

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								
			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 electroless nickel plated, while the meter-in type is black zinc chromate plated.

Note 3) ●: 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	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 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	ø3.2, ø4	ø3.2, ø4, ø6	ø3.2, ø4 ø6, ø8, ø10	ø4	ø6	ø8, ø10	ø6	ø8	ø10, ø12	ø10	ø12	
	Inch size	ø1/8", ø5/32"	ø1/8", ø5/32"	ø1/8", ø5/32"	ø3/16", ø1/4", ø5/16"		ø5/32" ø3/16"	ø1/4", ø5/16", ø3/8"		ø1/4" ø5/16"	ø3/8"	ø1/2"	
Controlled (Free) flow	Air (d/min(ANR))	20	100	180	230	260	390	460	660	790	920	1580	1710
	Eff. area (mm²)	0.3	1.5	2.7	3.5	4	6	7	10	12	14	24	26

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

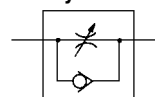
Elbow style



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)
—	R(PT)
N	NPT

Option

—	None
S	With sealant
K	Hexagon lock nut
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*
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12
01	ø1/8"
03	ø5/32"
05	ø3/16"
07	ø1/4"
09	ø5/16"
11	ø3/8"
13	ø1/2"

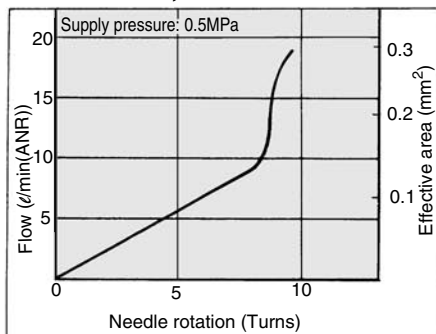
*ø1/8" tube should be used.

Port size

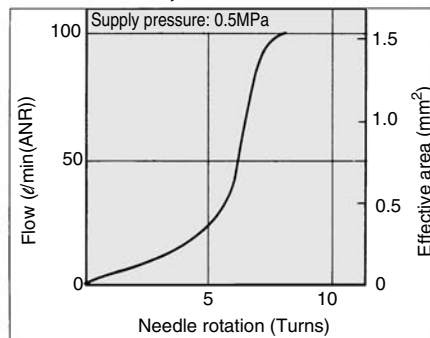
M3	M3
M5	M5
U10/32	10-32UNF
01	1/8
02	1/4
03	3/8
04	1/2

Needle Valve/Flow Characteristics

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

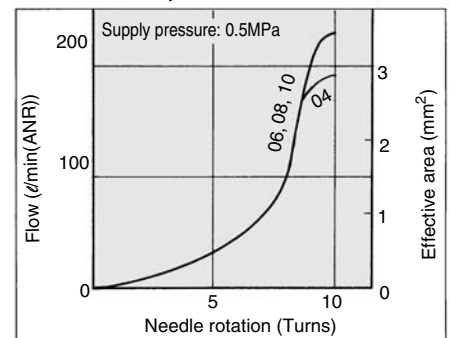


AS1201F-M5, AS1211F-M5
AS1301F-M5, AS1311F-M5

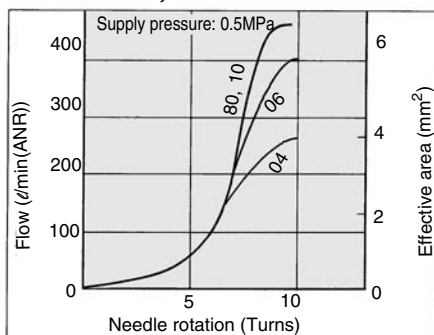


Note) "-U10/32" is the same as "M5".

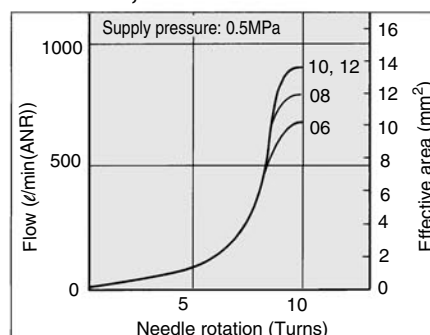
AS2201F-01, AS2211F-01
AS2301F-01, AS2311F-01



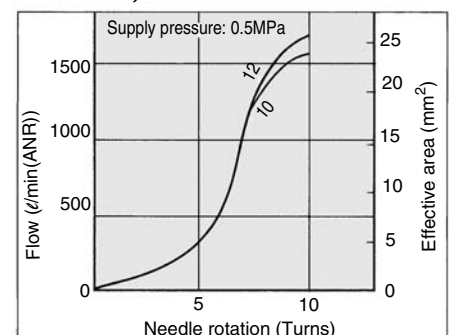
AS2201F-02, AS2211F-02
AS2301F-02, AS2311F-02



AS3201F, AS3211F
AS3301F, AS3311F



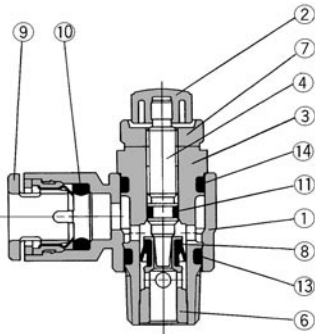
AS4201F, AS4211F
AS4301F, AS4311F



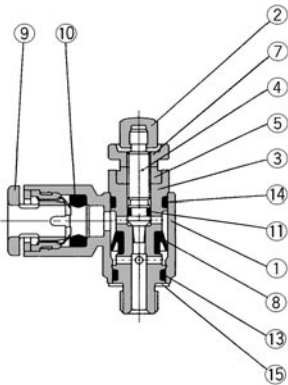
Series AS

Construction

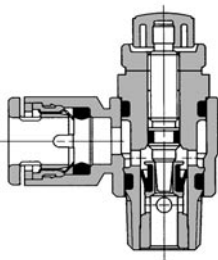
Elbow style
Meter-out



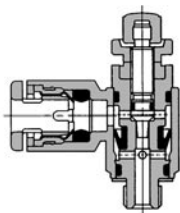
M3 port
M5 port
U10/32 port



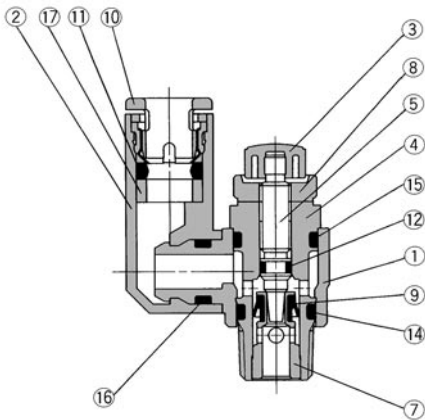
Meter-in



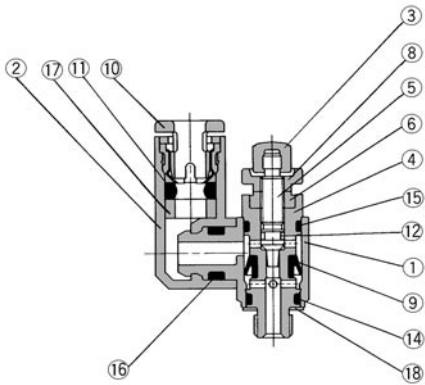
M3 port
M5 port
U10/32 port



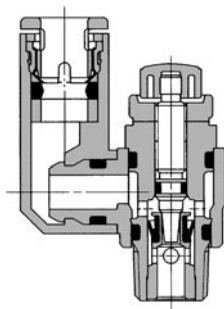
Universal style
Meter-out



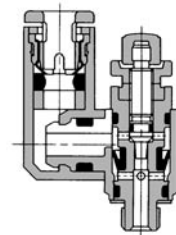
M3 port
M5 port
U10/32 port



Meter-in



M3 port
M5 port
U10/32 port

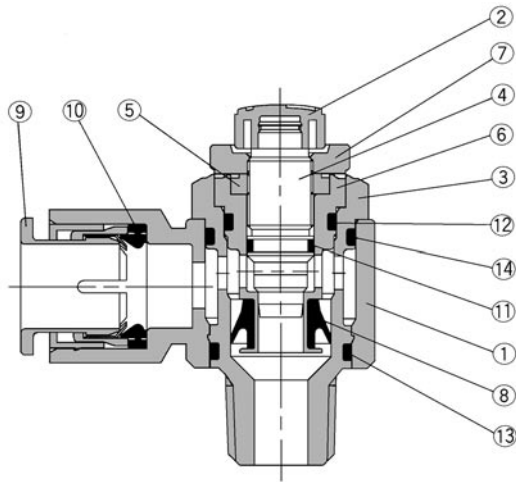


With One-touch Fittings: Elbow/Universal Style *Series AS*

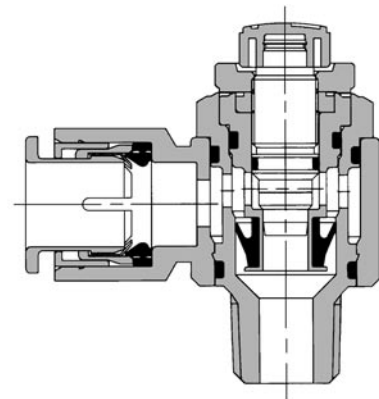
Construction

Elbow style

Meter-out AS3201F-02

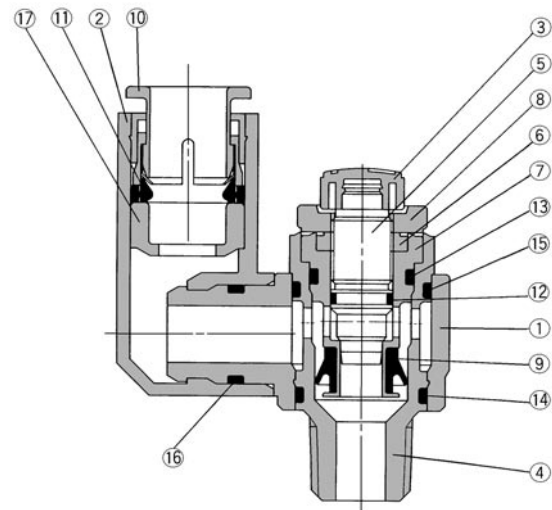


Meter-in AS3211F-02

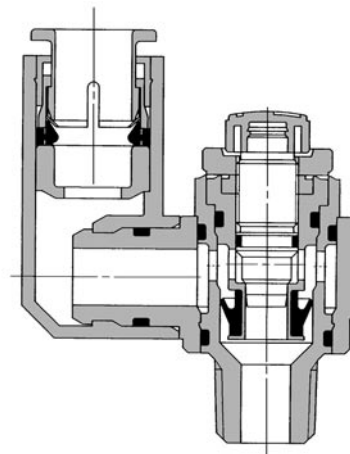


Universal style

Meter-out AS3301F-02



Meter-in AS3311F-02



Component Parts

No.	Description	Material	Note
①	Body A	PBT	
②	Handle	PBT	
③	Body B	Brass ⁽¹⁾	Electroless nickel plated
④	Needle	Brass	Electroless nickel plated
⑤	Needle guide	Brass	Electroless nickel plated
⑥	Seat ring	Brass	See Note 2
⑦	Lock nut	Brass ⁽³⁾	
⑧	U-packing	NBR	Electroless nickel plated ⁽⁴⁾
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: Stainless

Note 2) AS32□1F-02: Electroless nickel plated

Note 3) AS2□□1F: Steel

Note 4) Meter-in type: Black zinc chromated

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	Brass ⁽³⁾	Electroless nickel plated ⁽⁴⁾
⑨	U-packing	NBR	
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 ⁽⁵⁾	
⑱	Gasket	NBR, Stainless steel	

Note 1) AS13□1F-M3: Stainless

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

Note 3) AS2□□1F: Steel

Note 4) Meter-in type: Black zinc chromated

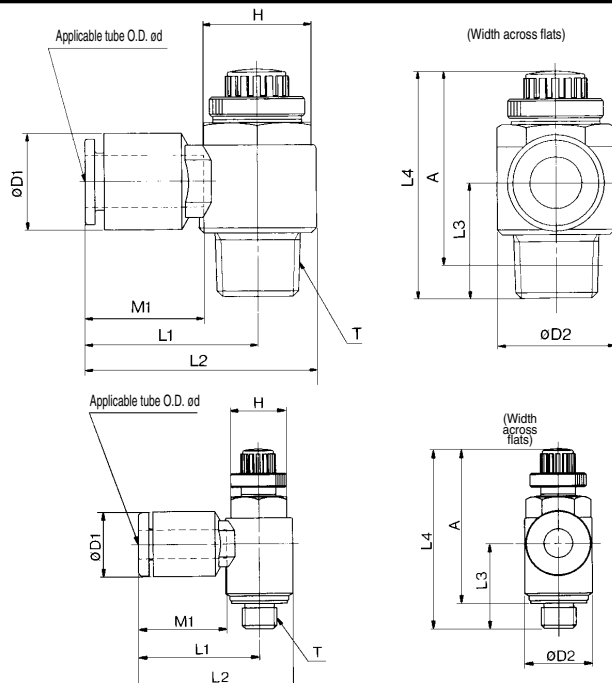
Note 5) ø3/16", ø1/4", ø3/8", ø1/2": Brass

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-M3-23	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	4			9.3				10						
AS12□1F-M5-23	3.2	M5	8	8.4		17.3	22.1						12.7	7
AS12□1F-U10/32-23	4			9.3	9.6	17.3	22.1	12.3	28.6	25.8	25	22.2		
AS12□1F-M5-04	4	10-32UNF	8	9.3										
AS12□1F-U10/32-04	6			11.6		18.1	22.9	11.7					13.5	
AS12□1F-M5-06	6	10-32UNF	8	9.3										
AS12□1F-U10/32-06	3.2			9.3		20.4	27.5						12.7	16
AS22□1F-01-23	4	R(PT) 1/8	12 (12.7)	9.3		20.4	27.5						12.7	17
AS22□1F-01-04	6			11.6	14.2	20.4	27.5	13.4	35.2	30.2	32.1	27.1	13.5	19
AS22□1F-01-06	8	R(PT) 1/8	12 (12.7)	15.2		25.3	32.4						18.5	21
AS22□1F-01-08	10			18.5		33.1	40.2	14.1					21	21
AS22□1F-01-10	4	R(PT) 1/4	17 (17.5)	10.4		25.2	34.4						16	32
AS22□1F-02-04	6			12.8	18.5	25.2	34.4	17.7	39.9	34.9	34.4	29.4	17	34
AS22□1F-02-06	8	R(PT) 1/4	17 (17.5)	15.2		27.2	36.4						18.5	36
AS22□1F-02-08	10			18.5		33.9	43.2	19.5					21	36
AS32□1F-02-06	6	R(PT) 1/4	19	12.8		27.8	39.3						17	60
AS32□1F-02-08	8			15.2	23	29.5	41	21.3	48.3	43.3	42.8	37.8	18.5	63
AS32□1F-02-10	10	R(PT) 3/8	23	18.5		31.8	43.3						21	67
AS32□1F-02-12	12			20.9		32.8	44.3						22	69
AS32□1F-03-06	6	R(PT) 3/8	23	12.8		27.8	39.3						17	55
AS32□1F-03-08	8			15.2		29.5	41	19.8	45.4	40.4	40.2	35.2	18.5	57
AS32□1F-03-10	10	R(PT) 1/2	24 (23.8)	18.5		31.8	43.3						21	59
AS32□1F-03-12	12			20.9		32.8	44.3						22	61
AS42□1F-04-10	10	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	21	100
AS42□1F-04-12	12			20.9		34.6	48.9						22	101

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				10						
AS12□1F-M5-01	1/8"	M5	8	8.4		17.3	22.1						12.7	7
AS12□1F-U10/32-01	1/8"			9.3	9.6	17.3	22.1	12.3	28.6	25.8	25	22.2		
AS12□1F-M5-03	5/32"	10-32UNF	8	9.3										
AS12□1F-U10/32-03	5/32"			11.6		18.1	22.9	11.7					13.5	
AS22□1F-01-01	1/8"	1/8	12 (12.7)	9.3		20.4	27.5						12.7	16
AS22□1F-01-03	5/32"			9.3		20.4	27.5						12.7	17
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	16.5	17
AS22□1F-01-07	1/4"			13.2		23.9	31						18.5	19
AS22□1F-01-09	5/16"	1/4	17 (17.5)	15.2		25.3	32.4	14.1					21	21
AS22□1F-02-03	5/32"			10.4		25.2	34.4						16	32
AS22□1F-02-05	3/16"	1/4	17 (17.5)	11.4		24.9	34.2	17.7					17	34
AS22□1F-02-07	1/4"			13.2	18.5	25.2	34.5		39.9	34.9	34.4	29.4	18.5	36
AS22□1F-02-09	5/16"	1/4	17 (17.5)	15.2		27.2	36.4	19.5					21	36
AS22□1F-02-11	3/8"			17.9		33.9	43.2	19.5					21	36
AS32□1F-02-07	1/4"	1/4	19	13.2		27.8	39.3						17	60
AS32□1F-02-09	5/16"			15.2	23	29.5	41	21.3	48.3	43.3	42.8	37.8	18.5	63
AS32□1F-02-11	3/8"	3/8	19	17.9		31.8	43.3						21	67
AS32□1F-03-07	1/4"			13.2		27.8	39.3						17	55
AS32□1F-03-09	5/16"	3/8	19	15.2	23	29.5	41	19.8	45.4	40.4	40.2	35.2	18.5	57
AS32□1F-03-11	3/8"			17.9		31.8	43.3						21	59
AS42□1F-04-11	3/8"	1/2	24 (23.8)	17.9		33.6	47.9	24.5	56.7	49.2	49.6	42.1	21	100
AS42□1F-04-13	1/2"			21.7	28.6	35.2	49.5						22	101

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

Note 2) Reference thread dimensions after being screwed in.

Elbow Style

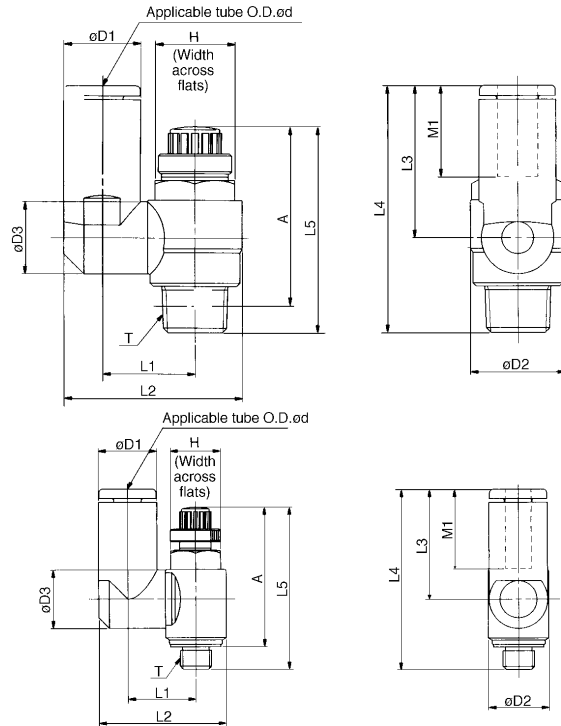
File	Model	Port size	Detail No.							
			Tube O.D.							
SAS21F1N	AS12□1F-M3-□	M3	#1	#2	#3	#4	#5	#6	#7	#8
	AS12□1F-M5-□	M5	#9	#10	#11	#12	#13	#14	#15	#16
	AS22□1F-01-□S	R(PT)1/8	#17	#18	#19	#20	#21	#22	#23	#24
	AS22□1F-02-□S	R(PT)1/4	#25	#26	#27	#28	#29	#30	#31	#32
	AS32□1F-03-□S	R(PT)3/8	#33	#34	#35	#36	#37	#38	#39	#40
	AS42□1F-04-□S	R(PT)1/2	#41	#42	#43	#44	#45	#46	#47	#48

With One-touch Fittings: Elbow/Universal Style *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	7.2	7.2	10.1	18.3	17.9	28.6	26.6	24.1	24	21.5	12.7	5
AS13□1F-M5-23	3.2	M5	8	8.4				19.8								
AS13□1F-U10/32-23	3.2			8.4				19.8								
AS13□1F-M5-04	4	M5	8	9.3	9.6	9.3	10.8	20.3			28.6	25.8	25	22.2	12.7	7
AS13□1F-U10/32-04	4			9.3	9.6	9.3	10.8	20.3			28.6	25.8	25	22.2	12.7	7
AS13□1F-M5-06	6	M5	11.6	11.6				21.4	20.6	31.8					13.5	
AS13□1F-U10/32-06	6			11.6				21.4	20.6	31.8					13.5	
AS23□1F-01-23	3.2	1/8	12 (12.7)	8.4		9.3	13.1	24.4	17.5	30.9					12.7	17
AS23□1F-01-04	4			9.3		14.2	14	24.9	22.9	36.3	35.2	30.2	32.1	27.1	13.5	18
AS23□1F-01-06	6	1/8	12 (12.7)	11.6	14.2	10.9	14	26.9	22.9	36.3	35.2	30.2	32.1	27.1	13.5	18
AS23□1F-01-08	8			15.2	12.9	16.2	30.9	28.2	40.8						18.5	21
AS23□1F-02-04	4	1/4	17 (17.5)	10.4	10.9	16.2	30.6	21.9	39.6						16	32
AS23□1F-02-06	6			12.8	12.9	18.4	34	25.2	42.1						17	33
AS23□1F-02-08	8	1/4	17 (17.5)	15.2	12.9	18.3	35.2	28.2	45.1						18.5	36
AS23□1F-02-10	10			18.5	20.2	38.7	31	47.9							21	40
AS33□1F-02-06	6	3/8	23	12.8	12.9	20.6	38.5	25.2	46.5						17	60
AS33□1F-02-08	8			15.2	12.9	20.6	39.7	28.2	49.5						18.5	63
AS33□1F-02-10	10	3/8	23	18.5	23	43.7	32.6	53.9			48.3	43.3	42.8	37.8	21	67
AS33□1F-02-12	12			20.9	16.2	23	44.9	34.4	55.7						22	69
AS33□1F-03-06	6	1/2	19	12.8	12.9	20.6	38.5	25.2	45						17	56
AS33□1F-03-08	8			15.2	12.9	20.6	39.7	28.2	48						18.5	59
AS33□1F-03-10	10	1/2	19	18.5	23	43.7	32.6	52.4			45.4	40.4	40	35	21	63
AS33□1F-03-12	12			20.9	16.2	23	44.9	34.4	54.2						22	65
AS43□1F-04-10	10	1/2	24 (23.8)	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			21.7	19.4	26.8	52	36.3	60.8						22	106

