

Speed Controller with One-touch Fitting

Push-lock Type Face Seal

Elbow Type/Universal Type

AS Series



* Only G thread

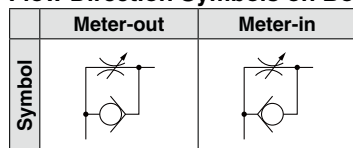
Model

Model		Port size	Seal method	Applicable tubing O.D.															
Elbow type	Universal type			Metric size						Inch size									
				3.2	4	6	8	10	12	16	1/8"	5/32"	1/4"	5/16"	3/8"	1/2"			
AS22□1F-G01	AS23□1F-G01	G	Face seal	●	●	●	●	● (Note)											
AS22□1F-G02	AS23□1F-G02			1/8	● (Note)	●	●	●	●										
AS32□1F-G02	AS33□1F-G02			1/4			●	●	●	●									
AS32□1F-G03	AS33□1F-G03			3/8			●	●	●	●									
AS42□1F-G04	AS43□1F-G04			1/2					●	●	● (Note)								
AS22□1F-01-□PA	—	R NPT	Face seal	1/8	●	●	●	●	●			●	●	●	●				
AS22□1F-02-□PA	—			1/4	●	●	●	●	●			●	●	●	●	●			
AS32□1F-03-□PA	—			3/8			●	●	●	●			●	●	●	●			
AS42□1F-04-□PA	—			1/2					●	●						●	●		

Note) Universal type is not available.

Specifications

Flow Direction Symbols on Body



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)
Applicable tubing material	Nylon, Soft nylon, Polyurethane (Note), FEP, PFA

Note) Use caution at the max. operating pressure when using soft nylon or polyurethane tubing.
(Refer to pages 464 and 465 for details.)

Flow Rate and Sonic Conductance

⚠ Caution

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions, pages 543 to 546 for Flow Control Equipment Precautions, and pages 573 to 575 for Specific Product Precautions.

Model	AS2□□1F-G01 AS22□1F-01-□PA				AS2□□1F-G02 AS22□1F-02-□PA				AS3□□1F-G02/03 AS32□1F-03-□PA			AS4□□1F-G04 AS42□1F-04-□PA	
	Metric size	ø3.2	ø4	ø6 ø8 ø10	ø3.2	ø4	ø6	ø8 ø10	ø6	ø8	ø10 ø12	ø10	ø12 ø16
Tubing O.D.	Note 2) Inch size	ø1/8"	ø5/32"	ø1/4" ø5/16"	ø1/8"	ø5/32"	—	ø1/4" ø5/16" ø3/8"	ø1/4"	ø5/16"	ø3/8"	ø3/8"	ø1/2"
C values: Sonic conductance dm ³ /(s·bar)	Free flow	0.4	0.6	0.6	0.7	1.0	1.3	1.5	1.6	1.7	2.5	4.4	4.8
	Controlled flow	0.4	0.7	0.8	0.6	0.9	1.3	2.1	2.4	3.3	4.4	4.9	
b values: Critical pressure ratio	Free flow	0.2		0.3	0.3		0.4		0.4		0.3	0.3	
	Controlled flow	0.2		0.3	0.3				0.3		0.3		

Note 1) C and b values are for controlled flow with the needle fully open and free flow with the needle fully closed.

Note 2) G thread is not available.



* Only G thread

How to Order



Type

2	Elbow
3	Universal

Thread type

G	G
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G thread AS 2 2 0 1 F - G 01 - 06 A -

R, NPT thread AS 2 2 0 1 F - 01 - 06 P A -

Body size

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

Type

2	Elbow
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Control type

0	Meter-out
1	Meter-in

Thread type

Nil	R
N	NPT

Port size

01	1/8
02	1/4
03	3/8
04	1/2

Applicable tubing O.D. Note 1)

Metric size	Inch size <small>Note 3)</small>
23	ø3.2 <small>Note 2)</small>
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12
16	ø16 <small>Note 4)</small>
01	ø1/8"
03	ø5/32"
07	ø1/4"
09	ø5/16"
11	ø3/8"
13	ø1/2"

Seal method

P	Face seal
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Push-lock type

Made to Order
For details, refer to page 571.

