

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

## Series AS

RoHS

### 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

#### Nickel plated option

### Model

Elbow type	Universal type	Port size	Applicable tubing O.D.														
			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	⊙	⊙	⊙	⊙											
AS12□1F-M5	AS13□1F-M5	M5 x 0.8	⊙	⊙	⊙	⊙						⊙	⊙	⊙	⊙		
AS12□1F-U10/32	AS13□1F-U10/32	10-32UNF		⊙	⊙	⊙						⊙	⊙	⊙			
AS22□1F-01	AS23□1F-01	R1/8		⊙	⊙	⊙	⊙					⊙	⊙	⊙			
AS22□1F-02	AS23□1F-02	R1/4			⊙	⊙	⊙	⊙					⊙	⊙	⊙	⊙	
AS32□1F-02	AS33□1F-02	R1/4				⊙	⊙	⊙	⊙					⊙	⊙	⊙	
AS32□1F-03	AS33□1F-03	R3/8					⊙	⊙	⊙					⊙	⊙	⊙	
AS42□1F-04	AS43□1F-04	R1/2								⊙	⊙				⊙	⊙	⊙

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 zinc chromated (the round lock nut is electroless nickel plated), while the meter-in type is black zinc chromate plated.

Note 4) ⊙: Brass parts are electroless nickel plated, provided as standard. (N specifications)

### Specifications

Fluid	Air
Proof pressure	1.5 MPa (1.05 MPa <sup>(1)</sup> )
Max. operating pressure	1 MPa (0.7 MPa <sup>(1)</sup> )
Mini. operating pressure	0.1 MPa
Ambient and fluid temperature	-5 to 60°C (No freezing)
Applicable tubing material <sup>(2)</sup>	Nylon, Soft nylon, Polyurethane <sup>(3)</sup>
Option	With seal <sup>(4)</sup> , Round lock nut <sup>(5)</sup> , Electroless nickel plated

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

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

(Refer to pages 411 and 412 for details.)

Note 3) In case of AS12□1F-M3-02 and AS12□1F-M5-02, polyurethane only.

Note 4) M3, M5, 10-32UNF type ports are not available with seals.

Note 5) Brass parts are all electroless nickel plated.

### Flow Rate and Sonic Conductance

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							
	Metric size	ø2, ø3.2, ø4	ø3.2, ø4, ø6	ø3.2, ø4, ø6, ø8, ø10	ø4, ø6, ø8, ø10	ø6, ø8, ø10, ø12							
Tubing O.D.	Metric size	ø1/8", ø5/32"	ø1/8", ø3/16", ø1/4", ø5/32"	ø1/8", ø3/16", ø1/4", ø5/32", ø3/16"	ø1/4", ø5/16", ø3/8"	ø1/4", ø5/16", ø3/8"							
	Inch size												
Controlled flow	Flow rate L/min (NFR)	20	100	180	230	260	390	460	660	790	920	1580	1710
	Free flow	Sonic conductance cm <sup>2</sup> /s(bar)	0.06	0.28	0.5	0.64	0.72	1.1	1.3	1.8	2.2	2.6	4.4
Critical pressure ratio	Controlled flow	0.2	0.2	0.25		0.3		0.3		0.25		0.25	
	Free flow	0.4	0.4	0.2		0.3		0.3		0.2		0.3	

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

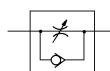
Applicable tubing O.D. ø2



### Universal type



### Symbol



### Flow Direction Symbols on Body

	Meter-out type	Meter-in type
Indication symbol		
Symbol		

### ⚠ Caution

Be sure to read before handling.  
Refer to front matter 56 for Safety Instructions and pages 468 to 471 for Flow Control Equipment Precautions.



Made to Order  
(Refer to page 490 for details.)

## How to Order

**AS 2 2 0 1F - [ ] 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)
R	
N	NPT

**Lock nut option**

Nil	Hexagon lock nut
J	Round lock nut

**Made to Order**  
(Refer to page 490 for details.)

**Option**

Nil	None
S	With seal
N	Electroless nickel plated

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

**Applicable tubing O.D.** (Note)

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

**Port size**

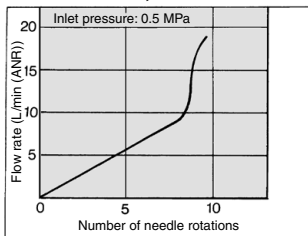
M3	M3 x 0.5
M5	M5 x 0.8
U10/32	10-32 UNF
01	1/8
02	1/4
03	3/8
04	1/2

(Note) For applicable tubing O.D. selection, refer to the Model on page 484.  
\*Use ø1/8" tube.

