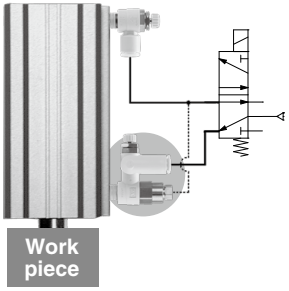
Speed Controller with Pilot Check Valve with One-touch Fitting

Series ASP

RoHS

Pilot check valve and speed controller are combined.

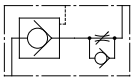
Realizes momentary intermediate stoppage of a cylinder and able to adjust speed control of it.



Example of drop prevention circuit

Tubing mount direction is 360° free. Electroless nickel plated is provided as standard.

Symbol



Made to Order

Made to Order

Lubricant: Vaseline **X12**

Model

Model	Port size	Pilot port	Applicable tubing O.D.							
			Metric size				Inch size			
			ø6	ø8	ø10	ø12	ø1/4"	ø5/16"	ø3/8"	ø1/2"
ASP330F-01	R 1/8	M5 x 0.8	●	●						
ASP430F-02	R 1/4	Rc 1/8	●	●						
ASP530F-03	R 3/8	Rc 1/8		●	●					
ASP630F-04	R 1/2	Rc 1/4			●	●				
ASP430F-F02	R 1/4	G 1/8	●	●						
ASP530F-F03	R 3/8	G 1/8		●	●					
ASP630F-F04	R 1/2	G 1/4			●	●				
ASP330F-N01	NPT 1/8	10-32 UNF					●	●		
ASP430F-N02	NPT 1/4	NPT 1/8					●	●		
ASP530F-N03	NPT 3/8	NPT 1/8						●	●	
ASP630F-N04	NPT 1/2	NPT 1/4							●	●

Note) Brass parts are all electroless nickel plated.

Specifications

Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure	1 MPa
Min. operating pressure	0.1 MPa
Pilot check valve operating pressure	More than 50% the operating pressure (Over 0.1 MPa)
Ambient and fluid temperature	–5 to 60°C (No freezing)
Applicable tubing material	Nylon, Soft nylon, Polyurethane

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

Flow Rate and Sonic Conductance

Model		ASP330F	ASP430F		ASP530F		ASP630F	
Tubing O.D.	Metric 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))	180	330	350	600	750	1100	1190
	Sonic conductance $dm^3/(s \cdot bar)$	0.58	1.04	1.08	1.86	2.32	3.4	3.68
Critical pressure ratio	Controlled flow	0.15	0.15		0.15		0.15	
	Free flow	0.25	0.25		0.25		0.25	

Note) Flow rate values are measured at 0.5 MPa and 20°C.

How to Order

ASP 3 3 0 F – 01 – 06 S – [ ] – [ ]

Lock nut option

Nil	Hexagon lock nut
J	Round lock nut

Made to Order

X12	Lubricant: Vaseline

Ex.) ASP330F-01-06S-X12

Pilot check valve

Body size

3	1/8 standard
4	1/4 standard
5	3/8 standard
6	1/2 standard

With seal

Applicable tubing O.D. Note)

Metric size		Inch size	
06	ø6	**07**	ø1/4"
08	ø8	**09**	ø5/16"
10	ø10	**11**	ø3/8"
12	ø12	**13**	ø1/2"

Note) For applicable tubing O.D. selection, refer to the Model on page 617.

Universal

With One-touch fitting

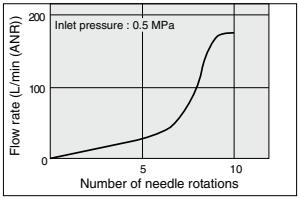
Port size

Symbol	Cylinder side	Pilot port
01	R 1/8	M5 x 0.8
02	R 1/4	Rc 1/8
03	R 3/8	Rc 1/8
04	R 1/2	Rc 1/4
F02	R 1/4	G 1/8
F03	R 3/8	G 1/8
F04	R 1/2	G 1/4
N01	NPT 1/8	10-32 UNF
N02	NPT 1/4	NPT 1/8
N03	NPT 3/8	NPT 1/8
N04	NPT 1/2	NPT 1/4

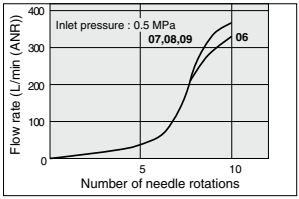
Needle Valve/ Flow Characteristics

Note) The flow characteristics are representative values.

