

Speed Controller for Low Speed Operation with One-touch Fitting Elbow Type/Universal Type (Resin Body) **Series AS-FM**

RoHS

Ideal for low speed control at 10 to 50 mm/sec

Since the effective area of the controlled flow is approximately 1/10 that of the standard model, it is ideal for speed control of low speed cylinders at 10 to 50 mm/sec.

The dual type is particularly suitable for low speed control of small bore cylinders.

Low speed operating stroke and high speed return stroke drive

Effective area of free flow is the same as that of standard model.

10 needle turns (20 turns for M5 type)

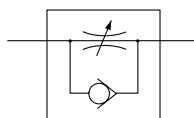
Speed control is easy, and uniform speed control is possible.

Applicable tubing: Inch sizes standardized

Inch sizes are now available for all models.



JIS Symbol



Flow Direction Symbols on Body

	Meter-out type	Meter-in type
Indication symbol		
Symbol		



Made to Order
(Refer to page 495 for details.)

Model

Elbow type	Universal type	Port size	Applicable tubing O.D.										
			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 x 0.8	●	●	●								
AS22□1FM-01	AS23□1FM-01	R 1/8	●	●	●	●							
AS22□1FM-02	AS23□1FM-02	R 1/4		●	●	●	●						
AS12□1FM-U10/32	AS13□1FM-U10/32	10-32 UNF						●	●	●	●		
AS22□1FM-N01	AS23□1FM-N01	NPT 1/8						●	●	●	●	●	
AS22□1FM-N02	AS23□1FM-N02	NPT 1/4							●	●	●	●	●

Specifications

Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure	1.0 MPa
Mini. operating pressure	0.1 MPa
Ambient and fluid temperature	-5 to 60°C (No freezing)
Number of needle rotations	10 turns (20 turns ⁽¹⁾)
Applicable tubing material ⁽²⁾	Nylon, Soft nylon, Polyurethane
Option ⁽³⁾	With seal, Round lock nut

Note 1) In the case of AS12□1FM and AS13□1FM types

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

(Refer to pages 371 and 372 for details.)

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

Note 4) Brass parts are all 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 plated.

Flow Rate and Effective Area

Model		AS12□1FM AS13□1FM	AS22□1FM-□01 AS23□1FM-□01		AS22□1FM-□02 AS23□1FM-□02		
Tubing 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	Air flow (ℓ/min(ANR))	7	12		38		
	Effective area (mm²)	0.1	0.2		0.6		
Free flow	Flow rate (ℓ/min(ANR))	100	180	230	260	390	460
	Effective area (mm²)	1.5	2.7	3.5	4	6	7

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

⚠ Caution

Be sure to read before handling.
Refer to front matters 58 and 59 for
Safety Instructions and pages 412 to 414
for Flow Control Equipment Precautions.

Speed Controller for Low Speed Operation with One-touch Fitting Elbow Type/Universal Type (Resin Body) **Series AS-FM**

How to Order

AS 2 2 0 1 FM - 01 - 06

Body size

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

Type

2	Elbow
3	Universal

Control type

0	Meter-out
1	Meter-in

With One-touch fitting

For low speed control

Thread type

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

Port size

M5	M5 x 0.8
U10/32	10-32 UNF
01	1/8
02	1/4

Option

Nil	None
S	With seal

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

Applicable tubing O.D. (Note)

Metric size	Inch size
23	01
04	03
06	05
08	07
10	09
	11

Note) For applicable tubing O.D. selection, refer to the Model on page 494.

* Use 1/8" tube.

Lock nut option

Nil	Hexagon lock nut
J	Round lock nut

Made to Order
Refer to the below for details.

Made to Order

Lubricant: Vaseline

X12

Ex.) AS1201FM-M5-23-X12

Grease-free (Seal: Fluorine coated) +
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.

Throttle Valve (Without Check Valve)

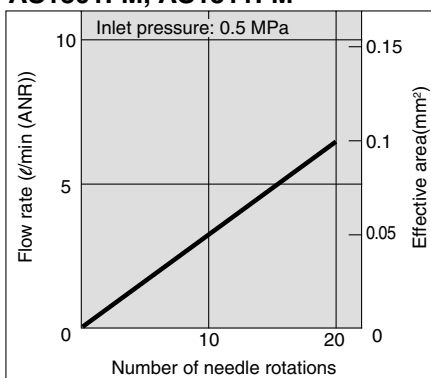
X214

Ex.) AS1201FM-M5-23-X214

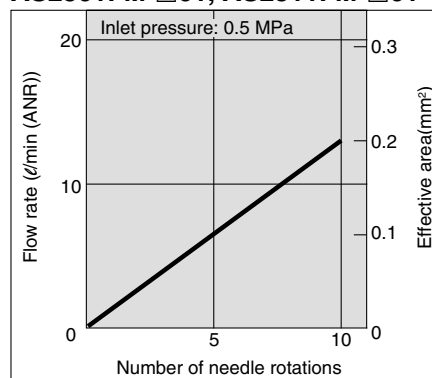
Note) Throttle valve is only compatible with the part no. of the meter-out type.