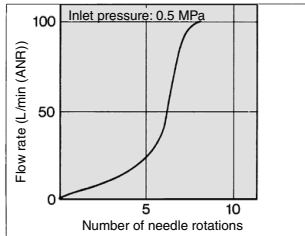
## Needle Valve/Flow Characteristics

(Note) The flow characteristics are representative values.

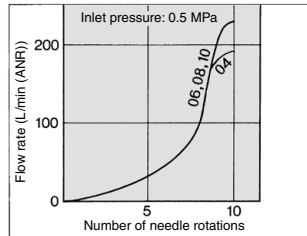
**AS1201F-M3, AS1211F-M3  
AS1301F-M3, AS1311F-M3  
AS1201F-M5-02, AS1211F-M5-02**



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

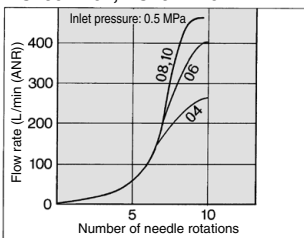


**AS2201F-01, AS2211F-01  
AS2301F-01, AS2311F-01**

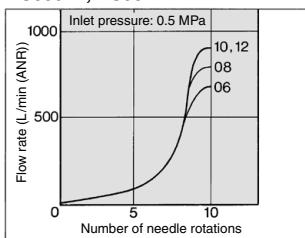


(Note) \*U10/32" is the same as "M5".

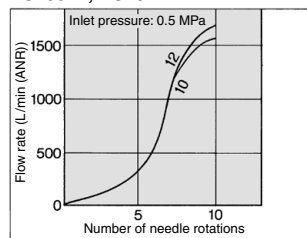
**AS2201F-02, AS2211F-02  
AS2301F-02, AS2311F-02**



