

# Speed Controller with One-touch Fitting Stainless Series

## Series AS-FG

### Elbow Type/Universal Type

**Stainless specifications for use in corrosive environments. Stainless steel 303 used for metal parts.**

Suitable for use on CRT lines where copper ions can cause damage, for washing food processing equipment where there is exposure to water and salt water, etc., and in clean rooms where dust from discoloration and rusting of copper materials is unacceptable.

#### Light colors to match equipment

White resin parts are used for bodies and release buttons.

**Threads with and without seal are available as standard.**

**Applicable tubing: Inch sizes standardized**

Inch sizes are now available for all models.

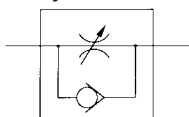


Elbow type



Universal type

JIS Symbol



Flow Direction Symbols on Body

	Meter-out type	Meter-in type
Symbol		
JIS Symbol		

#### 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□1FG-M5	AS13□1FG-M5	M5×0.8	●	●	●													6, 10, 16, 20
AS22□1FG-01	AS23□1FG-01	R 1/8	●	●	●	●	●*											20, 25, 32
AS22□1FG-02	AS23□1FG-02	R 1/4		●	●	●	●											20, 25, 32, 40
AS32□1FG-02	AS33□1FG-02	R 1/4			●	●	●	●										40, 50, 63
AS32□1FG-03	AS33□1FG-03	R 3/8			●	●	●	●										40, 50, 63
AS42□1FG-04	AS43□1FG-04	R 1/2					●	●										63, 80, 100
AS12□1FG-U10/32	AS13□1FG-U10/32	10-32 UNF							●	●	●	●						6, 10, 16, 20
AS22□1FG-N01	AS23□1FG-N01	NPT 1/8							●	●	●	●	●					20, 25, 32
AS22□1FG-N02	AS23□1FG-N02	NPT 1/4								●	●	●	●	●				20, 25, 32, 40
AS32□1FG-N02	AS33□1FG-N02	NPT 1/4									●	●	●					40, 50, 63
AS32□1FG-N03	AS33□1FG-N03	NPT 3/8									●	●	●					40, 50, 63
AS42□1FG-N04	AS43□1FG-N04	NPT 1/2												●	●			63, 80, 100

Note 1) Meter-out and meter-in types can be visually differentiated by the flow direction symbol on the resin body.

Note 2) \* Elbow type only

#### Specifications

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)
Number of needle rotations	10 turns (8 turns <sup>(1)</sup> )
Applicable tubing material	Nylon, Soft nylon, Polyurethane, Soft polyurethane

Note 1) In the case of AS12□1FG and AS13□1FG

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

(Refer to pages 15-6-3 to 15-6-5 for details.)

#### Flow Rate and Effective Area

Model	AS12□1FG	AS22□1FG-□01	AS22□1FG-□02	AS32□1FG		AS42□1FG						
	AS13□1FG	AS23□1FG-□01	AS23□1FG-□02	AS33□1FG	AS43□1FG							
Tubing O.D.	Metric size	ø3.2 ø4 ø6	ø3.2 ø4 ø8 ø10	ø4 ø6 ø8 ø10	ø6 ø8 ø10	ø6 ø8 ø10 ø12	ø10 ø12					
	Inch size	ø1/8" ø5/32" ø3/16" ø1/4"	ø1/8" ø5/32" ø1/4" ø5/16"	ø5/32" ø3/16" ø1/4" ø5/16"	ø1/4" ø5/16" ø3/8"	ø1/4" ø5/16" ø3/8"	ø3/8" ø3/8" ø1/2"					
Controlled flow (Free flow)	Flow rate (ℓ/min (ANR))	100	180	230	260	390	460	660	790	920	1580	1710
	Effective area (mm <sup>2</sup> )	1.5	2.7	3.5	4	6	7	10	12	14	12	26

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

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# Series AS-FG

## How to Order

**AS 2 3 0 1 F G - 01 - 06**

**Body size**

1	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**

**Stainless steel specifications (SUS303)**

**Thread type**

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

**Option**

Nil	None
S	With seal*

\* M5 and U10/32 are not available with seal.