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	7.2	7.2	10.1	18.3	17.9	28.6	26.6	24.1	24	21.5	12.7	5
AS13□1F-M5-01	1/8"	M5	8	8.4				19.8								
AS13□1F-U10/32-01	1/8"			8.4				19.8								
AS13□1F-M5-03	5/32"	M5	8	9.3	9.6	9.3	10.8	20.3			28.6	25.8	25	22.2	12.7	7
AS13□1F-U10/32-03	5/32"			9.3	9.6	9.3	10.8	20.3			28.6	25.8	25	22.2	12.7	7
AS23□1F-01-01	1/8"	1/8	12 (12.7)	8.4		9.3	13.1	24.4	17.5	30.9					12.7	17
AS23□1F-01-03	5/32"			9.3		14.2	14	24.9	22.9	36.3	35.2	30.2	32.1	27.1	13.5	18
AS23□1F-01-05	3/16"	1/8	12 (12.7)	11.6	14.2	10.9	14	26.9	22.9	36.3	35.2	30.2	32.1	27.1	13.5	18
AS23□1F-01-07	1/4"			13.2	12.9	16.2	29.9	25.6	36.3						17	19
AS23□1F-01-09	5/16"	1/4	17 (17.5)	15.2	12.9	16.2	30.9	28.2	40.8						18.5	21
AS23□1F-02-03	5/32"			10.4	10.9	16.2	30.6	21.9	39.6						16	32
AS23□1F-02-05	3/16"	1/4	17 (17.5)	11.6	10.9	16.2	31.1	23.9	42.1						16.5	33
AS23□1F-02-07	1/4"			13.2	12.9	18.3	34.2	25.6	45.1						17	36
AS23□1F-02-09	5/16"	1/4	17 (17.5)	15.2	12.9	18.3	35.2	28.2	47.4						18.5	39
AS23□1F-02-11	3/8"			18.5	20.2	38.7	31	46.5							21	40
AS33□1F-02-07	1/4"	3/8	19	13.2	12.9	20.6	38.7	25.6	50						17	60
AS33□1F-02-09	5/16"			15.2	23	12.9	20.6	39.7	28.2	54.4	48.8	43.8	42.8	37.8	18.5	63
AS33□1F-02-11	3/8"	3/8	19	18.5	16.2	23	43.7	32.6	56.2						21	69
AS33□1F-03-07	1/4"			13.2	12.9	20.6	38.7	25.6	45						17	56
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	43.7	32.6	52.4						21	65
AS43□1F-04-11	3/8"	1/2	24 (23.8)	18.5	28.6	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	52	36.3	60.8						22	106

Note 1) () are the dimensions of NPT thread

Note 2) Reference thread dimensions after being screwed in

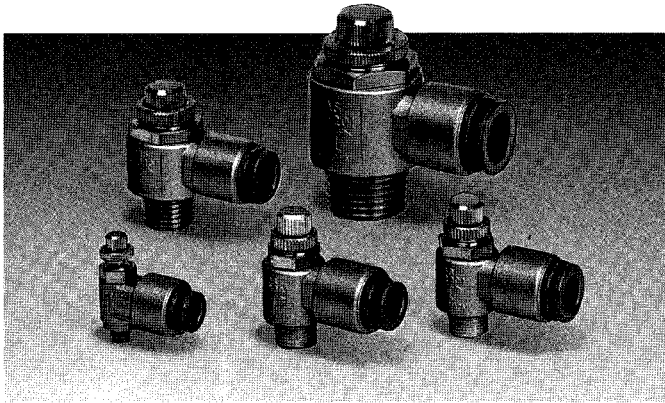
Universal Style

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

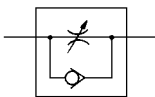
Speed Controller with One-touch Fittings

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

AS 3 2 0 1 - 03 - F 06 S K

Speed controller

Body size

1	M5
2	01, 02
3	03
4	04

Elbow style

Controlled method

0	Meter-out
1	Meter-in

Sealant

Option

—	None
K	Hexagonal lock nut
N	Nickel plated

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

Tube size

04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

Thread size

M5	M5
01	R(PT) 1/8
02	R(PT) 1/4
03	R(PT) 3/8
04	R(PT) 1/2

Built-in One-touch fitting

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⁾

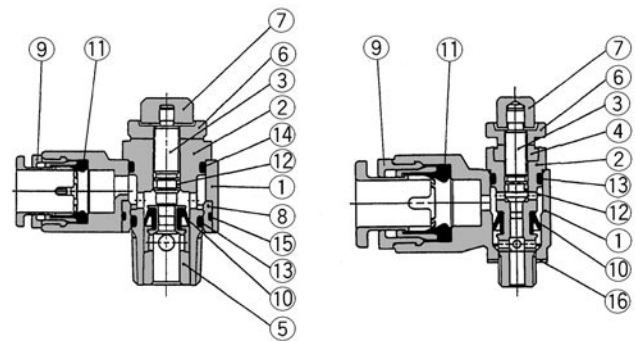
Distinction between meter-out/meter-in types by appearance. They are distinguished by the lock nut.

The lock nut on the meter-out type is electroless nickel plated 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	
⑥	Lock nut	Brass ⁽¹⁾	Electroless nickel plated ⁽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*: Steel

Note 2) Meter-in type: Black zinc chromated

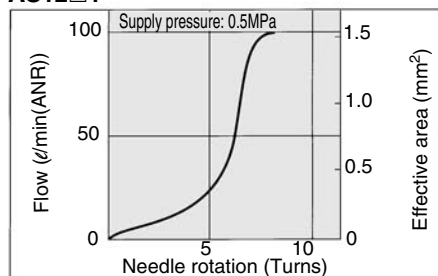
With One-touch Fittings: Metal Body Elbow Style *Series AS*

Flow/Effective area

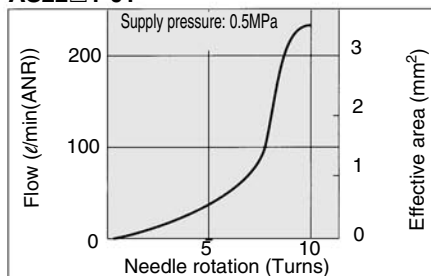
Model		AS12□1-M5	AS22□1-01	AS22□1-02		AS32□1-03		AS42□1-04	
Tube O.D		ø4, ø6	ø6, ø8	ø6	ø8	ø8	ø10	ø10	ø12
Controlled (Free) flow	Flow (ℓ/min (ANR))	100	230	390	460	790	920	1580	1710
	Effective area (mm ²)	1.5	3.5	6	7	12	14	24	26

Needle Valve/Flow Characteristics

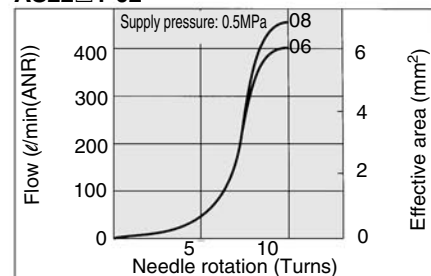
AS12□1



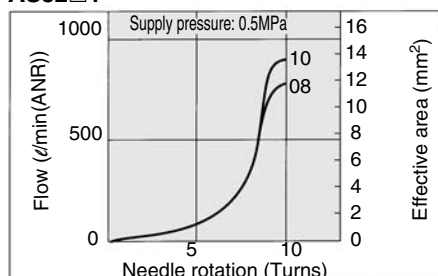
AS22□1-01



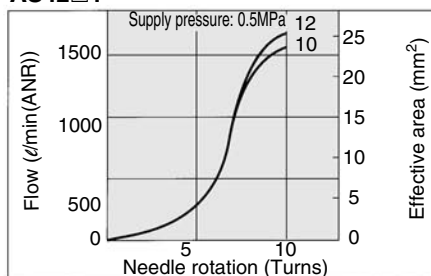
AS22□1-02



AS32□1

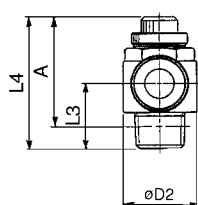
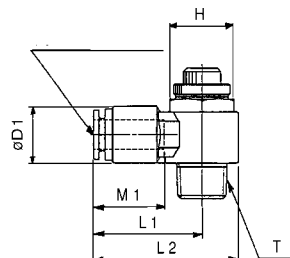


AS42□1

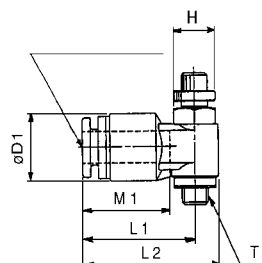


Dimensions

(Width across flats)



(Width across flats)



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					26.6	33.9						17	33.7
AS22□1-01-F08S	8	R (PT) ^{1/8}	12	15.5	14.6	26.6	33.9	14.7	35.5	30.5	32.4	27.4	18.5	30.7
AS22□1-02-F06S	6												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					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)
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.

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	ø3.2, ø4, ø6	ø4	ø6	ø6	ø8	ø6	ø8	ø10, ø12	ø10	ø12
	Inch size	ø1/8", ø5/32"	ø5/32"	ø3/16", ø1/4"	ø3/16"	ø1/4, ø5/16	ø1/4	ø5/16	ø3/8"	ø3/8"	ø1/2"
Controlled (Free) Flow	Air flow (c/min(ANR))	100	130	230	290	460	420	660	920	1050	1390
	Effective area (mm²)	1.5	2	3.5	4.5	7	6.5	10	14	16	21

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

How to Order

JIS Symbol

AS 400 1F — 12 K

Body size

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

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

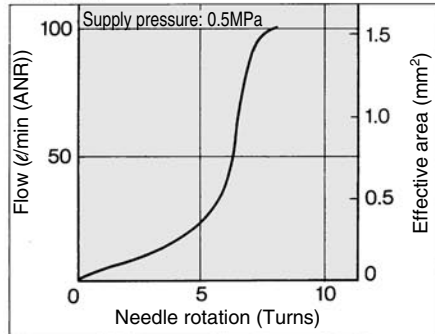
*Use ø1/8" tubing.

With One-touch fittings

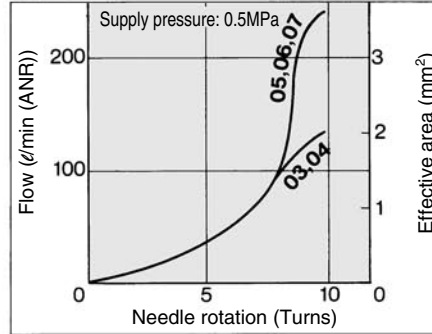
With One-touch Fittings: In-line Style *Series AS*

Needle Valve/Flow Characteristic

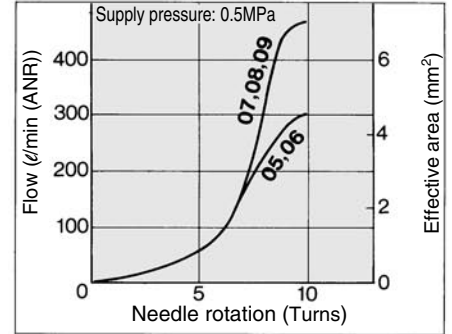
AS1001F



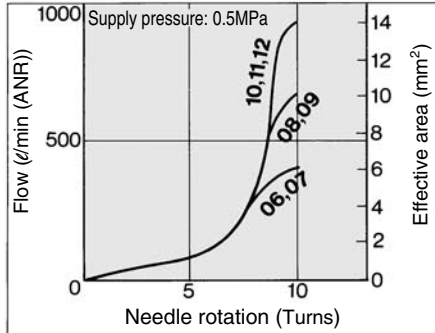
AS2001F



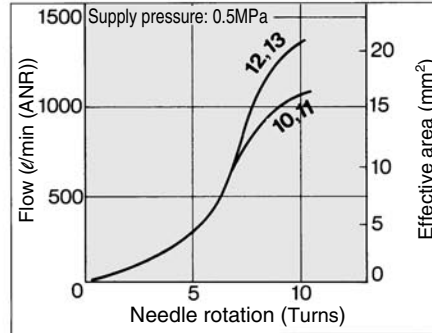
AS2051F



AS3001F

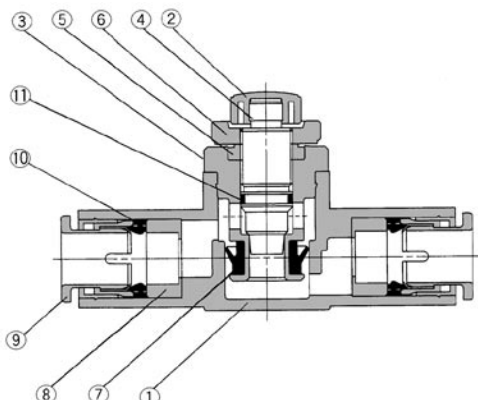


AS4001F



Series AS

Construction

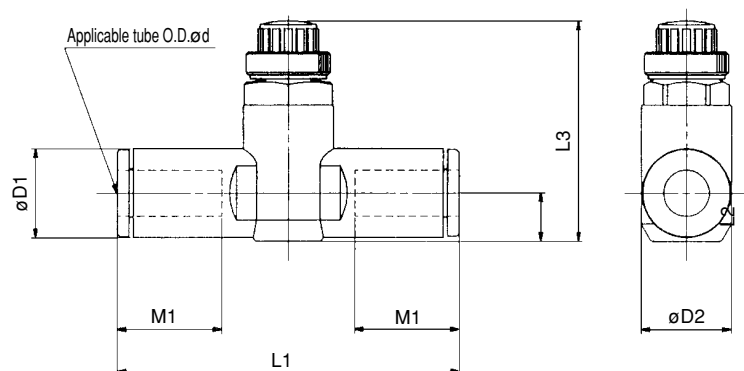
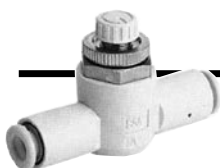


Component Parts

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		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		52.2	7.1	34.5	29.5	17	21
AS2051F-05	3/16"	11.4	14.8	52.2	6.2	34.6	29.6	16.5	24
AS2051F-07	1/4"	13.2		54.4	7.1	35.5	30.5	17	26
AS2051F-09	5/16"	15.2	19.8	59.8	8.1	36.5	31.5	18	31
AS3001F-07	1/4"	13.2		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

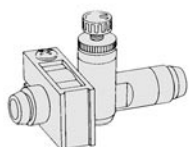
Holder Series *TMH*

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

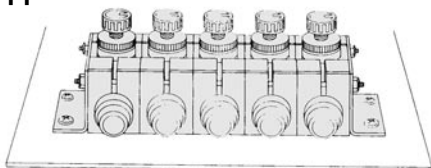
Universal mounting



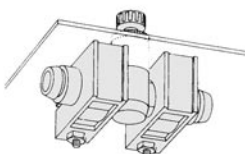
The holder can be used to secure an individual part.



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	M4 X 25	
TMH-08	TMH-09		
TMH-10	TMH-11		
TMH-12	TMH-13	M4 X 35	

Correspondence of In-line Speed Controller and Holder

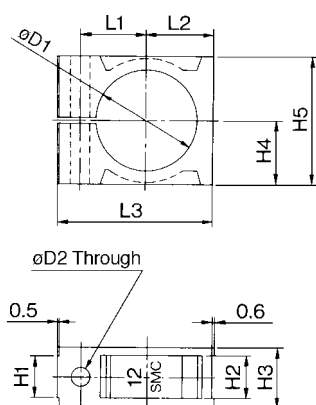
Metric

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

Inch

Body size	Tube size	Applicable tube					
		01	03	05	07	09	11
		ø1/8"	ø5/32"	ø3/16"	ø1/4"	ø5/16"	ø3/8"
AS1001F	TMH-01J		TMH-03J				
AS2001F							
AS2051F				TMH-05	TMH-07	TMH-09	
AS3001F							
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	3.3	4.5	4.6	7.5	6	12	7.2	6.6	18	1/8J
TMH-04J	TMH-03J	9.3										1/32J
—	TMH-05	11.7	3.3	6.3	6.4	9.3	7.7	15.4	8.5	8.3	21	3/16
TMH-06J	—	11.6										6
TMH-06	—	13.1	4.3	7.1	7.2	11	10	20	11	10.6	26.5	1/4
—	TMH-07	13.5										8
TMH-08	TMH-09	15.5										5/16
TMH-10	—	18.5										10
—	TMH-11	18.8	4.3	9.5	9.6	14	14	28	14.2	14.6	34	3/8
TMH-12	—	21.2										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

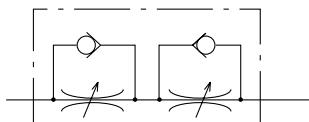
Proof pressure	1.5MPa
Max. operating pressure	1MPa
Min. operating pressure	0.1MPa
Ambient and fluid temperature	-5 to 60°C (No freezing)
Needle rotation cycles	10 turns (8 turns ⁽¹⁾)
Tube material ⁽²⁾	Nylon, Soft nylon, Polyurethane
Option	Hexagon lock nut



Note 1) In case of ASD230F.

Note 2) Be careful with the max operating pressure for soft nylon and Polyurethane.
(Refer to p. 7-146 and 7-147 in the catalog).

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	
Tube O.D.	Metric	ø4, ø6	ø6, ø8	ø6	ø8, ø10	ø6	ø8	ø10, ø12	ø10	ø12
	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

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

How to Order

ASD 3 30 F — 01 — 06 S K

Body size

2	M5 standard
3	1/8 standard
4	1/4 standard
5	3/8 standard
6	1/2 standard

Style

3	Universal
---	-----------

With One-touch fittings

Thread

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

Options

—	None
K	Hexagon lock nut

With sealant

Applicable tubing O.D.

Millimeter	Inch
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

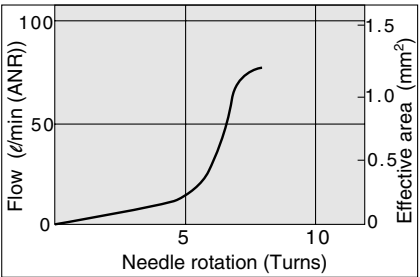
01	ø1/8"
03	ø5/32"
05	ø3/16"
07	ø1/4"
09	ø5/16"
11	ø3/8"

Port size

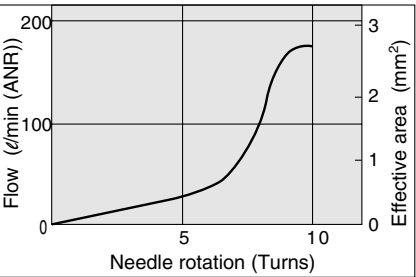
M5	M5
U10/32	10-32UNF
01	1/8
02	1/4
03	3/8
04	1/2

Needle Valve/Flow Characteristics

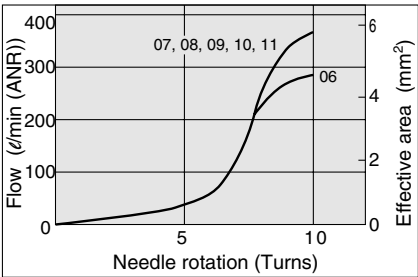
ASD230F



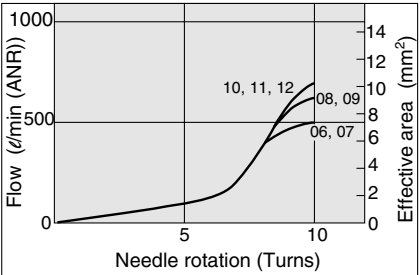
ASD330F



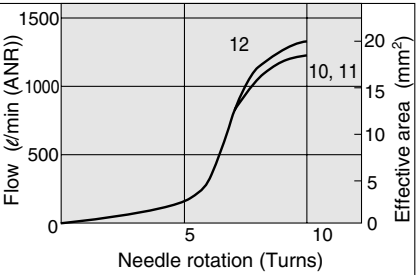
ASD430F



ASD530F



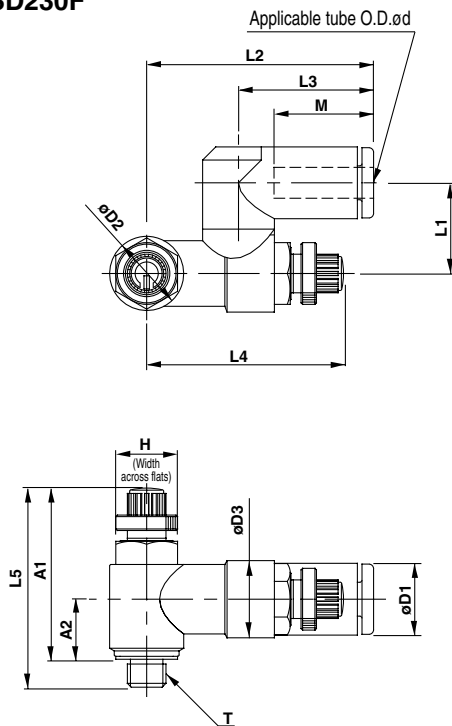
ASD630F



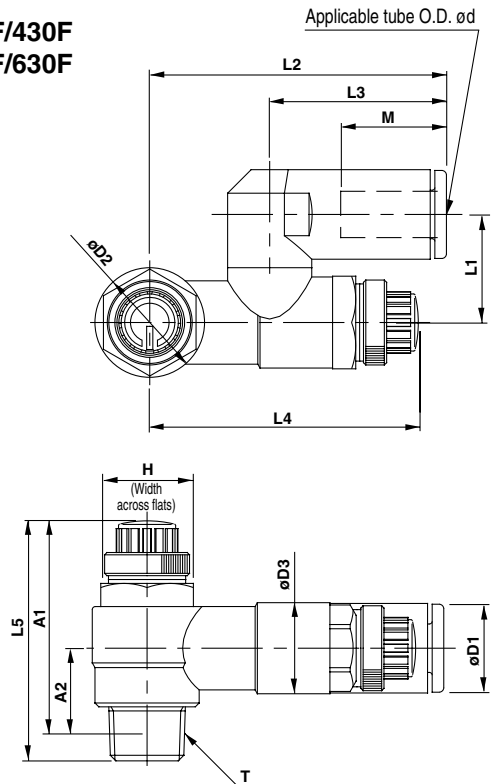
Series ASD

Dimensions/Metric

ASD230F



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



Metric

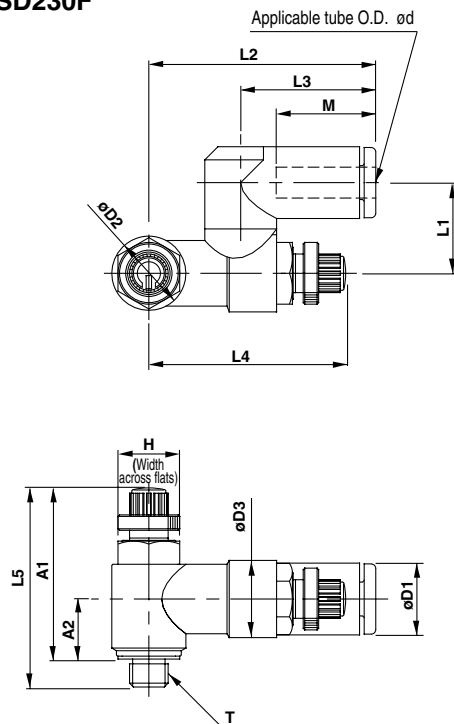
Model	d	T	H	D1	D2	D3	L1	L2	L3	L4		L5		A1*		A2*	M	Weight (g)
										MAX.	MIN.	MAX.	MIN.	MAX.	MIN.			
ASD230F-M5-04	4	M5	8	9.3	9.6	10	11.7	29.4	17.5	28.3	25.5	28.6	25.8	25	22.2	7.8	12.9	12
ASD230F-M5-06	6			11.6				32.5	20.6								13.7	13
ASD330F-01-06S	6	R(PT)1/8	12	11.6	14.2	11.8	14	38.5	22.9	39.6	34.6	35.2	30.2	32.1	27.1	10.6	13.7	29
ASD330F-01-08S	8			15.2			15.8	44.8	28.2	38.9	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			18	46.5	28.2								18.5	55
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			20.3	51.3	28.2								18.5	76
ASD530F-02-10S	10			18.5			23.1	54.1	32.6								21	80
ASD530F-02-12S	12			20.9			23.1	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			20.3	51.3	28.2								18.5	93
ASD530F-03-10S	10			18.5			23.1	54.1	32.6								21	98
ASD530F-03-12S	12			20.9			23.1	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				66.1	34.4								22	179

