

Speed Controller for Low Speed Operation

Series **AS-FM**

With One-touch Fitting (Resin Body)

RoHS



Models

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

Specifications

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

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

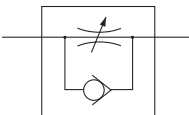
Note 2) Use caution regarding the maximum operating pressure with soft nylon, polyurethane and soft polyurethane.

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

Note 4) All brass parts are electroless nickel plated.

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

JIS symbol



Flow direction symbols on body

	Meter-out type	Meter-in type
Symbol		
JIS symbol		

Flow Rate and Effective Area

Models		AS12□1FM AS13□1FM	AS22□1FM-□01 AS23□1FM-□01	AS22□1FM-□02 AS23□1FM-□02
Tube O.D.	Metric size	ø3.2, ø4, ø6	ø3.2, ø4	ø6, ø8
	Inch size	ø1/8", ø5/32", ø3/16" ø1/4"	ø1/8", ø5/32" ø3/16", ø1/4" ø5/16"	ø4, ø6, ø8, ø10 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
	Effective area mm ²	1.5	2.7	3.5

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

With One-touch fitting

For low speed control

Thread type

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

Port size

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

Option

—	None
S	With sealant

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

Applicable tube outside diameter

Metric size		Inch size	
23	ø3.2 *	01	ø1/8"
04	ø4	03	ø5/32"
06	ø6	05	ø3/16"
08	ø8	07	ø1/4"
10	ø10	09	ø5/16"
		11	ø3/8"

* Use a ø1/8" tube.

Lock nut option

—	Hexagon lock nut
J	Round lock nut

Made to Order

Made to Order

1 Lubricant: Vaseline X12

Ex.) AS1201FM-M5-23-X12

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

Ex.) AS1201FM-M5-23-X21

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

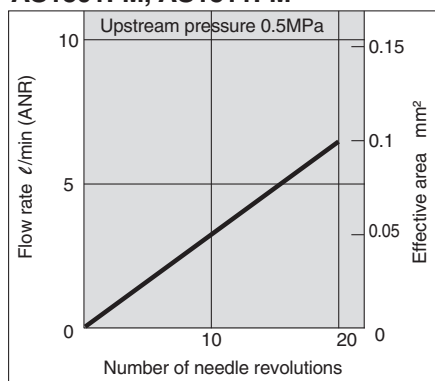
3 Throttle Valve (Without Check Valve) X214

Ex.) AS1201FM-M5-23-X214

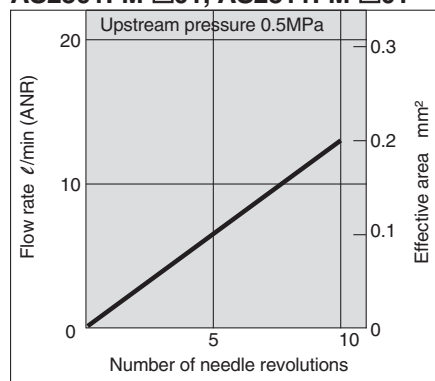
Note) Throttle valve is only compatible with the part no. of the meter-out type.

Needle Valve/Flow Rate Characteristics

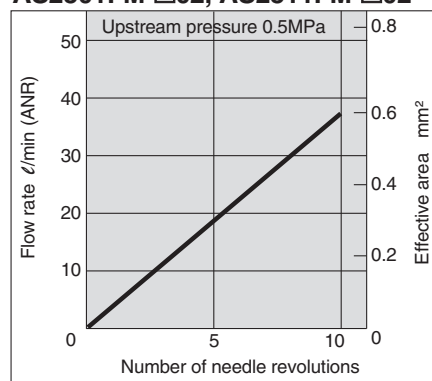
AS1201FM, AS1211FM
AS1301FM, AS1311FM



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



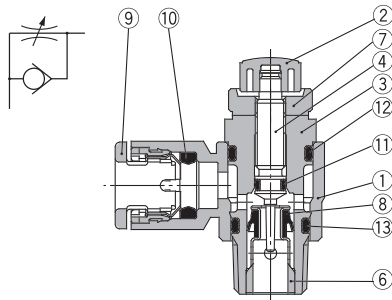
AS2201FM-□02, AS2211FM-□02
AS2301FM-□02, AS2311FM-□02



