

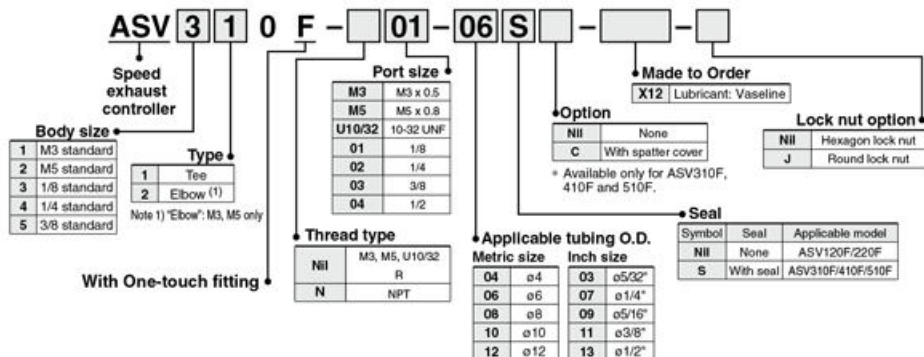
Speed Exhaust Controller

Series ASV

Size: M3, M5, 1/8, 1/4, 3/8

RoHS

How to Order

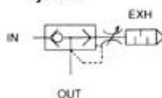


Integration of a quick exhaust valve and an exhaust restrictor permits high-speed cylinder operation.

- The flow rate is approximately twice. (In comparison with control by speed controller)
Applicable model: ASV310F, ASV410F, ASV510F
- Silencer and One-touch fittings are installed.
- Flame resistant resin body as standard. (UL standard V-0)
Applicable model: ASV310F, ASV410F, ASV510F
- Brass parts are all electroless nickel plated.



Symbol



Made to Order

Made to Order

Lubricant: Vaseline

X12

Ex.) ASV120F-M3-04-X12

Note) Only for ASV120F and ASV220F

Model

| Model | Port size | Applicable tubing O.D. (mm) | | | | | | | | | | Sonic conductance dm ³ (s·bar) | | Critical pressure ratio | | | | |
|----------------|-----------|-----------------------------|---|---|----|----|-------|------|-------|------|------|---|---------|-------------------------|---------|------|--|------|
| | | 4 | 6 | 8 | 10 | 12 | 5/32" | 1/4" | 5/16" | 3/8" | 1/2" | IN→OUT | OUT→EXH | IN→OUT | OUT→EXH | | | |
| ASV120F-M3 | M3 x 0.5 | ● | | | | | | | | | | | | 0.06 | 0.06 | | | 0.15 |
| ASV220F-M5 | M5 x 0.8 | ● | ● | | | | | | | | | | | 0.26 | 0.26 | | | |
| ASV310F-01 | R 1/8 | | ● | ● | | | | | | | | | | 1.4 | 1.6 | | | |
| ASV310F-02 | R 1/4 | | | ● | ● | | | | | | | | | 1.4 | 1.6 | | | |
| ASV410F-01 | R 1/8 | | | ● | ● | | | | | | | | | 2.7 | 2.8 | | | 0.35 |
| ASV410F-02 | R 1/4 | | | ● | ● | | | | | | | | | 2.7 | 2.8 | | | |
| ASV410F-03 | R 3/8 | | | | ● | ● | | | | | | | | 2.7 | 2.8 | | | |
| ASV510F-02 | R 1/4 | | | | ● | ● | | | | | | | | 4.6 | 5.4 | | | |
| ASV510F-03 | R 3/8 | | | | ● | ● | | | | | | | | 5.4 | 5.8 | | | |
| ASV510F-04 | R 1/2 | | | | | ● | ● | | | | | | | 5.4 | 5.8 | 0.25 | | |
| ASV220F-U10/32 | 10-32 UNF | | | | | ● | ● | | | | | | | 0.26 | 0.26 | | | 0.15 |
| ASV310F-N01 | NPT 1/8 | | | | | | ● | ● | | | | | | 1.4 | 1.6 | | | |
| ASV310F-N02 | NPT 1/4 | | | | | | | ● | ● | | | | | 1.4 | 1.6 | | | |
| ASV410F-N01 | NPT 1/8 | | | | | | | ● | ● | | | | | 2.7 | 2.8 | | | 0.35 |
| ASV410F-N02 | NPT 1/4 | | | | | | | ● | ● | | | | | 2.7 | 2.8 | | | |
| ASV410F-N03 | NPT 3/8 | | | | | | | | ● | ● | | | | 2.7 | 2.8 | | | |
| ASV510F-N02 | NPT 1/4 | | | | | | | | ● | ● | | | | 4.6 | 5.4 | | | |
| ASV510F-N03 | NPT 3/8 | | | | | | | | ● | ● | | | | 5.4 | 5.8 | | | |
| ASV510F-N04 | NPT 1/2 | | | | | | | | | ● | ● | | | 5.4 | 5.8 | | | |

