

Speed Controller with One-touch Fitting

Series AS

Elbow Type/Universal Type

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.

Application to inch size tubing

- **Metric size** (Release bushing: White color)
ø3.2, ø4, ø6, ø8, ø10, ø12
- **Inch size** (Release bushing: 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							
			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
AS12□1F-U10/32	AS13□1F-U10/32	10-32 UNF	●	●	●					●	●	●	●			6, 10, 16, 20
AS22□1F-01	AS23□1F-01	R 1/8	●	●	●	●	● ⁽¹⁾			●	●	●	●	●		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) * Elbow type only

Note 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 3) ● 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 (8 turns ⁽¹⁾)
Applicable tubing material ⁽²⁾	Nylon, Soft nylon, Polyurethane
Option	With seal, Hexagon lock nut ⁽³⁾ , Electroless nickel plated ⁽⁴⁾

Note 1) In the case of AS12□1F-M5, AS12□1F-U10/32, 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 15-6-3 to 15-6-5 for details.)

Note 3) M3, M5, and 10-32UNF type ports are not available with seal.

Note 4) Brass parts are all electroless nickel plated.

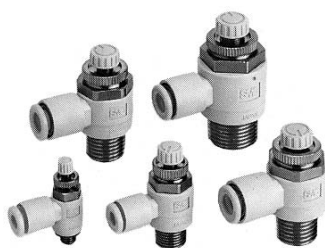
Flow Rate and Effective Area

Model		AS12□1F-M3 AS13□1F-M3	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	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" ø3/16", ø1/4" ø5/32"	ø5/32" ø3/16" ø1/4", ø5/16" ø3/8"	ø1/4" ø5/16" ø3/8"	ø3/8"	ø3/8"	ø1/2"	
Controlled flow	Flow rate $\dot{V}$ (min (ANR)	20	100	180	230	260 390	460	660 790	920	1580 1710
(Free flow)	Effective area (mm ²)	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.

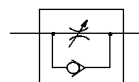
Elbow type



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 pages 15-18-3 to 15-18-4 for Safety Instructions and Common Precautions on the products mentioned in this catalog, and refer to pages 15-8-6 to 15-8-8 for Precautions on every series.



P. 15-11-3

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

• **Option**

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

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

• **Type**

2	Elbow
3	Universal

• **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.

• **Control type**

0	Meter-out
1	Meter-in

• **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

• **With One-touch fitting**

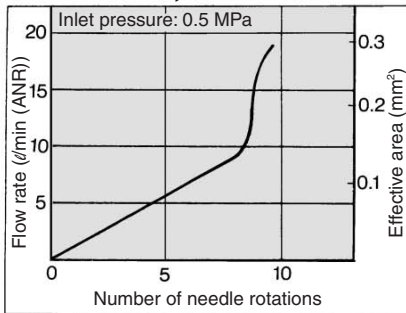
Nil	Metric thread (M3, M5)
	Unified thread (10-32 UNF)
	R
N	NPT

• **Thread type**

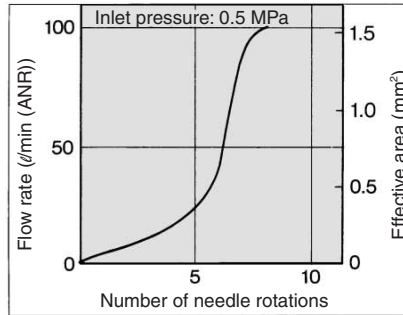
Nil	Metric thread (M3, M5)
	Unified thread (10-32 UNF)
	R
N	NPT

