

Speed Controller with One-touch Fitting Elbow Type/Universal Type

Series AS

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 type permits 360° piping swivel.

ø2 size added to applicable tubing sizes

- **Metric size** (Release button: White color)
ø2, ø3.2, ø4, ø6, ø8, ø10, ø12
- **Inch size** (Release button: Orange color)
ø1/8", ø5/32", ø3/16", ø1/4", ø5/16", ø3/8", ø1/2"

Maximum operating pressure 1 MPa max.

Applicable tubing materials

Nylon, soft nylon, and polyurethane tubing are applicable.

Retainer prevents accidental loss of needle.

Option

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 speeds.

Model

Elbow type	Universal type	Port size	Applicable tubing O.D.														Applicable cylinder bore size (mm)	
			Metric size							Inch size								
			2	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 x 0.5															2.5, 4, 6	
AS12□1F-M5	AS13□1F-M5	M5 x 0.8															6, 10, 16, 20 ⁽¹⁾	
AS12□1F-U10/32	AS13□1F-U10/32	10-32 UNF															6, 10, 16, 20	
AS22□1F-01	AS23□1F-01	R 1/8							⁽²⁾								20, 25, 32	
AS22□1F-02	AS23□1F-02	R 1/4															20, 25, 32, 40	
AS32□1F-02	AS33□1F-02	R 1/4															40, 50, 63	
AS32□1F-03	AS33□1F-03	R 3/8															40, 50, 63	
AS42□1F-04	AS43□1F-04	R 1/2																63, 80, 100

Note 1) AS12□1F-M5-02 applicable cylinder bore sizes are 2.5, 4, 6.

Note 2) Elbow type only

Note 3) Meter-out and meter-in types can be visually differentiated 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 4) ● Marking is electroless nickel plated, provided as standard. (N specifications)

Specifications

Fluid	Air
Proof pressure	1.5 MPa (1.05 MPa ⁽¹⁾)
Max. operating pressure	1 MPa (0.7 MPa ⁽¹⁾)
Mini. operating pressure	0.1 MPa
Ambient and fluid temperature	-5 to 60°C (No freezing)
Number of needle rotations	10 turns (8 turns ⁽²⁾)
Applicable tubing material ⁽³⁾	Nylon, Soft nylon, Polyurethane ⁽⁴⁾
Option	With seal, Hexagon lock nut ⁽⁵⁾ , Electroless nickel plated ⁽⁶⁾

Note 1) In case of AS12□1F-M3-02, AS12□1F-M5-02

Note 2) In case of AS12□1F-M5 and AS12□1F-U10/32 types.

In case of AS13□1F-M5 and AS13□1F-U10/32
AS12□1F-M5-02: 10 turns.

Note 3) Use caution regarding the max. operating pressure when soft nylon or polyurethane tubing is used. (Refer to pages 371 and 372 for details.)

Note 4) In case of AS12□1F-M3-02 and AS12□1F-M5-02, polyurethane only.

Note 5) M3, M5, 10-32UNF type ports are not available with seals.

Note 6) Brass parts are all electroless nickel plated.

Flow Rate and Effective Area

Model		AS12□1F-M3 AS13□1F-M3 AS12□1F-M5-02	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				
Tubing O.D.	Metric size	ø2, 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", ø3/16" ø1/4", 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"	ø3/8"	ø1/2"
Controlled flow (Free flow)	Flow rate ℓ/min (ANR)	20	100	180	230	260	390	460	660	790	920	1580	1710
	Effective area (mm²)	0.3	1.5	2.7	3.5	4	6	7	10	12	14	24	26

Note 1) Flow rate values are measured at 0.5 MPa and 20°C.

Note 2) U10/32 has the same specification as M5.

Elbow type

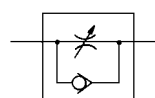
Applicable tubing O.D. ø2



Universal type



JIS Symbol



Flow Direction Symbols on Body

	Meter-out type	Meter-in type
Symbol		
JIS Symbol		

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 422 for details.)

How to Order

AS 2 2 0 1 F - 01 - 06 S -

Body size

1	M3, M5 standard
2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard

Type

2	Elbow
3	Universal

Control type

0	Meter-out
1	Meter-in

With One-touch fitting

Thread type

Nil	Metric thread (M3, M5)
	Unified thread (10-32 UNF)
N	R
	NPT

Option

Nil	None
S	With seal
K	Hexagonal lock nut
N	Electroless nickel plated

*1 If more than one option is required, write option part numbers in the order of "S", "K", "N".
*2 M3, M5, and U10/32 are not available with seals.

Applicable tubing O.D.

Metric size	Inch size
02	ø2
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"

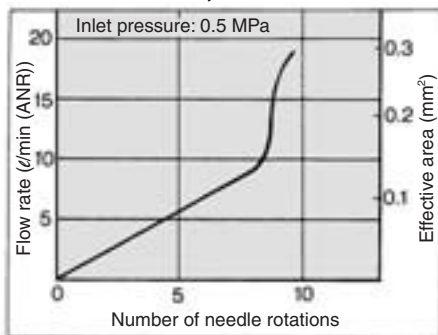
*Use ø1/8" tube.

Port size

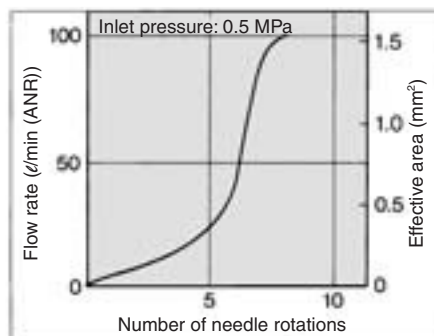
M3	M3 x 0.5
M5	M5 x 0.8
U10/32	10-32 UNF
01	1/8
02	1/4
03	3/8
04	1/2

Needle Valve/Flow Characteristics

AS1201F-M3, AS1211F-M3
AS1301F-M3, AS1311F-M3
AS1201F-M5-02, AS1211F-M5-02

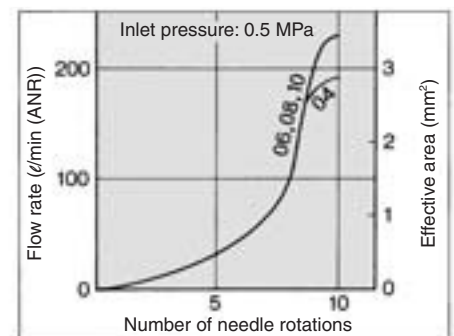


AS1201F-M5, AS1211F-M5
AS1301F-M5, AS1311F-M5

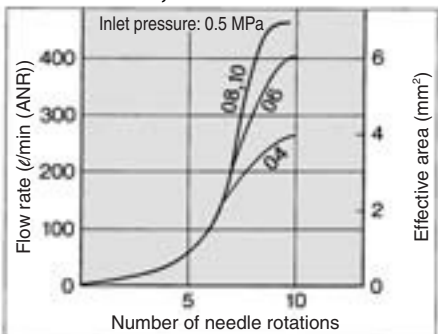


Note) "-U10/32" is the same as "M5".

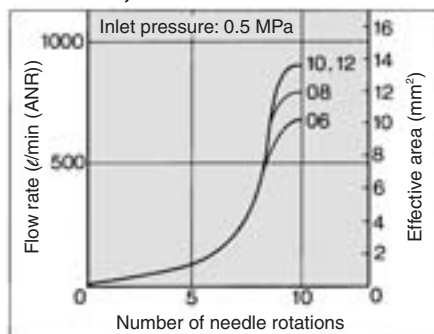
AS2201F-01, AS2211F-01
AS2301F-01, AS2311F-01



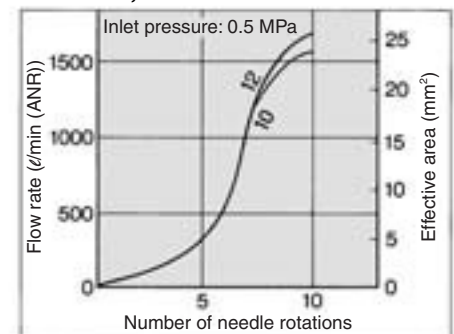
AS2201F-02, AS2211F-02
AS2301F-02, AS2311F-02



AS3201F, AS3211F
AS3301F, AS3311F



AS4201F, AS4211F
AS4301F, AS4311F

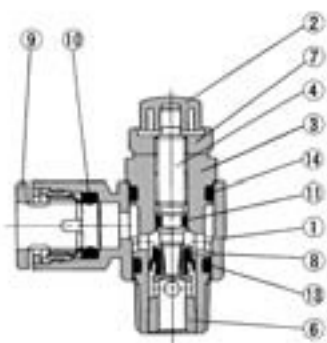


Series AS

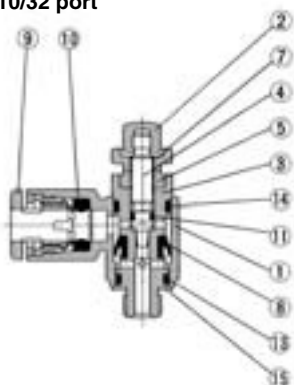
Construction

Elbow type

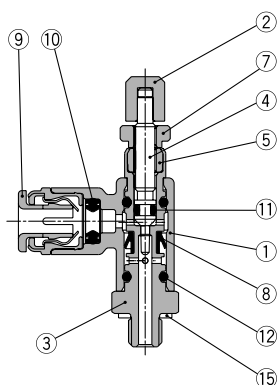
Meter-out type



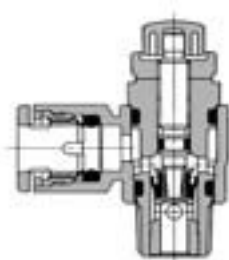
M3 port
M5 port
U10/32 port



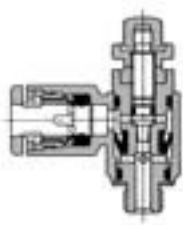
ø2 tubing type



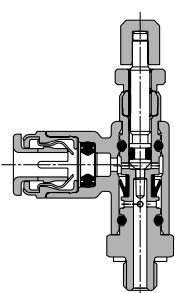
Meter-in type



M3 port
M5 port
U10/32 port

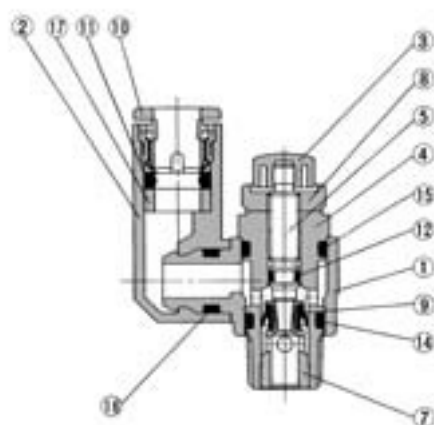


ø2 tubing type

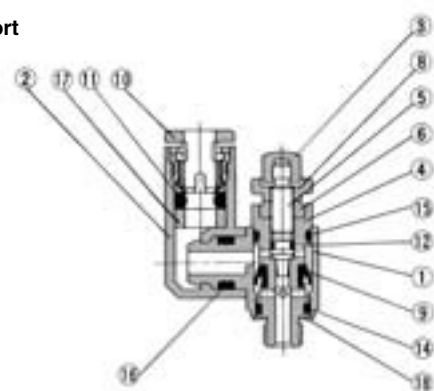


Universal type

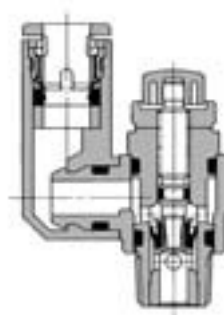
Meter-out type



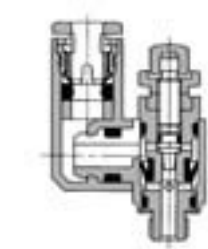
M3 port
M5 port
U10/32 port



Meter-in type



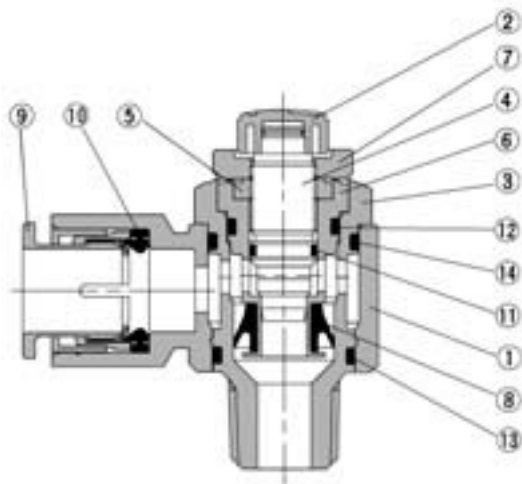
M3 port
M5 port
U10/32 port



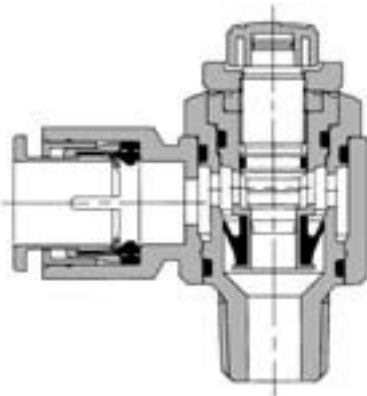
Construction

Elbow type

Meter-out type AS3201F-02



Meter-in type AS3211F-02



Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Handle	PBT ⁽¹⁾	
3	Body B	Brass ⁽²⁾	Electroless nickel plated
4	Needle	Brass	Electroless nickel plated
5	Needle guide	Brass	Electroless nickel plated
6	Seat ring	Brass	⁽³⁾
7	Lock nut	Brass ⁽⁴⁾	Electroless nickel plated ⁽⁵⁾
8	U-packing	HNBR	
9	Cassette	—	
10	Seal	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-M3-02 and AS12□1F-M5-02 are made of electroless nickel plated brass.

Note 2) AS12□1F-M3 is made of stainless steel.

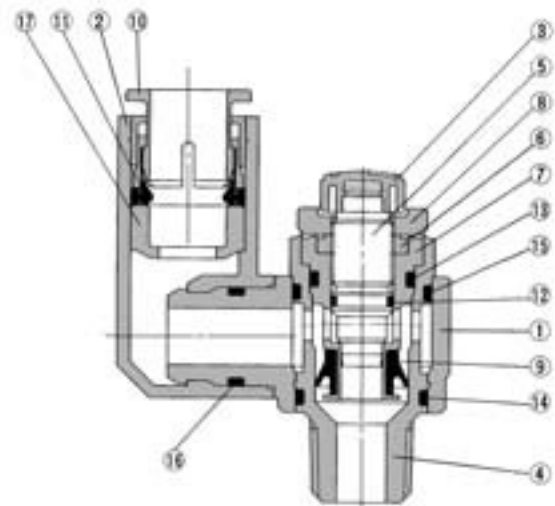
Note 3) AS22□1F, AS32□1F-02: Electroless nickel plated.

Note 4) AS2□□1F type is made of steel.

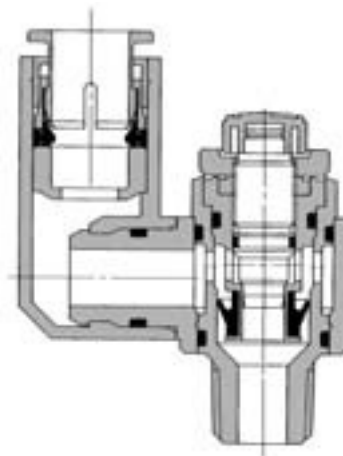
Note 5) Meter-in type is black zinc chromate plated.

Universal type

Meter-out type AS3301F-02



Meter-in type AS3311F-02



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	⁽²⁾
8	Lock nut	Brass ⁽³⁾	Electroless nickel plated ⁽⁴⁾
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	O-ring	NBR	
17	Spacer	—	
18	Gasket	NBR, Stainless steel	

Note 1) AS13□1F-M3 is made of stainless steel.

Note 2) AS23□1F, AS33□1F-02: Electroless nickel plated.

Note 3) AS2□□1F type is made of steel.

Note 4) Meter-in type is black zinc chromate plated.

AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

ASR

ASQ

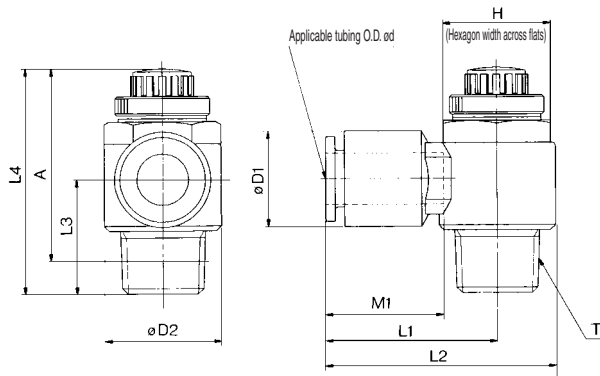
KE

TMH

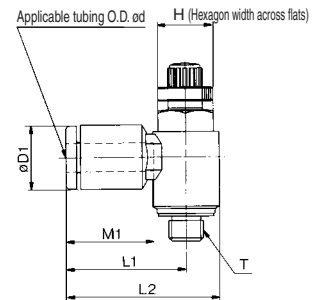
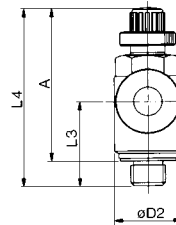
Series AS



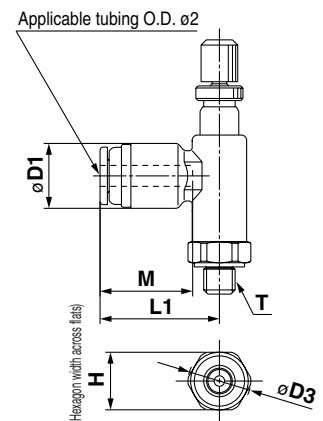
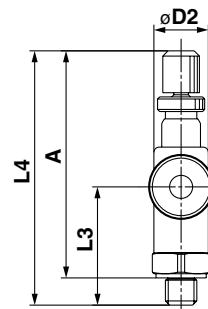
Elbow Type



M3 port
M5 port
U10/32 port



ø2 tubing type
AS12□1F-M3-02
AS12□1F-M5-02



Metric Size

Model	Applicable tubing O.D. ød	T	H ⁽¹⁾	D1	D2	D3	L1	L2	L3	L4 ⁽³⁾	A ⁽²⁾	M1	Mass (g)
AS12□1F-M3-02	2	M3 x 0.5	5.5	6	5.2	6	11.4	—	11	26.8	24.3	24.3	2.4
AS12□1F-M5-02	4	M5 x 0.8	7	8	7.5	8	11.5	—	11.5	27.3	24.8	24.8	3
AS12□1F-M3-23	3.2	M3 x 0.5	5.5	8.4	7.2	—	16.1	19.7	10.5	26.6	24.1	24	4
AS12□1F-M3-04	4	M3 x 0.5	5.5	9.3	—	—	16.1	19.7	10	26.6	24.1	24	4
AS12□1F-M5-23	3.2	M5 x 0.8	8	8.4	—	—	17.3	22.1	12.3	28.6	25.8	25	7
AS12□1F-U10/32-23	4	10-32UNF	8	9.3	9.6	—	17.3	22.1	12.3	28.6	25.8	25	7
AS12□1F-M5-04	4	M5 x 0.8	8	9.3	9.6	—	17.3	22.1	12.3	28.6	25.8	25	7
AS12□1F-U10/32-04	4	10-32UNF	8	9.3	9.6	—	17.3	22.1	12.3	28.6	25.8	25	7
AS12□1F-M5-06	6	M5 x 0.8	11.6	—	—	—	18.1	22.9	11.7	—	—	—	13.5
AS12□1F-U10/32-06	6	10-32UNF	11.6	—	—	—	18.1	22.9	11.7	—	—	—	13.5
AS22□1F-01-23	3.2	1/8	12	9.3	—	—	20.4	27.5	13.4	35.2	30.2	32.1	16
AS22□1F-01-04	4	1/8	12	9.3	—	—	20.4	27.5	13.4	35.2	30.2	32.1	17
AS22□1F-01-06	6	1/8	12	11.6	14.2	—	20.4	27.5	13.4	35.2	30.2	32.1	19
AS22□1F-01-08	8	1/8	12	15.2	—	—	25.3	32.4	—	—	—	—	21
AS22□1F-01-10	10	1/8	12	18.5	—	—	32.1	39.2	14.1	—	—	—	21
AS22□1F-02-04	4	1/4	17	10.4	—	—	25.2	34.4	17.7	39.9	34.9	34.4	32
AS22□1F-02-06	6	1/4	17	12.8	18.5	—	25.2	34.4	17.7	39.9	34.9	34.4	34
AS22□1F-02-08	8	1/4	17	15.2	—	—	27.2	36.4	—	—	—	—	36
AS22□1F-02-10	10	1/4	17	18.5	—	—	35.3	44.5	19.5	—	—	—	36
AS32□1F-02-06	6	3/8	23	12.8	—	—	27.8	39.3	—	—	—	—	60
AS32□1F-02-08	8	3/8	23	15.2	—	—	29.5	41	—	—	—	—	63
AS32□1F-02-10	10	3/8	23	18.5	—	—	31.8	43.3	—	—	—	—	67
AS32□1F-02-12	12	3/8	23	20.9	—	—	32.8	44.3	—	—	—	—	69
AS32□1F-03-06	6	3/8	23	12.8	—	—	27.8	39.3	—	—	—	—	55
AS32□1F-03-08	8	3/8	23	15.2	—	—	29.5	41	—	—	—	—	57
AS32□1F-03-10	10	3/8	23	18.5	—	—	31.8	43.3	—	—	—	—	59
AS32□1F-03-12	12	3/8	23	20.9	—	—	32.8	44.3	—	—	—	—	61
AS42□1F-04-10	10	1/2	24	18.5	28.6	—	33.6	47.9	24.5	56.7	49.2	49.6	100
AS42□1F-04-12	12	1/2	24	20.9	—	—	34.6	48.9	24.5	56.7	49.2	49.6	101

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

Note 2) Reference thread dimensions after installation.

Note 3) Reference dimensions

Inch Size

Model	Applicable tubing O.D. ød	T	H ⁽¹⁾	D1	D2	L1	L2	L3	L4 ⁽³⁾		A ⁽²⁾		M1	Mass (g)
									Max.	Min.	Max.	Min.		
AS12□1F-M3-01	1/8"	M3 x 0.5	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 x 0.8	8	8.4	9.6	17.3	22.1	12.3	28.6	25.8	25	22.2	12.7	7
AS12□1F-U10/32-01	1/8"	10-32UNF		17.3		22.1								
AS12□1F-M5-03	5/32"	M5 x 0.8												
AS12□1F-U10/32-03	5/32"	10-32UNF												
AS12□1F-M5-05	3/16"	M5 x 0.8	8	11.4	9.6	21.3	26.1	11.7	28.6	25.8	25	22.2	16.5	7
AS12□1F-U10/32-05	3/16"	10-32UNF		18.3		23.1	13.5						7	
AS12□1F-M5-07	1/4"	M5 x 0.8												
AS12□1F-U10/32-07	1/4"	10-32UNF												
AS22□1F-01-01	1/8"	1/8	12 (12.7)	9.3	14.2	20.4	27.5	13.4	35.2	30.2	32.1	27.1	16	
AS22□1F-01-03	5/32"			9.3		20.4	27.5						17	
AS22□1F-01-05	3/16"			11.4		23.1	30.2						16.5	17
AS22□1F-01-07	1/4"			13.2		23.9	31						18.5	19
AS22□1F-01-09	5/16"			15.2		25.3	32.4	14.1					21	21
AS22□1F-02-03	5/32"	1/4	17 (17.5)	10.4	18.5	25.2	34.4	17.7	39.9	34.9	34.4	29.4	16	
AS22□1F-02-05	3/16"			11.4		24.9	34.2						17	32
AS22□1F-02-07	1/4"			13.2		25.2	34.5						18.5	34
AS22□1F-02-09	5/16"			15.2		27.2	36.4						21	36
AS22□1F-02-11	3/8"			17.9		35.3	44.5	19.5					21	36
AS32□1F-02-07	1/4"	3/8	19	13.2	23	27.8	39.3	21.3	48.3	43.3	42.8	37.8	17	60
AS32□1F-02-09	5/16"			15.2		29.5	41						18.5	63
AS32□1F-02-11	3/8"			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"			15.2		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	28.6	33.6	47.9	24.5	56.7	49.2	49.6	42.1	21	100
AS42□1F-04-13	1/2"			21.7		35.2	49.5						22	101

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

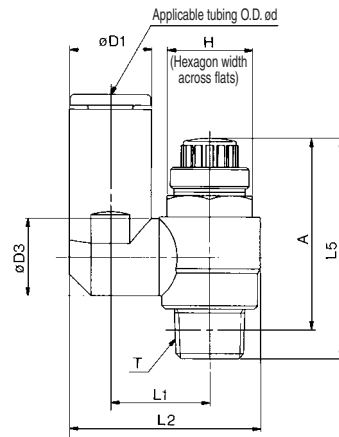
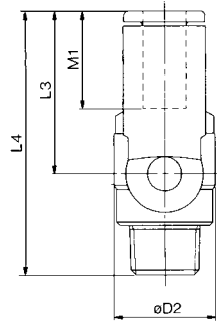
Note 2) Reference thread dimensions after installation.

Note 3) Reference dimensions

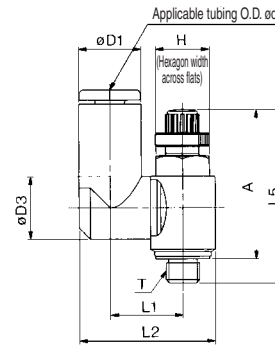
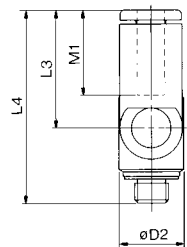
Speed Controller with One-touch Fitting Elbow Type/Universal Type **Series AS**



Universal Type



**M3 port
M5 port
U10/32 port**



Metric Size

Model	Applicable lubing O.D. ød	T	H ⁽¹⁾	D1	D2	D3	L1	L2	L3	L4	L5 ⁽³⁾		A ⁽²⁾		M1	Mass (g)	
											Max.	Min.	Max.	Min.			
AS13□1F-M3-23	3.2	M3 x 0.5	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				18.3	17.9	28.6						5	
AS13□1F-M5-23	3.2	M5 x 0.8	8	8.4	9.6	9.3	10.8	19.8	17.5	28.7	28.6	25.8	25	22.2	12.7	7	
AS13□1F-U10/32-23		10-32UNF															
AS13□1F-M5-04	4	M5 x 0.8		9.3				20.3									
AS13□1F-U10/32-04		10-32UNF															
AS13□1F-M5-06	6	M5 x 0.8	11.6	21.4	20.6	31.8	13.5										
AS13□1F-U10/32-06		10-32UNF															
AS23□1F-01-23	3.2	1/8	12 (12.7)	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□1F-01-04	4			9.3				24.9							18		
AS23□1F-01-06	6			11.6				26.9	22.9	36.3					13.5		
AS23□1F-01-08	8			15.2				30.9	28.2	40.8					18.5	21	
AS23□1F-02-04	4	1/4	17 (17.5)	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□1F-02-06	6			12.8		12.9	18.4	34	25.2	42.1					17	33	
AS23□1F-02-08	8			15.2		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			12.8	23	12.9	20.6	38.5	25.2	46.5	48.3	43.3	42.8	37.8	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			18.5		23	43.7	32.6	53.9	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	3/8	19	12.8	23	12.9	20.6	38.5	25.2	45	45.4	40.4	40	35	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			18.5		16.2	23	43.7	32.6	52.4					21	63	
AS33□1F-03-12	12			20.9		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 installation.
Note 3) Reference dimensions

Inch Size

Model	Applicable tubing O.D. ød	T	H ⁽¹⁾	D1	D2	D3	L1	L2	L3	L4	L5 ⁽³⁾		A ⁽²⁾		M1	Mass (g)		
											Max.	Min.	Max.	Min.				
AS13□1F-M3-01	1/8"	M3 x 0.5	5.5	8.4	7.2	7.2	10.1	17.9	17.6	28.3	26.6	24.1	24	12.5	12.7	4		
AS13□1F-M3-03	5/32"			9.3				18.3	17.9	28.6						5		
AS13□1F-M5-01	1/8"	M5 x 0.8	8	8.4	9.6	9.3	10.8	19.8	17.5	28.7	28.6	25.8	25	22.2	12.7	7		
AS13□1F-U10/32-01	1/8"			10-32UNF				20.3										
AS13□1F-M5-03	5/32"	M5 x 0.8		9.3														
AS13□1F-U10/32-03	5/32"	10-32UNF																
AS13□1F-M5-05	3/16"	M5 x 0.8	8	11.4	9.6	9.3	10.8	21.3	23.3	34.5	28.6	25.8	25	22.2	16.5	8		
AS13□1F-U10/32-05	3/16"	10-32UNF		21.6				20.7	31.9									
AS13□1F-M5-07	1/4"	M5 x 0.8		12														
AS13□1F-U10/32-07	1/4"	10-32UNF		13.7														
AS23□1F-01-01	1/8"	1/8	12 (12.7)	8.4	14.2	10.9	14	13.1	24.4	30.9	35.2	30.2	32.1	27.1	12.7	17		
AS23□1F-01-03	5/32"			9.3				24.9	17.5	37.3					18			
AS23□1F-01-05	3/16"			11.6				26.8	23.9	37.3					16.5			
AS23□1F-01-07	1/4"			13.2				29.9	25.6	38.2					17	19		
AS23□1F-01-09	5/16"			15.2		12.9	16.2	30.9	28.2	40.8					18.5	21		
AS23□1F-02-03	5/32"	1/4	17 (17.5)	10.4	18.5	12.9	18.3	10.9	16.2	30.6	21.9	39.6			16	32		
AS23□1F-02-05	3/16"			11.6				16.2	31.1	23.9	42.1			16.5	33			
AS23□1F-02-07	1/4"			13.2				18.3	34.2	25.6	45.1	39.9	34.9	34.4	29.4	17	36	
AS23□1F-02-09	5/16"			15.2				18.3	35.2	28.2	47.9			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	23	12.9	20.6	38.7	25.6	46.9	48.3	43.3	42.8	37.8	17	60		
AS33□1F-02-09	5/16"			15.2				23	39.7	28.2					49.5	18.5	63	
AS33□1F-02-11	3/8"			18.5				16.2	23	43.7					32.6	53.9	21	69
AS33□1F-03-07	1/4"			13.2				12.9	20.6	38.7					25.6	45.4	17	56
AS33□1F-03-09	5/16"			15.2		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	57.1	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

Note 1) () are the dimensions of NPT thread
Note 2) Reference thread dimensions after installation.
Note 3) Reference dimensions



Please contact SMC for detailed dimensions, specifications, and delivery.

1 Lubricant: Vaseline X12

Ex.) AS2201F-01-04S-X12

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

Ex.) AS2201F-01-04S-X21

Note 1) Not particle-free

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

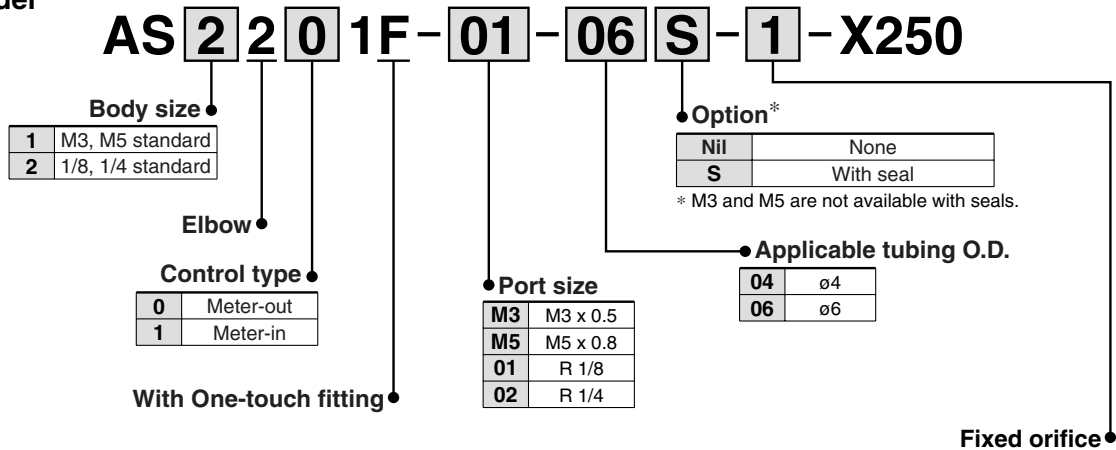
3 Throttle Valve (Without Check Valve) X214

Ex.) AS2201F-01-04S-X214

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

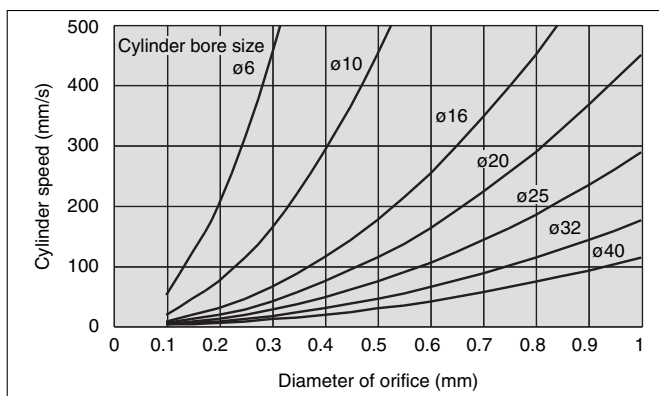
4 Fixed Throttle (No needle function) X250

How to Order



Symbol	Fixed orifice	Applicable model			
		AS12□1F-M3-04	AS12□1F-M5-04 AS12□1F-M5-06	AS22□1F-01-04 AS22□1F-01-06	AS22□1F-02-06
1	ø0.1	●	●	●	●
2	ø0.2	●	●	●	●
3	ø0.3	●	●	●	●
4	ø0.4	●	●	●	●
5	ø0.5	●	●	●	●
6	ø0.6	●	●	●	●
7	ø0.7	●	●	●	●
8	ø0.8	●	●	●	●
9	ø0.9		●	●	●
10	ø1.0		●	●	●

The graph below shows the relationship between orifices for each cylinder bore and cylinder speed. Please refer to it during selection. The cylinder speeds on the graph are theoretical values. Actual values may differ depending on the piping conditions or sliding friction, so please use this graph as a guideline only.