Specifications

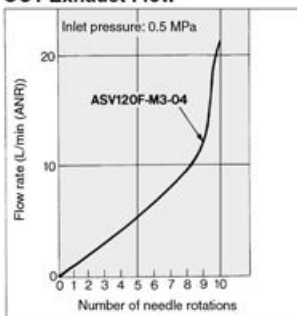
| Series | ASV120F | ASV220F | ASV310F/410F | ASV510F |
|-----------------------------------|---------------------------------|---------|------------------------------------|---------|
| Fluid | Air | | | |
| Proof pressure | 1.5 MPa | | | |
| Max. operating pressure | 1 MPa | | | |
| Min. operating pressure | 0.1 MPa | | | |
| Ambient and fluid temperature | -5 to 60°C (No freezing) | | | |
| Applicable tubing material (Note) | Nylon, Soft nylon, Polyurethane | | | |
| Option | Round lock nut | | With spatter cover, Round lock nut | |

Note) Use caution regarding the max. operating pressure when soft nylon or polyurethane tubing is used. (Refer to pages 411 and 412 for details.)

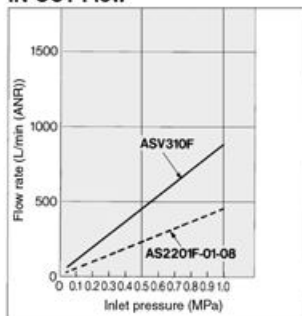
Needle Valve/Flow Characteristics

Note) The flow characteristics are representative values.