Needle Valve/Flow Characteristics

AS1201F-M3, AS1211F-M3
AS1301F-M3, AS1311F-M3

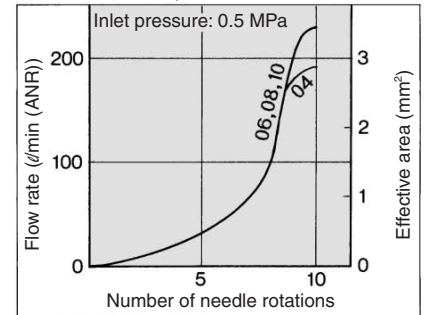


AS1201F-M5, AS1211F-M5
AS1301F-M5, AS1311F-M5

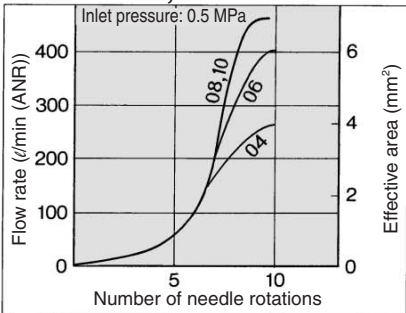


Note) "-U10/32" is the same as "M5".

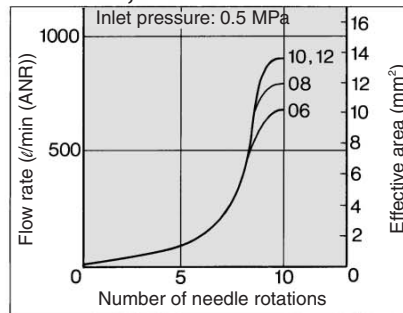
AS2201F-01, AS2211F-01
AS2301F-01, AS2311F-01



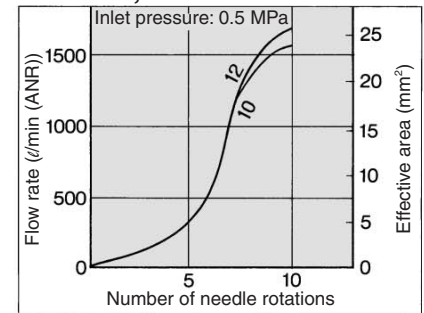
AS2201F-02, AS2211F-02
AS2301F-02, AS2311F-02