Speed Controller with One-touch Fittings In-line Type *Series AS*

Minimizes installation time and cost

Reduce the mounting height and enables compact machinery design. Effective area is larger than the former model.

ø2 size added to applicable tubing sizes

- **Metric size** (Release button: White color)
ø2, ø3.2, ø4, ø6, ø8, ø10, ø12
- **Inch size** (Release button: Orange color)
ø1/8", ø5/32", ø3/16", ø1/4", ø5/16", ø3/8", ø1/2"

Maximum operating pressure 1 MPa max.

Applicable tubing materials

Nylon, soft nylon, and polyurethane tubing are applicable.

Retainer prevents accidental loss of needle.

Option

**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 speeds.

In-line type

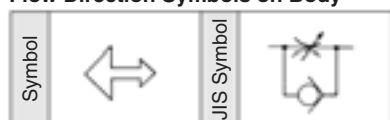


Applicable tubing O.D. ø2



Made to Order
(Refer to page 431 for details.)

Flow Direction Symbols on Body



Model

Model	Applicable tubing O.D.														Applicable cylinder bore size (mm)
	Metric size							Inch size							
	2	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 ⁽¹⁾
AS2001F			●	●					●	●	●				20, 25, 32
AS2051F				●	●					●	●	●			20, 25, 32, 40
AS3001F				●	●	●	●				●	●	●		40, 50, 63
AS4001F						●	●						●	●	63, 80, 100

Note 1) AS1001F-02 applicable cylinder bore sizes are 2.5, 4, 6.

Note 2) ● Marking is electroless nickel plated, provided as standard. (N specifications)

Specifications

Fluid	Air
Proof pressure	1.5 MPa (1.05 MPa ⁽¹⁾)
Max. operating pressure	1 MPa (0.7 MPa ⁽¹⁾)
Min. operating pressure	0.1 MPa
Ambient and fluid temperature	-5 to 60°C (No freezing)
Number of needle rotations	10 turns (8 turns ⁽²⁾)
Applicable tubing material ⁽³⁾	Nylon, Soft nylon, Polyurethane ⁽⁴⁾
Option	Hexagonal lock nut, Electroless nickel plated ⁽⁵⁾

Note 1) In case of AS1001F-02

Note 2) In case of AS1001F type. AS1001F-02: 10 turns.

Note 3) Use caution regarding the max. operating pressure when soft nylon or polyurethane tubing is used. (Refer to pages 371 and 372 for details.)

Note 4) In case of AS1001F-02, polyurethane only.

Note 5) Brass parts are all electroless nickel plated.

Flow Rate and Effective Area

Model	AS1001F	AS2001F	AS2051F	AS3001F	AS4001F
Tubing O.D.	Metric size	ø2 ø3.2, ø4, ø6	ø4 ø6 ø8	ø6 ø8 ø10, ø12	ø10 ø12
	Inch size	— ø1/8", ø5/32" ø3/16", ø1/4"	ø5/32" ø3/16", ø1/4" ø3/16"	ø1/4", ø5/16" ø1/4" ø5/16"	ø3/8" ø3/8" ø1/2"
Controlled flow	Air flow l/min (ANR)	20 100 130 230 290 460 420 660 920 1050 1390			
(Free flow)	Effective area (mm ²)	0.3 1.5 2 3.5 4.5 7 6.5 10 14 16 21			

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

How to Order

AS 400 1F - 12

Body size

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

With One-touch fittings

Option*

Nil	None
K	Hexagonal lock nut
N	Electroless nickel plated

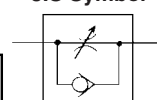
* If more than one option is required, write option part numbers in the order of "K", "N".

Applicable tubing O.D.

Metric size	Inch size
02 ø2	01 ø1/8"
23 ø3.2*	03 ø5/32"
04 ø4	05 ø3/16"
06 ø6	07 ø1/4"
08 ø8	09 ø5/16"
10 ø10	11 ø3/8"
12 ø12	13 ø1/2"

* Use ø1/8" tube.

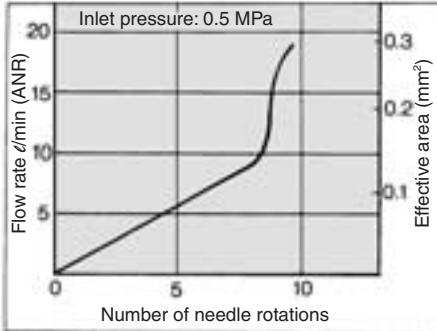
JIS Symbol



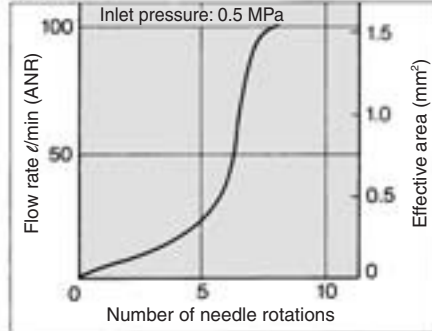
Made to Order
Refer to page 431 for details.

Needle Valve/Flow Characteristics

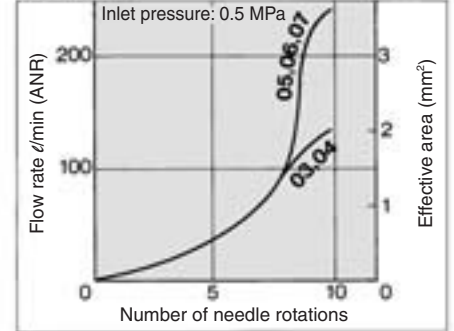
AS1001F-02



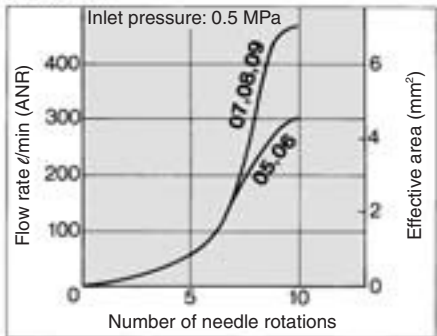
AS1001F



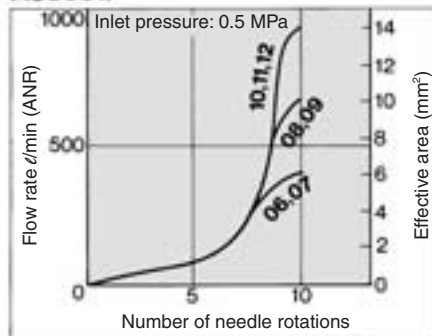
AS2001F



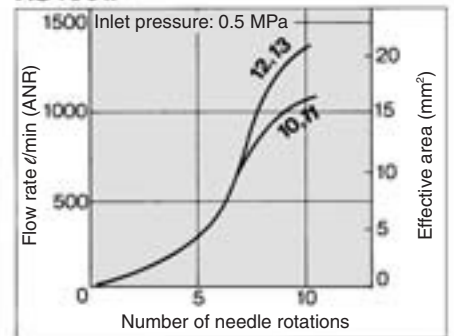
AS2051F



AS3001F



AS4001F



⚠ 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



Lubricant: Vaseline

X12

Ex.) AS2001F-04-X12

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

X21

Ex.) AS2001F-04-X21

Note) Not particle-free

Throttle Valve (Without Check Valve)

X214

Ex.) AS2001F-04-X214

AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

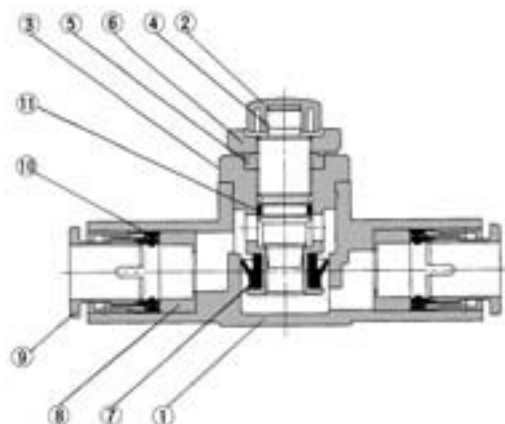
**ASR
ASQ**

KE

TMH

Series AS

Construction

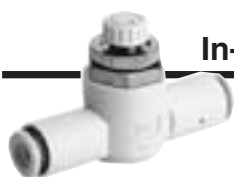


Component Parts

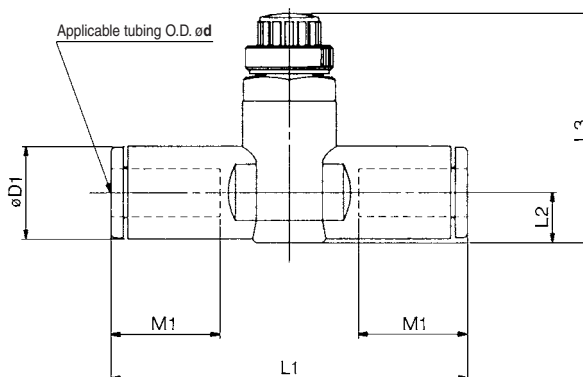
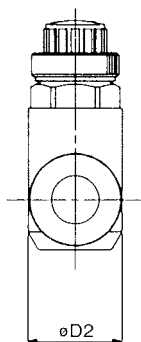
No.	Description	Material	Note
1	Body A	PBT	
2	Handle	PBT ⁽¹⁾	
3	Body B	Brass	Electroless nickel plated
4	Needle	Brass	Electroless nickel plated
5	Needle guide	Brass	Electroless nickel plated
6	Lock nut	Brass ⁽²⁾	Electroless nickel plated
7	U seal	HNBR	
8	Spacer	—	
9	Cassette	—	
10	Packing	NBR	
11	O-ring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

Note 1) AS1001F-02 is made of electroless nickel plated brass.

Note 2) AS□□1F type is made of steel.



In-line Type



Metric Size

Model	Applicable tubing O.D. ϕd	D1	D2	L1	L2	L3 ⁽¹⁾		M1	Mass (g)
						Max.	Min.		
AS1001F-02	2	6	6	25.4	3.4	20.9	18.4	8.8	3
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	22
AS2051F-08	8	15.2		59.8	8.1	36.5	31.5	18	25
AS3001F-06	6	12.8	19.8	59	7.4	38.3	33.3	17	36
AS3001F-08	8	15.2		64.4	8.2	39.1	34.1	18	40
AS3001F-10	10	18.5		71.6	9.8	40.6	35.6	21	44
AS3001F-12	12	20.9	26.5	76	11	41.8	36.8	22	48
AS4001F-10	10	18.5		77.7	11.3	51.1	43.6	21	85
AS4001F-12	12	20.9		82.1		52.1	44.6	22	89

Note 1) Reference dimensions

Inch Size

Model	Applicable tubing O.D. ϕd	D1	D2	L1	L2	L3 ⁽¹⁾		M1	Mass (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
AS1001F-05	3/16"	11.4	10	48.7	6.2	25.2	22.4	16.5	12
AS1001F-07	1/4"	12		40.7				13.7	9
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	14.8	52.2	7.1	34.5	29.5	17	16
AS2051F-05	3/16"	11.4		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	22
AS2051F-09	5/16"	15.2	19.8	59.8	8.1	36.5	31.5	18	25
AS3001F-07	1/4"	13.2		59	7.4	38.3	33.3	17	36
AS3001F-09	5/16"	15.2		64.4	8.2	39.1	34.1	18	40
AS3001F-11	3/8"	17.9	26.5	70.8	9.5	40.3	35.3	21	52
AS4001F-11	3/8"	17.9		76.9	10.3	51	43.5	21	93
AS4001F-13	1/2"	21.7		83.1	11.6	52.4	44.9	22	106

Note 1) Reference dimensions

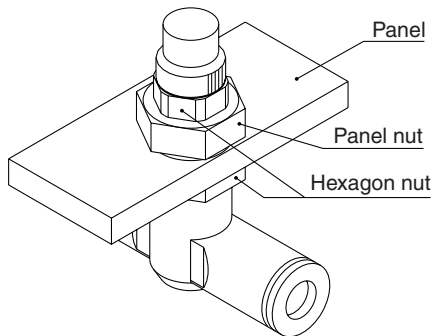
Speed Controller with One-touch Fittings In-line Type/Panel Mount Type

Series AS□□□1F-3

**Panel mount thickness:
3.5 mm at the maximum**

Easy installation and removal

Installation of hexagon nuts on panel nuts up and down in two locations enables user to mount or remove it depending upon the situation.



Model

Model	Applicable tubing 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

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 (8 turns ⁽¹⁾)
Applicable tubing material ⁽²⁾	Nylon, Soft nylon, Polyurethane

Note 1) In the case of AS1001F 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.)

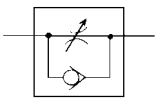
Note 3) Brass parts are all electroless nickel plated.

Flow Rate and Effective Area

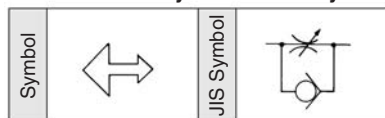
Model		AS1001F	AS2001F		AS2051F		AS3001F			AS4001F	
Tubing O.D.	Metric size	ø3.2, ø4, ø6	ø4	ø6	ø6	ø8	ø6	ø8	ø10, ø12	ø10	ø12
	Inch size	ø1/8", ø5/32" ø3/16", ø1/4"	ø5/32"	ø3/16", ø1/4"	ø3/16"	ø1/4", ø5/16"	ø1/4"	ø5/16"	ø3/8"	ø3/8"	ø1/2"
Controlled flow (Free flow)	Flow rate (ℓ /min)(ANR)	100	130	230	290	460	420	660	920	1050	1390
	Effective area (mm ²)	1.5	2	3.5	4.5	7	6.5	10	14	16	21

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

JIS Symbol



Flow Direction Symbols on Body



Made to Order
(Refer to page 435 for details.)

How to Order

AS **200** 1 F - **06** - **3** - **□**

Body size

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

Panel mount type

Applicable tubing 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" tube.

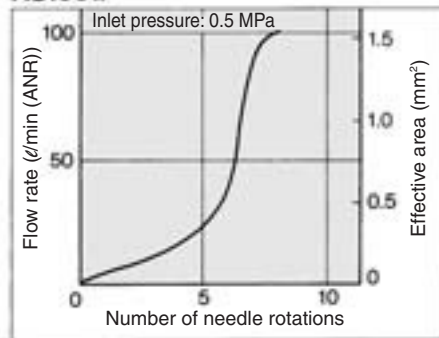
With One-touch fittings

Made to Order

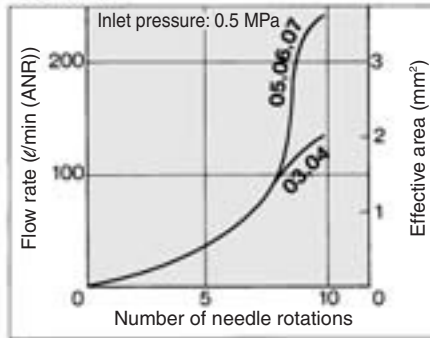
Refer to page 435 for details.

Needle Valve/Flow Characteristics

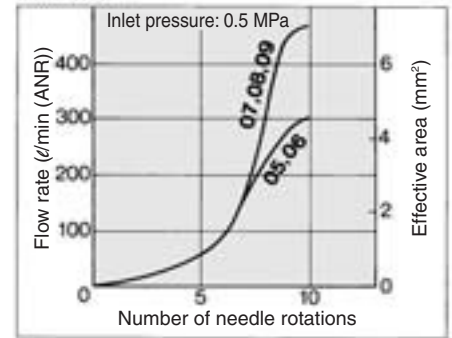
AS1001F



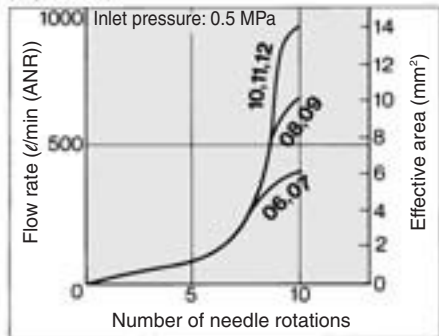
AS2001F



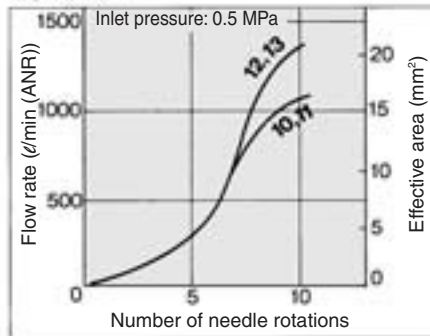
AS2051F



AS3001F



AS4001F



⚠ 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



Lubricant: Vaseline

X12

Ex.) AS2001F-04-3-X12

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

X21

Ex.) AS2001F-04-3-X21

Note) Not particle-free

Throttle Valve (Without Check Valve)

X214

Ex.) AS2001F-04-3-X214

AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

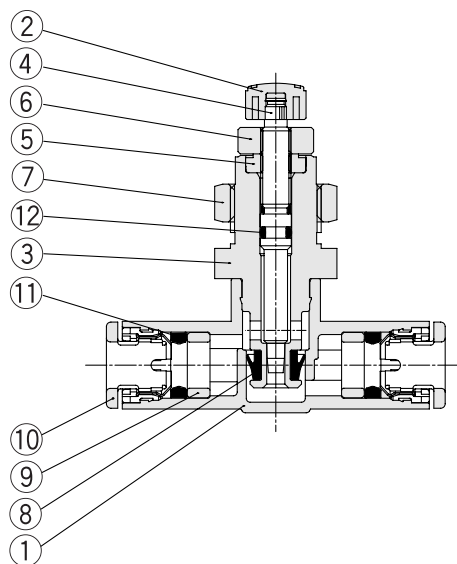
ASR
ASQ

KE

TMH

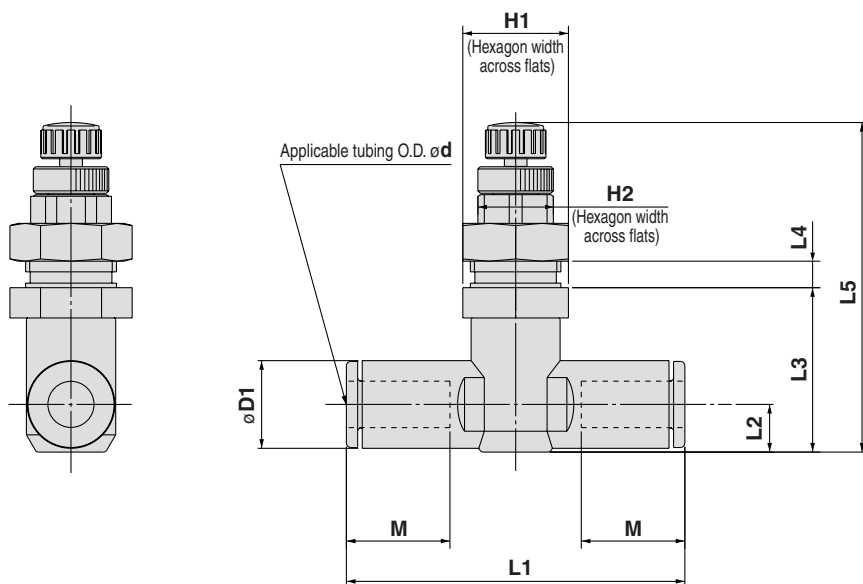
Series AS□□□1F-3

Construction



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	Electroless nickel plated
7	Panel nut	Brass	Electroless nickel plated
8	U seal	HNBR	
9	Spacer	—	
10	Cassette	—	
11	Packing	NBR	
12	O-ring	NBR	

Dimensions



Metric Size

Model	d	D1	H1	H2	L1	L2	L3	L4	L5 ⁽¹⁾	M	Panel-out dimensions	Mass (g)
								Max.	Max.	Min.		
AS1001F-23-3	3.2	8.4	12	8	38	4.5	16.8	3.5	37.6	34.4	12.7	18
AS1001F-04-3	4	9.3	12	8	39.2	5.2	17.4	3.5	38.2	35	10.5	19
AS1001F-06-3	6	11.6	14	10	40.7	6.2	18.5	3.5	39.3	36.1	13.5	20
AS2001F-04-3	4	9.3	14	10	40.7	5.2	20.7	3.5	48	42.5	12.7	28
AS2001F-06-3	6	11.6	14	10	44.8	6.3	21.8	3.5	49.1	43.6	13.5	29
AS2051F-06-3	6	12.8	17	13	53.2	6.7	25.7	3.5	53.5	48.1	17	49
AS2051F-08-3	8	15.2	17	13	59.8	8.1	27	3.5	54.8	49.4	18	54
AS3001F-06-3	6	12.8	21	16	59	7.4	31.3	3.5	60.1	54.7	17	85
AS3001F-08-3	8	15.2	21	16	64.4	8.2	32.1	3.5	60.9	55.5	18	88
AS3001F-10-3	10	18.5	21	16	71.6	9.8	33.7	3.5	62.5	57.1	21	99
AS3001F-12-3	12	20.9	21	16	76	11	34.9	3.5	63.7	58.3	22	100
AS4001F-10-3	10	18.5	27	21	77.7	11.3	35	3.5	69.3	61	21	167
AS4001F-12-3	12	20.9	27	21	82.1	11.3	36	3.5	70.3	62	22	171

Note 1) Reference dimensions

Inch Size

Model	d	D1	H1	H2	L1	L2	L3	L4	L5 ⁽¹⁾	M	Panel-out dimensions	Mass (g)
								Max.	Max.	Min.		
AS1001F-01-3	1/8"	8.4	12	8	38	4.5	16.8	3.5	37.6	34.4	12.7	18
AS1001F-03-3	5/32"	9.3	12	8	39.2	5.2	17.4	3.5	38.2	35	10.5	19
AS1001F-05-3	3/16"	11.4	12	8	48.7	6.2	18.5	3.5	39.3	36.1	16.5	24
AS1001F-07-3	1/4"	12	12	8	40.7	6.2	18.5	3.5	49.8	44.3	17	21
AS2001F-03-3	5/32"	9.3	14	10	40.7	5.2	20.7	3.5	48	42.5	12.7	28
AS2001F-05-3	3/16"	11.4	14	10	50	6.2	21.6	3.5	48.9	43.4	16.5	34
AS2001F-07-3	1/4"	13.2	14	10	52.2	7.1	22.5	3.5	49.8	44.3	17	37
AS2051F-05-3	3/16"	11.4	17	13	52.2	6.2	25.2	3.5	53	47.6	16.5	47
AS2051F-07-3	1/4"	13.2	17	13	54.4	7.1	26	3.5	53.8	48.4	17	49
AS2051F-09-3	5/16"	15.2	17	13	59.8	8.1	27	3.5	54.8	49.4	18	54
AS3001F-07-3	1/4"	13.2	21	16	59	7.4	31.3	3.5	60.1	54.7	17	84
AS3001F-09-3	5/16"	15.2	21	16	64.4	8.2	32.1	3.5	60.9	55.5	18	88
AS3001F-11-3	3/8"	17.2	21	16	70.8	9.5	33.3	3.5	62.1	56.7	21	95
AS4001F-11-3	3/8"	17.9	27	21	76.9	10.3	34.9	3.5	69.2	60.9	21	175
AS4001F-13-3	1/2"	21.7	27	21	83.1	11.6	36.3	3.5	70.6	62.3	22	188

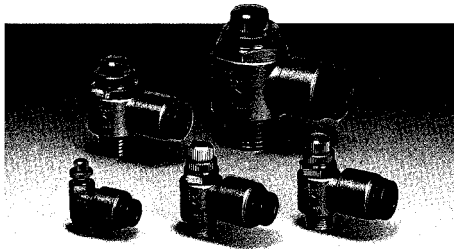
Note 1) Reference dimensions

Speed Controller with One-touch Fitting Elbow Type (Metal Body)

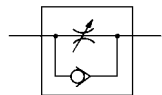
Series AS

Speed controller with One-touch fittings for metal body specifications

- Uses flame resistant resin as standard.
(UL standard V-0)



JIS Symbol



Made to Order
(Refer to page 428 for details.)

Model

Model	Port size	Applicable tubing O.D.					Applicable cylinder bore size (mm)
		4	6	8	10	12	
AS12□1-M5	M5 x 0.8	●	●				6, 10, 16, 20
AS22□1-01	R 1/8		●	●			20, 25, 32
AS22□1-02	R 1/4		●	●			20, 25, 32, 40
AS32□1-03	R 3/8			●	●		40, 50, 63
AS42□1-04	R 1/2				●	●	63, 80, 100

Note) ● marking is electroless nickel plated, provided as standard. (N specifications)

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 (8 turns ⁽¹⁾)
Applicable tubing material	Nylon, Soft nylon, Polyurethane
Option	Hexagon lock nut, Electroless nickel plated ⁽²⁾

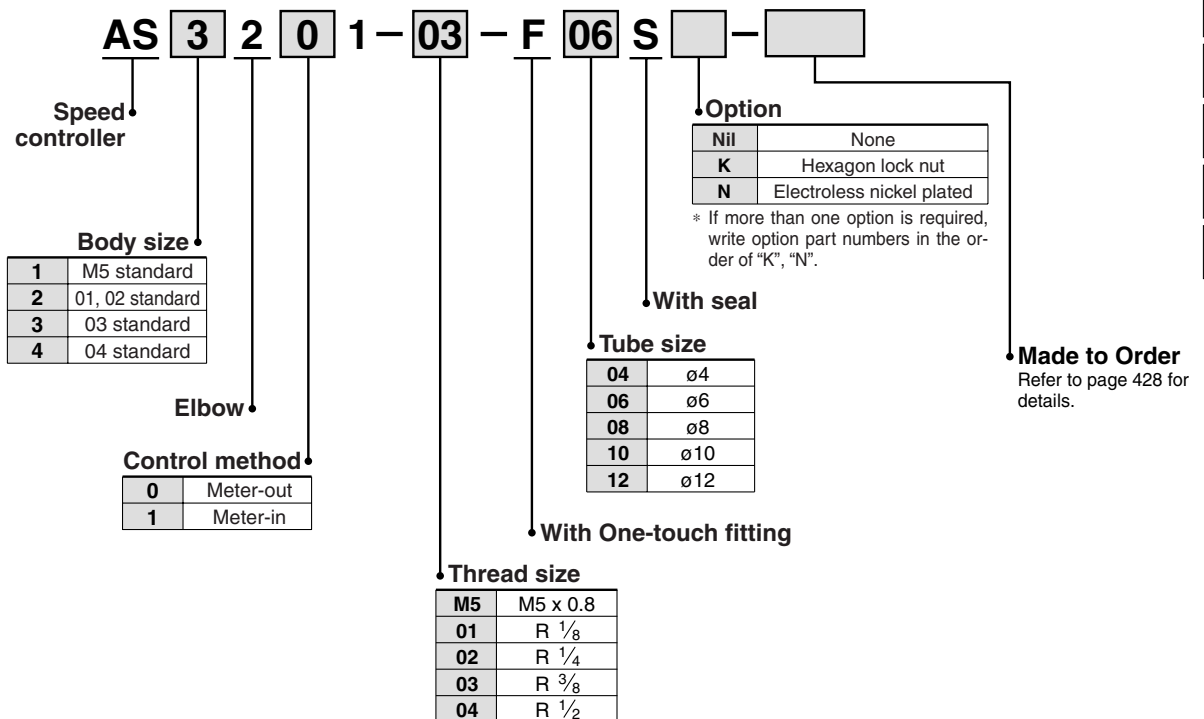
Meter-out and meter-in types can be visually differentiated by the lock nut.

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) Brass parts are all electroless nickel plated.

How to Order

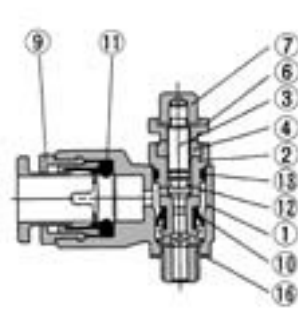


Note 1) M5 size: S (with seal) is not necessary.

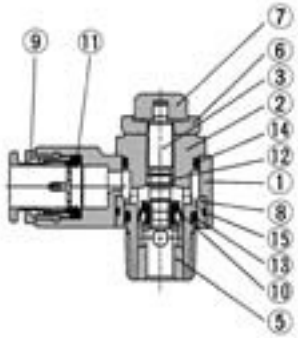
Series AS

Construction

AS1201-M5



AS2201/3201/4201



Component Parts

No.	Description	Material	Note
1	Body A	Zinc alloy	Chromate plated
2	Body B	Brass	Electroless nickel plated
3	Needle	Brass	Electroless nickel plated
4	Needle guide	Brass	Electroless nickel plated only with M5
5	Seat ring	Brass	(1)
6	Lock nut	Brass (2)	Electroless nickel plated (3)
7	Handle	Brass	Electroless nickel plated
8	Bushing	PBT	
9	Cassette	PBT/Stainless steel	
10	U-packing	HNBR	
11	Seal	NBR	
12	O-ring	NBR	
13	O-ring	NBR	
14	O-ring	NBR	
15	O-ring	NBR	
16	Gasket	NBR/Stainless steel	M5 port only

Note 1) "AS22□1": Electroless nickel plated

Note 2) "AS22□1": Steel

Note 3) Meter-in type: Black zinc chromated

Made to Order



1 Lubricant: Vaseline **X12**

Ex.) AS1201-M5-F04-X12

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

Ex.) AS1201-M5-F04-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.) AS1201-M5-F04-X214

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

Model		AS12□1-M5	AS22□1-01	AS22□1-02		AS32□1-03		AS42□1-04	
Tubing O.D.		ø4, ø6	ø6, ø8	ø6	ø8	ø8	ø10	ø10	ø12
Controlled (Free) flow	Flow rate (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

Technical drawings of the 1/2" NPT x 1/2" NPT Tee, Model 100, showing front and side views with dimensions.

Front View (Left): Shows the tee with dimensions $L4$, A , $L3$, and $\phi D2$.

Side View (Right): Shows the tee with dimensions $L4$, A , $L3$, $\phi D2$, and $\phi D1$.

Technical Drawing (Right): Shows the tee with dimensions $L4$, A , $L3$, $\phi D2$, $\phi D1$, $M1$, $L1$, $L2$, H , and T . The drawing includes the label "Applicable tubing O.D. ϕd " and "Hexagon width across flats".

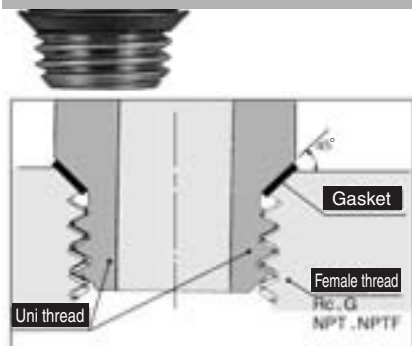
Model	Applicable tubing O.D. ød	T	H	D1	D2	L1	L2	L3	L4 ⁽¹⁾		A ⁽²⁾		M1	Mass (g)
									Max.	Min.	Max.	Min.		
AS12□1-M5-F04	4	M5 x 0.8	8	13	9	21	25.5	11.2	28.3	25.5	25	22.2	16	13
AS12□1-M5-F06	6					21.5	26						17	13
AS22□1-01-F06S	6	R 1/8	12	15.5	14.6	26.6	33.9	13.8	35.5	30.5	32.4	27.4	17	34
AS22□1-01-F08S	8												18.5	31
AS22□1-02-F06S	6	R 1/4	17	15.5	19.5	28.7	38.5	17.2	40.3	35.3	34.8	29.8	17	56
AS22□1-02-F08S	8												18.5	52
AS32□1-03-F08S	8	R 3/8	19	18.2	24.3	32.7	44.9	19	45.8	40.8	40.6	35.6	18.5	93
AS32□1-03-F10S	10					33.3	45.5						21	88
AS42□1-04-F10S	10	R 1/2	24	22.3	28.5	36.1	50.4	24.6	54.7	49.7	47.4	42.4	21	154
AS42□1-04-F12S	12												22	146

Note 2) Reference dimensions of thread M5, R after installation.