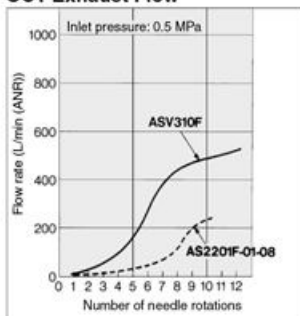
ASV120F
OUT-Exhaust Flow



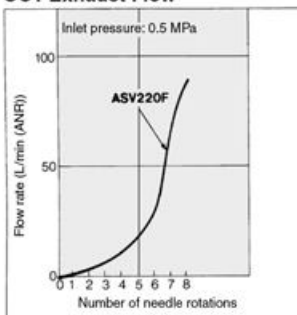
ASV310F
IN-OUT Flow



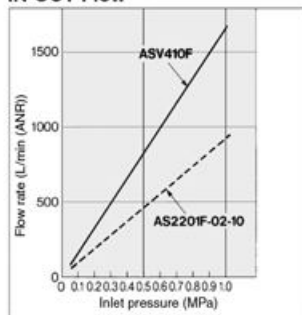
OUT-Exhaust Flow



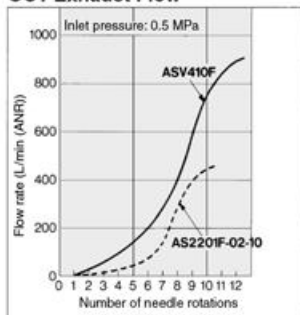
ASV220F
OUT-Exhaust Flow



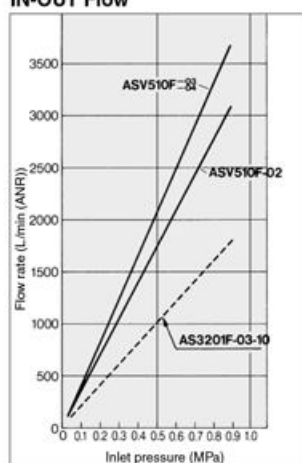
ASV410F
IN-OUT Flow



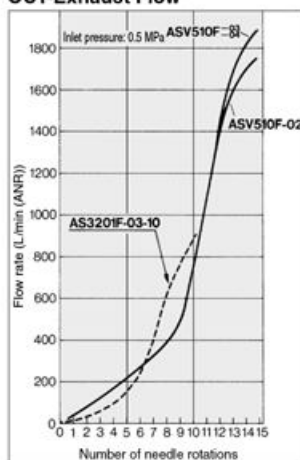
OUT-Exhaust Flow



ASV510F
IN-OUT Flow



OUT-Exhaust Flow



AS

TMH

ASD

AS

AS-FE

KE

AS-FG

AS-FP

AS-FM

AS-D

AS-T

ASP

ASN

AQ

ASV

AK

VCHC

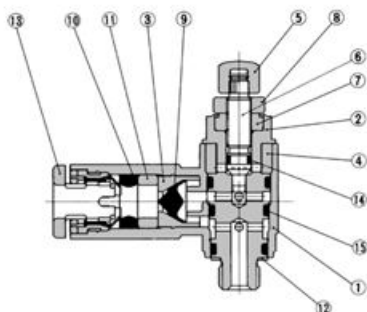
ASS

ASR

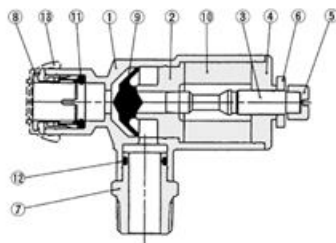
ASQ

Construction

ASV120F/220F

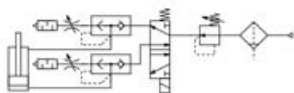


ASV310F/410F/510F

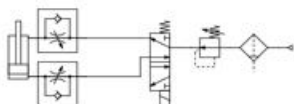


Circuit

Circuit of speed exhaust controller



Controlled by speed controller



Component Parts

| No. | Description | Material | Note |
|-----|--------------|----------------------|--|
| 1 | Body A | PBT | |
| 2 | Body B | Brass ⁽¹⁾ | Electroless nickel plated |
| 3 | Seat ring | Brass | Electroless nickel plated |
| 4 | Silencer | PVA sponge | |
| 5 | Handle | PBT | M3 type: Electroless nickel plated brass |
| 6 | Needle | Brass | Electroless nickel plated |
| 7 | Needle guide | Brass | Electroless nickel plated |
| 8 | Lock nut | Steel ⁽²⁾ | Zinc chromated ⁽²⁾ |
| 9 | Valve | HNBR | |
| 10 | Seal | NBR | |
| 11 | Spacer | POM | |
| 12 | Gasket | Stainless steel/NBR | M3 port : PVC |
| 13 | Cassette | — | |
| 14 | O-ring | NBR | |
| 15 | O-ring | NBR | |

Note 1) M3 type is made of stainless steel.

Note 2) The round lock nut is electroless nickel plated.

Note 3) The round lock nut is made of brass.

Component Parts

| No. | Description | Material | Note |
|-----|--------------|----------------------|-------------------------------|
| 1 | Body A | PBT | UL94V-0 |
| 2 | Seat ring | Aluminum alloy | Chromate plated |
| 3 | Needle | Aluminum alloy | Electroless nickel plated |
| 4 | Needle guide | Aluminum alloy | Electroless nickel plated |
| 5 | Handle | Brass | Electroless nickel plated |
| 6 | Lock nut | Steel ⁽²⁾ | Zinc chromated ⁽¹⁾ |
| 7 | Needle guide | Brass | Electroless nickel plated |
| 8 | Cassette | — | |
| 9 | Valve | Urethane rubber | |
| 10 | Silencer | PVA sponge | |
| 11 | Seal | NBR | |
| 12 | O-ring | NBR | |
| 13 | Cover | Flame proof CR | UL94V-0 |

Note 1) The round lock nut is electroless nickel plated.