**AS3201F, AS3211F  
AS3301F, AS3311F**



**AS4201F, AS4211F  
AS4301F, AS4311F**

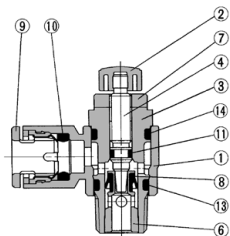


# Series AS

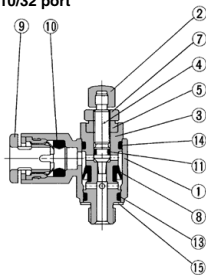
## Construction

### Elbow type

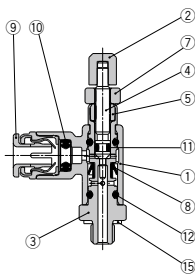
Meter-out type



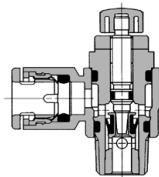
M3 port  
M5 port  
U10/32 port



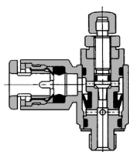
ø2 tubing type



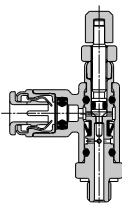
Meter-in type



M3 port  
M5 port  
U10/32 port

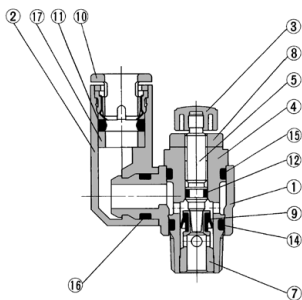


ø2 tubing type

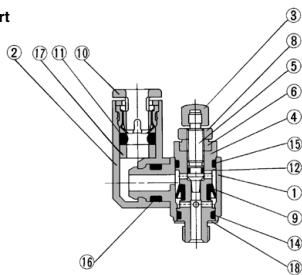


### Universal type

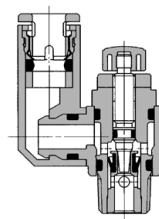
Meter-out type



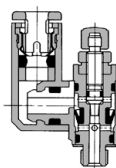
M3 port  
M5 port  
U10/32 port



Meter-in type



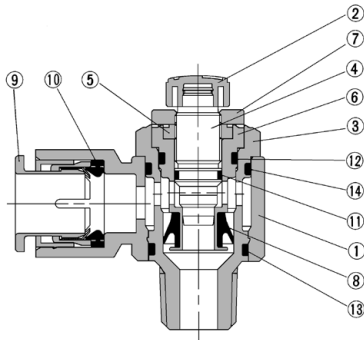
M3 port  
M5 port  
U10/32 port



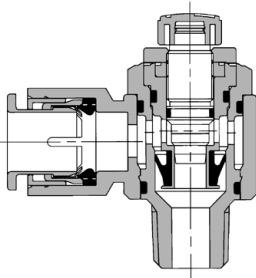
## Construction

### Elbow type

Meter-out type AS3201F-02

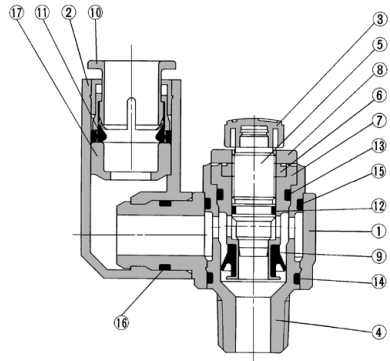


Meter-in type AS3211F-02

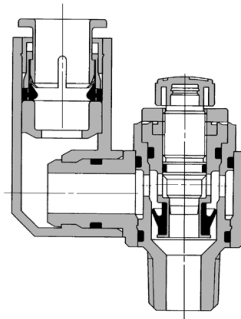


### Universal type

Meter-out type AS3301F-02



Meter-in type AS3311F-02



### Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Handle	PBT <sup>(1)</sup>	
3	Body B	Brass <sup>(2)</sup>	Electroless nickel plated
4	Needle	Brass	Electroless nickel plated
5	Needle guide	Brass	Electroless nickel plated
6	Seat ring	Brass	<sup>(3)</sup>
7	Lock nut	Steel <sup>(4)</sup>	Meter-out Zinc chromate plated <sup>Note 5)</sup> Meter-in Black zinc chromate plated
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 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: Electroless nickel plated.

\* Excluding applicable tubing O.D. 3/8"

Note 4) The material of the lock nut option-J (round type) is brass.

However, note that only the AS22□1F uses steel.

Note 5) The surface treatment of the lock nut option-J (round type) is electroless nickel plating.

### Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Elbow body	PBT	
3	Handle	PBT <sup>(1)</sup>	
4	Body B	Brass <sup>(2)</sup>	Electroless nickel plated
5	Needle	Brass	Electroless nickel plated
6	Needle guide	Brass	Electroless nickel plated
7	Seat ring	Brass	<sup>(3)</sup>
8	Lock nut	Steel <sup>(4)</sup>	Meter-out Zinc chromate plated <sup>Note 5)</sup> Meter-in Black zinc chromate plated
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 electroless nickel plated brass.

Note 2) AS13□1F-M3 is made of stainless steel.

Note 3) AS23□1F, AS33□1F: Electroless nickel plated.

\* Excluding applicable tubing O.D. 3/8"

Note 4) The material of the lock nut option-J (round type) is brass.

However, note that only the AS23□1F uses steel.

Note 5) The surface treatment of the lock nut option-J (round type) is electroless nickel plating.

AS

TMH

ASD

AS

AS-FE  
KE

AS-FG

AS-FP

AS-FM

AS-D  
AS-T

ASP

ASN

AQ

ASV

AK

VCHC

ASS

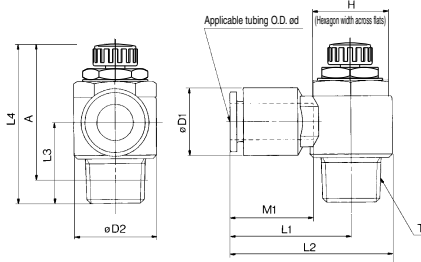
ASR

ASQ

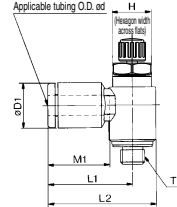
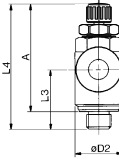
# Series AS