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

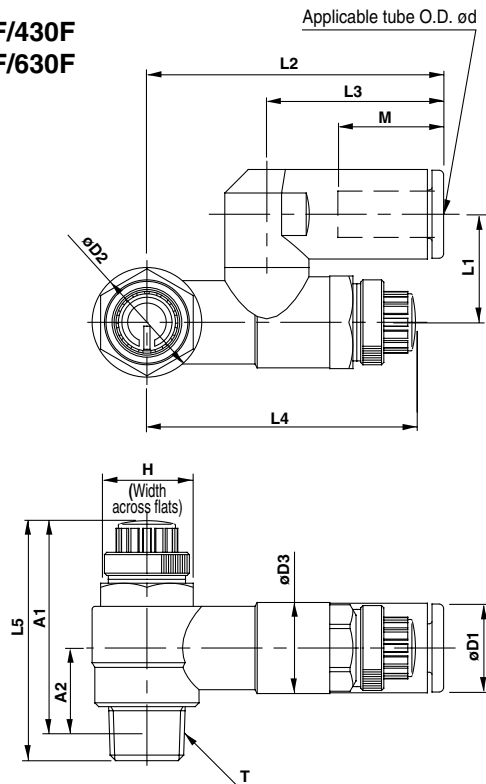
Dual Speed Controller with One-touch Fittings *Series ASD*

Dimensions/Inch

ASD230F



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



Inch Size

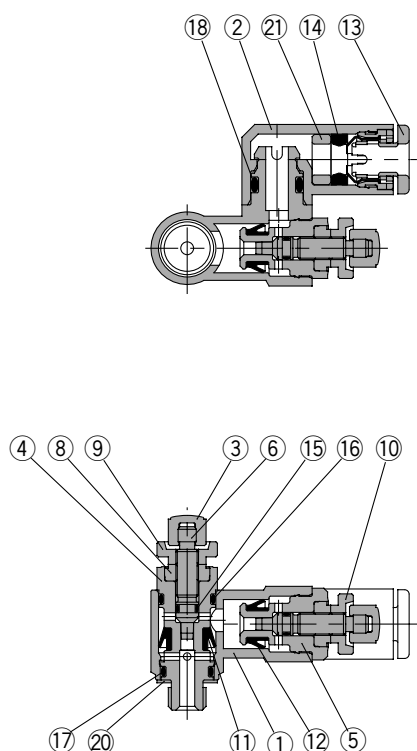
Model	d	T	H	D1	D2	D3	L1	L2	L3	L4		L5		A1*		A2*	M	Weight (g)
										Max.	Min.	Max.	Min.	Max.	Min.			
ASD230F-U10/32-01	1/8"	10-32 UNF	8	8.4	9.6	10	11.7	29.4	17.5	28.3	25.5	28.6	25.8	25	22.2	7.8	12.9	12
ASD230F-U10/32-03	5/32"			9.3														13
ASD230F-U10/32-05	3/16"	10-32 UNF	8	11.4	9.6	10	11.7	35.2	23.3	28.3	25.5	28.6	25.8	25	22.2	7.8		16.5
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		16.5
ASD330F-N01-07S	1/4"			13.2			15.8	42.2	25.6	38.9	33.9							17
ASD330F-N01-09S	5/16"			15.2				44.8	28.2									
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
ASD430F-N02-09S	5/16"			15.2			19.7	46.5	28.2									18.5
ASD430F-N02-11S	3/8"			18.5				49.3	31									
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
ASD530F-N02-09S	5/16"			15.2			23.1	51.3	28.2									18.5
ASD530F-N02-11S	3/8"			18.5				54.1	32.6									
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
ASD530F-N03-09S	5/16"			15.2			23.1	51.3	28.2									18.5
ASD530F-N03-11S	3/8"			18.5				54.1	32.6									
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.

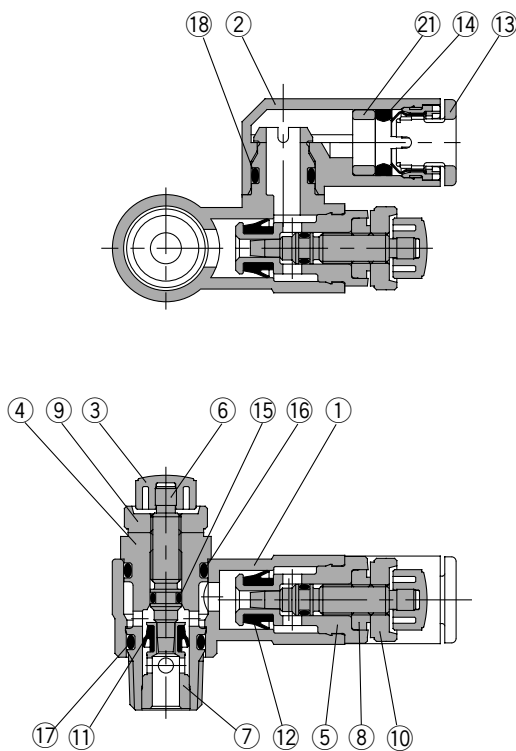
Series ASD

Construction

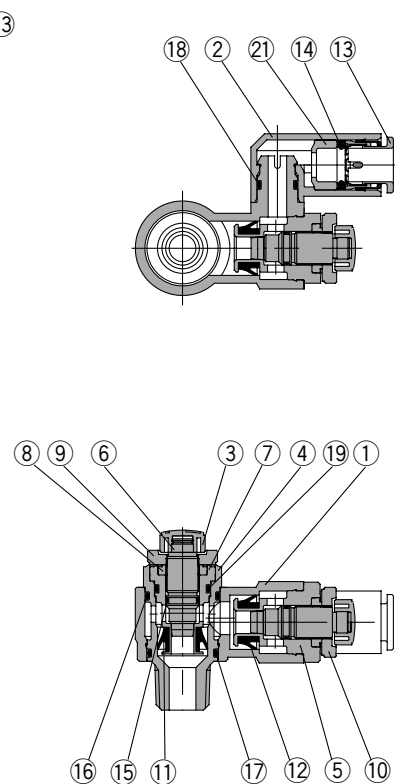
ASD230F



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	NBR	
⑫	U packing	NBR	
⑬	Cassette	POM, Stainless steel ⁽¹⁾	
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	POM, Brass ⁽²⁾	



Note 1) $\phi 10$, $\phi 12$, $\phi 3/16"$, $\phi 3/8"$: POM, Stainless steel and Brass (Electroless nickel plated)

Note 2) $\phi 3/16"$, $\phi 1/4"$, $\phi 3/8"$: Brass (Electroless nickel plated)

Note 3) 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	80, 100
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		—				Sealant, Hexagonal lock nut, Nickel plated			
Weight (g)		3	6	10		29	64	106	181
Controlled flow	Air flow (ℓ/min(ANR))	20		105		230	460	920	1700
(Free flow)	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 electroless nickel plated, while the meter-in type is black zinc chromate plated.

Note 4) AS1200, AS1400, AS22□0: Electroless nickel plated (N specification).

How to Order

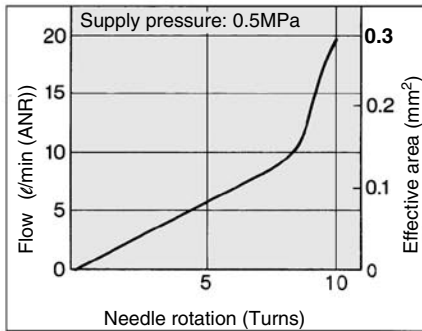
AS										2	2	0	0		01		S		
Body size										Options									
1	M3, M5									—		None							
2	1/8, 1/4									S		Sealant							
3	3/8									K		Hexagonal lock nut							
4	1/2									N		Electroless nickel plated							
										*Indicate symbols in alphabetical order if two options or more desired.									
Style										Port size									
2	Direct connection elbow																		
4	Direct connection flat elbow																		
Controlled										Thread									
0	Meter-out																		
1	Meter-in																		

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

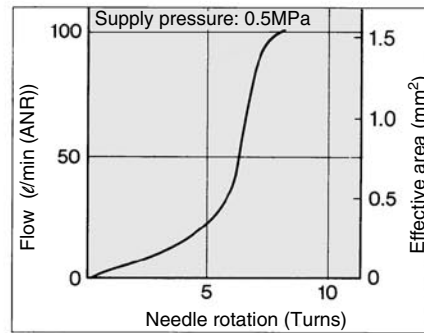
Standard: Metal Body Elbow Style *Series AS*

Needle Valve/Flow Characteristics

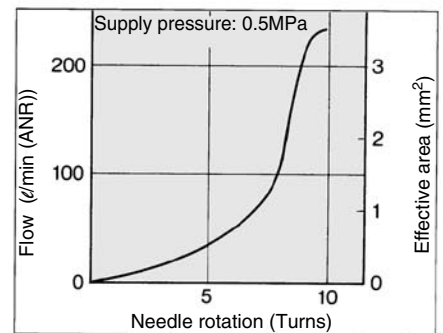
AS1200-M3, AS1400-M3



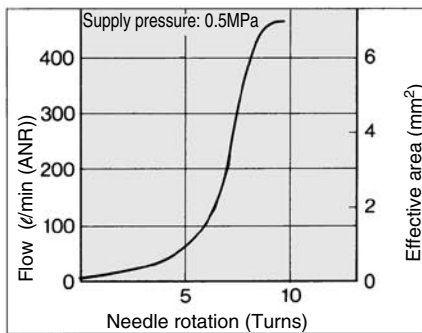
AS12□0-M5, AS12□0-U10/32



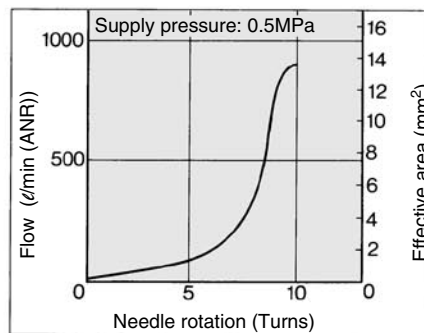
AS22□0-01



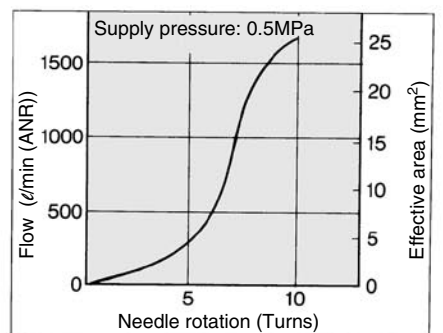
AS22□0-02



AS32□0

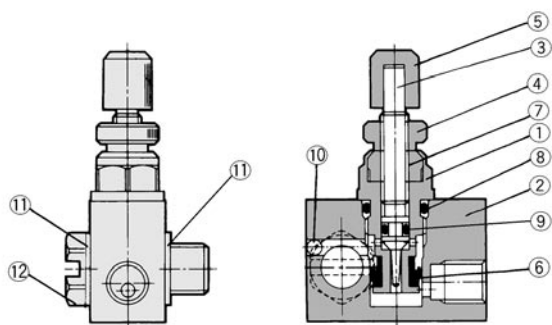


AS42□0



Series AS

AS1400-M3/Construction



Component Parts

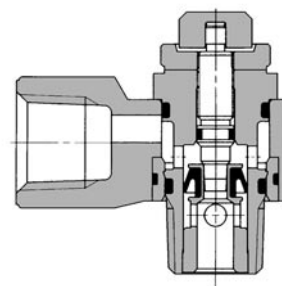
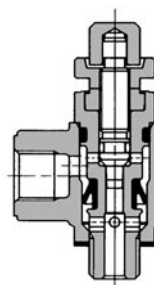
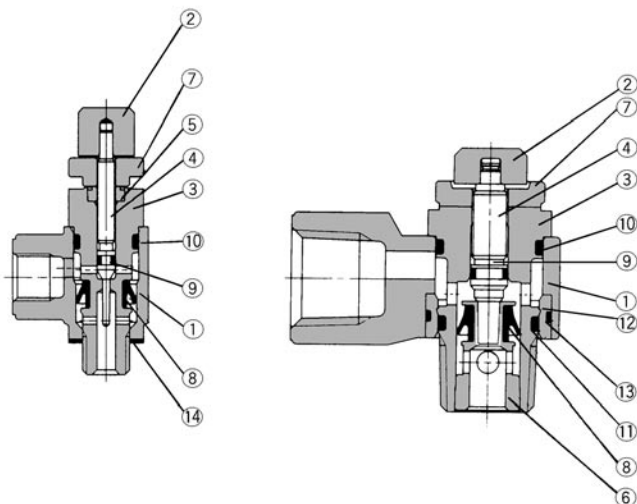
No.	Description	Material	Note
①	Body B	Brass	Electroless nickel plated
②	Body A	Brass	Electroless nickel plated
③	Needle	Brass	Electroless nickel plated
④	Lock nut	Brass	Electroless nickel plated
⑤	Handle	Brass	Electroless nickel plated
⑥	U-packing	NBR	
⑦	Needle guide	Brass	Electroless nickel plated
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

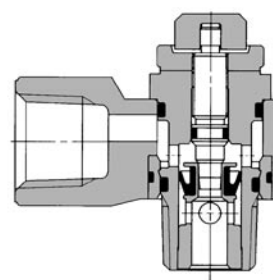
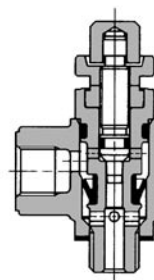
AS2200/3200/4200



Meter in

AS1210-M5, U10/32

AS2210/3210/4210



Component Parts

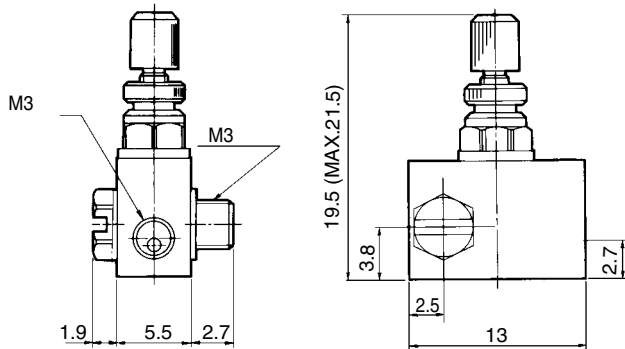
No.	Description	Material	Note
①	Body A	Zinc alloy	
②	Handle	Brass	Electroless nickel plated
③	Body B	Brass	Electroless nickel plated
④	Needle	Brass	Electroless nickel plated
⑤	Needle guide	Brass	Electroless nickel plated
⑥	Seat ring	Brass	
⑦	Lock nut	Brass ⁽¹⁾	Electroless nickel plated ⁽²⁾
⑧	U-packing	NBR	
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: Steel

Note 2) Meter-in type: Black zinc chromated

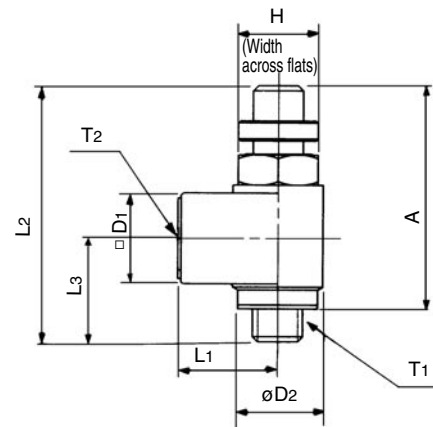
Standard: Metal Body Elbow Style *Series AS*

AS1400-M3/Dimensions

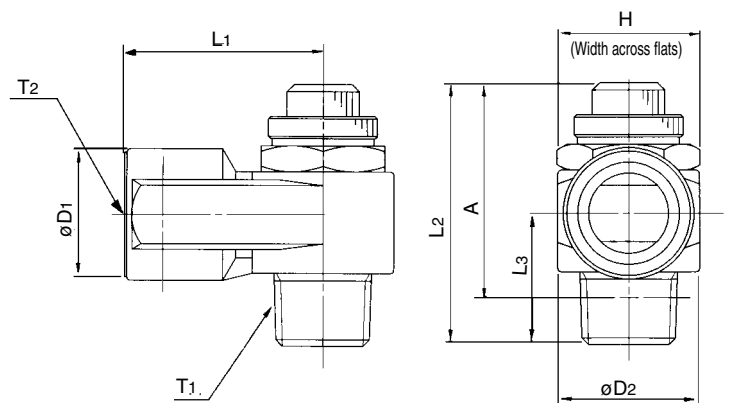


AS-1200-M3, AS12□0-M5, AS22□0, 32□0, 42□0/Dimensions

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

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

Port size

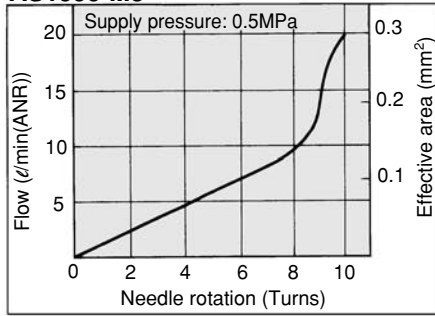
Port size	Applicable model
M3	AS1000
M5	AS1000
01	AS2000
02	AS2000, 3000, 4000, 5000
03	AS3000, 4000, 5000
04	AS4000, 5000

Thread

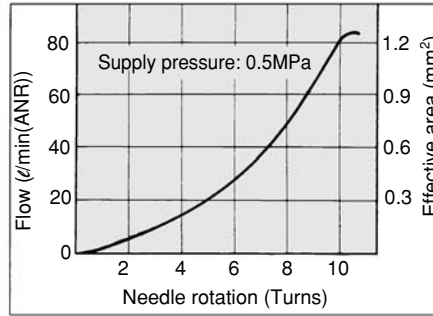
-	M3, M5
N	NPT
F	G (PF)

Needle Valve/Flow Characteristics

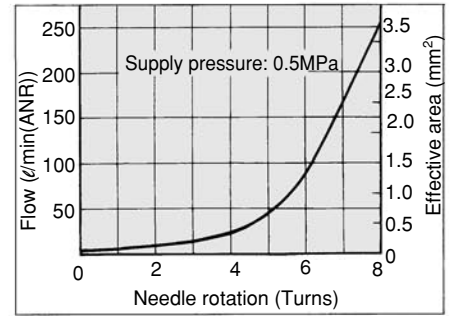
AS1000-M3



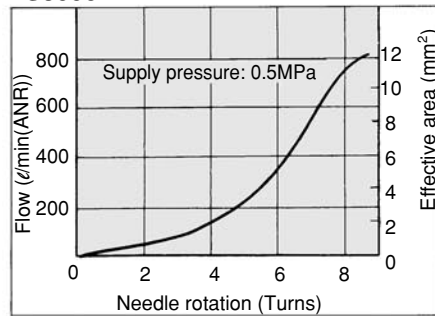
AS1000-M5



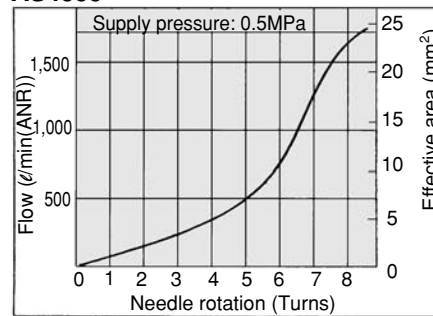
AS2000



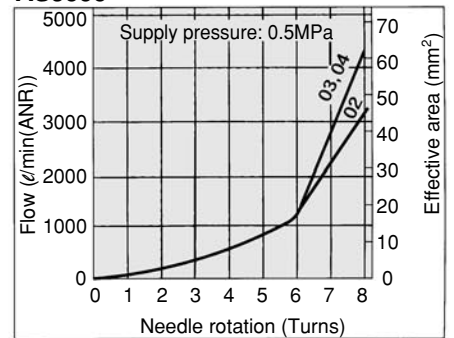
AS3000



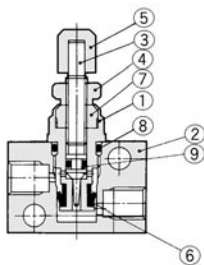
AS4000



AS5000



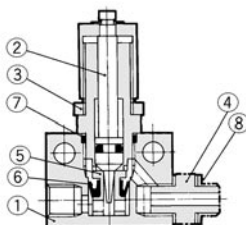
AS1000-M3/Construction



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	Brass	Electroless nickel plated
⑤	Handle	Brass	Electroless nickel plated
⑥	U-packing	NBR	
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