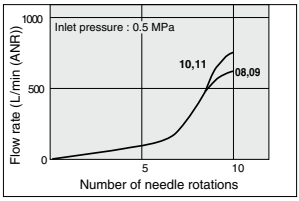
ASP330F



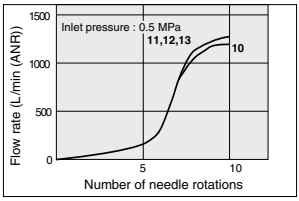
ASP430F



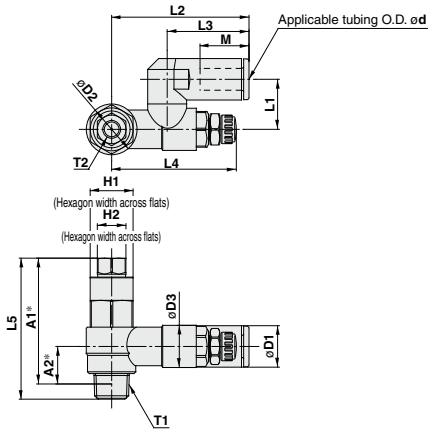
ASP530F



ASP630F



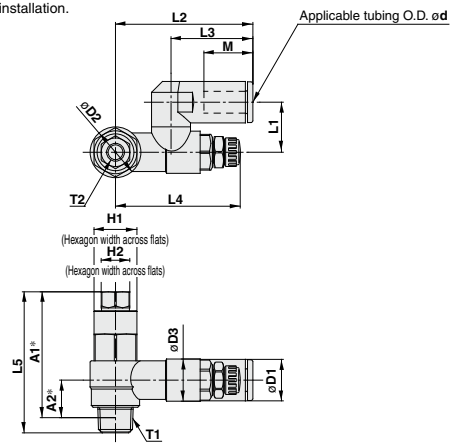
Dimensions



Metric Size

Model	d	T1	T2	H1	H2	D1	D2	D3	L1	L2	L3	L4 (1) Max.	L4 (1) Min.	L5	A1 (2)	A2 (2)	M	Weight (g)
ASP330F-01-06S	6	R 1/8	M5 x 0.8	12	8	11.6	14.2	11.8	14	38.4	22.9	39.6	34.6	38.6	35.2	10.5	13.7	32
ASP330F-01-08S	8					15.2			15.8	44.7	28.2	38.9	33.9				18.7	35
ASP430F-02-06S	6	R 1/4	1/8	17	12	12.8	18.5	15	18	43.4	25.2	41.7	36.7	48.2	42.4	10.9	16.8	65
ASP430F-02-08S	8					15.2			19.7	46.4	28.2						18.7	68
ASP530F-03-08S	8	R 3/8	1/8	19	12	15.2	23	19.8	20.3	51.3	28.2	46.9	41.9	55.1	50	14.4	18.7	107
ASP530F-03-10S	10					18.5			23.1	54.1	32.6						20.8	110
ASP630F-04-10S	10	R 1/2	1/4	24	17	18.5	28.6	26.5	25.9	64.2	32.6	64.8	57.3	69.4	61.8	18.3	20.8	212
ASP630F-04-12S	12					20.9				66	34.4						21.8	215

Note 1) Reference dimensions
Note 2) Reference dimensions of R thread after installation.