- AS-F
- TMH
- ASD
- AS
- AS-FE
- KE
- AS-FG
- AS-FP
- AS-FM
- AS-D
- AS-T
- ASP
- ASN
- AQ
- ASV
- AK
- VCHC
- ASR
- ASQ

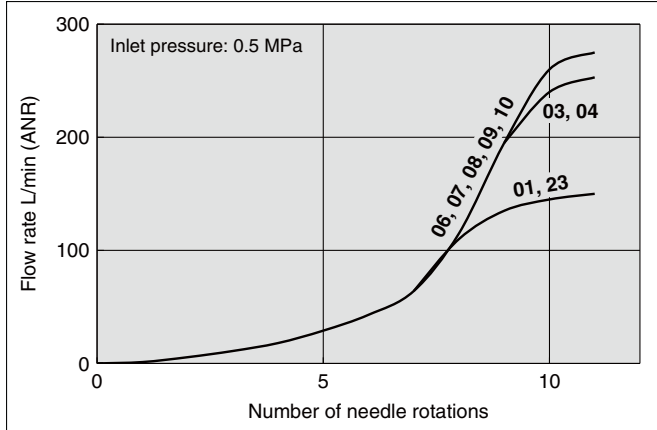


Made to Order
(For details, refer to page 571.)

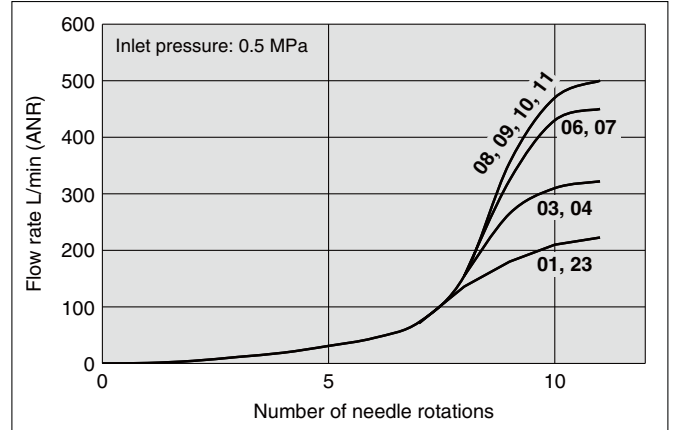
Symbol	Specifications
-X12	Lubricant: Vaseline
-X21	Grease-free (Seal: Fluorine-coated) + Restrictor (Without check valve)
-X214	Restrictor (Without check valve)
10-	Clean Series

Needle Valve/Flow Rate Characteristics

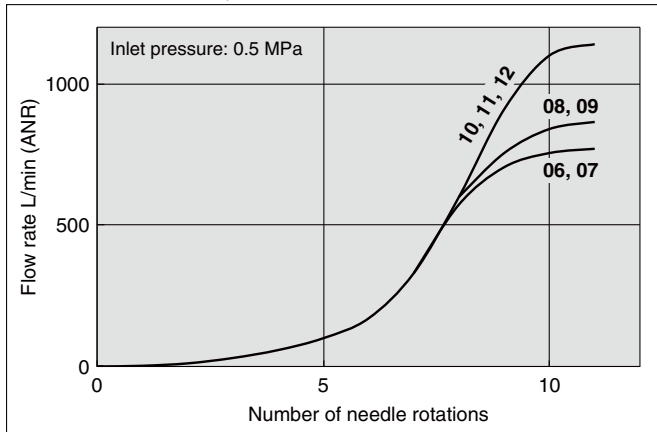
AS2201F-G01-□, AS2211F-G01-□
 AS2301F-G01-□, AS2311F-G01-□
 AS2201F-01-□PA, AS2211F-01-□PA



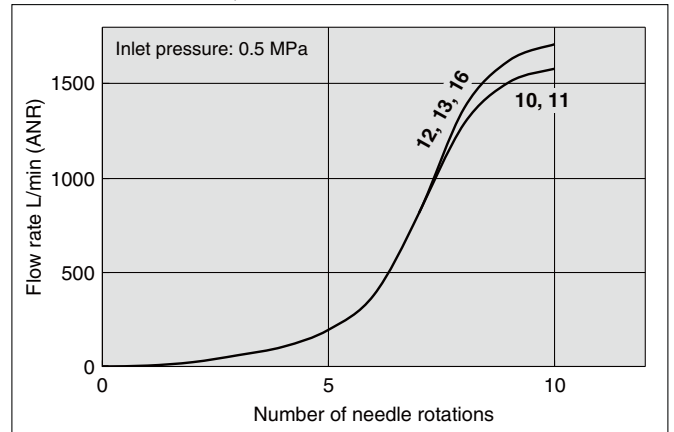
AS2201F-G02-□, AS2211F-G02-□
 AS2301F-G02-□, AS2311F-G02-□
 AS2201F-02-□PA, AS2211F-02-□PA