Needle Valve/Flow Characteristics

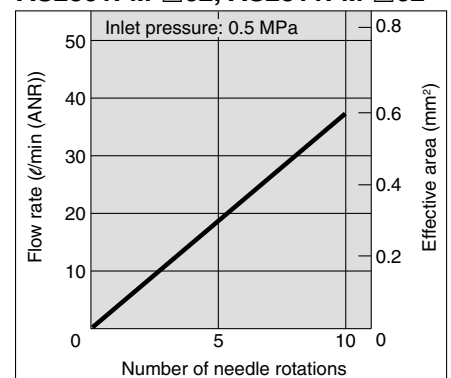
AS1201FM, AS1211FM
AS1301FM, AS1311FM



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



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

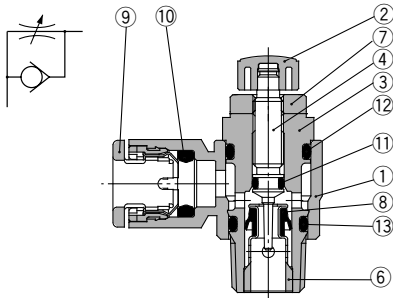


Series AS-FM

Construction: Elbow Type

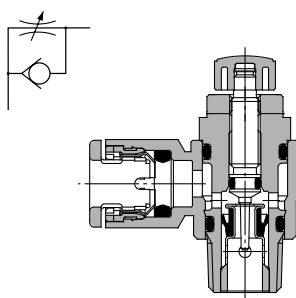
Meter-out type

JIS Symbol

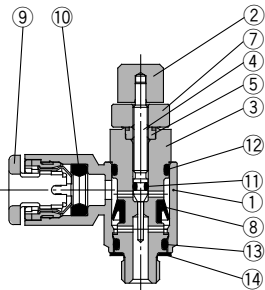


Meter-in type

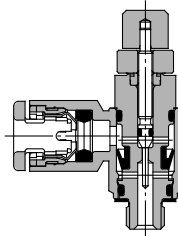
JIS Symbol



M5 type U10/32 type



M5 type U10/32 type



Component Parts

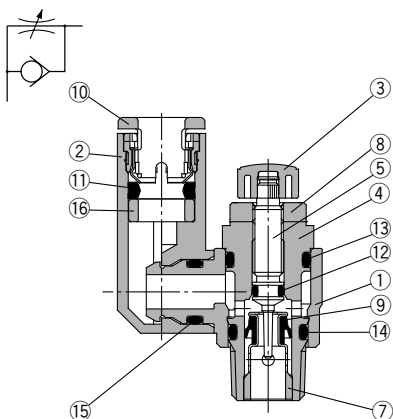
No.	Description	Material	Note
1	Body A	PBT	White
2	Handle	PBT	Black ⁽¹⁾
3	Body B	Brass	Electroless nickel plated
4	Needle	Brass	Electroless nickel plated
5	Needle guide	Brass	Electroless nickel plated, M5 type only
6	Seat ring	Brass	Electroless nickel plated
7	Lock nut	Steel	Zinc chromated ⁽²⁾
8	U seal	HNBR	
9	Cassette	—	
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) M5 and U10/32 types are black zinc chromate plated.
Note 2) Meter-in type is black zinc chromate plated.

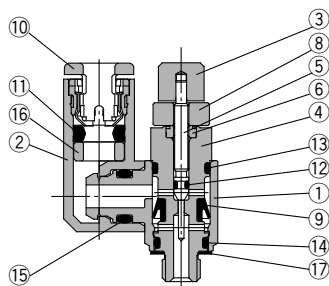
Construction: Universal Type

Meter-out type

JIS Symbol

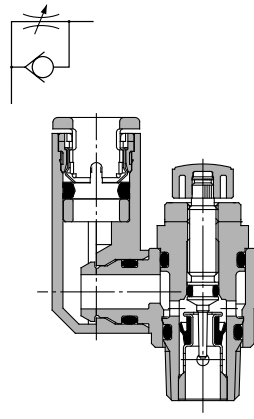


M5 type U10/32 type

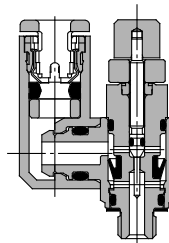


Meter-in type

JIS Symbol



M5 type U10/32 type



Component Parts

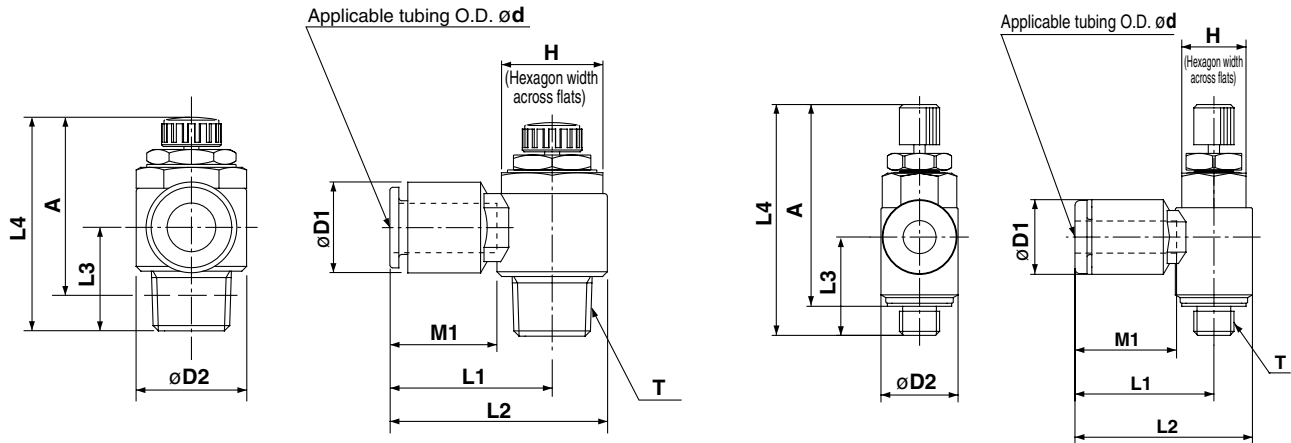
No.	Description	Material	Note
1	Body A	PBT	White
2	Elbow body	PBT	White
3	Handle	PBT	Black ⁽¹⁾
4	Body B	Brass	Electroless nickel plated
5	Needle	Brass	Electroless nickel plated
6	Needle guide	Brass	Electroless nickel plated, M5 type only
7	Seat ring	Brass	Electroless nickel plated
8	Lock nut	Steel	Zinc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

Note 1) M5 and U10/32 types are black zinc chromate plated.
Note 2) Meter-in type is black zinc chromate plated.

Speed Controller for Low Speed Operation with One-touch Fitting Elbow Type/Universal Type (Resin Body) **Series AS-FM**

Dimensions: Elbow Type

M5 type
U10/32 type



Metric Size

Model	d	T	H	D1	D2	L1	L2	L3	L4 (1) (2)		A (1) (2)		M1	Mass (g)
									Max.	Min.	Max.	Min.		
AS12□1FM-M5-23	3.2	M5 x 0.8	8	8.4	9.6	17.3	22.1	12.3	33.8	28.8	30.1	25.1	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	R 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□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	R 1/4	17	15.2	18.5	25.3	32.4	17.7	39.9	34.9	34.4	29.4	16	32
AS22□1FM-02-04	4			10.4		25.2	34.4						17	
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		35.3	44.5	19.5					21.0	36

Note 1) Reference dimensions

Note 2) Reference dimensions of M5 and R threads after installation.