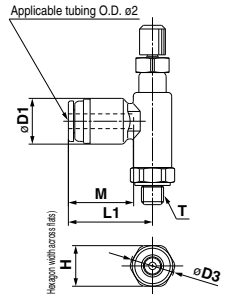
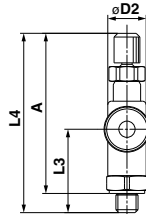
## Elbow Type



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	L3	L1	L2	L4 (3)	A (2)		M1	Weight (g)	
										Max.	Min.			
AS12□1F-M3-02	M3 x 0.5	5.5	6	5.2	6	—	—	—	11	26.8	24.3	24.3	21.8	2.4
AS12□1F-M5-02	M5 x 0.8	7	6	5.2	7.5	11.4	—	—	11.5	27.3	24.8	24.3	21.8	3
AS12□1F-M3-23	M3 x 0.5	3.2	—	—	—	—	16.1	19.7	10.5	26.6	24.1	24	21.5	12.7
AS12□1F-M3-04	M3 x 0.5	4	—	—	—	—	—	—	10	26.6	24.1	24	21.5	12.7
AS12□1F-M5-23	M5 x 0.8	3.2	—	—	—	—	17.3	22.1	12.3	—	—	—	—	—
AS12□1F-U10/32-23	10-32UNF	4	—	—	—	—	—	—	10.5	—	—	—	—	—
AS12□1F-M5-04	M5 x 0.8	4	—	—	—	—	17.3	22.1	12.3	28.6	25.8	25	22.2	—
AS12□1F-U10/32-04	10-32UNF	4	—	—	—	—	—	—	10.5	—	—	—	—	—
AS12□1F-M5-06	M5 x 0.8	6	—	—	—	—	18.1	22.9	11.7	—	—	—	—	13.5
AS12□1F-U10/32-06	10-32UNF	6	—	—	—	—	—	—	11.6	—	—	—	—	—
AS22□1F-01-23	3.2	—	—	—	—	—	—	—	9.3	20.4	27.5	—	—	16
AS22□1F-01-04	4	—	—	—	—	—	—	—	9.3	20.4	27.5	—	—	17
AS22□1F-01-06	6	1/8	12 (12.7)	11.6	14.2	—	—	—	11.4	35.2	30.2	32.1	27.1	13.5
AS22□1F-01-08	8	—	—	—	—	—	—	—	15.2	35.3	32.4	—	—	18.5
AS22□1F-01-10	10	—	—	—	—	—	—	—	18.5	32.1	32.2	14.1	—	21
AS22□1F-02-04	4	—	—	—	—	—	—	—	10.4	25.2	34.4	—	—	16
AS22□1F-02-06	6	—	—	—	—	—	—	—	12.8	25.2	34.4	17.7	—	32
AS22□1F-02-08	8	—	—	—	—	—	—	—	15.2	27.2	36.4	17.7	39.9	34.9
AS22□1F-02-10	10	—	—	—	—	—	—	—	18.5	35.3	44.5	18.3	—	36
AS22□1F-02-06	6	1/4	17 (17.5)	12.8	18.5	—	—	—	12.8	27.8	39.3	—	—	60
AS32□1F-02-08	8	—	—	—	—	—	—	—	15.2	29.5	41	21.3	48.3	63
AS32□1F-02-10	10	—	—	—	—	—	—	—	18.5	31.8	43.3	—	—	67
AS32□1F-02-12	12	—	—	—	—	—	—	—	20.9	32.8	44.3	—	—	69
AS32□1F-03-06	6	—	—	—	—	—	—	—	12.8	27.8	39.3	—	—	55
AS32□1F-03-08	8	—	—	—	—	—	—	—	15.2	29.5	41	—	—	57
AS32□1F-03-10	10	—	—	—	—	—	—	—	18.5	31.8	43.3	—	—	59
AS32□1F-03-12	12	—	—	—	—	—	—	—	20.9	32.8	44.3	—	—	61
AS42□1F-04-10	10	1/2	24 (23.8)	18.5	20.9	28.6	—	—	33.6	47.9	54.5	65.7	49.2	21
AS42□1F-04-12	12	—	—	—	—	—	—	—	35.2	49.5	56.5	69.2	48.6	21

