22 | 64 |
| AS42□1FE-04-10SK | 10 | 1/2 | 24 | 17 | 18.5 | 28.6 | 33.6 | 47.9 | 24.5 | 63.8 | 58.8 | 56.5 | 51.5 | 21 | 103 |
| AS42□1FE-04-12SK | 12 | | | | 20.9 | | 34.6 | 48.9 | | | | | | 22 | 105 |

*Reference dimensions of R(PT) thread after being screwed in.

Dimensions

Universal style



| Model | Tube O.D. d | T | H1 | H2 | D1 | D2 | D3 | L1 | L2 | L3 | L4 | L5 | | A* | | M1 | Wgt. (g) |
|------------------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----------|
| | | | | | | | | | | | | MAX. | MIN. | MAX. | MIN. | | |
| AS23□1FE-01-04SK | 4 | 1/8 | 12 | 12 | 9.3 | 14.2 | 9.3 | 13.1 | 24.9 | 17.5 | 30.9 | 53 | 48 | 49.9 | 44.9 | 12.7 | 26 |
| AS23□1FE-01-06SK | 6 | | | | 11.6 | | 10.9 | 14 | 26.9 | 22.9 | 36.3 | | | | | 13.5 | 27 |
| AS23□1FE-01-08SK | 8 | | | | 15.2 | | 12.9 | 16.2 | 30.9 | 28.2 | 40.8 | | | | | 18.5 | 29 |
| AS23□1FE-02-04SK | 4 | | | | 1/4 | | 14 | 14 | 10.4 | 18.5 | 10.9 | | | | | 16.2 | 30.6 |
| AS23□1FE-02-06SK | 6 | 12.8 | 18.4 | 34 | | 25.2 | | | 42.1 | | 17 | 37 | | | | | |
| AS23□1FE-02-08SK | 8 | 15.2 | 12.9 | 18.3 | | 35.2 | | | 28.2 | | 45.1 | 18.5 | 39 | | | | |
| AS23□1FE-02-10SK | 10 | 18.5 | 20.2 | 38.7 | | 31 | | | 47.9 | | 21 | 42 | | | | | |
| AS33□1FE-03-06SK | 6 | 3/8 | 19 | 14 | 12.8 | 23 | 12.9 | 20.6 | 38.5 | 25.2 | 45 | 56.7 | 51.7 | 51.5 | 46.5 | 17 | 57 |
| AS33□1FE-03-08SK | 8 | | | | 15.2 | | 39.7 | 28.2 | 48 | 18.5 | 60 | | | | | | |
| AS33□1FE-03-10SK | 10 | | | | 18.5 | | 43.7 | 32.6 | 52.4 | 21 | 62 | | | | | | |
| AS33□1FE-03-12SK | 12 | | | | 20.9 | | 44.9 | 34.4 | 54.2 | 22 | 64 | | | | | | |
| AS43□1FE-04-10SK | 10 | 1/2 | 24 | 17 | 18.5 | 28.6 | 16.2 | 25.8 | 49.4 | 32.6 | 57.1 | 63.8 | 58.8 | 56.5 | 51.5 | 21 | 103 |
| AS43□1FE-04-12SK | 12 | | | | 21.7 | | 19.4 | 26.8 | 52 | 36.3 | 60.8 | | | | | 22 | 105 |

*Reference dimensions of R(PT) thread after being screwed in.

Speed Controller with Residual Pressure Release Valve

Series AS□□□□E

Standard

Residual pressure can be easily released with one push of button.

Eye-catching red colour release button.



Model/Air Flow, Effective Area

| Model | Port size | Free flow | | Controlled flow | | Applicable cylinder bore size (mm) | Weight (g) |
|------------|-----------|-----------------------|-----------------------------------|-----------------------|-----------------------------------|------------------------------------|------------|
| | | Air flow (l/min(ANR)) | Effective area (mm ²) | Air flow (l/min(ANR)) | Effective area (mm ²) | | |
| AS2000E-01 | Rc(PT)1/8 | 340 | 5.2 | 250 | 3.8 | 20, 25, 32, 40 | 90 |
| AS2000E-02 | Rc(PT)1/4 | | | | | | 115 |
| AS3000E-02 | Rc(PT)1/4 | 810 | 12.3 | 810 | 12.3 | 32, 40, 50, 63 | 130 |
| AS3000E-03 | Rc(PT)3/8 | | | | | | |
| AS4000E-02 | Rc(PT)1/4 | 1670 | 25.5 | 1670 | 25.5 | 40, 50, 63, 80, 100 | 225 |
| AS4000E-03 | Rc(PT)3/8 | | | | | | |
| AS4000E-04 | Rc(PT)1/2 | | | | | | |

Note) Supply pressure: 0.5MPa, Temperature: 20°C.

Specifications

| | |
|--|--------------------------|
| Proof pressure | 1.5MPa |
| Max. operating pressure | 1.0MPa |
| Min. operating pressure | 0.05MPa |
| Ambient and fluid temperature | -5 to 60°C (No freezing) |
| Number of needle rotations | 8 turns |
| Effective area of residual exhaust valve | 0.8mm ² |

How to Order

AS 2 000 E - 01

Body size

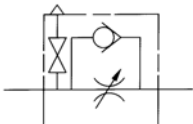
| | |
|---|----------|
| 2 | 1/8, 1/4 |
| 3 | 3/8 |
| 4 | 1/2 |

Port size

| Port size | Applicable series |
|-----------|---------------------------------|
| 01 | Rc(PT)1/8 AS2000E |
| 02 | Rc(PT)1/4 AS2000E, 3000E, 4000E |
| 03 | Rc(PT)3/8 AS3000E, 4000E |
| 04 | Rc(PT)1/2 AS4000E |

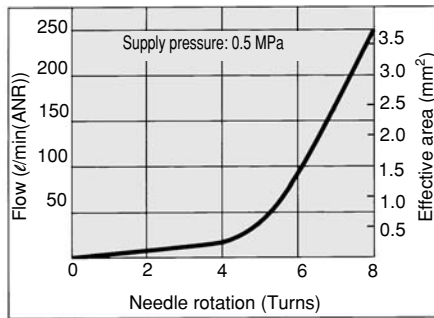
With residual pressure release valve

JIS Symbol

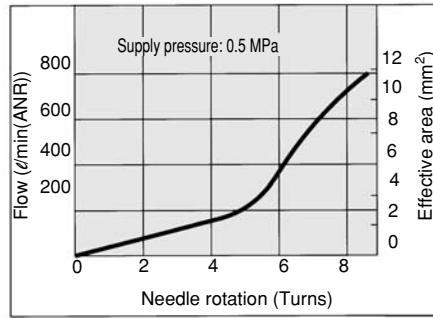


Needle Valve/Flow Characteristics

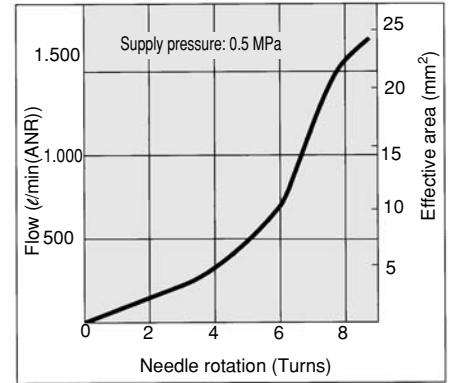
AS2000E



AS3000E

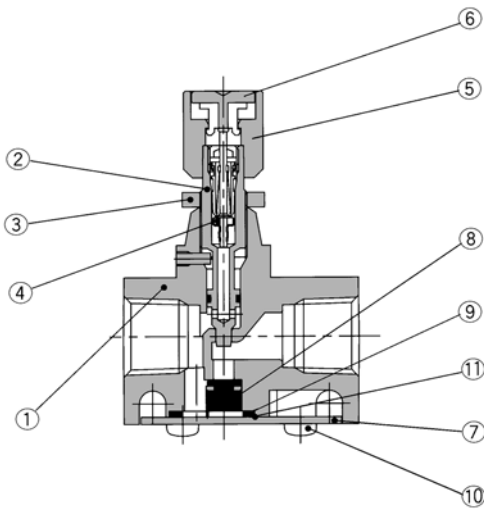


AS4000E

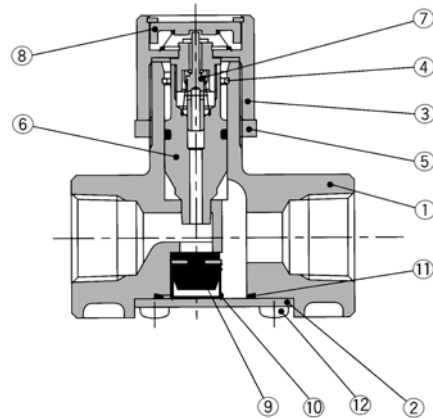


Construction

AS2000E/3000E



AS4000E



Component Parts

| No. | Description | Model | |
|-----|-------------|------------------------------|------------------------------|
| | | AS2000 | AS3000 |
| ① | Body | Zinc alloy | Aluminum alloy |
| ② | Needle | Brass | Brass |
| ③ | Lock nut | Brass | Brass |
| ④ | Valve core | — | — |
| ⑤ | Handle | Aluminum alloy (Red painted) | Aluminum alloy (Red painted) |
| ⑥ | Push button | POM (Red) | POM (Red) |
| ⑦ | Cap | Stainless steel | Stainless steel |

| No. | Description | Material |
|-----|-------------------------------|-----------------|
| ⑧ | Valve | NBR |
| ⑨ | Spring | Stainless steel |
| ⑩ | Cross-recessed head cap screw | Stainless steel |
| ⑪ | O ring | NBR |

Component Parts

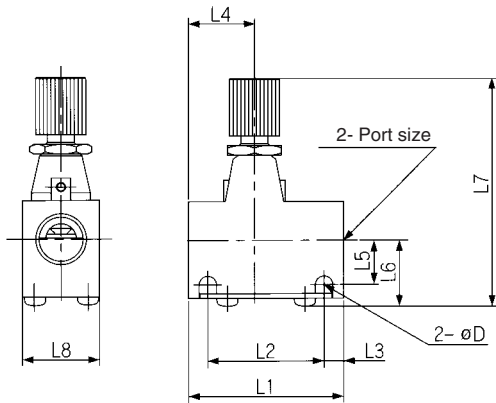
| No. | Description | Material | Note |
|-----|-------------|---------------------|----------------|
| ① | Body | Aluminum alloy | Chromated |
| ② | Cap | SPC | Nickel plated |
| ③ | Handle | Zinc alloy | Chromated, Red |
| ④ | Ring | Spring steel | Zinc chromated |
| ⑤ | Lock nut | Zinc alloy | Chromated |
| ⑥ | Needle | Aluminum alloy | Chromated |
| ⑦ | Valve | NBR/Stainless steel | |
| ⑧ | Push button | POM | Red |

| No. | Description | Material |
|-----|-------------------------------|-----------------|
| ⑨ | Valve | NBR/ Brass |
| ⑩ | Spring | Stainless steel |
| ⑪ | O ring | NBR |
| ⑫ | Cross-recessed head cap screw | Steel wire |

Series AS□□□□E

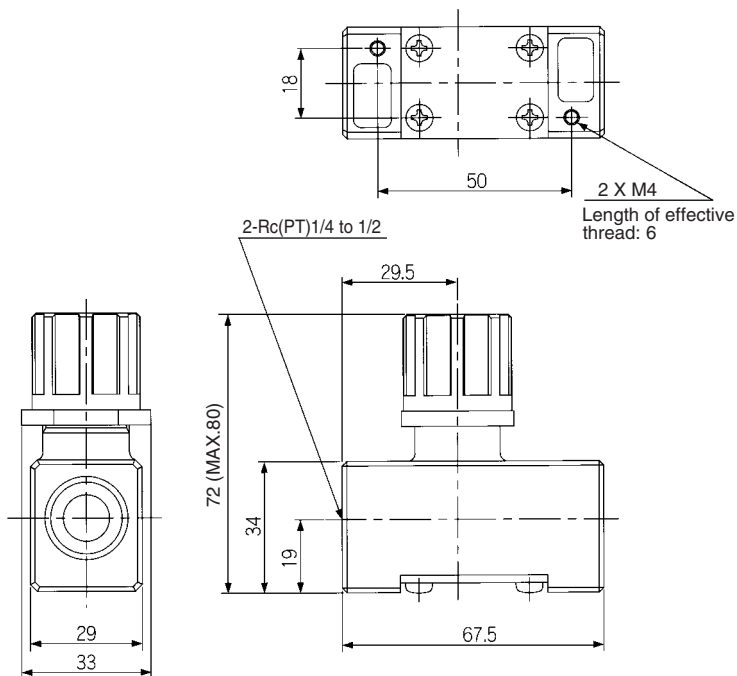
Dimensions

AS2000E/3000E



| Model | Port size | L1 | L2 | L3 | L4 | L5 | L6 | L7 | | L8 | D |
|----------------|----------------|----|------|------|----|-------|------|------|------|----|-----|
| | | | | | | | | MAX. | MIN. | | |
| AS2000E-01 | Rc(PT)1/8 | 40 | 30 | 5 | 17 | 10 | 15.5 | 61.5 | 57 | 16 | 4.5 |
| AS2000E-02 | Rc(PT)1/4 | 40 | 30 | 5 | 23 | 12 | 17 | 63.5 | 59 | 20 | 4.5 |
| AS3000E-02, 03 | Rc(PT)1/4, 3/8 | 56 | 45.5 | 5.25 | 25 | 13.25 | 20.6 | 76 | 69 | 26 | 5.5 |

AS4000E



Speed Controller with One-touch Fitting Stainless Steel Series

Elbow Type/Universal Type

Series AS-FG

Models



Elbow type



Universal type

| Elbow type | Universal type | Port size | Applicable tube outside diameter | | | | | | | | | | | Applicable cylinder bore size (mm) | | | |
|-----------------|-----------------|-----------|----------------------------------|---|---|---|----|-----------|------|-------|-------|------|-------|------------------------------------|------|------|----------------|
| | | | Metric size | | | | | Inch size | | | | | | | | | |
| | | | 3.2 | 4 | 6 | 8 | 10 | 12 | 1/8" | 5/32" | 3/16" | 1/4" | 5/16" | | 3/8" | 1/2" | |
| AS12□1FG-M5 | AS13□1FG-M5 | M5 | ● | ● | ● | | | | | | | | | | | | 6, 10, 16, 20 |
| AS22□1FG-01 | AS23□1FG-01 | R(PT) 1/8 | ● | ● | ● | ● | ●* | | | | | | | | | | 20, 25, 32 |
| AS22□1FG-02 | AS23□1FG-02 | R(PT) 1/4 | | ● | ● | ● | ● | | | | | | | | | | 20, 25, 32, 40 |
| AS32□1FG-02 | AS33□1FG-02 | R(PT) 1/4 | | | ● | ● | ● | ● | | | | | | | | | 40, 50, 63 |
| AS32□1FG-03 | AS33□1FG-03 | R(PT) 3/8 | | | ● | ● | ● | ● | | | | | | | | | 40, 50, 63 |
| AS42□1FG-04 | AS43□1FG-04 | R(PT) 1/2 | | | | | ● | ● | | | | | | | | | 63, 80, 100 |
| AS12□1FG-U10/32 | AS13□1FG-U10/32 | 10-32UNF | | | | | | | ● | ● | ● | ● | | | | | 6, 10, 16, 20 |
| AS22□1FG-N01 | AS23□1FG-N01 | NPT1/8 | | | | | | | ● | ● | ● | ● | ● | | | | 20, 25, 32 |
| AS22□1FG-N02 | AS23□1FG-N02 | NPT1/4 | | | | | | | | ● | ● | ● | ● | ● | | | 20, 25, 32, 40 |
| AS32□1FG-N02 | AS33□1FG-N02 | NPT1/4 | | | | | | | | | ● | ● | ● | | | | 40, 50, 63 |
| AS32□1FG-N03 | AS33□1FG-N03 | NPT3/8 | | | | | | | | | | ● | ● | ● | | | 40, 50, 63 |
| AS42□1FG-N04 | AS43□1FG-N04 | NPT1/2 | | | | | | | | | | | | | ● | ● | 63, 80, 100 |

Note 1) The meter-out and meter-in types can be visually determined by the flow direction symbol on the resin body.
Note 2) * Elbow type only

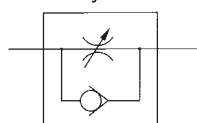
Specifications

| | |
|----------------------------------|--|
| Proof pressure | 1.5MPa |
| Maximum operating pressure | 1MPa |
| Minimum operating pressure | 0.1MPa |
| Ambient & fluid temperature | -5 to 60°C (with no freezing) |
| Number of needle revolutions | 10 revolutions (8 revolutions Note 1)) |
| Applicable tube material Note 2) | Nylon, Soft nylon, Polyurethane, Soft polyurethane |

Note 1) For types AS12□1FG and AS13□1FG

Note 2) Use caution regarding the maximum operating pressure with soft nylon, polyurethane and soft polyurethane.
(For details, refer to CAT.E501-B "Air Fittings and Tubing" pages 7-146 through 7-147.)

JIS symbol



Flow direction symbols on body

| | Meter-out type | Meter-in type |
|------------|----------------|---------------|
| Symbol | | |
| JIS symbol | | |

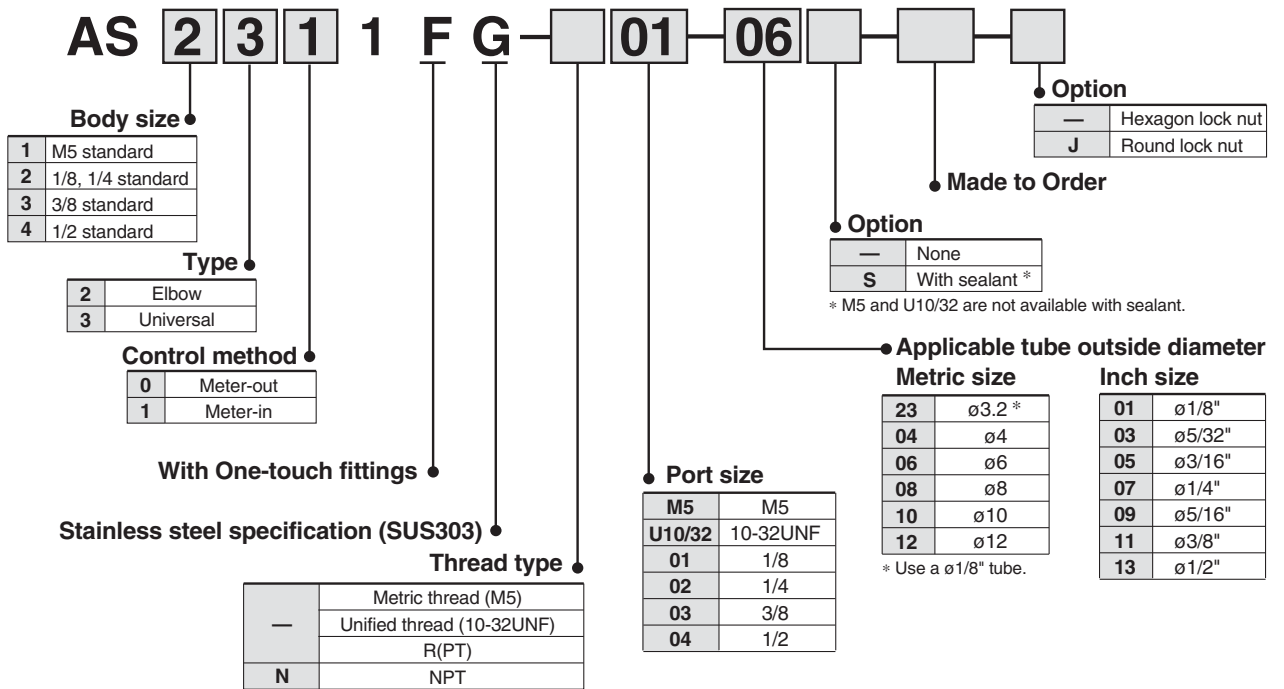
Flow Rate and Effective Area

| Model | AS12□1FG | AS22□1FG-□01 | AS22□1FG-□02 | AS32□1FG | AS42□1FG | | | | | | | |
|------------------------|--------------------------------|--------------|--------------|----------|----------|-----|-----|-----|-----|-----|------|------|
| | AS13□1FG | AS23□1FG-□01 | AS23□1FG-□02 | AS33□1FG | AS43□1FG | | | | | | | |
| Tube O.D. | Metric size | ø3.2 | ø3.2 | ø6 | ø4 | ø6 | ø8 | ø6 | ø8 | ø10 | ø10 | ø12 |
| | Inch size | ø4 | ø4 | ø8 | | | ø10 | | | ø12 | | |
| | | | ø6 | | ø10 | | | | | | | |
| Controlled (Free) flow | Flow rate ℓ/min (ANR) | 100 | 180 | 230 | 260 | 390 | 460 | 660 | 790 | 920 | 1580 | 1710 |
| | Effective area mm ² | 1.5 | 2.7 | 3.5 | 4 | 6 | 7 | 10 | 12 | 14 | 12 | 26 |

Note) The flow rate values are at a pressure of 0.5MPa and temperature of 20°C.

Series AS-FG

How to Order



Made to Order

1 Lubricant: Vaseline

X12

Ex.) AS1201FG-M5-23-X12

2 Grease-free (Seal: Fluorine Coating) + Throttle Valve (Without Check Valve)

X21

Ex.) AS1201FG-M5-23-X21

3 Throttle Valve (Without Check Valve)

X214

Ex.) AS1201FG-M5-23-X214

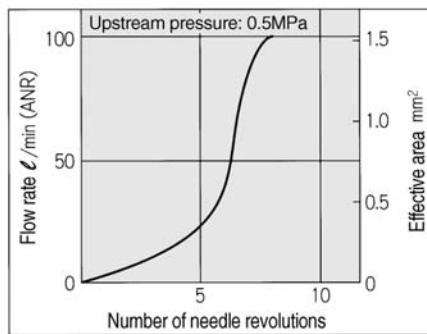
Note) Throttle valve is only compatible with the part no. of the meter-out type.

