

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

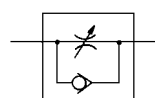
Applicable tubing O.D. ø2



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"

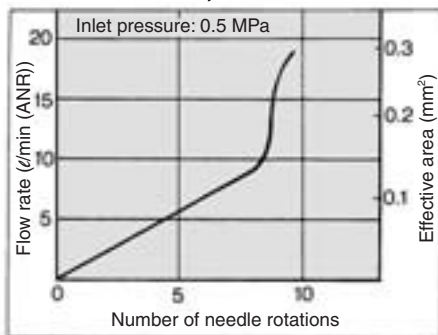
*Use ø1/8" tube.

Port size

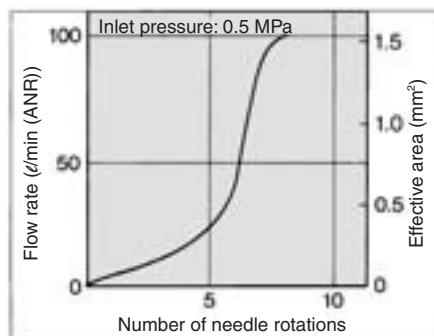
M3	M3 x 0.5
M5	M5 x 0.8
U10/32	10-32 UNF
01	1/8
02	1/4
03	3/8
04	1/2

Needle Valve/Flow Characteristics

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

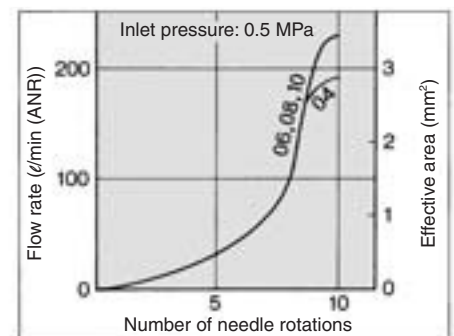


AS1201F-M5, AS1211F-M5
AS1301F-M5, AS1311F-M5

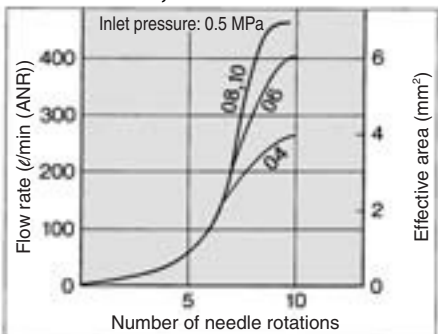


Note) "-U10/32" is the same as "M5".

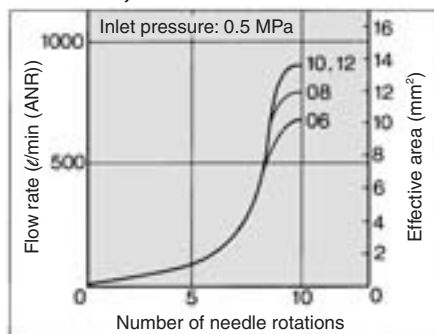
AS2201F-01, AS2211F-01
AS2301F-01, AS2311F-01



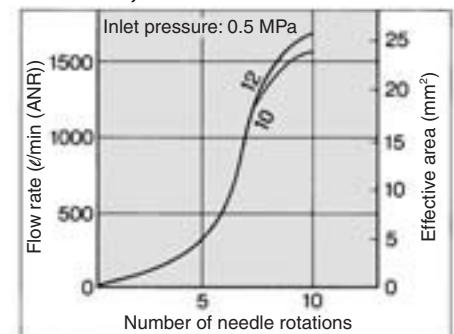
AS2201F-02, AS2211F-02
AS2301F-02, AS2311F-02



AS3201F, AS3211F
AS3301F, AS3311F



AS4201F, AS4211F
AS4301F, AS4311F

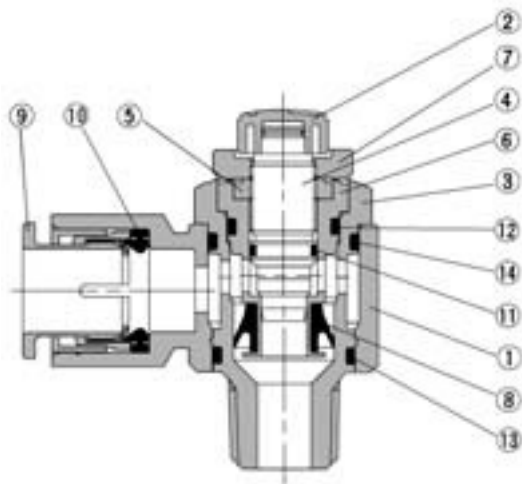


AS
ASP
ASN
AQ
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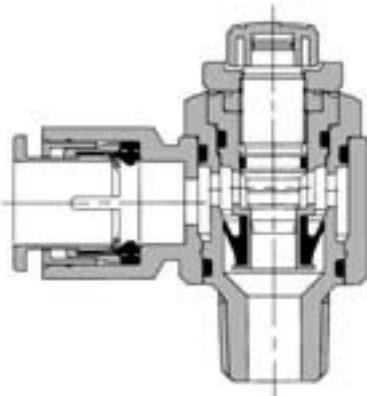
Construction

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.