## Inch Size

Model	Applicable tubing O.D. øD	T	H (1)	D1	D2	L3	L1	L2	L4 (3)	A (2)		M1	Weight (g)	
										Max.	Min.			
AS12□1F-M3-01	1/8"	M3 x 0.5	5.5	8.4	9.3	7.2	16.1	19.7	10.5	26.6	24.1	24	21.5	12.7
AS12□1F-M5-01	5/32"	M5 x 0.8	7	8.4	9.6	17.3	22.1	—	—	28.6	25.8	25	22.2	12.7
AS12□1F-M3-02	1/8"	10-32UNF	8	8.4	9.6	17.3	22.1	—	—	28.6	25.8	25	22.2	12.7
AS12□1F-M5-03	5/32"	M5 x 0.8	8	8.4	9.6	17.3	22.1	—	—	28.6	25.8	25	22.2	12.7
AS12□1F-U10/32-03	5/32"	10-32UNF	8	8.4	9.6	17.3	22.1	—	—	28.6	25.8	25	22.2	12.7
AS12□1F-M5-05	3/16"	M5 x 0.8	8	11.4	11.4	21.3	26.1	—	—	28.6	25.8	25	22.2	16.5
AS12□1F-U10/32-05	3/16"	10-32UNF	8	11.4	11.4	21.3	26.1	—	—	28.6	25.8	25	22.2	16.5
AS12□1F-M5-07	1/4"	M5 x 0.8	12	9.6	9.6	18.3	23.1	—	—	28.6	25.8	25	22.2	13.5
AS12□1F-U10/32-07	1/4"	10-32UNF	12	9.6	9.6	18.3	23.1	—	—	28.6	25.8	25	22.2	13.5
AS22□1F-01-01	1/8"	—	12 (12.7)	9.3	—	—	—	—	9.3	20.4	27.5	—	—	16
AS22□1F-01-03	5/32"	—	—	9.3	—	—	—	—	9.3	20.4	27.5	—	—	17
AS22□1F-01-05	3/16"	1/8	12 (12.7)	11.4	14.2	23.1	30.2	13.4	35.2	30.2	32.1	27.1	—	16.5
AS22□1F-01-07	1/4"	—	—	13.2	—	—	—	—	23.9	31	—	—	—	18.5
AS22□1F-01-09	5/16"	—	—	15.2	—	—	—	—	25.3	32.4	14.1	—	—	21
AS22□1F-02-03	5/32"	—	—	10.4	—	—	—	—	25.2	34.4	—	—	—	16
AS22□1F-02-05	3/16"	—	—	11.4	—	—	—	—	24.9	34.2	17.7	—	—	32
AS22□1F-02-07	1/4"	—	—	13.2	18.5	25.2	34.5	—	39.9	34.9	34.4	29.4	—	18.5
AS22□1F-02-09	5/16"	—	—	15.2	—	—	—	—	27.2	35.4	18.2	—	—	21
AS22□1F-02-11	3/8"	1/4	17 (17.5)	18.5	—	—	—	—	35.3	44.5	18.8	—	—	36
AS22□1F-02-13	1/2"	—	—	18.5	—	—	—	—	35.3	44.5	18.8	—	—	36
AS32□1F-02-07	1/4"	—	—	13.2	—	—	—	—	27.8	39.3	—	—	—	60
AS32□1F-02-09	5/16"	—	—	15.2	23	29.5	41	21.3	48.3	43.3	42.8	37.8	—	18.5
AS32□1F-02-11	3/8"	—	—	17.9	—	—	—	—	31.8	43.3	—	—	—	67
AS32□1F-03-07	1/4"	—	—	13.2	—	—	—	—	27.8	39.3	—	—	—	55
AS32□1F-03-09	5/16"	3/8	19	15.2	23	29.5	41	19.8	45.4	40.4	40.2	35.2	—	18.5
AS32□1F-03-11	3/8"	—	—	17.9	—	—	—	—	31.8	43.3	—	—	—	59
AS42□1F-04-11	3/8"	1/2	24 (23.8)	17.9	21.7	28.6	35.2	49.5	56.7	49.2	49.6	42.1	—	21
AS42□1F-04-13	1/2"	—	—	21.7	—	—	—	—	35.2	49.5	56.7	49.2	49.6	21