**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"

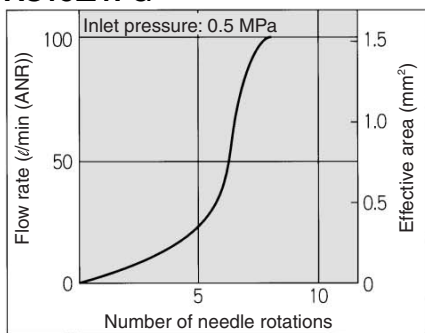
\* Use ø1/8" tube.

**Port size**

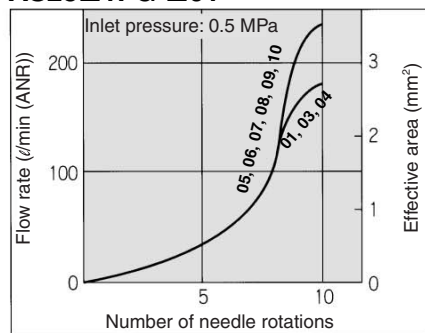
M5	M5 x 0.8
U10/32	10-32 UNF
01	1/8
02	1/4
03	3/8
04	1/2

## Needle Valve/Flow Characteristics

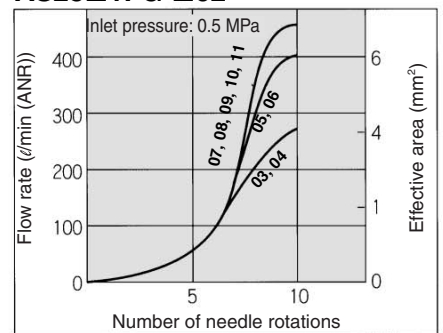
**AS12□1FG**  
**AS13□1FG**



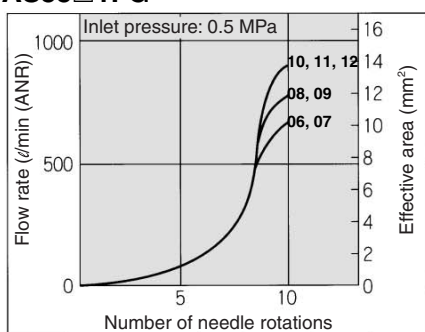
**AS22□1FG-□01**  
**AS23□1FG-□01**



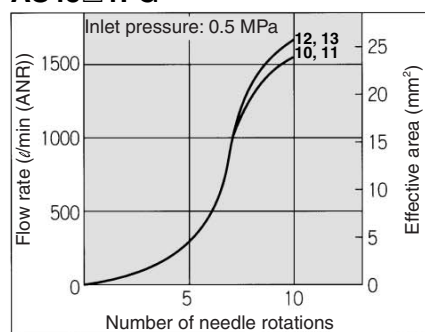
**AS22□1FG-□02**  
**AS23□1FG-□02**



**AS32□1FG**  
**AS33□1FG**



**AS42□1FG**  
**AS43□1FG**



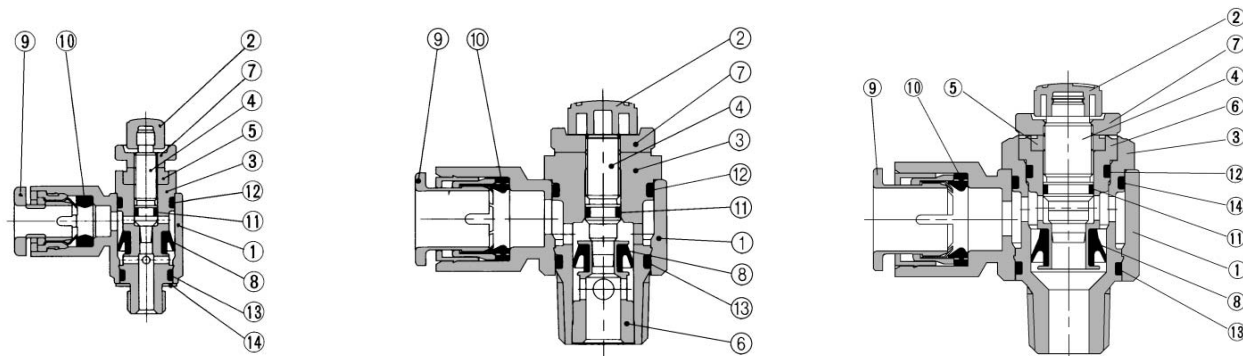