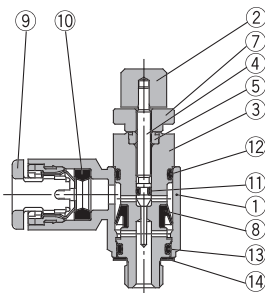
Construction/Elbow Type

Meter-out type

JIS symbol

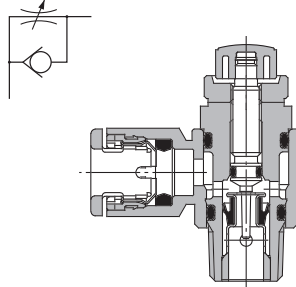


<M5 type>
<U10/32 type>

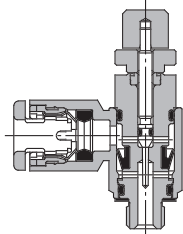


Meter-in type

JIS symbol



<M5 type>
<U10/32 type>



Parts list

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

Note 1) The M5 and U10/32 types are black zinc chromated brass.

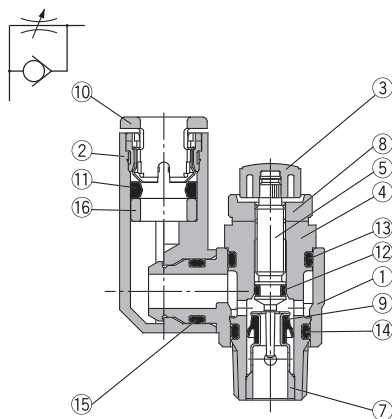
Note 2) The AS22□□1FM type is steel.

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

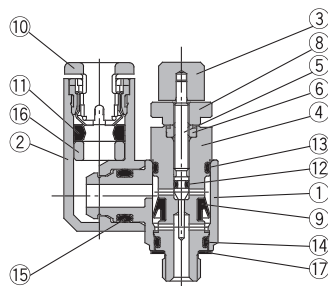
Construction/Universal Type

Meter-out type

JIS symbol

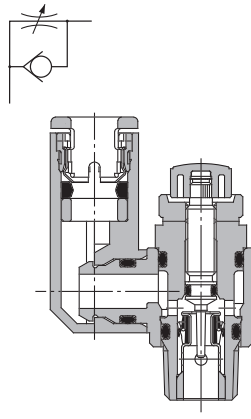


<M5 type>
<U10/32 type>

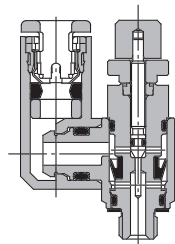


Meter-in type

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	Steel	Zinc chromated Note 2)
9	U-seal	NBR	
10	Cassette	POM, Stainless steel	
11	Seal	NBR	
12	O-ring	NBR	
13	O-ring	NBR	
14	O-ring	NBR	
15	O-ring	NBR	
16	Spacer	—	Polyacetal
17	Gasket	NBR, Stainless steel	M5 type only

Note 1) The M5 and U10/32 types are black zinc chromated brass.

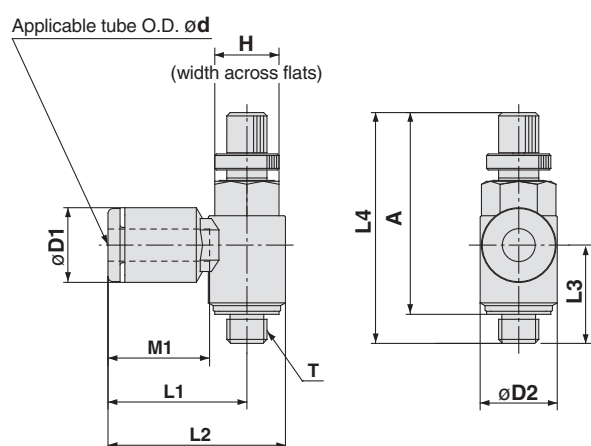
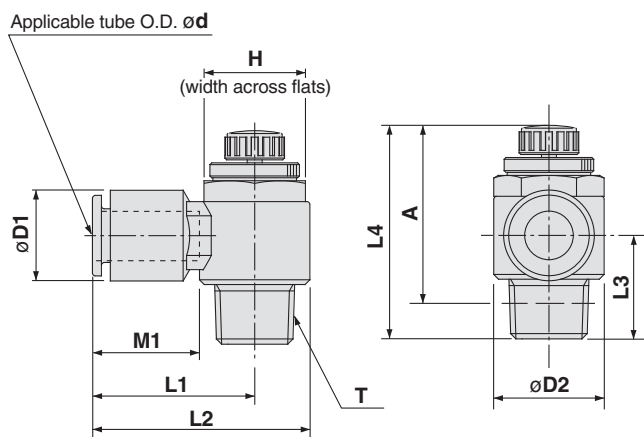
Note 2) The AS23□□1FM type is steel.