Note 1) Not particle-free

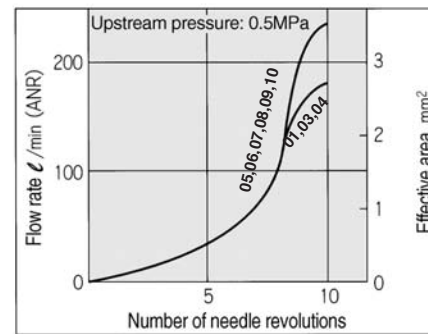
Note 2) Throttle valve is only compatible with the part no. of the meter-out type.

Needle Valve/Flow Rate Characteristics

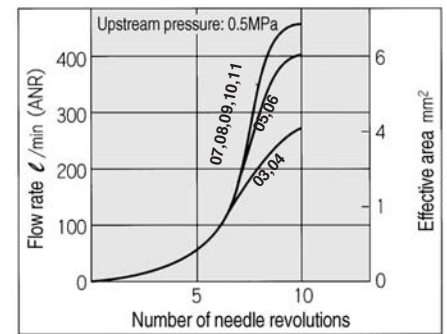
AS12□1FG
AS13□1FG



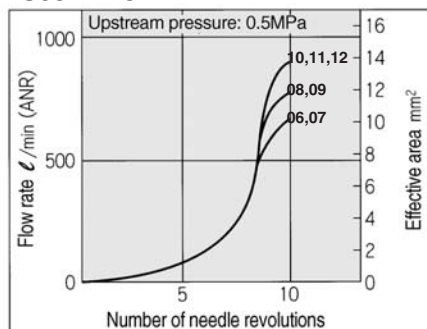
AS22□1FG-□01
AS23□1FG-□01



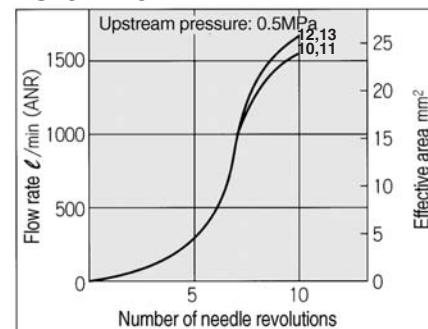
AS22□1FG-□02
AS23□1FG-□02



AS32□1FG
AS33□1FG



AS42□1FG
AS43□1FG

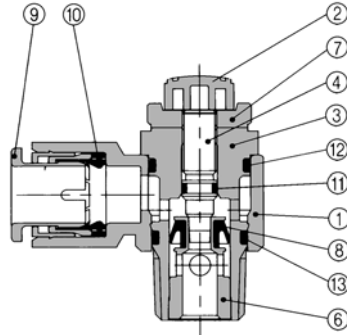
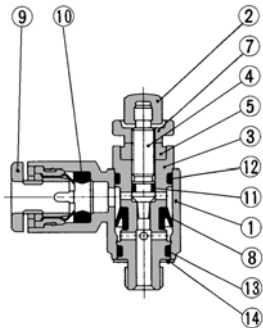


Construction/Elbow Type

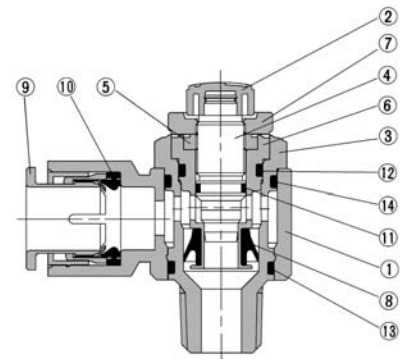
Meter-out type

M5 type

U10/32 type



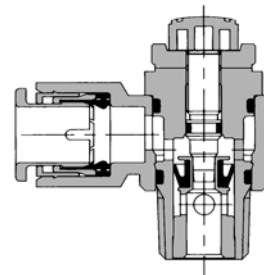
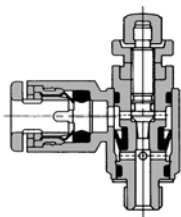
AS3201FG-02



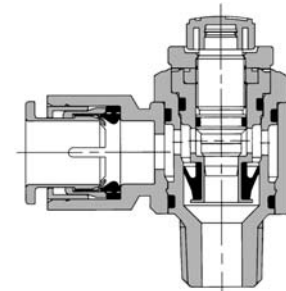
Meter-in type

M5 type

U10/32 type



AS3211FG-02



Parts list

| No. | Description | Material | Note |
|-----|---------------------|----------------------|--------------|
| 1 | Body A | PBT | |
| 2 | Knob | PBT | |
| 3 | Body B | SUS303 | |
| 4 | Needle | SUS303 | |
| 5 | Needle guide | SUS303 | |
| 6 | Seat ring | SUS303 | |
| 7 | Lock nut | SUS303 | |
| 8 | U seal | NBR | |
| 9 | Cassette | POM, Stainless steel | |
| 10 | Seal | NBR | |
| 11 | O-ring | NBR | |
| 12 | O-ring | NBR | |
| 13 | O-ring | NBR | |
| 14 | O-ring | NBR | |
| 15 | Gasket | NBR/SUS304 | M5 type only |

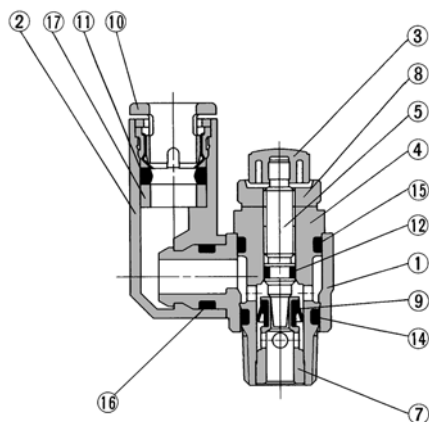
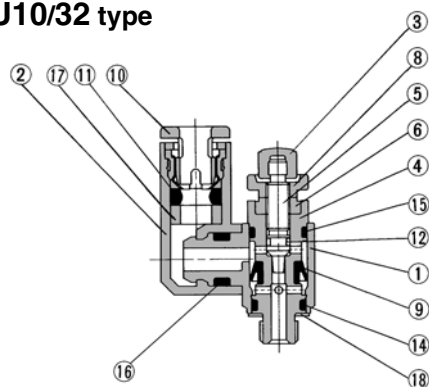
Series AS-FG

Construction/Universal Type

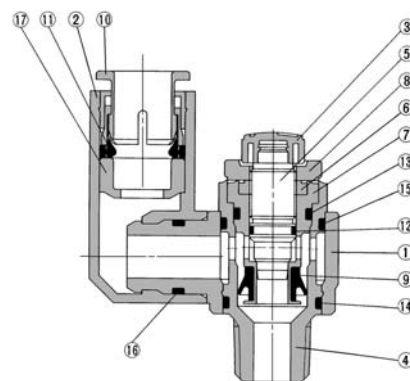
Meter-out type

M5 type

U10/32 type



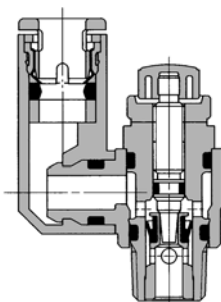
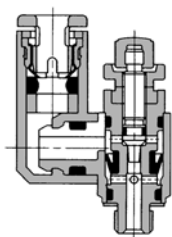
AS3301FG-02



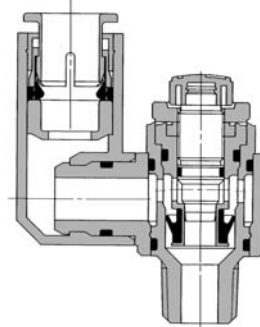
Meter-in type

M5 type

U10/32 type



AS3311FG-02

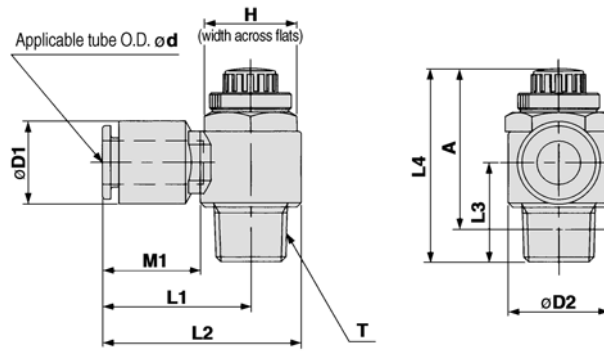


Parts List

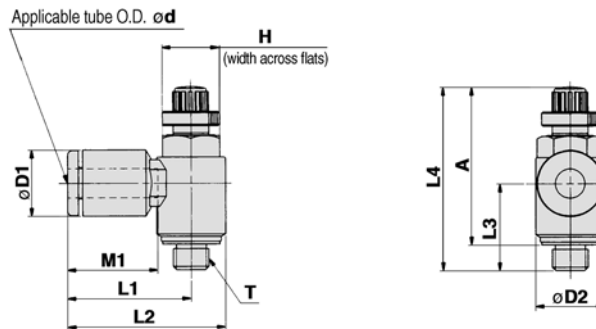
| No. | Description | Material | Note |
|-----|---------------------|----------------------------|------|
| 1 | Body A | PBT | |
| 2 | Elbow body | PBT | |
| 3 | Knob | PBT | |
| 4 | Body B | SUS303 | |
| 5 | Needle | SUS303 | |
| 6 | Needle guide | SUS303 | |
| 7 | Seat ring | SUS303 | |
| 8 | Lock nut | SUS303 | |
| 9 | U seal | NBR | |
| 10 | Cassette | POM, Stainless steel | |
| 11 | Seal | NBR | |
| 12 | O-ring | NBR | |
| 13 | O-ring | NBR | |
| 14 | O-ring | NBR | |
| 15 | O-ring | NBR | |
| 16 | O-ring | NBR | |
| 17 | Spacer | POM <small>Note 1)</small> | |
| 18 | Gasket | NBR, Stainless steel | |

Note 1) $\phi 3/16"$, $\phi 3/8"$ and $\phi 1/2"$ are SUS303.

Dimensions/Elbow Type



**M5 type
U10/32 type**



Metric size

| Model | d | T | H | D1 | D2 | L1 | L2 | L3 | L4 | | A* | | M1 | Weight g | | |
|----------------|-----|----------|----|------|------|------|------|------|------|------|------|------|------|-------------|------|----|
| | | | | | | | | | Max. | Min. | Max. | Min. | | | | |
| AS12□1FG-M5-23 | 3.2 | M5 | 8 | 8.4 | 9.6 | 17.3 | 22.1 | 12.3 | 28.6 | 25.8 | 25 | 22.2 | 12.7 | 7 | | |
| AS22□1FG-01-23 | 3.2 | R(PT)1/8 | 12 | 9.3 | 14.2 | 20.4 | 27.5 | 14.3 | 36.1 | 31.1 | 32.1 | 27.1 | 12.7 | 16 | | |
| AS12□1FG-M5-04 | 4 | M5 | 8 | 9.3 | 9.6 | 17.3 | 22.1 | 12.3 | 28.6 | 25.8 | 25 | 22.2 | 12.7 | 7 | | |
| AS12□1FG-M5-06 | 6 | | | 11.6 | | 18.1 | 22.9 | 11.7 | | | | | | | 13.5 | |
| AS22□1FG-01-04 | 4 | R(PT)1/8 | 12 | 9.3 | 14.2 | 20.4 | 27.5 | 13.4 | 35.2 | 30.2 | 32.1 | 27.1 | 12.7 | 17 | | |
| AS22□1FG-01-06 | 6 | | | 11.6 | | 20.4 | 27.5 | | | | | | 13.4 | | 13.5 | |
| AS22□1FG-01-08 | 8 | | | 15.2 | | 25.3 | 32.4 | | | | | | 19.5 | | 18.5 | 19 |
| AS22□1FG-01-10 | 10 | | | 18.5 | | 33.1 | 40.2 | | | | | | | | 14.1 | 21 |
| AS22□1FG-02-04 | 4 | R(PT)1/4 | 17 | 10.4 | 18.5 | 25.2 | 34.4 | 19.7 | 40.1 | 35.1 | 34.4 | 29.4 | 16 | 32 | | |
| AS22□1FG-02-06 | 6 | | | 12.8 | | 25.2 | 34.4 | | | | | | 17 | | 17 | |
| AS22□1FG-02-08 | 8 | | | 15.2 | | 27.2 | 36.4 | | | | | | 18.5 | | 34 | |
| AS22□1FG-02-10 | 10 | | | 18.5 | | 33.9 | 43.2 | | | | | | 19.5 | | 21 | 36 |
| AS32□1FG-02-06 | 6 | R(PT)1/4 | 19 | 12.8 | 23 | 27.8 | 39.3 | 21.3 | 48.3 | 43.3 | 42.8 | 37.8 | 17 | 60 | | |
| AS32□1FG-02-08 | 8 | | | 15.2 | | 29.5 | 41 | | | | | | 18.5 | | 63 | |
| AS32□1FG-02-10 | 10 | | | 18.5 | | 31.8 | 43.3 | | | | | | 21 | | 67 | |
| AS32□1FG-02-12 | 12 | | | 20.9 | | 32.8 | 44.3 | | | | | | 22 | | 69 | |
| AS32□1FG-03-06 | 6 | R(PT)3/8 | 19 | 12.8 | 23 | 27.8 | 39.3 | 19.8 | 45.4 | 40.4 | 40.2 | 35.2 | 17 | 55 | | |
| AS32□1FG-03-08 | 8 | | | 15.2 | | 29.5 | 41 | | | | | | 18.5 | | 57 | |
| AS32□1FG-03-10 | 10 | | | 18.5 | | 31.8 | 43.3 | | | | | | 21 | | 59 | |
| AS32□1FG-03-12 | 12 | | | 20.9 | | 32.8 | 44.3 | | | | | | 22 | | 61 | |
| AS42□1FG-04-10 | 10 | R(PT)1/2 | 24 | 18.5 | 28.6 | 33.6 | 47.9 | 24.5 | 56.7 | 49.2 | 49.6 | 42.1 | 21 | 100 | | |
| AS42□1FG-04-12 | 12 | | | 20.9 | | 34.6 | 48.9 | | | | | | 22 | | 101 | |

* Reference dimensions for threads after installation.

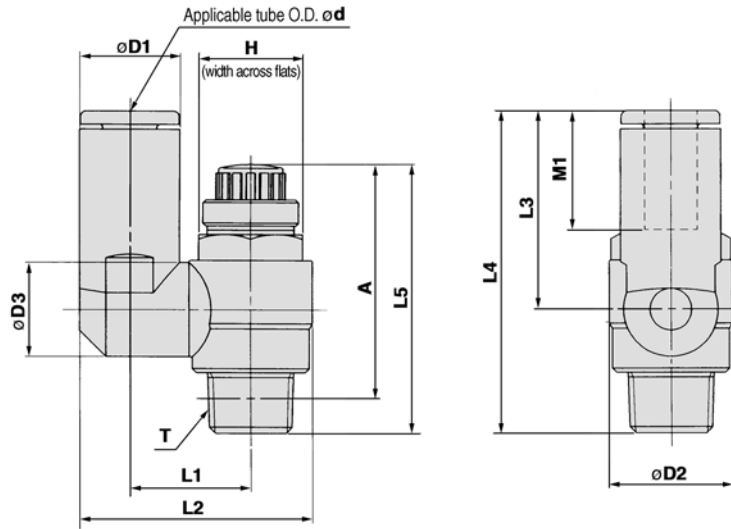
Inch size

| Model | d | T | H | D1 | D2 | L1 | L2 | L3 | L4 | | A* | | M1 | Weight g | | |
|--------------------|-------|----------|------|------|------|------|------|------|------|------|------|------|------|-------------|------|------|
| | | | | | | | | | Max. | Min. | Max. | Min. | | | | |
| AS12□1FG-U10/32-01 | 1/8" | 10-32UNF | 8 | 8.4 | 9.6 | 17.3 | 22.1 | 12.3 | 28.6 | 25.8 | 25 | 22.2 | 12.7 | 7 | | |
| AS12□1FG-U10/32-03 | 5/32" | | | 9.3 | | 21.3 | 26.1 | | | | | | 11.7 | | 13.5 | |
| AS12□1FG-U10/32-05 | 3/16" | | | 11.4 | | 18.3 | 23.1 | | | | | | | | | |
| AS12□1FG-U10/32-07 | 1/4" | | | 12 | | 18.3 | 23.1 | | | | | | | | | |
| AS22□1FG-N01-01 | 1/8" | NPT 1/8 | 12.7 | 9.3 | 14.2 | 20.4 | 27.5 | 13.4 | 35.2 | 30.2 | 32.1 | 27.1 | 12.7 | 16 | | |
| AS22□1FG-N01-03 | 5/32" | | | 11.4 | | 23.1 | 30.2 | | | | | | 13.4 | | 13.5 | |
| AS22□1FG-N01-05 | 3/16" | | | 13.2 | | 23.9 | 31 | | | | | | 19.5 | | 18.5 | 19 |
| AS22□1FG-N01-07 | 1/4" | | | 13.2 | | 23.9 | 31 | | | | | | | | 21 | 21 |
| AS22□1FG-N01-09 | 5/16" | 15.2 | 25.3 | 32.4 | 14.1 | 21 | 21 | | | | | | | | | |
| AS22□1FG-N02-03 | 5/32" | NPT 1/4 | 17.5 | 10.4 | 18.5 | 25.2 | 34.4 | 17.7 | 39.9 | 34.9 | 34.4 | 29.4 | 16 | 32 | | |
| AS22□1FG-N02-05 | 3/16" | | | 11.4 | | 24.9 | 34.2 | | | | | | 17 | | 17 | |
| AS22□1FG-N02-07 | 1/4" | | | 13.2 | | 25.2 | 34.5 | | | | | | 19.5 | | 18.5 | 34 |
| AS22□1FG-N02-09 | 5/16" | | | 15.2 | | 27.2 | 36.4 | | | | | | | | 21 | 36 |
| AS22□1FG-N02-11 | 3/8" | 17.9 | 33.9 | 43.2 | 19.5 | 21 | 36 | | | | | | | | | |
| AS32□1FG-N02-07 | 1/4" | NPT 1/4 | 19 | 13.2 | 23 | 27.8 | 39.3 | 21.3 | 48.3 | 43.3 | 42.8 | 37.8 | 17 | 60 | | |
| AS32□1FG-N02-09 | 5/16" | | | 15.2 | | 29.5 | 41 | | | | | | 18.5 | | 63 | |
| AS32□1FG-N02-11 | 3/8" | | | 17.9 | | 31.8 | 43.3 | | | | | | 21 | | 67 | |
| AS32□1FG-N03-07 | 1/4" | | | 13.2 | | 27.8 | 39.3 | | | | | | 19.8 | | 45.4 | 40.4 |
| AS32□1FG-N03-09 | 5/16" | 15.2 | 29.5 | 41 | 18.5 | 57 | | | | | | | | | | |
| AS32□1FG-N03-11 | 3/8" | 17.9 | 31.8 | 43.3 | 21 | 59 | | | | | | | | | | |
| AS42□1FG-N04-11 | 3/8" | NPT 1/2 | 23.8 | 17.9 | 28.6 | 33.6 | 47.9 | 24.5 | 56.7 | 49.2 | 49.6 | 42.1 | | 21 | | |
| AS42□1FG-N04-13 | 1/2" | | | 21.7 | | 35.2 | 49.5 | | | | | | 22 | 101 | | |

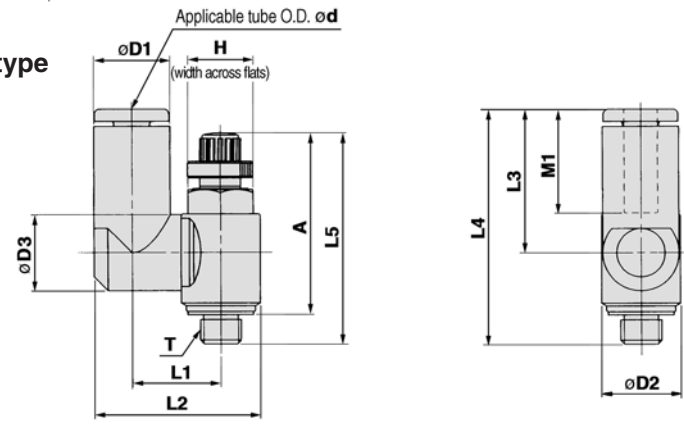
* Reference dimensions for 10-32UNF and NPT threads after installation.