**Construction: Elbow Type**

**Meter-out type**

**M5 type**

**U10/32 type**

**AS3201FG-02**

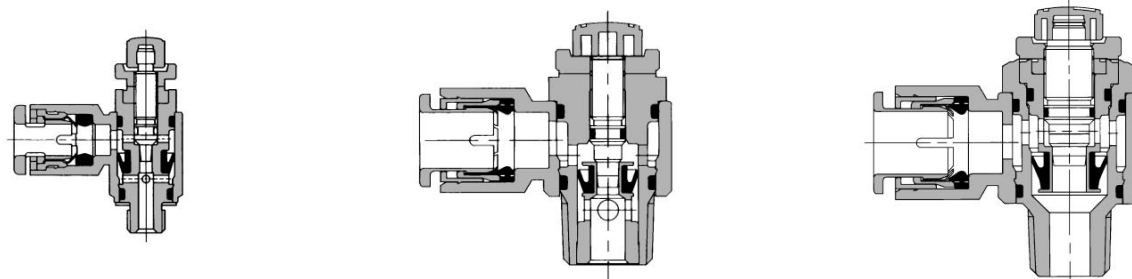


**Meter-in type**

**M5 type**

**U10/32 type**

**AS3211FG-02**



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**Component Parts**

No.	Description	Material	Note
①	Body A	PBT	
②	Handle	PBT	
③	Body B	Stainless steel 303	
④	Needle	Stainless steel 303	
⑤	Needle guide	Stainless steel 303	
⑥	Seat ring	Stainless steel 303	
⑦	Lock nut	Stainless steel 303	
⑧	U seal	HNBR	
⑨	Cassette	POM, Stainless steel	
⑩	Seal	NBR	
⑪	O-ring	NBR	
⑫	O-ring	NBR	
⑬	O-ring	NBR	
⑭	O-ring	NBR	
⑮	Gasket	NBR/stainless steel 304	M5 type only