Inch Size

Model	d	T	H	D1	D2	L1	L2	L3	L4 (1)		A (2)		M1	Mass (g)
									Max.	Min.	Max.	Min.		
AS12□1FM-U10/32-01	1/8"	10-32 UNF	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		17.3	22.1						16.5	
AS12□1FM-U10/32-05	3/16"			11.4		21.3	26.1						13.5	
AS12□1FM-U10/32-07	1/4"	NPT 1/8	12.7	12	14.2	18.3	23.1	13.4	35.2	30.2	32.1	27.1	12.7	16
AS22□1FM-N01-01	1/8"			9.3		20.4	27.5						16.5	
AS22□1FM-N01-03	5/32"			13.2		24	31.1						17	
AS22□1FM-N01-05	3/16"			13.2		23.9	31						18.5	
AS22□1FM-N01-07	1/4"	NPT 1/4	17.5	15.2	18.5	25.3	32.4	17.7	39.9	34.9	34.4	29.4	16	32
AS22□1FM-N01-09	5/16"			10.4		25.2	34.4						16.5	
AS22□1FM-N02-03	5/32"			12.8		25.2	34.5						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	17.7					21	36
AS22□1FM-N02-09	5/16"			18.5		35.3	44.5						21	
AS22□1FM-N02-11	3/8"			18.5		35.3	44.5						21	

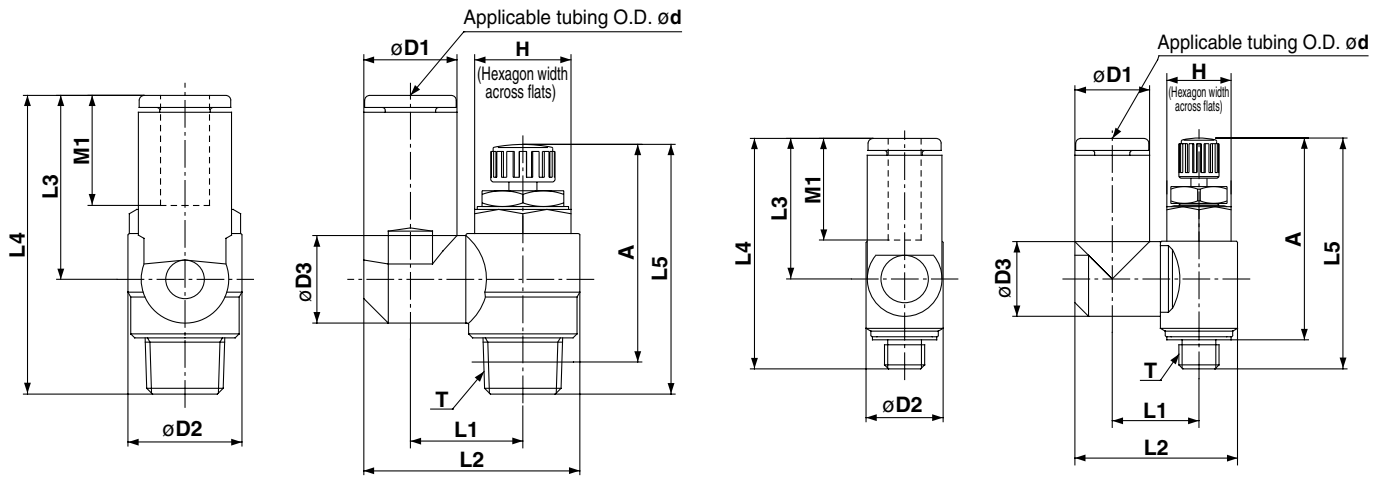
Note 1) Reference dimensions

Note 2) Reference dimensions of 10-32 UNF and NPT threads after installation.

Series AS-FM

Dimensions: Universal Type

M5 type



Metric Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4	L5 (1)		A (2)		M1	Mass (g)
											Max.	Min.	Max.	Min.		
AS13□1FM-M5-23	3.2	M5 x 0.8	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	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	R 1/8	12	8.4	14.2	9.3	13.1	24.4	17.5	30.9	35.2	30.2	32.1	27.1	12.7	17
AS23□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	R 1/4	17	15.2	18.5	12.9	16.2	30.9	28.2	40.8	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				20.2							21	40

Note 1) Reference dimensions

Note 2) Reference dimensions of M5 and R threads after installation.

Inch Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4	L5 (1)		A (2)		M1	Mass (g)
											Max.	Min.	Max.	Min.		
AS13□1FM-U10/32-01	1/8"	10-32 UNF	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"	NPT 1/8	12.7	12	14.2	9.3	13.1	21.6	17.5	30.9	35.2	30.2	32.1	27.1	12.7	17
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"	NPT 1/4	17.3	11.4	18.5	10.9	16.2	26.8	23.9	37.3	39.9	34.9	34.4	29.4	16	32
AS23□1FM-N01-07S	1/4"			13.2				29.9							17	
AS23□1FM-N01-09S	5/16"			15.2				30.9							18.5	
AS23□1FM-N02-03S	5/32"	NPT 1/4	17.3	10.4	18.5	10.9	16.2	30.6	21.9	39.6	39.9	34.9	34.4	29.4	16	32
AS23□1FM-N02-05S	3/16"			11.4				31.1							16.5	
AS23□1FM-N02-07S	1/4"			13.2				34.2							17	
AS23□1FM-N02-09S	5/16"	NPT 1/4	17.3	15.2	18.5	12.9	18.3	35.2	28.2	45.1	39.9	34.9	34.4	29.4	18.5	39
AS23□1FM-N02-11S	3/8"			17.9				20.2							21	40

Note 1) Reference dimensions

Note 2) Reference dimensions of 10-32 UNF and NPT threads after installation.