Series AS-FG

Dimensions/Universal Type



For M5 type
For U10/32 type



Metric size

| Model | d | T | H | D1 | D2 | D3 | L1 | L2 | L3 | L4 | L5 | | A* | | M1 | Weight g | | | |
|----------------|-----|--------------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------------|------|------|------|
| | | | | | | | | | | | Max. | Min. | Max. | Min. | | | | | |
| AS13□1FG-M5-23 | 3.2 | M5 | 8 | 8.4 | 9.3 | 9.3 | 10.8 | 20.3 | 17.5 | 28.7 | 28.6 | 25.8 | 25 | 22.2 | 12.7 | 7 | | | |
| AS13□1FG-M5-04 | 4 | | | 9.3 | | | | | | | | | | | | | | | |
| AS13□1FG-M5-06 | 6 | | | 11.6 | | | | | | | | | | | | | | | |
| AS23□1FG-01-23 | 3.2 | R(PT) 1/8 | 12 | 8.4 | 14.2 | 9.3 | 13.1 | 24.4 | 17.5 | 30.9 | 35.2 | 30.2 | 32.1 | 27.1 | 12.7 | 17 | | | |
| AS23□1FG-01-04 | 4 | | | 9.3 | | | | | | | | | | | | | | | |
| AS23□1FG-01-06 | 6 | | | 11.6 | | | | | | | | | | | | | | | |
| AS23□1FG-01-08 | 8 | 15.2 | 12.9 | 16.2 | 30.9 | 28.2 | 40.8 | 39.9 | 34.9 | 34.4 | 29.4 | 18.5 | 21 | 16 | 32 | | | | |
| AS23□1FG-02-04 | 4 | 10.4 | 10.9 | 16.2 | 30.6 | 21.9 | 39.6 | | | | | | | | | | | | |
| AS23□1FG-02-06 | 6 | 12.8 | 18.5 | 18.4 | 34 | 25.2 | 42.1 | | | | | | | | | | | | |
| AS23□1FG-02-08 | 8 | 15.2 | 12.9 | 18.3 | 35.2 | 28.2 | 45.1 | 48.3 | 43.3 | 42.8 | 37.8 | 18.5 | 36 | 21 | 40 | | | | |
| AS23□1FG-02-10 | 10 | 18.5 | 20.2 | 38.7 | 31 | 47.9 | | | | | | | | | | | | | |
| AS33□1FG-02-06 | 6 | 12.8 | 12.9 | 20.6 | 38.5 | 25.2 | 46.5 | | | | | | | | | | | | |
| AS33□1FG-02-08 | 8 | 15.2 | 12.9 | 20.6 | 39.7 | 28.2 | 49.5 | 48.3 | 43.3 | 42.8 | 37.8 | 18.5 | 63 | 21 | 67 | | | | |
| AS33□1FG-02-10 | 10 | 18.5 | 20.9 | 16.2 | 23 | 43.7 | 32.6 | | | | | | | | | 53.9 | | | |
| AS33□1FG-02-12 | 12 | 20.9 | 20.9 | 16.2 | 23 | 44.9 | 34.4 | | | | | | | | | 55.7 | | | |
| AS33□1FG-03-06 | 6 | R(PT) 3/8 | 19 | 12.8 | 23 | 12.9 | 20.6 | 38.5 | 25.2 | 45 | 45.4 | 40.4 | 40 | 35 | 17.5 | 59 | | | |
| AS33□1FG-03-08 | 8 | | | 15.2 | | | | | | | | | | | | | 39.7 | 28.2 | 48 |
| AS33□1FG-03-10 | 10 | | | 18.5 | | | | | | | | | | | | | 43.7 | 32.6 | 52.4 |
| AS33□1FG-03-12 | 12 | 20.9 | 44.9 | 34.4 | 54.2 | 56.7 | 49.2 | 49.6 | 42.1 | 21 | 104 | | | | | | | | |
| AS43□1FG-04-10 | 10 | 18.5 | 28.6 | 16.2 | 25.8 | | | | | | | 49.4 | 32.6 | 57.1 | | | | | |
| AS43□1FG-04-12 | 12 | 20.9 | 19.4 | 26.8 | 52 | | | | | | | 36.3 | 60.8 | | | | | | |

* Reference dimensions for M5 and R(PT) threads after installation.

Inch size

| Model | d | T | H | D1 | D2 | D3 | L1 | L2 | L3 | L4 | L5 | | A* | | M1 | weight g | | | | | | | | |
|--------------------|-------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------------|------|------|------|------|------|------|------|----|
| | | | | | | | | | | | Max. | Min. | Max. | Min. | | | | | | | | | | |
| AS13□1FG-U10/32-01 | 1/8" | 10-32UNF 8 | 8 | 8.4 | 9.6 | 9.3 | 10.8 | 19.8 | 17.5 | 28.7 | 28.6 | 25.8 | 25 | 22.2 | 12.7 | 7 | | | | | | | | |
| AS13□1FG-U10/32-03 | 5/32" | | | 9.3 | | | | | | | | | | | | | | | | | | | | |
| AS13□1FG-U10/32-05 | 3/16" | | | 11.4 | | | | | | | | | | | | | | | | | | | | |
| AS13□1FG-U10/32-07 | 1/4" | 12 | 21.3 | 23.3 | 34.5 | 35.2 | 30.2 | 32.1 | 27.1 | 16.5 | 8 | | | | | | | | | | | | | |
| AS23□1FG-N01-01 | 1/8" | 8.4 | 24.4 | 17.5 | 30.9 | | | | | | | 18.5 | 21 | 21 | 17 | | | | | | | | | |
| AS23□1FG-N01-03 | 5/32" | 9.3 | 24.9 | 17.5 | 30.9 | | | | | | | | | | | | | | | | | | | |
| AS23□1FG-N01-05 | 3/16" | 11.4 | 26.8 | 23.9 | 35.2 | 18.5 | 19 | 21 | 33 | | | | | | | | | | | | | | | |
| AS23□1FG-N01-07 | 1/4" | 13.2 | 29.9 | 25.6 | 36.3 | | | | | | | | | | | | | | | | | | | |
| AS23□1FG-N01-09 | 5/16" | 15.2 | 30.9 | 28.2 | 40.8 | | | | | | | | | | | | | | | | | | | |
| AS23□1FG-N02-03 | 5/32" | NPT 1/8 | 12.7 | 11.4 | 14 | 10.9 | 14 | 30.6 | 21.9 | 39.6 | 48.3 | 43.3 | 42.8 | 37.8 | 16 | 32 | | | | | | | | |
| AS23□1FG-N02-05 | 3/16" | | | | | | | | | | | | | | | | 11.4 | 31.1 | 23.9 | 42.1 | 17 | 33 | | |
| AS23□1FG-N02-07 | 1/4" | | | | | | | | | | | | | | | | 13.2 | 34.2 | 25.6 | 45.1 | | | 18.5 | 36 |
| AS23□1FG-N02-09 | 5/16" | 15.2 | 35.2 | 28.2 | 47.9 | 21 | 39 | | | | | | | | | | | | | | | | | |
| AS23□1FG-N02-11 | 3/8" | 17.9 | 20.2 | 38.7 | 31 | | | 46.5 | 21 | 40 | | | | | | | | | | | | | | |
| AS33□1FG-N02-07 | 1/4" | 13.2 | 12.9 | 20.6 | 38.7 | | | 25.6 | | | 46.9 | 17 | 60 | | | | | | | | | | | |
| AS33□1FG-N02-09 | 5/16" | 15.2 | 15.2 | 23 | 39.7 | 28.2 | 49.5 | 18.5 | | | 63 | | | | | | | | | | | | | |
| AS33□1FG-N02-11 | 3/8" | 17.9 | 16.2 | 23 | 43.7 | 32.6 | 53.9 | | 21 | 69 | | | | | | | | | | | | | | |
| AS33□1FG-N03-07 | 1/4" | NPT 3/8 | 19 | 13.2 | 12.9 | 20.6 | 38.7 | | | | | 25.6 | 45 | 45.4 | 40.4 | 40.2 | 35.2 | 17 | 56 | | | | | |
| AS33□1FG-N03-09 | 5/16" | | | | | | | 15.2 | | | 23 | | | | | | | | | 12.9 | 20.6 | 39.7 | 28.2 | 48 |
| AS33□1FG-N03-11 | 3/8" | | | | | | | 17.9 | 16.2 | 23 | 43.7 | | | | | | | | | 32.6 | 52.4 | 21 | 65 | |
| AS43□1FG-N04-11 | 3/8" | NPT 1/2 | 23.8 | 17.9 | 16.2 | 25.8 | 49.4 | 32.6 | 54.4 | 56.7 | 49.2 | 49.6 | 42.1 | 21 | 104 | | | | | | | | | |
| AS43□1FG-N04-13 | 1/2" | | | | | | | | | | | | | | | 21.7 | 19.4 | 26.8 | 52 | 36.3 | 57.1 | | | 22 |

* Reference dimensions for 10-32UNF and NPT threads after installation.

Speed Controller with One-touch Fitting Stainless Steel Series

In-line Type

Series AS-FG



Models

| Model | Applicable tube outside diameter | | | | | | | | | | | | | Applicable cylinder bore size (mm) |
|----------|----------------------------------|---|---|---|----|----|-----------|-------|-------|------|-------|------|------|------------------------------------|
| | Metric size | | | | | | Inch size | | | | | | | |
| | 3.2 | 4 | 6 | 8 | 10 | 12 | 1/8" | 5/32" | 3/16" | 1/4" | 5/16" | 3/8" | 1/2" | |
| AS1001FG | ● | ● | ● | | | | ● | ● | ● | ● | | | | 6, 10, 16, 20 |
| AS2001FG | | ● | ● | | | | | ● | ● | ● | | | | 20, 25, 32 |
| AS2051FG | | | ● | ● | | | | | ● | ● | ● | | | 20, 25, 32, 40 |
| AS3001FG | | | ● | ● | ● | ● | | | | ● | ● | ● | | 40, 50, 63 |
| AS4001FG | | | | | ● | ● | | | | | | ● | ● | 63, 80, 100 |

Specifications

| | |
|---|--|
| Proof pressure | 1.5MPa |
| Maximum operating pressure | 1MPa |
| Minimum operating pressure | 0.1MPa |
| Ambient and fluid temperature | -5 to 60°C (with no freezing) |
| Number of needle revolutions | 10 revolutions (8 revolutions ^{Note 1)}) |
| Applicable tube material ^{Note 2)} | Nylon, Soft nylon, Polyurethane, Soft polyurethane |

Note 1) For AS1001FG type

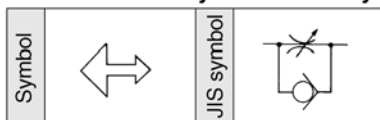
Note 2) Use caution regarding the maximum operating pressure with soft nylon, polyurethane and soft polyurethane. (For details, refer to CAT.E501-B "Air Fittings and Tubing" pages 7-146 through 7-147.)

Flow Rate and Effective Area

| Model | | AS1001FG | AS2001FG | AS2051FG | AS3001FG | AS4001FG | | | | | |
|------------------------|--------------------------------|---------------------------|-----------------|---------------------------|--------------------------|----------------|-----|-----|-----|------|------|
| Tube O.D. | Metric size | ø3.2 ø4 ø6 | ø4 ø6 | ø6 ø8 | ø6 ø8 ø10 ø12 | ø10 ø12 | | | | | |
| | Inch size | ø1/8" ø5/32" ø3/16" | ø3/16" ø1/4" | ø3/16" ø1/4" ø5/16" | ø1/4" ø5/16" ø3/8" | ø3/8" ø1/2" | | | | | |
| Controlled (Free) flow | Flow rate ℓ/min (ANR) | 100 | 130 | 230 | 290 | 460 | 420 | 660 | 920 | 1050 | 1390 |
| | Effective area mm ² | 1.5 | 2 | 3.5 | 4.5 | 7 | 6.5 | 10 | 14 | 16 | 21 |

Note) Flow rate values are at a pressure of 0.5MPa and a temperature of 20°C.

Flow direction symbols on body



Series AS-FG

How to Order

AS 200 **1** **F** **G** 06

Body size

| | |
|-----|--------------|
| 100 | M5 standard |
| 200 | 1/8 standard |
| 205 | 1/4 standard |
| 300 | 3/8 standard |
| 400 | 1/2 standard |

With One-touch fitting

Stainless steel specification (SUS303)

Option

| | |
|---|------------------|
| — | Hexagon lock nut |
| J | Round lock nut |

Made to Order

Applicable tube outside diameter

| Metric size | Inch size |
|-------------|-----------|
| 23 | ø3.2* |
| 04 | ø4 |
| 06 | ø6 |
| 08 | ø8 |
| 10 | ø10 |
| 12 | ø12 |

| Metric size | Inch size |
|-------------|-----------|
| 01 | ø1/8" |
| 03 | ø5/32" |
| 05 | ø3/16" |
| 07 | ø1/4" |
| 09 | ø5/16" |
| 11 | ø3/8" |
| 13 | ø1/2" |

* Use a ø1/8" tube.

Made to Order

1 Lubricant: Vaseline **X12**

Ex.) AS1001FG-04-X12

2 Grease-free (Seal: Fluorine Coating) + Throttle Valve (Without Check Valve) **X21**

Ex.) AS1001FG-04-X21

3 Throttle Valve (Without Check Valve) **X214**

Ex.) AS1001FG-04-X214

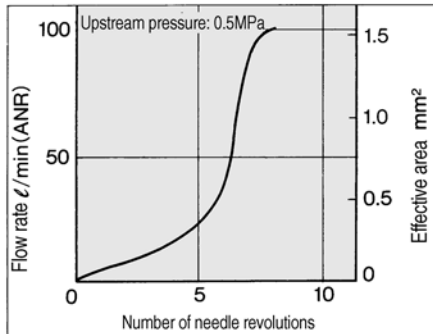
Note) Throttle valve is only compatible with the part no. of the meter-out type.

Note 1) Not particle-free

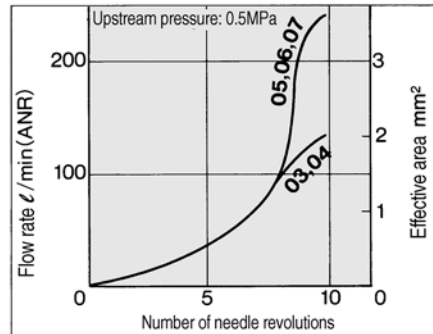
Note 2) Throttle valve is only compatible with the part no. of the meter-out type.

Needle Valve/Flow Rate Characteristics

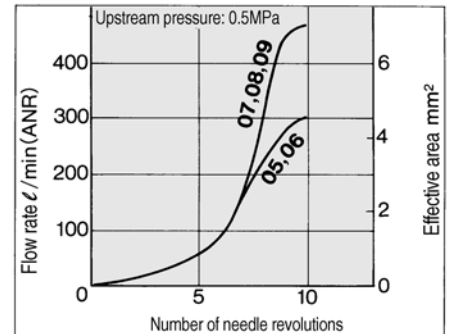
AS1001FG



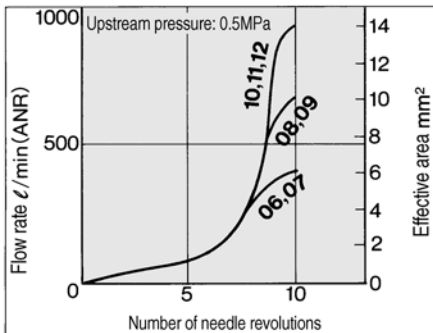
AS2001FG



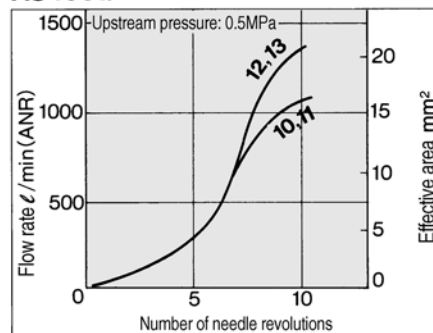
AS2051FG



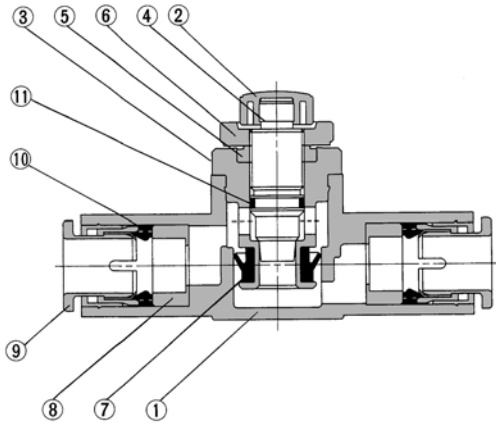
AS3001FG



AS4001FG



Construction

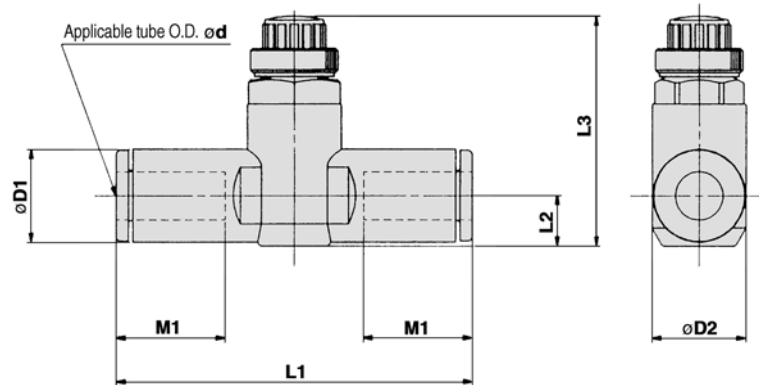


Parts list

| No. | Description | Material | Note |
|-----|---------------------|------------------------|------|
| 1 | Body A | PBT | |
| 2 | Knob | PBT | |
| 3 | Body B | SUS303 | |
| 4 | Needle | SUS303 | |
| 5 | Needle guide | SUS303 | |
| 6 | Lock nut | SUS303 | |
| 7 | U seal | NBR | |
| 8 | Spacer | POM ^{Note 1)} | |
| 9 | Cassette | POM, Stainless steel | |
| 10 | Seal | NBR | |
| 11 | O-ring | NBR | |

Note) $\phi 3/16"$, $\phi 3/8"$ and $\phi 1/2"$ are SUS303.

Dimensions



Metric size

| Model | d | D1 | D2 | L1 | L2 | L3 | | M1 | Weight g | |
|-------------|-----|------|------|------|------|------|------|------|-------------|----|
| | | | | | | Max. | Min. | | | |
| AS1001FG-23 | 3.2 | 8.4 | 10 | 38 | 4.5 | 23.5 | 20.7 | 12.7 | 6 | |
| AS1001FG-04 | 4 | 9.3 | | 39.2 | 5.2 | 24.2 | 21.4 | | 7 | |
| AS1001FG-06 | 6 | 11.6 | | 40.7 | 6.2 | 25.2 | 22.4 | | 13.5 | 8 |
| AS2001FG-04 | 4 | 9.3 | 11.8 | 40.7 | 5.2 | 32.6 | 27.6 | 12.7 | 12 | |
| AS2001FG-06 | 6 | 11.6 | | 44.8 | 6.3 | 33.7 | 28.7 | | 13.5 | 13 |
| AS2051FG-06 | 6 | 12.8 | 14.8 | 53.2 | 6.7 | 35.2 | 30.2 | 17 | 26 | |
| AS2051FG-08 | 8 | 15.2 | | 59.8 | 8.1 | 32.6 | 27.6 | | 18 | 31 |
| AS3001FG-06 | 6 | 12.8 | 19.8 | 59 | 7.4 | 38.3 | 33.3 | 17 | 18 | |
| AS3001FG-08 | 8 | 15.2 | | 64.4 | 8.2 | 39.1 | 34.1 | | 18 | 21 |
| AS3001FG-10 | 10 | 18.5 | | 71.6 | 9.8 | 40.6 | 35.6 | | 21 | 32 |
| AS3001FG-12 | 12 | 20.9 | 26.5 | 76 | 11 | 41.8 | 36.8 | 22 | 33 | |
| AS4001FG-10 | 10 | 18.5 | | 82 | 11.3 | 51.1 | 43.6 | | 21 | 36 |
| AS4001FG-12 | 12 | 20.9 | | | | 52.1 | 44.6 | 22 | 40 | |

Inch size

| Model | d | D1 | D2 | L1 | L2 | L3 | | M1 | Weight g | |
|-------------|-------|------|------|------|------|------|------|------|-------------|----|
| | | | | | | Max. | Min. | | | |
| AS1001FG-01 | 1/8" | 8.4 | 10 | 38 | 4.5 | 23.5 | 20.7 | 12.7 | 6 | |
| AS1001FG-03 | 5/32" | 9.3 | | 39.2 | 5.2 | 24.2 | 21.4 | | 7 | |
| AS1001FG-05 | 3/16" | 11.4 | | 48.7 | 6.2 | 25.2 | 22.4 | | 16.5 | 8 |
| AS1001FG-07 | 1/4" | 12 | 11.8 | 40.7 | 5.2 | 32.6 | 27.6 | 12.7 | 12 | |
| AS2001FG-03 | 5/32" | 9.3 | | 40.7 | 5.2 | 32.6 | 27.6 | | 12.7 | 12 |
| AS2001FG-05 | 3/16" | 11.4 | 11.8 | 50 | 6.2 | 33.6 | 28.6 | 16.5 | 18 | |
| AS2001FG-07 | 1/4" | 13.2 | | 52.2 | 7.1 | 34.5 | 29.5 | | 17 | 21 |
| AS2051FG-05 | 3/16" | 11.4 | 14.8 | 52.2 | 6.2 | 34.6 | 29.6 | 16.5 | 24 | |
| AS2051FG-07 | 1/4" | 13.2 | | 54.4 | 7.1 | 35.5 | 30.5 | | 17 | 26 |
| AS2051FG-09 | 5/16" | 15.2 | | 59.8 | 8.1 | 32.6 | 27.6 | | 18 | 31 |
| AS3001FG-07 | 1/4" | 13.2 | 19.8 | 59 | 7.4 | 38.3 | 33.3 | 17 | 42 | |
| AS3001FG-09 | 5/16" | 15.2 | | 64.4 | 8.2 | 39.1 | 34.1 | | 18 | 46 |
| AS3001FG-11 | 3/8" | 17.9 | 26.5 | 70.8 | 9.5 | 40.3 | 35.3 | 21 | 53 | |
| AS4001FG-11 | 3/8" | 17.9 | | 76.9 | 10.3 | 51 | 43.5 | | 21 | 97 |
| AS4001FG-13 | 1/2" | 21.7 | | 83.1 | 11.6 | 52.4 | 44.9 | 22 | 106 | |

Dual Speed Controller with One-touch Fitting Stainless Steel Series

Series ASD-FG

Two flow control valves and check valves have been integrated.