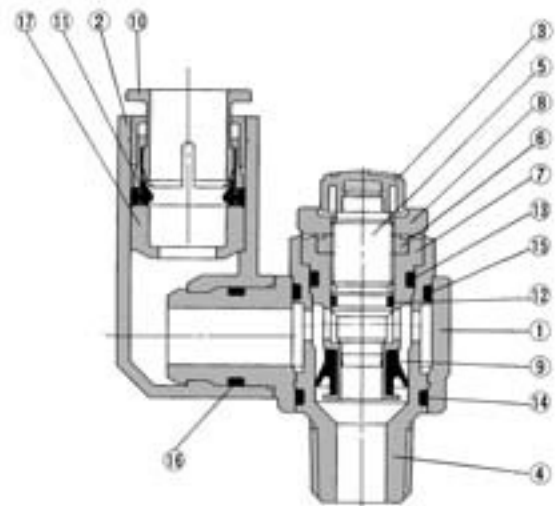
Note 3) AS22□1F, AS32□1F-02: Electroless nickel plated.

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

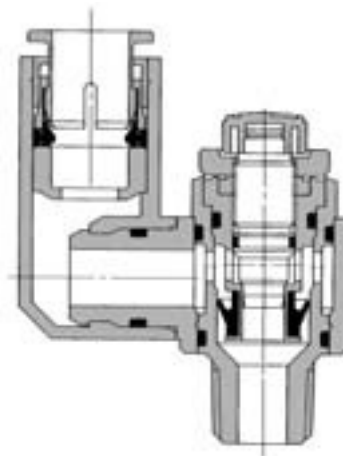
Note 5) Meter-in type is black zinc chromate plated.

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

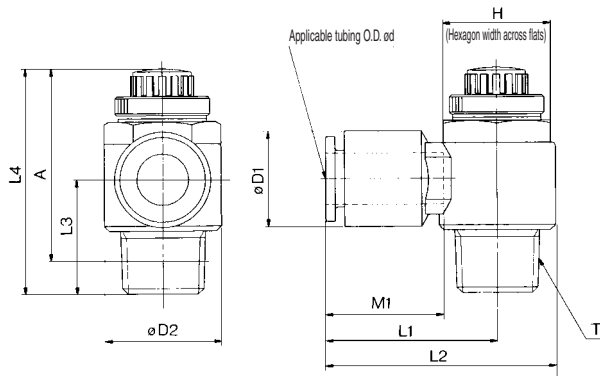
KE

TMH

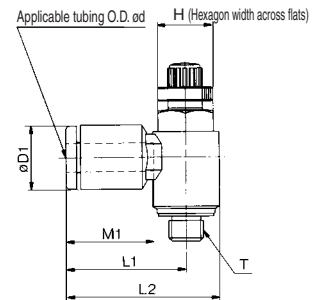
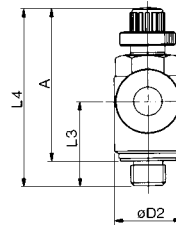
Series AS



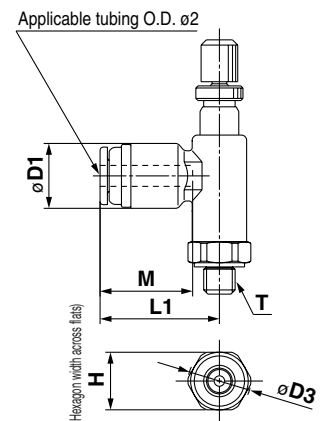
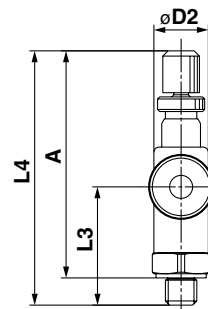
Elbow Type