AS3201F-G02/03-□, AS3211F-G02/03-□
 AS3301F-G02/03-□, AS3311F-G02/03-□
 AS3201F-03-□PA, AS3211F-03-□PA



AS4201F-G04-□, AS4211F-G04-□
 AS4301F-G04-□, AS4311F-G04-□
 AS4201F-04-□PA, AS4211F-04-□PA

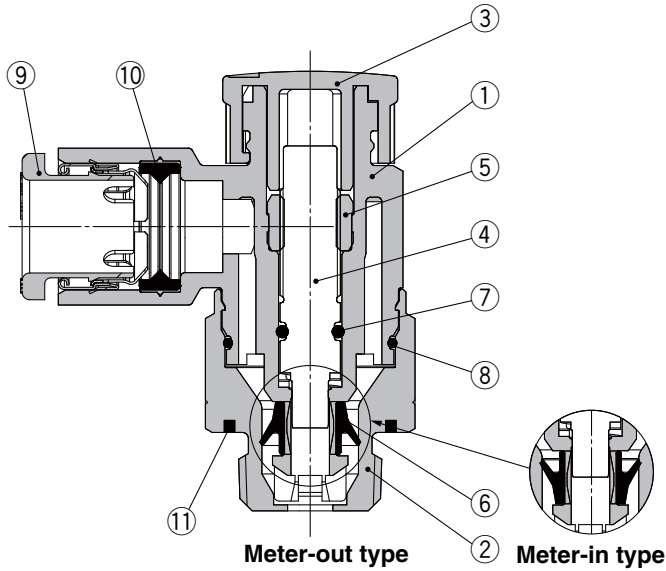


Note) The numbers above the flow rate characteristic curves in the charts show the applicable tubing outside diameter as defined by the product number.

Construction

Elbow type

Seal method: Face seal
For G, R, NPT thread

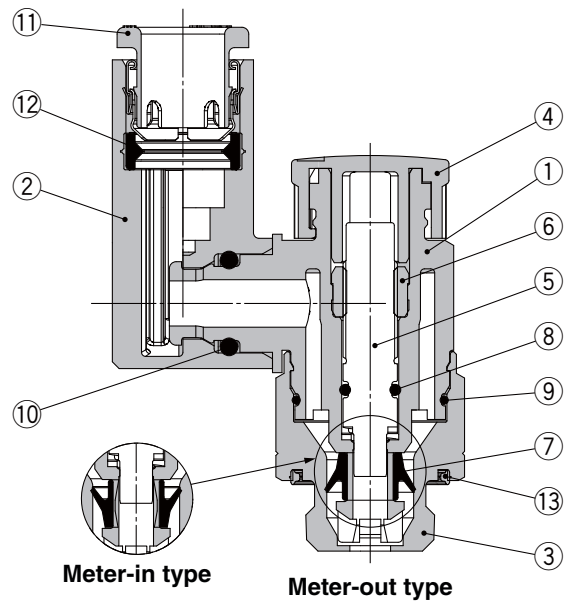


Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Body B	Brass	Electroless nickel plating
3	Knob	POM	
4	Needle	PBT	
5	Needle guide	Brass	Electroless nickel plating
6	U-seal	HNBR	
7	O-ring	NBR	
8	O-ring	NBR	
9	Cassette	—	
10	Seal	NBR	
11	Seal	NBR	

Universal type

Seal method: Face seal
For G thread



Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Elbow body	PBT	
3	Body B	Stainless steel	
4	Knob	POM	
5	Needle	PBT	
6	Needle guide	Stainless steel	
7	U-seal	HNBR	
8	O-ring	NBR	
9	O-ring	NBR	
10	O-ring	NBR	
11	Cassette	—	
12	Seal	NBR	
13	Seal	NBR	