Pop out prevention and speed control of single acting cylinder.

Stable speed control can be achieved even with load fluctuations.

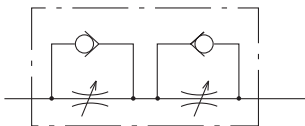


Models

| Model | Port size | Applicable tube outside diameter | | | | | | | | | | | | | | | | | | | |
|-----------------|-----------|----------------------------------|---|---|----|----|-----------|-------|-------|------|-------|------|---|---|--|--|--|--|--|--|---|
| | | Metric size | | | | | Inch size | | | | | | | | | | | | | | |
| | | 4 | 6 | 8 | 10 | 12 | 1/8" | 5/32" | 3/16" | 1/4" | 5/16" | 3/8" | | | | | | | | | |
| ASD230FG-M5 | M5 x 0.8 | π● | ● | | | | | | | | | | | | | | | | | | |
| ASD330FG-01 | R(PT) 1/8 | | ● | ● | | | | | | | | | | | | | | | | | |
| ASD430FG-02 | R(PT) 1/4 | | ● | ● | ● | | | | | | | | | | | | | | | | |
| ASD530FG-02 | R(PT) 1/4 | | ● | ● | ● | ● | | | | | | | | | | | | | | | |
| ASD530FG-03 | R(PT) 3/8 | | ● | ● | ● | ● | | | | | | | | | | | | | | | |
| ASD630FG-04 | R(PT) 1/2 | | | | ● | ● | | | | | | | | | | | | | | | |
| ASD230FG-U10/32 | 10-32 UNF | | | | | | ● | ● | ● | ● | | | | | | | | | | | |
| ASD330FG-N01 | NPT 1/8 | | | | | | | | | | ● | ● | ● | | | | | | | | |
| ASD430FG-N02 | NPT 1/4 | | | | | | | | | | | ● | ● | ● | | | | | | | |
| ASD530FG-N02 | NPT 1/4 | | | | | | | | | | | ● | ● | ● | | | | | | | |
| ASD530FG-N03 | NPT 3/8 | | | | | | | | | | | ● | ● | ● | | | | | | | |
| ASD630FG-N04 | NPT 1/2 | | | | | | | | | | | | | | | | | | | | ● |

Specifications

JIS symbol



| | |
|---|--|
| Proof pressure | 1.5MPa |
| Maximum operating pressure | 1MPa |
| Minimum operating pressure | 0.1MPa |
| Ambient & fluid temperature | -5 to 60°C (with no freezing) |
| Number of needle revolutions | 10 revolutions (8 revolutions ^{Note 1)}) |
| Applicable tube material ^{Note 2)} | Nylon, Soft nylon, Polyurethane, Soft polyurethane |

Note 1) For ASD230FG type

Note 2) Use caution regarding the maximum operating pressure with soft nylon, polyurethane and soft polyurethane.

Flow direction symbols on body

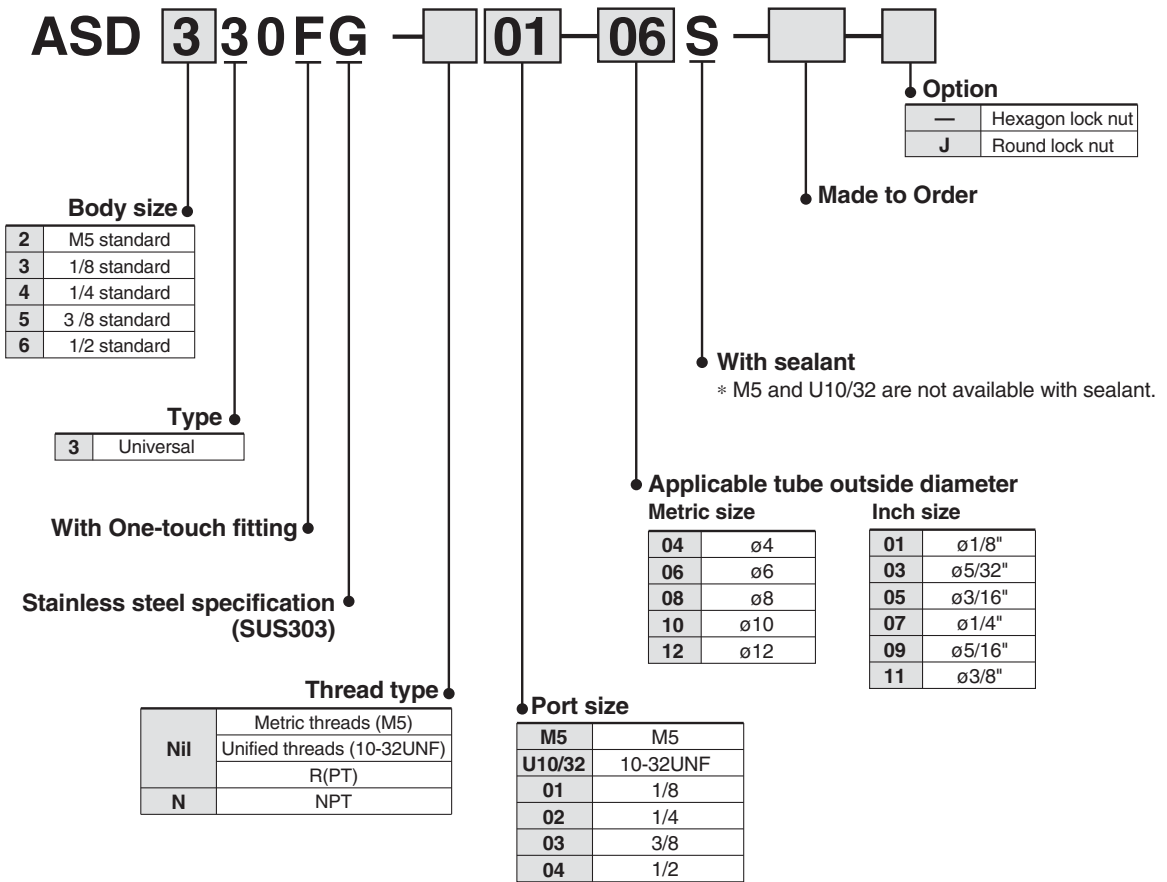
| | Meter-out type | Meter-in type |
|------------|----------------|---------------|
| Symbol | | |
| JIS symbol | | |

Flow Rate and Effective Area

| Model | | ASD230FG | ASD330FG | ASD430FG | | ASD530FG | | | ASD630FG | |
|------------------------|--------------------------------|-----------------|-----------------|----------|--------------------------|----------|--------|----------|----------|-------|
| Tube O.D. | Metric size | ø4, ø6 | ø6, ø8 | ø6 | ø8, ø10 | ø6 | ø8 | ø10, ø12 | ø10 | ø12 |
| | Inch size | ø1/8" ø5/32" | ø3/16" ø1/4" | — | ø1/4" ø5/16" ø3/8" | ø1/4" | ø5/16" | ø3/8" | — | ø3/8" |
| Controlled flow (Free) | Flow rate ℓ/min (ANR) | 75 | 175 | 295 | 350 | 500 | 600 | 700 | 1200 | 1300 |
| | Effective area mm ² | 1.1 | 2.7 | 4.5 | 5.3 | 7.6 | 9.1 | 10.7 | 18.3 | 19.8 |

Note 1) Flow rate values are at a pressure of 0.5MPa and a temperature of 20°C.

How to Order



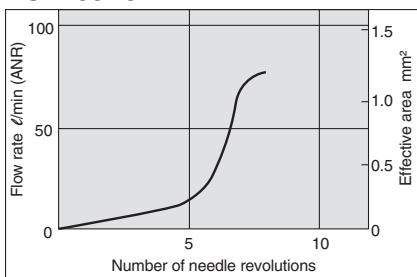
Made to Order

1 Lubricant: Vaseline

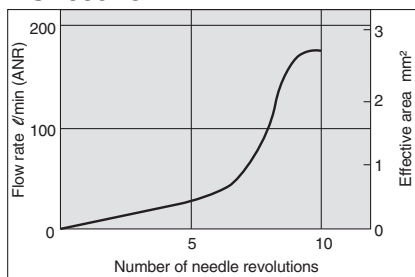
X12

Needle Valve/Flow Rate Characteristics

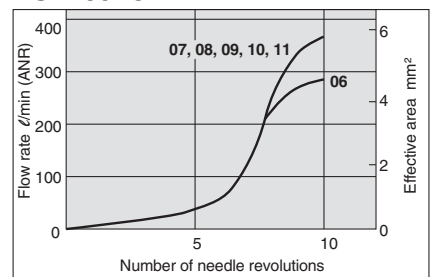
ASD230FG



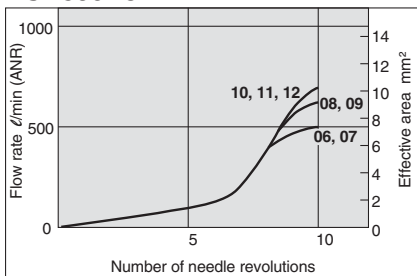
ASD330FG



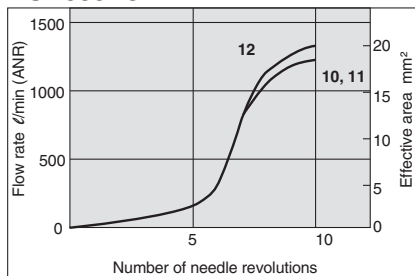
ASD430FG



ASD530FG



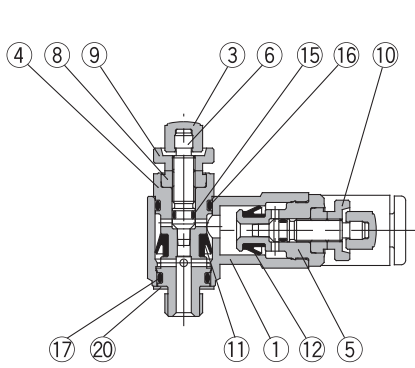
ASD630FG



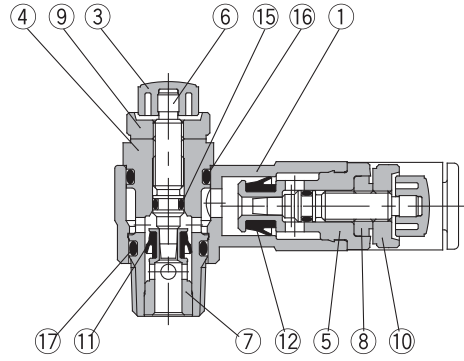
Series ASD-FG

Construction

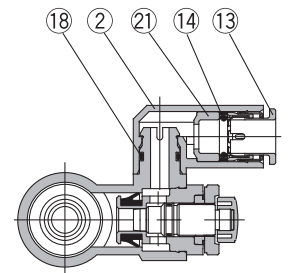
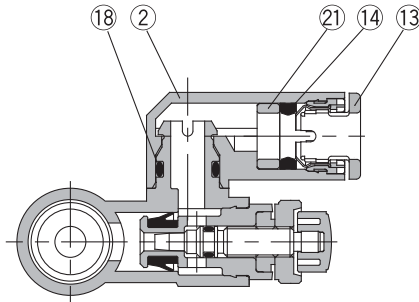
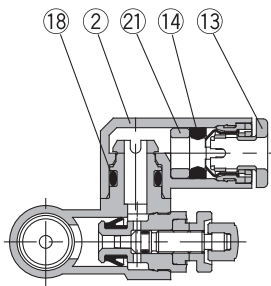
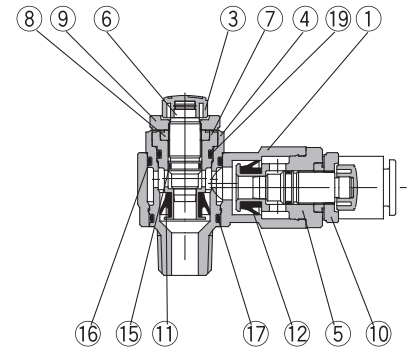
ASD230FG



ASD330FG/430FG ASD530FG/630FG



ASD530FG-02



Parts list

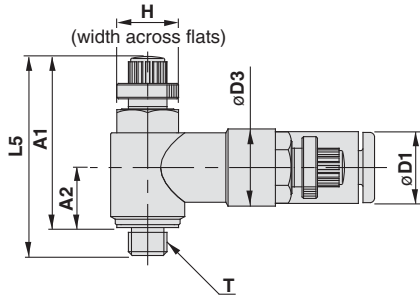
| No. | Description | Material | Note |
|-----|---------------------|----------|------|
| 1 | Body A | PBT | |
| 2 | Elbow body | PBT | |
| 3 | Knob | PBT | |
| 4 | Body B | SUS303 | |
| 5 | Body B | SUS303 | |
| 6 | Needle | SUS303 | |
| 7 | Seat ring | SUS303 | |
| 8 | Needle guide | SUS303 | |
| 9 | Lock nut | SUS303 | |
| 10 | Lock nut | SUS303 | |
| 11 | U seal | HNBR | |

| No. | Description | Material | Note |
|-----|-----------------|------------------------|--------------|
| 12 | U seal | NBR | |
| 13 | Cassette | POM, Stainless steel | |
| 14 | Seal | NBR | |
| 15 | O-ring | NBR | |
| 16 | O-ring | NBR | |
| 17 | O-ring | NBR | |
| 18 | O-ring | NBR | |
| 19 | O-ring | NBR | |
| 20 | Gasket | NBR, Stainless steel | M5 type only |
| 21 | Spacer | POM ^{Note 1)} | |

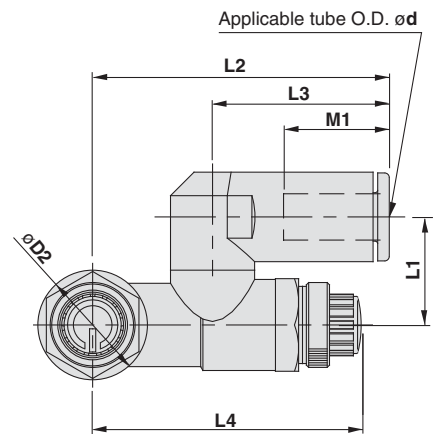
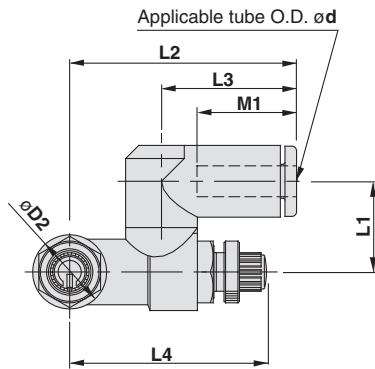
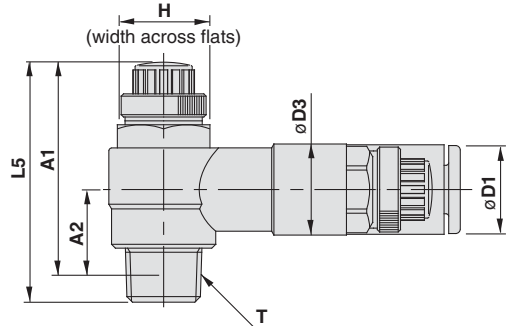
Note 1) $\phi 3/16"$, $\phi 3/8"$ and $\phi 1/2"$ are SUS303.

Dimensions/Metric Size

ASD230FG



ASD330FG/430FG ASD530FG/630FG



Metric size

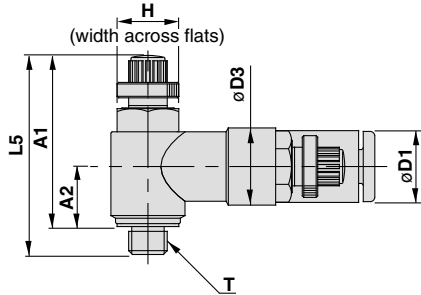
| Model | d | T | H | D1 | D2 | D3 | L1 | L2 | L3 | L4 | | L5 | | A1* | | A2* | M1 | |
|-----------------|----|-----------|----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | | | | | | | | | Max. | Min. | Max. | Min. | Max. | Min. | | | |
| ASD230FG-M5-04 | 4 | M5 | 8 | 9.3 | 9.6 | 10 | 11.7 | 29.4 | 17.5 | 28.3 | 25.5 | 28.6 | 25.8 | 25 | 22.2 | 7.8 | 12.9 | |
| ASD230FG-M5-06 | 6 | | | 11.6 | | | | | | | | | | | | | 20.6 | 13.7 |
| ASD330FG-01-06S | 6 | R(PT) 1/8 | 12 | 11.6 | 14.2 | 11.8 | 14 | 38.5 | 22.9 | 39.6 | 34.6 | 35.2 | 30.2 | 32.1 | 27.1 | 10.6 | 13.7 | |
| ASD330FG-01-08S | 8 | | | 15.2 | | | | | | | | | | | | | 38.9 | 33.9 |
| ASD430FG-02-06S | 6 | R(PT) 1/4 | 17 | 12.8 | 18.5 | 15 | 18 | 43.5 | 25.2 | 41.7 | 36.7 | 39.9 | 34.9 | 34.4 | 29.4 | 11 | 17 | |
| ASD430FG-02-08S | 8 | | | 15.2 | | | | | | | | | | | | | 28.2 | 18.5 |
| ASD430FG-02-10S | 10 | | | 18.5 | | | | | | | | | | | | | 31 | 21 |
| ASD530FG-02-06S | 6 | R(PT) 1/4 | 19 | 12.8 | 23 | 19.8 | 20.3 | 48.3 | 25.2 | 46.9 | 41.9 | 48.3 | 43.3 | 42.8 | 37.8 | 15.4 | 17 | |
| ASD530FG-02-08S | 8 | | | 15.2 | | | | | | | | | | | | | 28.2 | 18.5 |
| ASD530FG-02-10S | 10 | | | 18.5 | | | | | | | | | | | | | 32.6 | 21 |
| ASD530FG-02-12S | 12 | | | 20.9 | | | | | | | | | | | | | 34.4 | 22 |
| ASD530FG-03-06S | 6 | R(PT) 3/8 | 19 | 12.8 | 23 | 19.8 | 20.3 | 48.3 | 25.2 | 46.9 | 41.9 | 47.7 | 42.7 | 40 | 35 | 14 | 17 | |
| ASD530FG-03-08S | 8 | | | 15.2 | | | | | | | | | | | | | 28.2 | 18.5 |
| ASD530FG-03-10S | 10 | | | 18.5 | | | | | | | | | | | | | 32.6 | 21 |
| ASD530FG-03-12S | 12 | | | 20.9 | | | | | | | | | | | | | 34.4 | 22 |
| ASD630FG-04-10S | 10 | R(PT) 1/2 | 24 | 18.5 | 28.6 | 26.5 | 25.9 | 64.3 | 32.6 | 64.8 | 57.3 | 56.7 | 49.2 | 49.6 | 42.1 | 18.6 | 21 | |
| ASD630FG-04-12S | 12 | | | 20.9 | | | | 34.4 | 22 | | | | | | | | | |

* Reference dimensions for M5 and R(PT) threads after installation.

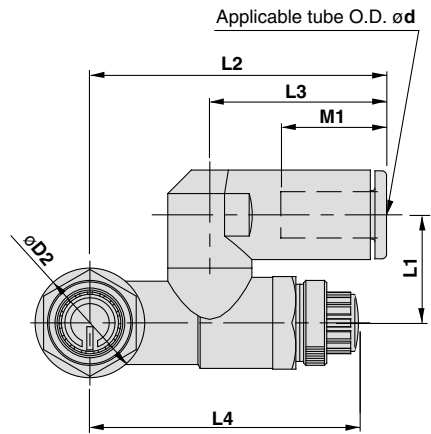
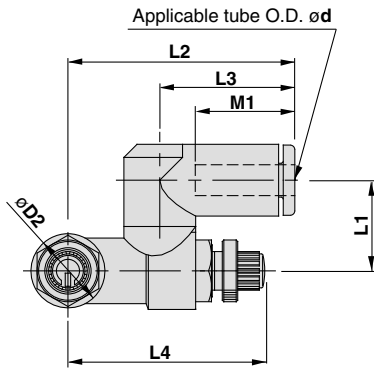
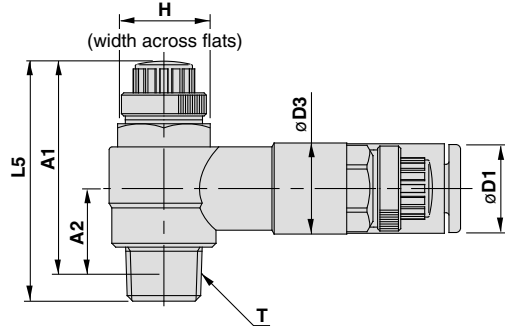
Series ASD-FG

Dimensions/Inch Size

ASD230FG



ASD330FG/430FG ASD530FG/630FG



Inch size

| Model | d | T | H | D1 | D2 | D3 | L1 | L2 | L3 | L4 | | L5 | | A1 * | | A2 * | M1 |
|--------------------|-------|--------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | | | | | | | | | Max. | Min. | Max. | Min. | Max. | Min. | | |
| ASD230FG-U10/32-01 | 1/8" | 10-32 UNF | 8 | 8.4 | 9.6 | 10 | 11.7 | 29.4 | 17.5 | 28.3 | 25.5 | 28.6 | 25.8 | 25 | 22.2 | 7.8 | 12.9 |
| ASD230FG-U10/32-03 | 5/32" | | | 9.3 | | | | | | | | | | | | | |
| ASD230FG-U10/32-05 | 3/16" | | | 11.4 | | | | | | | | | | | | | |
| ASD230FG-U10/32-07 | 1/4" | | | 12 | | | | | | | | | | | | | |
| ASD330FG-N01-05S | 3/16" | NPT1/8 | 12.7 | 11.6 | 14.2 | 11.8 | 14 | 38.5 | 23.9 | 39.6 | 34.6 | 35.2 | 30.2 | 32 | 27 | 10.6 | 16.5 |
| ASD330FG-N01-07S | 1/4" | | | 13.2 | | | 15.8 | 42.2 | 25.6 | 38.9 | 33.9 | | | | | | 17 |
| ASD330FG-N01-09S | 5/16" | | | 15.2 | | | 15.8 | 44.8 | 28.2 | 18.5 | | | | | | | |
| ASD430FG-N02-07S | 1/4" | NPT1/4 | 17.5 | 13.2 | 18.5 | 15 | 18 | 43.9 | 25.6 | 41.7 | 36.7 | 39.9 | 34.9 | 34.6 | 29.6 | 11 | 17 |
| ASD430FG-N02-09S | 5/16" | | | 15.2 | | | 18 | 46.5 | 28.2 | | | | | | | | 18.5 |
| ASD430FG-N02-11S | 3/8" | | | 18.5 | | | 19.7 | 49.3 | 31 | | | | | | | | 21 |
| ASD530FG-N02-07S | 1/4" | NPT1/4 | 19 | 13.2 | 23 | 19.8 | 20.3 | 48.7 | 25.6 | 46.9 | 41.9 | 48.3 | 43.3 | 43 | 38 | 15.4 | 17 |
| ASD530FG-N02-09S | 5/16" | | | 15.2 | | | 20.3 | 51.3 | 28.2 | | | | | | | | 18.5 |
| ASD530FG-N02-11S | 3/8" | | | 18.5 | | | 23.1 | 54.1 | 32.6 | | | | | | | | 21 |
| ASD530FG-N03-07S | 1/4" | NPT3/8 | 19 | 13.2 | 23 | 19.8 | 20.3 | 48.7 | 25.6 | 46.9 | 41.9 | 45.4 | 40.4 | 40.3 | 35.3 | 14 | 17 |
| ASD530FG-N03-09S | 5/16" | | | 15.2 | | | 20.3 | 51.3 | 28.2 | | | | | | | | 18.5 |
| ASD530FG-N03-11S | 3/8" | | | 18.5 | | | 23.1 | 54.1 | 32.6 | | | | | | | | 21 |
| ASD630FG-N04-11S | 3/8" | NPT1/2 | 23.8 | 18.5 | 28.6 | 26.5 | 25.9 | 64.3 | 32.6 | 64.8 | 57.3 | 56.7 | 49.2 | 46.9 | 42.1 | 18.6 | 21 |

* Reference dimensions for 10-32UNF and NPT threads after installation.