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	—	—	—	—	10	—	—	—	—
AS12□1F-M5-23	3.2	M5 x 0.8	7	8.4	—	—	17.3	22.1	—	—	—	—	—
AS12□1F-U10/32-23	3.2	10-32UNF	7	8.4	—	—	17.3	22.1	12.3	—	—	12.7	—
AS12□1F-M5-04	4	M5 x 0.8	8	9.3	9.6	—	17.3	22.1	—	28.6	25.8	25	7
AS12□1F-U10/32-04	4	10-32UNF	8	9.3	9.6	—	17.3	22.1	—	—	—	—	—
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	—	—	—	—
AS22□1F-01-23	3.2	1/8	12	9.3	—	—	20.4	27.5	—	—	—	12.7	16
AS22□1F-01-04	4	1/8	12	9.3	—	—	20.4	27.5	13.4	35.2	30.2	27.1	17
AS22□1F-01-06	6	1/8	12	11.6	14.2	—	20.4	27.5	—	—	—	13.5	19
AS22□1F-01-08	8	1/8	12	15.2	—	—	25.3	32.4	—	—	—	18.5	21
AS22□1F-01-10	10	1/8	12	18.5	—	—	32.1	39.2	14.1	—	—	21	21
AS22□1F-02-04	4	1/4	17	10.4	—	—	25.2	34.4	—	—	—	16	32
AS22□1F-02-06	6	1/4	17	12.8	18.5	—	25.2	34.4	17.7	39.9	34.9	29.4	17
AS22□1F-02-08	8	1/4	17	15.2	—	—	27.2	36.4	—	—	—	18.5	34
AS22□1F-02-10	10	1/4	17	18.5	—	—	35.3	44.5	19.5	—	—	21	36
AS32□1F-02-06	6	3/8	19	12.8	—	—	27.8	39.3	—	—	—	17	60
AS32□1F-02-08	8	3/8	19	15.2	23	—	29.5	41	—	—	—	18.5	63
AS32□1F-02-10	10	3/8	19	18.5	—	—	31.8	43.3	21.3	48.3	43.3	37.8	67
AS32□1F-02-12	12	3/8	19	20.9	—	—	32.8	44.3	—	—	—	22	69
AS32□1F-03-06	6	3/8	19	12.8	—	—	27.8	39.3	—	—	—	17	55
AS32□1F-03-08	8	3/8	19	15.2	23	—	29.5	41	19.8	45.4	40.4	35.2	57
AS32□1F-03-10	10	3/8	19	18.5	—	—	31.8	43.3	—	—	—	21	59
AS32□1F-03-12	12	3/8	19	20.9	—	—	32.8	44.3	—	—	—	22	61
AS42□1F-04-10	10	1/2	24	18.5	28.6	—	33.6	47.9	24.5	56.7	49.2	42.1	100
AS42□1F-04-12	12	1/2	24	20.9	—	—	34.6	48.9	—	—	—	22	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"			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.

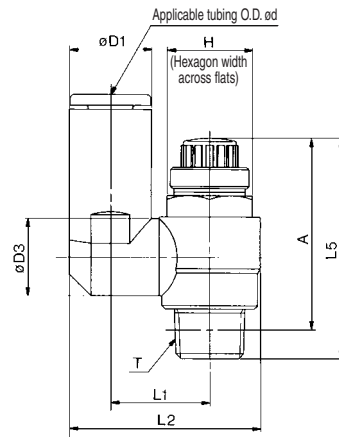
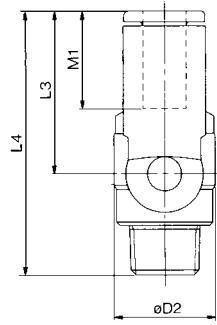
Note 2) Reference thread dimensions after installation.

Note 3) Reference dimensions

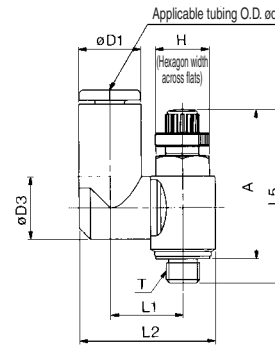
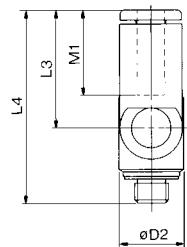
Speed Controller with One-touch Fitting Elbow Type/Universal Type **Series AS**



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							13.5	18															
AS23□1F-01-06	6			11.6				26.9	22.9	36.3																					
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											12.9	18.3	35.2	28.2	45.1	18.5	36										
AS23□1F-02-10	10			18.5											20.2	38.7	31	47.9	21	40											
AS33□1F-02-06	6			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"			8.4				19.8	28.7	28.6						25.8	25	22.2	12.7	7						
AS13□1F-U10/32-01	1/8"	10-32UNF	8	9.6	9.3	10.8	20.3				28.6	25.8	25	22.2	12.7						7					
AS13□1F-M5-03	5/32"	M5 x 0.8																				10-32UNF	28.6	25.8	25	22.2
AS13□1F-U10/32-03	5/32"	10-32UNF						28.6	25.8	25						22.2	12.7	7								
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					
AS13□1F-U10/32-05	3/16"	10-32UNF																				12	21.6	20.7	31.9	28.6
AS13□1F-M5-07	1/4"	M5 x 0.8						10-32UNF	21.6	20.7						31.9	28.6	25.8								
AS13□1F-U10/32-07	1/4"	10-32UNF	12	21.6	20.7	31.9	28.6				25.8	25	22.2	13.7	8											
AS23□1F-01-01	1/8"	1/8																	12 (12.7)	8.4	14.2	10.9	14	26.8	23.9	37.3
AS23□1F-01-03	5/32"							9.3	13.1	24.4						17.5	30.9	18								
AS23□1F-01-05	3/16"		11.6	10.9	14	26.8	23.9	37.3	16.5																	
AS23□1F-01-07	1/4"		13.2	12.9	16.2	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	35.2	28.2	47.9	39.9	34.9	34.4	29.4	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												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												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"	3/8	19	13.2	23	12.9	20.6	38.7	25.6	46.9	48.3	43.3	42.8	37.8	18.5	60										
AS33□1F-02-09	5/16"			15.2												12.9	20.6	39.7	28.2	49.5	21	69				
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	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	60.8	22	106				

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