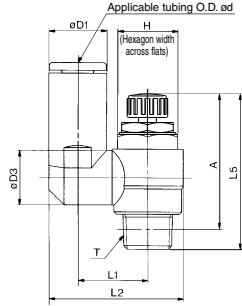
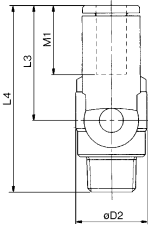
Note 1) ( ) are the dimensions of NPT thread.  
Note 2) Reference thread dimensions after installation.  
Note 3) Reference dimensions

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

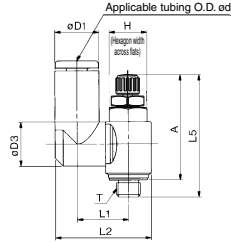
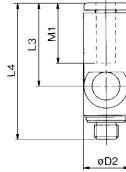
# Speed Controller with One-touch Fitting Elbow Type/Universal Type **Series AS**



## Universal Type



M3 port  
M5 port  
U10/32 port



### Metric Size

Model	Applicable tubing O.D. od	T	H <sup>(1)</sup>	D1	D2	D3	L1	L2	L3	L4	L5 <sup>(2)</sup>		A <sup>(2)</sup>		M1	Weight (g)
											Max.	Min.	Max.	Min.		
AS13□1F-M3-23	3.2	M3×0.5	5.5	8.4	7.2	7.2	10.1	17.9	17.6	28.3					4	4
AS13□1F-M3-04	4	M3×0.5		9.3	7.2		10.1	18.3	17.9	28.6	26.6	24.1	24	21.5	12.7	5
AS13□1F-M5-23	3.2	M5×0.8		8.4				19.8							12.7	7
AS13□1F-U1032-23	4	10-32UNF		9.3	9.6	9.3	10.8	20.3			28.6	25.8	25	22.2		7
AS13□1F-U1032-04	4	10-32UNF		9.3	9.6	9.3	10.8	20.3			28.6	25.8	25	22.2		7
AS13□1F-M5-06	6	M5×0.8		11.6				21.4	20.6	31.8					13.5	
AS13□1F-U1032-06	6	10-32UNF		11.6				21.4	20.6	31.8					13.5	
AS23□1F-01-23	3.2			8.4				9.3	13.1	24.4	35.2	30.2	32.1		12.7	17
AS23□1F-01-04	4			9.3				10.9	16.2	30.6	48.5				16	32
AS23□1F-01-06	6	1/8	12 (12.7)	11.6				12.9	18.4	34.9	57.1				18.5	36
AS23□1F-01-08	8			15.2				12.9	16.2	30.9	48.5				18.5	21
AS23□1F-02-04	4			10.4				12.9	16.2	30.6	21.9	39.6			17	33
AS23□1F-02-06	6			12.8				12.9	18.3	35.2	28.2	45.1			18.5	36
AS23□1F-02-08	8		17 (17.5)	15.2				12.9	20.2	38.7	31	47.9			21	40
AS23□1F-02-10	10			18.5				12.9	20.2	38.7	31	47.9			21	40
AS23□1F-02-06	6		1/4	15.2				12.9	20.6	39.5	25.2	46.5			17	60
AS33□1F-02-06	8			15.2				12.9	20.6	39.5	28.2	49.5	48.3	43.3	18.5	63
AS33□1F-02-08	8			15.2			23	12.9	20.6	39.7	28.2	49.5	48.3	43.3	18.5	63
AS33□1F-02-10	10			18.5				12.9	20.6	39.7	28.2	49.5	48.3	43.3	18.5	63
AS33□1F-02-12	12			20.9				16.2	23	43.7	32.6	53.9			22	69
AS33□1F-03-06	6			12.8				12.9	20.6	39.5	25.2	45			17	56
AS33□1F-03-08	8			15.2				12.9	20.6	39.7	28.2	49.5			18.5	59
AS33□1F-03-10	10			18.5				16.2	23	43.7	32.6	52.4	45.4	40.4	21	63
AS33□1F-03-12	12			20.9				16.2	23	44.9	34.4	54.2			22	65
AS43□1F-04-10	10			18.5				18.2	25.8	49.4	32.6	57.1			21	104
AS43□1F-04-12	12	1/2	24 (23.8)	21.7				19.4	26.8	52	36.3	60.8	56.7	49.2	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. od	T	H <sup>(1)</sup>	D1	D2	D3	L1	L2	L3	L4	L5 <sup>(2)</sup>		A <sup>(2)</sup>		M1	Weight (g)
											Max.	Min.	Max.	Min.		
AS13□1F-M3-01	1/8"	M3×0.5	5.5	8.4	7.2	7.2	10.1	17.9	17.6	28.3					4	4
AS13□1F-M3-03	5/32"	M3×0.5		9.3	7.2		10.1	18.3	17.9	28.6	26.6	24.1	24	21.5	12.7	5
AS13□1F-U1032-01	1/8"	M5×0.8		8.4				19.8							12.7	7
AS13□1F-U1032-03	5/32"	10-32UNF		9.3	9.6	9.3	10.8	20.3			28.6	25.8	25	22.2		7
AS13□1F-U1032-06	5/32"	10-32UNF		9.3	9.6	9.3	10.8	20.3			28.6	25.8	25	22.2		7
AS13□1F-M5-05	3/16"	M5×0.8		11.4				21.3	23.3	34.5					16.5	
AS13□1F-U1032-05	3/16"	M5×0.8		11.4				21.3	23.3	34.5					16.5	
AS13□1F-M5-07	1/4"	M5×0.8		14				21.6	20.7	31.9					13.7	
AS13□1F-U1032-07	1/4"	10-32UNF		14				21.6	20.7	31.9					13.7	
AS23□1F-01-01	1/8"			8.4				9.3	13.1	24.4	35.2	30.2	32.1		12.7	17
AS23□1F-01-03	5/32"			9.3				10.9	14	26.8	48.5				16.5	32
AS23□1F-01-05	3/16"	1/8	12 (12.7)	11.6				12.9	16.2	30.9	48.5				18.5	36
AS23□1F-01-07	1/4"			13.2				12.9	16.2	30.9	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"			10.4				10.9	16.2	30.6	21.9	39.6			16	32
AS23□1F-02-05	3/16"			11.6				10.9	16.2	31.1	23.9	42.1			16.5	33
AS23□1F-02-07	1/4"			13.2			17 (17.5)	12.9	18.3	34.2	25.6	45.1	39.9	34.9	17	36
AS23□1F-02-09	5/16"			15.2				12.9	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"			13.2				12.9	20.6	39.7	25.6	46.9			17	60
AS33□1F-02-09	5/16"			15.2			23	12.9	20.6	39.7	28.2	49.5	48.3	43.3	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	39.7	25.6	45.4			17	56
AS33□1F-03-09	5/16"			15.2				12.9	20.6	39.7	28.2	46	45.4	40.4	20.2	35.2
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"			24				18.5	25.8	49.4	32.6	57.1			21	104
AS43□1F-04-13	1/2"	1/2	24 (23.8)	21.7				19.4	26.8	52	36.3	60.8	56.7	49.2	22	106