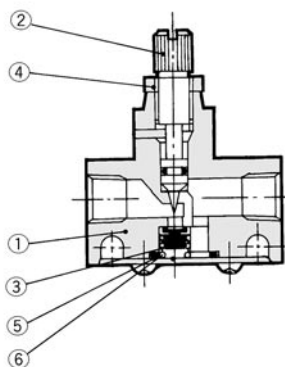
No.	Description	Material
①	Body	Zinc alloy
②	Needle	Stainless steel
③	Lock nut*	Brass
④	Nipple	Stainless steel

*Electroless nickel plated

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

Series AS

AS2000, 3000/Construction

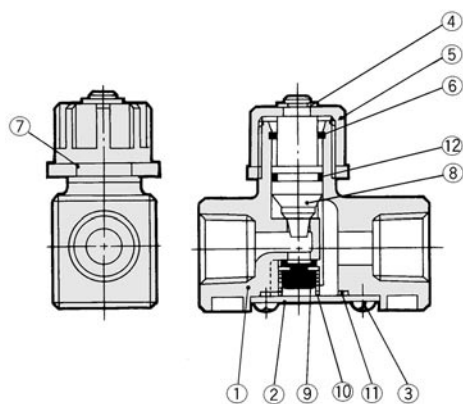


Component Parts

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

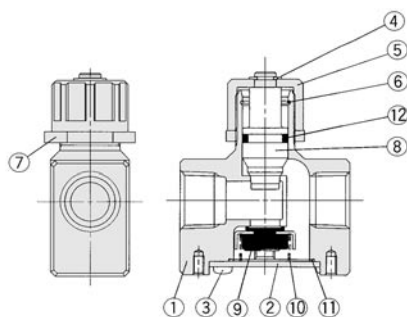


Component Parts

No.	Description	Material	Note
①	Body	Aluminum alloy	Chromated
②	Cap	Rolled steel	Zinc chromate
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



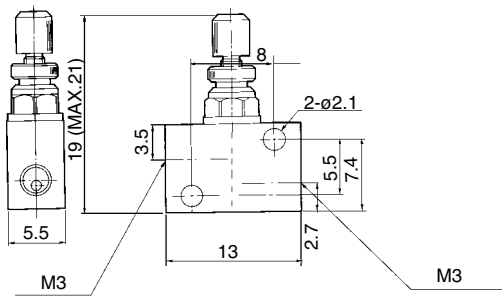
Component Parts

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

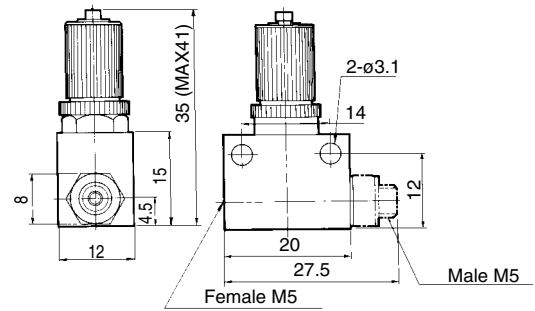
No.	Description	Material
⑨	Valve	NBR, Stainless steel
⑩	Spring	Stainless steel
⑪	Packing	NBR

Standard: In-line Style *Series AS*

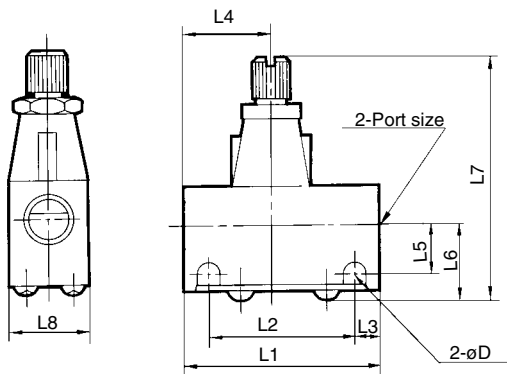
AS1000-M3/Dimensions



AS1000-M5/Dimensions



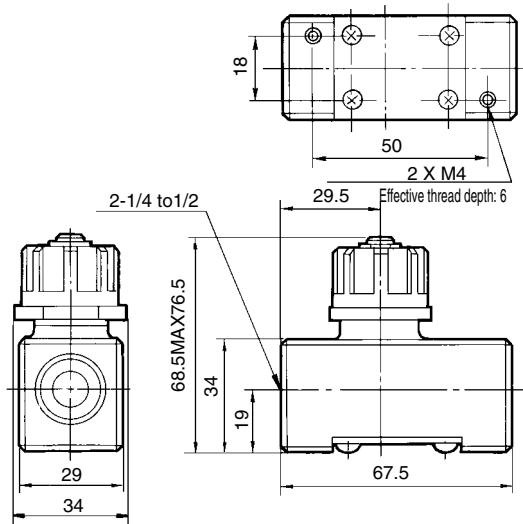
AS2000-3000/Dimensions



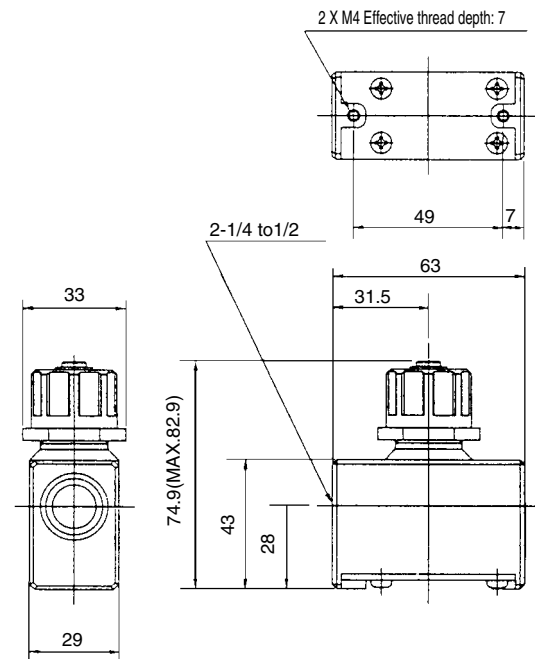
Dimensions

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

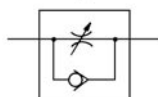
Series AS

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⁾)

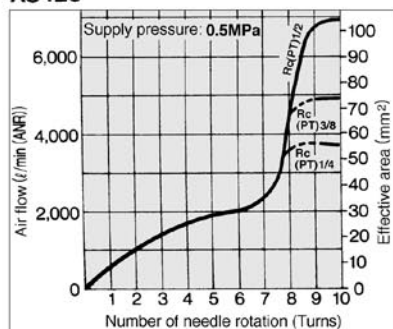
Note 1) (): Values for AS800, AS900.

How to Order

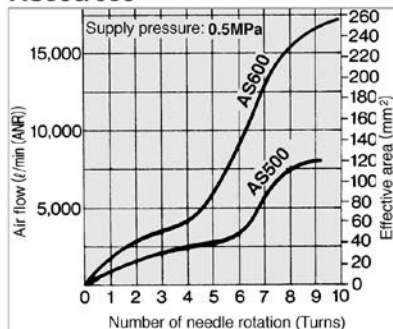
E	AS	42	0	02
		Body size		Port size
		42	1/2	Port size
		50	3/4	Applicable model
		60	1	02 1/4 AS420
		80	1 1/4	03 3/8
		90	1 1/2	04 1/2
				06 3/4 AS500
				10 1 AS600
				12 1 1/4 AS800
				14 1 1/2 AS900
				20 2 AS900
		Ordering source area code		Port thread
		-	Japan, Asia Australia	- Rc(PT)
		E	Europe	N NPT
		N	North America	F PF

Needle/Flow Characteristics

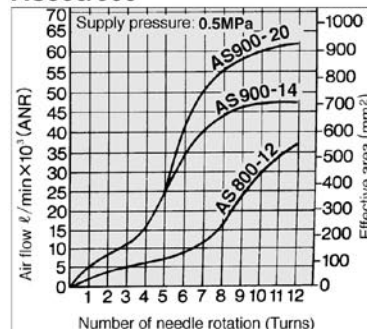
AS420



AS500/600

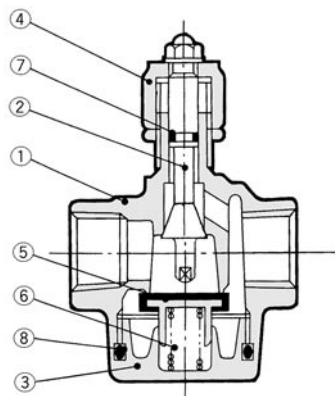


AS800/900



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

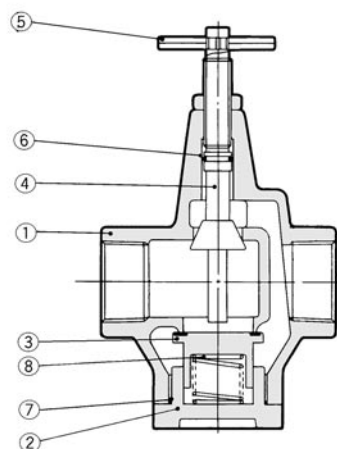
AS420, 500, 600/Construction



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	

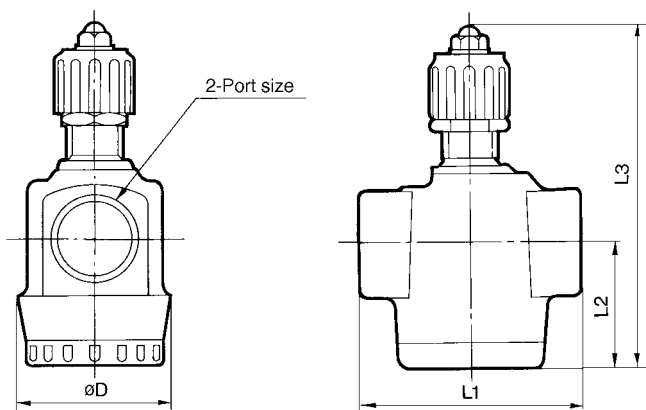
AS800, 900/Construction



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	pring	Stainless steel	

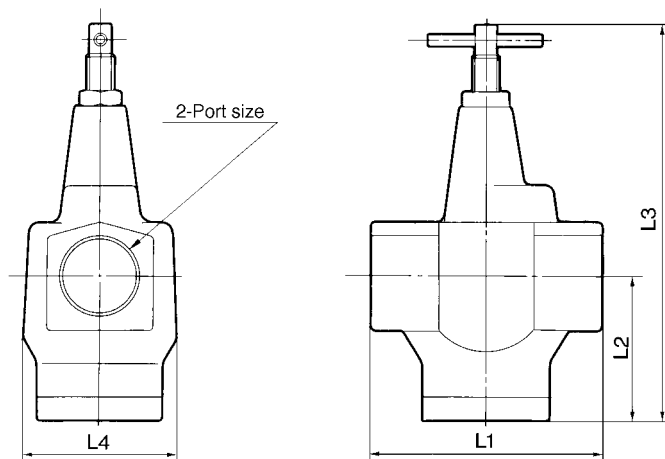
AS420, 500, 600/Dimensions



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

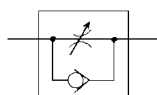
Constant knob constructed of metal to withstand heavy usage

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

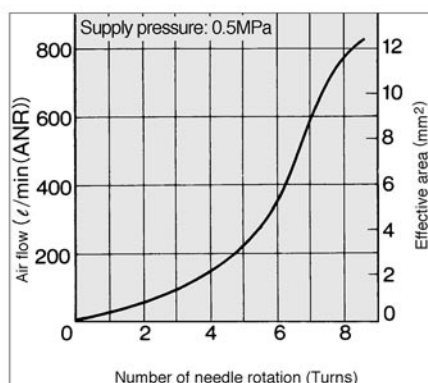


Specifications

Specifications	Model	AS3500-02	AS3500-03
	Resin knob	AS3500-02-2	AS3500-03-2
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

E

AS3500

02

Thread

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

Material for knob

-	Resin
2	Metal

Ordering source area code

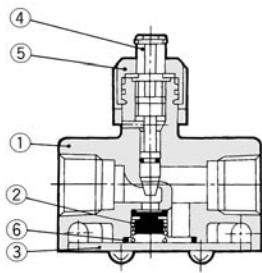
-	Japan, Asia Australia
E	Europe
N	North America

Port size

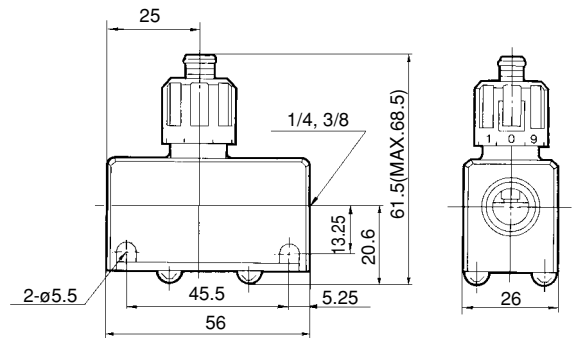
02	1/4
03	3/8

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

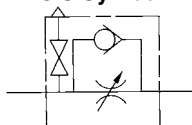
With One-touch Fittings

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

Eye-catching red colour release button.



JIS Symbol



Indication of air flow direction on body

	Meter-out	Meter-in
Symbol		
JIS Symbol		

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

Air Flow/Effective Area

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 (ℓ/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

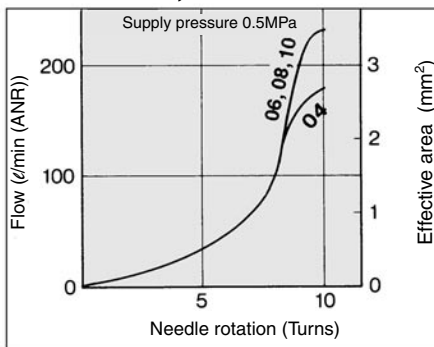
Note) Supply pressure: 0.5MPa, Temperature: 20°C.

How to Order

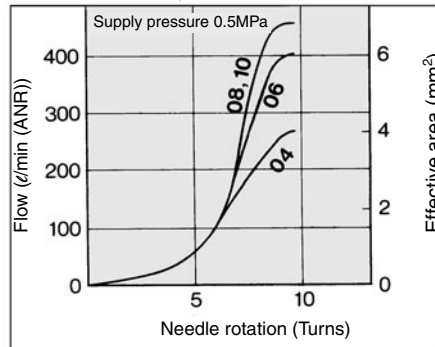
AS	2	2	1	1	FE	01	06	S	K
	Body size								Hexagonal lock nut
	2	1/8, 1/4							Sealant
	3	3/8							
	4	1/2							
	Style								Applicable tube O.D.
	2	Elbow							04 ø4
	3	Universal							06 ø6
									08 ø8
									10 ø10
									12 ø12
									Port size
						01	R(PT) 1/8		
						02	R(PT) 1/4		
						03	R(PT) 3/8		
						04	R(PT) 1/2		
									With residual pressure release valve
									With One-touch fittings

Needle Valve/Flow Characteristics

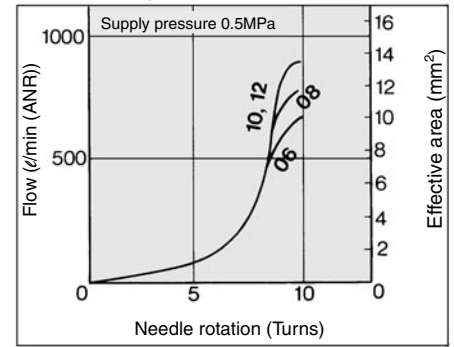
AS2201FE-01, AS2211FE-01
AS2301FE-01, AS2311FE-01



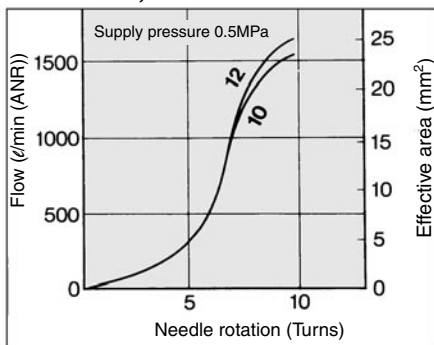
AS2201FE-02, AS2211FE-02
AS2301FE-02, AS2311FE-02



AS3201FE, AS3211FE
AS3301FE, AS3311FE

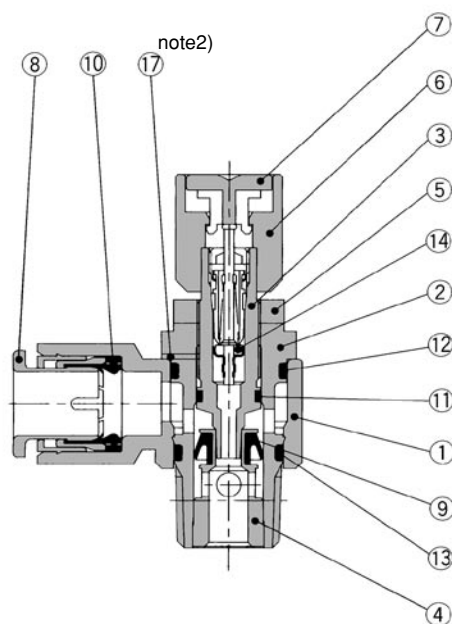


AS4201FE, AS4211FE
AS4301FE, AS4311FE

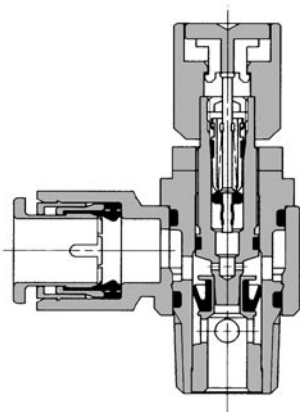


Construction

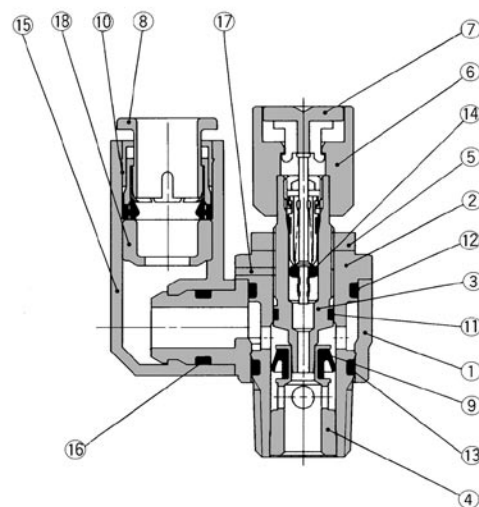
Elbow style Meter-out



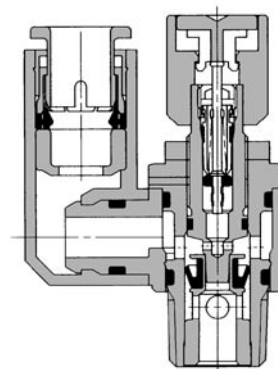
Meter-in



Universal style Meter-out



Meter-in



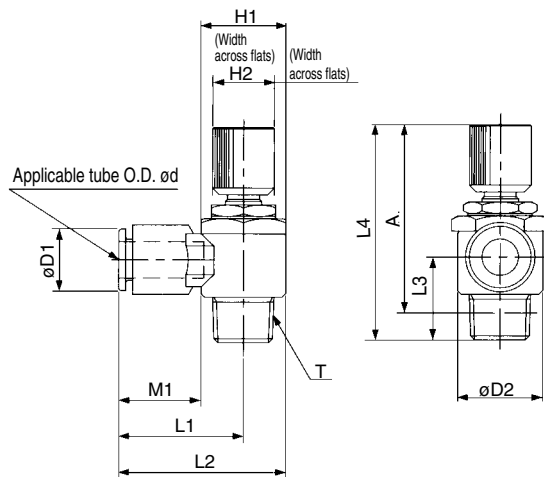
Component Parts

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	
⑤	Lock nut	Brass	Electroless nickel plated ⁽¹⁾
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) Meter-in type: Black zinc chromated

Dimensions

Elbow style

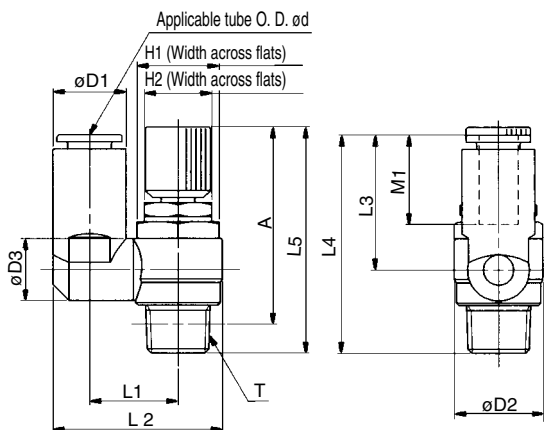


Model	Tube O.D. d	T	H1	H2	D1	D2	L1	L2	L3	L4		A*		M1	Wgt. (g)
										MAX.	MIN.	MAX.	MIN.		
AS22□1FE-01-04SK	4	1/8	12	12	9.3	14.2	20.4	27.5	13.4	53	48	49.9	44.9	12.7	26
AS22□1FE-01-06SK	6				11.6		20.4	27.5						13.5	27
AS22□1FE-01-08SK	8				15.2		25.3	32.4						18.5	29
AS22□1FE-01-10SK	10	1/4	17	14	18.5	18.5	33.1	40.2	14.1	51.7	46.7	46.2	41.2	21	31
AS22□1FE-02-04SK	4				10.4		25.2	34.4						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	21.9	39.6	51.7	46.7	46.2	41.2	16	36
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		16.2	23	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

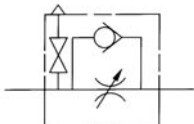
Standard

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

Eye-catching red colour release button.