Speed Controller for Low Speed Operation

Series AS-FM

With One-touch Fitting (Resin Body)



Models

| Elbow type | Universal type | Port size | Applicable tube outside diameter | | | | | | | | | | | |
|-----------------|-----------------|-----------|----------------------------------|---|---|-----------|----|------|-------|-------|------|-------|------|--|
| | | | Metric size | | | Inch size | | | | | | | | |
| | | | 3.2 | 4 | 6 | 8 | 10 | 1/8" | 5/32" | 3/16" | 1/4" | 5/16" | 3/8" | |
| AS12□1FM-M5 | AS13□1FM-M5 | M5 | ● | ● | ● | | | | | | | | | |
| AS22□1FM-01 | AS23□1FM-01 | R1/8 | ● | ● | ● | ● | | | | | | | | |
| AS22□1FM-02 | AS23□1FM-02 | R1/4 | | ● | ● | ● | ● | | | | | | | |
| AS12□1FM-U10/32 | AS13□1FM-U10/32 | 10-32UNF | | | | | | ● | ● | ● | ● | | | |
| AS22□1FM-N01 | AS23□1FM-N01 | NPT1/8 | | | | | | ● | ● | ● | ● | ● | | |
| AS22□1FM-N02 | AS23□1FM-N02 | NPT1/4 | | | | | | | ● | ● | ● | ● | ● | |

Specifications

| | |
|--|---|
| Proof pressure | 1.5MPa |
| Maximum operating pressure | 1.0MPa |
| Minimum operating pressure | 0.1MPa |
| Ambient and fluid temperature | -5 to 60°C (with no freezing) |
| Number of needle revolutions | 10 revolutions (20 revolutions ^{Note 1)}) |
| Applicable tubing material ^{Note 2)} | Nylon, Soft nylon, Polyurethane, Soft polyurethane |
| Option ^{Note 3)} | With seal, hexagon lock nut |

Note 1) For types AS12□1FM and AS13□1FM.

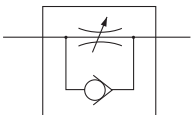
Note 2) Use caution regarding the maximum operating pressure with soft nylon, polyurethane and soft polyurethane.

Note 3) M5 and 10-32UNF type ports are not available with sealant.

Note 4) All brass parts are electroless nickel plated.

The lock nut of the meter-out type is zinc chromate plated, then, the handle of the M5 type and the lock nut of the meter-in type are black zinc chromate plate.

JIS symbol



Flow direction symbols on body

| | Meter-out type | Meter-in type |
|------------|----------------|---------------|
| Symbol | | |
| JIS symbol | | |

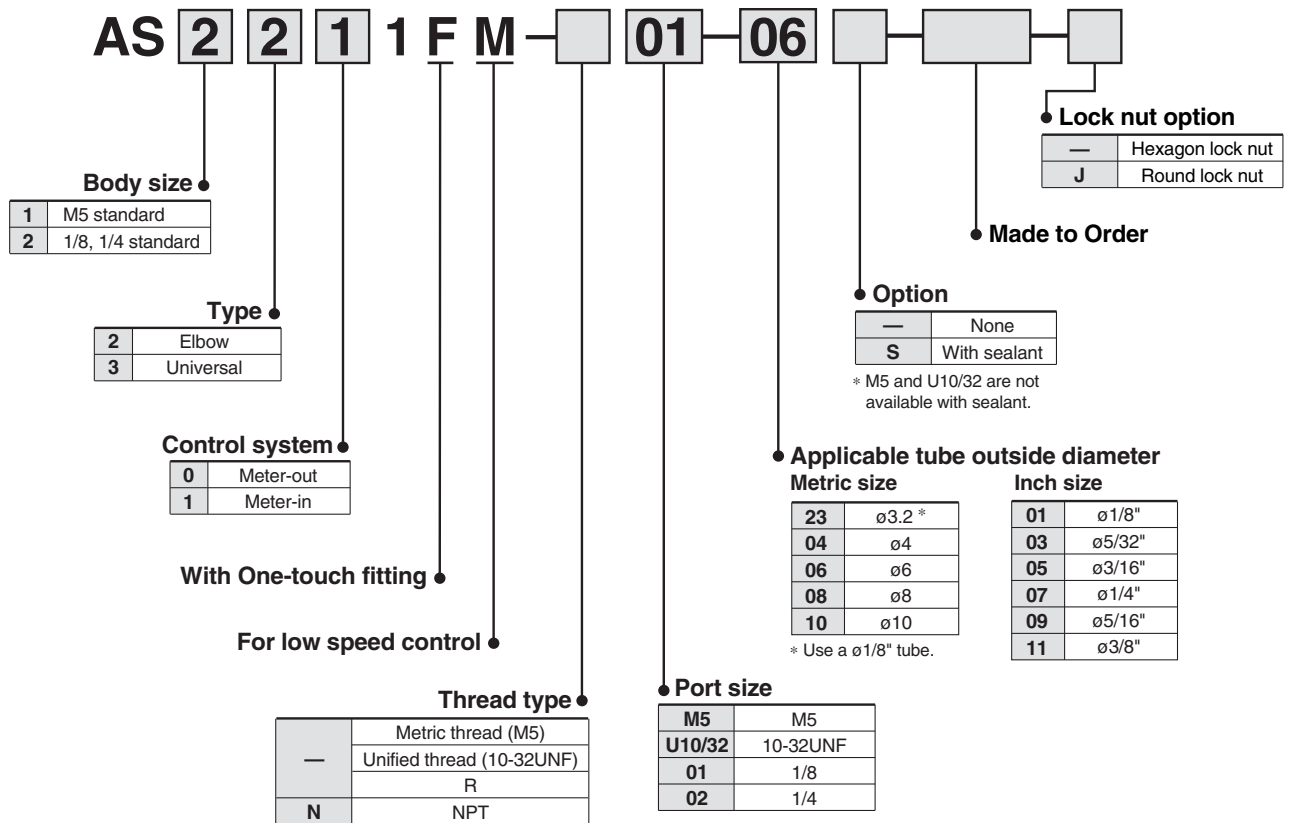
Flow Rate and Effective Area

| Models | | AS12□1FM AS13□1FM | AS22□1FM-□01 AS23□1FM-□01 | AS22□1FM-□02 AS23□1FM-□02 |
|-----------------|--------------------------------|--------------------------------|------------------------------|------------------------------|
| Tube O.D. | Metric size | ø3.2, ø4, ø6 | ø3.2, ø4 | ø6, ø8 |
| | Inch size | ø1/8", ø5/32", ø3/16" ø1/4" | ø1/8", ø5/32" | ø3/16", ø1/4" ø5/16" |
| Controlled flow | Flow rate ℓ/min (ANR) | 7 | 12 | 38 |
| | Effective area mm ² | 0.1 | 0.2 | 0.6 |
| Free flow | Flow rate ℓ/min (ANR) | 100 | 180 | 230 |
| | Effective area mm ² | 1.5 | 2.7 | 3.5 |
| | | 260 | 390 | 460 |
| | | 4 | 6 | 7 |

Note) The flow rate value is at a pressure of 0.5MPa and temperature of 20°C.

Series AS-FM

How to Order



Made to Order

1 Lubricant: Vaseline **X12**

Ex.) AS1201FM-M5-23-X12

2 Grease-free (Seal: Fluorine Coating) + Throttle Valve (Without Check Valve) **X21**

Ex.) AS1201FM-M5-23-X21

Note 1) Not particle-free
Note 2) Throttle valve is only compatible with the part no. of the meter-out type.

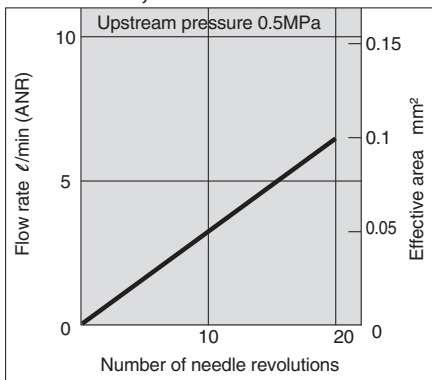
3 Throttle Valve (Without Check Valve) **X214**

Ex.) AS1201FM-M5-23-X214

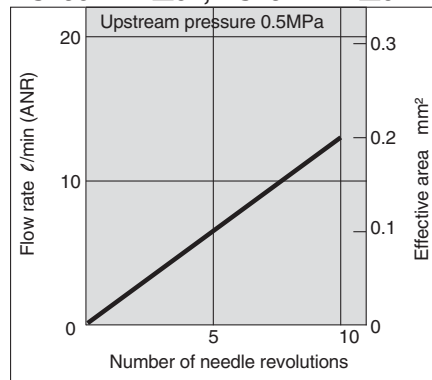
Note) Throttle valve is only compatible with the part no. of the meter-out type.

Needle Valve/Flow Rate Characteristics

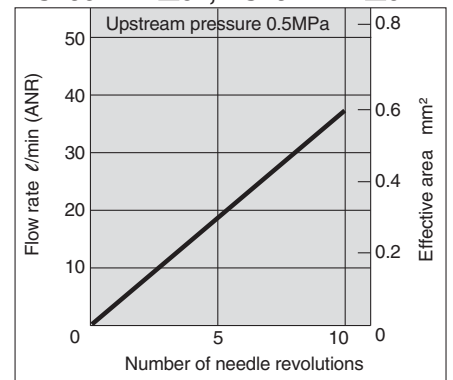
AS1201FM, AS1211FM
AS1301FM, AS1311FM



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



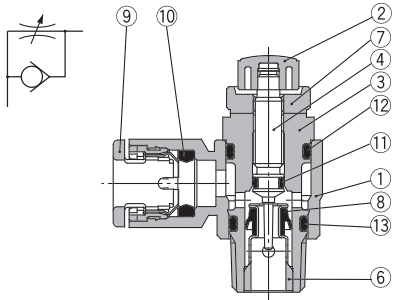
AS2201FM-□02, AS2211FM-□02
AS2301FM-□02, AS2311FM-□02



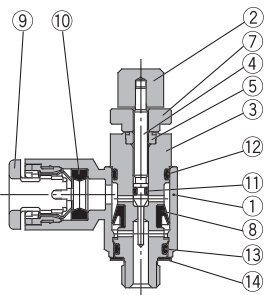
Construction/Elbow Type

Meter-out type

JIS symbol

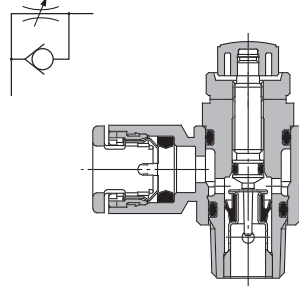


<M5 type>
<U10/32 type>

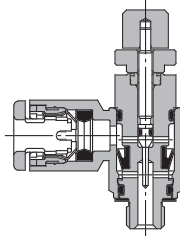


Meter-in type

JIS symbol



<M5 type>
<U10/32 type>



Parts list

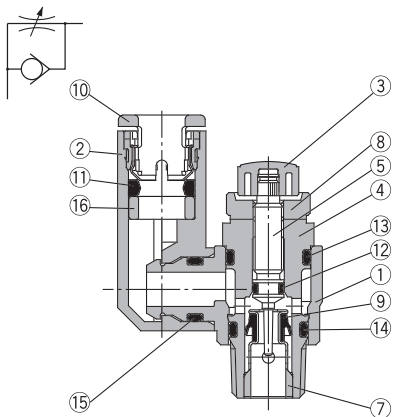
| No. | Description | Material | Note |
|-----|--------------|----------------------|---|
| 1 | Body A | PBT | White |
| 2 | Knob | PBT | Black Note 1) |
| 3 | Body B | Brass | Electroless nickel plated |
| 4 | Needle | Brass | Electroless nickel plated |
| 5 | Needle guide | Brass | Electroless nickel plated, M5 type only |
| 6 | Seat ring | Brass | Electroless nickel plated |
| 7 | Lock nut | Steel | Zinc chromated Note 2) |
| 8 | U-seal | NBR | |
| 9 | Cassette | POM, Stainless steel | |
| 10 | Seal | NBR | |
| 11 | O-ring | NBR | |
| 12 | O-ring | NBR | |
| 13 | O-ring | NBR | |
| 14 | Gasket | NBR, Stainless steel | M5 type only |

Note 1) The M5 and U10/32 types are black zinc chromated brass.
 Note 2) The AS23□1FM type is steel.
 Note 3) The meter-in type is black zinc chromated.

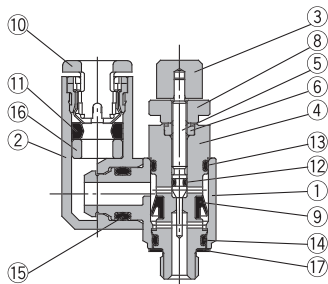
Construction/Universal Type

Meter-out type

JIS symbol

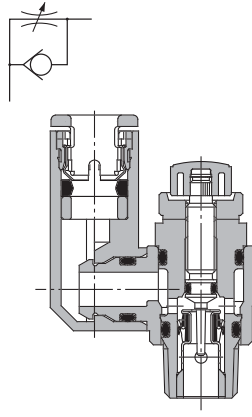


<M5 type>
<U10/32 type>

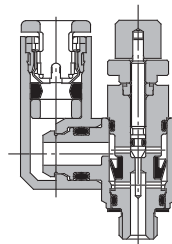


Meter-in type

JIS symbol



<M5 type>
<U10/32 type>



Parts list

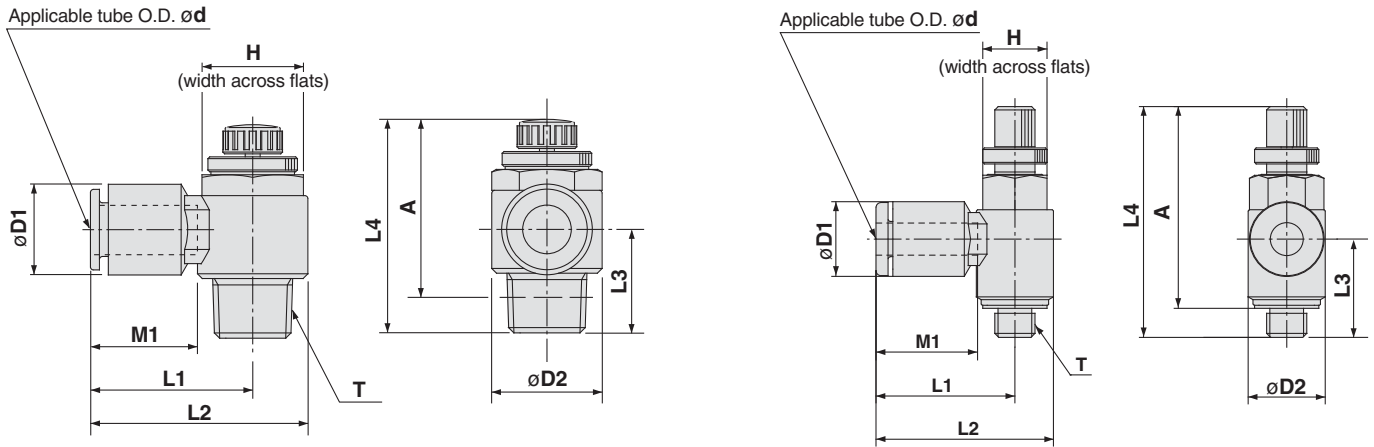
| No. | Description | Material | Note |
|-----|--------------|----------------------|---|
| 1 | Body A | PBT | White |
| 2 | Elbow body | PBT | White |
| 3 | Knob | PBT | Black Note 1) |
| 4 | Body B | Brass | Electroless nickel plated |
| 5 | Needle | Brass | Electroless nickel plated |
| 6 | Needle guide | Brass | Electroless nickel plated, M5 type only |
| 7 | Seat ring | Brass | Electroless nickel plated |
| 8 | Lock nut | Steel | Zinc chromated Note 2) |
| 9 | U-seal | NBR | |
| 10 | Cassette | POM, Stainless steel | |
| 11 | Seal | NBR | |
| 12 | O-ring | NBR | |
| 13 | O-ring | NBR | |
| 14 | O-ring | NBR | |
| 15 | O-ring | NBR | |
| 16 | Spacer | — | Polyacetal |
| 17 | Gasket | NBR, Stainless steel | M5 type only |

Note 1) The M5 and U10/32 types are black zinc chromated brass.
 Note 2) The AS23□1FM type is steel.
 Note 3) The meter-in type is black zinc chromated.

Series AS-FM

Dimensions/Elbow Type

M5 type U10/32 type



Metric sizes

| Model | d | T | H | D1 | D2 | L1 | L2 | L3 | L4 | | A * | | M1 | Weight g |
|----------------|-----|------|----|------|------|------|------|------|------|------|------|------|------|-------------|
| | | | | | | | | | Max. | Min. | Max. | Min. | | |
| AS12□1FM-M5-23 | 3.2 | M5 | 8 | 8.4 | 9.6 | 17.3 | 22.1 | 12.3 | 28.6 | 25.8 | 25 | 22.2 | 12.7 | 7 |
| AS12□1FM-M5-04 | 4 | | | 9.3 | | 22.1 | | | | | | | | |
| AS12□1FM-M5-06 | 6 | | | 11.6 | | 22.9 | | | | | | | | |
| AS22□1FM-01-23 | 3.2 | R1/8 | 12 | 9.3 | 14.2 | 20.4 | 27.5 | 13.4 | 35.2 | 30.2 | 32.1 | 27.1 | 12.7 | 17 |
| AS22□1FM-01-04 | 4 | | | 9.3 | | 27.5 | | | | | | | | |
| AS22□1FM-01-06 | 6 | | | 11.6 | | 27.5 | | | | | | | | |
| AS22□1FM-01-08 | 8 | | | 15.2 | | 32.4 | | | | | | | | |
| AS22□1FM-02-04 | 4 | R1/4 | 17 | 10.4 | 18.5 | 25.2 | 34.4 | 17.7 | 39.9 | 34.9 | 34.4 | 29.4 | 16 | 32 |
| AS22□1FM-02-06 | 6 | | | 12.8 | | 34.4 | | | | | | | | |
| AS22□1FM-02-08 | 8 | | | 15.2 | | 36.4 | | | | | | | | |
| AS22□1FM-02-10 | 10 | | | 18.5 | | 43.2 | | | | | | | | |

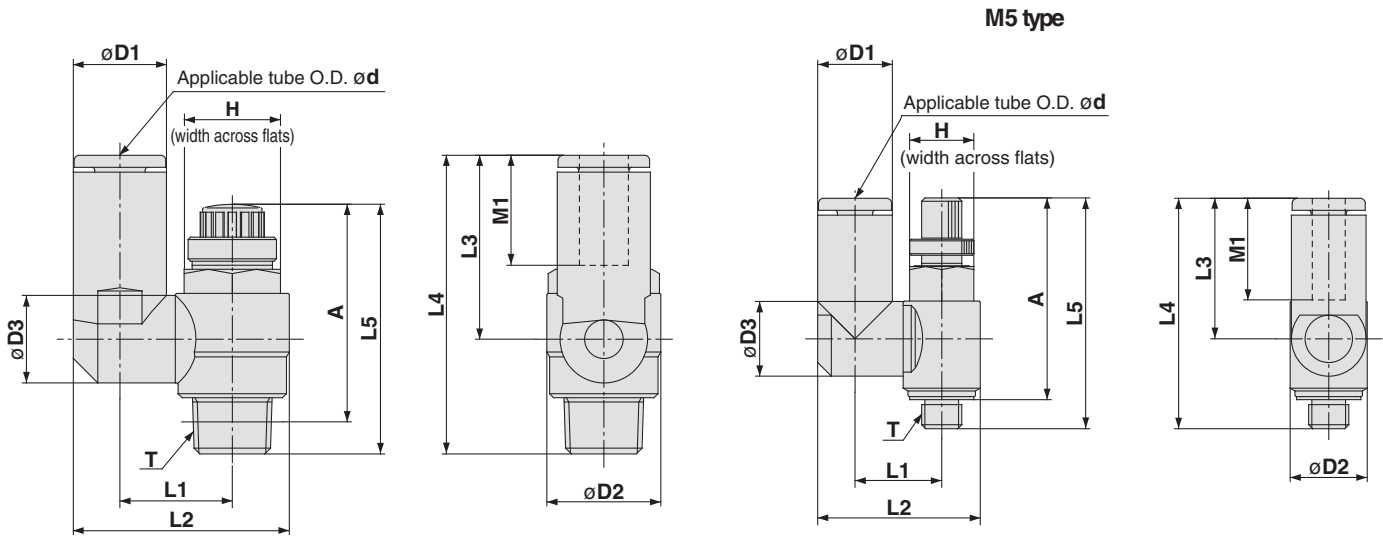
* Reference dimensions for M5 and R threads after installation.