Speed Controller for Low Speed Operation Standard Type (Metal Body)

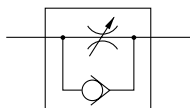
Series AS-M

RoHS

Model/Specifications



JIS Symbol



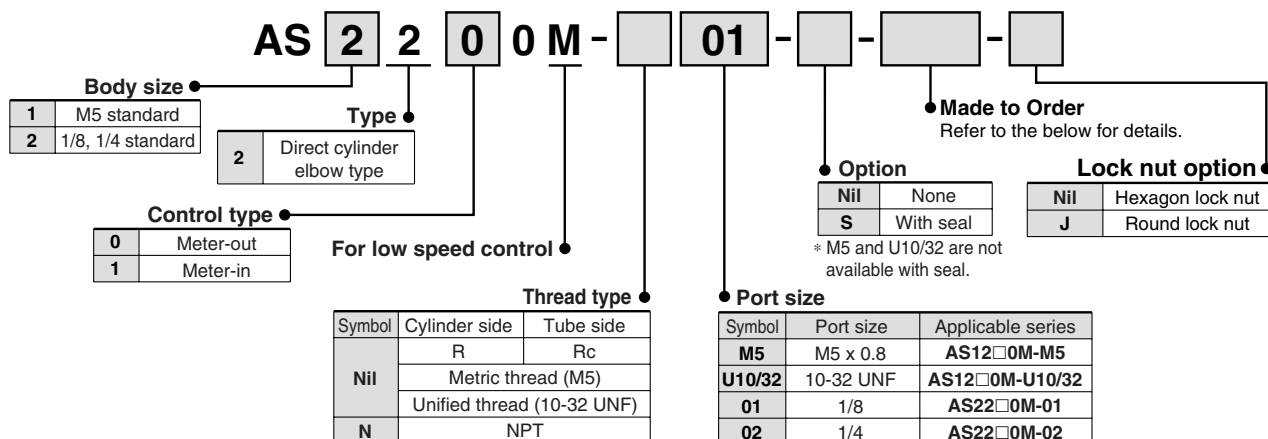
Model		AS12□0M		AS22□0M-□01		AS22□0M-□02	
Port size	Cylinder side	M5 x 0.8	10-32 UNF	R 1/8	NPT 1/8	R 1/4	NPT 1/4
	Tubing side			Rc 1/8		Rc 1/4	
Applicable cylinder bore size (mm)		6, 10, 15, 20, 25		20, 25, 32, 40			
Fluid		Air					
Proof pressure		1.5 MPa					
Max. operating pressure		1.0 MPa					
Min. operating pressure		0.1 MPa					
Ambient and fluid temperature		-5 to 60°C (No freezing)					
Number of needle rotation		20 turns		10 turns			
Option		-		With seal			
Mass (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) Flow rate values are measured at 0.5 MPa and 20°C.

Note 2) Meter-out and meter-in types can be visually differentiated by the lock nut. Meter-out type is electroless nickel plated, while meter-in type is black zinc chromate plated.

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

How to Order



Made to Order



Lubricant: Vaseline

X12

Ex.) AS2200M-01-X12

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

X21

Ex.) AS2200M-01-X21

Note 1) Not particle-free

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

Throttle Valve (Without Check Valve) X214

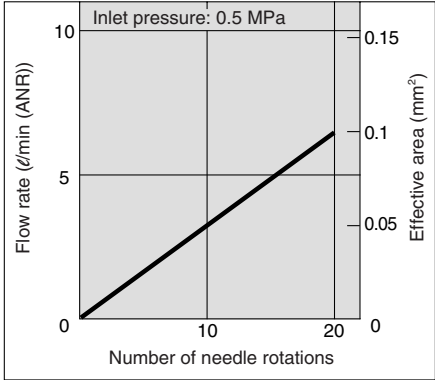
Ex.) AS2200M-01-X214

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

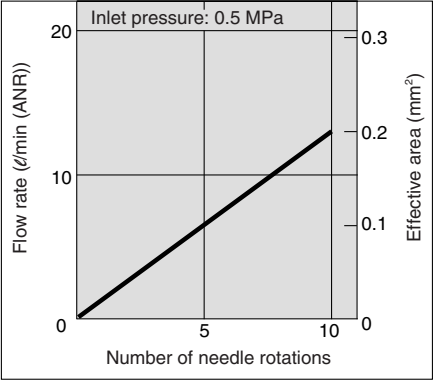
Series AS-M

Needle Valve/Flow Characteristics

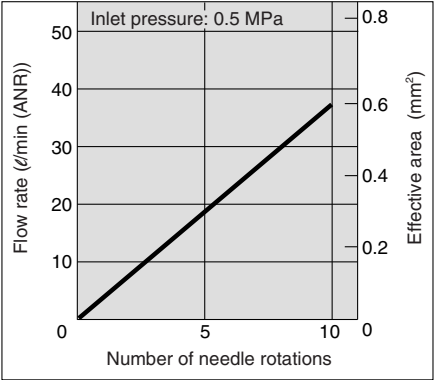
AS12□0M



AS22□0M-□01



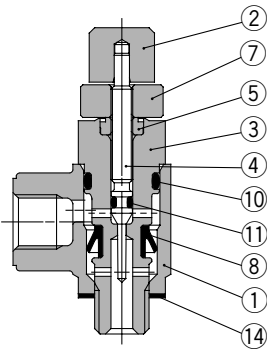
AS22□0M-□02



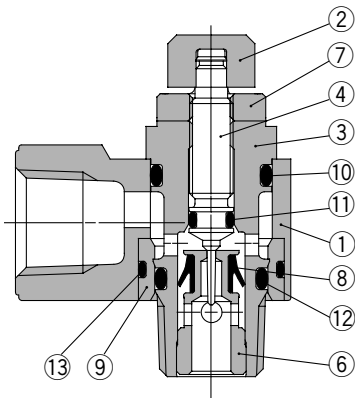
Construction

Meter-out type

AS1200M

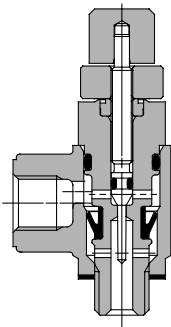


AS2200M

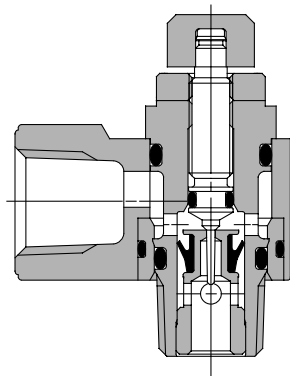


Meter-in type

AS1210M



AS2210M



Component Parts

No.	Description	Material	Note
1	Body A	Zinc alloy	Chromate treated
2	Handle	Brass	Black zinc chromate 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	Electroless nickel plated
7	Lock nut	Steel	Zinc chromated ⁽¹⁾
8	U seal	HNBR	
9	Bushing	PBT	
10	O-ring	NBR	
11	O-ring	NBR	
12	O-ring	NBR	
13	O-ring	NBR	
14	Gasket	NBR/Stainless steel	