**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 with Uni One-touch Fitting Series AS

New-stand male threads for piping that reduces the screw-in time by 1/3.



Shape of Uni thread ridge

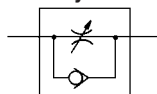
Use of the chamfered surface of the female thread as the seat surface and adoption of gaskets made by laminating NBR on both surfaces of stainless steel plates achieve secure sealing regardless of the difference of diameters due to the female thread type, deviations due to the tolerance, or the size of the chamfered corner.
(Any standard chamfered female thread can be used.)

A ridge shape has been created as a Uni thread for common applications for Rc, G, NPT and NPTF.

The male thread for piping drastically cuts piping man-hours.



JIS Symbol



Flow Direction Symbols on Body

	Meter-out type	Meter-in type
Symbol		
JIS Symbol		

Model

Model		Connection thread Uni thread	Applicable tubing O.D.													
Elbow type	Universal type		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	
AS22□IF-U01	AS23□IF-U01	1/8	●	●	●	●	●	※		●	●	●	●	●		
AS22□IF-U02	AS23□IF-U02	1/4		●	●	●	●	●			●	●	●	●	●	
AS32□IF-U02	AS33□IF-U02	1/4			●	●	●	●	●				●	●	●	
AS32□IF-U03	AS33□IF-U03	3/8			●	●	●	●					●	●	●	
AS42□IF-U04	AS43□IF-U04	1/2						●	●						●	●

Note 1) * Elbow type only

Note 2) □ indicates the control type ("0" for meter-out and "1" for meter-in).

Note 3) Meter-out and meter-in types can be visually differentiated by the lock nut.

The lock nut on the meter-out type is electroless nickel plated, while that on the meter-in type is black zinc chromate plated.

Note 4) Models marked with "●" are nickel plated as standard.

Specifications

Fluid	Air
Max. operating pressure	1 MPa
Min. operating pressure	0.1 MPa
Proof pressure	1.5 MPa
Ambient and fluid temperature	-5 to 60°C (No freezing)
Number of needle rotations	10 turns
Applicable tubing material ⁽¹⁾	Nylon, Soft-nylon, Polyurethane
Mounting thread	Uni-thread
Thread seal	Gasket
Option	Hexagon lock nut, Electroless nickel plated ⁽²⁾

Note 1) Use caution regarding the max. operating pressure when soft nylon or polyurethane tubing is used.
(Refer to pages 371 and 372 for details.)

Note 2) Brass parts are all electroless nickel plated.

Flow Rate and Effective Area

Model		AS22□IF-U01 AS23□IF-U02		AS22□IF-U02 AS23□IF-U02			AS32□IF AS33□IF			AS42□IF-U04 AS43□IF-U04	
Tubing O.D.	Metric size	ø3.2, ø4	ø6, ø8, ø4	ø4	ø6	ø8, ø10	ø6	ø8	ø10, ø12	ø10	ø12
	Inch size	1⁄8", 5⁄32	3⁄16", 1⁄4" 5⁄16	5⁄32	3⁄16	1⁄4", 5⁄16" 3⁄8	1⁄4"	5⁄16	3⁄8"	3⁄8"	1⁄2"
Controlled flow (Free flow)	Flow rate (ℓ/min (ANR))	180	230	260	390	460	660	790	920	1580	1710
	Effective area (mm²)	2.7	3.7	4	6	7	10	12	14	24	26

Note 1) Flow rate values are measured at 0.5 MPa and 20°C.

Note 2) □ indicates the control type ("0" for meter-out and "1" for meter-in).

How to Order

AS 2 2 1 1F - U02 - 06 - - -

Body size

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

Type

2	Elbow
3	Universal

Control type

0	Meter-out
1	Meter-in

With One-touch fitting

Made to Order

X260 Antistatic type
Refer to page 450 for details.

Option*

Nil	None
K	Hexagonal lock nut
N	Electroless nickel plated

* If more than one option is required, write option part numbers in the order of "K", "N".

Applicable tubing O.D.

Metric size		Inch size	
23	ø3.2 *	01	1/8"
04	ø4	03	5/32"
06	ø6	05	3/16"
08	ø8	07	1/4"
10	ø10	09	5/16"
12	ø12	11	3/8"
		13	1/2"

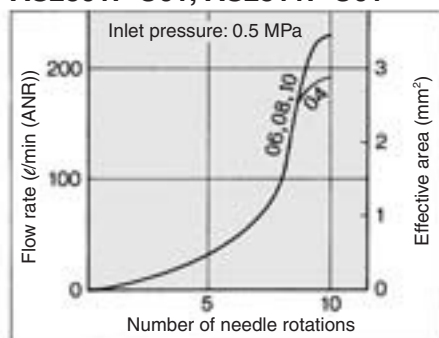
* Use ø1/8" tube.

Bore size

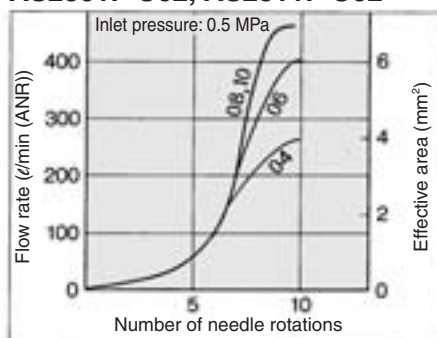
U01	Uni 1/8
U02	Uni 1/4
U03	Uni 3/8
U04	Uni 1/2

Needle Valve/Flow Characteristics

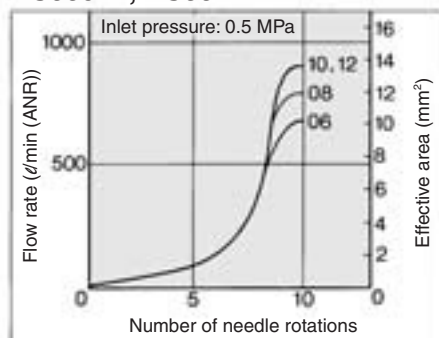
AS2201F-U01, AS2211F-U01
AS2301F-U01, AS2311F-U01



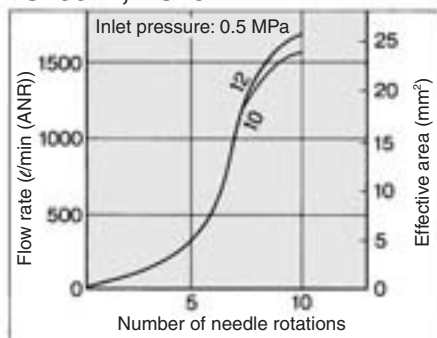
AS2201F-U02, AS2211F-U02
AS2301F-U02, AS2311F-U02



AS3201F, AS3211F
AS3301F, AS3311F

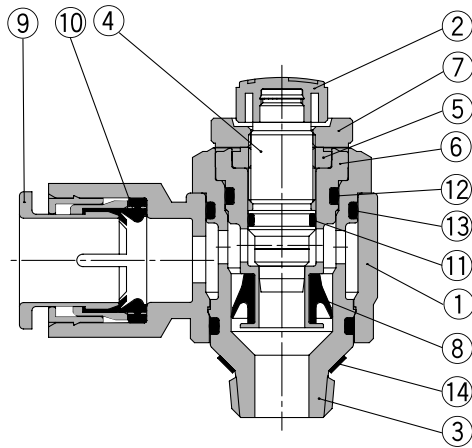


AS4201F, AS4211F
AS4301F, AS4311F

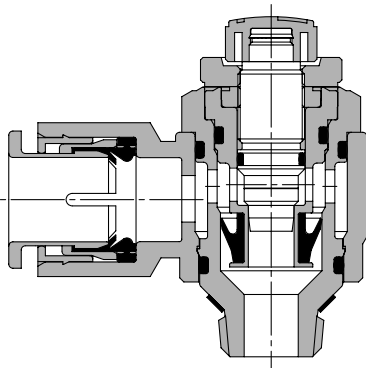


Construction/Component Parts

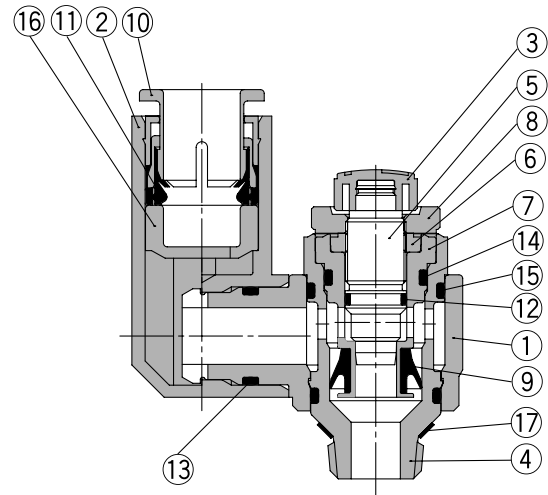
Elbow type Meter-out type



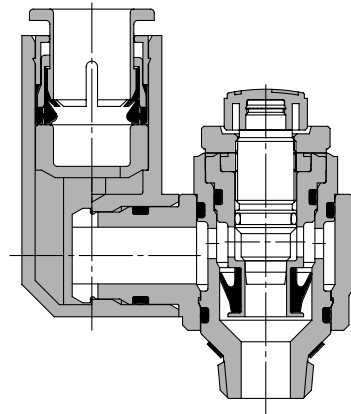
Meter-in type



Universal type Meter-out type



Meter-in type



Component Parts: Elbow Type

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	Seat ring	Brass	⁽¹⁾
7	Lock nut	Brass ⁽²⁾	Electroless nickel plated ⁽³⁾
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	

Note 1) Only AS22□1F-U01 and AS32□1F-U02 are electroless nickel plated.
Note 2) AS22□1F type is made of steel.

Note 3) Meter-in type is black zinc chromate plated.

Component Parts: Universal Type

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

Note 1) Only AS22□1F-U01 and AS32□1F-U02 are electroless nickel plated.

Note 2) AS22□1F type is made of steel.

Note 3) Meter-in type is black zinc chromate plated.

AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

ASR

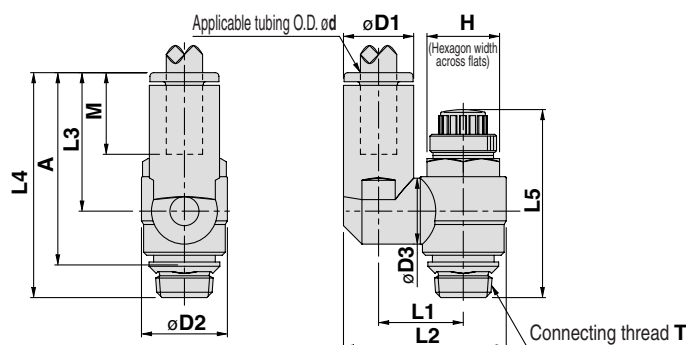
ASQ

KE

TMH

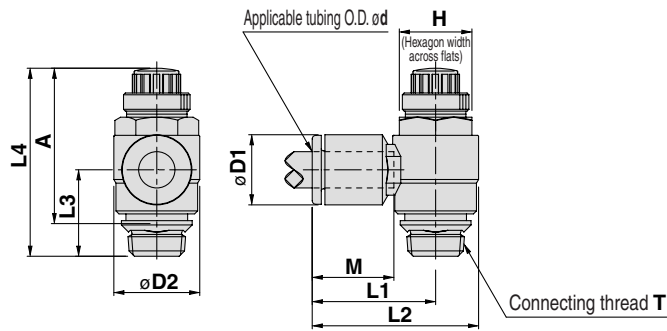
Elbow

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



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

Elbow Type/Inch Size

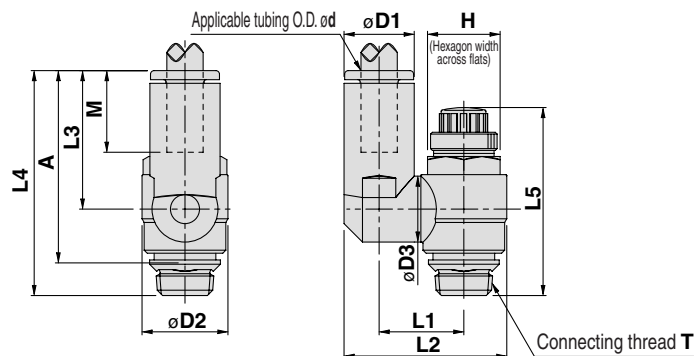


Model	Applicable tubing O.D. ød	T Uni thread	H	øD1	øD2	L1	L2	L3	L4 (1)		A (2)		M	Mass (g)
									Max.	Min.	Max.	Min.		
AS22□1F-U01-01	1/8"	1/8	12	7.8	14.2	20.8	27.9	14.3	36.1	31.1	30.5	25.5	14.5	17
AS22□1F-U01-03	5/32"			8.9		21.1	28.2						16.5	18
AS22□1F-U01-05	3/16"			11.4		23.1	30.2						17.0	19
AS22□1F-U01-07	1/4"			13.2		23.9	31.0						18.5	19
AS22□1F-U01-09	5/16"	1/4	17	15.2	18.5	25.3	32.4	17.2	39.4	34.4	32.0	26.6	14.5	32
AS22□1F-U02-03	5/32"			8.9		23.3	32.5						16.5	33
AS22□1F-U02-05	3/16"			11.4		24.9	34.2						17.0	33
AS22□1F-U02-07	1/4"			13.2		25.2	34.5						18.5	34
AS22□1F-U02-09	5/16"	1/4	19	15.2	23.0	27.2	36.4	20.3	45.9	40.9	38.1	33.1	21.0	36
AS22□1F-U02-11	3/8"			17.9		35.3	44.5						17.0	54
AS32□1F-U02-07	1/4"			13.2		27.8	39.3						18.5	55
AS32□1F-U02-09	5/16"			15.2		29.5	41.0						21.0	57
AS32□1F-U02-11	3/8"	3/8	19	17.9	23.0	31.8	43.3	19.4	45.0	40.0	37.6	32.6	17.0	54
AS32□1F-U03-07	1/4"			13.2		27.8	39.3						18.5	55
AS32□1F-U03-09	5/16"			15.2		29.5	41.0						21.0	57
AS32□1F-U03-11	3/8"			17.9		31.8	43.3						21.0	94
AS42□1F-U04-11	3/8"	1/2	24	17.9	18.6	33.6	47.9	22.4	54.6	47.1	44.5	37.0	22.0	96
AS42□1F-U04-13	1/2"			21.4		35.2	49.5							

Note 1) Reference dimensions

Note 2) Reference dimensions of Uni thread after installation.

Universal Type/Inch Size



Model	Applicable tubing O.D. ød	T Uni thread	H	øD1	øD2	øD3	L1	L2	L3	L4	L5 (1)		A (2)		M	Mass (g)
											Max.	Min.	Max.	Min.		
AS23□1F-U01-01	1/8"	1/8	12	7.8	14.2	9.3	13.4	24.8	18.9	33.2	36.1	31.1	30.5	25.5	14.5	17
AS23□1F-U01-03	5/32"			8.9											16.5	19
AS23□1F-U01-05	3/16"			11.4		10.3	14.2	27.0	21.5	35.9					17.0	20
AS23□1F-U01-07	1/4"			13.2		11.4	15.2	28.9	22.3	36.3					18.5	21
AS23□1F-U01-09	5/16"	1/4	17	15.2	18.5	12.9	16.2	30.9	24.7	38.2	39.4	34.4	32.0	26.6	14.5	32
AS23□1F-U02-03	5/32"			8.9		9.3	15.6	29.2	18.9	36.1					16.5	34
AS23□1F-U02-05	3/16"			11.4		10.3	16.4	31.1	21.5	38.8					17.0	34
AS23□1F-U02-07	1/4"			13.2		11.4	17.4	33.2	22.3	39.5					18.5	36
AS23□1F-U02-09	5/16"	1/4	19	15.2	23.0	12.9	18.3	35.2	24.4	40.8	45.9	40.9	38.1	33.1	29.4	39
AS23□1F-U02-11	3/8"			17.9			19.6	38.1	26.8	43.2					17.0	56
AS33□1F-U02-07	1/4"			13.2		11.4	19.6	37.7	22.3	44.2					18.5	57
AS33□1F-U02-09	5/16"			15.2		12.9	20.6	39.7	24.4	42.8	45.0	40.0	37.6	32.6	21.0	61
AS33□1F-U02-11	3/8"	3/8	19	17.9	23.0	16.2	22.5	42.9	28.3	47.7					17.0	56
AS33□1F-U03-07	1/4"			13.2		11.4	19.6	37.7	22.3	43.3					18.5	57
AS33□1F-U03-09	5/16"			15.2		12.9	20.6	39.7	24.4	42.8					21.0	61
AS33□1F-U03-11	3/8"			17.9		16.2	22.5	42.9	28.3	47.7	54.6	47.1	44.5	37.0	21.1	97
AS43□1F-U04-11	3/8"	1/2	24	17.9	28.6	16.2	25.3	48.6	28.3	50.7					22.0	100
AS43□1F-U04-13	1/2"			21.7		19.4	26.8	52.5	30.8	53.2						

Note 1) Reference dimensions

Note 2) Reference dimensions of Uni thread after installation.

Antistatic Type

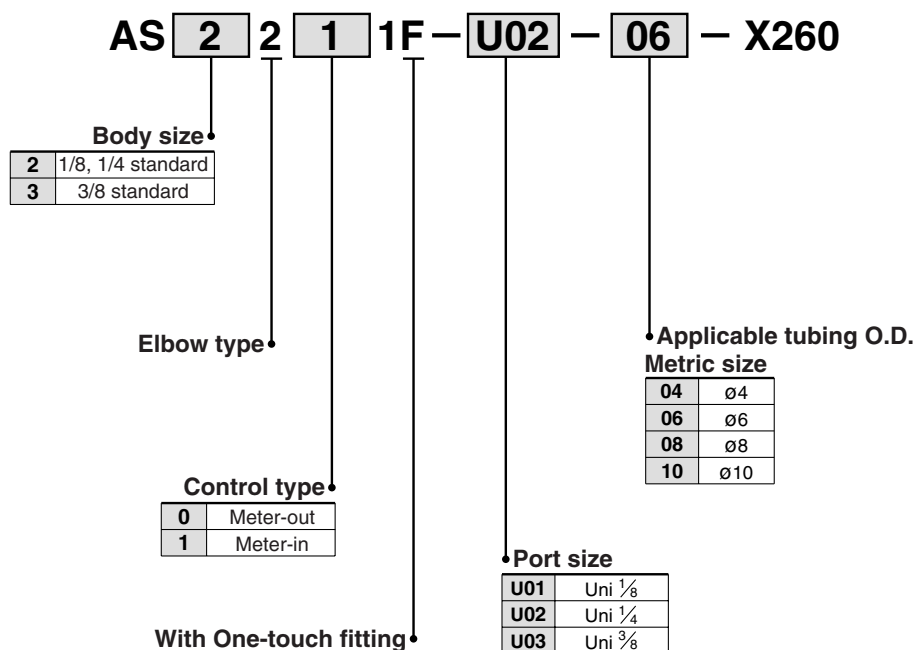
X260

Model

Model	Applicable tubing O.D.			
	Metric size			
	4	6	8	10
AS22□1F-U01	●	●	●	●
AS22□1F-U02	●	●	●	●
AS32□1F-U03		●	●	

Note 1) Electroless nickel plated

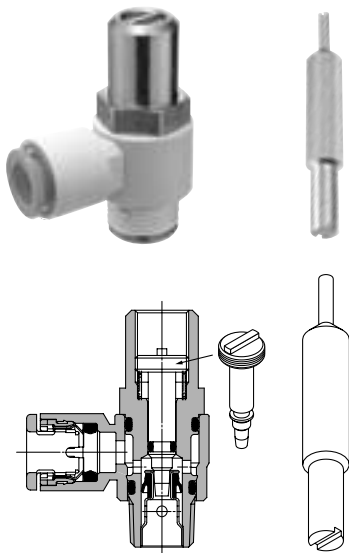
How to Order



Tamper Proof Speed Controller with One-touch Fitting Elbow Type/Universal Type Series AS□□□1F-T

Able to adjust flow by a special tool

Prevention of an unnecessary manual operation



Special tool
Part number: AS-T-1

Elbow type



Universal type



Model

Elbow type	Universal type	Port size	Applicable tubing 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-M5	AS13□1F-M5	M5 x 0.8	●	●	●											6, 10, 16, 20	
AS22□1F-01	AS23□1F-01	R 1/8	●	●	●	●	●									20, 25, 32	
AS22□1F-02	AS23□1F-02	R 1/4		●	●	●	●									20, 25, 32, 40	
AS32□1F-02	AS33□1F-02	R 1/4			●	●	●	●								40, 50, 63	
AS32□1F-03	AS33□1F-03	R 3/8			●	●	●	●								40, 50, 63	
AS42□1F-04	AS43□1F-04	R 1/2					●	●								63, 80, 100	
AS12□1F-U10/32	AS13□1F-U10/32	10-32 UNF							●	●	●	●				6, 10, 16, 20	
AS22□1F-N01	AS23□1F-N01	NPT 1/8							●	●	●	●	●			20, 25, 32	
AS22□1F-N02	AS23□1F-N02	NPT 1/4								●	●	●	●	●		20, 25, 32, 40	
AS32□1F-N02	AS33□1F-N02	NPT 1/4									●	●	●	●		40, 50, 63	
AS32□1F-N03	AS33□1F-N03	NPT 3/8										●	●	●		40, 50, 63	
AS42□1F-N04	AS43□1F-N04	NPT 1/2												●	●	63, 80, 100	

Note 1) * Elbow type only

Note 2) Meter-out and meter-in types can be visually differentiated by the flow direction symbol on the resin body.

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 (8 turns ⁽¹⁾)
Applicable tubing material ⁽²⁾	Nylon, Soft nylon, Polyurethane

Note 1) In the case of AS12□1F-M5 and AS12□1F-U10/32 types
AS13□1F-M5, AS13□1F-U10/32

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, provided as standard.

How to Order

AS 2 2 1 1 F - 01 - 06 S T -

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

0	Meter-out
1	Meter-in

Port size

M5	M5 x 0.8
01	R 1/8
02	R 1/4
03	R 3/8
04	R 1/2
U10/32	10-32 UNF
N01	NPT 1/8
N02	NPT 1/4
N03	NPT 3/8
N04	NPT 1/2

Tamper proof
Speed Controller requires a special tool for flow adjustment. Order separately with part number, AS-T-1.

With seal
Note) In case that connecting port is either M5 or 10-32 UNF thread, it is not available with seal. With gasket is provided as standard.

Applicable tubing 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"

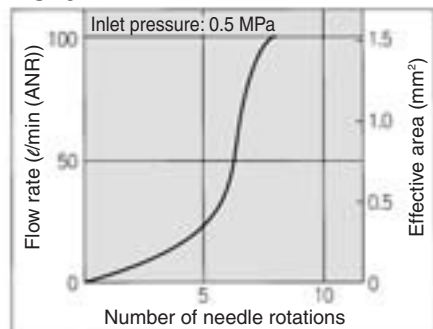
Made to Order
Refer to page 535 for details.

* Use ø1/8" tube.

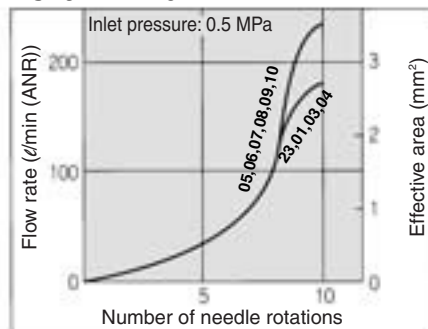
Made to Order
(Refer to page 535 for details.)

Needle Valve/Flow Characteristics

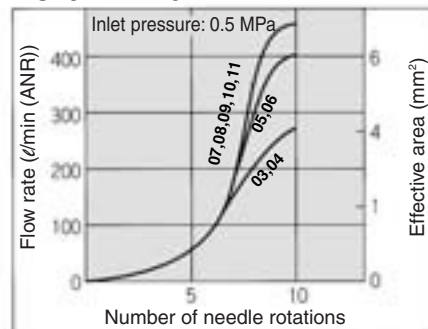
AS12□1F
AS13□1F



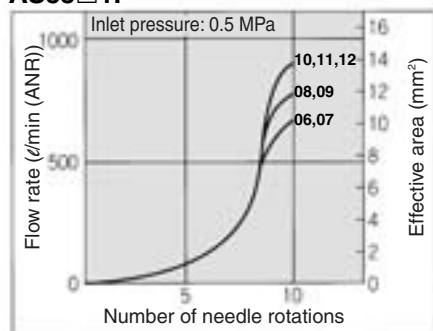
AS22□1F-□01
AS23□1F-□01



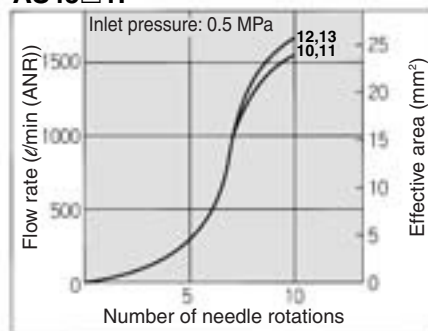
AS22□1F-□02
AS23□1F-□02



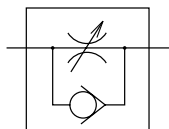
AS32□1F
AS33□1F



AS42□1F
AS43□1F



JIS Symbol



Flow Direction Symbols on Body

	Meter-out type	Meter-in type
Symbol		
JIS Symbol		

⚠ 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.

Flow Rate and Effective Area

Model		AS12□1F AS13□1F	AS22□1F-□01 AS23□1F-□01	AS22□1F-□02 AS23□1F-□02	AS32□1F AS33□1F	AS42□1F AS43□1F
Tubing O.D.	Metric size	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" ø3/16", ø1/4"	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"	ø3/8" ø1/2"
Controlled flow (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 24 26

Note) Flow rate values are at a pressure of 0.5 MPa and a temperature of 20°C.

AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

ASR
ASQ

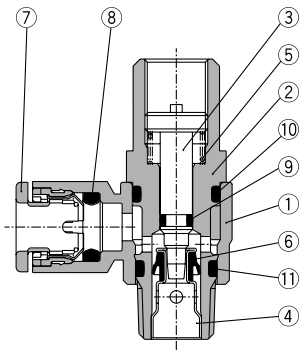
KE

TMH

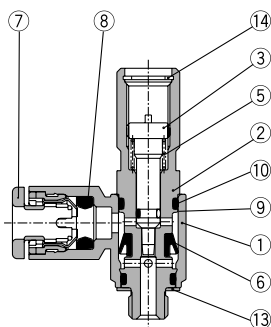
Series AS□□□1F-T

Construction

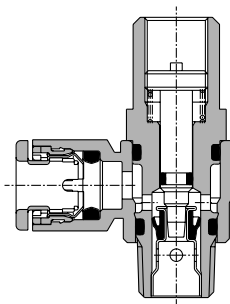
Elbow type
Meter-out type



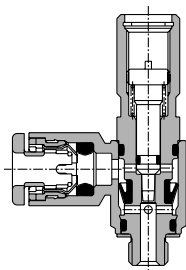
M5 type
U10/32 type



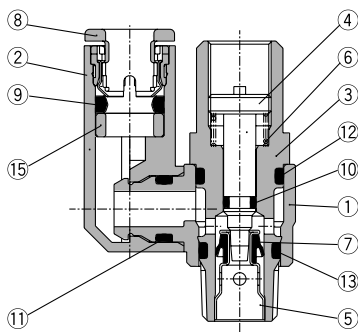
Meter-in type



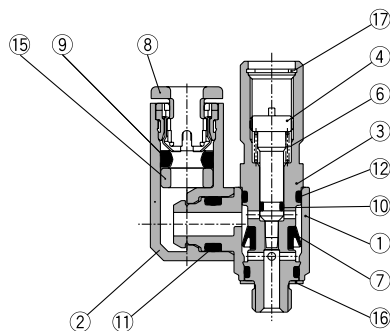
M5 type
U10/32 type



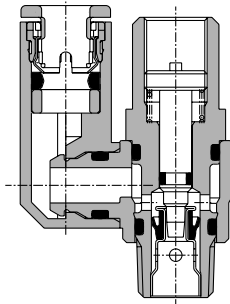
Universal type
Meter-out type



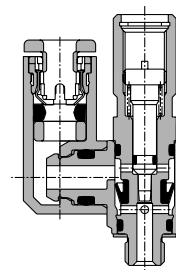
M5 type
U10/32 type



Meter-in type



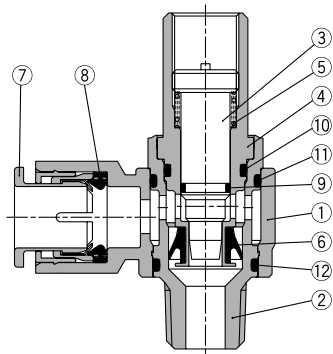
M5 type
U10/32 type



Construction

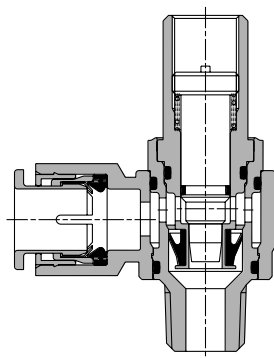
Elbow type Meter-out type

AS3201F-02



Meter-in type

AS3211F-02

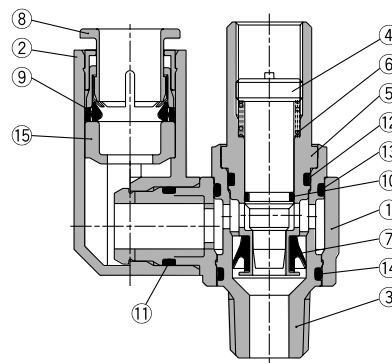


Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Body B	Brass	Electroless nickel plated
3	Needle	Brass	Electroless nickel plated
4	Seat ring	Brass	Electroless nickel plated
5	Spring	Steel wire	
6	U seal	HNBR	
7	Cassette	—	
8	Seal	NBR	
9	O-ring	NBR	
10	O-ring	NBR	
11	O-ring	NBR	
12	O-ring	NBR	
13	Gasket	NBR, Stainless steel	
14	Retaining ring for hole type C	Tool steel	

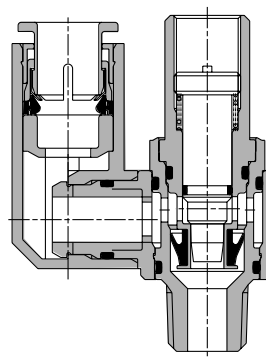
Universal type Meter-out type

AS3301F-02



Meter-in type

AS3311F-02



Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Elbow body	PBT	
3	Body B	Brass	Electroless nickel plated
4	Needle	Brass	Electroless nickel plated
5	Seat ring	Brass	Electroless nickel plated
6	Spring	Steel wire	
7	U seal	HNBR	
8	Cassette	—	
9	Seal	NBR	
10	O-ring	NBR	
11	O-ring	NBR	
12	O-ring	NBR	
13	O-ring	NBR	
14	O-ring	NBR	
15	Spacer	—	
16	Gasket	NBR, Stainless steel	
17	Retaining ring for hole type C	Tool steel	

AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

ASR
ASQ

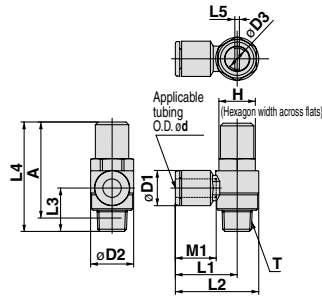
KE

TMH

Series AS□□□1F-T

Construction

Elbow type



Metric Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4	L5	A *	M1	Mass (g)
AS12□1F-M5-23T	3.2	M5 x 0.8	8	8.4	9.6	4.5	17.3	22.1	12.3	31	0.7	27.4	12.7	10
AS12□1F-M5-04T	4			9.3			20.3	25.1	12.3				13.5	
AS12□1F-M5-06T	6			11.6			21.4	26.6	12.3				13.5	
AS22□1F-01-23ST	3.2	R 1/8	12	8.4	14.2	7	20.4	27.5	13.4	34.7	1.5	31.6	12.7	20
AS22□1F-01-04ST	4			9.3			25.3	32.4	13.5				13.5	
AS22□1F-01-06ST	6			11.6			25.3	32.4	13.5				13.5	
AS22□1F-01-08ST	8	R 1/4	17	15.2	18.5	7	25.3	32.4	13.5	40.2	1.5	34.7	18.5	23
AS22□1F-01-10ST	10			18.5			33.1	40.2	14.1				21	
AS22□1F-02-04ST	4			10.4			25.2	34.4	17.7				16	
AS22□1F-02-06ST	6	R 1/4	17	12.8	18.5	7	27.2	36.4	17.7	40.2	1.5	34.7	17	40
AS22□1F-02-08ST	8			15.2			27.2	36.4	17.7				18.5	
AS22□1F-02-10ST	10			18.5			35.3	44.5	19.5				21	
AS32□1F-02-06ST	6	R 1/4	19	12.8	23	9.5	27.8	39.3	21.3	54.8	1.5	49.3	17	73
AS32□1F-02-08ST	8			15.2			29.5	41	21.3				18.5	
AS32□1F-02-10ST	10			18.5			31.8	43.3	21.3				21	
AS32□1F-02-12ST	12	R 3/8	19	20.9	23	9.5	32.8	44.3	21.3	52.6	1.5	47.4	22	82
AS32□1F-03-06ST	6			12.8			27.8	39.3	19.8				17	
AS32□1F-03-08ST	8			15.2			29.5	41	19.8				18.5	
AS32□1F-03-10ST	10	R 1/2	24	18.5	28.6	12	31.8	43.3	24.5	62.9	1.5	55.8	21	141
AS42□1F-04-10ST	10			20.9			33.6	47.9	24.5				22	
AS42□1F-04-12ST	12			20.9			34.6	48.9	24.5				22	

* Reference dimensions of M5 x 0.8, R threads after installation.