AS-F

TMH

ASD

AS

AS-FE

KE

AS-FG

AS-FP

AS-FM

AS-D

AS-T

ASP

ASN

AQ

ASV

AK

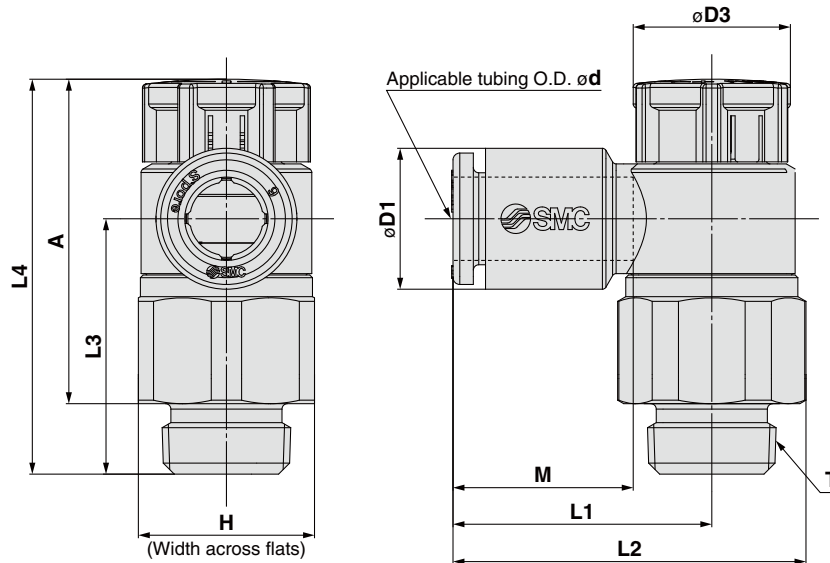
VCHC

ASR

ASQ

Dimensions/ Elbow type

Seal method: Face seal
For G thread



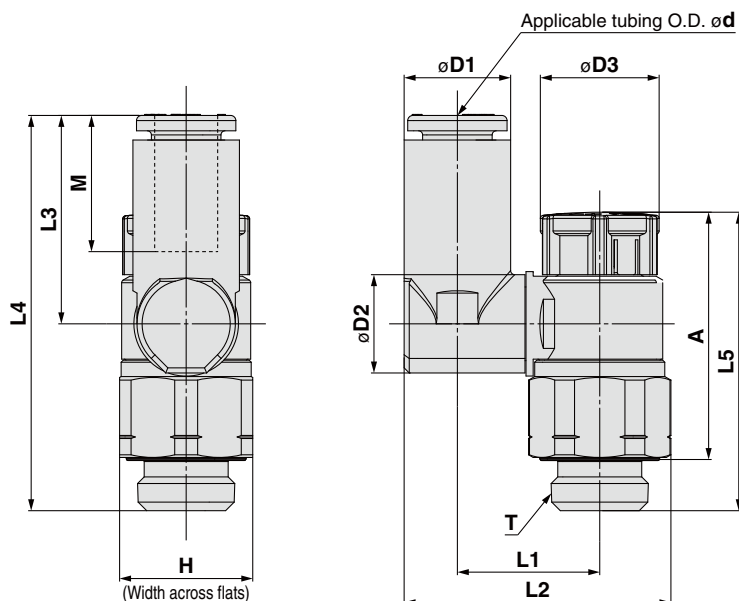
Metric Size

[mm]

Model	d	T	H	D1	D3	L1	L2	L3	L4		A		M	Weight [g]
									Unlocked	Locked	Unlocked	Locked		
AS22□1F-G01-23A	3.2	1/8	13	7.2	12	19.1	26.2	18.8	30.3	28.9	24.8	23.4	13.3	10
AS22□1F-G01-04A	4			8.2										
AS22□1F-G01-06A	6			10.4										
AS22□1F-G01-08A	8			13.2										
AS22□1F-G01-10A	10			15.9										
AS22□1F-G02-23A	3.2	1/4	17	7.2	13	20.9	30.2	22.6	36.6	35	30.1	28.5	13.3	21
AS22□1F-G02-04A	4			8.2										
AS22□1F-G02-06A	6			10.4										
AS22□1F-G02-08A	8			13.2										
AS22□1F-G02-10A	10			15.9										
AS32□1F-G02-06A	6	1/4	21	10.4	16.6	21.8	33	36.4	50	48.4	43.5	41.9	13.3	50
AS32□1F-G02-08A	8			13.2										
AS32□1F-G02-10A	10			15.9										
AS32□1F-G02-12A	12			18.5										
AS32□1F-G03-06A	6	3/8	21	10.4	16.6	21.8	33	28.7	42.3	40.7	34.8	33.2	13.3	38
AS32□1F-G03-08A	8			13.2										
AS32□1F-G03-10A	10			15.9										
AS32□1F-G03-12A	12			18.5										
AS42□1F-G04-10A	10			15.9				18.8						
AS42□1F-G04-12A	12	18.5	30.8	45.2	35.1									
AS42□1F-G04-16A	16	23.8	34.8	49.2	32.7									