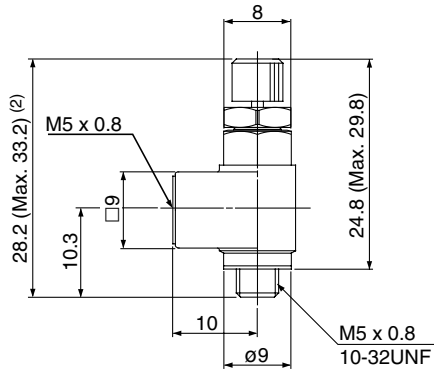
Note 1) Meter-in type is black zinc chromate plated.

⚠ Caution

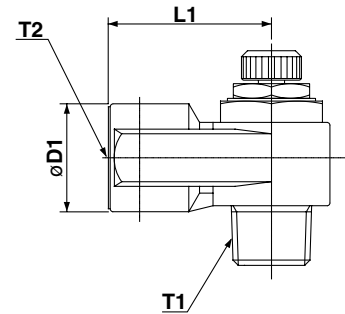
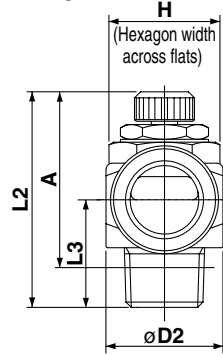
Be sure to read before handling.
Refer to front matters 58 and 59 for
Safety Instructions and pages 412 to 414
for Flow Control Equipment Precautions.

Dimensions

AS12□0M



AS22□0M-□⁰¹₀₂



Dimensions

Model	T1	T2	H	L1	L2 ⁽¹⁾		L3	D1	D2	A ⁽²⁾	
					Max.	Min.				Max.	Min.
AS12□0M-M5	M5 x 0.8		8	10	33.2	28.2	10.3	9	9	29.8	24.8
AS12□0M-U10/32	10-32 UNF										
AS22□0M-01	R 1/8	Rc 1/8	12	18	35.5	30.5	13.2	14.3	14.6	32.4	27.4
AS22□0M-N01	NPT 1/8		12.7								
AS22□0M-02	R 1/4	Rc1/4	17	27.2	39.4	35.4	17.5	18	19.5	34.9	29.9
AS22□0M-N02	NPT 1/4		17.5								

Note 1) Reference dimensions

Note 2) Dimensions of R and NPT threads after installation.

AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

ASR
ASQ

KE

TMH

Speed Controller for Low Speed Operation with One-touch Fitting In-line Type

Series AS-FM



Model

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

Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure	1 MPa
Min. operating pressure	0.1 MPa
Ambient and fluid temperature	−5 to 60°C (No freezing)
Number of needle rotations	10 turns (20 turns ⁽¹⁾)
Applicable tubing material ⁽²⁾	Nylon, Soft nylon, Polyurethane

Note 1) In the case of AS1001FM type

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

(Refer to pages 371 and 372 for details.)

Note 3) Brass parts are all electroless nickel plated. The handle of the M5 type is black zinc chromate plated.

Flow Rate and Effective Area

Flow Direction Symbols on Body

Indication symbol		Symbol	
-------------------	--	--------	--

Model		AS1001FM	AS2001FM		AS2051FM	
Tubing 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) Flow rate values are measured at 0.5 MPa and 20°C.

⚠ Caution

Be sure to read before handling.
Refer to front matters 58 and 59 for
Safety Instructions and pages 412 to 414
for Flow Control Equipment Precautions.



Made to Order
(Refer to page 503 for details.)

How to Order

AS 200 1 F M - 06 - [] - []

Body size

100	M5 standard
200	1/8 standard
205	1/4 standard

With one-touch fitting

For low speed control

Lock nut option

Nil	Hexagon lock nut
J	Round lock nut

Made to Order
Refer to the below for details.

Applicable tubing O.D. (Note)

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"
		09	ø5/16"

Note) For applicable tubing O.D. selection, refer to the Model on page 502.
* Use ø1/8" tube.

Made to Order



Lubricant: Vaseline

X12

Ex.) AS2001FM-04-X12

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

X21

Ex.) AS2001FM-04-X21

Note 1) Not particle-free

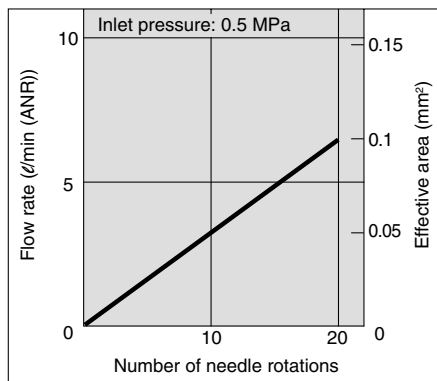
Throttle Valve (Without Check Valve)