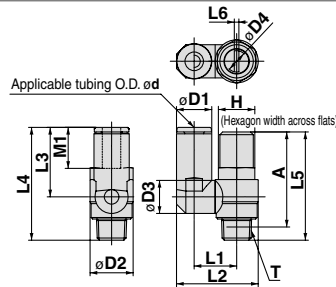
Inch Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4	L5	A *	M1	Mass (g)
AS12□1F-U10/32-01T	1/8"	10-32 UNF	8	8.4	9.6	4.5	17.3	22.1	12.3	31	0.7	27.4	12.7	10
AS12□1F-U10/32-03T	5/32"			9.3			20.3	25.1	12.3				13.5	
AS12□1F-U10/32-05T	3/16"			11.4			21.3	26.1	11.7				16.5	
AS12□1F-U10/32-07T	1/4"	NPT 1/8	12.7	12	14.2	7	18.3	23.1	11.7	34.7	1.5	31.6	13.5	21
AS22□1F-N01-01ST	1/8"			8.4			20.4	27.5	13.4				12.7	
AS22□1F-N01-03ST	5/32"			9.3			25.3	32.4	13.5				13.5	
AS22□1F-N01-05ST	3/16"	NPT 1/4	17.5	10.4	17.5	7	24	31.1	13.4	40.2	1.5	34.7	16.5	23
AS22□1F-N01-07ST	1/4"			12.8			23.9	31	13.5				18.5	
AS22□1F-N01-09ST	5/16"			15.2			25.3	32.4	13.5				21	
AS22□1F-N02-05ST	5/32"	NPT 1/4	17.5	10.4	18.5	7	25.2	34.4	17.7	40.2	1.5	34.7	16	40
AS22□1F-N02-07ST	3/16"			12.8			25.2	34.5	17.7				17	
AS22□1F-N02-09ST	1/4"			15.2			25.2	34.5	17.7				18.5	
AS22□1F-N02-11ST	5/16"	NPT 1/2	23.8	15.2	28.6	12	27.2	36.4	19.5	62.9	1.5	55.8	21	141
AS22□1F-N02-13ST	3/8"			18.5			35.3	44.5	19.5				22	
AS32□1F-N02-07ST	1/4"			13.2			27.8	39.3	21.3				17	
AS32□1F-N02-09ST	5/16"	NPT 3/8	19	15.2	23	9.5	29.5	41	19.8	52.6	1.5	47.4	18.5	79
AS32□1F-N02-11ST	3/8"			17.9			31.8	43.3	19.8				21	
AS32□1F-N03-09ST	5/16"			17.9			31.8	43.3	19.8				21	
AS32□1F-N03-11ST	3/8"	NPT 1/2	23.8	17.9	28.6	12	33.6	47.9	24.5	62.9	1.5	55.8	21	141
AS42□1F-N04-11ST	3/8"			21.7			35.2	49.5	24.5				22	
AS42□1F-N04-13ST	1/2"			21.7			35.2	49.5	24.5				22	

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

Dimensions

Universal type



Metric Size

Model	d	T	H	D1	D2	D3	D4	L1	L2	L3	L4	L5	L6	A *	M1	Mass (g)
AS13□1F-M5-23T	3.2	M5 x 0.8	8	8.4	9.6	9.3	4.5	10.8	17.5	28.7	31	0.7	27.4	12.7	10	
AS13□1F-M5-04T	4			9.3				20.3	25.1	28.7				13.5		
AS13□1F-M5-06T	6			11.6				21.4	26.6	31.8				13.5		
AS23□1F-01-23ST	3.2	R 1/8	12	8.4	14.2	9.3	7	13.1	24.4	30.9	34.7	1.5	31.6	12.7	21	
AS23□1F-01-04ST	4			9.3				24.4	24.9	30.9				13.5		
AS23□1F-01-06ST	6			11.6				26.9	22.9	36.3				13.5		
AS23□1F-01-08ST	8	R 1/4	17	15.2	18.5	12.9	7	16.2	30.9	28.2	40.2	1.5	34.7	18.5	25	
AS23□1F-02-04ST	4			10.4				16.2	30.6	21.9				16		
AS23□1F-02-06ST	6			12.8				18.4	34	25.2				17		
AS23□1F-02-08ST	8	R 1/4	17	15.2	18.5	12.9	7	18.3	35.2	28.2	40.2	1.5	34.7	18.5	44	
AS23□1F-02-10ST	10			18.5				20.2	38.7	31				21		
AS23□1F-02-12ST	12			20.9				20.2	38.7	31				21		
AS33□1F-02-06ST	6	R 1/4	19	12.8	23	12.9	9.5	20.6	38.5	25.2	54.8	1.5	49.3	17	73	
AS33□1F-02-08ST	8			15.2				20.6	39.7	28.2				18.5		
AS33□1F-02-10ST	10			18.5				23	43.7	32.6				21		
AS33□1F-02-12ST	12	R 3/8	19	20.9	23	16.2	9.5	23	44.9	34.4	52.6	1.5	47.4	22	82	
AS33□1F-03-06ST	6			12.8				20.6	38.5	25.2				17		
AS33□1F-03-08ST	8			15.2				20.6	39.7	28.2				18.5		
AS33□1F-03-10ST	10	R 1/2	24	18.5	28.6	16.2	12	23	43.7	32.6	62.9	1.5	55.8	21	145	
AS43□1F-04-10ST	10			20.9				23	44.9	34.4				22		
AS43□1F-04-12ST	12			20.9				26.8	52	36.3				22		

* Reference dimensions of M5 x 0.8, R threads after installation.

Inch Size

Model	d	T	H	D1	D2	D3	D4	L1	L2	L3	L4	L5	L6	A *	M1	Mass (g)	
AS13□1F-U10/32-01T	1/8"	10-32 UNF	8	8.4	9.6	9.3	4.5	10.8	19.8	17.5	28.7	31	0.7	27.4	12.7	10	
AS13□1F-U10/32-03T	5/32"			20.3					23.3	34.5	16.5						
AS13□1F-U10/32-05T	3/16"			11.4					21.3	31.9	16.5						
AS13□1F-U10/32-07T	1/4"			12					21.6	20.7	31.9				13.7		
AS23□1F-N01-01ST	1/8"	NPT 1/8	12.7	8.4	14	10.9	7	13.1	24.4	17.5	30.9	34.7	1.5	31.6	12.7	21	
AS23□1F-N01-03ST	5/32"			9.3					24.9	26.8	23.9				37.3	16.5	
AS23□1F-N01-05ST	3/16"			11.4					26.9	25.6	38.2				18.5		
AS23□1F-N01-07ST	1/4"			12.2					12.9	16.2	30.9				28.2	40.8	21
AS23□1F-N01-09ST	5/16"			15.2					30.9	28.2	40.8				21	25	
AS23□1F-N02-03ST	5/32"	NPT 1/4	17.5	10.4	19	10.9	7	16.2	30.6	21.9	39.6	40.2	1.5	34.7	16	40	
AS23□1F-N02-05ST	3/16"			11.4					31.1	23.9	41.6				17	41	
AS23□1F-N02-07ST	1/4"			13.2					34.2	25.6	42.5				18.5	44	
AS23□1F-N02-09ST	5/16"			15.2					35.2	28.2	45.1				21	47	
AS23□1F-N02-11ST	3/8"			17.9				20.2	38.7	31	47.9				21	48	
AS33□1F-N02-07ST	1/4"	NPT 1/4	19	13.2	23	12.9	9.5	20.6	38.7	25.6	46.9	54.8	1.5	49.3	17	73	
AS33□1F-N02-09ST	5/16"			15.2					39.7	28.2	49.5				18.5	76	
AS33□1F-N02-11ST	3/8"			17.9					43.7	32.6	53.9				21	82	
AS33□1F-N03-07ST	1/4"			13.2					20.6	38.7	25.6				45.4	17	78
AS33□1F-N03-09ST	5/16"	NPT 3/8	19	15.2	23	12.9	9.5	20.6	39.7	28.2	48	52.6	1.5	47.4	18.5	81	
AS33□1F-N03-11ST	3/8"			17.9					23	43.7	32.6				52.4	21	87
AS43□1F-N04-11ST	3/8"			17.9					25.8	49.4	32.6				57.1	21	145
AS43□1F-N04-13ST	1/2"			21.7					29	19.4	12				26.8	52	36.3

Series **AS**□□□**1F-T**

Made to Order Specifications

Please contact SMC for detailed dimensions, specifications and delivery.



Lubricant: Vaseline

X12

Ex.) AS1201F-M5-23T-X12

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

X21

Ex.) AS1201F-M5-23T-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.) AS1201F-M5-23T-X214

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

AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

ASR
ASQ

KE

TMH

Tamper Proof Speed Controller with One-touch Fittings In-line Type

Series AS□□□1F-T

Model



Model	Applicable tubing 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

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 (8 turns (1))
Applicable tubing material (2)	Nylon, Soft nylon, Polyurethane

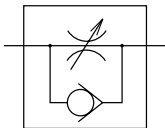
Note 1) In the case of AS1001F type

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.

Flow Rate and Effective Area

JIS Symbol



Model		AS1001F	AS2001F		AS2051F		AS3001F			AS4001F	
Tubing 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", ø1/4"	ø5/32"	ø3/16", ø1/4"	ø3/16"	ø1/4", ø5/16"	ø1/4"	ø5/16"	ø3/8"	ø3/8"	ø1/2"
Controlled flow (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 measured at 0.5 MPa and 20°C.

Flow Direction Symbols on Body



Made to Order
(Refer to page 538 for details.)

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.

How to Order

AS **200** 1F — **06** **T** —

Body size

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

With One-touch fittings

Tamper proof

Note) Speed controller requires a special tool for flow adjustment. Order separately with part number, AS-T-1.

Applicable tubing O.D.

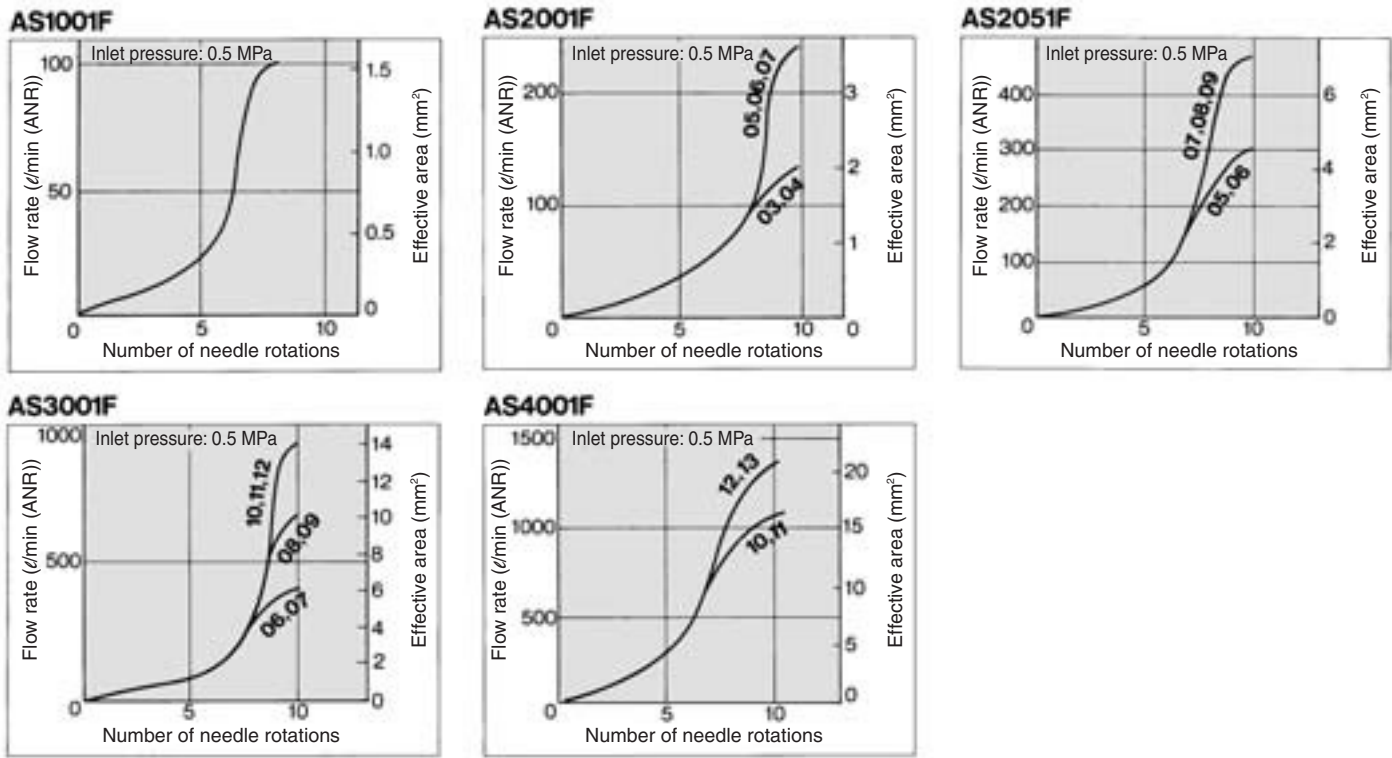
Metric size	Inch size
23 ø3.2 *	01 ø1/8"
04 ø4	03 ø5/32"
06 ø6	05 ø3/16"
08 ø8	07 ø1/4"
10 ø10	09 ø5/16"
12 ø12	11 ø3/8"
	13 ø1/2"

* Use ø1/8" tube.

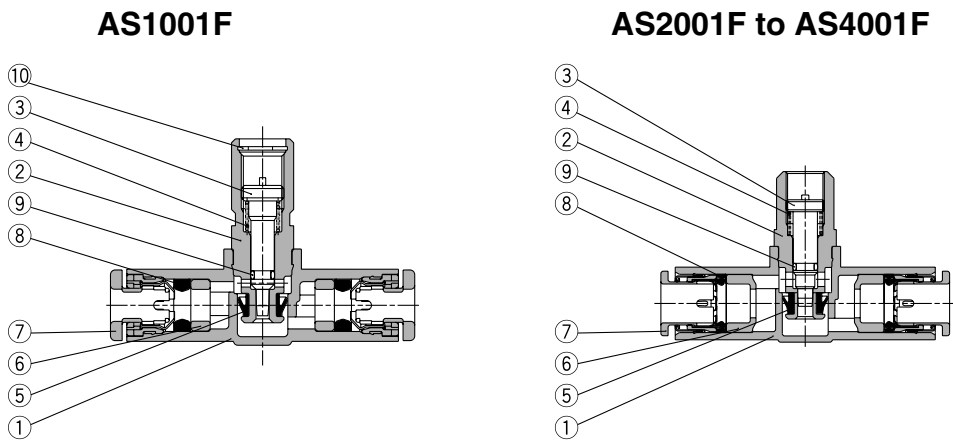
Made to Order

Refer to page 538 for details.

Needle Valve/Flow Characteristics



Construction



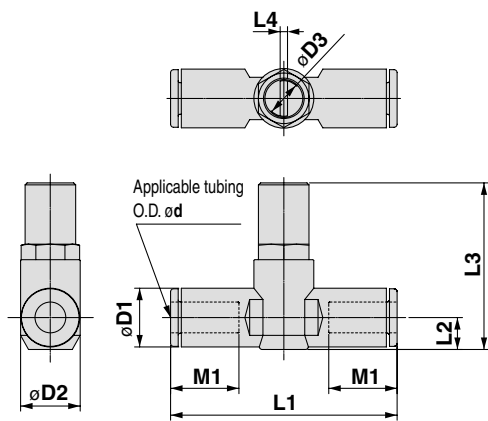
Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Body B	Brass	Electroless nickel plated
3	Needle	Brass	Electroless nickel plated
4	Spring	Steel wire	
5	U seal	HNBR	
6	Spacer	—	
7	Cassette	—	
8	Seal	NBR	
9	O-ring	NBR	
10	Retaining ring for hole type C	Tool steel	

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

Series AS□□□1F-T

Dimensions



Metric Size

Model	d	D1	D2	D3	L1	L2	L3	L4	M1	Mass (g)
AS1001F-23T	3.2	8.4	10	4.5	38	4.5	26	0.7	12.7	8
AS1001F-04T	4	9.3			39.2	5.2	26.6		12.7	9
AS1001F-06T	6	11.6			40.7	6.2	27.7		13.5	10
AS2001F-04T	4	9.3	11.8	7	40.7	5.2	31.9	1.5	12.7	15
AS2001F-06T	6	11.6			44.8	6.3	33		13.5	16
AS2051F-06T	6	12.8			53.2	6.7	35.2		17	33
AS2051F-08T	8	15.2	14.8	7	59.8	8.1	36.5	1.5	18	36
AS3001F-06T	6	12.8			59	7.4	45		17	56
AS3001F-08T	8	15.2			64.4	8.2	45.8		18	60
AS3001F-10T	10	18.5			71.6	9.8	47.3		21	64
AS3001F-12T	12	20.9	19.8	9.5	76	11	48.5	1.5	22	68
AS4001F-10T	10	18.5			77.7	11.3	55.4		21	121
AS4001F-12T	12	20.9			82.1	11.3	56.4		22	125

Inch Size

Model	d	D1	D2	D3	L1	L2	L3	L4	M1	Mass (g)
AS1001F-01T	1/8"	8.4	10	4.5	38	4.5	26	0.7	12.7	8
AS1001F-03T	5/32"	9.3			39.2	5.2	26.6		12.7	9
AS1001F-05T	3/16"	11.4			48.7	6.2	27.7		16.5	14
AS1001F-07T	1/4"	12	11.8	7	40.7	5.2	31.9	1.5	13.7	11
AS2001F-03T	5/32"	9.3			40.7	5.2	31.9		12.7	15
AS2001F-05T	3/16"	11.4			50	6.2	32.8		16.5	21
AS2001F-07T	1/4"	13.2	14.8	7	52.2	7.1	33.7	1.5	17	19
AS2051F-05T	3/16"	11.4			52.2	6.2	34.9		16.5	35
AS2051F-07T	1/4"	13.2			54.4	7.1	35.7		17	33
AS2051F-09T	5/16"	15.2	19.8	9.5	59.8	8.1	36.7	1.5	18	36
AS3001F-07T	1/4"	13.2			59	7.4	45.2		17	56
AS3001F-09T	5/16"	15.2			64.4	8.2	46		18	60
AS3001F-11T	3/8"	17.9	26.5	12	70.8	9.5	47.2	1.5	21	72
AS4001F-11T	3/8"	17.9			76.9	10.3	55.5		21	129
AS4001F-13T	1/2"	21.7			83.1	11.6	56.9		22	142

Made to Order



Lubricant: Vaseline **X12**

Ex.) AS1001F-23T-X12

Grease-free (Seal: Fluorine coated) + Throttle Valve (Without Check Valve) **X21**

Ex.) AS1001F-23T-X21

Note 1) Not particle-free

Throttle Valve (Without Check Valve) **X214**

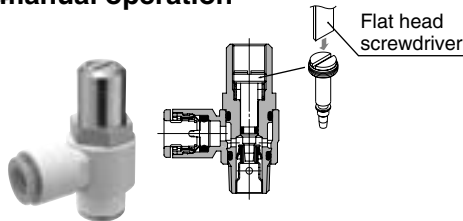
Ex.) AS1001F-23T-X214

Speed Controller Adjustable by Flat Head Screwdriver with One-touch Fitting Elbow Type/Universal Type

Series AS□□□1F-D

Flow adjustable
by flat head screwdriver

Prevention of an unnecessary
manual operation



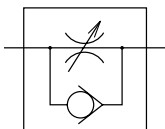
Elbow type



Universal type



JIS Symbol



Flow Direction Symbols on Body

	Meter-out type	Meter-in type
Symbol		
JIS Symbol		

Made to Order
(Refer to page 513 for details.)

Model

Elbow type	Universal type	Port size	Applicable tubing 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-M5	AS13□1F-M5	M5 x 0.8	●	●	●												6, 10, 16, 20
AS22□1F-01	AS23□1F-01	R 1/8	●	●	●	●	●	*									20, 25, 32
AS22□1F-02	AS23□1F-02	R 1/4		●	●	●	●										20, 25, 32, 40
AS32□1F-02	AS33□1F-02	R 1/4			●	●	●	●									40, 50, 63
AS32□1F-03	AS33□1F-03	R 3/8			●	●	●	●									40, 50, 63
AS42□1F-04	AS43□1F-04	R 1/2						●	●								63, 80, 100
AS12□1F-U10/32	AS13□1F-U10/32	10-32 UNF								●	●	●	●				6, 10, 16, 20
AS22□1F-N01	AS23□1F-N01	NPT 1/8								●	●	●	●	●			20, 25, 32
AS22□1F-N02	AS23□1F-N02	NPT 1/4									●	●	●	●	●		20, 25, 32, 40
AS32□1F-N02	AS33□1F-N02	NPT 1/4										●	●	●			40, 50, 63
AS32□1F-N03	AS33□1F-N03	NPT 3/8											●	●	●		40, 50, 63
AS42□1F-N04	AS43□1F-N04	NPT 1/2													●	●	63, 80, 100

Note 1) * Elbow type only

Note 2) Meter-out and meter-in types can be visually differentiated by the flow direction symbol on the resin body.

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 (8 turns ⁽¹⁾)
Applicable tubing material ⁽²⁾	Nylon, Soft nylon, Polyurethane

Note 1) In the case of AS12□1F-M5 and AS12□1F-U10/32 types

In the case of AS13□1F-M5 and AS13□1F-U10/32 types

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, provided as standard.

Flow Rate and Effective Area

Model		AS12□1F AS13□1F	AS22□1F-□01 AS23□1F-□01	AS22□1F-□02 AS23□1F-□02			AS32□1F AS33□1F			AS42□1F AS43□1F		
Tubing O.D.	Metric size	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" ø3/16", ø1/4"	ø1/8", ø3/16", ø1/4", ø5/32" ø5/16"	ø5/32"	ø3/16"	ø1/4", ø5/16", ø3/8"	ø1/4"	ø5/16"	ø3/8"	ø3/8"	ø1/2"	
Controlled flow (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	24	26

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

How to Order

AS 2 2 1 1 F - 01 - 06 S D -

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

0	Meter-out
1	Meter-in

Port size

M5	M5 x 0.8
01	R 1/8
02	R 1/4
03	R 3/8
04	R 1/2
U10/32	10-32 UNF
N01	NPT 1/8
N02	NPT 1/4
N03	NPT 3/8
N04	NPT 1/2

Applicable tubing O.D.

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"
12	ø12	11	ø3/8"
		13	ø1/2"

Type adjustable by flat head screwdriver

With seal
Note) In the case that port size is either M5 or 10-32 UNF thread, it is not available with seal. Gasket is provided as standard.

Made to Order
Refer to the below for details.

With One-touch fitting

Made to Order



Lubricant: Vaseline

X12

Ex.) AS1201F-M5-23D-X12

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

X21

Ex.) AS1201F-M5-23D-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)

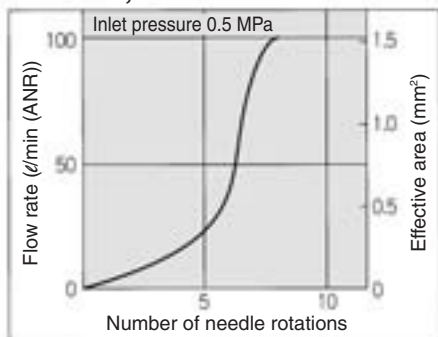
X214

Ex.) AS1201F-M5-23D-X214

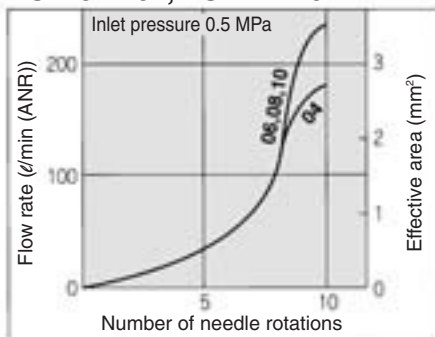
Note) Throttle valve is only compatible with the part no. of the meter-out type.

Needle Valve/Flow Characteristics

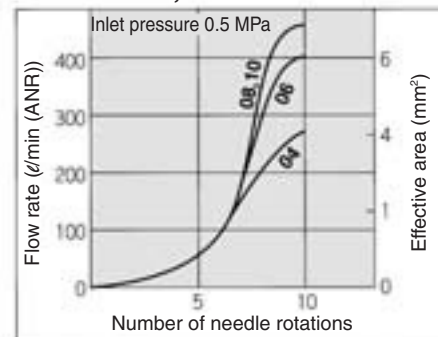
AS1201F, AS1211F



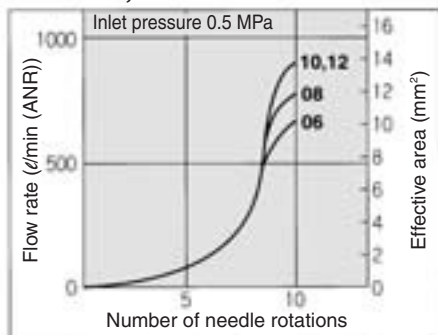
AS2201F-01, AS2211F-01



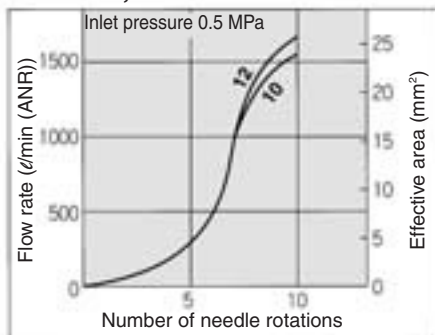
AS2201F-02, AS2211F-02



AS3201F, AS3211F

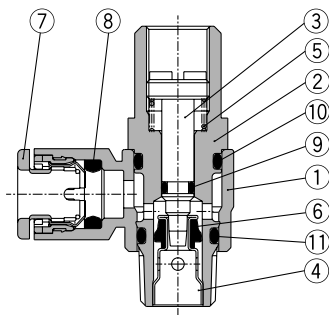


AS4201F, AS4211F

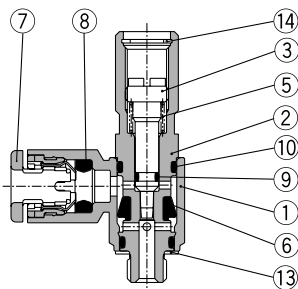


Construction

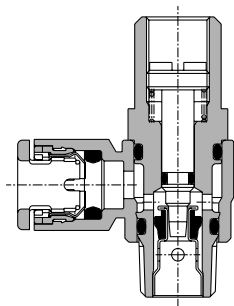
Elbow type
Meter-out type



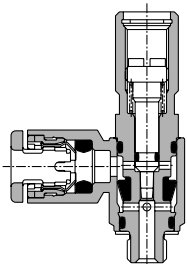
M5 type
U10/32 type



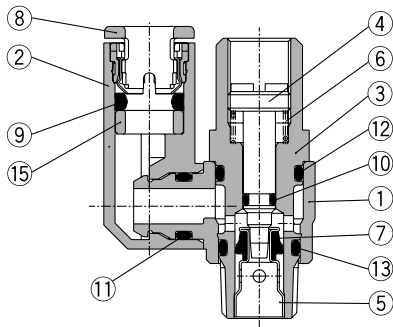
Meter-in type



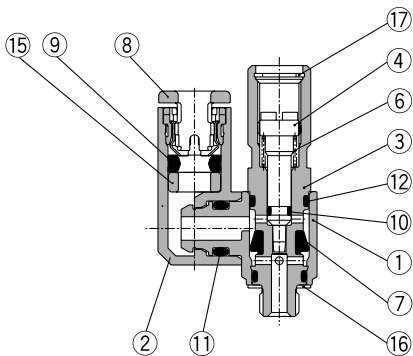
M5 type
U10/32 type



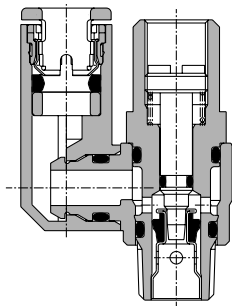
Universal type
Meter-out type



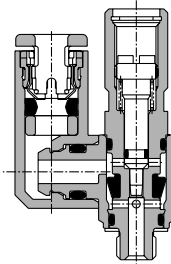
M5 type
U10/32 type



Meter-in type



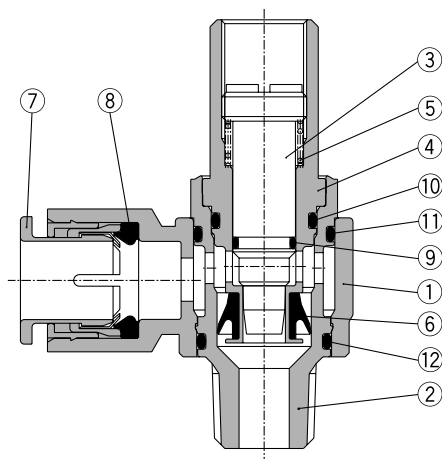
M5 type
U10/32 type



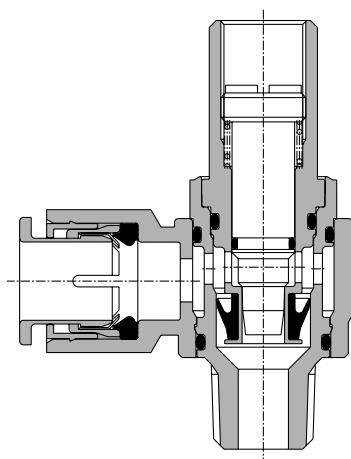
Construction

Elbow type

Meter-out AS3201F-02



Meter-in AS3211F-02

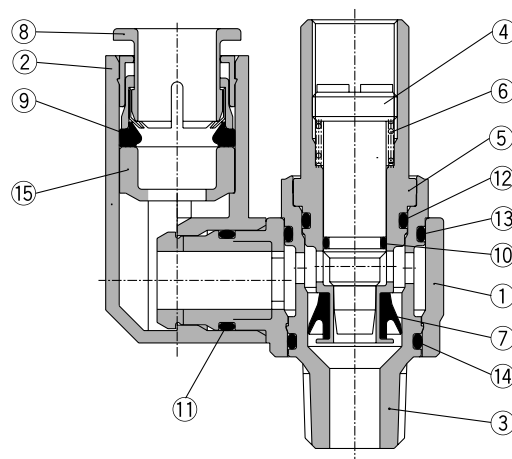


Component Parts

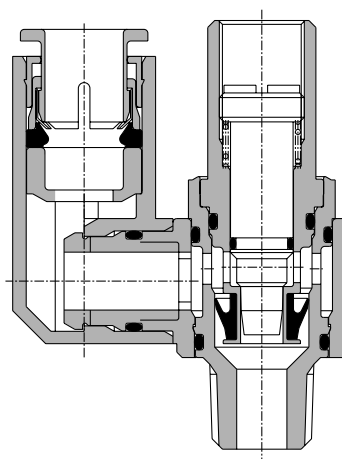
No.	Description	Material	Note
1	Body A	PBT	
2	Body B	Brass	Electroless nickel plated
3	Needle	Brass	Electroless nickel plated
4	Seat ring	Brass	Electroless nickel plated
5	Spring	Steel wire	
6	U seal	HNBR	
7	Cassette	—	
8	Seal	NBR	
9	O-ring	NBR	
10	O-ring	NBR	
11	O-ring	NBR	
12	O-ring	POM	
13	Gasket	NBR, Stainless steel	
14	Retaining ring for hole type C	Tool steel	