JIS Symbol



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

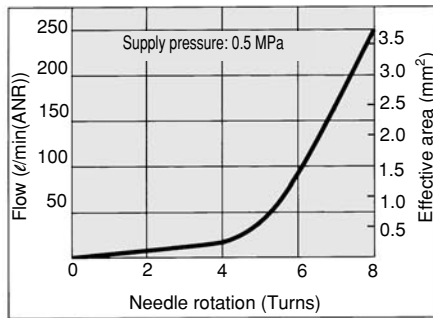
Port size

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

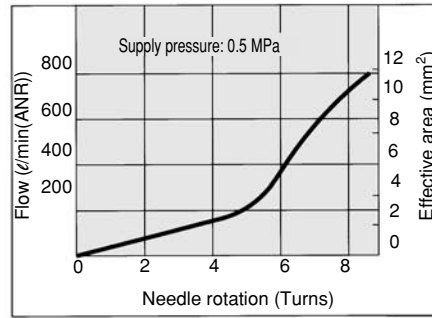
With residual pressure release valve

Needle Valve/Flow Characteristics

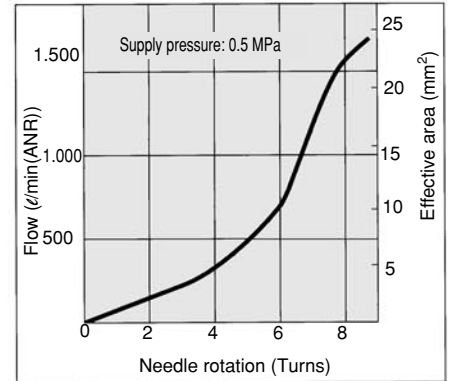
AS2000E



AS3000E

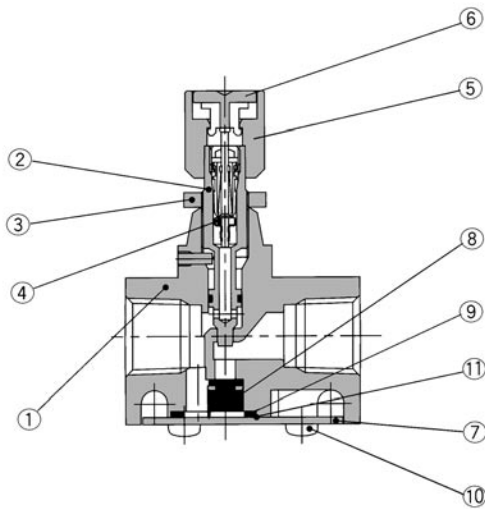


AS4000E

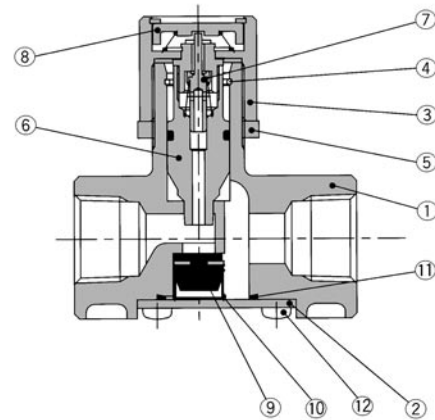


Construction

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

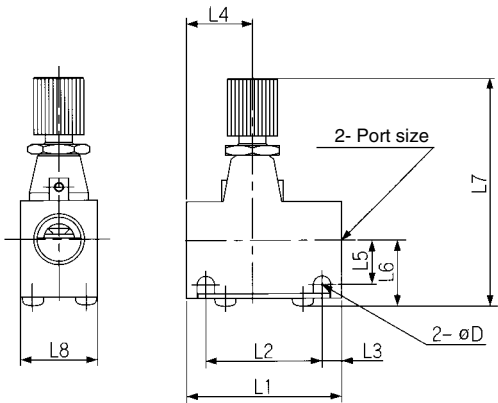
No.	Description	Material	Note
①	Body	Aluminum alloy	Chromated
②	Cap	SPC	Nickel plated
③	Handle	Zinc alloy	Chromated, Red
④	Ring	Spring steel	Zinc chromated
⑤	Lock nut	Zinc alloy	Chromated
⑥	Needle	Aluminum alloy	Chromated
⑦	Valve	NBR/Stainless steel	
⑧	Push button	POM	Red

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

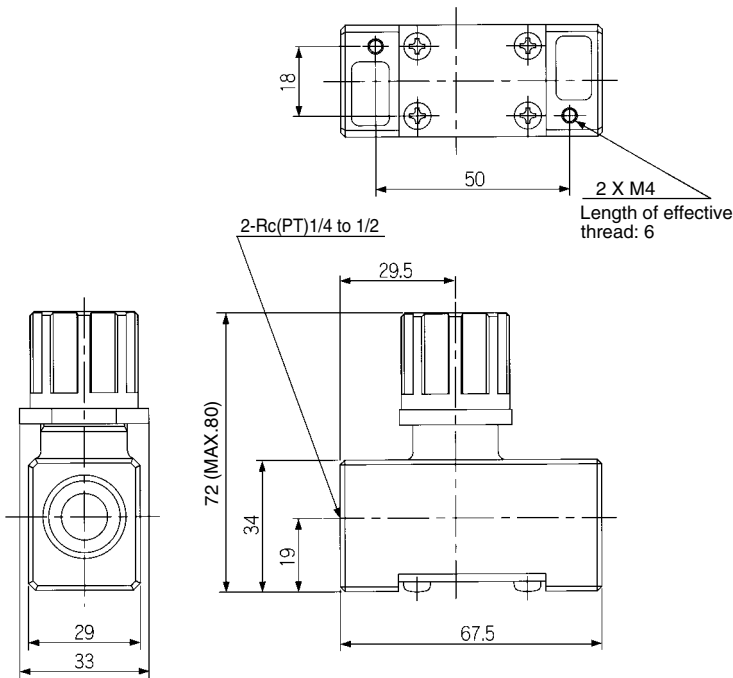
Dimensions

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

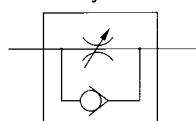
Specifications

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 AS13□1FG	AS22□1FG-□01 AS23□1FG-□01		AS22□1FG-□02 AS23□1FG-□02			AS32□1FG AS33□1FG			AS42□1FG AS43□1FG		
Tube O.D.	Metric size	ø3.2 ø4 ø6	ø3.2 ø4 ø6 ø8 ø10	ø6	ø4	ø6	ø8 ø10	ø6	ø8	ø10 ø12	ø10	ø12	
	Inch size	ø1/8" ø5/32" ø3/16" ø1/4"	ø1/8" ø5/32" ø1/4" ø5/16"	ø3/16"	ø5/32"	ø3/16"	ø1/4" ø5/16" ø3/8"	ø1/4"	ø5/16"	ø3/8"	ø3/8"	ø1/2"	
	Controlled (Free) flow	Flow rate ℓ/min (ANR)	100	180	230	260	390	460	660	790	920	1580	1710
		Effective area mm²	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.

How to Order

AS 2 3 1 1 F G - 01 - 06

Body size

1	M5 standard
2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard

Type

2	Elbow
3	Universal

Control method

0	Meter-out
1	Meter-in

With One-touch fittings

Stainless steel specification (SUS303)

Thread type

Nil	Metric thread (M5)
	Unified thread (10-32UNF)
	R(PT)
N	NPT

Option

Nil	None
S	With sealant *

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

Applicable tube outside diameter

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

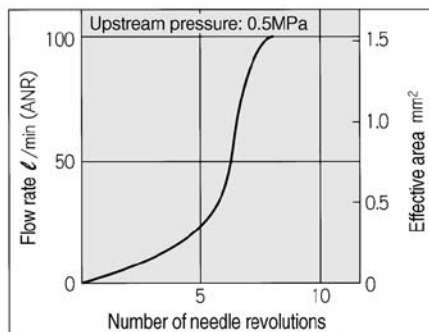
* Use a ø1/8" tube.

Port size

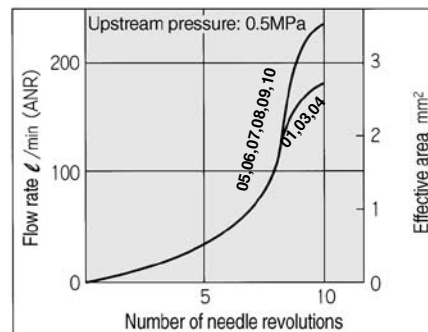
M5	M5
U10/32	10-32UNF
01	1/8
02	1/4
03	3/8
04	1/2

Needle Valve/Flow Rate Characteristics

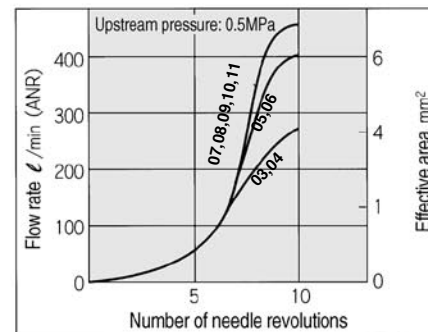
AS12□1FG
AS13□1FG



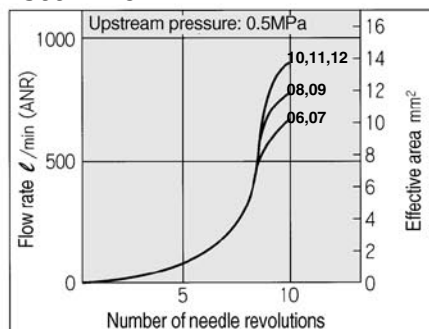
AS22□1FG-□01
AS23□1FG-□01



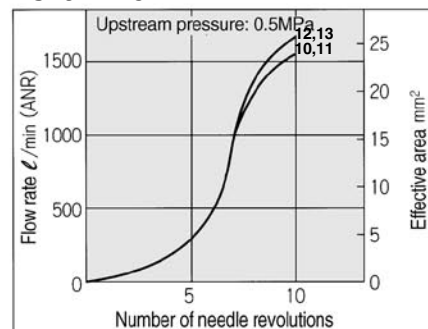
AS22□1FG-□02
AS23□1FG-□02



AS32□1FG
AS33□1FG



AS42□1FG
AS43□1FG

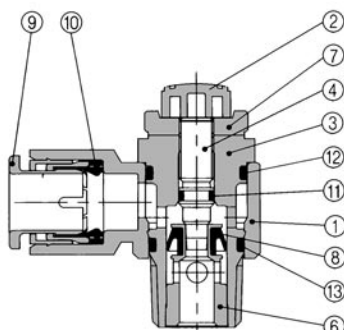
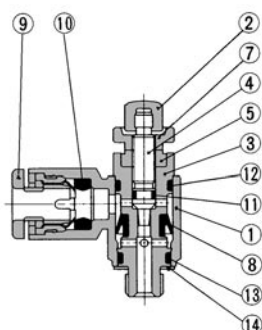


Construction/Elbow Type

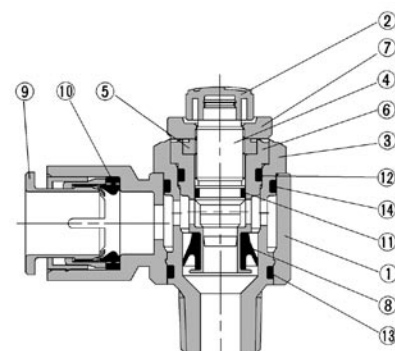
Meter-out type

M5 type

U10/32 type



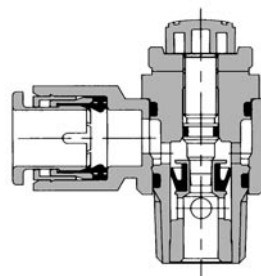
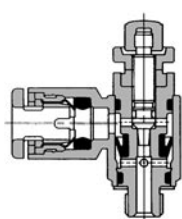
AS3201FG-02



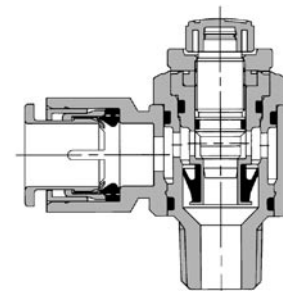
Meter-in type

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

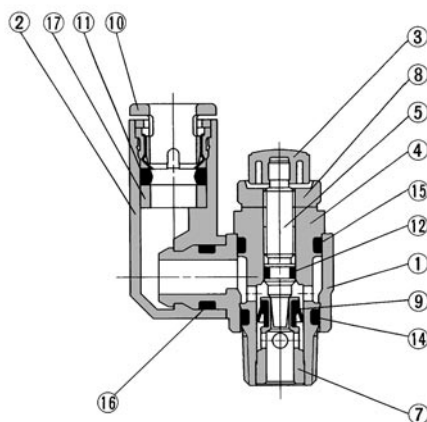
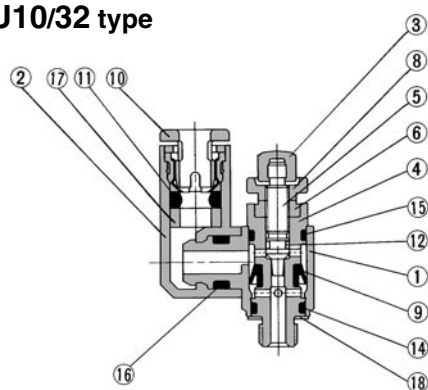
Series AS-FG

Construction/Universal Type

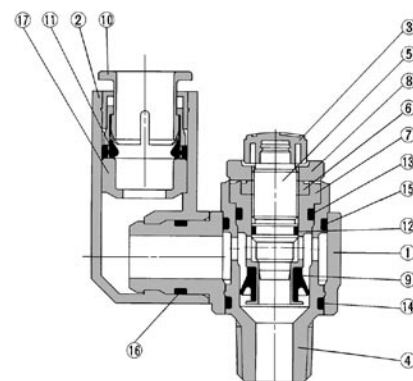
Meter-out type

M5 type

U10/32 type



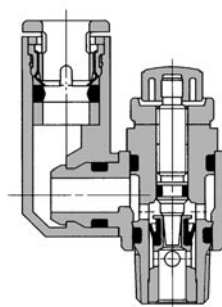
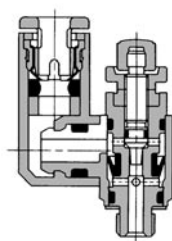
AS3301FG-02



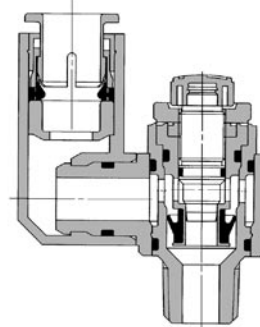
Meter-in type

M5 type

U10/32 type



AS3311FG-02

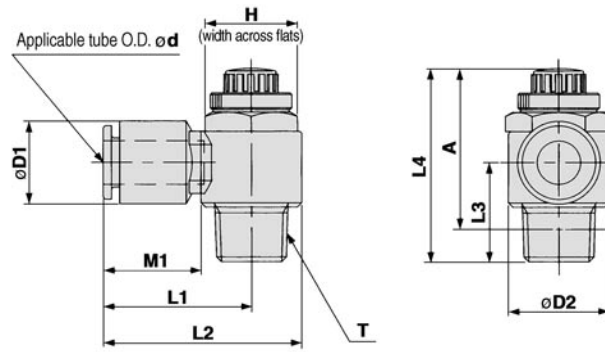


Parts List

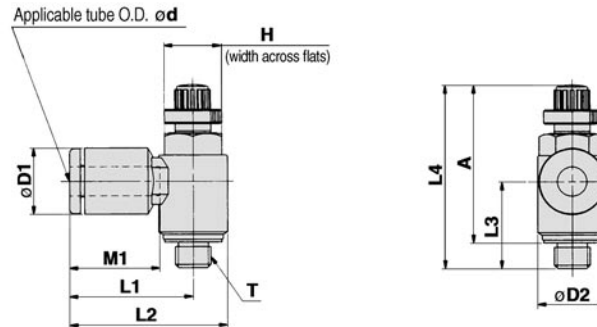
No.	Description	Material	Note
1	Body A	PBT	
2	Elbow body	PBT	
3	Knob	PBT	
4	Body B	SUS303	
5	Needle	SUS303	
6	Needle guide	SUS303	
7	Seat ring	SUS303	
8	Lock nut	SUS303	
9	U seal	NBR	
10	Cassette	POM, Stainless steel	
11	Seal	NBR	
12	O-ring	NBR	
13	O-ring	NBR	
14	O-ring	NBR	
15	O-ring	NBR	
16	O-ring	NBR	
17	Spacer	POM (Note 1)	
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						13.5	
AS22□1FG-01-08	8			15.2		25.3	32.4						18.5	
AS22□1FG-01-10	10			18.5		33.1	40.2						14.1	
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	
AS22□1FG-02-08	8			15.2		27.2	36.4						18.5	
AS22□1FG-02-10	10			18.5		33.9	43.2						19.5	
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	
AS32□1FG-02-10	10			18.5		31.8	43.3						21	
AS32□1FG-02-12	12			20.9		32.8	44.3						22	
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	
AS32□1FG-03-10	10			18.5		31.8	43.3						21	
AS32□1FG-03-12	12			20.9		32.8	44.3						22	
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	

* Reference dimensions for threads after installation.

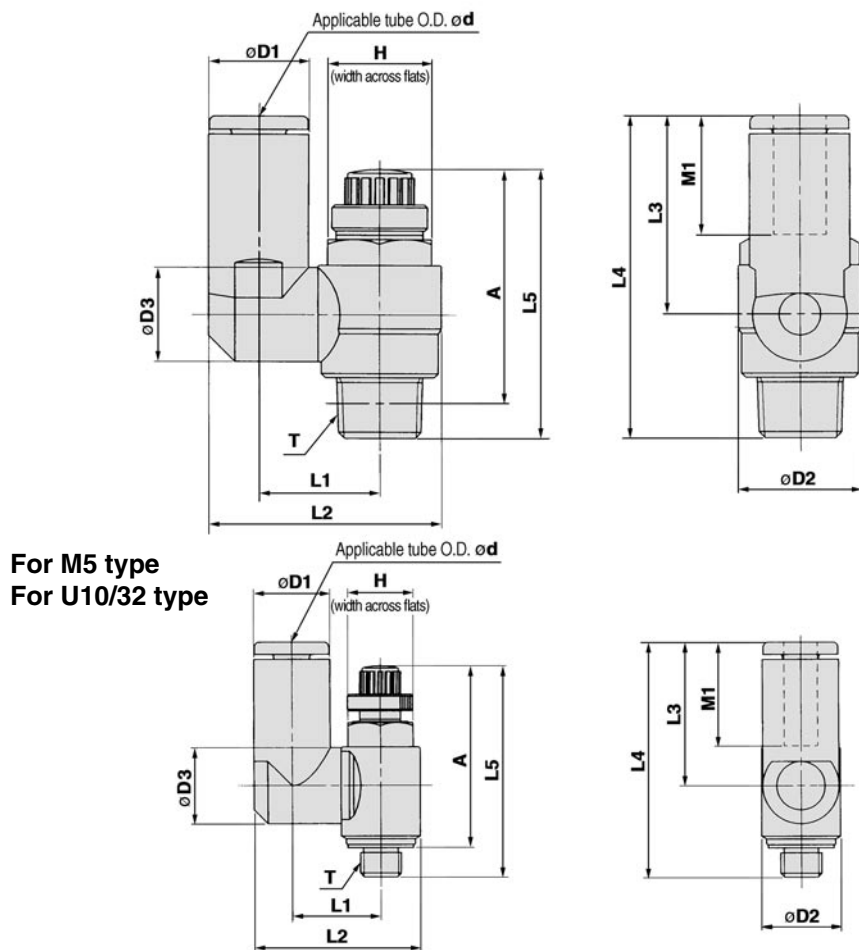
Inch size

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						
AS12□1FG-U10/32-05	3/16"			11.4		23.9	26.1							
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						16.5	
AS22□1FG-N01-05	3/16"			13.2		23.9	31						18.5	
AS22□1FG-N01-07	1/4"			15.2		25.3	32.4						21	
AS22□1FG-N01-09	5/16"	NPT 1/4	17.5	15.2	18.5	25.3	32.4	14.1	39.9	34.9	34.4	29.4	21	21
AS22□1FG-N02-03	5/32"			10.4		25.2	34.4	16						
AS22□1FG-N02-05	3/16"			11.4		24.9	34.2	17						
AS22□1FG-N02-07	1/4"			13.2		25.2	34.5	18.5						
AS22□1FG-N02-09	5/16"	NPT 1/4	19	15.2	23	27.2	36.4	19.5	48.3	43.3	42.8	37.8	21	36
AS22□1FG-N02-11	3/8"			17.9		33.9	43.2						21	
AS32□1FG-N02-07	1/4"			13.2		27.8	39.3						17	
AS32□1FG-N02-09	5/16"			15.2		29.5	41						18.5	
AS32□1FG-N02-11	3/8"	NPT 3/8	19	17.9	23	31.8	43.3	19.8	45.4	40.4	40.2	35.2	21	67
AS32□1FG-N03-07	1/4"			13.2		27.8	39.3						17	
AS32□1FG-N03-09	5/16"			15.2		29.5	41						18.5	
AS32□1FG-N03-11	3/8"			17.9		31.8	43.3						21	
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	59
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