X214

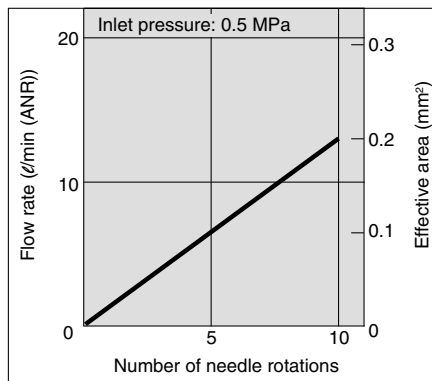
Ex.) AS2001FM-04-X214

Needle Valve/Flow Characteristics

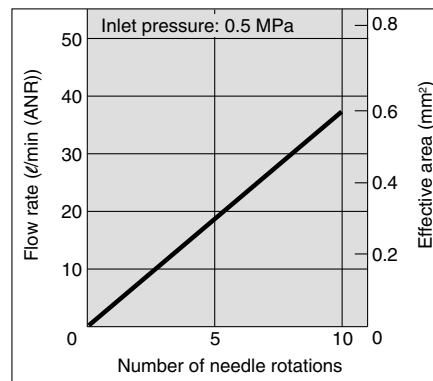
AS1001FM



AS2001FM

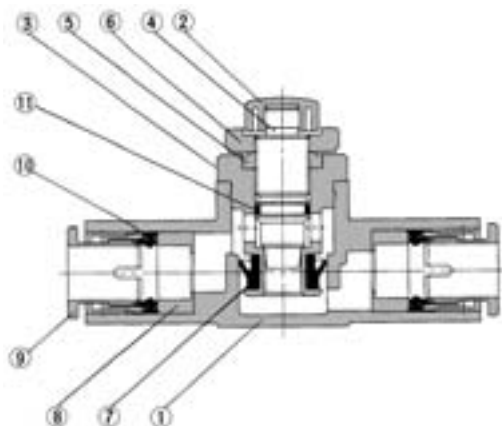


AS2051FM



Series AS-FM

Construction

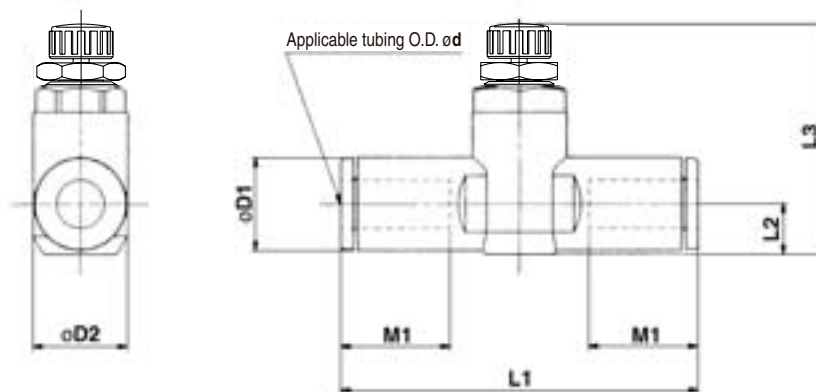


Component Parts

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

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

Dimensions



Metric Size

Model	d	D1	D2	L1	L2	L3		M1	Mass (g)
						Max.	Min.		
AS1001FM-23	3.2	8.4	10.5	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	12.3	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	15.5	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 Size

Model	d	D1	D2	L1	L2	L3 ⁽¹⁾		M1	Mass (g)
						Max.	Min.		
AS1001FM-01	1/8"	8.4	10.5	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	12.3	40.7	5.2	32.6	29.6	12.7	12
AS2001FM-03	5/32"	9.3		40.7	5.2	32.6	29.6	12.7	12
AS2001FM-05	3/16"	11.4	15.5	50	6.2	33.6	28.6	16.5	18
AS2001FM-07	1/4"	13.2		52.2	7.1	34.5	29.5	17	21
AS2051FM-05	3/16"	11.4		52.2	6.2	34.6	29.6	16.5	24
AS2051FM-07	1/4"	13.2	15.5	54.4	7.1	35.5	30.5	17	26
AS2051FM-09	5/16"	15.2		59.8	8.1	36.5	31.5	18	31

Note 1) Reference dimensions

Dual Speed Controller for Low Speed Operation with One-touch Fitting

Series ASD-FM

RoHS

Two flow control valves and check valves integrated.

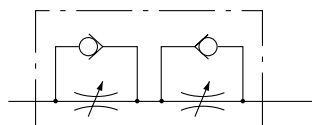
Prevention of a stick-slip phenomenon, and speed control of a single acting cylinder.

Stable speed control is achievable even with load fluctuations.

Low speed control for small bore cylinders.



JIS Symbol



Flow Direction Symbols on Body

	Meter-out type	Meter-in type
Indication symbol		
Symbol		

Model

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-O1		●	●							
ASD430FM-O2		●	●	●						
ASD230FM-U10/32					●	●	●	●		
ASD330FM-N01							●	●	●	
ASD430FM-N02								●	●	●

Specifications

Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure	1 MPa
Min. operating pressure	0.1 MPa
Ambient and fluid temperature	-5 to 60°C (No freezing)
Number of needle rotations	10 turns (20 turns ⁽¹⁾)
Applicable tubing material ⁽²⁾	Nylon, Soft nylon, Polyurethane

Note 1) In the case of ASD230FM type

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

(Refer to pages 371 to 372 for details.)

Note 3) Brass parts are all 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 plated.

Flow Rate and Effective Area

Model		ASD230FM	ASD330FM	ASD430FM	
Tubing 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 (Free flow)	Flow rate (ℓ/min(ANR))	7	12	38	
	Effective area (mm ²)	0.1	0.2	0.6	

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



Made to Order

(Refer to page 506 for details.)

How to Order

ASD330FM-01-06S- -

Body size

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

Universal

With one-touch fitting

For low speed control

Thread type

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

Port size

M5	M5 x 0.8
U10/32	10-32 UNF
01	1/8
02	1/4

Lock nut option

Nil	Hexagon lock nut
J	Round lock nut

Made to Order

Refer to the below for details.

With seal

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

Applicable tubing O.D. Note)

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"

Note) For applicable tubing O.D. selection, refer to the Model on page 505.