Universal type

Meter-out AS3301F-02



Meter-in AS3311F-02



Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Elbow body	PBT	
3	Body B	Brass	Electroless nickel plated
4	Needle	Brass	Electroless nickel plated
5	Seat ring	Brass	Electroless nickel plated
6	Spring	Steel wire	
7	U seal	HNBR	
8	Cassette	—	
9	Seal	NBR	
10	O-ring	NBR	
11	O-ring	NBR	
12	O-ring	NBR	
13	O-ring	NBR	
14	O-ring	NBR	
15	Spacer	—	
16	Gasket	NBR, Stainless steel	
17	Retaining ring for hole type C	Tool steel	

AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

ASR
ASQ

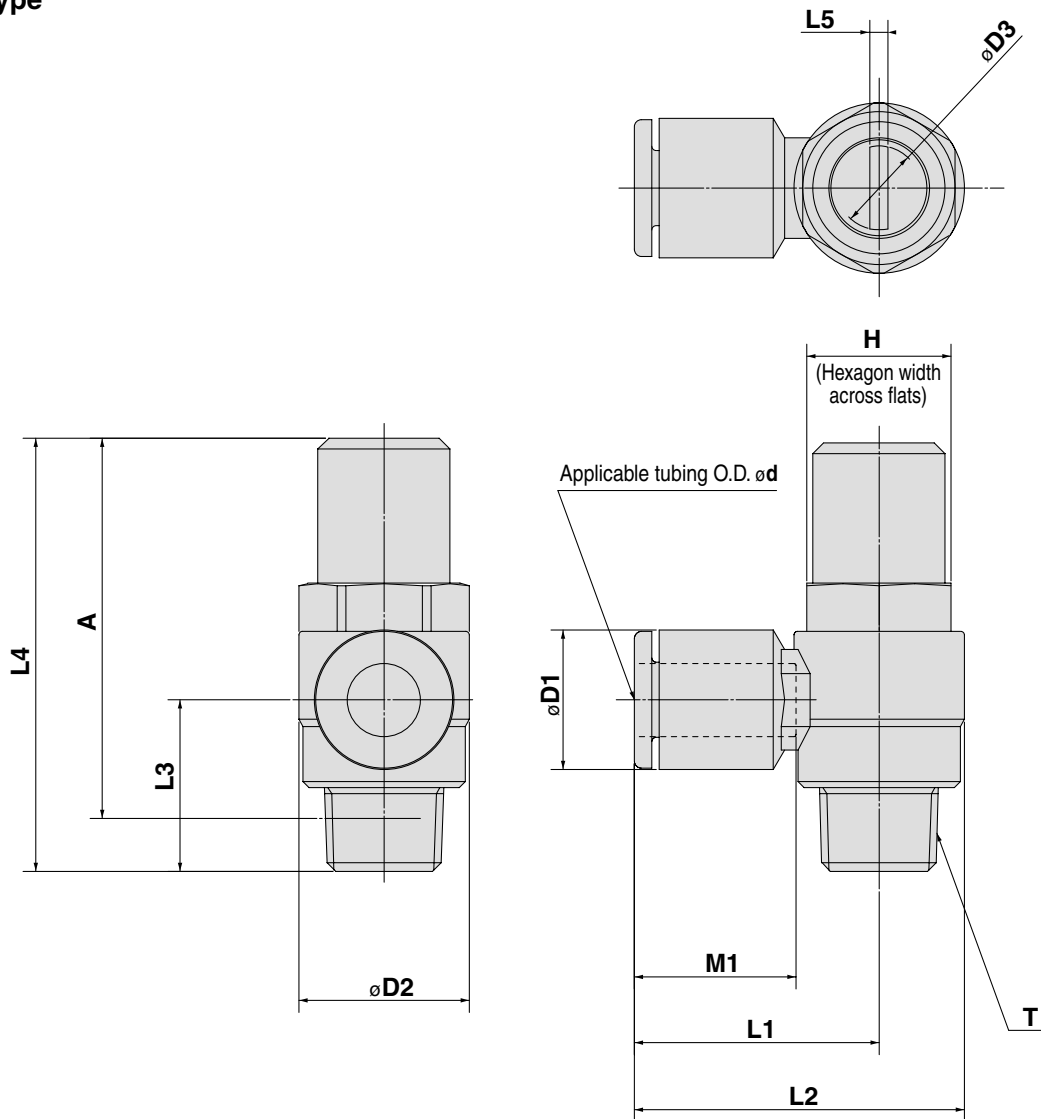
KE

TMH

Series AS□□□1F-D

Dimensions

Elbow type



Metric Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4	L5	A*	M1	Mass (g)
AS12□1F-M5-23D	3.2	M5 x 0.8	8	8.4	9.6	4.7	17.3	22.1	12.3	31	0.7	27.4	12.7	10
AS12□1F-M5-04D	4			9.3			18.1	22.9	11.7				13.5	
AS12□1F-M5-06D	6			11.6			25.3	32.4	14.1				21	
AS22□1F-01-23SD	3.2	R 1/8	12	8.4	14.2	7.2	20.4	27.5	13.4	34.7	1.2	31.6	12.7	20
AS22□1F-01-04SD	4			9.3			25.3	32.4	14.1				13.5	
AS22□1F-01-06SD	6			11.6			25.3	32.4	14.1				18.5	
AS22□1F-01-08SD	8	R 1/4	17	15.2	18.5	7.2	25.3	32.4	14.1	40.2	1.2	34.7	21	25
AS22□1F-01-10SD	10			18.5			25.3	32.4	14.1				21	
AS22□1F-02-04SD	4			10.4			25.2	34.4	17.7				16	
AS22□1F-02-06SD	6	R 1/4	17	12.8	18.5	7.2	27.2	36.4	19.5	40.2	1.2	34.7	17	40
AS22□1F-02-08SD	8			15.2			27.2	36.4	19.5				18.5	
AS22□1F-02-10SD	10			18.5			27.2	36.4	19.5				21	
AS32□1F-02-06SD	6	R 1/4	19	12.8	23	9.8	27.8	39.3	21.3	54.8	1.2	49.3	17	73
AS32□1F-02-08SD	8			15.2			29.5	41	21.3				18.5	
AS32□1F-02-10SD	10			18.5			31.8	43.3	21.3				21	
AS32□1F-02-12SD	12	R 3/8	19	20.9	23	9.8	32.8	44.3	24.5	62.9	1.2	55.8	22	82
AS32□1F-03-06SD	6			12.8			27.8	39.3	19.8				17	
AS32□1F-03-08SD	8			15.2			29.5	41	19.8				18.5	
AS32□1F-03-10SD	10	R 1/2	24	18.5	28.6	12.4	31.8	43.3	24.5	62.9	1.2	55.8	21	141
AS32□1F-03-12SD	12			20.9			32.8	44.3	24.5				22	
AS42□1F-04-10SD	10			18.5			33.6	47.9	24.5				21	
AS42□1F-04-12SD	12	R 1/2	24	20.9	28.6	12.4	34.6	48.9	24.5	62.9	1.2	55.8	22	142

* Reference dimensions of M5 x 0.8, R threads after installation.

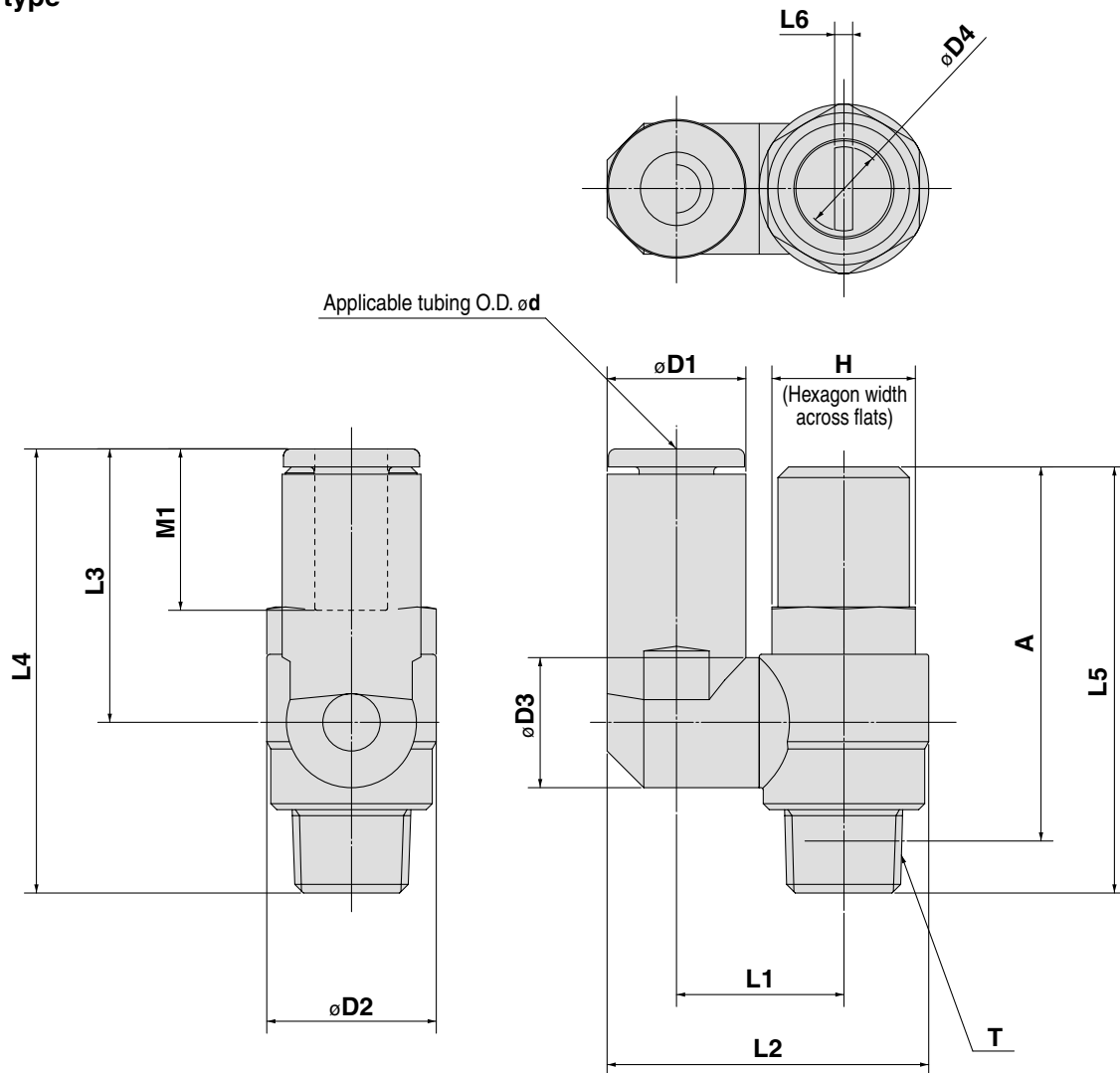
Inch Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4	L5	A*	M1	Mass (g)
AS12□1F-U10/32-01D	1/8"	10-32 UNF	8	8.4	9.6	4.7	17.3	22.1	12.3	31	0.7	27.4	12.7	10
AS12□1F-U10/32-03D	5/32"			9.3			21.3	26.1	11.7				16.5	
AS12□1F-U10/32-05D	3/16"			11.4			21.3	26.1	11.7				13.5	
AS12□1F-U10/32-07D	1/4"	NPT 1/8	12.7	12	14.2	7.2	18.3	23.1	11.7	34.7	1.2	31.6	13.5	20
AS22□1F-N01-01SD	1/8"			8.4			20.4	27.5	13.4				12.7	
AS22□1F-N01-03SD	5/32"			9.3			24	31.1	13.4				16.5	
AS22□1F-N01-05SD	3/16"	NPT 1/4	17.5	13.2	18.5	7.2	23.9	31	17.7	40.2	1.2	34.7	18.5	23
AS22□1F-N01-07SD	1/4"			13.2			25.3	32.4	19.5				21	
AS22□1F-N01-09SD	5/16"			15.2			25.3	32.4	19.5				21	
AS22□1F-N02-03SD	5/32"	NPT 3/8	19	10.4	23	9.8	25.2	34.4	17.7	40.2	1.2	34.7	16	40
AS22□1F-N02-07SD	3/16"			12.8			25.2	34.5	17.7				17	
AS22□1F-N02-09SD	5/16"			15.2			27.2	36.4	19.5				21	
AS22□1F-N02-11SD	3/8"	NPT 1/2	23.8	18.3	28.6	12.4	35.3	44.5	19.5	62.9	1.2	55.8	21	80
AS32□1F-N02-07SD	1/4"			13.2			27.8	39.3	21.3				17	
AS32□1F-N02-09SD	5/16"			15.2			29.5	41	21.3				18.5	
AS32□1F-N03-11SD	3/8"	NPT 3/4	27.1	17.9	31.8	12.4	31.8	43.3	19.8	62.9	1.2	55.8	21	141
AS32□1F-N03-07SD	1/4"			13.2			27.8	39.3	21.3				17	
AS32□1F-N03-09SD	5/16"			15.2			29.5	41	21.3				18.5	
AS42□1F-N04-11SD	3/8"	NPT 1/2	23.8	17.9	28.6	12.4	33.6	47.9	24.5	62.9	1.2	55.8	21	141
AS42□1F-N04-13SD	1/2"			21.7			35.2	49.5	24.5				22	

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

Dimensions

Universal type



Metric Size

Model	d	T	H	D1	D2	D3	D4	L1	L2	L3	L4	L5	L6	A*	M1	Mass (g)
AS13□1F-M5-23D	3.2			8.4					19.8	17.5	28.7	31	0.7	27.4	12.7	10
AS13□1F-M5-04D	4	M5 x 0.8	8	9.3	9.6	9.3	4.7	10.8	20.3	21.4	20.6	31.8			13.5	
AS13□1F-M5-06D	6			11.6					21.4	20.6	31.8					
AS23□1F-01-23SD	3.2			8.4					13.1	24.4	17.5	30.9			12.7	21
AS23□1F-01-04SD	4			9.3					24.9	17.5	30.9					
AS23□1F-01-06SD	6			11.6					26.9	22.9	36.3				13.5	25
AS23□1F-01-08SD	8			15.2					30.9	28.2	40.8				18.5	25
AS23□1F-02-04SD	4			10.4					16.2	30.6	21.9	39.6			16	40
AS23□1F-02-06SD	6			12.8					18.4	34	25.2	42.1			17	41
AS23□1F-02-08SD	8			18.5					18.3	35.2	28.2	45.1			18.5	44
AS23□1F-02-10SD	10			18.5					20.2	38.7	31	47.9			21	48
AS33□1F-02-06SD	6			12.8					38.5	25.2	46.5				17	73
AS33□1F-02-08SD	8			15.2					39.7	28.2	49.5				18.5	76
AS33□1F-02-10SD	10			18.5					43.7	32.6	53.9				21	80
AS33□1F-02-12SD	12			20.9					44.9	34.4	55.7				22	82
AS33□1F-03-06SD	6			12.8					38.5	25.2	45				17	78
AS33□1F-03-08SD	8			15.2					39.7	28.2	48				18.5	81
AS33□1F-03-10SD	10			18.5					43.7	32.6	52.4				21	85
AS33□1F-03-12SD	12			20.9					44.9	34.4	54.2				22	87
AS43□1F-04-10SD	10			18.5					25.8	49.4	32.6	57.1			21	145
AS43□1F-04-12SD	12			20.9					26.8	52	36.3	60.8			22	147

* Reference dimensions of M5 x 0.8, R threads after installation.

Inch Size

Model	d	T	H	D1	D2	D3	D4	L1	L2	L3	L4	L5	L6	A*	M1	Mass (g)
AS13□1F-U10/32-01D	1/8"			8.4					19.8	17.5	28.7	31	0.7	27.4	12.7	10
AS13□1F-U10/32-03D	5/32"			9.3					20.3	21.3	23.3	34.5			16.5	
AS13□1F-U10/32-05D	3/16"			11.4					21.3	23.3	34.5				13.7	11
AS13□1F-U10/32-07D	1/4"			12					21.6	20.7	31.9					
AS23□1F-N01-01SD	1/8"			8.4					13.1	24.4	17.5	30.9			12.7	21
AS23□1F-N01-03SD	5/32"			9.3					24.9	17.5	30.9					
AS23□1F-N01-05SD	3/16"			10.4					26.8	23.9	37.3	34.7	1.2	31.6	16.5	23
AS23□1F-N01-07SD	1/4"			12.8					29.9	25.6	38.2				21	25
AS23□1F-N01-09SD	5/16"			15.2					30.9	28.2	40.8					
AS23□1F-N02-03SD	5/32"			10.4					16.2	30.6	21.9	39.6			16	40
AS23□1F-N02-05SD	3/16"			11.4					16.2	31.1	23.9	41.6			17	41
AS23□1F-N02-07SD	1/4"			12.8					18.3	34.2	25.6	42.5	40.2	1.2	18.5	44
AS23□1F-N02-09SD	5/16"			15.2					20.2	35.2	28.2	45.1			21	47
AS23□1F-N03-11SD	3/8"			17.9					20.2	38.7	31	47.9			21	48
AS33□1F-N02-07SD	1/4"			12.8					18.3	38.7	25.6	46.9			17	73
AS33□1F-N02-09SD	5/16"			15.2					20.6	39.7	28.2	49.5	54.8	1.2	18.5	76
AS33□1F-N02-11SD	3/8"			17.9					23	43.7	32.6	53.9			21	82
AS33□1F-N03-07SD	1/4"			12.8					18.3	38.7	25.6	45.4			17	78
AS33□1F-N03-09SD	5/16"			15.2					20.6	39.7	28.2	48	52.6	1.2	18.5	81
AS33□1F-N03-11SD	3/8"			17.9					23	43.7	32.6	52.4			21	87
AS43□1F-N04-11SD	3/8"			17.9					25.8	49.4	32.6	57.1	62.9	1.2	21	145
AS43□1F-N04-13SD	1/2"			21.7					26.8	52	36.3	60.8			22	147

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

Speed Controller Adjustable by Flat Head Screwdriver with One-touch Fittings In-line Type

Series AS□□□1F-D



Model

Model	Applicable tubing 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

Specifications

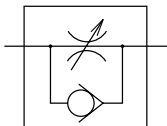
Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure	1 MPa
Min. operating pressure	0.1 MPa
Ambient and fluid temperature	-5 to 60°C (No freezing)
Number of needle rotations	10 turns (8 turns (1))
Applicable tubing material (2)	Nylon, Soft nylon, Polyurethane

Note 1) In the case of AS1001F 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.

JIS Symbol



Flow Direction Symbols on Body



Flow Rate and Effective Area

Model		AS1001F	AS2001F	AS2051F		AS3001F			AS4001F		
Tubing 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", ø1/4"	ø5/32"	ø3/16", ø1/4"	ø3/16"	ø1/4", ø5/16"	ø1/4"	ø5/16"	ø3/8"	ø3/8"	ø1/2"
Controlled flow (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 measured at 0.5 MPa and 20°C

How to Order

AS 200 1F — 06 D —

Body size

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

With One-touch fittings

Type adjustable by flat head screwdriver

Made to Order

Refer to page 521 for details.

Applicable tubing O.D.

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"
12 ø12	11 ø3/8"
	13 ø1/2"

* Use ø1/8" tube.

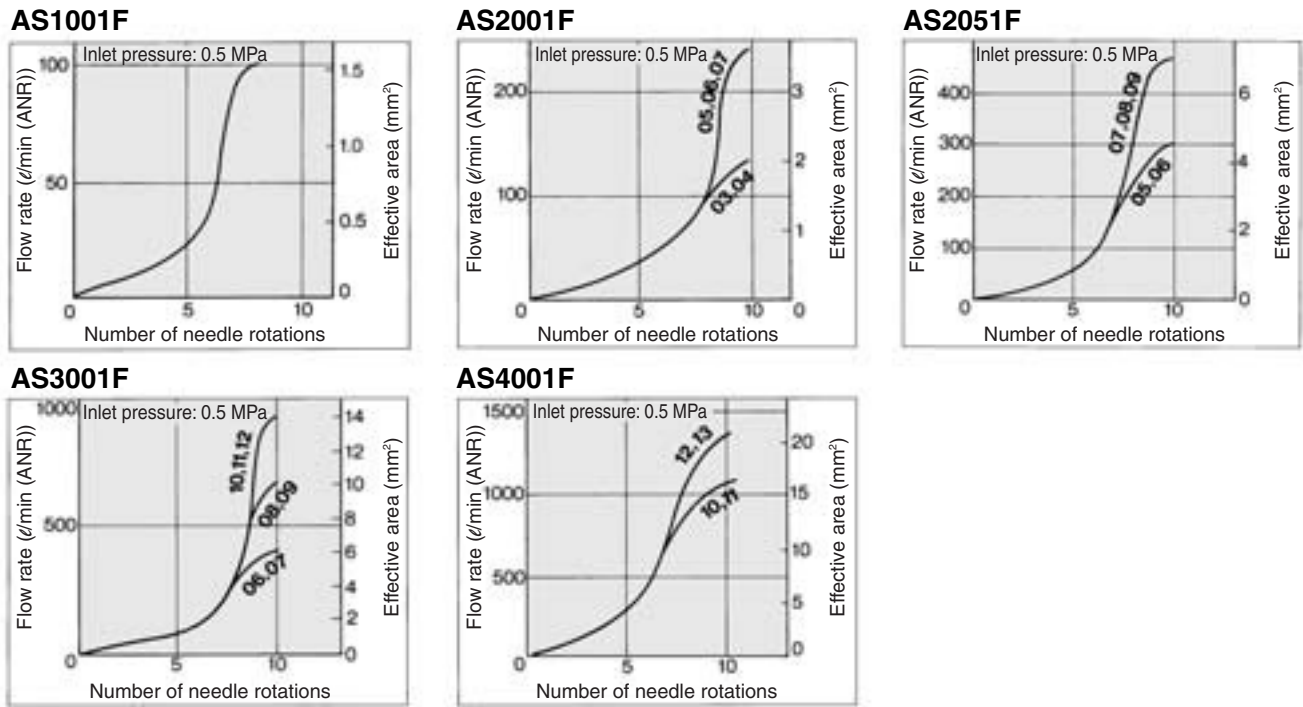


Made to Order
(Refer to page 521 for details.)

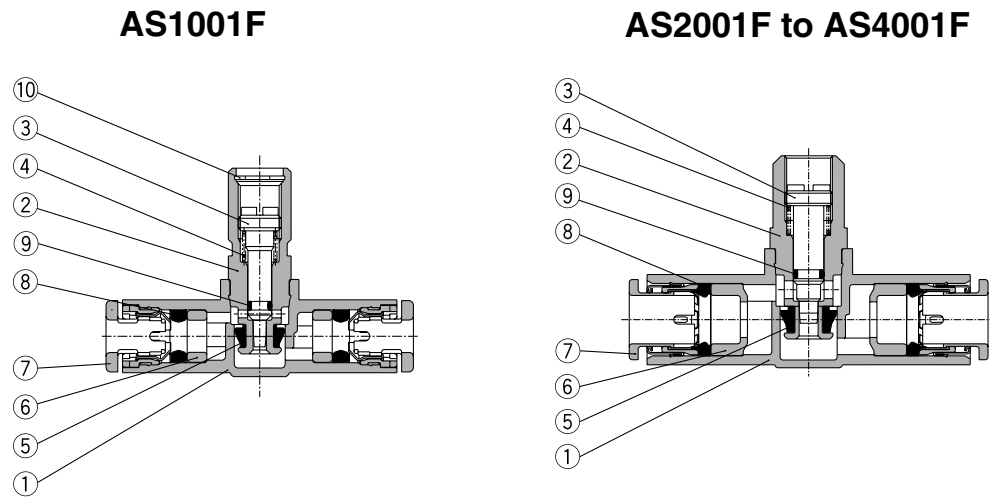
Caution

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.

Needle Valve/Flow Characteristics



Construction



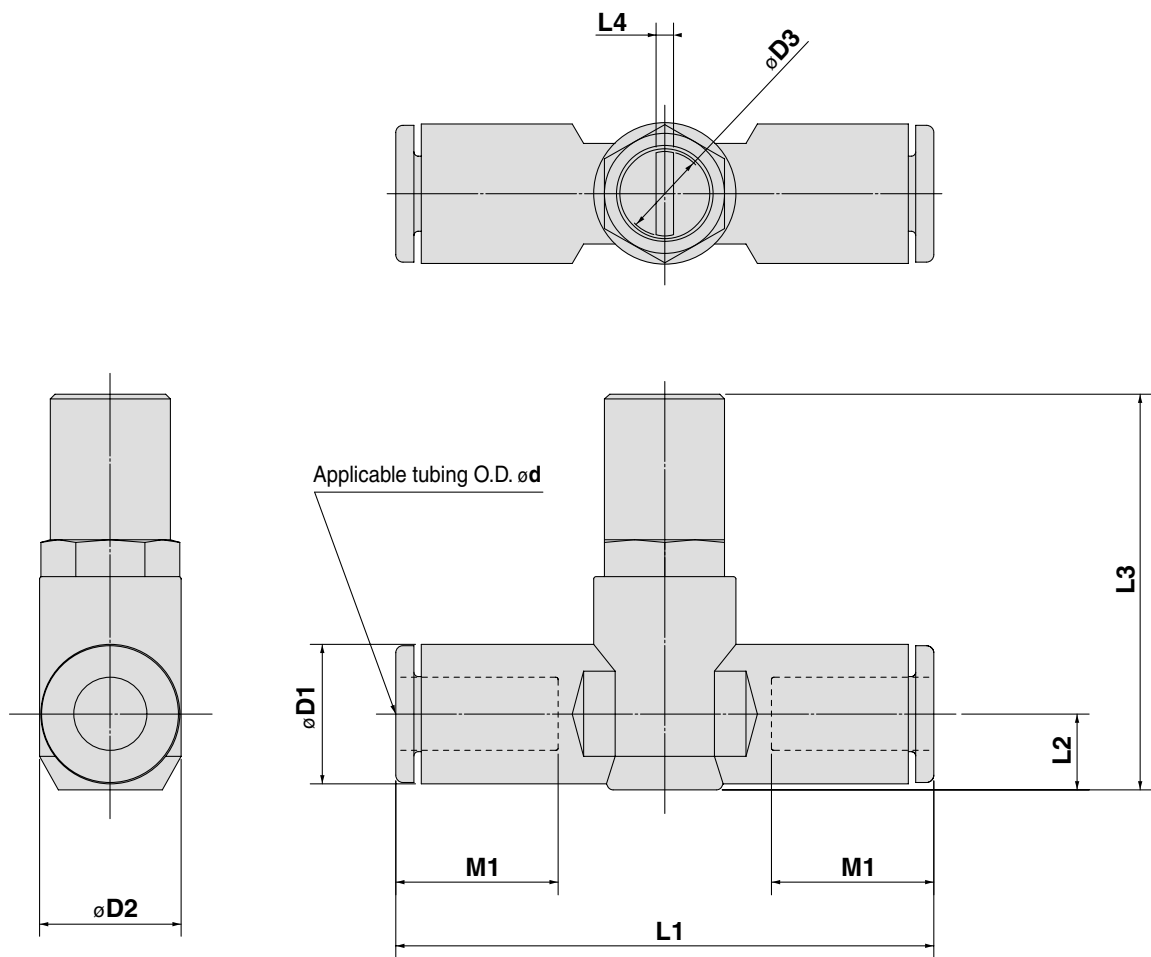
Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Body B	Brass	Electroless nickel plated
3	Needle	Brass	Electroless nickel plated
4	Spring	Steel wire	
5	U seal	HNBR	
6	Spacer	—	
7	Cassette	—	
8	Seal	NBR	
9	O-ring	NBR	
10	Retaining ring for hole type C	Tool steel	

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

Series **AS**□□□**1F-D**

Dimensions



Metric Size

Model	d	D1	D2	D3	L1	L2	L3	L4	M1	Mass (g)
AS1001F-23D	3.2	8.4	10	4.7	38	4.5	26	0.7	12.7	8
AS1001F-04D	4	9.3			39.2	5.2	26.6			9
AS1001F-06D	6	11.6			40.7	6.2	27.7		13.5	10
AS2001F-04D	4	9.3	11.8	7.2	40.7	5.2	31.9	1.2	12.7	15
AS2001F-06D	6	11.6			44.8	6.3	33		13.5	16
AS2051F-06D	6	12.8			53.2	6.7	35.2		17	33
AS2051F-08D	8	15.2	14.8	7.2	59.8	8.1	36.5	1.2	18	36
AS3001F-06D	6	12.8			59	7.4	45		17	56
AS3001F-08D	8	15.2			64.4	8.2	45.8		18	60
AS3001F-10D	10	18.5	19.8	9.8	71.6	9.8	47.3	1.2	21	64
AS3001F-12D	12	20.9			76	11	48.5		22	68
AS4001F-10D	10	18.5			77.7	11.3	55.4		21	121
AS4001F-12D	12	20.9	26.5	12.4	82.1		56.4	1.2	22	125

Inch Size

Model	d	D1	D2	D3	L1	L2	L3	L4	M1	Mass (g)
AS1001F-01D	1/8"	8.4	10	4.7	38	4.5	26	0.7	12.7	8
AS1001F-03D	5/32"	9.3			39.2	5.2	26.6			9
AS1001F-05D	3/16"	11.4			48.7	6.2	27.7		16.5	14
AS1001F-07D	1/4"	12	11.8	7.2	40.7	5.2	31.9	1.2	12.7	15
AS2001F-03D	5/32"	9.3			50	6.2	32.8		16.5	21
AS2001F-05D	3/16"	11.4			52.2	7.1	33.7		17	19
AS2001F-07D	1/4"	13.2	14.8	7.2	52.2	6.2	34.9	1.2	16.5	35
AS2051F-05D	3/16"	11.4			54.4	7.1	35.7		17	33
AS2051F-07D	1/4"	13.2			59.8	8.1	36.7		18	36
AS2051F-09D	5/16"	15.2	19.8	9.8	59	7.4	45.2	1.2	17	56
AS3001F-07D	1/4"	13.2			64.4	8.2	46		18	60
AS3001F-09D	5/16"	15.2			70.8	9.5	47.2		21	72
AS3001F-11D	3/8"	17.9	26.5	12.4	76.9	10.3	55.5	1.2	21	129
AS4001F-11D	3/8"	17.9			83.1	11.6	56.9		22	142
AS4001F-13D	1/2"	21.7								

Series **AS**□□□**1F-D**

Made to Order Specifications

Please contact SMC for detailed dimensions, specifications and delivery.



Lubricant: Vaseline

X12

Ex.) AS1001F-23D-X12

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

X21

Ex.) AS1001F-23D-X21

Note 1) Not particle-free

Throttle Valve (Without Check Valve)

X214

Ex.) AS1001F-23D-X214

AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

ASR
ASQ

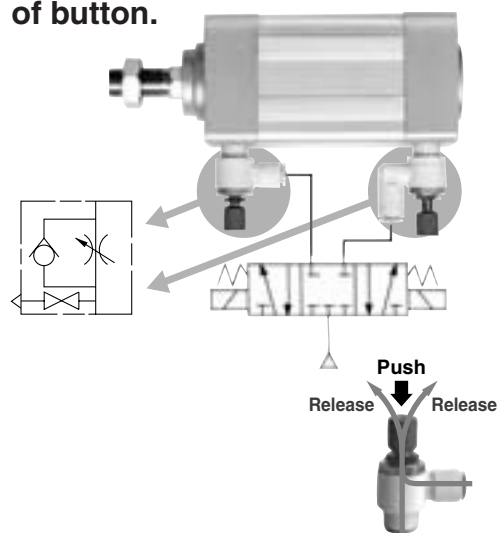
KE

TMH

Speed Controller with Residual Pressure Release Valve with One-touch Fitting

Series **AS** **FE**

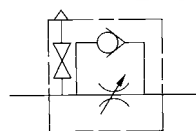
Residual pressure can be easily released with one push of button.



Eye-catching red color release button.



JIS Symbol



Flow Direction Symbols on Body

	Meter-out type	Meter-in type
Symbol		
JIS Symbol		

Made to Order
(Refer to page 465 for details.)