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				19.8							12.7	7
AS13□1FG-M5-04	4			9.3	9.6	9.3	10.8	20.3	17.5	28.7	28.6	25.8	25	22.2		
AS13□1FG-M5-06	6			11.6				21.4	20.6	31.8					13.5	
AS23□1FG-01-23	3.2	R(PT) 1/8	12	8.4				24.4							12.7	17
AS23□1FG-01-04	4			9.3	14.2	9.3	13.1	24.9	17.5	30.9	35.2	30.2	32.1	27.1		
AS23□1FG-01-06	6			11.6		10.9	14	26.9	22.9	36.3					13.5	
AS23□1FG-01-08	8	R(PT) 1/4	17	15.2		12.9	16.2	30.9	28.2	40.8					18.5	21
AS23□1FG-02-04	4			10.4		10.9	16.2	30.6	21.9	39.6					16	
AS23□1FG-02-06	6			12.8	18.5			18.4	34	25.2	42.1	39.9	34.9	29.4	17	
AS23□1FG-02-08	8	R(PT) 1/4	19	15.2		12.9	18.3	35.2	28.2	45.1					18.5	36
AS23□1FG-02-10	10			18.5				20.2	38.7	31	47.9				21	
AS33□1FG-02-06	6			12.8		12.9	20.6	38.5	25.2	46.5					17	60
AS33□1FG-02-08	8	R(PT) 1/4	19	15.2	23			39.7	28.2	49.5	48.3	43.3	42.8	37.8	18.5	
AS33□1FG-02-10	10			18.5				43.7	32.6	53.9					21	
AS33□1FG-02-12	12			20.9		16.2	23	44.9	34.4	55.7					22	69
AS33□1FG-03-06	6	R(PT) 3/8	19	12.8		12.9	20.6	38.5	25.2	45					17	
AS33□1FG-03-08	8			15.2	23			39.7	28.2	48	45.4	40.4	40	35	18.5	
AS33□1FG-03-10	10			18.5		16.2	23	43.7	32.6	52.4					21	63
AS33□1FG-03-12	12	R(PT) 1/2	24	20.9				44.9	34.4	54.2					22	
AS43□1FG-04-10	10			18.5	28.6	16.2	25.8	49.4	32.6	57.1	56.7	49.2	49.6	42.1	21	
AS43□1FG-04-12	12			20.9		19.4	26.8	52	36.3	60.8					22	105

* 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				19.8							12.7	7
AS13□1FG-U10/32-03	5/32"			9.3				20.3	17.5	28.7						
AS13□1FG-U10/32-05	3/16"			11.4	9.6	9.3	10.8	21.3	23.3	34.5	28.6	25.8	25	22.2	16.5	
AS13□1FG-U10/32-07	1/4"	NPT 1/8	12	12				21.6	20.7	31.9					13.7	8
AS23□1FG-N01-01	1/8"			8.4				24.4							12.7	
AS23□1FG-N01-03	5/32"			9.3	13.1	10.9	14	24.9	17.5	30.9	35.2	30.2	32.1	27.1		18
AS23□1FG-N01-05	3/16"	NPT 1/8	14	11.4		10.9	14	26.8	23.9						16.5	
AS23□1FG-N01-07	1/4"			13.2				29.9	25.6	36.3					18.5	
AS23□1FG-N01-09	5/16"			15.2	12.9	16.2		30.9	28.2	40.8					21	21
AS23□1FG-N02-03	5/32"	NPT 1/4	17.5	10.4		10.9	16.2	30.6	21.9	39.6					16	
AS23□1FG-N02-05	3/16"			11.4				31.1	23.9	42.1					17	
AS23□1FG-N02-07	1/4"			13.2	19	12.9	18.3	34.2	25.6	45.1	39.9	34.9	34.4	29.4	18.5	36
AS23□1FG-N02-09	5/16"	NPT 1/4	19	15.2	23			35.2	28.2	47.9					21	
AS23□1FG-N02-11	3/8"			17.9		20.2	38.7	31	46.5						21	
AS33□1FG-N02-07	1/4"	NPT 3/8	19	13.2		12.9	20.6	38.7	25.6	46.9					17	60
AS33□1FG-N02-09	5/16"			15.2	23			39.7	28.2	49.5	48.3	43.3	42.8	37.8	18.5	
AS33□1FG-N02-11	3/8"			17.9		16.2	23	43.7	32.6	53.9					21	
AS33□1FG-N03-07	1/4"	NPT 3/8	19	13.2		12.9	20.6	38.7	25.6	45					17	56
AS33□1FG-N03-09	5/16"			15.2	23			39.7	28.2	48	45.4	40.4	40.2	35.2	18.5	
AS33□1FG-N03-11	3/8"			17.9		16.2	23	43.7	32.6	52.4					21	
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	29	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

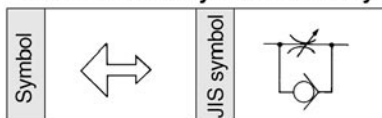
Note 2) Use caution regarding the maximum operating pressure with soft nylon, polyurethane and soft polyurethane.
(For details, refer to CAT.E501-B "Air Fittings and Tubing" pages 7-146 through 7-147.)

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"	ø5/32"	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 mm²	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



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)

Applicable tube outside diameter
Metric size

23	ø3.2*
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

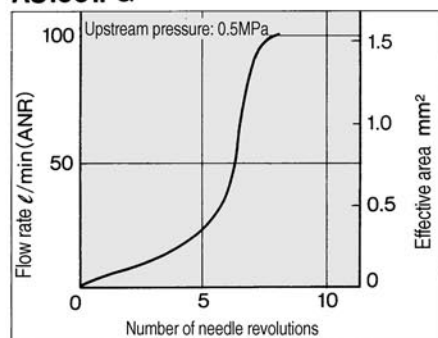
* Use a ø1/8" tube.

Inch size

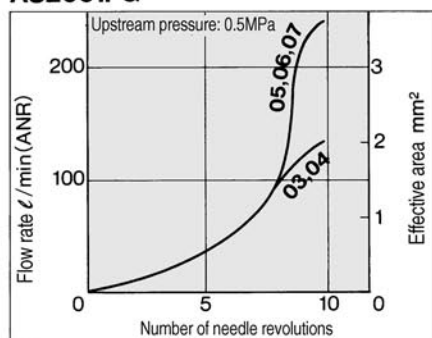
01	ø1/8"
03	ø5/32"
05	ø3/16"
07	ø1/4"
09	ø5/16"
11	ø3/8"
13	ø1/2"

Needle Valve/Flow Rate Characteristics

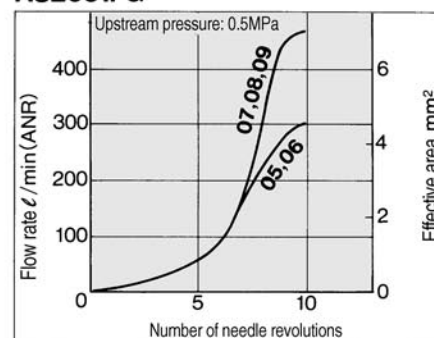
AS1001FG



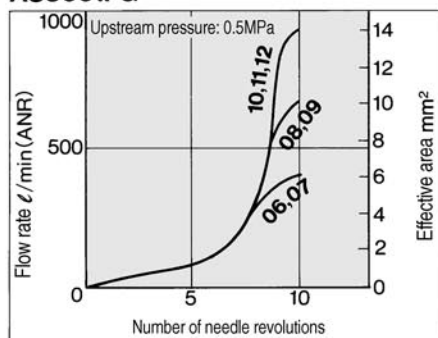
AS2001FG



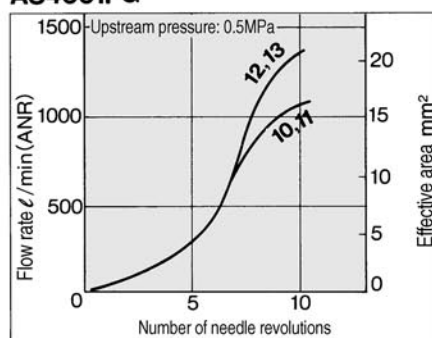
AS2051FG



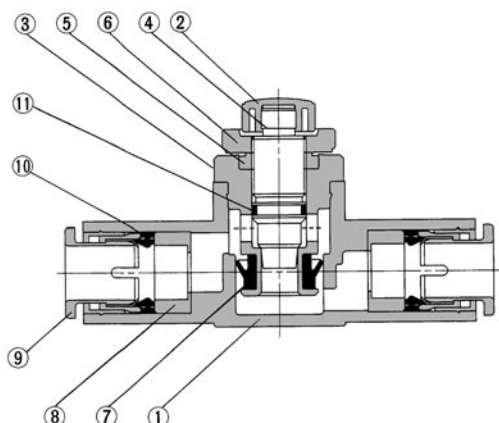
AS3001FG



AS4001FG



Construction

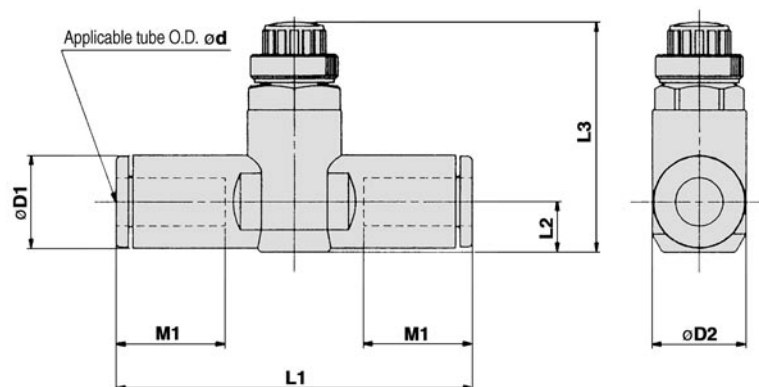


Parts list

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		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
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		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		21
AS3001FG-10	10	18.5		71.6	9.8	40.6	35.6		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		36
AS4001FG-12	12	20.9				52.1	44.6		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
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
AS2001FG-05	3/16"	11.4		50	6.2	33.6	28.6		16.5
AS2001FG-07	1/4"	13.2	14.8	52.2	7.1	34.5	29.5	17	21
AS2051FG-05	3/16"	11.4		52.2	6.2	34.6	29.6		24
AS2051FG-07	1/4"	13.2		54.4	7.1	35.5	30.5		26
AS2051FG-09	5/16"	15.2	19.8	59.8	8.1	32.6	27.6	18	31
AS3001FG-07	1/4"	13.2		59	7.4	38.3	33.3		42
AS3001FG-09	5/16"	15.2		64.4	8.2	39.1	34.1		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		97
AS4001FG-13	1/2"	21.7		83.1	11.6	52.4	44.9		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.

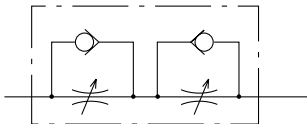


Models

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	●	●									
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



Flow direction symbols on body

	Meter-out type	Meter-in type
Symbol		
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.
(For details, refer to CAT.E501-B "Air Fittings and Tubing" pages 7-146 through 7-147.)

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 mm²	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

ASD 3 30FG — 01 — 06 S

Body size

2	M5 standard
3	1/8 standard
4	1/4 standard
5	3/8 standard
6	1/2 standard

Type

3	Universal
---	-----------

With One-touch fitting

Stainless steel specification
(SUS303)

Thread type

Nil	Metric threads (M5)
	Unified threads (10-32UNF)
	R(PT)
N	NPT

Port size

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

With sealant

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

Applicable tube outside diameter

Metric size

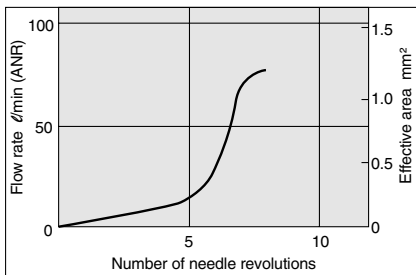
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

Inch size

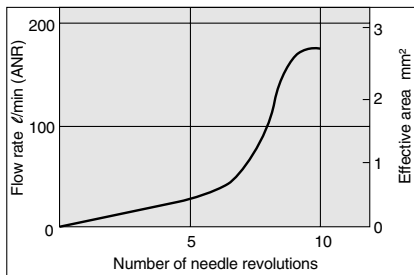
01	ø1/8"
03	ø5/32"
05	ø3/16"
07	ø1/4"
09	ø5/16"
11	ø3/8"

Needle Valve/Flow Rate Characteristics

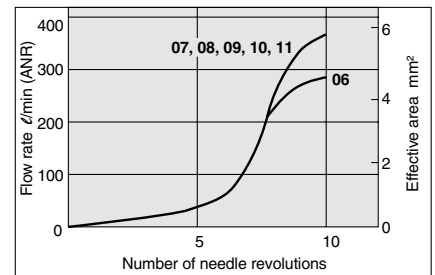
ASD230FG



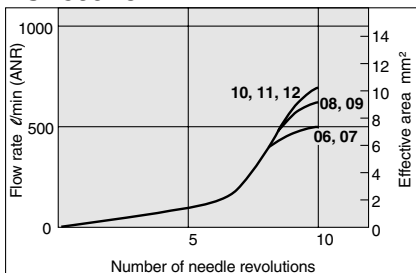
ASD330FG



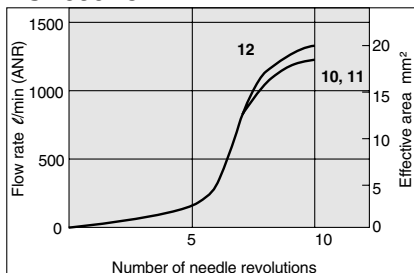
ASD430FG



ASD530FG



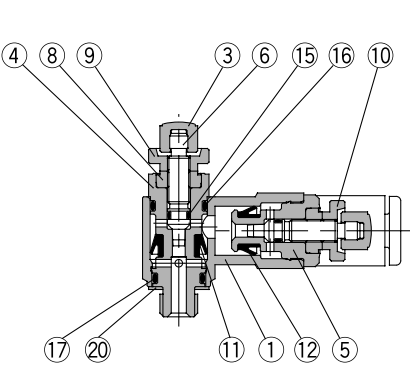
ASD630FG



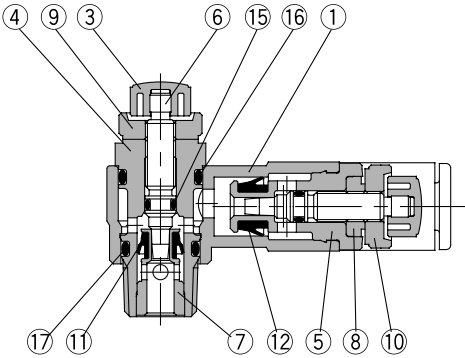
Series ASD-FG

Construction

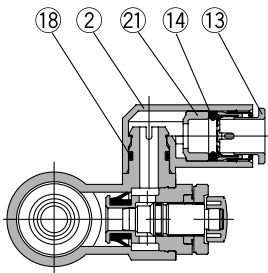
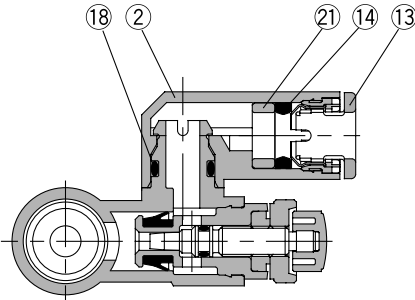
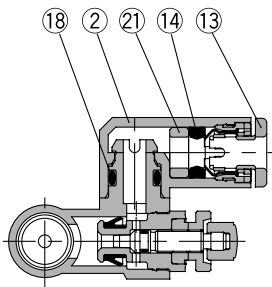
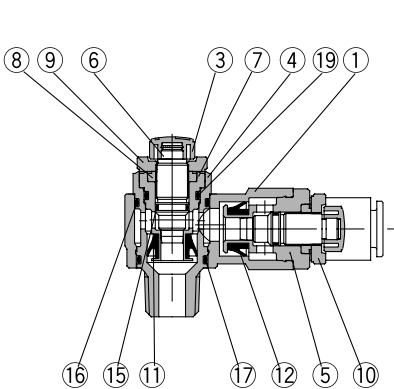
ASD230FG



ASD330FG/430FG ASD530FG/630FG



ASD530FG-02



Parts list

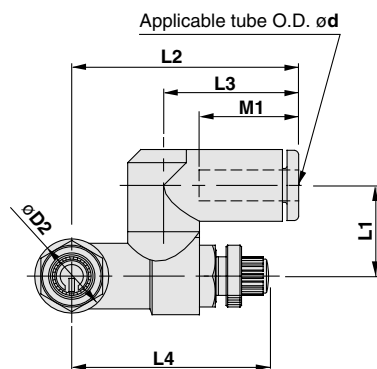
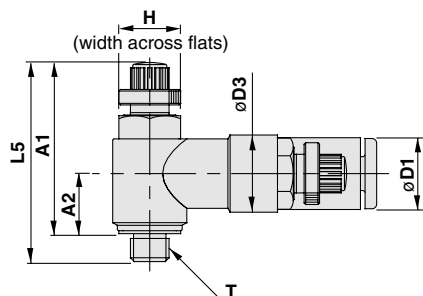
No.	Description	Material	Note
1	Body A	PBT	
2	Elbow body	PBT	
3	Knob	PBT	
4	Body B	SUS303	
5	Body B	SUS303	
6	Needle	SUS303	
7	Seat ring	SUS303	
8	Needle guide	SUS303	
9	Lock nut	SUS303	
10	Lock nut	SUS303	
11	U seal	NBR	

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)}	

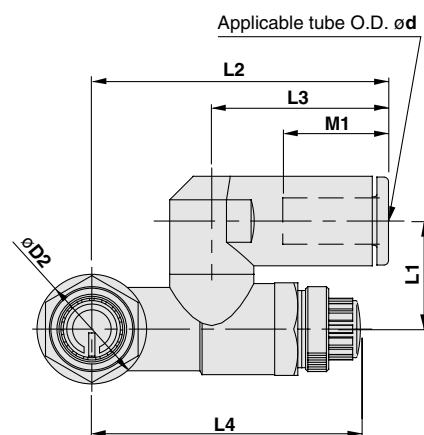
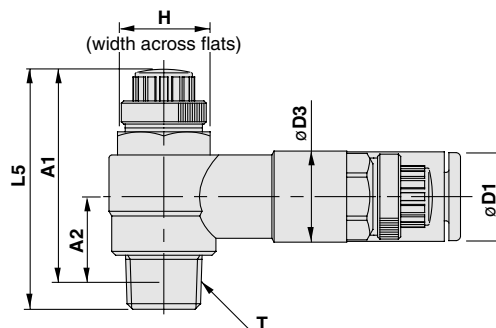
Note 1) $\phi 3/16"$, $\phi 3/8"$ and $\phi 1/2"$ are SUS303.

Dimensions/Metric Size

ASD230FG



ASD330FG/430FG ASD530FG/630FG



Metric size

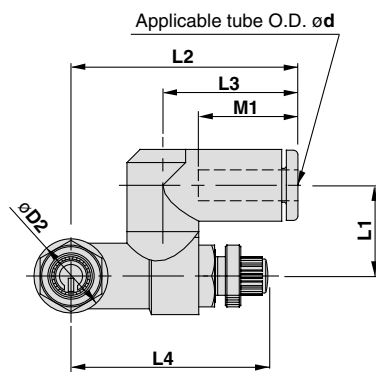
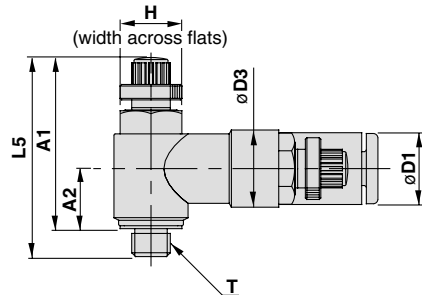
Model	d	T	H	D1	D2	D3	L1	L2	L3	L4		L5		A1 *		A2 *	M1
										Max.	Min.	Max.	Min.	Max.	Min.		
ASD230FG-M5-04	4	M5	8	9.3	9.6	10	11.7	29.4	17.5	28.3	25.5	28.6	25.8	25	22.2	7.8	12.9
ASD230FG-M5-06	6			11.6				32.5	20.6								13.7
ASD330FG-01-06S	6	R(PT) 1/8	12	11.6	14.2	11.8	14	38.5	22.9	39.6	34.6	35.2	30.2	32.1	27.1	10.6	13.7
ASD330FG-01-08S	8			15.2				44.8	28.2								18.5
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				46.5	28.2								18.5
ASD430FG-02-10S	10			18.5				49.3	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				51.3	28.2								18.5
ASD530FG-02-10S	10			18.5			23.1	54.1	32.6								21
ASD530FG-02-12S	12			20.9				55.9	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				51.3	28.2								18.5
ASD530FG-03-10S	10			18.5			23.1	54.1	32.6								21
ASD530FG-03-12S	12			20.9				55.9	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				66.1	34.4								22

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

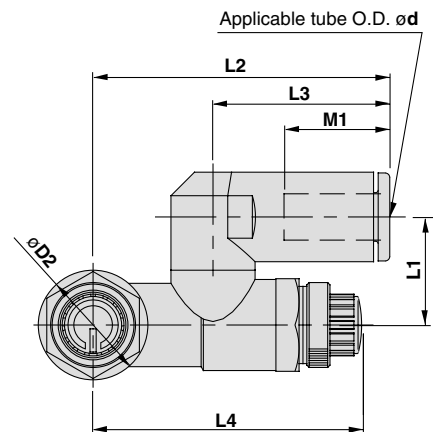
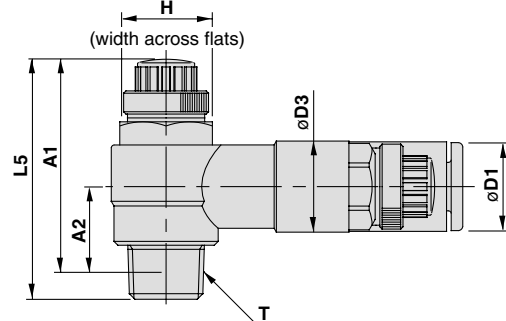
Series ASD-FG

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													16.5
ASD230FG-U10/32-05	3/16"			11.4													13.5
ASD230FG-U10/32-07	1/4"			12													16.5
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	17
ASD330FG-N01-07S	1/4"			13.2			15.8	42.2	25.6	38.9	33.9						18.5
ASD330FG-N01-09S	5/16"			15.2				44.8	28.2								17
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	18.5
ASD430FG-N02-09S	5/16"			15.2			19.7	46.5	28.2								21
ASD430FG-N02-11S	3/8"			18.5				49.3	31								17
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	18.5
ASD530FG-N02-09S	5/16"			15.2			23.1	51.3	28.2								21
ASD530FG-N02-11S	3/8"			18.5				54.1	32.6								17
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	18.5
ASD530FG-N03-09S	5/16"			15.2			23.1	51.3	28.2								21
ASD530FG-N03-11S	3/8"			18.5				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 sealant

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

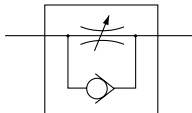
Note 2) Use caution regarding the maximum operating pressure with soft nylon, polyurethane and soft polyurethane. (Refer to Page 7-146 and 7-147 "Air Fittings and Tubing" for details.)

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

Note 4) All brass parts are electroless nickel plated.

The knob of the M5 type and the lock nut of the meter-in type are black zinc chromated.

