

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.

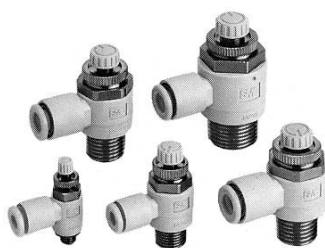
Flow Rate and Effective Area

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							
	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							
Tubing O.D.	Inch size ø1/8" ø5/32"	ø1/8", ø3/16" ø1/4", ø5/32"	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"							
Controlled flow (Free flow)	Flow rate \dot{V} (ANR)	20	100	180	230	260 390	460	660 790	920	1580 1710			
	Effective area (mm ²)	0.3	1.5	2.7	3.5	4	6	7	10	12	14	24	26

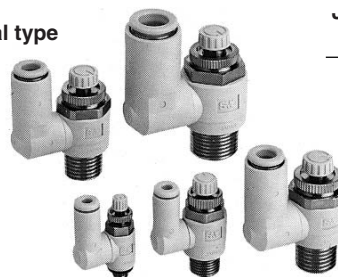
Note 1) Flow rate values are measured at 0.5 MPa and 20°C.

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

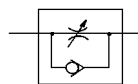
Elbow type



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

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

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

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.

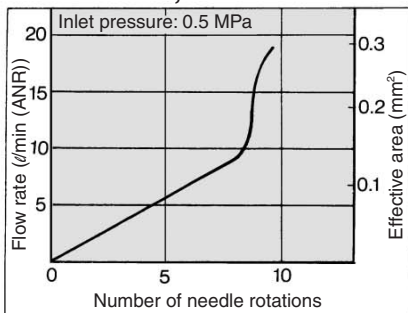
Port size

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

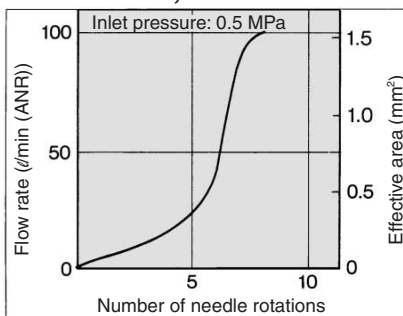
- AS
- ASP
- ASN
- AQ
- ASV
- AK
- ASS
- ASR
- ASF

Needle Valve/Flow Characteristics

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

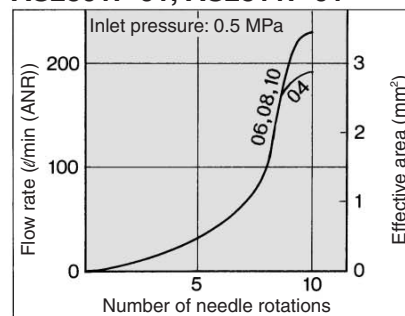


**AS1201F-M5, AS1211F-M5
AS1301F-M5, AS1311F-M5**

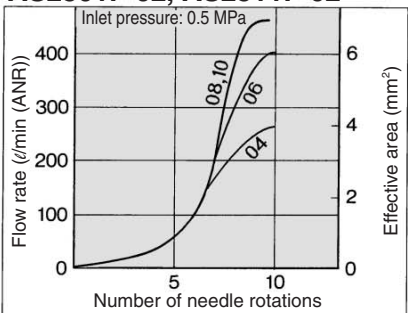


Note) "U10/32" is the same as "M5".

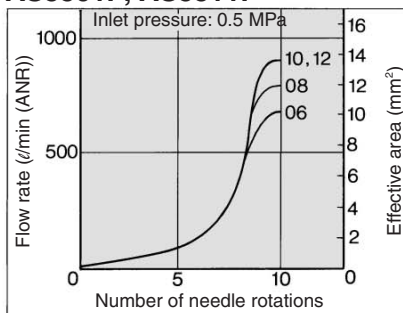
**AS2201F-01, AS2211F-01
AS2301F-01, AS2311F-01**



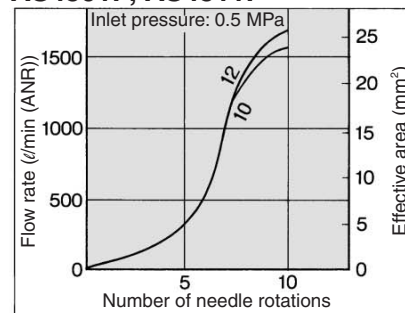
**AS2201F-02, AS2211F-02
AS2301F-02, AS2311F-02**