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

# Series AS

# Made to Order Specifications:



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.

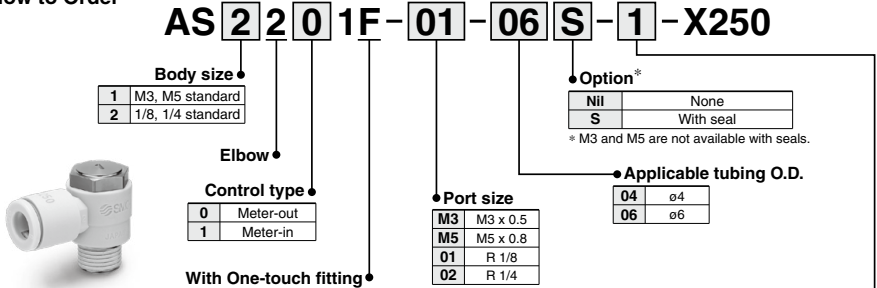
## 3 Throttle Valve (Without Check Valve) X214

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	$\phi 0.1$	●	●	●	●
2	$\phi 0.2$	●	●	●	●
3	$\phi 0.3$	●	●	●	●
4	$\phi 0.4$	●	●	●	●
5	$\phi 0.5$	●	●	●	●
6	$\phi 0.6$	●	●	●	●
7	$\phi 0.7$	●	●	●	●
8	$\phi 0.8$	●	●	●	●
9	$\phi 0.9$	●	●	●	●
10	$\phi 1.0$	●	●	●	●

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.