AS3201F, AS3211F
AS3301F, AS3311F



AS4201F, AS4211F
AS4301F, AS4311F



AS

ASP

ASN

AQ

ASV

AK

ASS

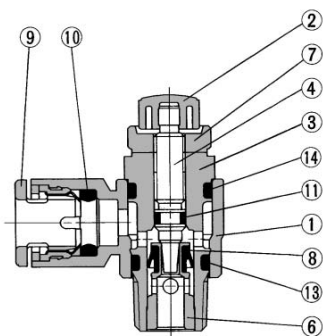
ASR

ASF

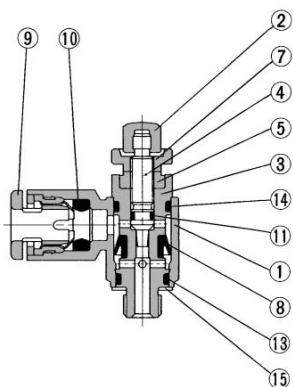
Series AS

Construction

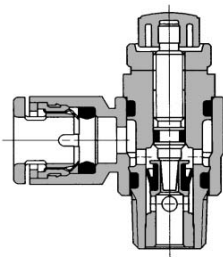
Elbow type Meter-out type



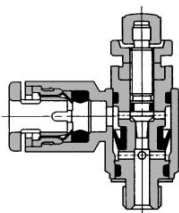
M3 port
M5 port
U10/32 port



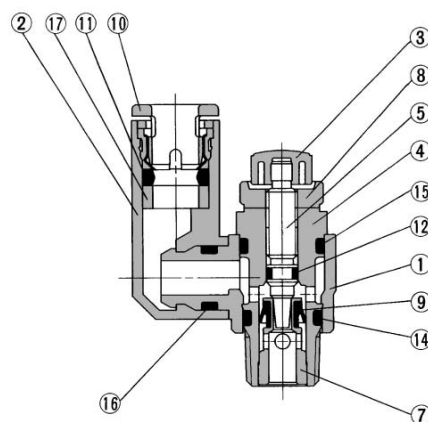
Meter-in type



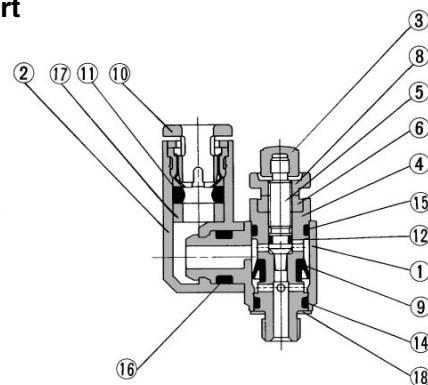
M3 port
M5 port
U10/32 port



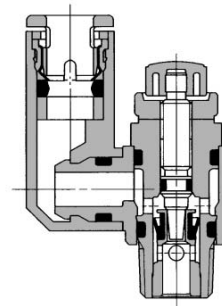
Universal type Meter-out type



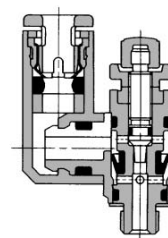
M3 port
M5 port
U10/32 port



Meter-in type

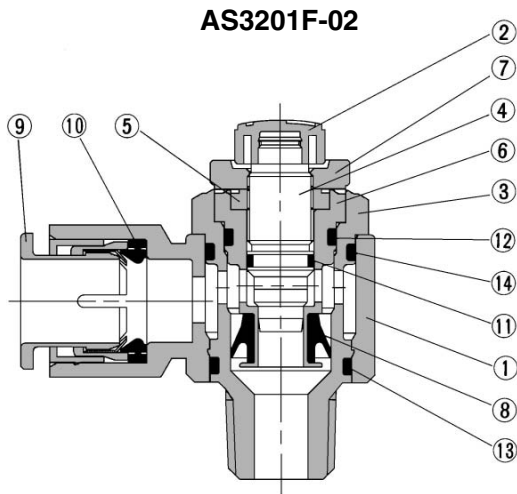


M3 port
M5 port
U10/32 port

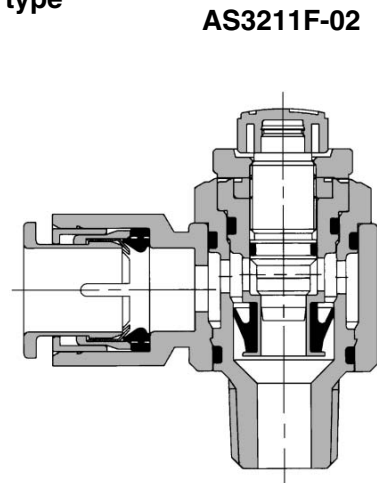


Construction

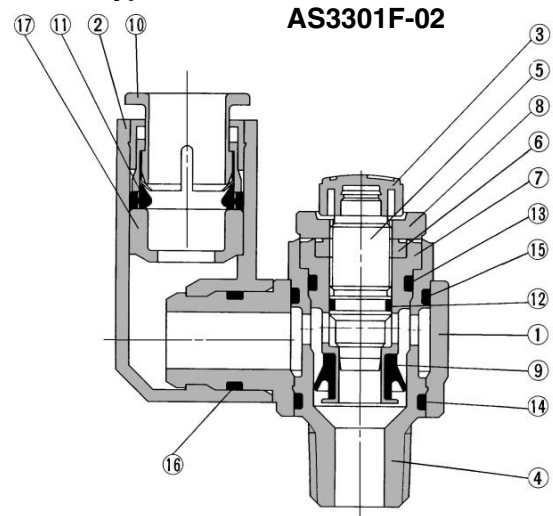
Elbow type Meter-out type



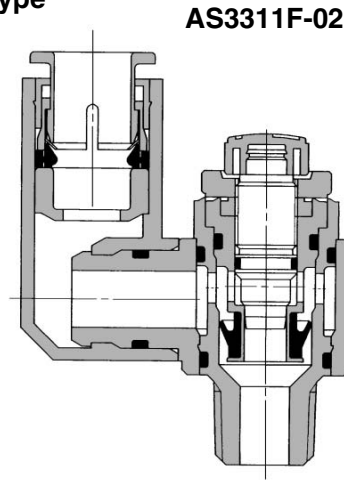
Meter-in type



Universal type Meter-out type



Meter-in type



Component Parts

No.	Description	Material	Note
①	Body A	PBT	
②	Handle	PBT	
③	Body B	Brass ⁽¹⁾	Electroless nickel plated
④	Needle	Brass	Electroless nickel plated
⑤	Needle guide	Brass	Electroless nickel plated
⑥	Seat ring	Brass	⁽²⁾
⑦	Lock nut	Brass ⁽³⁾	Electroless nickel plated ⁽⁴⁾
⑧	U-packing	HNBR	
⑨	Cassette	POM	
⑩	Seal	NBR	
⑪	O-ring	NBR	
⑫	O-ring	NBR	
⑬	O-ring	NBR	
⑭	O-ring	NBR	
⑮	Gasket	NBR	

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

Note 2) AS22□1F, AS32□1F-02: Electroless nickel plated.

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

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

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	POM, Stainless steel	
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	PBT ⁽⁵⁾	
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.

Note 5) ø3/16", ø3/8", ø1/2" are made of brass

AS13□1F (ø3.2, ø4, ø6, ø1/8", ø5/32, ø1/4),

AS23□1F-□01(ø3.2, ø4, ø6, ø1/8", ø5/32) are POM.