**AS3201F, AS3211F
AS3301F, AS3311F**



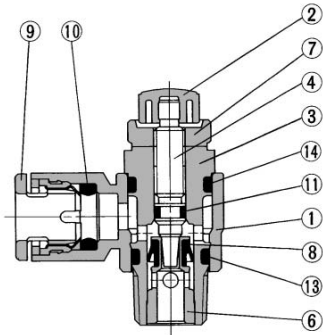
**AS4201F, AS4211F
AS4301F, AS4311F**



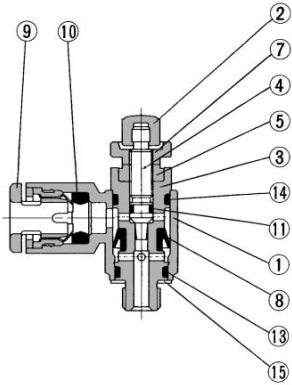
Series AS

Construction

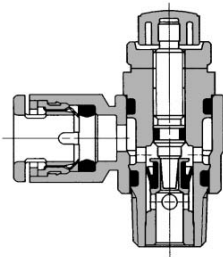
Elbow type
Meter-out type



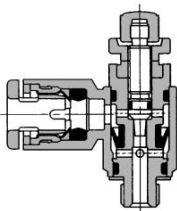
M3 port
M5 port
U10/32 port



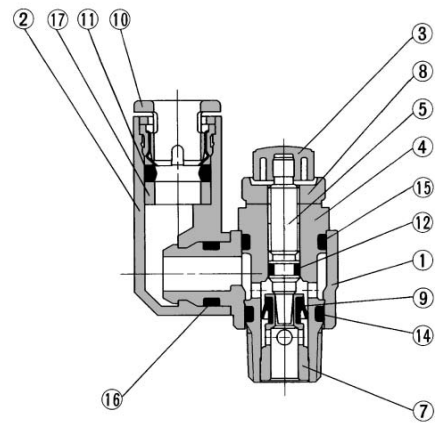
Meter-in type



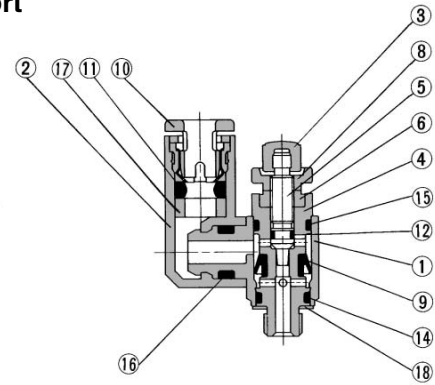
M3 port
M5 port
U10/32 port



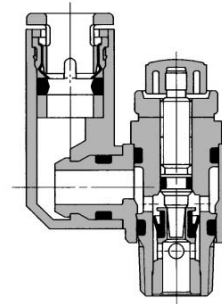
Universal type
Meter-out type



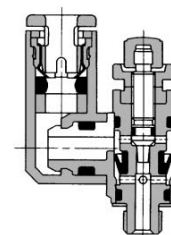
M3 port
M5 port
U10/32 port



Meter-in type