Note 2) The round lock nut is made of brass. However, note that only the ASV310F and ASV410F use steel.

⚠ Specific Product Precautions

Be sure to read before handling.
Refer to front matter 56 for Safety Instructions and pages 468 to 471 for Flow Control Equipment Precautions.

Design/Selection

⚠ Caution

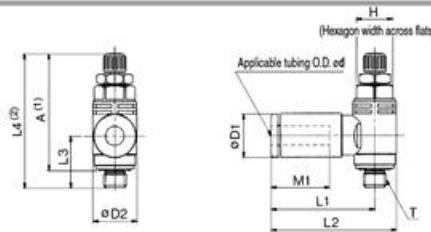
1. In the following cases, insufficient exhaust or vibration may cause noise.

- With residual pressure or back pressure on the IN side.
- When the differential pressure between the IN and OUT sides is smaller than the minimum operating pressure.
- When the effective area of the IN side piping of ASV, or the solenoid valve, is smaller than ASV.

2. As the speed exhaust valve ASV220F series has a sonic conductance that is smaller than that of the speed controller AS1201F series, the cylinder speed may not become fast depending on the piping conditions. So, carefully check this point when using the product.

Dimensions

ASV120F/220F



Metric Size

| Model | Applicable tubing O.D. ed | T | H | D1 | D2 | L1 | L2 | L3 | L4 | | A* | | M1 | Weight (g) |
|---------------|---------------------------|----------|-----|------|-----|------|------|------|------|------|------|------|------|------------|
| | | | | | | | | | Max. | Min. | Max. | Min. | | |
| ASV120F-M3-04 | 4 | M3 x 0.5 | 5.5 | 9.3 | 7.2 | 21.4 | 25 | 9.8 | 28.6 | 26.1 | 25.8 | 23.3 | 12.7 | 5 |
| ASV220F-M5-04 | 4 | M5 x 0.8 | 8 | 9.3 | 9.6 | 22.8 | 27.6 | 11.1 | 31.4 | 28.6 | 27.7 | 24.9 | 12.7 | 8 |
| ASV220F-M5-06 | 6 | M5 x 0.8 | 8 | 11.6 | 9.6 | 23.6 | 28.4 | 11.1 | 31.4 | 28.6 | 27.7 | 24.9 | 13.5 | 9 |

Note 1) Reference dimensions of M thread after installation. Note 2) L4: Reference dimensions

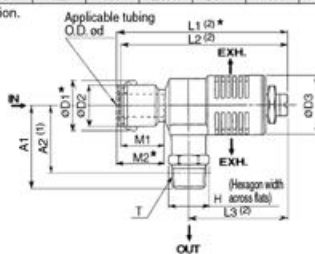
Inch Size

| Model | Applicable tubing O.D. ed | T | H | D1 | D2 | L1 | L2 | L3 | L4 | | A* | | M1 | Weight (g) |
|-------------------|---------------------------|----------|---|-----|-----|------|------|------|------|------|------|------|------|------------|
| | | | | | | | | | Max. | Min. | Max. | Min. | | |
| ASV220F-U10/32-03 | 5/32" | 10-32UNF | 8 | 9.3 | 9.6 | 22.8 | 27.6 | 11.1 | 31.4 | 28.6 | 27.7 | 24.9 | 12.7 | 8 |
| ASV220F-U10/32-07 | 1/4" | 10-32UNF | 8 | 12 | 9.6 | 23.6 | 28.4 | 11.1 | 31.4 | 28.6 | 27.7 | 24.9 | 13.7 | 9 |

Note 1) Reference "U10/32" thread dimensions after installation.