**⚠ 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.**

# Series AS-FG

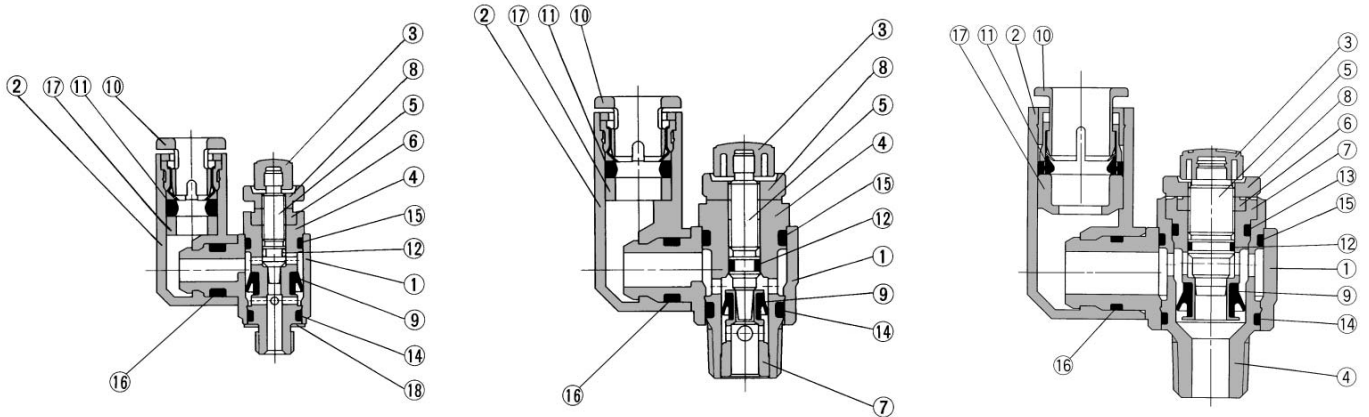
## Construction: Universal Type

### Meter-out type

#### M5 type

#### U10/32 type

### AS3301FG-02

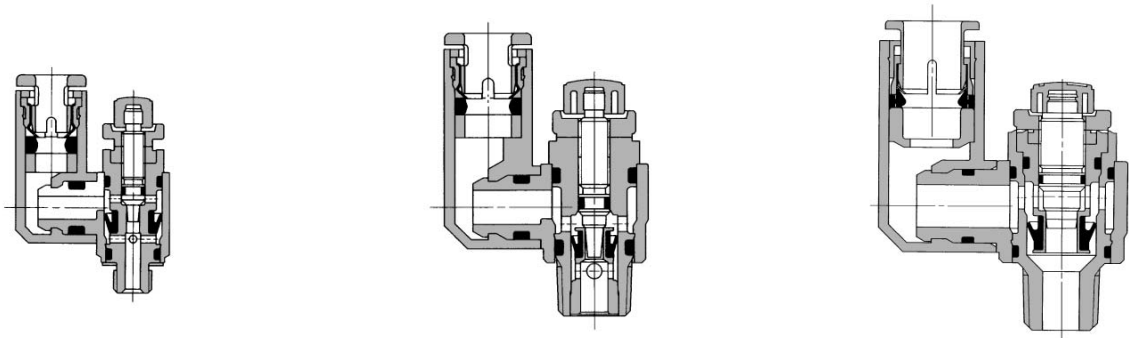


### Meter-in type

#### M5 type

#### U10/32 type

### AS3311FG-02



## Component Parts

No.	Description	Material	Note
①	Body A	PBT	
②	Elbow body	PBT	
③	Handle	PBT	
④	Body B	Stainless steel 303	
⑤	Needle	Stainless steel 303	
⑥	Needle guide	Stainless steel 303	
⑦	Seat ring	Stainless steel 303	
⑧	Lock nut	Stainless steel 303	
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 <sup>(Note)</sup>	
⑱	Gasket	NBR, Stainless steel	

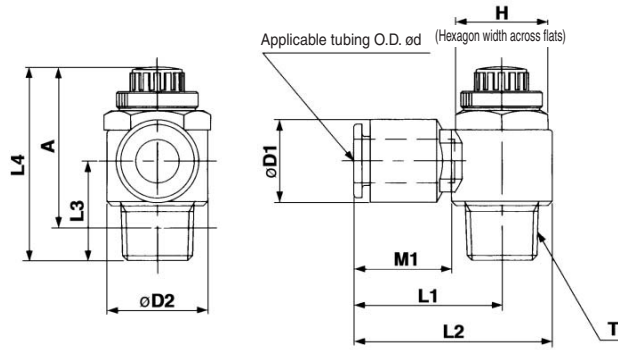
Note)  $\phi 3/16"$ ,  $\phi 3/8"$  and  $\phi 1/2"$  are made of stainless steel 303.

AS13□1FG( $\phi 3.2$ ,  $\phi 4$ ,  $\phi 6$ ,  $\phi 1/8"$ ,  $\phi 5/32"$ ,  $\phi 1/4"$ ),

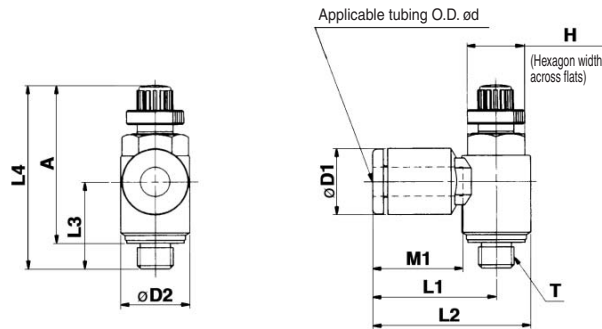
AS23□1FG-□01( $\phi 3.2$ ,  $\phi 4$ ,  $\phi 6$ ,  $\phi 1/8"$ ,  $\phi 5/32"$ ) are made of POM.