Inch sizes

| Model | d | T | H | D1 | D2 | L1 | L2 | L3 | L4 | | A * | | M1 | Weight g |
|--------------------|-------|----------|------|------|------|------|------|------|------|------|------|------|------|-------------|
| | | | | | | | | | Max. | Min. | Max. | Min. | | |
| AS12□1FM-U10/32-01 | 1/8" | 10-32UNF | 8 | 8.4 | 9.6 | 17.3 | 22.1 | 12.3 | 33.8 | 28.8 | 30.1 | 25.1 | 12.7 | 7 |
| AS12□1FM-U10/32-03 | 5/32" | | | 9.3 | | 22.1 | | | | | | | | |
| AS12□1FM-U10/32-05 | 3/16" | | | 11.4 | | 26.1 | | | | | | | | |
| AS12□1FM-U10/32-07 | 1/4" | | | 12 | | 23.1 | | | | | | | | |
| AS22□1FM-N01-01 | 1/8" | NPT1/8 | 12.7 | 9.3 | 14.2 | 20.4 | 27.5 | 13.4 | 35.2 | 30.2 | 32.1 | 27.1 | 12.7 | 16 |
| AS22□1FM-N01-03 | 5/32" | | | 11.4 | | 30.2 | | | | | | | | |
| AS22□1FM-N01-05 | 3/16" | | | 13.2 | | 31 | | | | | | | | |
| AS22□1FM-N01-07 | 1/4" | | | 15.2 | | 32.4 | | | | | | | | |
| AS22□1FM-N01-09 | 5/16" | NPT1/4 | 17.5 | 10.4 | 18.5 | 25.2 | 34.4 | 17.7 | 39.9 | 34.9 | 34.4 | 29.4 | 16 | 32 |
| AS22□1FM-N02-03 | 5/32" | | | 11.4 | | 34.2 | | | | | | | | |
| AS22□1FM-N02-05 | 3/16" | | | 13.2 | | 34.5 | | | | | | | | |
| AS22□1FM-N02-07 | 1/4" | | | 15.2 | | 36.4 | | | | | | | | |
| AS22□1FM-N02-09 | 5/16" | NPT1/4 | 17.5 | 17.9 | 18.5 | 33.9 | 43.2 | 19.5 | 39.9 | 34.9 | 34.4 | 29.4 | 18.5 | 34 |
| AS22□1FM-N02-11 | 3/8" | | | 17.9 | | 43.2 | | | | | | | | |

* Reference dimensions for 10-32UNF and NPT threads after installation.

Dimensions/Universal type



M5 type

Metric sizes

| Model | d | T | H | D1 | D2 | D3 | L1 | L2 | L3 | L4 | L5 | | A* | | M1 | Weight g | | | | |
|----------------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------------|------|------|------|------|
| | | | | | | | | | | | Max. | Min. | Max. | Min. | | | | | | |
| AS13□1FM-M5-23 | 3.2 | M5 | 8 | 8.4 | 9.6 | 9.3 | 10.8 | 19.8 | 17.5 | 28.7 | 28.6 | 25.8 | 25 | 22.2 | 12.7 | 8 | | | | |
| AS13□1FM-M5-04 | 4 | | | 20.3 | | | | | | | | | | | | | | | | |
| AS13□1FM-M5-06 | 6 | | | 11.6 | | | | 21.4 | | | | | | | | | 20.6 | 31.8 | | |
| AS23□1FM-01-23 | 3.2 | R1/8 | 14.2 | 8.4 | 14.2 | 9.3 | 13.1 | 24.4 | 17.5 | 30.9 | 35.2 | 30.2 | 32.1 | 27.1 | 12.7 | 17 | | | | |
| AS23□1FM-01-04 | 4 | | | 9.3 | | | | 24.9 | | | | | | | | | | | | |
| AS23□1FM-01-06 | 6 | | | 11.6 | | | | 10.9 | | | | | | | | | 14 | 26.9 | 22.9 | 36.3 |
| AS23□1FM-01-08 | 8 | | | 15.2 | | | | 12.9 | | | | | | | | | 16.2 | 30.9 | 28.2 | 40.8 |
| AS23□1FM-02-04 | 4 | R1/4 | 18.5 | 10.4 | 18.5 | 12.9 | 18.4 | 30.6 | 21.9 | 39.6 | 39.9 | 34.9 | 34.4 | 29.4 | 16 | 33 | | | | |
| AS23□1FM-02-06 | 6 | | | 12.8 | | | | 34 | | | | | | | | | 25.2 | 42.1 | | |
| AS23□1FM-02-08 | 8 | | | 15.2 | | | | 18.3 | | | | | | | | | 35.2 | 28.2 | 45.1 | |
| AS23□1FM-02-10 | 10 | | | 18.5 | | | | 12.9 | | | | | | | | | 20.2 | 38.7 | 31 | 47.9 |

* Reference dimensions for M5 and R threads after installation.

Inch sizes

| Model | d | T | H | D1 | D2 | D3 | L1 | L2 | L3 | L4 | L5 | | A* | | M1 | Weight g | | | | |
|--------------------|-------|----------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------------|------|------|------|------|
| | | | | | | | | | | | Max. | Min. | Max. | Min. | | | | | | |
| AS13□1FM-U10/32-01 | 1/8" | 10-32UNF | 8 | 8.4 | 9.6 | 9.3 | 10.8 | 19.8 | 17.5 | 28.7 | 33.8 | 28.8 | 30.1 | 25.1 | 12.7 | 7 | | | | |
| AS13□1FM-U10/32-03 | 5/32" | | | 9.3 | | | | 20.3 | | | | | | | | | | | | |
| AS13□1FM-U10/32-05 | 3/16" | | | 11.4 | | | | 21.3 | | | | | | | | | 23.3 | 34.5 | | |
| AS13□1FM-U10/32-07 | 1/4" | NPT1/8 | 12.7 | 12 | 14.2 | 10.9 | 14 | 24.4 | 17.5 | 30.9 | 35.2 | 30.2 | 32.1 | 27.1 | 12.7 | 17 | | | | |
| AS23□1FM-N01-01S | 1/8" | | | 9.3 | | | | 24.9 | | | | | | | | | | | | |
| AS23□1FM-N01-03S | 5/32" | | | 11.4 | | | | 10.9 | | | | | | | | | 14 | 26.8 | 23.9 | 37.3 |
| AS23□1FM-N01-05S | 3/16" | | | 13.2 | | | | 12.9 | | | | | | | | | 16.2 | 29.9 | 25.6 | 38.2 |
| AS23□1FM-N01-07S | 1/4" | NPT1/4 | 17.5 | 15.2 | 18.5 | 12.9 | 18.3 | 30.9 | 21.9 | 39.6 | 39.9 | 34.9 | 34.4 | 29.4 | 16 | 32 | | | | |
| AS23□1FM-N01-09S | 5/16" | | | 30.9 | | | | 28.2 | | | | | | | | | 40.8 | | | |
| AS23□1FM-N02-03S | 5/32" | | | 10.4 | | | | 10.9 | | | | | | | | | 16.2 | 31.1 | 23.9 | 41.6 |
| AS23□1FM-N02-05S | 3/16" | | | 11.4 | | | | 18.3 | | | | | | | | | 34.2 | 25.6 | 42.5 | |
| AS23□1FM-N02-07S | 1/4" | NPT1/4 | 17.5 | 13.2 | 18.5 | 12.9 | 18.3 | 35.2 | 28.2 | 45.1 | 39.9 | 34.9 | 34.4 | 29.4 | 18.5 | 36 | | | | |
| AS23□1FM-N02-09S | 5/16" | | | 15.2 | | | | 35.2 | | | | | | | | | 28.2 | 45.1 | | |
| AS23□1FM-N02-11S | 3/8" | | | 17.9 | | | | 20.2 | | | | | | | | | 38.7 | 31 | 47.9 | |

* Reference dimensions for 10-32UNF and NPT threads after installation.

Speed Controller for Low Speed Operation

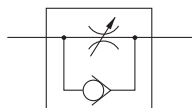
Series AS-M

Standard Type (Metal Body)

Specifications



JIS symbol



| Model | | AS12□0M | | AS22□0M-□01 | | AS22□0M-□02 | |
|----------------------------------|--------------------------------|-------------------------------|----------|----------------|--------|-------------|--------|
| Port size | Cylinder side | M5 | 10-32UNF | R1/8 | NPT1/8 | R1/4 | NPT1/4 |
| | Tube side | | | Rc1/8 | | Rc1/4 | |
| Applicable cylinder bore size mm | | 6, 10, 15, 20, 25 | | 20, 25, 32, 40 | | | |
| Proof pressure | | 1.5MPa | | | | | |
| Maximum operating pressure | | 1.0MPa | | | | | |
| Minimum operating pressure | | 0.1MPa | | | | | |
| Ambient and fluid temperature | | -5 to 60°C (with no freezing) | | | | | |
| Number of needle revolutions | | 20 revolutions | | 10 revolutions | | | |
| Option | | - | | With sealant | | | |
| Weight g | | 11.5 | | 36 | | 74 | |
| Controlled flow | Flow rate ℓ/min (ANR) | 7 | | 12 | | 38 | |
| | Effective area mm ² | 0.1 | | 0.2 | | 0.6 | |
| Free flow | Flow rate ℓ/min (ANR) | 105 | | 280 | | 420 | |
| | Effective area mm ² | 1.6 | | 4.3 | | 6.5 | |

Note 1) The flow rate value is at a pressure of 0.5MPa and temperature of 20°C.

Note 2) The meter-out and meter-in types can be visually identified by the lock nut.

On the meter-out type it is electroless nickel plated, while on the meter-in type it is black zinc chromated.

Note 3) All brass parts are electroless nickel plated. The lock nut on the meter-out type is zinc chromate plated, then, the handle on all types and the lock nut on the meter-in type are black zinc chromate plated.

How to Order

AS 2 2 0 0 M □ □ 01 □ □ □ □

Body size

| | |
|---|-------------------|
| 1 | M5 standard |
| 2 | 1/8, 1/4 standard |

Type

| | |
|---|---------------------------------------|
| 2 | Direct cylinder connection elbow type |
|---|---------------------------------------|

Control system

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

For low speed control

Thread type

| Symbol | Cylinder side | Tube side |
|--------|---------------------------|-----------|
| — | R | Rc |
| | Metric thread (M5) | |
| | Unified thread (10-32UNF) | |
| N | NPT | |

Option

| | |
|---|--------------|
| — | None |
| S | With sealant |

* M5 and U10/32 are not available with sealant.

Lock nut option

| | |
|---|------------------|
| — | Hexagon lock nut |
| J | Round lock nut |

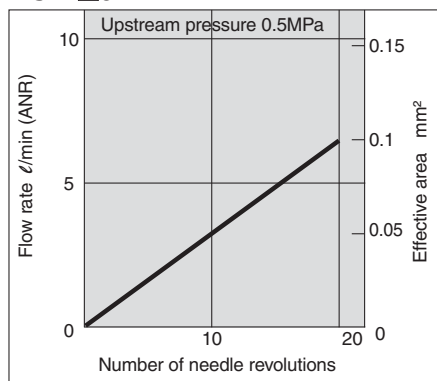
Port sizes

| Symbol | Port size | Applicable series |
|--------|-----------|-------------------|
| M5 | M5 | AS12□0M-M5 |
| U10/32 | 10-32UNF | AS12□0M-U10/32 |
| 01 | 1/8 | AS22□0M-01 |
| 02 | 1/4 | AS22□0M-02 |

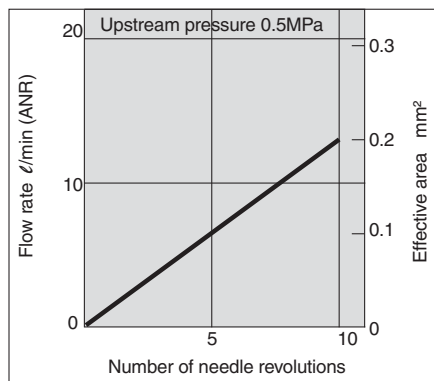
Made to Order

Needle Valve/Flow Rate Characteristics

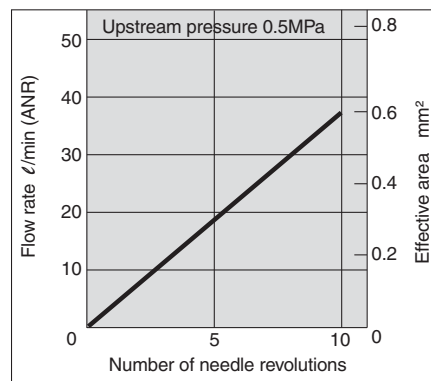
AS12□0M



AS22□0M-□01



AS22□0M-□02



Made to Order

1 Lubricant: Vaseline

X12

Ex.) AS2200M-01-X12

3 Throttle Valve (Without Check Valve)

X214

Ex.) AS2200M-01-X214

Note) Throttle valve is only compatible with the part no. of the meter-out type.

2 Grease-free (Seal: Fluorine Coating) + Throttle Valve (Without Check Valve)

X21

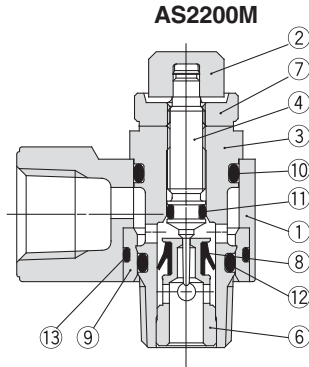
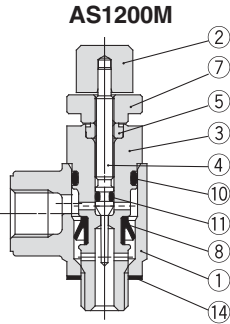
Ex.) AS2200M-01-X21

Note 1) Not particle-free

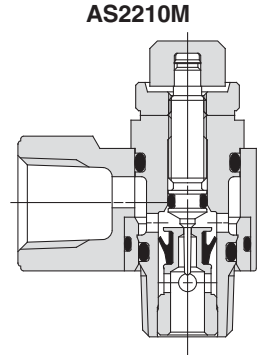
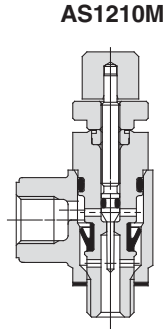
Note 2) Throttle valve is only compatible with the part no. of the meter-out type.

Construction

Meter-out type



Meter-in type



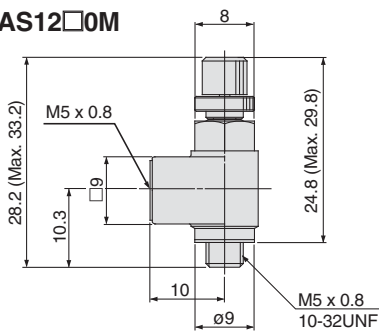
Parts list

| No. | Description | Material | Note |
|-----|--------------|---------------|---------------------------|
| 1 | Body A | Zinc alloy | |
| 2 | Handle | Brass | Black zinc chromated |
| 3 | Body B | Brass | Electroless nickel plated |
| 4 | Needle | Brass | Electroless nickel plated |
| 5 | Needle guide | Brass | Electroless nickel plated |
| 6 | Seat ring | Brass | Electroless nickel plated |
| 7 | Lock nut | Steel | Zinc chromated |
| 8 | U-seal | NBR | |
| 9 | Bushing | PBT | |
| 10 | O-ring | NBR | |
| 11 | O-ring | NBR | |
| 12 | O-ring | NBR | |
| 13 | O-ring | NBR | |
| 14 | Gasket | NBR/Stainless | |

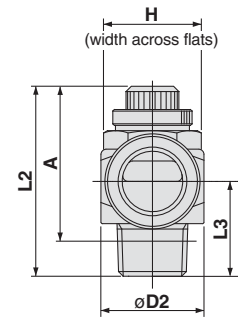
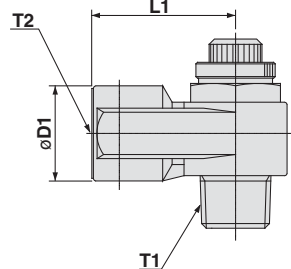
Note) The meter-in type is black zinc chromated.

Dimension

AS12□0M



AS22□0M-□ 01 02



Dimensions

| Model | T1 | T2 | H | L1 | L2 | | L3 | D1 | D2 | A* | |
|----------------|----------|-------|----|------|------|------|------|------|------|------|------|
| | | | | | Max. | Min. | | | | Max. | Min. |
| AS12□0M-M5 | M5 | | 8 | 10 | 33.2 | 28.2 | 10.3 | 9 | 9 | 29.8 | 24.8 |
| AS12□0M-U10/32 | 10-32UNF | | | | | | | | | | |
| AS22□0M-01 | R1/8 | Rc1/8 | 12 | 18 | 35.5 | 30.5 | 13.2 | 14.3 | 14.6 | 32.4 | 27.4 |
| AS22□0M-N01 | NPT1/8 | | | | | | | | | | |
| AS22□0M-02 | R1/4 | Rc1/4 | 17 | 27.2 | 39.4 | 35.4 | 17.5 | 18 | 19.5 | 34.9 | 29.9 |
| AS22□0M-N02 | NPT1/4 | | | | | | | | | | |

* Dimensions for R and NPT threads after installation

Speed Controller for Low Speed Operation

Series AS-FM

In-line Type



Models

| Model | Applicable tubing O.D. | | | | | | | | | Applicable cylinder bore size (mm) |
|----------|------------------------|---|---|---|-----------|-------|-------|------|-------|------------------------------------|
| | Metric size | | | | Inch size | | | | | |
| | 3.2 | 4 | 6 | 8 | 1/8" | 5/32" | 3/16" | 1/4" | 5/16" | |
| AS1001FM | ● | ● | ● | | ● | ● | ● | ● | | 6, 10, 16, 20 |
| AS2001FM | | ● | ● | | | ● | ● | ● | | 20, 25, 32 |
| AS2051FM | | | ● | ● | | | ● | ● | ● | 20, 25, 32, 40 |

Specifications

| | |
|---|---|
| Proof pressure | 1.5MPa |
| Maximum operating pressure | 1MPa |
| Minimum operating pressure | 0.1MPa |
| Ambient and fluid temperature | 0 to 60°C |
| Number of needle revolutions | 10 revolutions (20 revolutions ^{Note 1)}) |
| Applicable tubing materials ^{Note 2)} | Nylon, Soft nylon, Polyurethane, Soft polyurethane |

Note 1) For type AS1001FM.

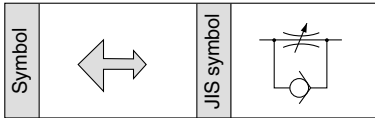
Note 2) Use caution regarding the maximum operating pressure with soft nylon, polyurethane and soft polyurethane. (Refer to CAT.E501-B "Air Fittings and Tubing" for details.)

Note 3) All brass parts are electroless nickel plated.

The knob of the M5 type is black zinc chromated.

Flow Rate and Effective Area

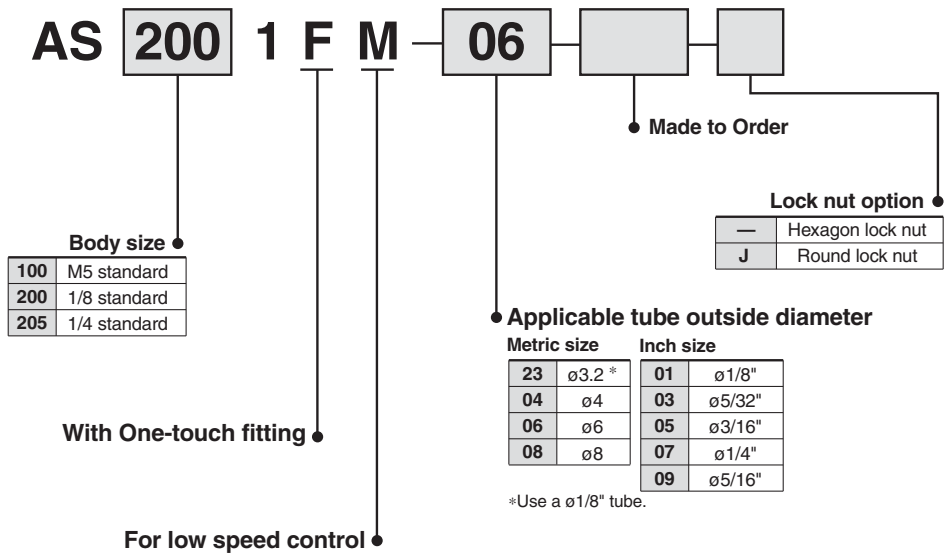
Flow direction symbols on body



| Model | | AS1001FM | AS2001FM | | AS2051FM | |
|-----------------|--------------------------------|--------------------------------|----------|---------------|----------|---------------|
| Tube O.D. | Metric size | ø3.2, ø4, ø6 | ø4 | ø6 | ø6 | ø8 |
| | Inch size | ø1/8", ø5/32", ø3/16" ø1/4" | ø5/32" | ø3/16", ø1/4" | ø3/16" | ø1/4", ø5/16" |
| Controlled flow | Flow rate μ /min (ANR) | 7 | 12 | | 38 | |
| | Effective area mm ² | 0.1 | 0.2 | | 0.6 | |
| Free flow | Flow rate μ /min (ANR) | 100 | 130 | 230 | 290 | 460 |
| | Effective area mm ² | 1.5 | 2 | 3.5 | 4.5 | 7 |

Note) The flow rate value is at a pressure of 0.5MPa and temperature of 20°C.