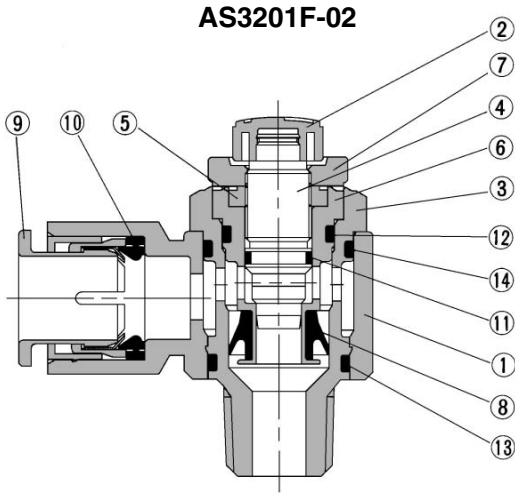


M3 port
M5 port
U10/32 port

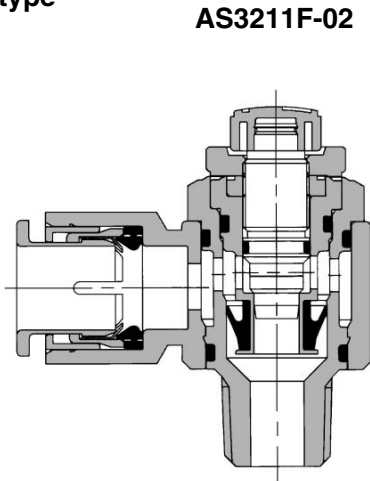


Construction

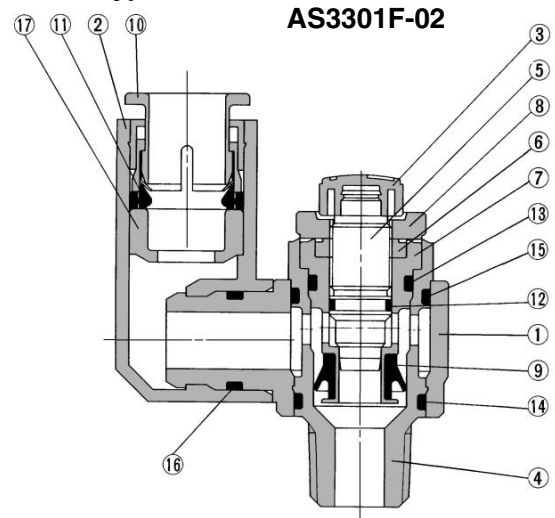
**Elbow type
Meter-out type**



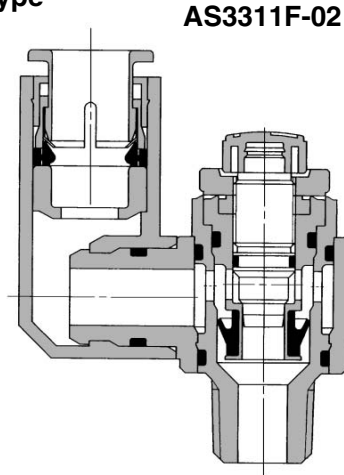
Meter-in type



**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) $\phi 3/16"$, $\phi 3/8"$, $\phi 1/2"$ are made of brass
AS13□1F ($\phi 3.2$, $\phi 4$, $\phi 6$, $\phi 1/8"$, $\phi 5/32$, $\phi 1/4$),
AS23□1F-□01 ($\phi 3.2$, $\phi 4$, $\phi 6$, $\phi 1/8"$, $\phi 5/32$) are POM.

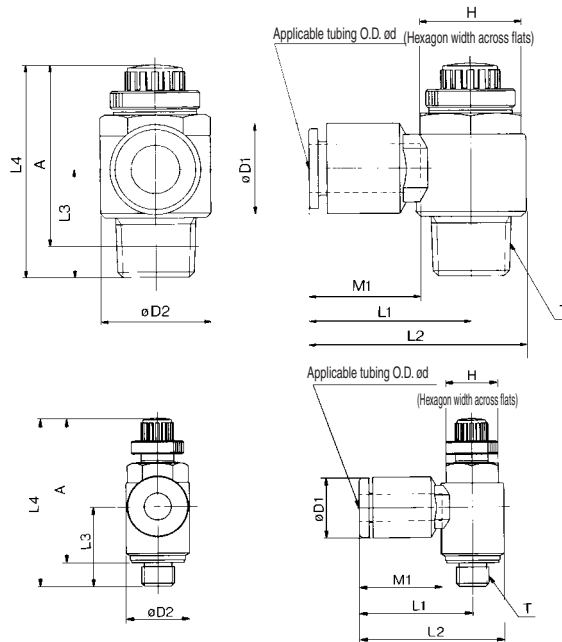
- AS
- ASP
- ASN
- AQ
- ASV
- AK
- ASS
- ASR
- ASF