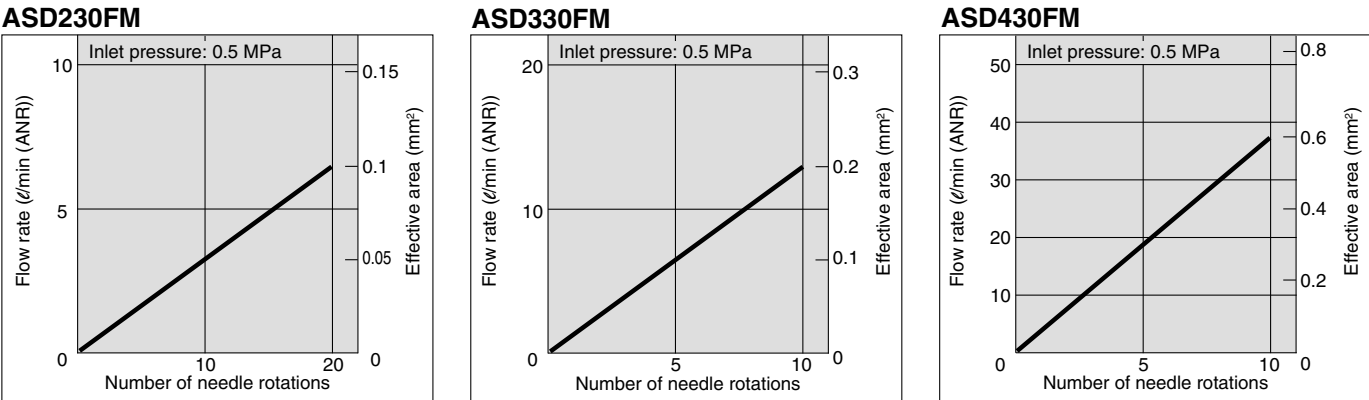
Made to Order



Lubricant: Vaseline X12

Ex.) ASD230FM-M5-X12

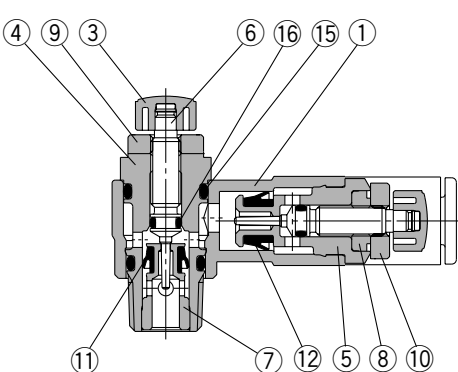
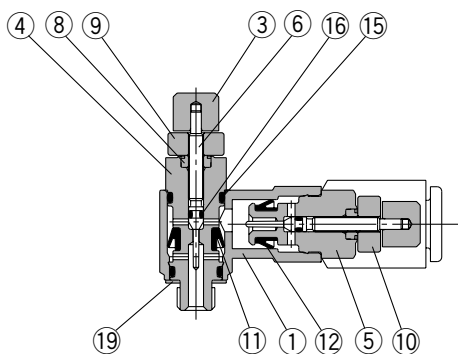
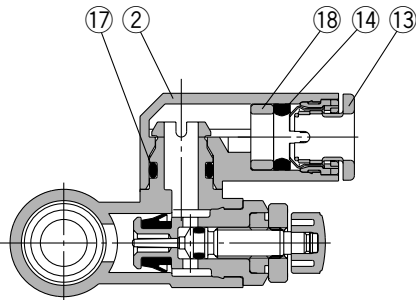
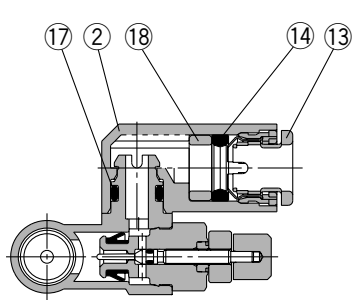
Needle Valve/Flow Characteristics