Model

Elbow type	Universal type	Port size in the cylinder side	Applicable tubing O.D. (mm)					Applicable cylinder bore size (mm)
			ø4	ø6	ø8	ø10 ⁽¹⁾	ø12	
AS22□1FE-01	AS23□1FE-01	R 1/8	●	●	●	●		20, 25, 32
AS22□1FE-02	AS23□1FE-02	R 1/4	●	●	●	●		20, 25, 32, 40
AS32□1FE-03	AS33□1FE-03	R 3/8		●	●	●	●	40, 50, 63
AS42□1FE-04	AS43□1FE-04	R 1/2				●	●	63, 80, 100

Note 1) Elbow type only

Note 2) Distinction between meter-out/meter-in types by appearance

Those are distinguished by the lock nut. The meter-out type is electroless nickel plated, while the meter-in type is black zinc chromate plated.

Specifications

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 rotations	10 turns
Effective area of residual exhaust valve	0.8 mm ²
Applicable tubing material	Nylon, Soft nylon, Polyurethane

Flow Rate and Effective Area

Model		AS22□1FE-01 AS23□1FE-01		AS22□1FE-02 AS23□1FE-02			AS32□1FE AS33□1FE			AS42□1FE AS43□1FE	
Tubing O.D.	Metric size	ø4	ø6 ø8 ø10	ø4	ø6	ø8 ø10	ø6	ø8	ø10 ø12	ø10	ø12
Controlled flow (Free flow)	Flow rate (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) Flow rate values are measured at 0.5 MPa and 20°C.

How to Order

AS 2 2 1 **1FE** - 01 - 06 **SK** -

- Body size**

2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard
- Type**

2	Elbow
3	Universal
- Control type**

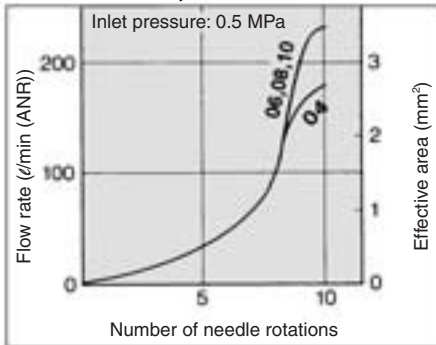
0	Meter-out
1	Meter-in
- Port size**

01	R 1/8
02	R 1/4
03	R 3/8
04	R 1/2
- Applicable tubing O.D. (mm)**

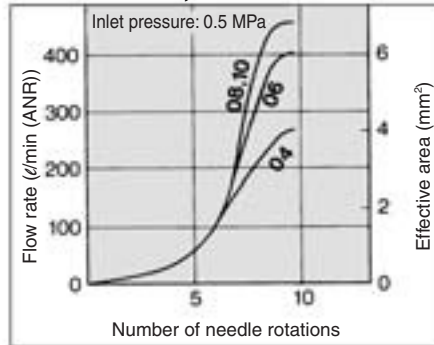
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12
- With residual pressure release valve**
- With One-touch fitting**
- Hexagonal lock nut**
- With seal**
- Made to Order**
Refer to page 465 for details.

Needle Valve/Flow Characteristics

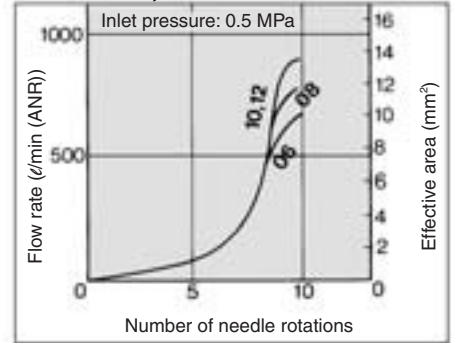
AS2201FE-01, AS2211FE-01
AS2301FE-01, AS2311FE-01



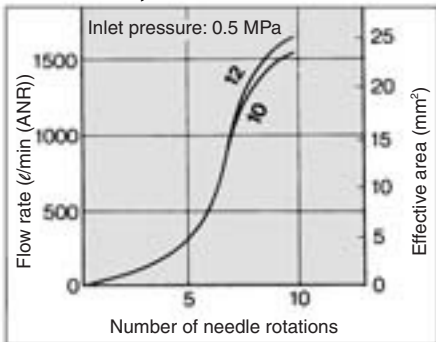
AS2201FE-02, AS2211FE-02
AS2301FE-02, AS2311FE-02



AS3201FE, AS3211FE
AS3301FE, AS3311FE



AS4201FE, AS4211FE
AS4301FE, AS4311FE



⚠ 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



Lubricant: Vaseline

X12

Ex.) AS2201FE-01-04SK-X12

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

X21

Ex.) AS2201FE-01-04SK-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.) AS2201FE-01-04SK-X214

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

AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

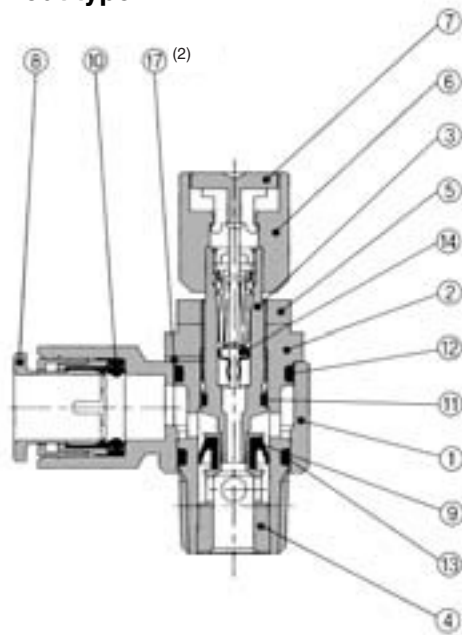
ASR
ASQ

KE

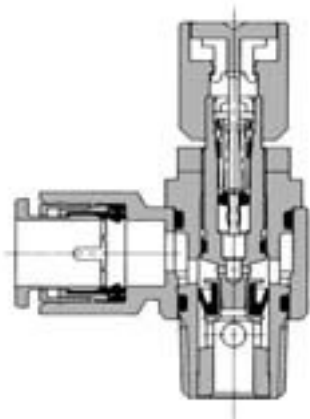
TMH

Construction

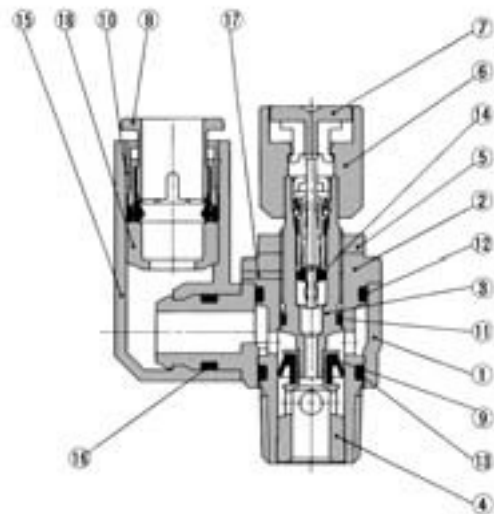
Elbow type
Meter-out type



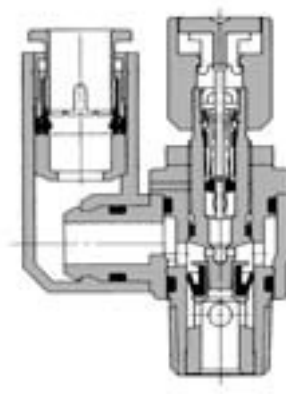
Meter-in type



Universal type
Meter-out type



Meter-in type



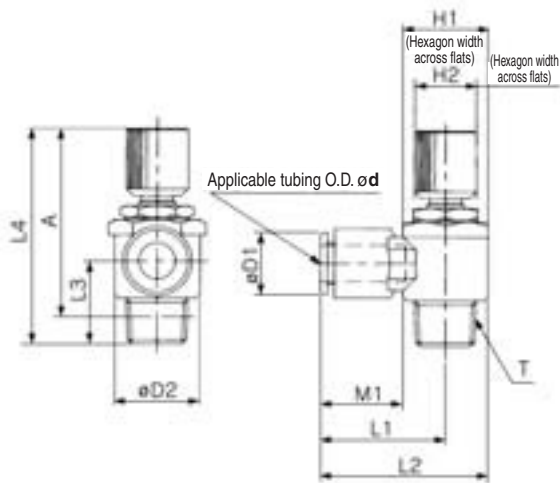
Component Parts

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	(1)
5	Lock nut	Brass	Electroless nickel plated (2)
6	Handle	Aluminum alloy	Red painted
7	Push button	POM	Red
8	Cassette	—	
9	U seal	HNBR	
10	Seal	NBR	
11	O-ring	NBR	
12	O-ring	NBR	
13	O-ring	NBR	
14	Valve core	—	
15	Elbow body	PBT	
16	O-ring	NBR	
17	Accidental release prevention screw	Stainless steel	AS2□□1FE-01 (3)
18	Spacer	—	

Note 1) AS2□□1FE type is electroless nickel plated. Note 3) Only for AS2□□1FE-01.
Note 2) Meter-in type is black zinc chromate plated.

Dimensions

Elbow type



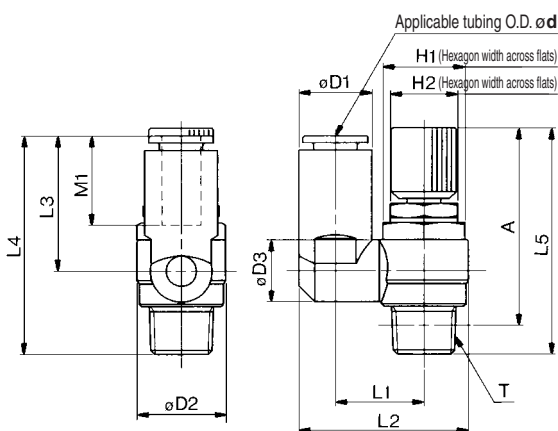
Model	Applicable tubing o.d.	T	H1	H2	D1	D2	L1	L2	L3	L4 (1)		A (2)		M1	Mass (g)
										Max.	Min.	Max.	Min.		
AS22□1FE-01-04SK	4	R 1/8	12	12	9.3	14.2	20.4	27.5	13.4	53	48	49.9	44.9	12.7	26
AS22□1FE-01-06SK	6				11.6		20.4	27.5						13.5	27
AS22□1FE-01-08SK	8				15.2		25.3	32.4						18.5	29
AS22□1FE-01-10SK	10				18.5		33.1	40.2						14.1	21
AS22□1FE-02-04SK	4	R 1/4	17	14	10.4	18.5	25.2	34.4	17.7	51.7	46.7	46.2	41.2	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		35.3	44.5						19.5	21
AS32□1FE-03-06SK	6	R 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		31.8	43.3						21	62
AS32□1FE-03-12SK	12				20.9		32.8	44.3						22	64
AS42□1FE-04-10SK	10	R 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

Note 1) Reference dimensions

Note 2) Reference dimensions of R thread after installation.

Dimensions

Universal type



Model	Applicable tubing O.D. ød	T	H1	H2	D1	D2	D3	L1	L2	L3	L4	L5 (1)		A (2)		M1	Mass (g)
												Max.	Min.	Max.	Min.		
AS23□1FE-01-04SK	4	R 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	R 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				12.8		12.9	20.6	38.5	25.2	45					17	57
AS33□1FE-03-08SK	8	R 3/8	19	14	15.2	23	39.7	28.2	48	56.7	51.7	51.5	46.5	18.5	60		
AS33□1FE-03-10SK	10				18.5		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	R 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

Note 1) Reference dimensions

Note 2) Reference dimensions of R thread after installation.

AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

ASR

ASQ

KE

TMH

Speed Controller with One-touch Fitting Stainless Steel Series Elbow Type/Universal Type *Series AS-FG*

Stainless specifications for use in corrosive environments. Stainless steel 303 used for metal parts.

Suitable for use on CRT lines where copper ions can cause damage, for washing food processing equipment where there is exposure to water and salt water, etc., and in clean rooms where dust from discoloration and rusting of copper materials is unacceptable.

Light colors to match equipment

White resin parts are used for bodies and release buttons.

Threads with and without seal are available as standard.

Applicable tubing: Inch sizes standardized

Inch sizes are now available for all models.

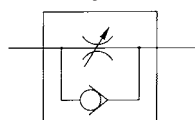


Elbow type



Universal type

JIS Symbol



Flow Direction Symbols on Body

	Meter-out type	Meter-in type
Symbol		
JIS Symbol		

Model

Elbow type	Universal type	Port size	Applicable tubing 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□1FG-M5	AS13□1FG-M5	M5 x 0.8	●	●	●											6, 10, 16, 20
AS22□1FG-01	AS23□1FG-01	R 1/8	●	●	●	●	●*									20, 25, 32
AS22□1FG-02	AS23□1FG-02	R 1/4		●	●	●	●									20, 25, 32, 40
AS32□1FG-02	AS33□1FG-02	R 1/4			●	●	●	●								40, 50, 63
AS32□1FG-03	AS33□1FG-03	R 3/8			●	●	●	●								40, 50, 63
AS42□1FG-04	AS43□1FG-04	R 1/2					●	●								63, 80, 100
AS12□1FG-U10/32	AS13□1FG-U10/32	10-32 UNF							●	●	●	●				6, 10, 16, 20
AS22□1FG-N01	AS23□1FG-N01	NPT 1/8							●	●	●	●	●			20, 25, 32
AS22□1FG-N02	AS23□1FG-N02	NPT 1/4								●	●	●	●	●		20, 25, 32, 40
AS32□1FG-N02	AS33□1FG-N02	NPT 1/4										●	●	●		40, 50, 63
AS32□1FG-N03	AS33□1FG-N03	NPT 3/8										●	●	●		40, 50, 63
AS42□1FG-N04	AS43□1FG-N04	NPT 1/2												●	●	63, 80, 100

Note 1) Meter-out and meter-in types can be visually differentiated by the flow direction symbol on the resin body.

Note 2) * Elbow type only

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 (8 turns ⁽¹⁾)
Applicable tubing material ⁽²⁾	Nylon, Soft nylon, Polyurethane

Note 1) In the case of AS12□1FG and AS13□1FG

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.)

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		
Tubing O.D.	Metric size	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" ø3/16" ø1/4"	ø1/8" ø5/32" ø1/4" ø5/16"	ø5/32"	ø3/16"	ø1/4" ø5/16" ø3/8"	ø1/4"	ø5/16"	ø3/8"	ø3/8"	ø1/2"	
Controlled flow (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) Flow rate values are measured at 0.5 MPa and 20°C.



Made to Order
(Refer to page 473 for details.)

How to Order

AS 2 3 0 1 F G - 01 - 06 -

Body size

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

Control type

0	Meter-out
1	Meter-in

Type

2	Elbow
3	Universal

With One-touch fitting

Stainless steel specifications (SUS303)

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
03	3/8
04	1/2

Made to Order
(Refer to the below for details.)

Option

Nil	None
S	With seal*

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

Applicable tubing O.D.

Metric size

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

* Use 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"

Made to Order



1 Lubricant: Vaseline X12

Ex.) AS1201FG-M5-23-X12

3 Throttle Valve (Without Check Valve) X214

Ex.) AS1201FG-M5-23-X214

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

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

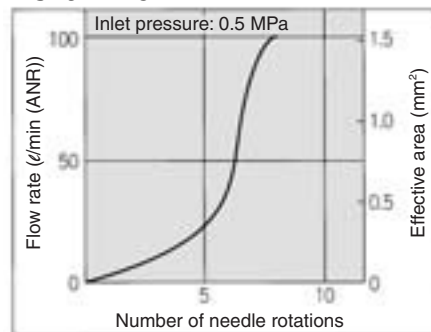
Ex.) AS1201FG-M5-23-X21

Note 1) Not particle-free

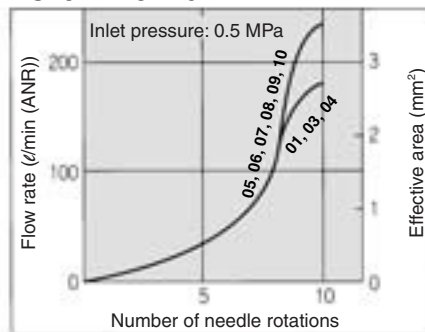
Note 2) Throttle valve is only compatible with the part no. of the meter-out type.

Needle Valve/Flow Characteristics

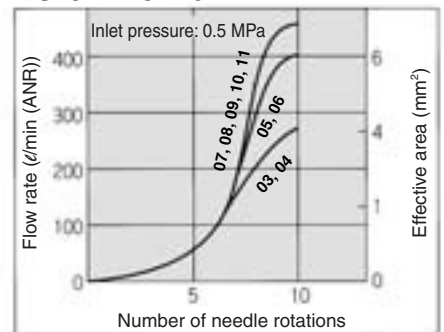
AS12□1FG
AS13□1FG



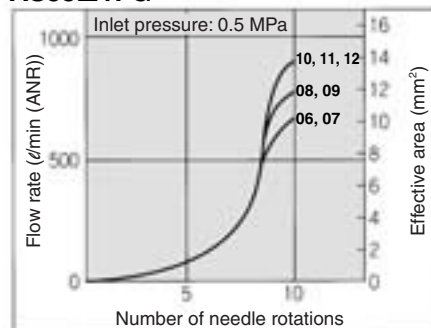
AS22□1FG-□01
AS23□1FG-□01



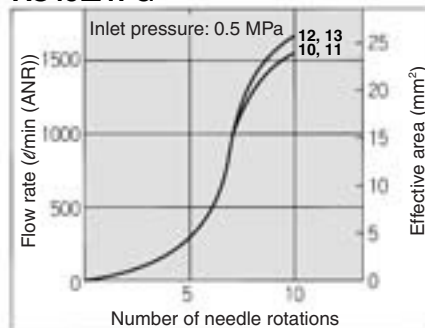
AS22□1FG-□02
AS23□1FG-□02



AS32□1FG
AS33□1FG



AS42□1FG
AS43□1FG



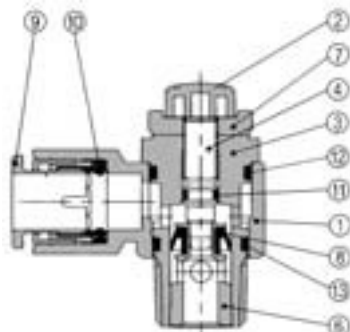
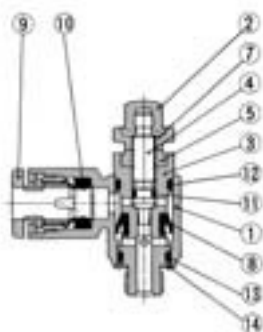
Series AS-FG

Construction: Elbow Type

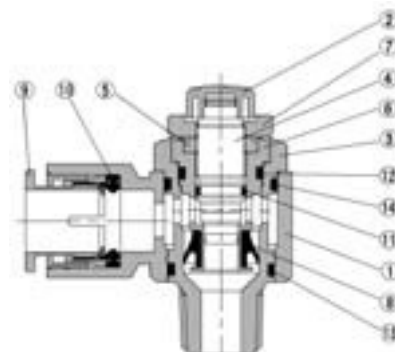
Meter-out type

M5 type

U10/32 type



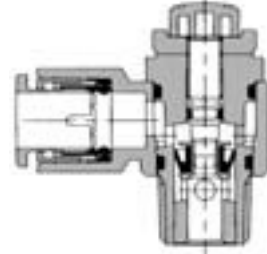
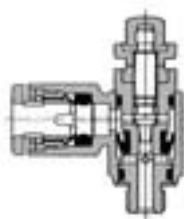
AS3201FG-02



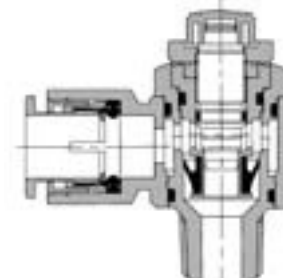
Meter-in type

M5 type

U10/32 type



AS3211FG-02



Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Handle	PBT	
3	Body B	Stainless steel 303	
4	Needle	Stainless steel 303	
5	Needle guide	Stainless steel 303	
6	Seat ring	Stainless steel 303	
7	Lock nut	Stainless steel 303	
8	U seal	HNBR	
9	Cassette	—	
10	Seal	NBR	
11	O-ring	NBR	
12	O-ring	NBR	
13	O-ring	NBR	
14	O-ring	NBR	
15	Gasket	NBR, Stainless steel	M5 type only

⚠ 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.

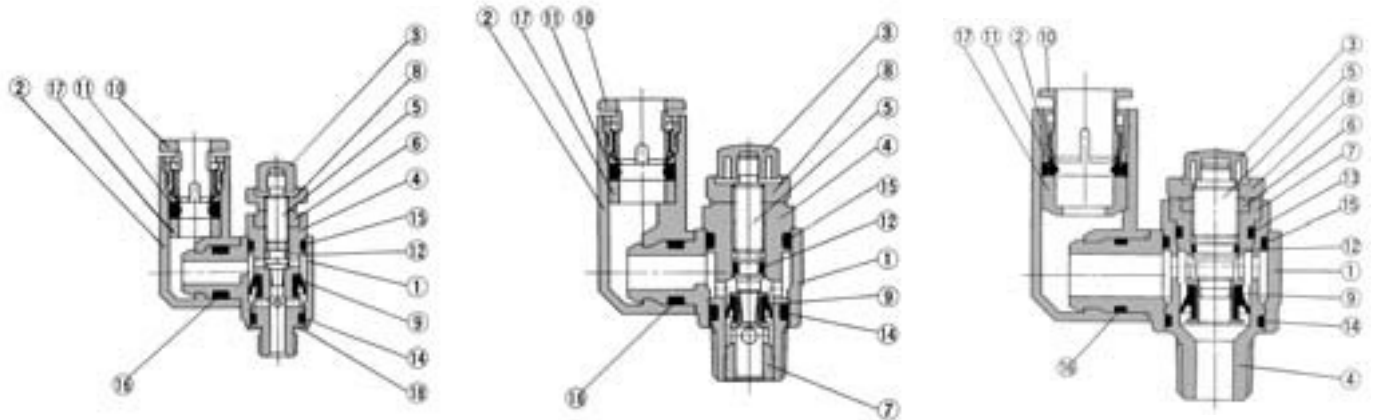
Construction: Universal Type

Meter-out type

M5 type

U10/32 type

AS3301FG-02

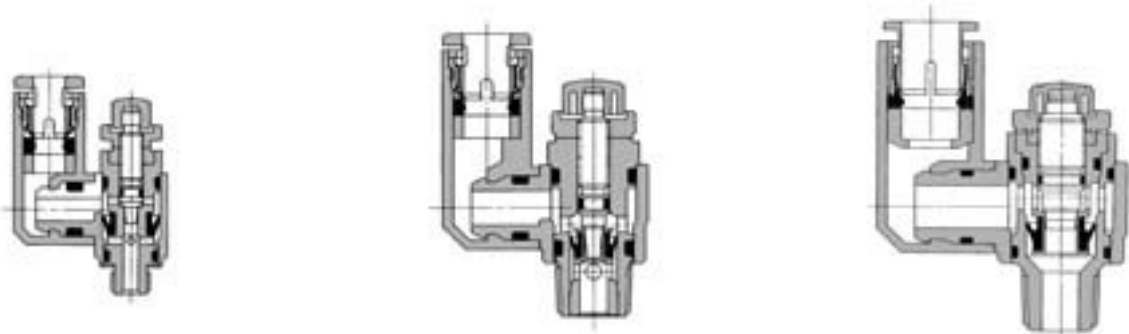


Meter-in type

M5 type

U10/32 type

AS3311FG-02



Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Elbow body	PBT	
3	Handle	PBT	
4	Body B	Stainless steel 303	
5	Needle	Stainless steel 303	
6	Needle guide	Stainless steel 303	
7	Seat ring	Stainless steel 303	
8	Lock nut	Stainless steel 303	
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	O-ring	NBR	
17	Spacer	—	
18	Gasket	NBR, Stainless steel	M5 type only

AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

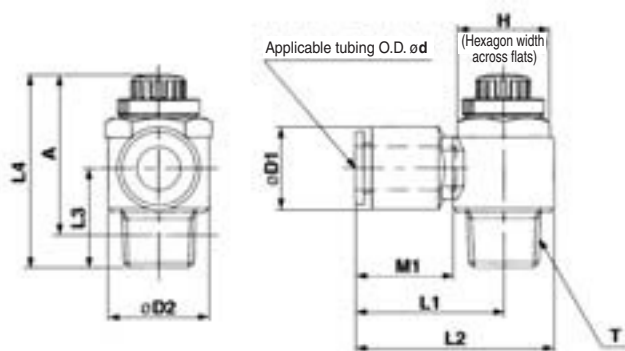
ASR
ASQ

KE

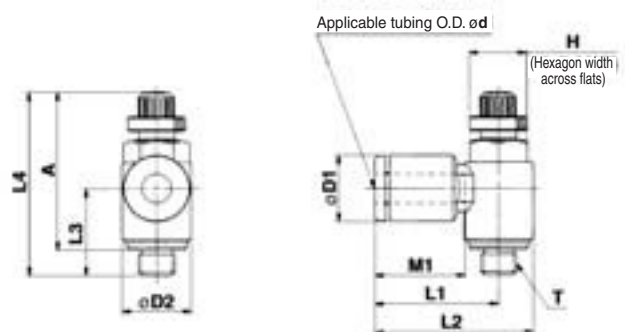
TMH

Series AS-FG

Dimensions: Elbow Type



M5 type U10/32 type



Metric Size

Model	d	T	H	D1	D2	L1	L2	L3	L4 ⁽¹⁾		A*		M1	Mass (g)
									Max.	Min.	Max.	Min.		
AS12□1FG-M5-23	3.2	M5 x 0.8	8	8.4	9.6	17.3	22.1	12.3	28.6	25.8	25	22.2	12.7	7
AS12□1FG-M5-04	4	M5 x 0.8	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	M5 x 0.8	8	11.6	18.1	22.9	11.7		28.6	25.8	25	22.2	13.5	7
AS22□1FG-01-23	3.2	R 1/8	12	9.3	14.2	20.4	27.5	14.3	36.1	31.1	32.1	27.1	12.7	16
AS22□1FG-01-04	4	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□1FG-01-06	6	R 1/8	12	11.6	18.1	22.9	11.7		35.2	30.2	32.1	27.1	13.5	17
AS22□1FG-01-08	8	R 1/8	12	15.2	25.3	32.4			35.2	30.2	32.1	27.1	18.5	19
AS22□1FG-01-10	10	R 1/8	12	18.5	32.1	39.2	14.1		35.2	30.2	32.1	27.1	21	21
AS22□1FG-02-04	4	R 1/4	17	10.4	25.2	34.4			39.9	34.9	34.4	29.4	16	32
AS22□1FG-02-06	6	R 1/4	17	12.8	27.2	36.4			39.9	34.9	34.4	29.4	17	32
AS22□1FG-02-08	8	R 1/4	17	15.2	31.8	43.3			39.9	34.9	34.4	29.4	18.5	34
AS22□1FG-02-10	10	R 1/4	17	18.5	35.3	44.5	19.5		39.9	34.9	34.4	29.4	21	36
AS32□1FG-02-06	6	R 1/4	19	12.8	27.8	39.3			48.3	43.3	42.8	37.8	17	60
AS32□1FG-02-08	8	R 1/4	19	15.2	29.5	41			48.3	43.3	42.8	37.8	18.5	63
AS32□1FG-02-10	10	R 1/4	19	18.5	31.8	43.3			48.3	43.3	42.8	37.8	21	67
AS32□1FG-02-12	12	R 1/4	19	20.9	32.8	44.3			48.3	43.3	42.8	37.8	22	69
AS32□1FG-03-06	6	R 3/8	19	12.8	27.8	39.3			45.4	40.4	40.2	35.2	17	55
AS32□1FG-03-08	8	R 3/8	19	15.2	29.5	41			45.4	40.4	40.2	35.2	18.5	57
AS32□1FG-03-10	10	R 3/8	19	18.5	31.8	43.3			45.4	40.4	40.2	35.2	21	59
AS32□1FG-03-12	12	R 3/8	19	20.9	32.8	44.3			45.4	40.4	40.2	35.2	22	61
AS42□1FG-04-10	10	R 1/2	24	18.5	33.6	47.9			56.7	49.2	49.6	42.1	21	100
AS42□1FG-04-12	12	R 1/2	24	20.9	34.6	48.9			56.7	49.2	49.6	42.1	22	101

Note 1) Reference dimensions

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

Inch Size

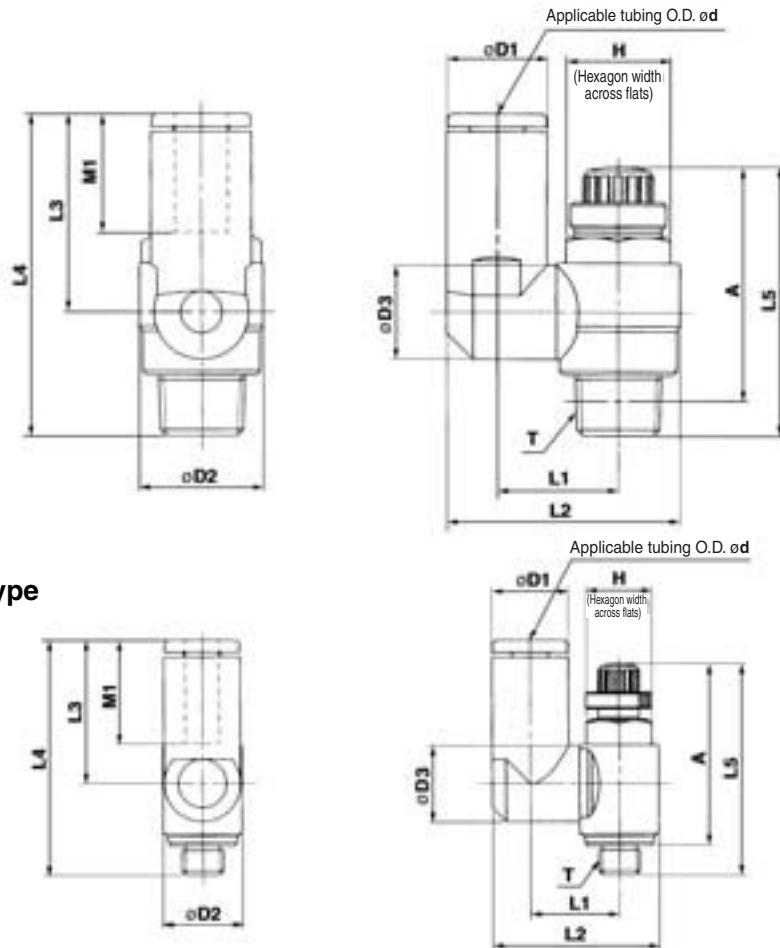
Model	d	T	H	D1	D2	L1	L2	L3	L4 ⁽¹⁾		A*		M1	Mass (g)
									Max.	Min.	Max.	Min.		
AS12□1FG-U10/32-01	1/8"	10-32 UNF	8	8.4	9.6	17.3	22.1	12.3	28.6	25.8	25	22.2	12.7	7
AS12□1FG-U10/32-03	5/32"	10-32 UNF	8	9.3	9.6	17.3	22.1	12.3	28.6	25.8	25	22.2	12.7	7
AS12□1FG-U10/32-05	3/16"	10-32 UNF	8	11.4	18.1	22.9	11.7		28.6	25.8	25	22.2	13.5	7
AS12□1FG-U10/32-07	1/4"	10-32 UNF	8	12	18.3	23.1			28.6	25.8	25	22.2	13.5	7
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"	NPT 1/8	12.7	11.4	18.1	22.9	11.7		35.2	30.2	32.1	27.1	13.5	17
AS22□1FG-N01-05	3/16"	NPT 1/8	12.7	13.2	23.9	31			35.2	30.2	32.1	27.1	18.5	19
AS22□1FG-N01-07	1/4"	NPT 1/8	12.7	15.2	25.3	32.4	14.1		35.2	30.2	32.1	27.1	21	21
AS22□1FG-N01-09	5/16"	NPT 1/8	12.7	17.9	27.8	39.3			35.2	30.2	32.1	27.1	21	21
AS22□1FG-N02-03	5/32"	NPT 1/4	17.5	10.4	25.2	34.4			39.9	34.9	34.4	29.4	16	32
AS22□1FG-N02-05	3/16"	NPT 1/4	17.5	11.4	24.9	34.2	17.7		39.9	34.9	34.4	29.4	17	32
AS22□1FG-N02-07	1/4"	NPT 1/4	17.5	13.2	25.2	34.5			39.9	34.9	34.4	29.4	18.5	34
AS22□1FG-N02-09	5/16"	NPT 1/4	17.5	15.2	27.2	36.4			39.9	34.9	34.4	29.4	21	36
AS22□1FG-N02-11	3/8"	NPT 1/4	17.5	17.9	27.8	39.3			39.9	34.9	34.4	29.4	21	36
AS32□1FG-N02-07	1/4"	NPT 1/4	19	13.2	27.8	39.3			48.3	43.3	42.8	37.8	17	60
AS32□1FG-N02-09	5/16"	NPT 1/4	19	15.2	29.5	41			48.3	43.3	42.8	37.8	18.5	63
AS32□1FG-N02-11	3/8"	NPT 1/4	19	17.9	27.8	39.3			48.3	43.3	42.8	37.8	21	67
AS32□1FG-N03-07	1/4"	NPT 3/8	19	13.2	27.8	39.3			45.4	40.4	40.2	35.2	17	55
AS32□1FG-N03-09	5/16"	NPT 3/8	19	15.2	29.5	41			45.4	40.4	40.2	35.2	18.5	57
AS32□1FG-N03-11	3/8"	NPT 3/8	19	17.9	27.8	39.3			45.4	40.4	40.2	35.2	21	59
AS42□1FG-N04-11	3/8"	NPT 1/2	23.8	17.9	33.6	47.9			56.7	49.2	49.6	42.1	21	100
AS42□1FG-N04-13	1/2"	NPT 1/2	23.8	21.7	35.2	49.5			56.7	49.2	49.6	42.1	22	101