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										
AS12□1F-M5-23	3.2	M5 x 0.8 10-32UNF	8	8.4	9.6	17.3	22.1	12.3	28.6	25.8	25	22.2	12.7	7
AS12□1F-U10/32-23				9.3										
AS12□1F-M5-04	4	M5 x 0.8 10-32UNF	8	9.3	9.6	17.3	22.1	11.7	28.6	25.8	25	22.2	13.5	7
AS12□1F-U10/32-04				9.3										
AS12□1F-M5-06	6	M5 x 0.8 10-32UNF	8	11.6	9.6	18.1	22.9	11.7	28.6	25.8	25	22.2	13.5	7
AS12□1F-U10/32-06				9.3										
AS22□1F-01-23	3.2	1/8	12 (12.7)	9.3	14.2	20.4	27.5	14.3	36.1	31.1	32.1	27.1	13.5	16
AS22□1F-01-04				9.3		20.4	27.5							
AS22□1F-01-06	6	1/8	12 (12.7)	11.6	14.2	20.4	27.5	14.3	36.1	31.1	32.1	27.1	18.5	19
AS22□1F-01-08				15.2		25.3	32.4							
AS22□1F-01-10	10	1/8	12 (12.7)	18.5	14.2	33.1	40.2	15	36.1	31.1	32.1	27.1	21	21
AS22□1F-02-04	4	1/4	17 (17.5)	10.4	18.5	25.2	34.4	18.2	40.4	35.4	34.4	29.4	16	32
AS22□1F-02-06				12.8		25.2	34.4							
AS22□1F-02-08	8	1/4	17 (17.5)	15.2	18.5	27.2	36.4	20	40.4	35.4	34.4	29.4	18.5	34
AS22□1F-02-10				18.5		33.9	43.2							
AS32□1F-02-06	6	3/8	19	12.8	23	27.8	39.3	21.8	48.8	43.8	42.8	37.8	17	60
AS32□1F-02-08				15.2		29.5	41							
AS32□1F-02-10	8	3/8	19	18.5	23	31.8	43.3	20.9	46.5	41.5	40.2	35.2	21	67
AS32□1F-02-12				20.9		32.8	44.3							
AS32□1F-03-06	6	3/8	19	12.8	23	27.8	39.3	20.9	46.5	41.5	40.2	35.2	17	55
AS32□1F-03-08				15.2		29.5	41							
AS32□1F-03-10	10	3/8	19	18.5	23	31.8	43.3	22	46.5	41.5	40.2	35.2	21	59
AS32□1F-03-12				20.9		32.8	44.3							
AS42□1F-04-10	10	1/2	24 (23.8)	18.5	28.6	33.6	47.9	25.4	57.6	50.1	49.6	42.1	21	100
AS42□1F-04-12				20.9		34.6	48.9							

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										
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"			9.3										
AS12□1F-M5-03	5/32"	M5 x 0.8	8	9.3	9.6	17.3	22.1	11.7	28.6	25.8	25	22.2	12.7	7
AS12□1F-U10/32-03	5/32"			9.3										
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"			9.3										
AS22□1F-M5-07	1/4"	M5 x 0.8	12	18.3	14.2	23.1	28.6	11.7	28.6	25.8	25	22.2	13.5	7
AS12□1F-U10/32-07	1/4"			18.3										
AS22□1F-01-01	1/8"	1/8	12 (12.7)	9.3	14.2	20.4	27.5	14.3	36.1	31.1	32.1	27.1	12.7	16
AS22□1F-01-03	5/32"			9.3		20.4	27.5							
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							
AS22□1F-01-09	5/16"	1/4	17 (17.5)	15.2	18.5	25.3	32.4	15	40.4	35.4	34.4	29.4	21	21
AS22□1F-02-03	5/32"			10.4		25.2	34.4							
AS22□1F-02-05	3/16"	1/4	17 (17.5)	11.4	18.5	24.9	34.2	18.2	40.4	35.4	34.4	29.4	17	32
AS22□1F-02-07	1/4"			13.2		23.1	30.2							
AS22□1F-02-09	5/16"	1/4	17 (17.5)	15.2	18.5	27.2	36.4	20	40.4	35.4	34.4	29.4	21	36
AS22□1F-02-11	3/8"			17.9		33.9	43.2							
AS32□1F-02-07	1/4"	3/8	19	13.2	23	27.8	39.3	20.9	46.5	43.8	42.8	37.8	17	60
AS32□1F-02-09	5/16"			15.2		29.5	41							
AS32□1F-02-11	3/8"	3/8	19	17.9	23	31.8	43.3	22	46.5	43.8	42.8	37.8	21	67
AS32□1F-03-07	1/4"			13.2		27.8	39.3							
AS32□1F-03-09	5/16"	3/8	19	15.2	23	29.5	41	20.9	46.5	43.8	42.8	37.8	18.5	63
AS32□1F-03-11	3/8"			17.9		31.8	43.3							
AS42□1F-04-11	3/8"	1/2	24 (23.8)	17.9	28.6	33.6	47.9	25.4	57.6	50.1	49.6	42.1	21	100
AS42□1F-04-13	1/2"			21.7		35.2	49.5							

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