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

Series AS-FM

Dimensions/Elbow Type

M5 type U10/32 type



Metric sizes

Model	d	T	H	D1	D2	L1	L2	L3	L4		A *		M1	Weight g
									Max.	Min.	Max.	Min.		
AS12□1FM-M5-23	3.2	M5	8	8.4	9.6	17.3	22.1	12.3	28.6	25.8	25	22.2	12.7	7
AS12□1FM-M5-04	4			9.3		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	

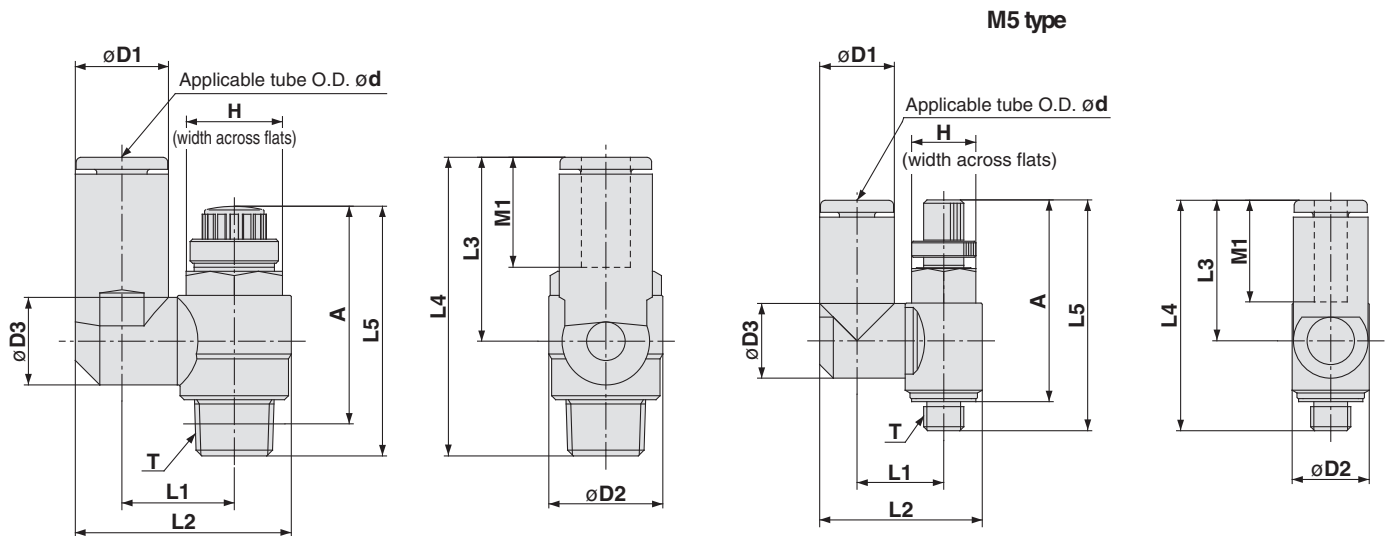
* Reference dimensions for M5 and R threads after installation.

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"			12		18.3	23.1						13.5	
AS22□1FM-N01-01	1/8"	NPT1/8	12.7	9.3	14.2	20.4	27.5	13.4	35.2	30.2	32.1	27.1	12.7	17
AS22□1FM-N01-03	5/32"			11.4		23.1	30.2						16.5	
AS22□1FM-N01-05	3/16"			13.2		23.9	31						18.5	
AS22□1FM-N01-07	1/4"			15.2		25.3	32.4						21	
AS22□1FM-N01-09	5/16"	NPT1/4	17.5	10.4	18.5	25.2	34.4	17.7	39.9	34.9	34.4	29.4	16	32
AS22□1FM-N02-03	5/32"			11.4		24.9	34.2						17	
AS22□1FM-N02-05	3/16"			13.2		25.2	34.5						18.5	
AS22□1FM-N02-07	1/4"			15.2		27.2	36.4						21	
AS22□1FM-N02-09	5/16"			17.9		33.9	43.2						21	
AS22□1FM-N02-11	3/8"			17.9		33.9	43.2						21	

* 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	25.6	42.5	39.9	34.9	34.4	29.4	16	32
AS23□1FM-N02-03S	5/32"			10.4				30.6							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	

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