Note 1) Reference dimensions

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

Dimensions: Universal Type

M5 type
U10/32 type



Metric Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4	L5 ⁽¹⁾		A *		M1	Mass (g)
											Max.	Min.	Max.	Min.		
AS13□1FG-M5-23	3.2	M5 x 0.8	8	8.4	9.6	9.3	10.8	20.3	17.5	28.7	28.6	28.6	25	22.2	12.7	7
AS13□1FG-M5-04	4			9.3												
AS13□1FG-M5-06	6			11.6												
AS23□1FG-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□1FG-01-04	4			9.3												
AS23□1FG-01-06	6			11.6												
AS23□1FG-01-08	8			15.2												
AS23□1FG-02-04	4	R 1/4	17	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□1FG-02-06	6			12.8												
AS23□1FG-02-08	8			15.2												
AS23□1FG-02-10	10			18.5												
AS33□1FG-02-06	6	R 1/4	19	12.8	23	12.9	20.6	38.5	25.2	46.5	48.3	43.3	42.8	37.8	17	60
AS33□1FG-02-08	8			15.2												
AS33□1FG-02-10	10			18.5												
AS33□1FG-02-12	12			20.9												
AS33□1FG-03-06	6	R 3/8	19	12.8	23	12.9	20.6	38.5	25.2	45	45.4	40.4	40	35	17	56
AS33□1FG-03-08	8			15.2												
AS33□1FG-03-10	10			18.5												
AS33□1FG-03-12	12			20.9												
AS43□1FG-04-10	10	R 1/2	24	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□1FG-04-12	12			20.9												

Note 1) Reference dimensions

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

Inch Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4	L5 ⁽¹⁾		A *		M1	Mass (g)
											Max.	Min.	Max.	Min.		
AS13□1FG-U10/32-01	1/8"	10-32 UNF	8	8.4	9.6	9.3	10.8	20.3	17.5	28.7	28.6	25.8	25	22.2	12.7	7
AS13□1FG-U10/32-03	5/32"			9.3												
AS13□1FG-U10/32-05	3/16"			11.4												
AS13□1FG-U10/32-07	1/4"			12												
AS23□1FG-N01-01	1/8"	NPT 1/8	12.7	8.4	14	10.9	14	24.4	17.5	30.9	35.2	30.2	32.1	27.1	12.7	17
AS23□1FG-N01-03	5/32"			9.3												
AS23□1FG-N01-05	3/16"			11.4												
AS23□1FG-N01-07	1/4"			13.2												
AS23□1FG-N01-09	5/16"	NPT 1/4	17.5	15.2	19	12.9	16.2	29.9	25.6	36.3	48.3	43.3	42.8	37.8	18.5	36
AS23□1FG-N02-03	5/32"			10.4												
AS23□1FG-N02-05	3/16"			11.4												
AS23□1FG-N02-07	1/4"			13.2												
AS23□1FG-N02-09	5/16"	NPT 3/8	19	15.2	23	12.9	20.6	38.7	25.6	45.9	45.4	40.4	40.2	35.2	18.5	59
AS23□1FG-N02-11	3/8"			17.9												
AS33□1FG-N02-07	1/4"			13.2												
AS33□1FG-N02-09	5/16"			15.2												
AS33□1FG-N03-07	1/4"	NPT 1/2	23.8	13.2	29	12.9	20.6	38.7	25.6	45.9	56.7	49.2	49.6	42.1	21	104
AS33□1FG-N03-09	5/16"			15.2												
AS33□1FG-N03-11	3/8"			17.9												
AS43□1FG-N04-11	3/8"			17.9												
AS43□1FG-N04-13	1/2"	NPT 1/2	23.8	21.7	29	12.9	20.6	38.7	25.6	45.9	56.7	49.2	49.6	42.1	22	106
AS43□1FG-N04-13	1/2"			21.7												

Note 1) Reference dimensions

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

Speed Controller with One-touch Fittings Stainless Steel Series In-line Type

Series AS-FG



Model

Model	Applicable tubing 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"	
AS1001FG	●	●	●				●	●	●	●				6, 10, 16, 20
AS2001FG		●	●					●	●	●				20, 25, 32
AS2051FG			●	●					●	●	●			20, 25, 32, 40
AS3001FG			●	●	●	●				●	●	●		40, 50, 63
AS4001FG					●	●						●	●	63, 80, 100

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 (8 turns ⁽¹⁾)
Applicable tubing material ⁽²⁾	Nylon, Soft nylon, Polyurethane

Note 1) In the case of AS1001FG 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.)

Flow Rate and Effective Area

Flow Direction Symbols on Body



Model		AS1001FG	AS2001FG		AS2051FG		AS3001FG			AS4001FG	
Tubing 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"
	Flow rate (l/min (ANR))	100	130	230	290	460	420	660	920	1050	1390
(Free flow) Effective area (mm ²)		1.5	2	3.5	4.5	7	6.5	10	14	16	21

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



Made to Order
(Refer to page 479 for details.)

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 fittings

Stainless steel specifications (Stainless steel 303)

Made to Order
(Refer to the below for details.)

Applicable tubing O.D.

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"
12	ø12	11	ø3/8"
		13	ø1/2"

* Use ø1/8" tube.

Made to Order



Lubricant: Vaseline

X12

Ex.) AS1001FG-04-X12

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

X21

Ex.) AS1001FG-04-X21

(Note) Not particle-free

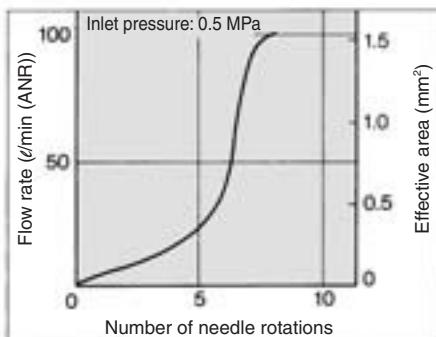
Throttle Valve (Without Check Valve)

X214

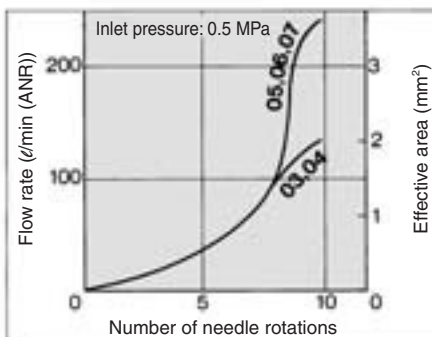
Ex.) AS1001FG-04-X214

Needle Valve/Flow Characteristics

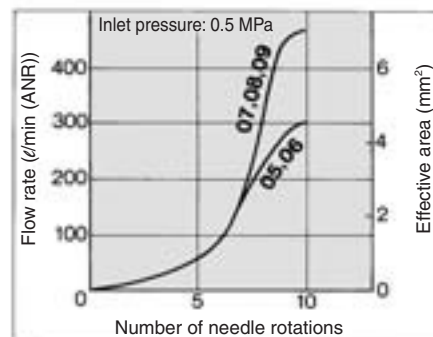
AS1001FG



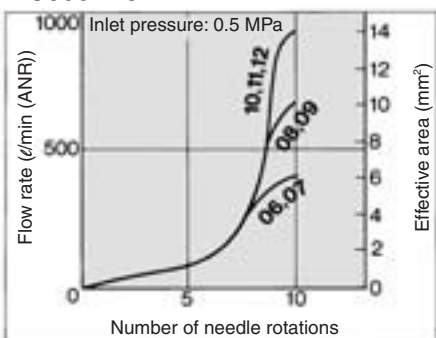
AS2001FG



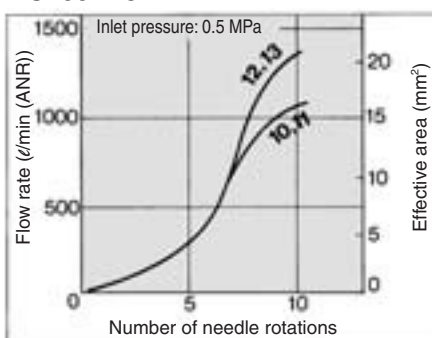
AS2051FG



AS3001FG



AS4001FG



AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

ASR

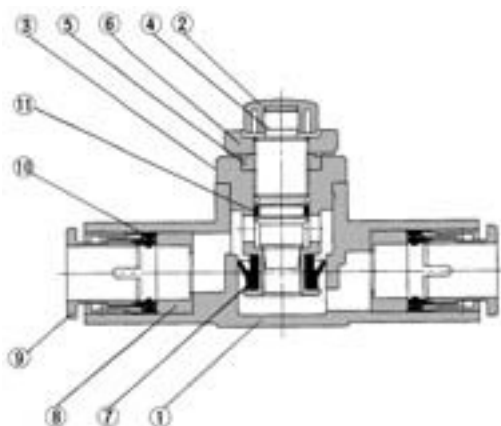
ASQ

KE

TMH

Series AS-FG

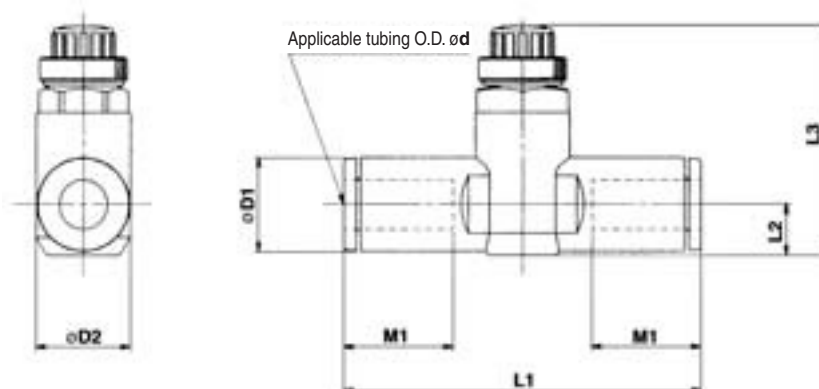
Construction



Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Handle	PBT	
3	Body B	Stainless steel 303	
4	Needle	Stainless steel 303	
5	Needle guide	Stainless steel 303	
6	Lock nut	Stainless steel 303	
7	U seal	HNBR	
8	Spacer	—	
9	Cassette	—	
10	Seal	NBR	
11	O-ring	NBR	

Dimensions



Metric Size

Model	d	D1	D2	L1	L2	L3 ⁽¹⁾		M1	Mass (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		53.2	6.7	35.2	30.2		22
AS2051FG-08	8	15.2	14.8	59.8	8.1	32.6	27.6	18	25
AS3001FG-06	6	12.8		59	7.4	38.3	33.3		36
AS3001FG-08	8	15.2		64.4	8.2	39.1	34.1		40
AS3001FG-10	10	18.5	19.8	71.6	9.8	40.6	35.6	21	44
AS3001FG-12	12	20.9		76	11	41.8	36.8		48
AS4001FG-10	10	18.5		77.7	11.3	51.1	43.6	21	85
AS4001FG-12	12	20.9	26.5	82.1		52.1	44.6		89

Note 1) Reference dimensions

Inch Size

Model	d	D1	D2	L1	L2	L3 ⁽¹⁾		M1	Mass (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		12
AS1001FG-07	1/4"	12	11.8	40.7		32.6	27.6	12.7	9
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	18
AS2001FG-07	1/4"	13.2	14.8	52.2	7.1	34.5	29.5		16
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	17	22
AS2051FG-09	5/16"	15.2	19.8	59.8	8.1	32.6	27.6		25
AS3001FG-07	1/4"	13.2		59	7.4	38.3	33.3		36
AS3001FG-09	5/16"	15.2		64.4	8.2	39.1	34.1	18	40
AS3001FG-11	3/8"	17.9	26.5	70.8	9.5	40.3	35.3		52
AS4001FG-11	3/8"	17.9		76.9	10.3	51	43.5		93
AS4001FG-13	1/2"	21.7		83.1	11.6	52.4	44.9	22	106

Note 1) Reference dimensions

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

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)

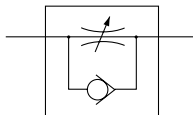
Speed control is easy, and uniform speed control is possible.

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
Symbol		
JIS 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

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 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 (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) 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 F M - [] 01 - 06 [] - []

● **Made to Order**
Refer to the below for details.

● **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

● **Option**

Nil	None
S	With seal

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

● **Applicable tubing O.D.**

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 ø1/8" tube.

● **Port size**

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

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)

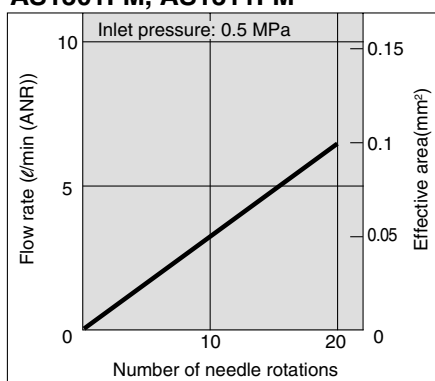
X214

Ex.) AS1201FM-M5-23-X214

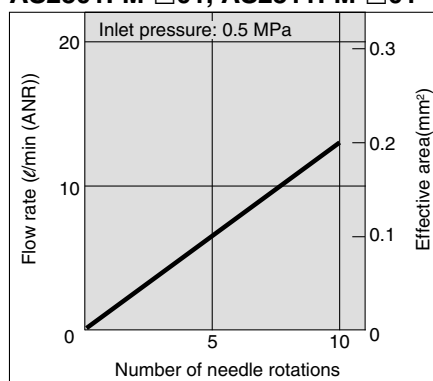
Note) Throttle valve is only compatible with the part no. of the meter-out type.

Needle Valve/Flow Characteristics

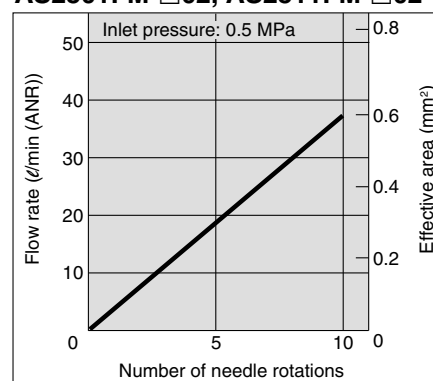
AS1201FM, AS1211FM
AS1301FM, AS1311FM



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



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

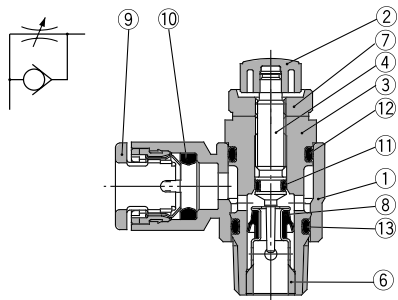


Series AS-FM

Construction: Elbow Type

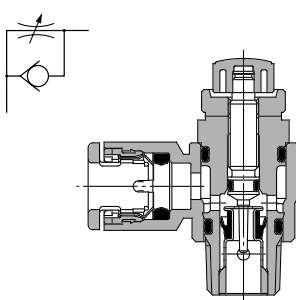
Meter-out type

JIS Symbol

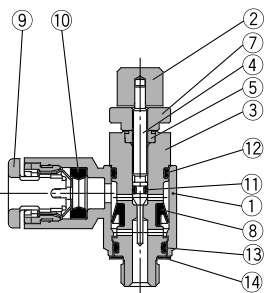


Meter-in type

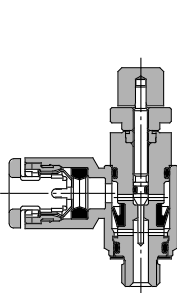
JIS Symbol



M5 type U10/32 type



M5 type U10/32 type



Component Parts

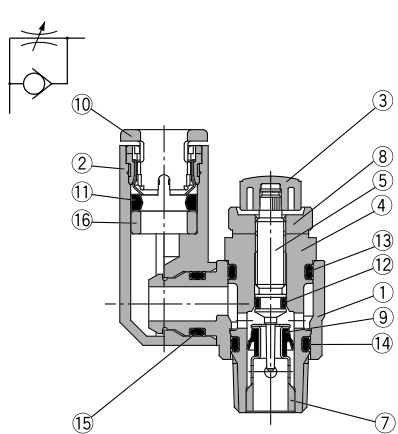
No.	Description	Material	Note
1	Body A	PBT	White
2	Handle	PBT	Black ⁽¹⁾
3	Body B	Brass	Electroless nickel plated
4	Needle	Brass	Electroless nickel plated
5	Needle guide	Brass	Electroless nickel plated, M5 type only
6	Seat ring	Brass	Electroless nickel plated
7	Lock nut	Brass ⁽²⁾	Electroless nickel plated ⁽³⁾
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) AS22□1FM type is made of steel.
Note 3) Meter-in type is black zinc chromate plated.

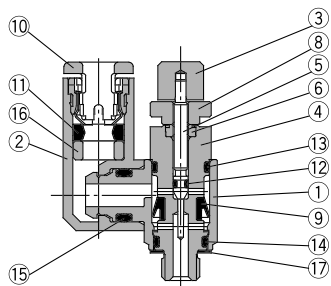
Construction: Universal Type

Meter-out type

JIS Symbol

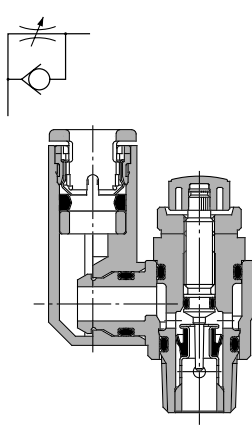


M5 type U10/32 type

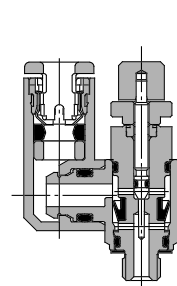


Meter-in type

JIS Symbol



M5 type U10/32 type



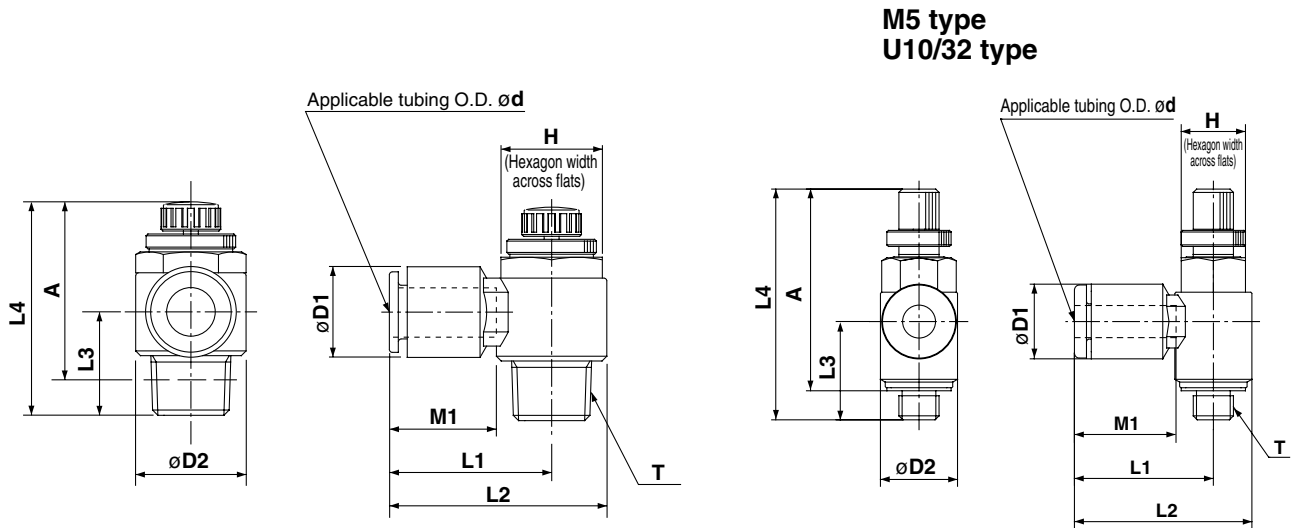
Component Parts

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	Brass ⁽²⁾	Electroless nickel plated ⁽³⁾
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

Note1) M5 and U10/32 types are black zinc chromate plated.
Note2) AS23□1FM type is made of steel.
Note3) 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



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			15.2		25.3	32.4						18.5	
AS22□1FM-02-04	4	R 1/4	17	10.4	18.5	25.2	34.4	17.7	39.9	34.9	34.4	29.4	16	32
AS22□1FM-02-06	6			12.8		25.2	34.4						17	
AS22□1FM-02-08	8			15.2		27.2	36.4						18.5	
AS22□1FM-02-10	10			18.5		35.3	44.5						21.0	

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	11.7	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						18.5	
AS22□1FM-N01-07	1/4"			13.2		23.9	31						21	
AS22□1FM-N01-09	5/16"	NPT 1/4	17.5	15.2	18.5	25.3	32.4	13.4	39.9	34.9	34.4	29.4	21	36
AS22□1FM-N02-03	5/32"			10.4		25.2	34.4						16	
AS22□1FM-N02-05	3/16"			12.8		25.2	34.5						17	
AS22□1FM-N02-07	1/4"			13.2		25.2	34.5						18.5	
AS22□1FM-N02-09	5/16"			15.2		27.2	36.4						21	
AS22□1FM-N02-11	3/8"			18.5		35.3	44.5						21	

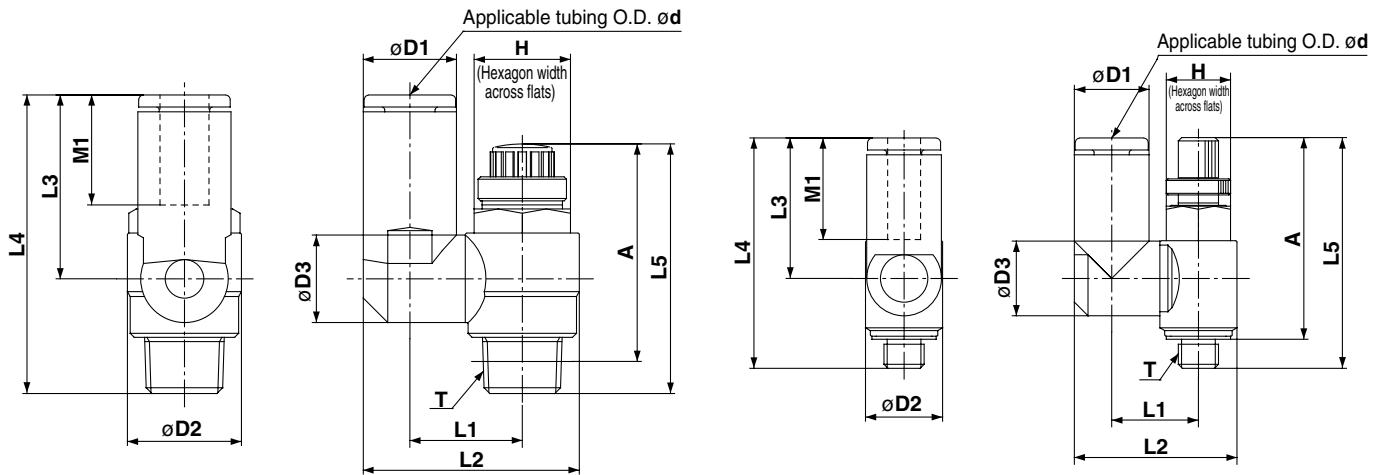
Note 1) Reference dimensions

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			15.2				30.9							18.5	
AS23□1FM-02-04	4	R 1/4	17	10.4	18.5	10.9	16.2	30.6	21.9	39.6	39.9	34.9	34.4	29.4	16	33
AS23□1FM-02-06	6			12.8				34							17	
AS23□1FM-02-08	8			15.2				35.2							18.5	
AS23□1FM-02-10	10			18.5				20.2							21	

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	10.9	14	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"			11.4				26.8							21	
AS23□1FM-N01-07S	1/4"	NPT 1/4	17.5	13.2	18.5	12.9	16.2	29.9	25.6	38.2	39.9	34.9	34.4	29.4	16	32
AS23□1FM-N01-09S	5/16"			15.2				30.9							17	
AS23□1FM-N02-03S	5/32"			10.4				30.6							18.5	
AS23□1FM-N02-05S	3/16"			11.4				31.1							21	
AS23□1FM-N02-07S	1/4"	NPT 1/4	17.5	13.2	18.5	12.9	16.2	34.2	25.6	42.5	39.9	34.9	34.4	29.4	18.5	36
AS23□1FM-N02-09S	5/16"			15.2				35.2							39	
AS23□1FM-N02-11S	3/8"			17.9				20.2							40	

Note 1) Reference dimensions

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

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

Symbol		JIS 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 (d/min (ANR))	7	12		38	
	Effective area (mm ²)	0.1	0.2		0.6	
Free flow	Flow rate (d/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.

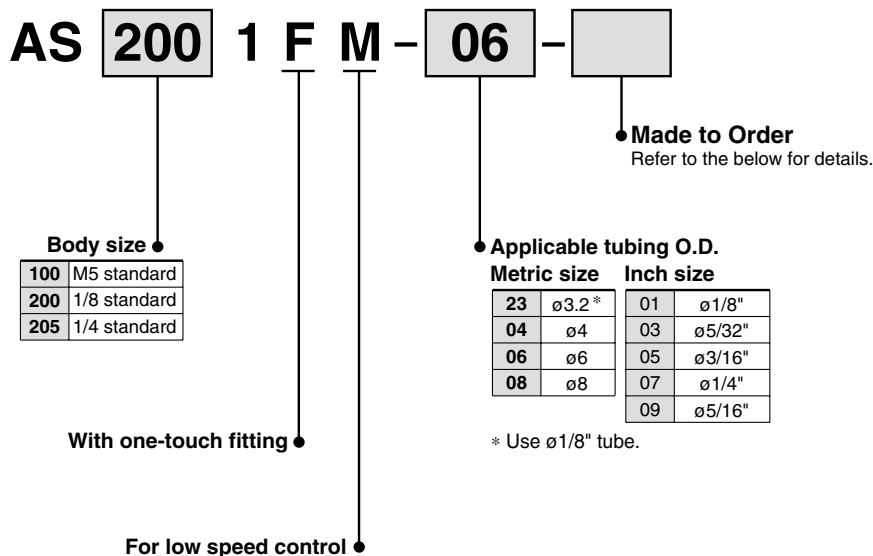
⚠ Caution

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



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

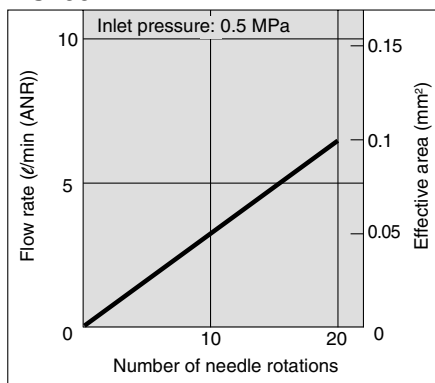
Throttle Valve (Without Check Valve)

X214

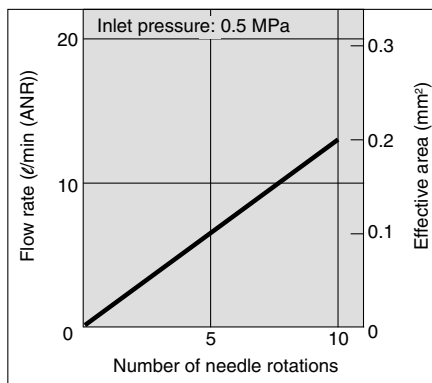
Ex.) AS2001FM-04-X214

Needle Valve/Flow Characteristics

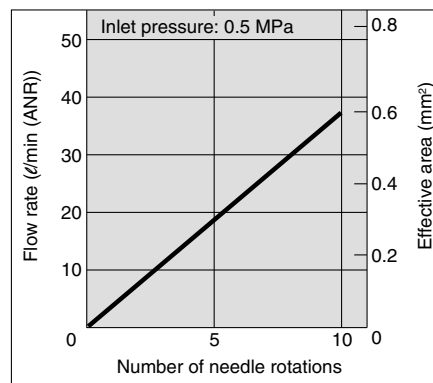
AS1001FM



AS2001FM



AS2051FM



AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

ASR

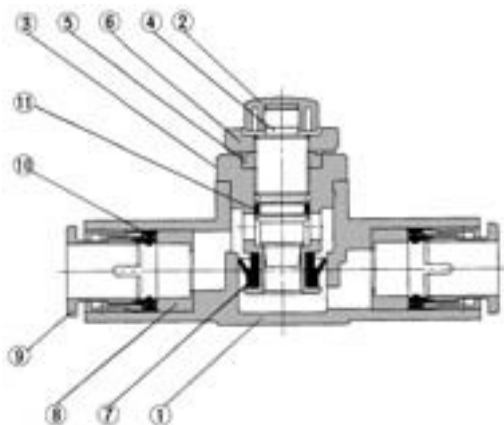
ASQ

KE

TMH

Series AS-FM

Construction



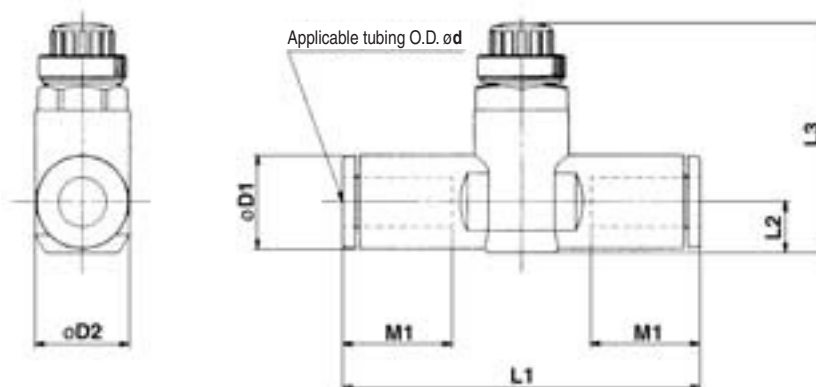
Component Parts

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	Brass ⁽²⁾	Electroless nickel plated
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).

Note 2) AS20□1FM type is made of steel.