Note 2) L4: Reference dimensions

ASV310F/410F/510F



Metric Size

| Model | Applicable tubing O.D. ed | T | H | D1 | D2 | D3 | L1* | | L2 | | L3 | | A1(2) | A2 | M1 | M2* | Weight (g) |
|----------------|---------------------------|------|----|------|------|------|------|------|------|------|------|------|-------|------|----|-----|------------|
| | | | | | | | Max. | Min. | Max. | Min. | Max. | Min. | | | | | |
| ASV310F-01-06S | 6 | R1/8 | 10 | 16.8 | 12.8 | 17.6 | 71.9 | 65.9 | 69.9 | 63.9 | 45.8 | 39.8 | 26.5 | 23.4 | 17 | 19 | 22 |
| ASV310F-01-08S | 8 | | | | | | 73.8 | 67.8 | 71.8 | 65.8 | | | | | | | |
| ASV310F-02-06S | 6 | | | | | | 71.9 | 65.9 | 69.9 | 63.9 | | | | | | | |
| ASV310F-02-08S | 8 | R1/4 | 14 | 16.8 | 12.8 | 17.6 | 83.1 | 75.6 | 81.1 | 73.6 | 52.8 | 45.3 | 29.8 | 26.7 | 19 | 21 | 31 |
| ASV410F-01-08S | 8 | | | | | | 85.2 | 77.7 | 83.2 | 75.7 | | | | | | | |
| ASV410F-01-10S | 10 | | | | | | 83.1 | 75.6 | 81.1 | 73.6 | | | | | | | |
| ASV410F-02-08S | 8 | R1/4 | 14 | 23.3 | 18.5 | 24 | 85.2 | 77.7 | 83.2 | 75.7 | 52.8 | 45.3 | 34.2 | 28.7 | 19 | 21 | 47 |
| ASV410F-02-10S | 10 | | | | | | 83.1 | 75.6 | 81.1 | 73.6 | | | | | | | |
| ASV410F-03-08S | 8 | | | | | | 85.2 | 77.7 | 83.2 | 75.7 | | | | | | | |
| ASV410F-03-10S | 10 | R3/8 | 17 | 19.3 | 15.2 | 24 | 83.1 | 75.6 | 81.1 | 73.6 | 52.8 | 45.3 | 35.6 | 30.4 | 19 | 21 | 61 |
| ASV410F-03-08S | 8 | | | | | | 85.2 | 77.7 | 83.2 | 75.7 | | | | | | | |
| ASV410F-03-10S | 10 | | | | | | 88.2 | 82.2 | 86.2 | 80.2 | | | | | | | |
| ASV510F-02-10S | 10 | R1/4 | 17 | 25.7 | 20.9 | 30 | 89.8 | 83.8 | 87.8 | 81.8 | 53.6 | 47.6 | 39.3 | 33.8 | 22 | 24 | 74 |
| ASV510F-02-12S | 12 | | | | | | 88.2 | 82.2 | 86.2 | 80.2 | | | | | | | |
| ASV510F-03-10S | 10 | | | | | | 89.8 | 83.8 | 87.8 | 81.8 | | | | | | | |
| ASV510F-03-12S | 12 | R3/8 | 17 | 25.7 | 20.9 | 30 | 88.2 | 82.2 | 86.2 | 80.2 | 53.6 | 47.6 | 40.7 | 35.5 | 22 | 24 | 78 |
| ASV510F-04-10S | 10 | | | | | | 89.8 | 83.8 | 87.8 | 81.8 | | | | | | | |
| ASV510F-04-12S | 12 | | | | | | 88.2 | 82.2 | 86.2 | 80.2 | | | | | | | |
| ASV510F-04-12S | 12 | R1/2 | 22 | 25.7 | 20.9 | 30 | 89.8 | 83.8 | 87.8 | 81.8 | 53.6 | 47.6 | 44.9 | 37.6 | 22 | 24 | 100 |
| ASV510F-04-12S | 12 | | | | | | 89.8 | 83.8 | 87.8 | 81.8 | | | | | | | |

* Dimension with cover Note 1) Reference dimension of "R" thread after installation. Note 2) L1, L2, L3: Reference dimensions