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	ø4, ø6, ø8, ø10
	Inch size	ø1/8", ø5/32", ø3/16", ø1/4"	ø1/8", ø5/32", ø3/16", ø1/4", ø5/16"	ø5/32", ø3/16", 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)	100	180, 230	260, 390, 460
	Effective area mm ²	1.5	2.7, 3.5	4, 6, 7

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

How to Order

AS 2 2 1 1 F M — 01 — 06

● **Body size**

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

● **Type**

2	Elbow
3	Universal

● **Control system**

0	Meter-out
1	Meter-in

● **Option**

Nil	None
S	With sealant

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

● **Applicable tube outside diameter**

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

* Use a ø1/8" tube.

● **Port size**

M5	M5
U10/32	10-32UNF
01	1/8
02	1/4

● **With One-touch fitting**

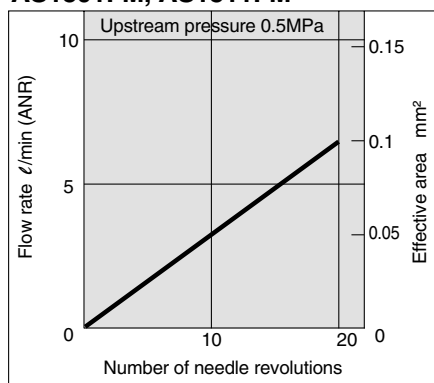
● **For low speed control**

● **Thread type**

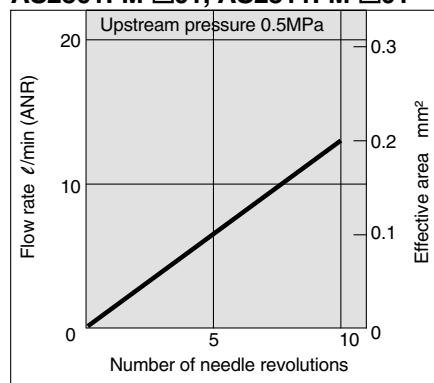
Nil	Metric thread (M5)
	Unified thread (10-32UNF)
	R
N	NPT

Needle Valve/Flow Rate Characteristics

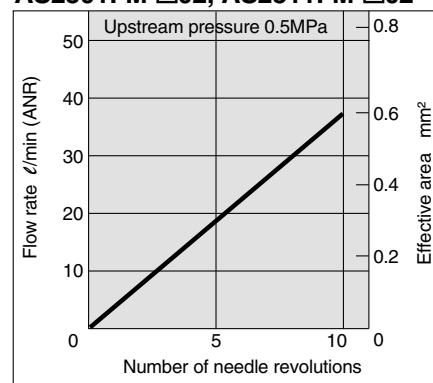
**AS1201FM, AS1211FM
AS1301FM, AS1311FM**



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



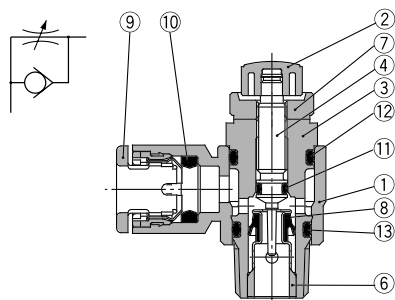
**AS2201FM-□02, AS2211FM-□02
AS2301FM-□02, AS2311FM-□02**



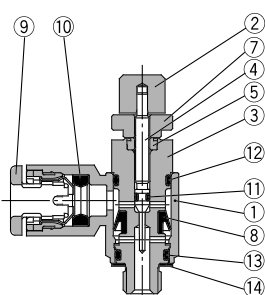
Construction/Elbow Type

Meter-out type

JIS symbol

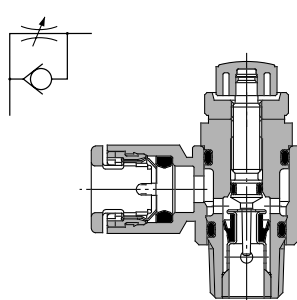


<M5 type>
<U10/32 type>

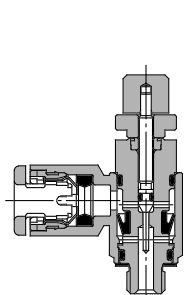


Meter-in type

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	Brass ^{Note 2)}	Electroless nickel plated ^{Note 3)}
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.

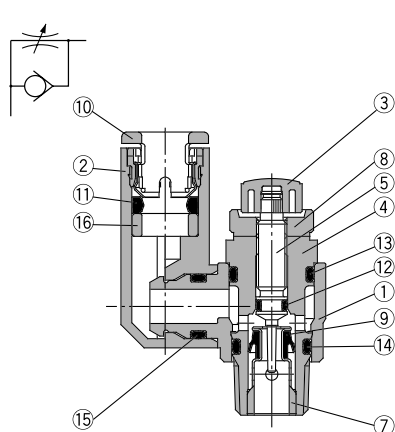
Note 2) The AS22□□1FM type is steel.

Note 3) The meter-in type is black zinc chromated.

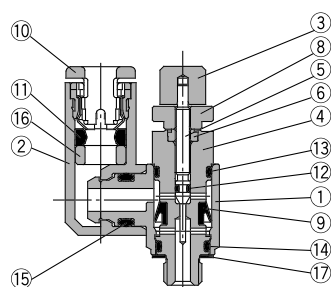
Construction/Universal Type

Meter-out type

JIS symbol

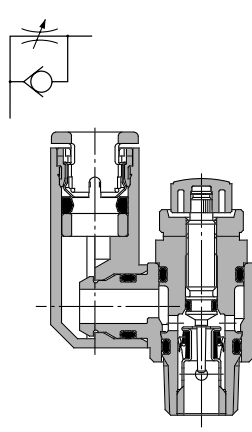


<M5 type>
<U10/32 type>

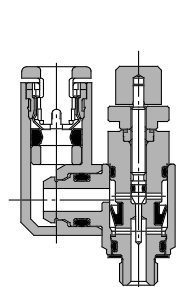


Meter-in type

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	Brass ^{Note 2)}	Electroless nickel plated ^{Note 3)}
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.

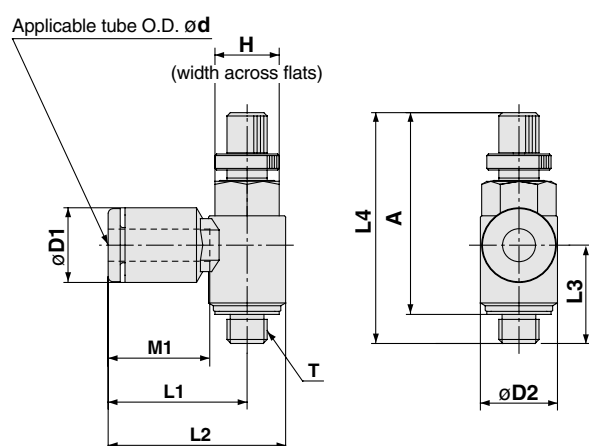
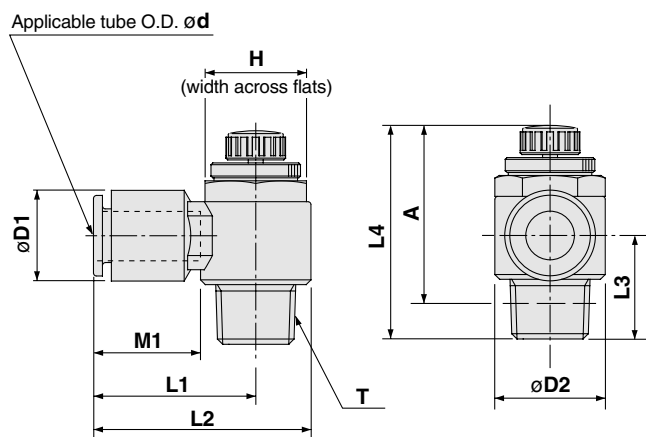
Note 2) The AS23□□1FM type is steel.

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		17.3	22.1						13.5	
AS12□1FM-M5-06	6			11.6		18.1	22.9						13.5	
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		20.4	27.5						13.5	
AS22□1FM-01-06	6			11.6		20.4	27.5						18.5	
AS22□1FM-01-08	8			15.2		25.3	32.4						16	
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	17	32
AS22□1FM-02-06	6			12.8		25.2	34.4						18.5	
AS22□1FM-02-08	8			15.2		27.2	36.4						21.0	
AS22□1FM-02-10	10			18.5		33.9	43.2						21.0	

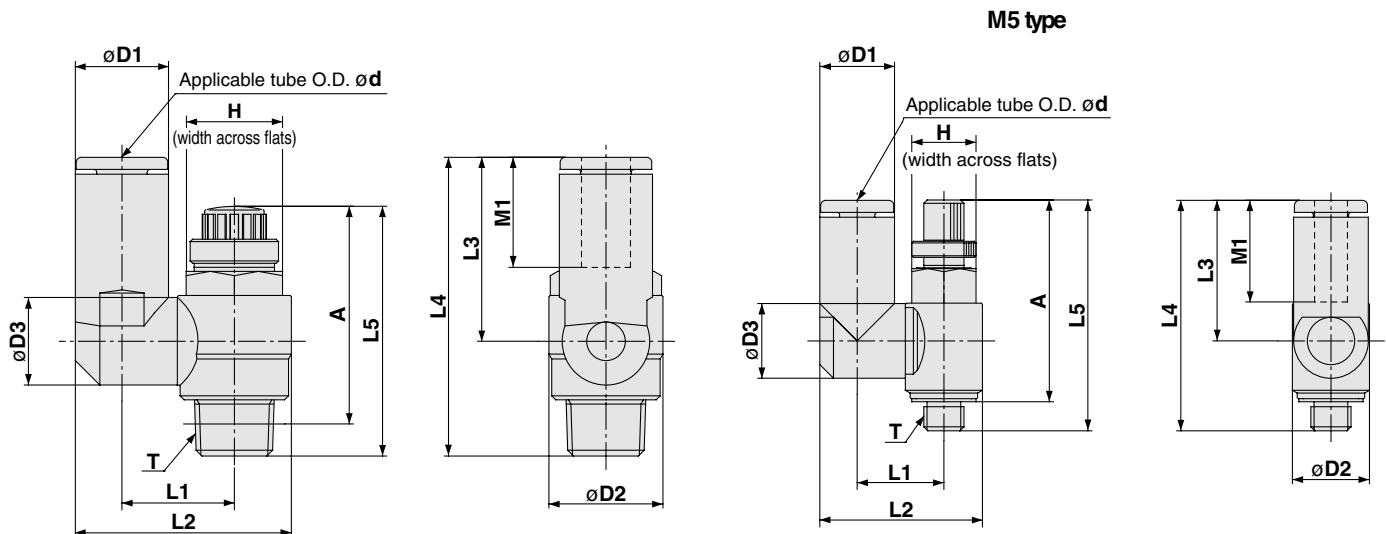
* Reference dimensions for M5 and R threads after installation.

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		21.3	26.1						16.5	
AS12□1FM-U10/32-05	3/16"			11.4		18.3	23.1						13.5	
AS12□1FM-U10/32-07	1/4"	NPT1/8	12.7	12	14.2	20.4	27.5	13.4	35.2	30.2	32.1	27.1	12.7	16
AS22□1FM-N01-01	1/8"			9.3		23.1	30.2						16.5	
AS22□1FM-N01-03	5/32"			11.4		23.9	31						18.5	
AS22□1FM-N01-05	3/16"			13.2		25.3	32.4						21	
AS22□1FM-N01-07	1/4"	NPT1/4	17.5	15.2	18.5	25.2	34.4	17.7	39.9	34.9	34.4	29.4	16	32
AS22□1FM-N01-09	5/16"			17.9		24.9	34.2						17	
AS22□1FM-N02-03	5/32"			10.4		25.2	34.4						18.5	
AS22□1FM-N02-05	3/16"			11.4		27.2	36.4						21	
AS22□1FM-N02-07	1/4"			13.2		33.9	43.2						21	
AS22□1FM-N02-09	5/16"			15.2										
AS22□1FM-N02-11	3/8"			17.9										

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

Dimensions/Universal 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			9.3				20.3							13.5	
AS13□1FM-M5-06	6			11.6				21.4							13.5	
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							13.5	
AS23□1FM-01-06	6			11.6				26.9							18.5	
AS23□1FM-01-08	8	R1/4	18.5	15.2	18.5	12.9	16.2	30.9	21.9	39.6	39.9	34.9	34.4	29.4	16	33
AS23□1FM-02-04	4			10.4				30.6							17	
AS23□1FM-02-06	6			12.8				34							18.5	
AS23□1FM-02-08	8			15.2				35.2							21	
AS23□1FM-02-10	10			18.5				38.7							21	

* 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							16.5	
AS13□1FM-U10/32-05	3/16"			11.4				21.3							13.7	
AS13□1FM-U10/32-07	1/4"	NPT1/8	12.7	12	14.2	10.9	14	21.6	23.9	37.3	35.2	30.2	32.1	27.1	12.7	18
AS23□1FM-N01-01S	1/8"			8.4				24.4							16.5	
AS23□1FM-N01-03S	5/32"			9.3				24.9							18.5	
AS23□1FM-N01-05S	3/16"			11.4				26.8							21	
AS23□1FM-N01-07S	1/4"			13.2				29.9							21	
AS23□1FM-N01-09S	5/16"	NPT1/4	17.5	15.2	18.5	12.9	16.2	30.9	21.9	39.6	39.9	34.9	34.4	29.4	16	32
AS23□1FM-N02-03S	5/32"			10.4				31.1							17	
AS23□1FM-N02-05S	3/16"			11.4				31.1							18.5	
AS23□1FM-N02-07S	1/4"			13.2				34.2							21	
AS23□1FM-N02-09S	5/16"			15.2				35.2							21	
AS23□1FM-N02-11S	3/8"			17.9				38.7							21	40

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

Speed Controller for Low Speed Operation

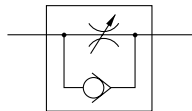
Series AS-M

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 mm²	0.1		0.2		0.6	
Free flow	Flow rate ℓ/min (ANR)	105		280		420	
	Effective area mm²	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 knob on all types and the lock nut on the meter-in type are black zinc chromated.

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
Nil	R	Rc
	Metric thread (M5)	
	Unified thread (10-32UNF)	
N	NPT	

Option

Nil	None
S	With sealant

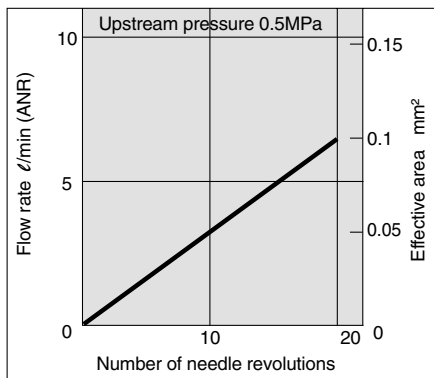
* M5 and U10/32 are not available with sealant.

Port sizes

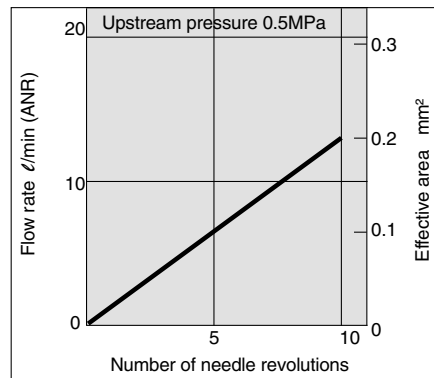
Symbol	Port size	Applicable series
M5	M5	AS12□0M-M5
U10/32	10-32UNF	AS12□0M-U10/32
01	1/8	AS22□0M-01
02	1/4	AS22□0M-02

Needle Valve/Flow Rate Characteristics

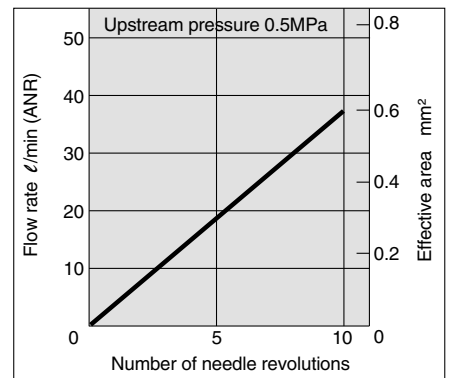
AS12□0M



AS22□0M-□01



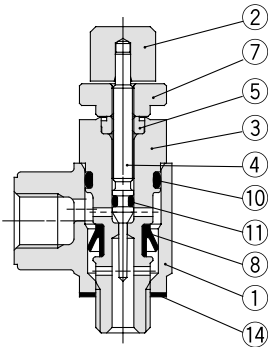
AS22□0M-□02



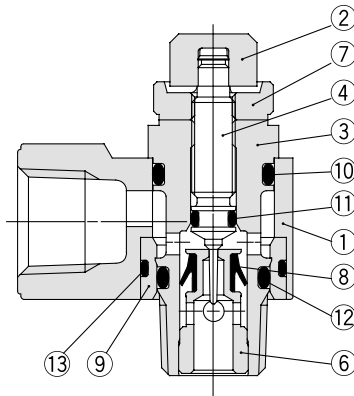
Construction

Meter-out type

AS1200M

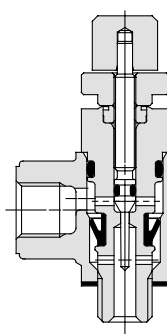


AS2200M

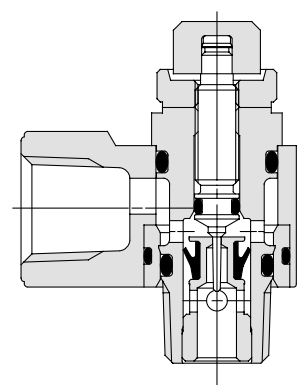


Meter-in type

AS1210M



AS2210M



Parts list

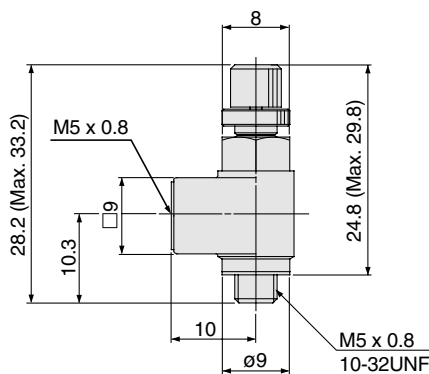
No.	Description	Material	Note
1	Body A	Zinc alloy	
2	Handle	Brass	Black zinc chromated
3	Body B	Brass	Electroless nickel plated
4	Needle	Brass	Electroless nickel plated
5	Needle guide	Brass	Electroless nickel plated
6	Seat ring	Brass	Electroless nickel plated
7	Lock nut	Brass ^{Note 1)}	Electroless nickel plated ^{Note 2)}
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 1) The AS22□0M type is steel.

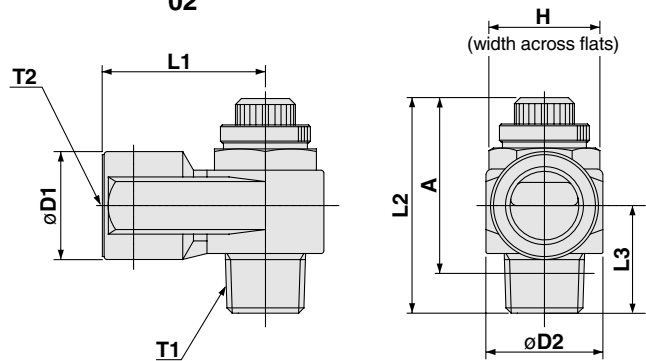
Note 2) The meter-in type is black zinc chromated.

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				35.5	30.5				32.4	27.4
AS22□0M-01	R1/8	Rc1/8	12	18	39.4	35.4	17.5	18	19.5	34.9	29.9
AS22□0M-N01	NPT1/8		12.7								
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		17.5								

* 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

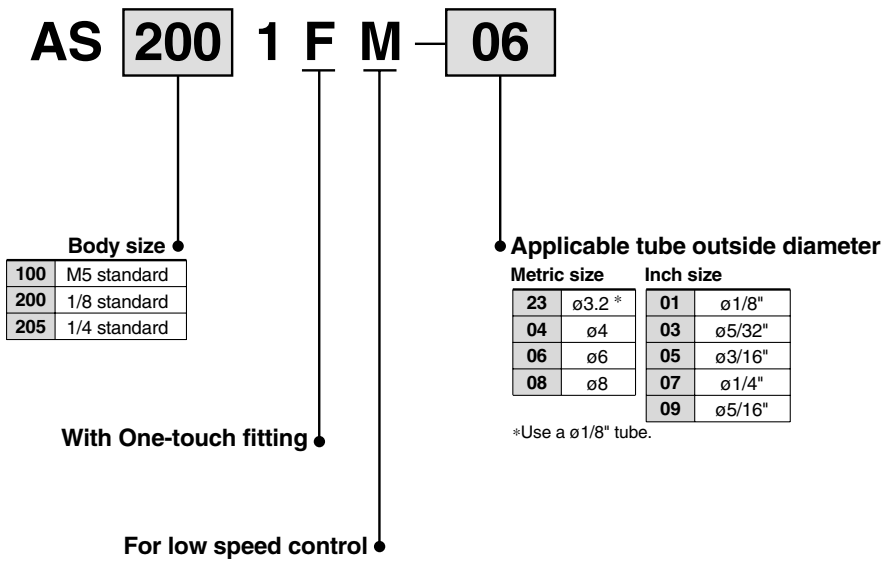
Flow direction symbols on body



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 ℓ/min (ANR)	7	12		38	
	Effective area mm^2	0.1	0.2		0.6	
Free flow	Flow rate ℓ/min (ANR)	100	130	230	290	460
	Effective area mm^2	1.5	2	3.5	4.5	7

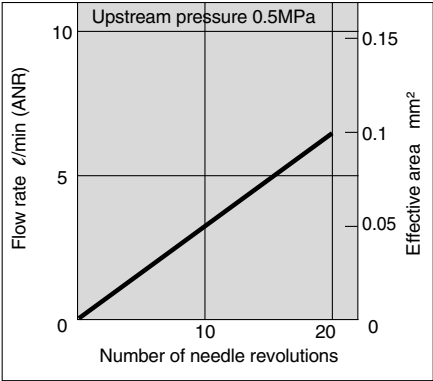
Note) The flow rate value is at a pressure of 0.5MPa and temperature of 20°C.