Dimensions



Metric Size

Model	d	D1	D2	L1	L2	L3		M1	Mass (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		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
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		31

Inch Size

Model	d	D1	D2	L1	L2	L3 ⁽¹⁾		M1	Mass (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		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
AS2001FM-05	3/16"	11.4		52.2	7.1	34.5	29.5		17
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
AS2051FM-07	1/4"	13.2		59.8	8.1	36.5	31.5		18
AS2051FM-09	5/16"	15.2							31

Note 1) Reference dimensions

Clean Speed Controller with One-touch Fitting

Series AS-FPQ/AS-FPG



**AS-FPQ: Brass (electroless nickel plated) and
AS-FPG: Stainless steel 304 are now available as a series.**

AS

ASP

ASN

AQ

ASV

AK

VCHC

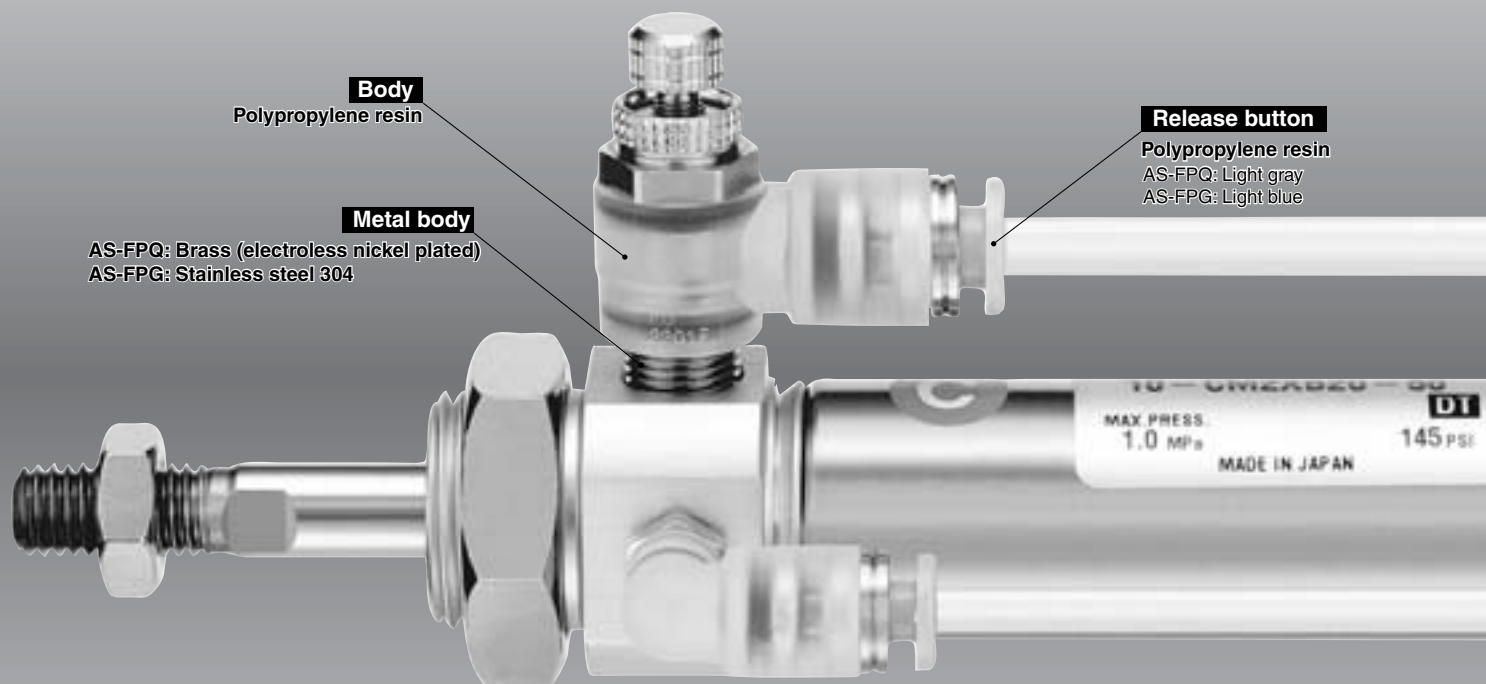
ASS

ASR
ASQ

KE

TMH

Low particulate generating speed controllers designed for use in clean rooms



Clean Speed Controller
with One-touch Fitting

Series AS-FPQ/FPG

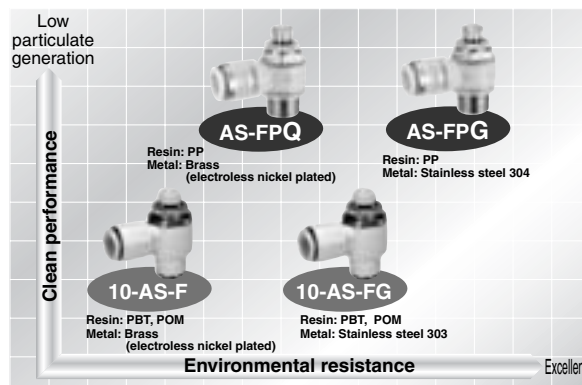


Series AS-FPQ
Brass (electroless nickel plated)



Series AS-FPG
Stainless steel 304

Elbow type	Port size	Applicable tube O.D. (mm)					Applicable cylinder bore size (mm)
		4	6	8	10	12	
AS12□1FP□-M5	M5 x 0.8	●	●	●	●	●	6, 10, 16, 20
AS22□1FP□-01	R 1/8	●	●	●	●	●	20, 25, 32
AS22□1FP□-02	R 1/4	●	●	●	●	●	20, 25, 32, 40
AS32□1FP□-03	R 3/8	●	●	●	●	●	40, 50, 63
AS42□1FP□-04	R 1/2	●	●	●	●	●	63, 80, 100



Clean Speed Controller with One-touch Fitting Elbow Type

Series *AS-FPQ/FPG*

AS-FPQ/Brass (electroless nickel plated)

Release button color: Light gray

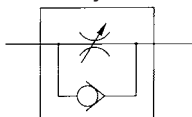


AS-FPG/Stainless steel 304

Release button color: Light blue



JIS Symbol



Flow Direction Symbols on Body

	Meter-out type	Meter-in type
Symbol		
JIS Symbol		

Model

Elbow type	Port size	Applicable tubing O.D. (mm)					Applicable cylinder bore size (mm)
		4	6	8	10	12	
AS12□1FP□-M5	M5 x 0.8	●	●				6, 10, 16, 20
AS22□1FP□-01	R 1/8	●	●	●			20, 25, 32
AS22□1FP□-02	R 1/4	●	●	●	●		20, 25, 32, 40
AS32□1FP□-03	R 3/8		●	●	●	●	40, 50, 63
AS42□1FP□-04	R 1/2				●	●	63, 80, 100

Specifications

Fluid	Air
Particulate generation grade	Grade 1 ⁽¹⁾
Proof pressure (20°C)	1.5 MPa ⁽²⁾
Maximum operating pressure (20°C)	1 MPa ⁽³⁾
Minimum operating pressure	0.1 MPa
Ambient and fluid temperature	-5 to 60°C (No freezing)
Number of needle rotations	10 rotations (8 rotations ⁽⁴⁾)
Oil	Fluorine-based grease

Note 1) Refer to particulate generation grade classifications.

Note 2) Proof pressure is 1.5 times higher than maximum operating pressure.

Note 3) The value of the maximum operating pressure is at a temperature of 20°C. In other cases, refer to "Relationship between Operating Temperature and Max. Operating Pressure" below.

Note 4) For AS12□1FP□

Flow Rate and Effective Area

Model		AS12□1FP□-M5	AS22□1FP□-01	AS22□1FP□-02	AS32□1FP□-03	AS42□1FP□-04
Tubing O.D.	Metric sizes	ø4	ø4 ø6	ø4 ø6 ø8	ø6 ø8 ø10	ø10 ø12
	Controlled Flow rate /min (ANR)	100	180 230	260 390 460	660 790 920	1580 1710
(free) flow	Effective area mm ²	1.5	2.7 3.5	4 6 7	10 12 14	24 26

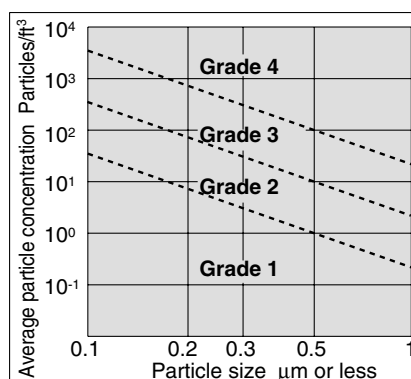
Note) Flow rate values are at a pressure of 0.5MPa, and temperature of 20°C.

Recommended Applicable Tubing

Tubing material	Clean series polyurethane tubing: Series 10
Tubing O.D.	ø4, ø6, ø8, ø10, ø12

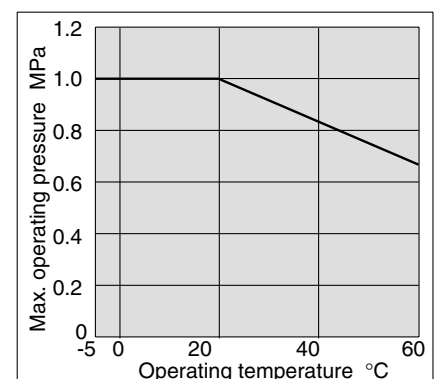
Polyurethane tubing: Series TU, Nylon tubing: Series T and Soft nylon tubing: Series TS can also be used. However, the degree of clean performance will decline.

Particulate Generation Grade Classifications



Note) Refer to back page 10 for details.

Relation between Operating Temp. and Max. Operating Pressure



How to Order

AS 2 2 1 1 F P Q - 01 - 06

Body size

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

Elbow

Control type

0	Meter-out
1	Meter-in

With One-touch fitting

Clean specifications

Metal parts material

Q	Brass (electoless nickel plated)
G	Stainless steel 304

Applicable tubing O.D.
Metric sizes

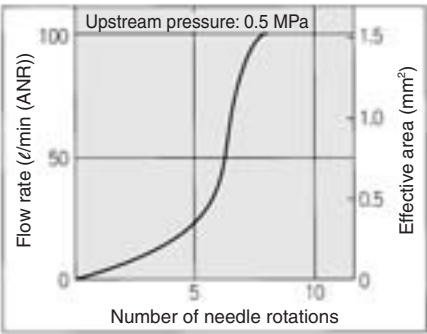
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

Port size

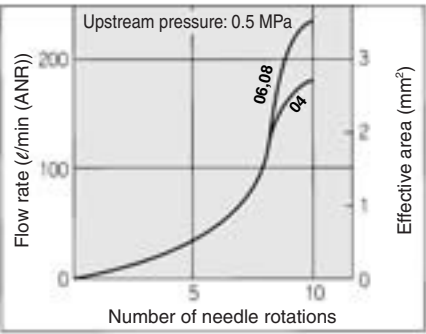
M5	M5 x 0.8
01	R 1/8
02	R 1/4
03	R 3/8
04	R 1/2

Needle Valve/Flow Characteristics

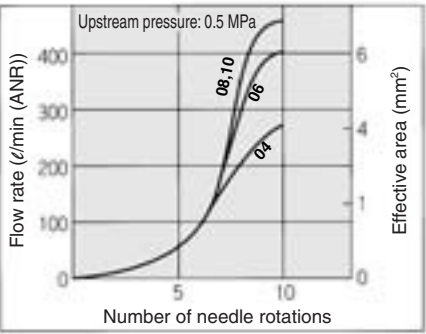
AS12□1FP□-M5



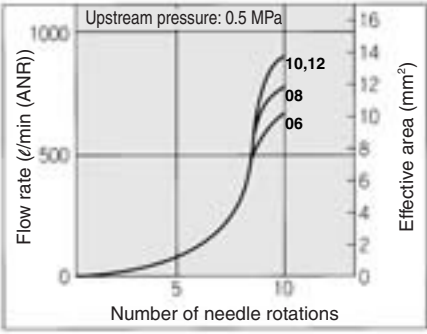
AS22□1FP□-01



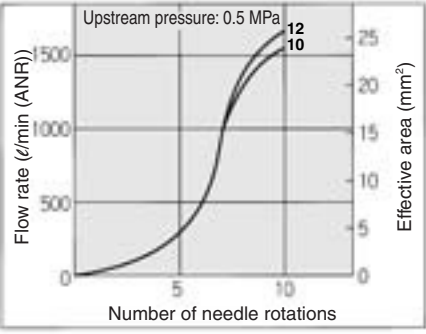
AS22□1FP□-02



AS32□1FP□-03

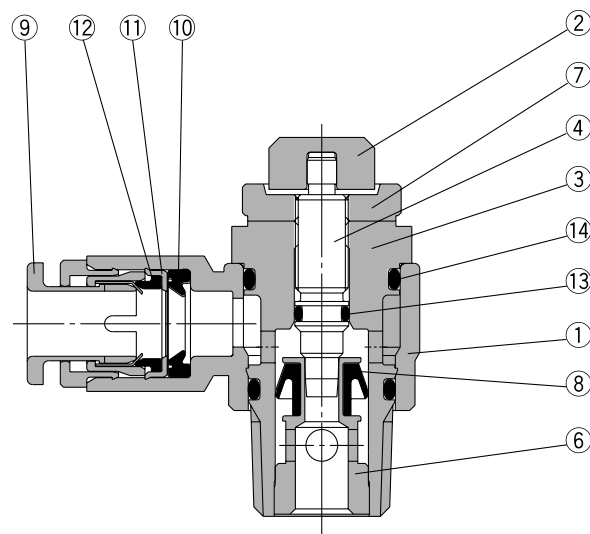
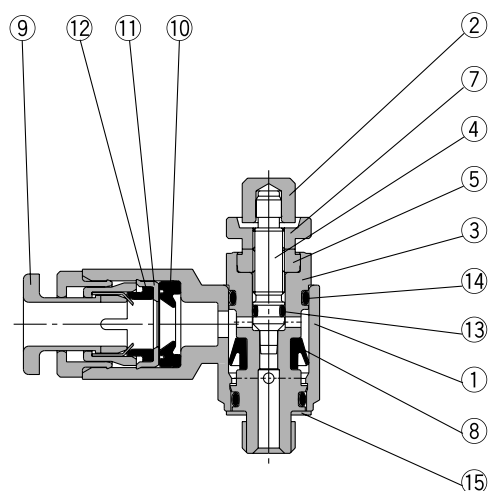


AS42□1FP□-04

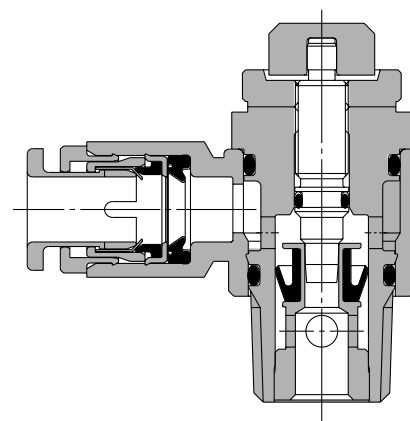
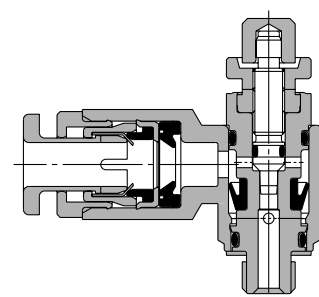


Construction

Meter-out type M5 type



Meter-in type M5 type



Component Parts

No.	Description	AS□□□1FPQ		AS□□□1FPG	
		Material	Note	Material	Note
1	Body A	Polypropylene resin		Polypropylene resin	
2	Knob	Brass	Electroless nickel plated	Stainless steel 304	
3	Body B	Brass	Electroless nickel plated	Stainless steel 304	
4	Needle	Brass	Electroless nickel plated	Stainless steel 304	
5	Needle guide	Brass	Electroless nickel plated	Stainless steel 304	
6	Seat ring	Brass	Electroless nickel plated	Stainless steel 304	
7	Lock nut	Brass	Electroless nickel plated	Stainless steel 304	
8	U seal	HNBR		HNBR	
9	Cassette	Polypropylene resin Stainless steel 304, Brass	Brass parts are electroless nickel plated	Polypropylene resin Stainless steel 304	
10	Seal	NBR		NBR	
11	Stopper	Stainless steel 304		Stainless steel 304	
12	Cushion	NBR		NBR	
13	O-ring	NBR		NBR	
14	O-ring	NBR		NBR	
15	Gasket	NBR, Stainless steel 304		NBR, Stainless steel 304	

AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

ASR

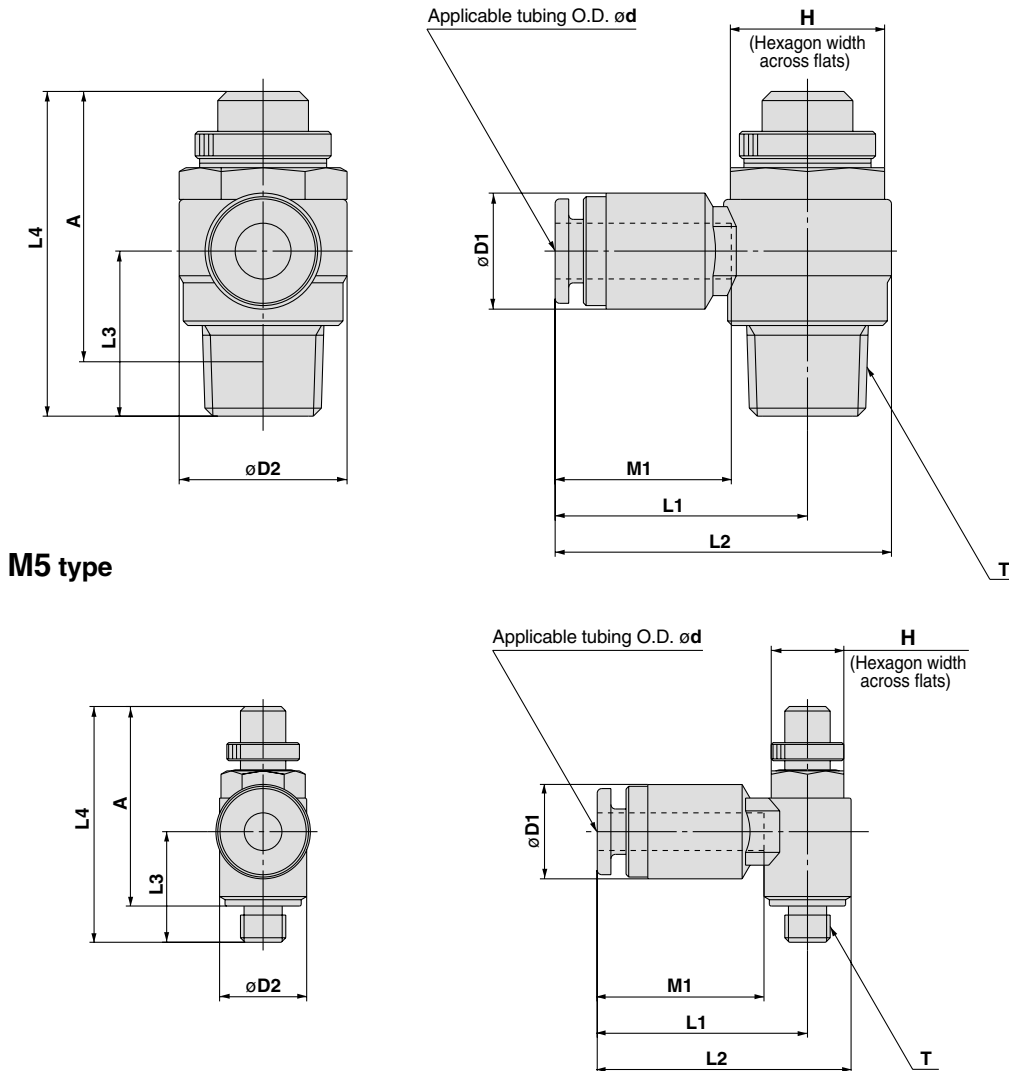
ASQ

KE

TMH

Series AS-FPQ/FPG

Dimensions



M5 type

Model	Tubing O.D. ϕd	T	H	D1	D2	L1	L2	L3 (4)	L4 (1) (4)		A (2)		M1	Mass (g) (3)	
									Max.	Min.	Max.	Min.		1*	2*
AS12□1FP□-M5-04	4	M5 x 0.8	8	10.4	9.6	22.2	27	12.2	28.8	26	25.2	22.4	17	7	7
AS12□1FP□-M5-06	6			12.8		23.2	28	(12.2)	(28.8)	(26)			18.5	8	8
AS22□1FP□-01-04	4	R 1/8	12	10.4	14.2	24.3	31.4	13.4	35.5	30.5	32.4	27.4	17	17	17
AS22□1FP□-01-06	6			12.8		25.3	32.4	(14.3)	(36.4)	(31.4)			18.5	18	18
AS22□1FP□-01-08	8			15.2		27.5	34.6						20.5	20	20
AS22□1FP□-02-04	4	R 1/4	17	10.4	18.5	26.8	36	17.7	40.3	35.3	34.8	29.4	17	33	33
AS22□1FP□-02-06	6			12.8		26.8	36	(18.2)	(40.8)	(35.8)			18.5	33	33
AS22□1FP□-02-08	8			15.2		29.4	38.6						20.5	35	35
AS22□1FP□-02-10	10			18.5		37.3	46.5	18.3 (18.8)					23	38	38
AS32□1FP□-03-06	6	R 3/8	19	12.8	23	29.4	40.9	19.8	45.8	40.8	40.6	35.6	18.5	59	55
AS32□1FP□-03-08	8			15.2		31.9	43.4		(46.9)	(41.9)			20.5	61	57
AS32□1FP□-03-10	10			18.5		33.6	45.1	(20.9)					23	63	59
AS32□1FP□-03-12	12			20.9		34.8	46.3						24	65	61
AS42□1FP□-04-10	10	R 1/2	24	18.5	28.6	35.6	49.9	24.5	57.2	49.7	49.9	42.4	23	107	100
AS42□1FP□-04-12	12			20.9		37.2	51.5	(25.4)	(58.1)	(50.6)			24	109	102

Note 1) Reference dimensions

Note 2) Reference dimension for threads after installation

Note 3) 1* is the weight for type AS□2□1FPQ (brass + electroless nickel plated), 2* is the weight for type AS□2□1FPG (Stainless steel 304).

Note 4) Dimensions of AS□2□1FPQ, (): AS□2□1FPG



Series *AS-FPQ/FPG* 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.

Handling

Caution

1. Store away from direct sunlight at 40°C or less.
2. Open the inner package of the double packaging in a clean room or other clean environment.

Piping

Caution

1. Be sure to use sealant tape or liquid gasket at the taper thread part. Using without sealant tape or liquid gasket can cause air leakage.

AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

**ASR
ASQ**

KE

TMH

Flame Resistant (Equivalent to UL-94 Standard V-0) Speed Controller with One-touch Fittings Elbow Type

Series AS

Minimizes installation time and cost

Tube swivels 360°

Application to inch size tubing

● Metric size
ø6, ø8, ø10, ø12

Maximum operating pressure
1 MPa max.

Applicable tubing materials
FR double layer, FR soft nylon

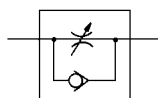
Retainer prevents accidental loss of needle.

Comes standard with seal.

Elbow type



JIS Symbol



Flow Direction Symbols on Body

	Meter-out type	Meter-in type
Symbol		
JIS Symbol		

Model

Elbow type	Port size	Applicable tubing O.D. (mm)				Applicable cylinder bore size (mm)
		6	8	10	12	
AS22□1F-01-□W2	R 1/8	●	●	●		20, 25, 32
AS22□1F-02-□W2	R 1/4	●	●	●		20, 25, 32, 40
AS32□1F-02-□W2	R 1/4	●	●	●	●	40, 50, 63
AS32□1F-03-□W2	R 3/8	●	●	●	●	40, 50, 63
AS42□1F-04-□W2	R 1/2			●	●	63, 80, 100

Note 1) Meter-out and meter-in types can be visually differentiated 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 2) ● Marking is electroless nickel plated, provided as standard. (N specifications)

Specifications

Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure	1 MPa
Mini. operating pressure	0.1 MPa
Ambient and fluid temperature	-5 to 60°C (No freezing)
Number of needle rotations	10 turns
Applicable tubing material ^{Note)}	FR double layer, FR soft nylon

Note) Use caution regarding the max. tubing operating pressure.
(Refer to pages 379 and 380 for details.)

Flow Rate and Effective Area

Model	AS22□1F-01	AS22□1F-02			AS32□1F			AS42□1F	
Tubing O.D. (mm)	ø6, ø8, ø10	ø4	ø6	ø8, ø10	ø6	ø8	ø10, ø12	ø10	ø12
Controlled flow	Flow rate l/min (ANR)	230	260	390	460	660	790	920	1580
(Free flow)	Effective area (mm ²)	3.5	4	6	7	10	12	14	24

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.

AS

ASP

ASN

AQ

ASV

AK

VCHC

ASS

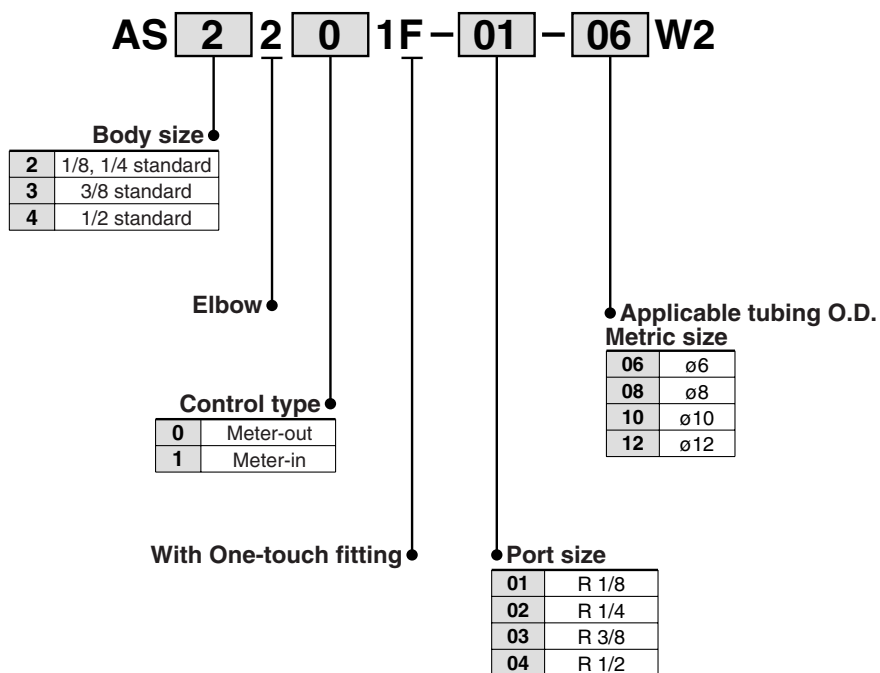
ASR

ASQ

KE

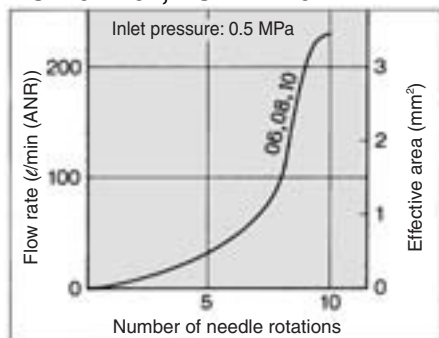
TMH

How to Order

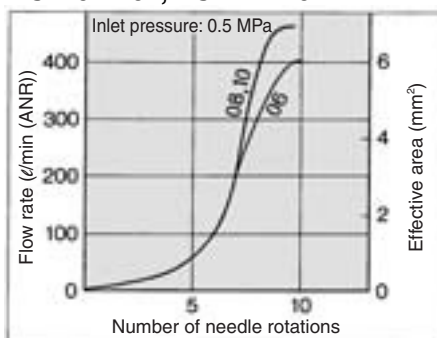


Needle Valve/Flow Characteristics

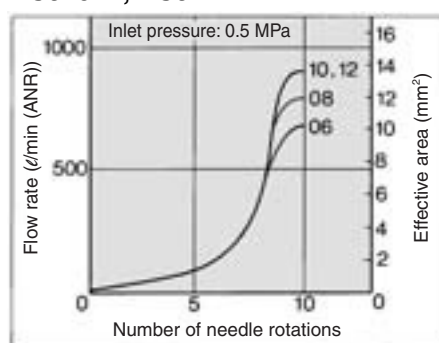
AS2201F-01, AS2211F-01



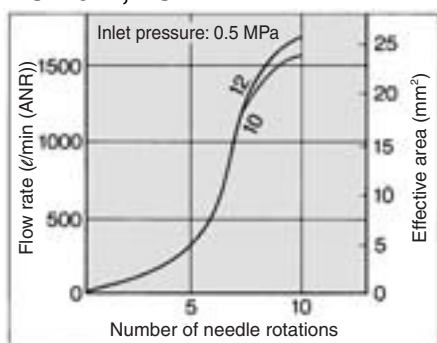
AS2201F-02, AS2211F-02



AS3201F, AS3211F

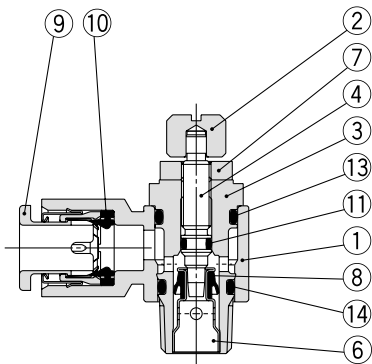


AS4201F, AS4211F

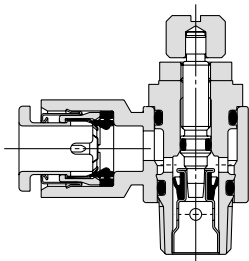


Construction

Meter-out type

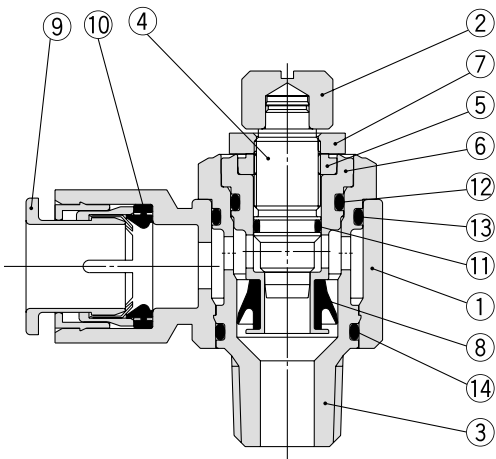


Meter-in type

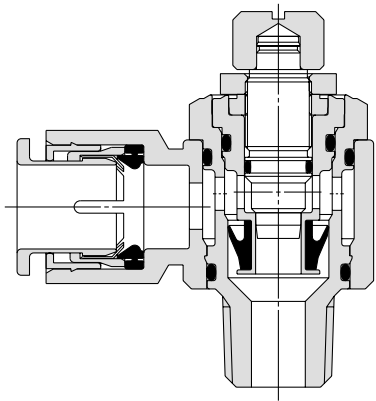


AS32□1F-02

Meter-out type AS3201F-02



Meter-in type AS3211F-02



Component Parts

No.	Description	Material	Note
1	Body A	Flame-resistant PBT	
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	(1)
7	Lock nut	Brass	Electroless nickel plated (2)
8	U-packing	HNBR	
9	Cassette	—	
10	Seal	NBR	
11	O-ring	NBR	
12	O-ring	NBR	
13	O-ring	NBR	
14	O-ring	NBR	

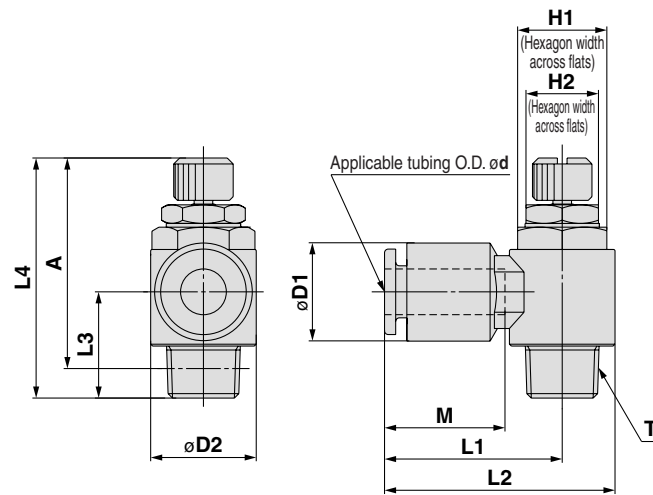
Note 1) AS22□1F, AS32□1F-02: Electroless nickel plated.
Note 2) Meter-in type is black zinc chromate plated.

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

Series AS



Elbow Type



Metric Size

Model	Applicable tubing O.D. ød	T	H1	H2	D1	D2	L1	L2	L3	L4 ⁽¹⁾		A ⁽²⁾		M	Mass (g)
										Max.	Min.	Max.	Min.		
AS22□1F-01-06W2	6	R 1/8	12	10	13.2	14.2	23.9	31	13.4	36.4	31.4	33.3	28.3	17	19
AS22□1F-01-08W2	8				15.2		25.3	32.4						18.5	21
AS22□1F-01-10W2	10				18.5		32.1	39.2						15.2	21
AS22□1F-02-06W2	6	R 1/4	17	12	13.2	18.5	25.2	34.4	17.7	41.1	36.1	35.6	30.6	17	34
AS22□1F-02-08W2	8				15.2		27.2	36.4						18.5	36
AS22□1F-02-10W2	10				18.5		35.3	44.5						18.3	21
AS32□1F-02-06W2	6		19	14	23	13.2	27.8	39.3	21.3	49.9	44.9	44.4	39.4	17	63
AS32□1F-02-08W2	8					15.2	29.5	41						18.5	65
AS32□1F-02-10W2	10					18.5	31.5	43.1						21	67
AS32□1F-02-12W2	12					20.9	32.8	44.3						22	69
AS32□1F-03-06W2	6	R 3/8	19	14	13.2	27.8	39.3	19.8	47.4	42.4	42.4	37.4	17	58	
AS32□1F-03-08W2	8				15.2	29.5	41						18.5	60	
AS32□1F-03-10W2	10				18.5	31.5	43.1						21	62	
AS32□1F-03-12W2	12				20.9	32.8	44.3						22	64	
AS42□1F-04-10W2	10	R 1/2	24	17	18.5	28.6	33.6	47.9	24.5	58.7	51.2	51.4	43.9	21	101
AS42□1F-04-12W2	12				20.9		35.2	49.5						22	107

Note 1) Reference dimensions

Note 2) Reference thread dimensions after installation.