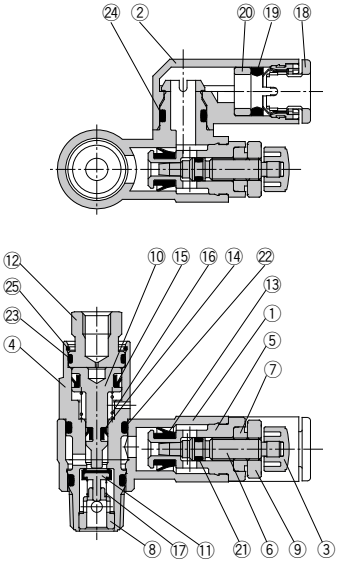


Inch Size

Model	d	T1	T2	H1	H2	D1	D2	D3	L1	L2	L3	L4 (1) Max.	L4 (1) Min.	L5	A1 (2)	A2 (2)	M	Weight (g)
ASP330F-N01-07S	1/4"	NPT 1/8	10-32 UNF	1/2"	8	13.2	14.2	11.8	15.8	42.2	25.6	38.9	33.9	38.6	35.1	10.5	17	35
ASP330F-N01-09S	5/16"					15.2				44.7	28.2						18.7	
ASP430F-N02-07S	1/4"	NPT 1/4	NPT 1/8	11/16"	1/2"	13.2	18.5	15	18	43.9	25.6	41.7	36.7	48.2	42.6	10.9	17	68
ASP430F-N02-09S	5/16"					15.2				46.4	28.2						18.7	
ASP530F-N03-09S	5/16"	NPT 3/8	NPT 1/8	19	1/2"	15.2	23	19.8	20.3	51.3	28.2	46.9	41.9	55.1	50.3	14.4	18.7	107
ASP530F-N03-11S	3/8"					18.5			23.1	54.1	32.6						20.8	116
ASP630F-N04-11S	3/8"	NPT 1/2	NPT 1/4	15/16"	11/16"	18.5	28.6	26.5	25.9	64.2	32.6	64.8	57.3	69.4	61.8	18.3	20.8	220
ASP630F-N04-13S	1/2"					21.7			26.5	66.3	34.7						21.8	230

Note 1) Reference dimensions
Note 2) Reference dimensions of NPT thread after installation.

Construction



Component Parts

No.	Description	Material	Note
1	**Body A**	PBT	
2	**Elbow body**	PBT	
3	**Handle**	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 (2)	Zinc chromated (1)
10	**Piston**	Brass	Electroless nickel plated
11	**Valve**	Stainless steel, NBR	
12	**Cover**	Brass	Electroless nickel plated
13	**U seal**	HNBR	

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 ASP330F and ASP430F use steel.

Component Parts

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	

Series ASP
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

⚠Warning

1. This product cannot be used for accurate and precise intermediate stops of the actuator.

Due to the compressibility of air as a fluid, the actuator will continue to move until it reaches a position of pressure balance, even though the pilot check valve closes with an intermediate stop signal.

2. This product cannot be used to hold a stop position for an extended period of time.

Pilot check valves and actuators are not guaranteed for zero air leakage. Therefore, it is sometimes not possible to hold a stop position for an extended period of time. In the event that holding for an extended time is necessary, a mechanical means for holding should be devised.

3. Consider the release of residual pressure.

Actuators may move suddenly due to residual pressure, which can be dangerous during maintenance procedures.

4. When used in a balance control circuit, there are instances in which the check valve cannot release, even though the pilot pressure is 50% of the operating pressure. In these cases, the pilot pressure should be the same as the operating pressure.

5. For reference, SMC has conducted endurance tests in which ON, OFF operation of the check valve was performed at the maximum operating pressure, with a confirmed endurance of 10 million operations.
Since the tests were performed under limited conditions, use caution in evaluating the results.

6. The check valve has a construction, in which it is closed by the differential pressure generated when the inlet pressure (IN side) or outlet pressure (OUT side) solenoid valve is switched. Be aware that the check valve does not close completely and the outlet pressure (OUT side) may drop when the inlet pressure (IN side) drops gently and the differential pressure becomes smaller than the minimum operating pressure or cracking pressure.

Installation

⚠Warning

1. When mounting, please firmly align the tool with the hexagon width across flats of the pilot body. If the hexagon width across flats is damaged as a result of failure to properly align the tool, the pilot body will be deformed, and poor pilot operation may result.

Air source

⚠Warning

1. If moisture enters the inside of the connecting piping, the cover may corrode, and it may lead to a pilot operation malfunction.