AS

ASP

ASN

AQ

ASV

AK

ASS

ASR

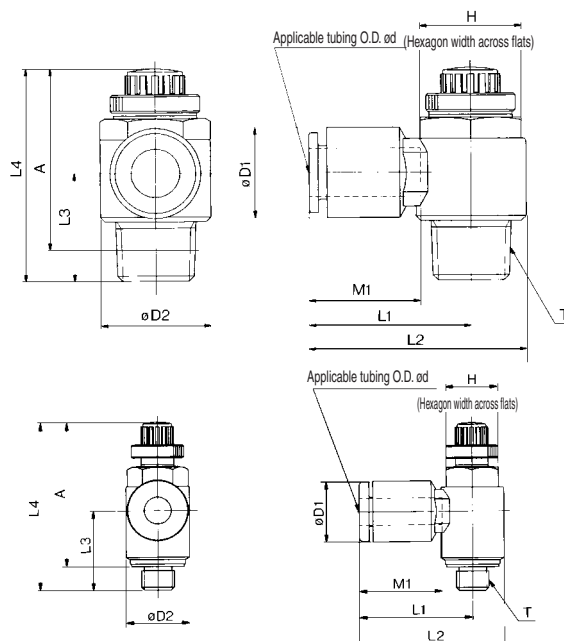
ASF

Series AS



Elbow Type

M3 port
M5 port
U10/32 port



Metric Size

Model	Applicable tubing O.D. ød	T	H ⁽¹⁾	D1	D2	L1	L2	L3	L4		A ⁽²⁾		M1	Weight (g)
									Max.	Min.	Max.	Min.		
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	21.5	12.7	4
AS12□1F-M3-04	4			9.3				10						
AS12□1F-M5-23	3.2	M5 x 0.8	8	8.4		17.3	22.1	12.3					12.7	7
AS12□1F-U10/32-23	10-32UNF													
AS12□1F-M5-04	4	M5 x 0.8	8	9.3	9.6	17.3	22.1		28.6	25.8	25	22.2		
AS12□1F-U10/32-04	10-32UNF													
AS12□1F-M5-06	6	M5 x 0.8	11.6			18.1	22.9	11.7					13.5	
AS12□1F-U10/32-06	10-32UNF													
AS22□1F-01-23	3.2	1/8	12 (12.7)	9.3		20.4	27.5						16	
AS22□1F-01-04	4			9.3		20.4	27.5	14.3					12.7	
AS22□1F-01-06	6	1/8	12 (12.7)	11.6	14.2	20.4	27.5		36.1	31.1	32.1	27.1	13.5	17
AS22□1F-01-08	8			15.2		25.3	32.4						18.5	19
AS22□1F-01-10	10	1/8	12 (12.7)	18.5		33.1	40.2	15					21	21
AS22□1F-02-04	4			10.4		25.2	34.4						16	
AS22□1F-02-06	6	1/4	17 (17.5)	12.8		25.2	34.4	18.2					17	32
AS22□1F-02-08	8			15.2	18.5	27.2	36.4		40.4	35.4	34.4	29.4	18.5	34
AS22□1F-02-10	10	1/4	17 (17.5)	18.5		33.9	43.2	20					21	36
AS32□1F-02-06	6			12.8		27.8	39.3						17	60
AS32□1F-02-08	8	3/8	19	15.2	23	29.5	41	21.8	48.8	43.8	42.8	37.8	18.5	63
AS32□1F-02-10	10			18.5		31.8	43.3						21	67
AS32□1F-02-12	12	3/8	19	20.9		32.8	44.3						22	69
AS32□1F-03-06	6			12.8		27.8	39.3						17	55
AS32□1F-03-08	8	3/8	19	15.2	23	29.5	41	20.9	46.5	41.5	40.2	35.2	18.5	57
AS32□1F-03-10	10			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			18.5		33.6	47.9						21	100
AS42□1F-04-12	12	1/2	24 (23.8)	20.9	28.6	34.6	48.9	25.4	57.6	50.1	49.6	42.1	22	101

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

Note 2) Reference thread dimensions after installation.

Inch Size

Model	Applicable tubing O.D. ød	T	H ⁽¹⁾	D1	D2	L1	L2	L3	L4		A ⁽²⁾		M1	Weight (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		17.3	22.1							
AS12□1F-U10/32-01	1/8"													
AS12□1F-M5-03	5/32"	M5 x 0.8	8	9.6		17.3	22.1	12.3	28.6	25.8	25	22.2	12.7	7
AS12□1F-U10/32-03	5/32"													
AS12□1F-M5-05	3/16"	M5 x 0.8	8	11.4		21.3	26.1						16.5	7
AS12□1F-U10/32-05	3/16"													
AS12□1F-M5-07	1/4"	M5 x 0.8	12	9.6		18.3	23.1	11.7	28.6	25.8	25	22.2		
AS12□1F-U10/32-07	1/4"												13.5	7
AS22□1F-01-01	1/8"	1/8	12 (12.7)	9.3		20.4	27.5						12.7	16
AS22□1F-01-03	5/32"			9.3		20.4	27.5						17	17
AS22□1F-01-05	3/16"	1/8	12 (12.7)	11.4	14.2	23.1	30.2	14.3	36.1	31.1	32.1	27.1	16.5	17
AS22□1F-01-07	1/4"			13.2		23.9	31						18.5	19
AS22□1F-01-09	5/16"	1/4	17 (17.5)	15.2		25.3	32.4	15					21	21
AS22□1F-02-03	5/32"			10.4		25.2	34.4						16	
AS22□1F-02-05	3/16"	1/4	17 (17.5)	11.4		24.9	34.2	18.2					17	32
AS22□1F-02-07	1/4"			13.2	18.5	25.2	34.5		40.4	35.4	34.4	29.4	18.5	34
AS22□1F-02-09	5/16"	1/4	17 (17.5)	15.2		27.2	36.4	20					21	36
AS22□1F-02-11	3/8"			17.9		33.9	43.2	20					21	36
AS32□1F-02-07	1/4"	3/8	19	13.2		27.8	39.3						17	60
AS32□1F-02-09	5/16"			15.2	23	29.5	41	21.8	48.8	43.8	42.8	37.8	18.5	63
AS32□1F-02-11	3/8"	3/8	19	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"	3/8	19	15.2	23	29.5	41	20.9	46.5	41.5	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		33.6	47.9						21	100
AS42□1F-04-13	1/2"			21.7	28.6	35.2	49.5	25.4	57.6	50.1	49.6	42.1	22	101

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

Note 2) Reference thread dimensions after installation.