How to Order



Made to Order

1 Lubricant: Vaseline

X12

Ex.) AS2001FM-04-X12

2 Grease-free (Seal: Fluorine Coating) + Throttle Valve (Without Check Valve)

X21

Ex.) AS2001FM-04-X21

Note 1) Not particle-free

Note 2) Throttle valve is only compatible with the part no. of the meter-out type.

3 Throttle Valve (Without Check Valve)

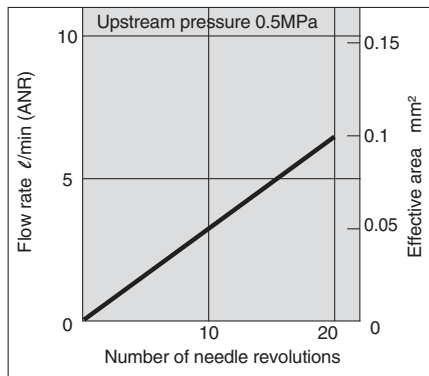
X214

Ex.) AS2001FM-04-X214

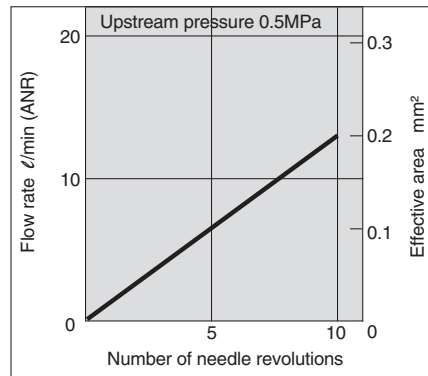
Note) Throttle valve is only compatible with the part no. of the meter-out type.

Needle Valve/Flow Rate Characteristics

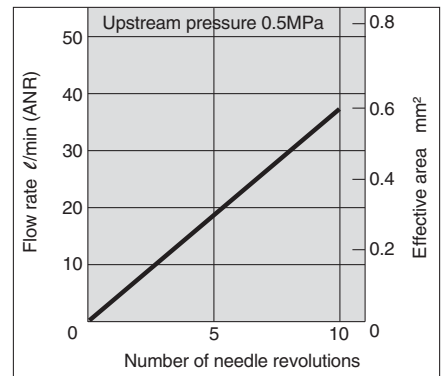
AS1001FM



AS2001FM

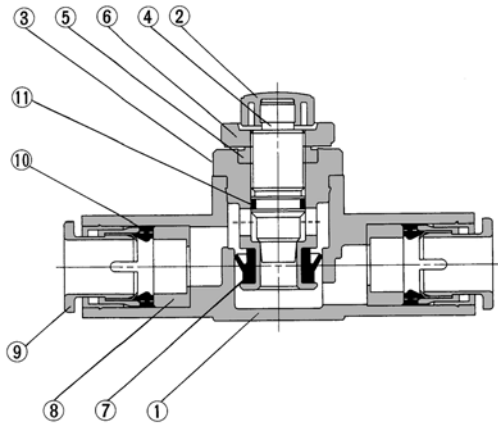


AS2051FM



Series AS-FM

Construction

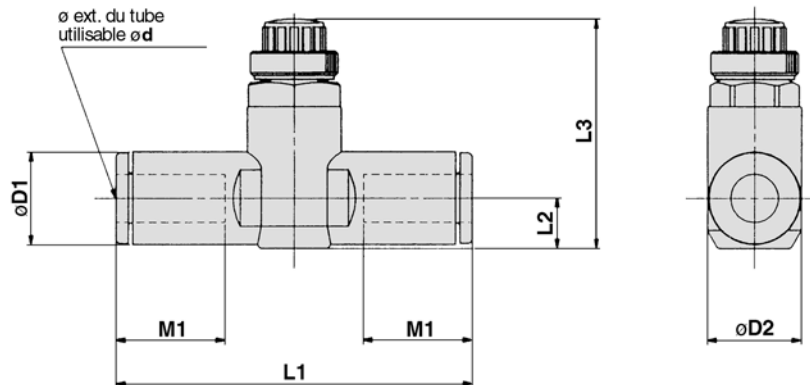


Parts list

| No. | Description | Material | Note |
|-----|--------------|------------------------|---------------------------|
| 1 | Body A | PBT | |
| 2 | Handle | PBT ^{Note 1)} | Black |
| 3 | Body B | Brass | Electroless nickel plated |
| 4 | Needle | Brass | Electroless nickel plated |
| 5 | Needle guide | Brass | Electroless nickel plated |
| 6 | Lock nut | Steel | Zinc chromated |
| 7 | U-seal | NBR | |
| 8 | Spacer | POM | |
| 9 | Cassette | POM, Stainless | |
| 10 | Seal | NBR | |
| 11 | O-ring | NBR | |

Note 1) The AS1001FM type is black zinc chromated brass.

Dimensions



Metric sizes

| Model | d | D1 | D2 | L1 | L2 | L3 | | M1 | Weight g |
|-------------|-----|------|------|------|-----|------|------|------|-------------|
| | | | | | | Max. | Min. | | |
| AS1001FM-23 | 3.2 | 8.4 | 10 | 38 | 4.5 | 27.7 | 24.9 | 12.7 | 6 |
| AS1001FM-04 | 4 | 9.3 | | 39.2 | 5.2 | 28.5 | 25.5 | | 7 |
| AS1001FM-06 | 6 | 11.6 | | 40.7 | 6.2 | 29.8 | 26.6 | | 13.7 |
| AS2001FM-04 | 4 | 9.3 | 11.8 | 40.7 | 5.2 | 32.6 | 27.6 | 12.7 | 12 |
| AS2001FM-06 | 6 | 11.6 | | 44.8 | 6.3 | 33.7 | 28.7 | | 13.7 |
| AS2051FM-06 | 6 | 12.8 | 14.8 | 53.2 | 6.7 | 35.2 | 30.2 | 17 | 26 |
| AS2051FM-08 | 8 | 15.2 | | 59.8 | 8.1 | 36.5 | 31.5 | | 18 |

Inch sizes

| Model | d | D1 | D2 | L1 | L2 | L3 | | M1 | Weight g | |
|-------------|-------|------|------|------|-----|------|------|------|-------------|----|
| | | | | | | Max. | Min. | | | |
| AS1001FM-01 | 1/8" | 8.4 | 10 | 38 | 4.5 | 27.7 | 24.9 | 12.7 | 6 | |
| AS1001FM-03 | 5/32" | 9.3 | | 39.2 | 5.2 | 28.5 | 25.5 | | 7 | |
| AS1001FM-05 | 3/16" | 11.4 | | 48.7 | 6.2 | 27.7 | 24.7 | | 16.5 | 8 |
| AS1001FM-07 | 1/4" | 12 | 11.8 | 40.7 | 5.2 | 32.6 | 29.6 | 12.7 | 12 | |
| AS2001FM-03 | 5/32" | 9.3 | | 40.7 | 5.2 | 32.6 | 29.6 | | 12.7 | 12 |
| AS2001FM-05 | 3/16" | 11.4 | 11.8 | 50 | 6.2 | 33.6 | 28.6 | 16.5 | 18 | |
| AS2001FM-07 | 1/4" | 13.2 | | 52.2 | 7.1 | 34.5 | 29.5 | | 17 | 21 |
| AS2051FM-05 | 3/16" | 11.4 | 14.8 | 52.2 | 6.2 | 34.6 | 29.6 | 16.5 | 24 | |
| AS2051FM-07 | 1/4" | 13.2 | | 54.4 | 7.1 | 35.5 | 30.5 | | 17 | 26 |
| AS2051FM-09 | 5/16" | 15.2 | | 59.8 | 8.1 | 36.5 | 31.5 | | 18 | 31 |

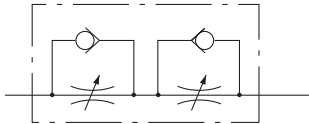
Dual Speed Controller for Low Speed Operation

Series ASD-FM

Two flow control valves and check valves integrated.
Prevention of lurching and speed control for single acting cylinders.
Stable speed control possible even with fluctuating loads.
Low speed control for small bore cylinders.



JIS symbol



Flow direction symbols on body

| | Meter-out type | Meter-in type |
|------------|----------------|---------------|
| Symbol | | |
| JIS symbol | | |

Models

| Model | Applicable tubing | | | | | | | | | |
|-----------------|-------------------|---|---|----|-----------|-------|-------|------|-------|------|
| | Metric size | | | | Inch size | | | | | |
| | 4 | 6 | 8 | 10 | 1/8" | 5/32" | 3/16" | 1/4" | 5/16" | 3/8" |
| ASD230FM-M5 | ● | ● | | | | | | | | |
| ASD330FM-01 | | ● | ● | | | | | | | |
| ASD430FM-02 | | ● | ● | ● | | | | | | |
| ASD230FM-U10/32 | | | | | ● | ● | ● | ● | | |
| ASD330FM-N01 | | | | | | | ● | ● | ● | |
| ASD430FM-N02 | | | | | | | | ● | ● | ● |

Specifications

| | |
|--|---|
| Proof pressure | 1.5MPa |
| Maximum operating pressure | 1MPa |
| Minimum operating pressure | 0.1MPa |
| Ambient and fluid temperature | 0 to 60°C |
| Number of needle revolutions | 10 revolutions (20 revolutions ^{Note 1)}) |
| Applicable tubing materials ^{Note 2)} | Nylon, Soft nylon, Polyurethane, Soft polyurethane |

Note 1) For type ASD230FM.

Note 2) Use caution regarding the maximum operating pressure with soft nylon, polyurethane and soft polyurethane.

Note 3) All brass parts are electroless nickel plated. The lock nut on the meter-out size is zinc chromate plated, then, the handle on all types and the lock nut on the meter-in type are black zinc chromate plated.

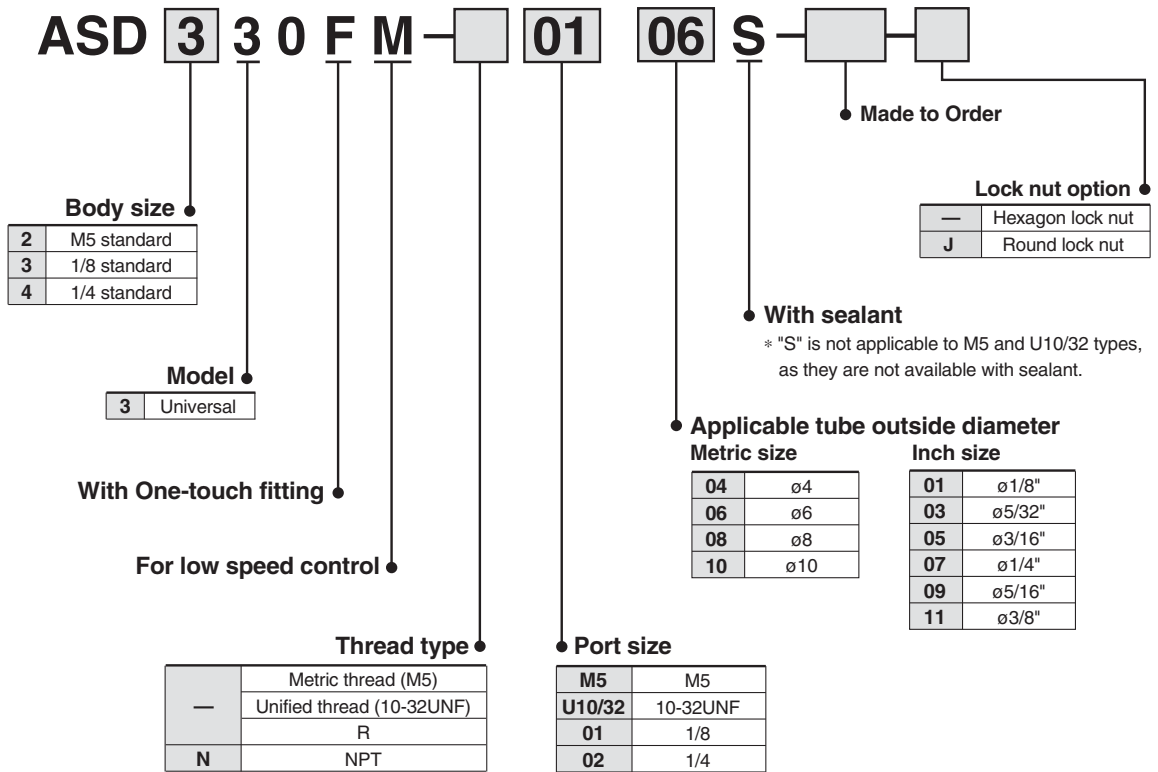
Flow Rate and Effective Area

| Model | ASD230FM | ASD330FM | ASD430FM | | |
|-----------------|--------------------------------|--------------------------------|---------------|-----|------------------------|
| Tube O.D. | Metric size | ø4, ø6 | ø6, ø8 | ø6 | ø8, ø10 |
| | Inch size | ø1/8", ø5/32" ø3/16", ø1/4" | ø3/16", ø1/4" | - | ø1/4", ø5/16" ø3/8" |
| Controlled flow | Flow rate ℓ/min (ANR) | 7 | 12 | 38 | |
| | Effective area mm ² | 0.1 | 0.2 | 0.6 | |
| Free flow | Flow rate ℓ/min (ANR) | 75 | 175 | 295 | 350 |
| | Effective area mm ² | 1.1 | 2.7 | 4.5 | 5.3 |

Note) The flow rate value is at a pressure of 0.5MPa and temperature of 20°C.

Series ASD-FM

How to Order



Made to Order

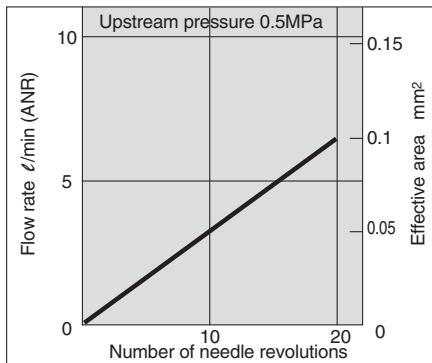
1 Lubricant: Vaseline

X12

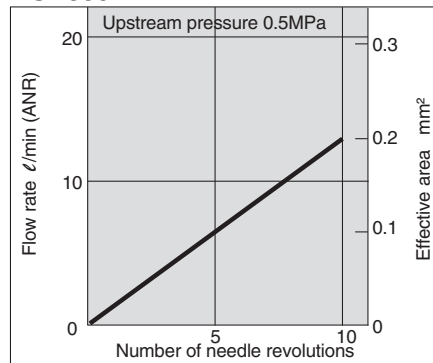
Ex.) ASD230FM-M5-X12

Needle Valve/Flow Rate Characteristics

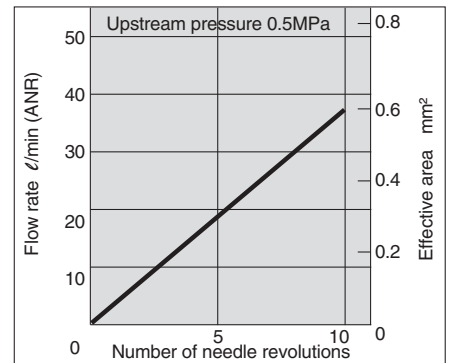
ASD230FM



ASD330FM

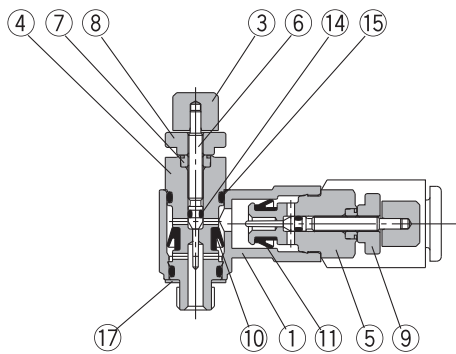


ASD430FM

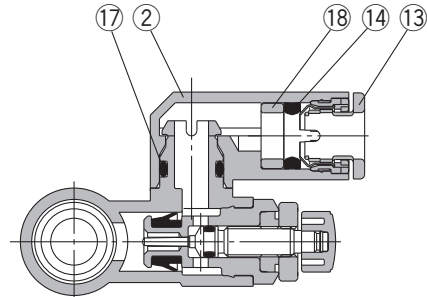
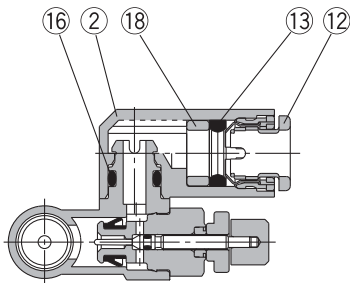
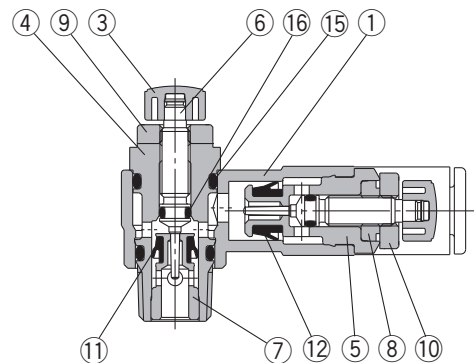


Construction

ASD230FM



ASD330FM, 430FM



Parts list

| No. | Description | Material | Note |
|-----|--------------|--------------|---------------------------|
| 1 | Body A | PBT | |
| 2 | Elbow body | PBT | |
| 3 | Handle | PBT (Note 1) | Black |
| 4 | Body B | Brass | Electroless nickel plated |
| 5 | Body B | Brass | Electroless nickel plated |
| 6 | Needle | Brass | Electroless nickel plated |
| 7 | Seat ring | Brass | Electroless nickel plated |
| 8 | Needle guide | Brass | Electroless nickel plated |
| 9 | Lock nut | Steel | Zinc chromated |
| 10 | Lock nut | Steel | Black zinc chromated |

Parts list

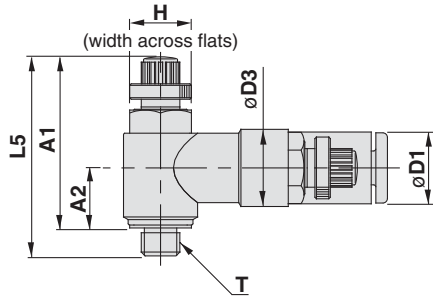
| No. | Description | Material | Note |
|-----|-------------|----------------------|--------------|
| 11 | U seal | HNBR | |
| 12 | U seal | HNBR | |
| 13 | Cassette | — | |
| 14 | Seal | NBR | |
| 15 | O-ring | NBR | |
| 16 | O-ring | NBR | |
| 17 | O-ring | NBR | |
| 18 | Spacer | — | |
| 19 | Gasket | NBR, Stainless steel | M5 type only |

Note 1) AS1001FM type is made of brass (black zinc chromate plated).