Construction

ASD230FM

ASD330FM/430FM



Component Parts

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

Component Parts

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

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

AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

ASR

ASQ

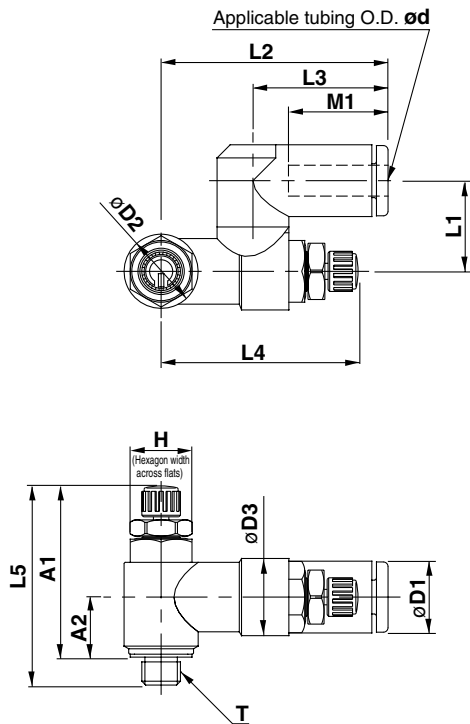
KE

TMH

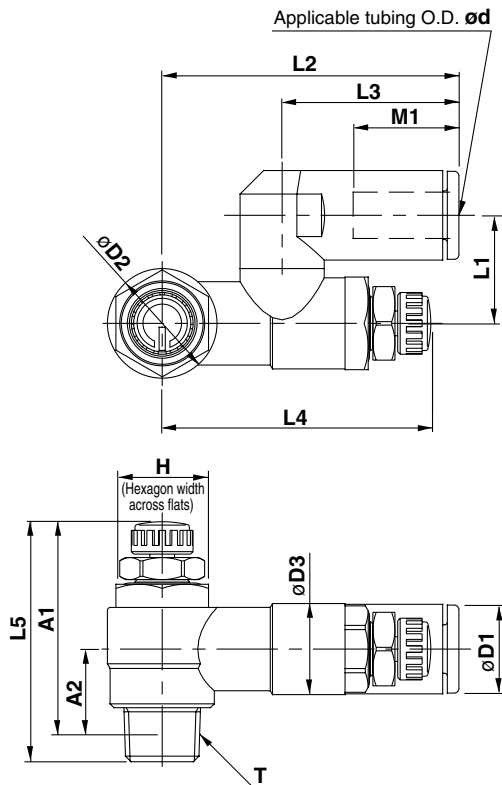
Series ASD-FM

Dimensions: Metric Size

ASD230FM



ASD330FM/430FM



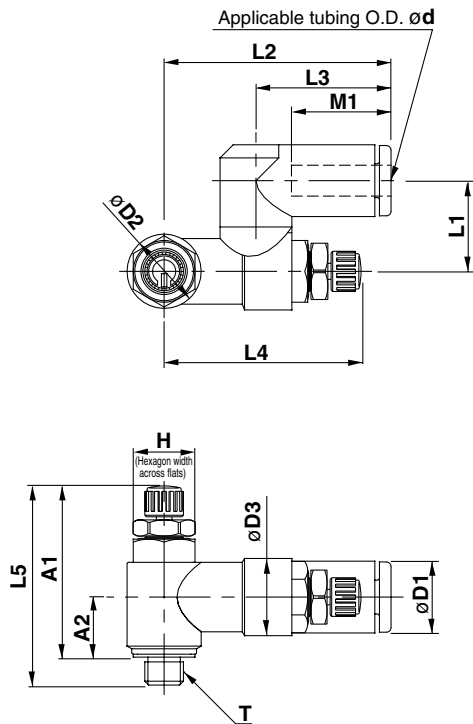
Metric Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4		L5 ⁽¹⁾		A1 ⁽²⁾		A2 ⁽²⁾	M1	Mass (g)
										Max.	Min.	Max.	Min.	Max.	Min.			
ASD230FM-M5-04	4	M5 x 0.8	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	R 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
ASD330FM-01-08S	8			15.2			15.8	44.8	28.2	38.9	33.9						18.5	31
ASD430FM-02-06S	6	R 1/4	17	12.8	18.5	15	18	43.5	25.2	41.8	36.8	39.9	34.9	34.4	29.4	11	17	53
ASD430FM-02-08S	8			15.2				46.5	28.2								18.5	55
ASD430FM-02-10S	10			18.5			19.7	49.3	31								21	58

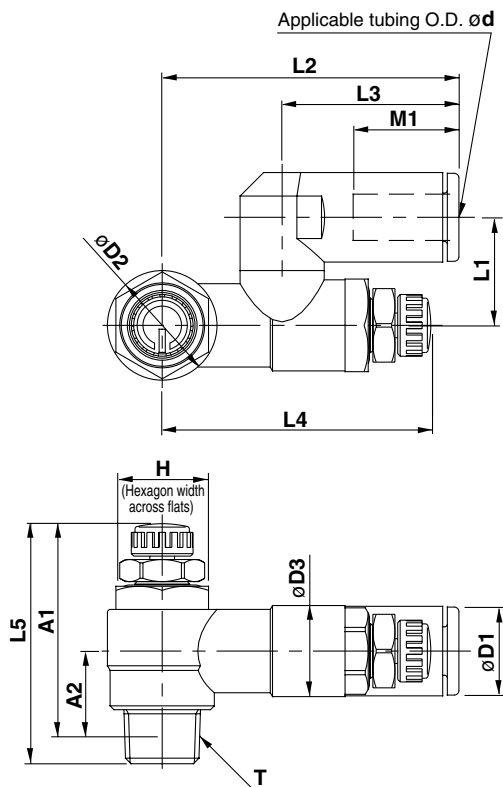
Note 1) Reference dimensions
Note 2) Reference dimensions of M5 x 0.8, R threads after installation.

Dimensions: Inch Size

ASD230FM



ASD330FM/430FM



Inch Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4		L5 ⁽¹⁾		A1 ⁽²⁾		A2 ⁽²⁾	M1	Mass (g)
										Max.	Min.	Max.	Min.	Max.	Min.			
ASD230FM-U10/32-01	1/8"	10-32 UNF	8	8.4	9.6	10	11.7	29.4	17.5	34.6	29.6	33.8	28.8	30.1	25.1	7.8	12.9	12
ASD230FM-U10/32-03	5/32"			9.3													13	
ASD230FM-U10/32-05	3/16"			11.4				16.5	14									
ASD330FM-U10/32-07	1/4"			12				13.5	15									
ASD330FM-N01-05S	3/16"	NPT 1/8	12.7	11.4	14.2	11.8	14	39.5	23.9	39.6	34.6	35.2	30.2	32	27	10.6	16.5	30
ASD330FM-N01-07S	1/4"			13.2			15.8	42.2	25.6	38.9	33.9						17	31
ASD330FM-N01-09S	5/16"			15.2			18	44.8	28.2	41.7	36.7	39.9	34.9	34.6	29.6		11	
ASD430FM-N02-07S	1/4"	NPT 1/4	17.5	13.2	18.5	15	18	43.9	25.6							17		55
ASD430FM-N02-09S	5/16"			15.2			19.7	46.5	28.2							18.5		
ASD430FM-N02-11S	3/8"			18.5				49.3	32.6							21		62

Note 1) Reference dimensions
Note 2) Reference dimensions of 10-32UNF and NPT threads after installation.

- AS
- ASP
- ASN
- AQ
- ASV
- AK
- VCHC
- ASS
- ASR
- ASQ
- KE
- TMH



Series ASD-FM Specific Product Precautions

Be sure to read before handling. Refer to front matters 58 and 59 for Safety Instructions and pages 412 to 414 for Flow Control Equipment Precautions.

Design/Selection

⚠ Caution

1. Single acting cylinder

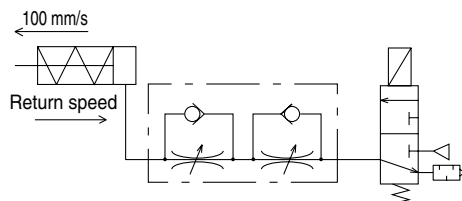
When controlling a single acting cylinder, the cylinder's return speed will differ depending on the operating conditions. Operate after confirming the maximum return speeds shown in the table below.

Speed Controller	Cylinder	Solenoid valve	Tubing	Silencer	Max. return speed (mm/s)		
					10	20	30
ASD230FM	CJ2	VJ500	TU0604 1 m	AN110-01	⌀6		
					⌀10		
					⌀16		
ASD330FM	CM2	VZ500	TU0604 1 m	AN110-01	⌀20		
					⌀25		
					⌀32		

<Operating conditions>

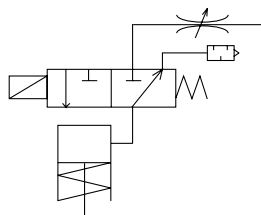
- Cylinder extension speed: 100 mm/s
- Meter-out needle fully open

* Values are measured at 0.5 MPa and 20°C.



(Reference) Recommended circuit for high return speed

When low extension speed and high return speed are desired, the following circuit using 3-port is recommended.



Note) Use Series AS-FM with -X214 for the throttle valve.