Dimensions/ Universal type

Seal method: Face seal
For G thread



Metric Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4	L5		A		M	Weight [g]
											Unlocked	Locked	Unlocked	Locked		
AS23□1F-G01-23A	3.2	1/8	13	7.2	9.6	12	13.3	24.0	17.5	35.7	30.3	28.9	24.8	23.4	13.3	10
AS23□1F-G01-04A	4			8.2												11
AS23□1F-G01-06A	6			10.4												11
AS23□1F-G01-08A	8			13.2												12
AS23□1F-G02-04A	4	1/4	17	8.2	12.9	13	16.5	29.9	17.5	40.1	36.6	35	30.1	28.5	13.3	22
AS23□1F-G02-06A	6			10.4												24
AS23□1F-G02-08A	8			13.2												25
AS23□1F-G02-10A	10			15.9												26
AS33□1F-G02-06A	6	1/4	21	10.4	12.9	16.6	20.2	36.6	21.4	57.8	50	48.4	43.5	41.9	13.3	51
AS33□1F-G02-08A	8			13.2												52
AS33□1F-G02-10A	10			15.9												55
AS33□1F-G02-12A	12			18.5												57
AS33□1F-G03-06A	6	3/8	21	10.4	12.9	16.6	20.2	36.6	21.4	50.1	42.3	40.7	34.8	33.2	13.3	41
AS33□1F-G03-08A	8			13.2												42
AS33□1F-G03-10A	10			15.9												46
AS33□1F-G03-12A	12			18.5												47
AS43□1F-G04-10A	10	1/2	27	15.9	17.4	18.8	25.6	47.9	26.1	61.2	50.8	49.2	41.8	40.2	15.6	78
AS43□1F-G04-12A	12			18.5	21		26.2	49.8	28.3	63.4					17	82