How to Order

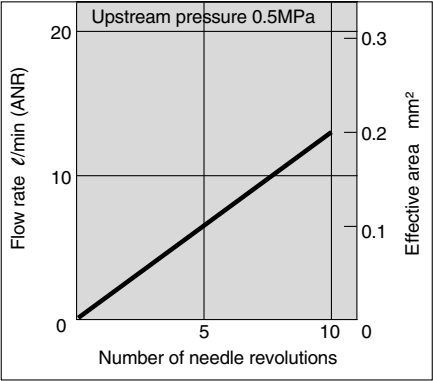


Needle Valve/Flow Rate Characteristics

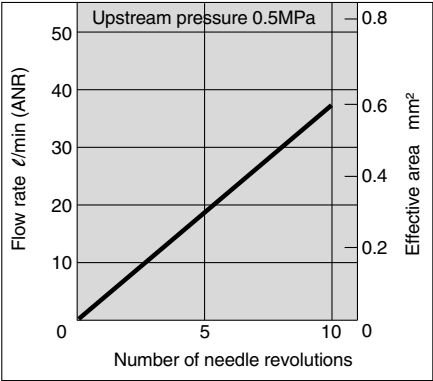
AS1001FM



AS2001FM

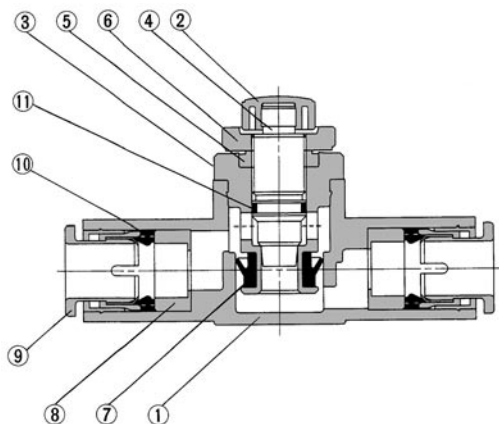


AS2051FM



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	Brass ^{Note 2)}	Electroless nickel plated
7	U-seal	NBR	
8	Spacer	POM ^{Note 3)}	
9	Cassette	POM, Stainless ^{Note 4)}	
10	Seal	NBR	
11	O-ring	NBR	

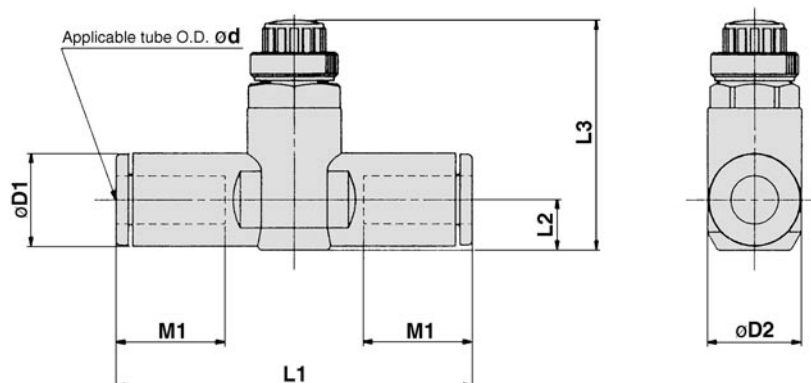
Note 1) The AS1001FM type is black zinc chromated brass.

Note 2) The AS20□ 1FM type is steel.

Note 3) ø3/16" is brass (electroless nickel plated).

Note 4) ø3/16" is POM, stainless steel and brass (electroless nickel plated).

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	8
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	13
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	31

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		50	6.2	33.6	28.6	16.5	18
AS2001FM-05	3/16"	11.4		52.2	7.1	34.5	29.5	17	21
AS2001FM-07	1/4"	13.2	14.8	52.2	6.2	34.6	29.6	16.5	24
AS2051FM-05	3/16"	11.4		54.4	7.1	35.5	30.5	17	26
AS2051FM-07	1/4"	13.2		59.8	8.1	36.5	31.5	18	31
AS2051FM-09	5/16"	15.2							

Dual Speed Controller for Low Speed Operation

Series ASD-FM

Models

Two flow control valves and check valves integrated.

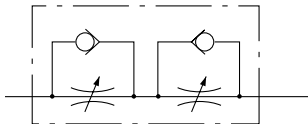
Prevention of lurching and speed control for single acting cylinders.

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		

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.

(Refer to Page 7-146 and 7-147 "Air Fittings and Tubing" for details.)

Note 3) All brass parts are electroless nickel plated.

The meter-in side lock nut and the M5 type knob are black zinc chromated.

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.

How to Order

ASD330FM-0106S

Body size

2	M5 standard
3	1/8 standard
4	1/4 standard

Model

3	Universal
---	-----------

With One-touch fitting

For low speed control

Thread type

Nil	Metric thread (M5)
	Unified thread (10-32UNF)
	R
N	NPT

Port size

M5	M5
U10/32	10-32UNF
01	1/8
02	1/4

With sealant

* "S" is not applicable to M5 and U10/32 types, as they are not available with sealant.

Applicable tube outside diameter

Metric size

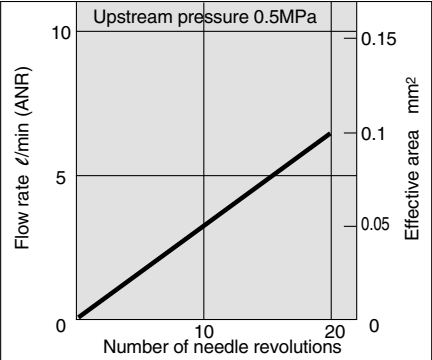
04	ø4
06	ø6
08	ø8
10	ø10

Inch size

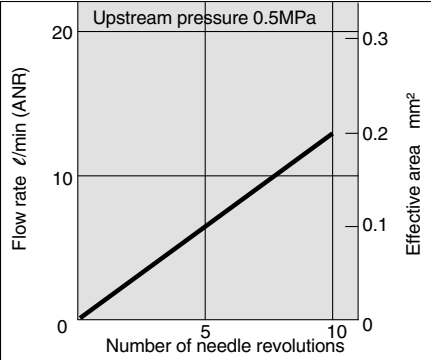
01	ø1/8"
03	ø5/32"
05	ø3/16"
07	ø1/4"
09	ø5/16"
11	ø3/8"

Needle Valve/Flow Rate Characteristics

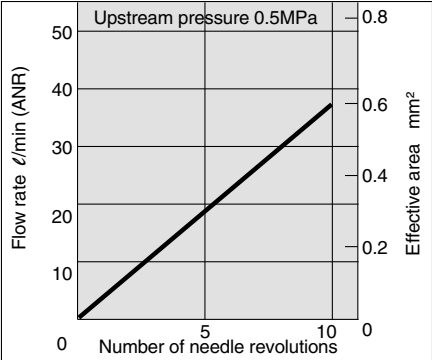
ASD230FM



ASD330FM

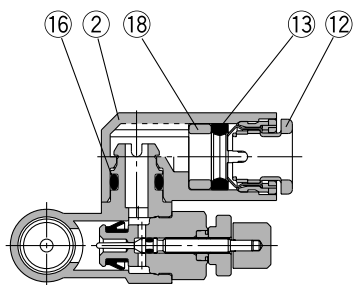
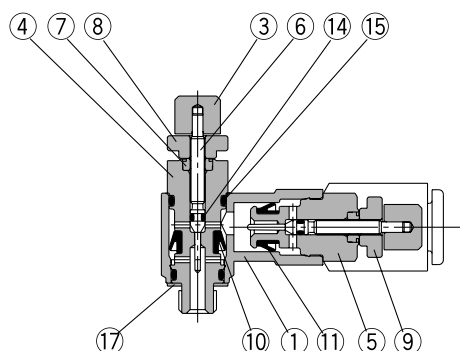


ASD430FM



Construction

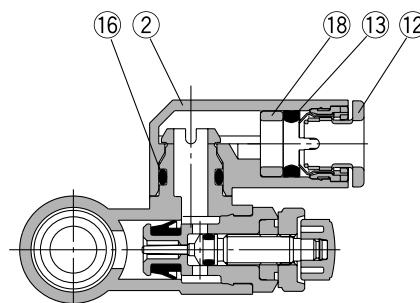
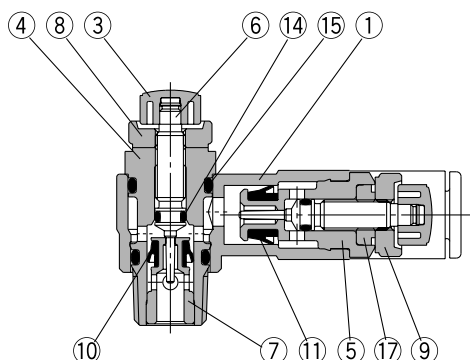
ASD230FM



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	Brass ^{Note 2)}	Electroless nickel plated
10	Lock nut	Brass ^{Note 2)}	Black zinc chromated

ASD330FM, 430FM



Parts list

No.	Description	Material	Note
11	U-seal	NBR	
12	U-seal	NBR	
13	Cassette	POM, Stainless ^{Note 3)}	
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	M5 type only
21	Spacer	POM ^{Note 4)}	

Note 1) AS1001FM type is black zinc chromated brass.

Note 2) The AS20□1FM type is steel.

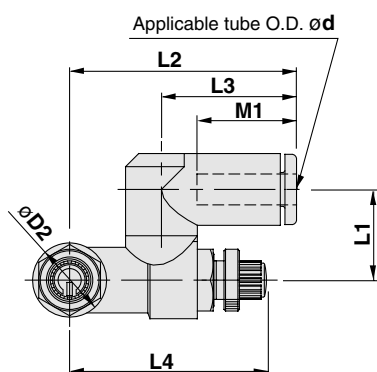
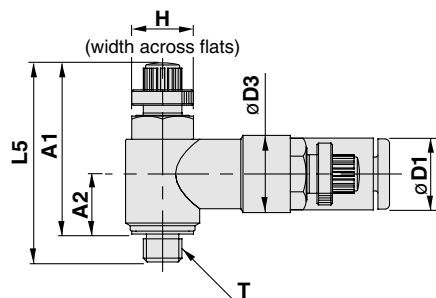
Note 3) ø3/16" and ø3/8 are POM, stainless, and brass (electroless nickel plated).

Note 4) ø3/16" and ø3/8 are brass (electroless nickel plated).

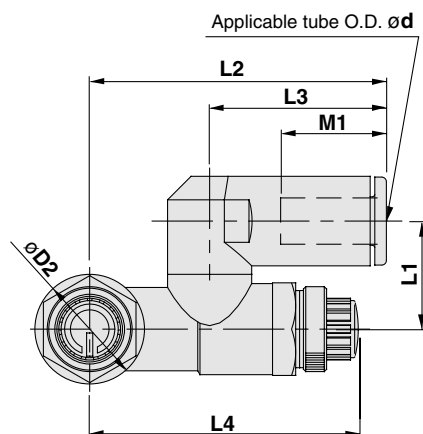
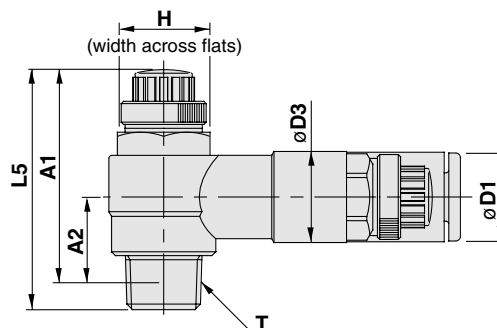
Series ASD-FM

Dimensions/Metric Sizes

ASD230FM



ASD330FM, 430FM



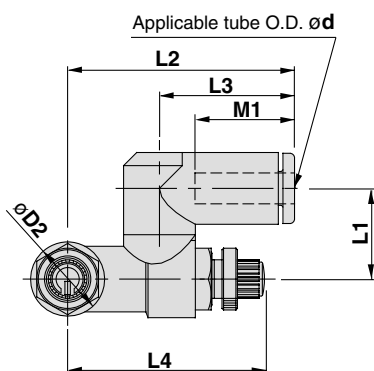
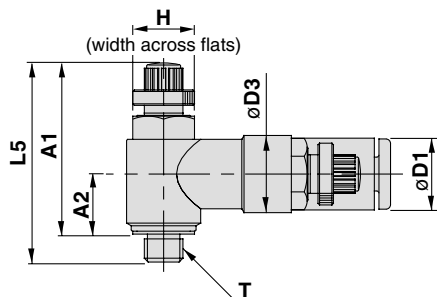
Metric sizes

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				32.5	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			15.8	44.8	28.2	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			19.7	46.5	28.2								18.5	55
ASD430FM-02-10S	10			18.5				49.3	31								21	58

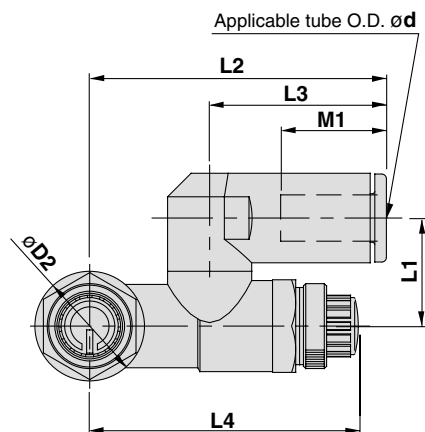
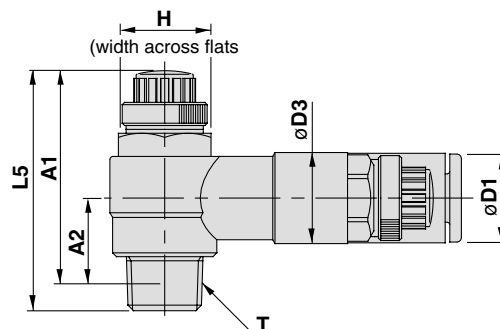
* Reference dimensions for M5 and R threads after installation

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				35.2	23.3								16.5	13
ASD230FM-U10/32-05	3/16"			11.4				32.6	20.7								13.5	14
ASD230FM-U10/32-07	1/4"			12				39.5	23.9								16.5	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	17	30
ASD330FM-N01-07S	1/4"			13.2			15.8	42.2	25.6	38.9	33.9						18.5	31
ASD330FM-N01-09S	5/16"			15.2				44.8	28.2									
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			19.7	46.5	28.2								18.5	62
ASD430FM-N02-11S	3/8"			18.5				49.3	32.6								21	

* 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.

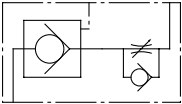
Specifications

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.

For details, refer to Page 7-146 and 7-147 "Air Fittings & Tubing" for pneumatic piping

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 30F-01-06 S

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

Applicable tube outside diameter

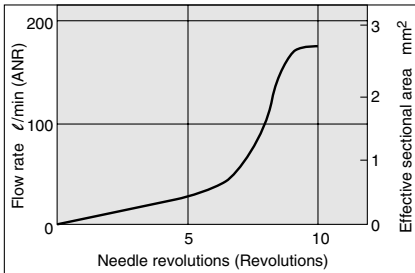
Millimeter size	Inch size
06	ø6
08	ø8
10	ø10
12	ø12
07	ø1/4"
09	ø5/16"
11	ø3/8"
13	ø1/2"

Port size

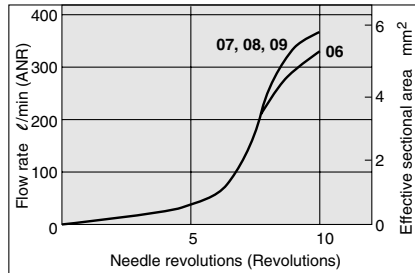
Symbol	Cylinder side	Pilot port
01	R(PT)1/8	M5
02	R(PT)1/4	Rc(PT)1/8
03	R(PT)3/8	Rc(PT)1/8
04	R(PT)1/2	Rc(PT)1/4
F02	R(PT)1/4	G(PF)1/8
F03	R(PT)3/8	G(PF)1/8
F04	R(PT)1/2	G(PF)1/4
N01	NPT1/8	10-32UNF
N02	NPT1/4	NPT1/8
N03	NPT3/8	NPT1/8
N04	NPT1/2	NPT1/4

Needle Valve/Flow Rate Characteristics

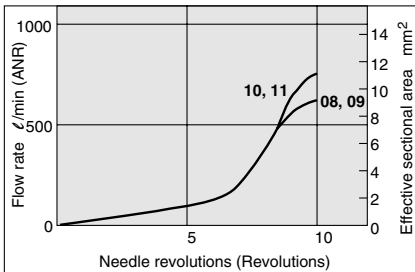
ASP330F



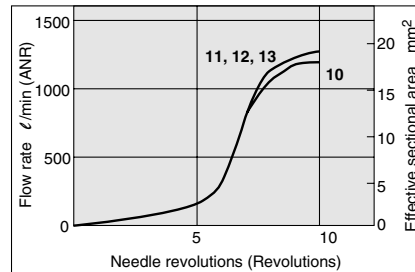
ASP430F



ASP530F



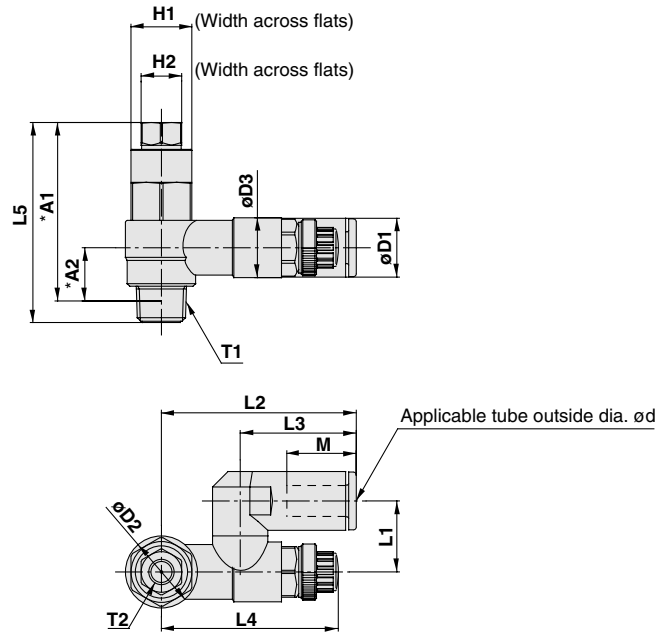
ASP630F



Series ASP

Dimensions

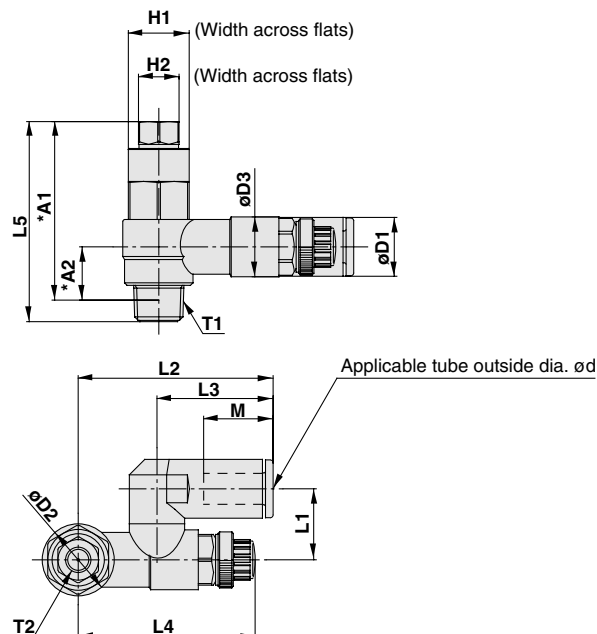
Millimeter size



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				18.7	35
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						19.7	16.4				18.7	68
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						23.1	20.8				20.8	110
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						66	34.4				21.8	215

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

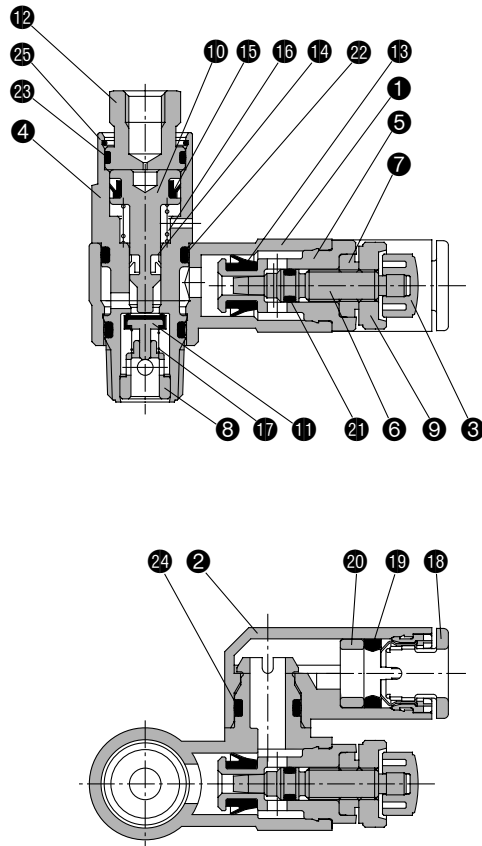
Inch size



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				18.7	
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						46.4	28.2				18.7	
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						23.1	20.8				20.8	116
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						26.5	34.7				21.8	230

* 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	Brass	Electroless nickel plated
⑩	Piston	Brass	Electroless nickel plated
⑪	Valve	Stainless steel, NBR	
⑫	Cover	Brass	Black zinc chromated
⑬	U seal	NBR	

Parts list

No.	Description	Material	Note
⑭	DY seal	PBT	
⑮	DY seal	PBT	
⑯	Spring	Stainless steel	
⑰	Spring	Stainless steel	
⑱	Cassette	POM, Stainless steel	Note 1)
⑲	Seal	NBR	
⑳	Spacer	POM	Note 2)
㉑	O-ring	NBR	
㉒	O-ring	NBR	
㉓	O-ring	NBR	
㉔	O-ring	NBR	
㉕	Ring	Stainless steel	

Note 1) $\phi 10$, $\phi 12$, $\phi 3/8"$, $\phi 1/2"$ are POM, stainless steel and brass (electroless nickel plated).
 Note 2) $\phi 1/4"$, $\phi 3/8"$, $\phi 1/2"$ are brass (electroless nickel plated).