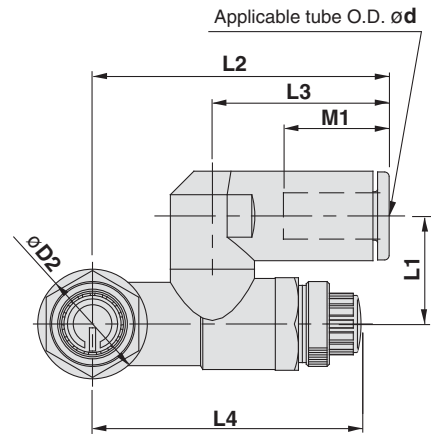
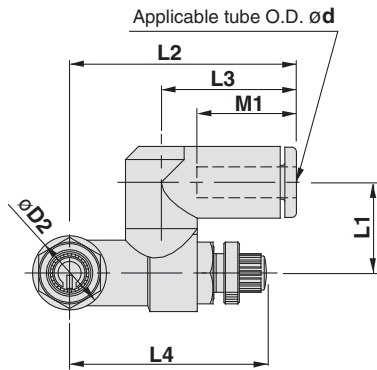
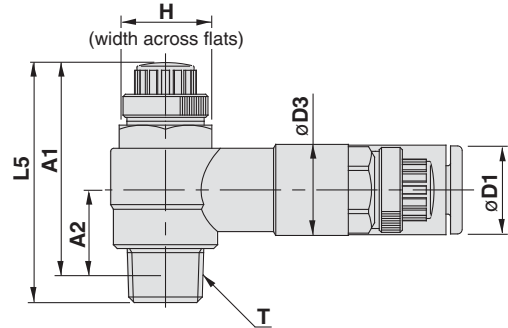
Series ASD-FM

Dimensions/Metric Sizes

ASD230FM



ASD330FM, 430FM



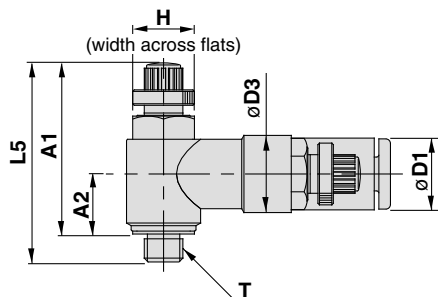
Metric sizes

| Model | d | T | H | D1 | D2 | D3 | L1 | L2 | L3 | L4 | | L5 | | A1 * | | A2 * | M1 | Weight g | | |
|-----------------|----|------|----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------------|------|----|
| | | | | | | | | | | Max. | Min. | Max. | Min. | Max. | Min. | | | | | |
| ASD230FM-M5-04 | 4 | M5 | 8 | 9.3 | 9.6 | 10 | 11.7 | 29.4 | 17.5 | 34.6 | 29.6 | 33.8 | 28.8 | 30.1 | 25.1 | 7.8 | 12.9 | 12 | | |
| ASD230FM-M5-06 | 6 | | | 11.6 | | | | | | | | | | | | | 20.6 | 13.7 | 13 | |
| ASD330FM-01-06S | 6 | R1/8 | 12 | 11.6 | 14.2 | 11.8 | 14 | 38.5 | 22.9 | 39.6 | 34.6 | 35.2 | 30.2 | 32.1 | 27.1 | 10.6 | 13.7 | 29 | | |
| ASD330FM-01-08S | 8 | | | 15.2 | | | | | | | | | | | | | 38.9 | 33.9 | 18.5 | 31 |
| ASD430FM-02-06S | 6 | R1/4 | 17 | 12.8 | 18.5 | 15 | 18 | 43.5 | 25.2 | 41.8 | 36.8 | 39.9 | 34.9 | 34.4 | 29.4 | 11 | 17 | 53 | | |
| ASD430FM-02-08S | 8 | | | 15.2 | | | | | | | | | | | | | 46.5 | 28.2 | 18.5 | 55 |
| ASD430FM-02-10S | 10 | | | 18.5 | | | | | | | | | | | | | 49.3 | 31 | 21 | 58 |

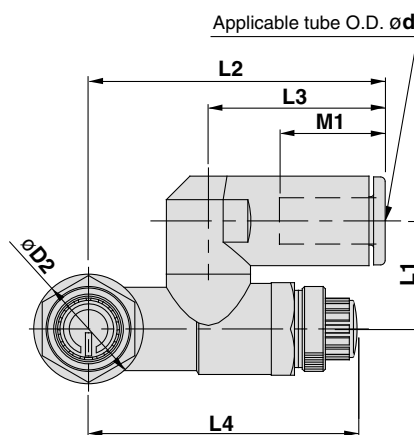
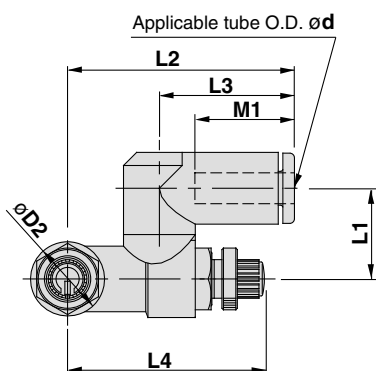
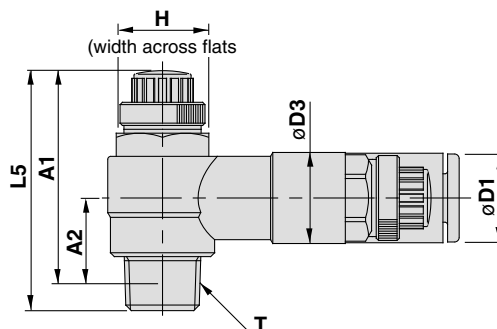
* Reference dimensions for M5 and R threads after installation

Dimensions/Inch Sizes

ASD230FM



ASD330FM, 430FM



Inch sizes

| Model | d | T | H | D1 | D2 | D3 | L1 | L2 | L3 | L4 | | L5 | | A1 * | | A2 * | M1 | Weight g |
|--------------------|-------|--------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------------|
| | | | | | | | | | | Max. | Min. | Max. | Min. | Max. | Min. | | | |
| ASD230FM-U10/32-01 | 1/8" | 10-32 UNF | 8 | 8.4 | 9.6 | 10 | 11.7 | 29.4 | 17.5 | 34.6 | 29.6 | 33.8 | 28.8 | 30.1 | 25.1 | 7.8 | 12.9 | 12 |
| ASD230FM-U10/32-03 | 5/32" | | | 9.3 | | | | | | | | | | | | | | 13 |
| ASD230FM-U10/32-05 | 3/16" | | | 11.4 | | | | | | | | | | | | | | 14 |
| ASD230FM-U10/32-07 | 1/4" | | | 12 | | | | | | | | | | | | | | 15 |
| ASD330FM-N01-05S | 3/16" | NPT1/8 | 12.7 | 11.4 | 14.2 | 11.8 | 14 | 39.5 | 23.9 | 39.6 | 34.6 | 35.2 | 30.2 | 32 | 27 | 10.6 | 16.5 | 30 |
| ASD330FM-N01-07S | 1/4" | | | 13.2 | | | 15.8 | 42.2 | 25.6 | 38.9 | 33.9 | | | | | | 17 | 31 |
| ASD330FM-N01-09S | 5/16" | | | 15.2 | | | 44.8 | 28.2 | 18.5 | 31 | | | | | | | | |
| ASD430FM-N02-07S | 1/4" | NPT1/4 | 17.5 | 13.2 | 18.5 | 15 | 18 | 43.9 | 25.6 | 41.7 | 36.7 | 39.9 | 34.9 | 34.6 | 29.6 | 11 | 17 | 55 |
| ASD430FM-N02-09S | 5/16" | | | 15.2 | | | | 46.5 | 28.2 | | | | | | | | 18.5 | 31 |
| ASD430FM-N02-11S | 3/8" | | | 18.5 | | | | 49.3 | 32.6 | | | | | | | | 21 | 62 |

* Reference dimensions for 10-32UNF and NPT threads after installation

Speed Controller with Pilot Check Valve

Series ASP

360° freedom for tube
mounting direction
Standard electroless nickel
plating specification



Model

| Part No. | Port size | Pilot port | Applicable tube outside diameter | | | | | | | | | | |
|-------------|-----------|------------|----------------------------------|----|-----|-----|-----------|--------|-------|-------|---|--|--|
| | | | Millimeter size | | | | Inch size | | | | | | |
| | | | ø6 | ø8 | ø10 | ø12 | ø1/4" | ø5/16" | ø3/8" | ø1/2" | | | |
| ASP330F-01 | R(PT)1/8 | M5 | ● | ● | | | | | | | | | |
| ASP430F-02 | R(PT)1/4 | Rc(PT)1/8 | ● | ● | | | | | | | | | |
| ASP530F-03 | R(PT)3/8 | Rc(PT)1/8 | | ● | ● | | | | | | | | |
| ASP630F-04 | R(PT)1/2 | Rc(PT)1/4 | | | ● | ● | | | | | | | |
| ASP430F-F02 | R(PT)1/4 | G(PF)1/8 | ● | ● | | | | | | | | | |
| ASP530F-F03 | R(PT)3/8 | G(PF)1/8 | | ● | ● | | | | | | | | |
| ASP630F-F04 | R(PT)1/2 | G(PF)1/4 | | | ● | ● | | | | | | | |
| ASP330F-N01 | NPT1/8 | 10-32UNF | | | | | | ● | ● | | | | |
| ASP430F-N02 | NPT1/4 | NPT1/8 | | | | | | ● | ● | | | | |
| ASP530F-N03 | NPT3/8 | NPT1/8 | | | | | | | ● | ● | | | |
| ASP630F-N04 | NPT1/2 | NPT1/4 | | | | | | | | ● | ● | | |

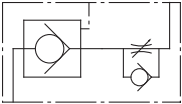
Note) All brass parts are electroless nickel plated.

Specifications

| | |
|--------------------------------------|-----------------------------------|
| Proof pressure | 1.5MPa{15.3kgf/cm ² } |
| Maximum operating pressure | 1MPa{10.2kgf/cm ² } |
| Minimum operating pressure | 0.1MPa{1kgf/cm ² } |
| Pilot check valve actuation pressure | 50% or more of operating pressure |
| Ambient & fluid temperature | -5 to 60°C (Without freezing) |
| Number of needle revolutions | 10 revolutions |
| Applicable tube material | Nylon, Soft nylon, Polyurethane |

Note) Use caution with soft nylon or polyurethane at maximum operating pressures.

JIS Symbol



Flow Rate and Effective Sectional Area

| Model | | ASP330F | ASP430F | | ASP530F | | ASP630F | |
|--------------------------------|---|-----------------|---------|-----------------|---------|-------|---------|----------------|
| Tube outside diameter | Millimeter size | ø6, ø8 | ø6 | ø8 | ø8 | ø10 | ø10 | ø12 |
| | Inch size | ø1/4" ø5/16" | — | ø1/4" ø5/16" | ø5/16" | ø3/8" | — | ø3/8" ø1/2" |
| Controlled flow (Free flow) | Flow rate ℓ/min (ANR){N ℓ/min} | 180 | 330 | 350 | 600 | 750 | 1100 | 1190 |
| | Effective sectional area mm ² | 2.9 | 5.2 | 5.4 | 9.3 | 11.6 | 17 | 18.4 |

Note) The indicated flow rate values are at a pressure of 0.5MPa and a temperature of 20°C.

How to Order

ASP 3 30 F-01-06 S — **Made to Order**

- Pilot check valve**
- Body size**

| | |
|---|--------------|
| 3 | 1/8 standard |
| 4 | 1/4 standard |
| 5 | 3/8 standard |
| 6 | 1/2 standard |
- Type**

| | |
|---|-----------|
| 3 | Universal |
|---|-----------|
- With One-touch fittings**
- With seals**
- Applicable tube outside diameter**

| Millimeter size | Inch size |
|-----------------|-----------|
| 06 | ø6 |
| 08 | ø8 |
| 10 | ø10 |
| 12 | ø12 |
| 07 | ø1/4" |
| 09 | ø5/16" |
| 11 | ø3/8" |
| 13 | ø1/2" |
- Lock nut option**

| | |
|---|------------------|
| — | Hexagon lock nut |
| J | Round lock nut |
- Port size**

| Symbol | Cylinder side | Pilot port |
|--------|---------------|------------|
| 01 | R(PT)1/8 | M5 |
| 02 | R(PT)1/4 | Rc(PT)1/8 |
| 03 | R(PT)3/8 | Rc(PT)1/8 |
| 04 | R(PT)1/2 | Rc(PT)1/4 |
| F02 | R(PT)1/4 | G(PF)1/8 |
| F03 | R(PT)3/8 | G(PF)1/8 |
| F04 | R(PT)1/2 | G(PF)1/4 |
| N01 | NPT1/8 | 10-32UNF |
| N02 | NPT1/4 | NPT1/8 |
| N03 | NPT3/8 | NPT1/8 |
| N04 | NPT1/2 | NPT1/4 |

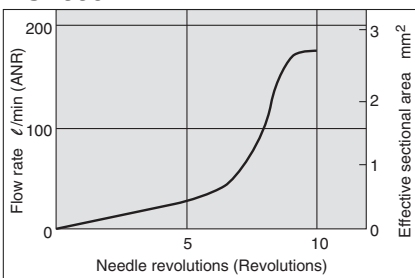
Made to Order

1 Lubricant: Vaseline

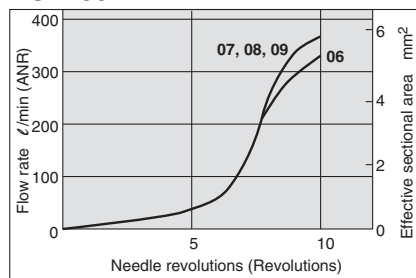
X12

Needle Valve/Flow Rate Characteristics

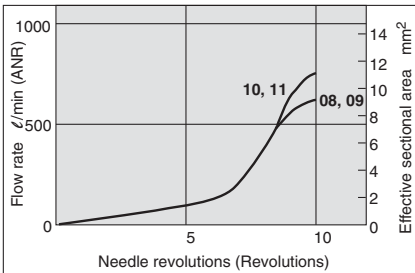
ASP330F



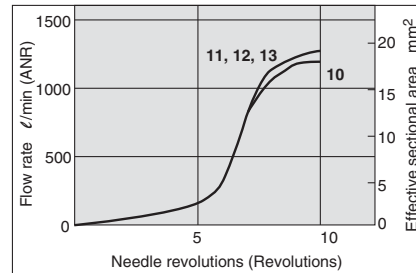
ASP430F



ASP530F



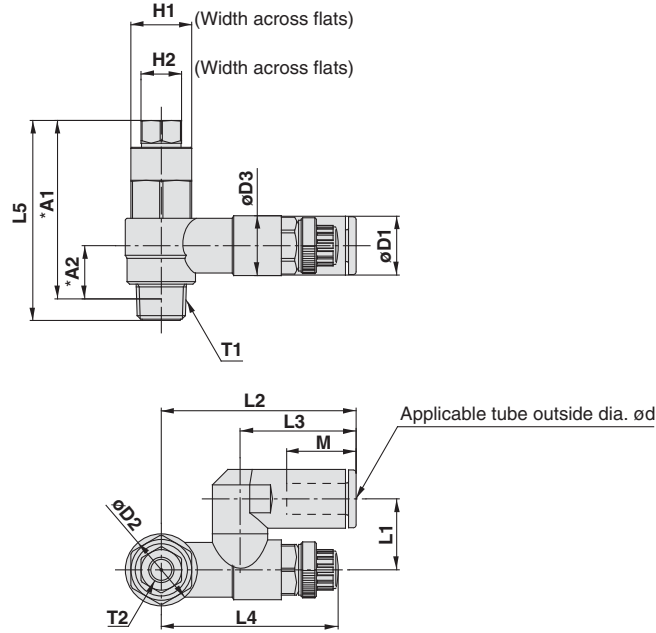
ASP630F



Series ASP

Dimensions

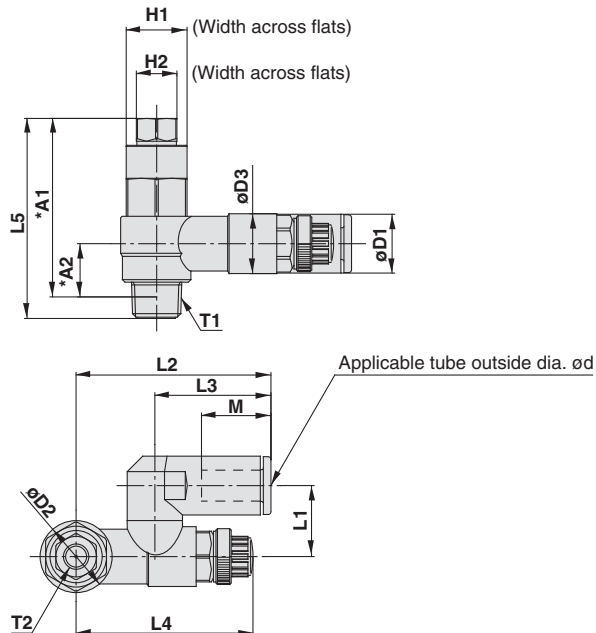
Millimeter size



| Model | d | T1 | T2 | H1 | H2 | D1 | D2 | D3 | L1 | L2 | L3 | L4 | | L5 | *A1 | *A2 | M | Weight g |
|----------------|----|-----|-----------|----|----|------|------|------|------|------|------|------|------|------|------|------|------|-------------|
| | | | | | | | | | | | | MAX. | MIN. | | | | | |
| ASP330F-01-06S | 6 | 1/8 | M5 | 12 | 8 | 11.6 | 14.2 | 11.8 | 14 | 38.4 | 22.9 | 39.6 | 34.6 | 39.5 | 35.2 | 10.5 | 13.7 | 32 |
| ASP330F-01-08S | 8 | | | | | 15.2 | | | | | | 38.9 | 33.9 | | | | | |
| ASP430F-02-06S | 6 | 1/4 | Rc(PT)1/8 | 17 | 12 | 12.8 | 18.5 | 15 | 18 | 43.4 | 25.2 | 41.7 | 36.7 | 48.7 | 42.4 | 10.9 | 16.8 | 65 |
| ASP430F-02-08S | 8 | | | | | 15.2 | | | | | | 41.7 | 36.7 | | | | | |
| ASP530F-03-08S | 8 | 3/8 | Rc(PT)1/8 | 19 | 12 | 15.2 | 23 | 19.8 | 20.3 | 51.3 | 28.2 | 46.9 | 41.9 | 56.2 | 50 | 14.4 | 18.7 | 107 |
| ASP530F-03-10S | 10 | | | | | 18.5 | | | | | | | | | | | | |
| ASP630F-04-10S | 10 | 1/2 | Rc(PT)1/4 | 24 | 17 | 18.5 | 28.6 | 26.5 | 25.9 | 64.2 | 32.6 | 64.8 | 57.3 | 70.3 | 61.8 | 18.3 | 20.8 | 212 |
| ASP630F-04-12S | 12 | | | | | 20.9 | | | | | | | | | | | | |

* Reference dimensions for R(PT) threads after installation.

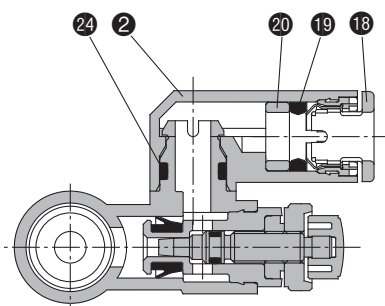
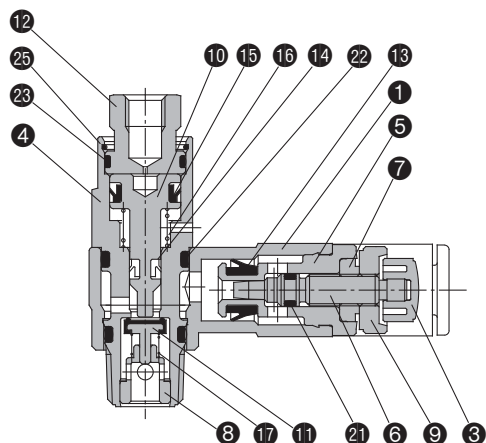
Inch size



| Model | d | T1 | T2 | H1 | H2 | D1 | D2 | D3 | L1 | L2 | L3 | L4 | | L5 | *A1 | *A2 | M | Weight g |
|-----------------|-------|--------|----------|--------|--------|------|------|------|------|------|------|------|------|------|------|------|------|-------------|
| | | | | | | | | | | | | MAX. | MIN. | | | | | |
| ASP330F-N01-07S | 1/4" | NPT1/8 | 10-32UNF | 1/2" | 8 | 13.2 | 14.2 | 11.8 | 15.8 | 42.2 | 25.6 | 38.9 | 33.9 | 39.5 | 35.1 | 10.5 | 17 | 35 |
| ASP330F-N01-09S | 5/16" | | | | | 15.2 | | | | | | 44.7 | 28.2 | | | | | |
| ASP430F-N02-07S | 1/4" | NPT1/4 | NPT1/8 | 11/16" | 1/2" | 13.2 | 18.5 | 15 | 18 | 43.9 | 25.6 | 41.7 | 36.7 | 48.7 | 42.6 | 10.9 | 17 | 68 |
| ASP430F-N02-09S | 5/16" | | | | | 15.2 | | | | | | | | | | | | |
| ASP530F-N03-09S | 5/16" | NPT3/8 | NPT1/8 | 19 | 1/2" | 15.2 | 23 | 19.8 | 20.3 | 51.3 | 28.2 | 46.9 | 41.9 | 56.2 | 50.3 | 14.4 | 18.7 | 107 |
| ASP530F-N03-11S | 3/8" | | | | | 18.5 | | | | | | | | | | | | |
| ASP630F-N04-11S | 3/8" | NPT1/2 | NPT1/4 | 15/16" | 11/16" | 18.5 | 28.6 | 26.5 | 25.9 | 64.2 | 32.6 | 64.8 | 57.3 | 70.3 | 61.8 | 18.3 | 20.8 | 220 |
| ASP630F-N04-13S | 1/2" | | | | | 21.7 | | | | | | | | | | | | |

* Reference dimensions for NPT threads after installation.

Construction



Parts list

| No. | Description | Material | Note |
|-----|--------------|----------------------|---------------------------|
| ① | Body A | PBT | |
| ② | Elbow body | PBT | |
| ③ | Knob | PBT | |
| ④ | Pilot body | Brass | Electroless nickel plated |
| ⑤ | Body B | Brass | Electroless nickel plated |
| ⑥ | Needle | Brass | Electroless nickel plated |
| ⑦ | Needle guide | Brass | Electroless nickel plated |
| ⑧ | Guide | Brass | Electroless nickel plated |
| ⑨ | Lock nut | Steel | Zinc chromated |
| ⑩ | Piston | Brass | Electroless nickel plated |
| ⑪ | Valve | Stainless steel, NBR | |
| ⑫ | Cover | Brass | Electroless nickel plated |
| ⑬ | U seal | HNBR | |

Parts list

| No. | Description | Material | Note |
|-----|-------------|-----------------|------|
| ⑭ | DY seal | NBR | |
| ⑮ | DY seal | NBR | |
| ⑯ | Spring | Stainless steel | |
| ⑰ | Spring | Stainless steel | |
| ⑱ | Cassette | — | |
| ⑲ | Seal | NBR | |
| ⑳ | Spacer | — | |
| ㉑ | O-ring | NBR | |
| ㉒ | O-ring | NBR | |
| ㉓ | O-ring | NBR | |
| ㉔ | O-ring | NBR | |
| ㉕ | Ring | Stainless steel | |