AS-F

TMH

ASD

AS

AS-FE

KE

AS-FG

AS-FP

AS-FM

AS-D

AS-T

ASP

ASN

AQ

ASV

AK

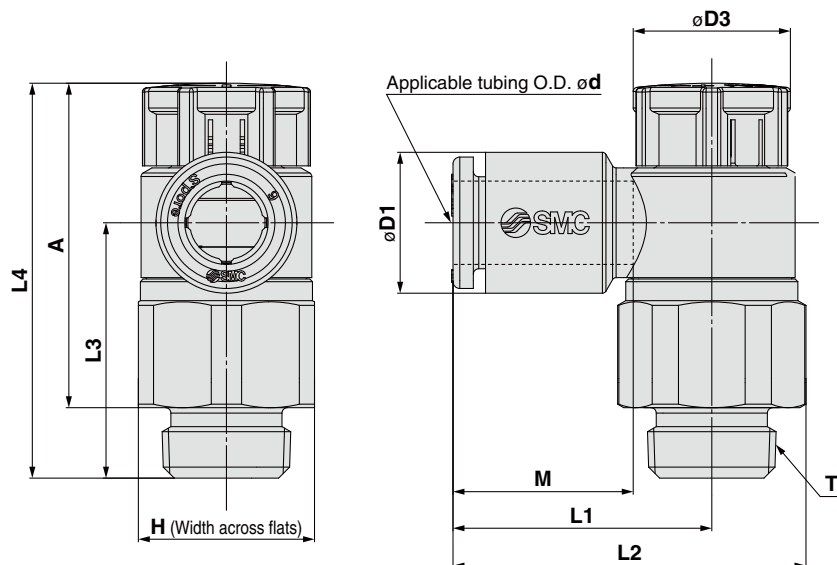
VCHC

ASR

ASQ

Dimensions/ Elbow type

Seal method: Face seal
For R, NPT thread



Metric Size

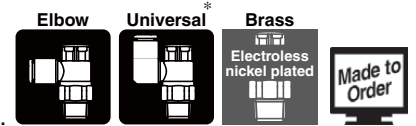
Model	d	T	H	D1	D3	L1	L2	L3	L4		A		M	Weight [g]
									Unlocked	Locked	Unlocked	Locked		
AS22□1F-01-23PA	3.2	1/8	13 (12.7)	7.2	12	19.1	26.2	18.8	30.3	28.9	25.1 (24.9)	23.7 (23.5)	13.3	10 (9)
AS22□1F-01-04PA	4			8.2										
AS22□1F-01-06PA	6			10.4										
AS22□1F-01-08PA	8			13.2										
AS22□1F-01-10PA	10			15.9		22.4	29.5						14.2	11 (10)
AS22□1F-02-23PA	3.2	1/4	17 (17.5)	7.2	13	20.9	30.2 (30.3)	22.6	36.6	35	29 (28.5)	27.4 (26.9)	13.3	19 (19)
AS22□1F-02-04PA	4			8.2										
AS22□1F-02-06PA	6			10.4										
AS22□1F-02-08PA	8			13.2										
AS22□1F-02-10PA	10			15.9										
AS32□1F-03-06PA	6						10.4							
AS32□1F-03-08PA	8	21 (21.7)	13.2	16.6	22.7	33.9 (34.3)	14.2	38 (40)						
AS32□1F-03-10PA	10	15.9	26.7	37.9 (38.3)	28	15.6	39 (41)							
AS32□1F-03-12PA	12	18.5	29.7	40.9 (41.3)	26.8	17	41 (42)							
AS42□1F-04-10PA	10	1/2	27 (28.6)	15.9	18.8	27.4	41.8 (42.6)	36.2	50.8	49.2	40.4	38.8	15.6	66 (72)
AS42□1F-04-12PA	12			18.5		30.8	45.2 (46)	35.1					17	68 (74)

Note) The values in () are for NPT thread.

Inch Size

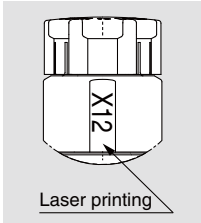
Model	d	T	H	D1	D3	L1	L2	L3	L4		A		M	Weight [g]
									Unlocked	Locked	Unlocked	Locked		
AS22□1F-01-01PA	1/8"	1/8	13 (12.7)	7.2	12	19.1	26.2	18.8	30.3	28.9	25.1 (24.9)	23.7 (23.5)	13.3	10 (9)
AS22□1F-01-03PA	5/32"			8.2										
AS22□1F-01-07PA	1/4"			11.2										
AS22□1F-01-09PA	5/16"			13.2										
AS22□1F-02-01PA	1/8"	1/4	17 (17.5)	7.2	13	20.9	30.2 (30.3)	22.6	36.6	35	29 (28.5)	27.4 (26.9)	13.3	19 (19)
AS22□1F-02-03PA	5/32"			8.2										
AS22□1F-02-07PA	1/4"			11.2										
AS22□1F-02-09PA	5/16"			13.2										
AS22□1F-02-11PA	3/8"			15.5										
AS32□1F-03-07PA	1/4"						11.2							
AS32□1F-03-09PA	5/16"	21 (21.7)	13.2	16.6	22.7	33.9 (34.3)	14.2	38 (40)						
AS32□1F-03-11PA	3/8"	15.5	26.7	37.9 (38.3)	28.2	15.6	39 (40)							
AS42□1F-04-11PA	3/8"			15.5		27.4	41.8 (42.6)	36.2	50.8	49.2	40.4	38.8	15.6	66 (72)
AS42□1F-04-13PA	1/2"	27 (28.6)	19.3	18.8	30.9	45.3 (46.1)	34.7	17					68 (74)	

Note) The values in () are for NPT thread.



* R, NPT threads are not available

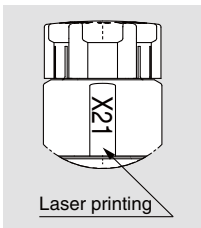
1 Lubricant: Vaseline -X12



Example) AS2201F-G01-04A-X12

- AS-F
- TMH
- ASD
- AS
- AS-FE

2 Grease-free (Seal: Fluorine-coated) + Restrictor (Without check valve) -X21

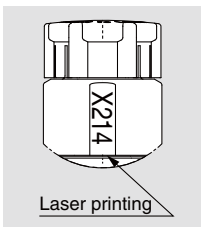


Example) AS2201F-G01-04A-X21

- Note 1) Not particle-free
- Note 2) The restrictor is only compatible with the part number of the meter-out type.
- Note 3) Only the needle and O-ring are fluorine-coated.