Inch Size

| Model | Applicable tubing O.D. ed | T | H | D1* | D2 | D3 | L1* | | L2 | | L3 | | A1(2) | A1(1) | M1 | M2* | Weight (g) |
|----------------|---------------------------|---------|------|------|------|------|------|------|------|------|------|------|-------|-------|------|------|------------|
| | | | | | | | Max. | Min. | Max. | Min. | Max. | Min. | | | | | |
| ASV310F-N01-07 | 1/4" | NPT 1/8 | 12.7 | 17.2 | 13.2 | 17.6 | 73 | 67 | 71 | 65 | 45.8 | 39.8 | 26.5 | 23.4 | 16.8 | 18.8 | 22 |
| ASV310F-N01-09 | 5/16" | | | | | | 73.8 | 67.8 | 71.8 | 65.8 | | | | | | | |
| ASV310F-N02-07 | 1/4" | | | | | | 73 | 67 | 71 | 65 | | | | | | | |
| ASV310F-N02-09 | 5/16" | NPT 1/4 | 14.3 | 17.2 | 13.2 | 17.6 | 83.1 | 75.6 | 81.1 | 73.6 | 52.8 | 45.3 | 29.8 | 26.7 | 19 | 21 | 31 |
| ASV410F-N01-09 | 5/16" | | | | | | 85.2 | 77.7 | 83.2 | 75.7 | | | | | | | |
| ASV410F-N01-11 | 3/16" | | | | | | 83.1 | 75.6 | 81.1 | 73.6 | | | | | | | |
| ASV410F-N02-09 | 5/16" | NPT 1/4 | 14.3 | 23.3 | 18.5 | 24.4 | 85.2 | 77.7 | 83.2 | 75.7 | 52.8 | 45.3 | 34.2 | 28.7 | 19 | 21 | 47 |
| ASV410F-N02-11 | 3/16" | | | | | | 83.1 | 75.6 | 81.1 | 73.6 | | | | | | | |
| ASV410F-N03-09 | 5/16" | | | | | | 85.2 | 77.7 | 83.2 | 75.7 | | | | | | | |
| ASV410F-N03-11 | 3/16" | NPT 3/8 | 17.5 | 23.3 | 18.5 | 24.4 | 83.1 | 75.6 | 81.1 | 73.6 | 52.8 | 45.3 | 35.6 | 30.4 | 19 | 21 | 61 |
| ASV510F-N02-11 | 3/16" | | | | | | 85.2 | 77.7 | 83.2 | 75.7 | | | | | | | |
| ASV510F-N02-13 | 1/2" | | | | | | 88.2 | 82.2 | 86.2 | 80.2 | | | | | | | |
| ASV510F-N03-11 | 3/16" | NPT 1/4 | 17.5 | 26.5 | 21.7 | 30 | 89.8 | 83.8 | 87.8 | 81.8 | 53.6 | 47.6 | 39.3 | 33.8 | 21 | 23 | 69 |
| ASV510F-N02-13 | 1/2" | | | | | | 89.8 | 83.8 | 87.8 | 81.8 | | | | | | | |
| ASV510F-N03-11 | 3/16" | | | | | | 88.2 | 82.2 | 86.2 | 80.2 | | | | | | | |
| ASV510F-N03-13 | 1/2" | NPT 3/8 | 17.5 | 26.5 | 21.7 | 30 | 89.8 | 83.8 | 87.8 | 81.8 | 53.6 | 47.6 | 40.7 | 35.5 | 21 | 23 | 73 |
| ASV510F-N03-13 | 1/2" | | | | | | 89.8 | 83.8 | 87.8 | 81.8 | | | | | | | |
| ASV510F-N04-11 | 3/16" | | | | | | 88.2 | 82.2 | 86.2 | 80.2 | | | | | | | |
| ASV510F-N04-13 | 1/2" | NPT 1/2 | 22.2 | 23.3 | 18.5 | 30 | 89.8 | 83.8 | 87.8 | 81.8 | 53.6 | 47.6 | 44.9 | 37.6 | 21.8 | 23.8 | 100 |
| ASV510F-N04-13 | 1/2" | | | | | | 89.8 | 83.8 | 87.8 | 81.8 | | | | | | | |

* Dimension with cover Note 1) Reference dimension of "NPT" thread after installation. Note 2) L1, L2, L3: Reference dimensions

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