- KE
- AS-FG
- AS-FP
- AS-FM
- AS-D
- AS-T

3 Restrictor (Without check valve) -X214

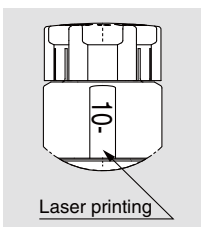


Example) AS2201F-G01-04A-X214

Note) The restrictor is only compatible with the part number of the meter-out type.

- ASP
- ASN
- AQ
- ASV
- AK
- VCHC
- ASR
- ASQ

4 Clean Series 10-



Example) 10-AS2201F-G01-04A

- Note 1) Fluorine grease is used.
- Note 2) The cleanliness class (ISO class) is 5.
- Note 3) Applicable only to G thread type.

Prior to Use

Female Thread Conditions Applicable to Face Seal

1. Surface roughness of bearing surface: Rz 25 or less
2. Chamfer dimension: $\phi D1$, Seal bearing surface diameter: $\phi D2$ (Refer to the table below.)
3. Female thread inclination angle: 1° or less
4. Counterbore diameter when the female thread is counterbored.: $\phi D3$
 - Models with width across flats: Body width across flats x 1.1 or more
 - Models other than hexagon (Hexagon socket head male connector etc.): Body dimensions + 0.2 mm or more
 - * The width across flats and the body dimensions differ depending on the model even when the same thread size is used. Refer to the dimensions in the catalog.
5. If oil content or sealant is sticking to the female thread, this may cause damage of the product. Remove it before piping.

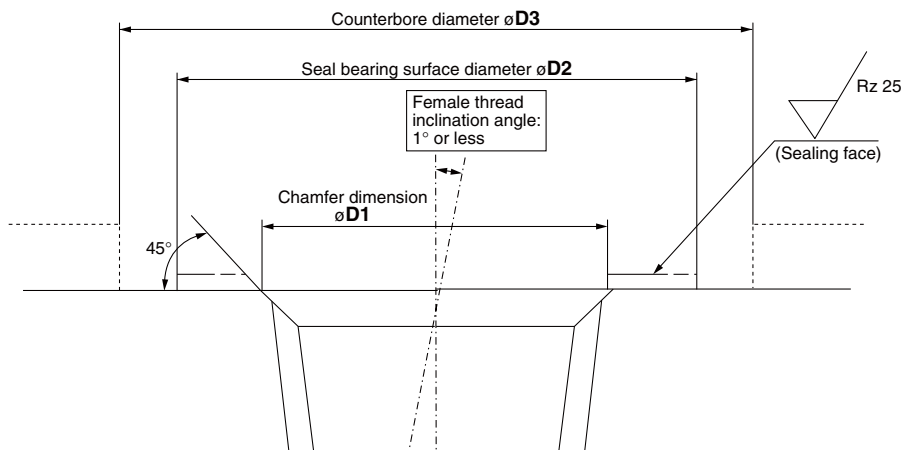


Table 1

Connection thread size	Chamfer dimension $\phi D1$ mm	Seal bearing surface diameter $\phi D2$ mm
R1/8	10.2 to 10.4	12 or more
R1/4	13.6 to 13.8	17 or more
R3/8	17.1 to 17.3	21 or more
R1/2	21.4 to 21.6	27 or more
NPT1/16	8.2 to 8.4	11.11 or more
NPT1/8	10.5 to 10.7	12.7 or more
NPT1/4	14.1 to 14.3	17.46 or more
NPT3/8	17.4 to 17.6	22 or more
NPT1/2	21.7 to 21.9	28.7 or more
G1/8	10.2 to 10.6	12 or more
G1/4	13.6 to 14.0	17 or more
G3/8	17.1 to 17.5	21 or more
G1/2	21.4 to 21.8	27 or more

⚠ Precautions

For products that do not satisfy the female thread conditions shown above and the piping with a piping pitch narrower than the product dimension, use the current sealant type.

- * The rubber parts of the face seal cannot be replaced.
- * The rubber parts of the face seal may fall off by the air blow and they cannot be mounted again. Be careful not to perform the air blow.