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

## Dimensions: Elbow Type



### M5 type U10/32 type



### Metric Size

Model	d	T	H	D1	D2	L1	L2	L3	L4		A*		M1	Weight (g)	
									Max.	Min.	Max.	Min.			
AS12□1FG-M5-23	3.2	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	
AS22□1FG-01-23	3.2	R 1/8	12	9.3	14.2	20.4	27.5	14.3	36.1	31.1	32.1	27.1	12.7	16	
AS12□1FG-M5-04	4	M5 x 0.8	8	9.3	17.3	22.1	12.3	11.7	28.6	25.8	25	22.2	12.7	7	
AS12□1FG-M5-06	6			11.6	18.1	22.9									
AS22□1FG-01-04	4	R 1/8	12	9.3	20.4	27.5	14.3	11.7	36.1	31.1	32.1	27.1	12.7	17	
AS22□1FG-01-06	6			11.6	20.4	27.5							13.5		
AS22□1FG-01-08	8			15.2	25.3	32.4							18.5		
AS22□1FG-01-10	10	18.5	33.1	40.2	15	21	21								
AS22□1FG-02-04	4	R 1/4	17	10.4	25.2	34.4	18.2	11.7	40.4	35.4	34.4	29.4	16	32	
AS22□1FG-02-06	6			12.8	25.2	34.4							17		
AS22□1FG-02-08	8			15.2	27.2	36.4							18.5		34
AS22□1FG-02-10	10			18.5	33.9	43.2							20		21
AS32□1FG-02-06	6	R 1/4	19	12.8	27.8	39.3	21.8	23	48.8	43.8	42.8	37.8	17	60	
AS32□1FG-02-08	8			15.2	29.5	41							18.5		63
AS32□1FG-02-10	10			18.5	31.8	43.3							21		67
AS32□1FG-02-12	12			20.9	32.8	44.3							22		69
AS32□1FG-03-06	6	R 3/8	19	12.8	27.8	39.3	20.9	23	46.5	41.5	40.2	35.2	17	55	
AS32□1FG-03-08	8			15.2	29.5	41							18.5		57
AS32□1FG-03-10	10			18.5	31.8	43.3							21		59
AS32□1FG-03-12	12			20.9	32.8	44.3							22		61
AS42□1FG-04-10	10	R 1/2	24	18.5	33.6	47.9	25.4	28.6	57.6	50.1	49.6	42.1	21	100	
AS42□1FG-04-12	12			20.9	34.6	48.9							22		101

\* Reference dimensions of M5 x 0.8, R threads after installation.

### Inch Size

Model	d	T	H	D1	D2	L1	L2	L3	L4		A*		M1	Weight (g)				
									Max.	Min.	Max.	Min.						
AS12□1FG-U10/32-01	1/8"	10-32 UNF	8	8.4	9.6	17.3	22.1	12.3	28.6	25.8	25	22.2	12.7	7				
AS12□1FG-U10/32-03	5/32"			9.3														
AS12□1FG-U10/32-05	3/16"			11.4											21.3	26.1	11.7	16.5
AS12□1FG-U10/32-07	1/4"			12											18.3	23.1	13.5	
AS22□1FG-N01-01	1/8"	NPT 1/8	12.7	9.3	14.2	23.1	30.2	14.3	36.1	31.1	32.1	27.1	12.7	16				
AS22□1FG-N01-03	5/32"			13.5														
AS22□1FG-N01-05	3/16"			18.5									16.5					
AS22□1FG-N01-07	1/4"			21									19					
AS22□1FG-N01-09	5/16"	15.2	25.3	32.4	15	21	21											
AS22□1FG-N02-03	5/32"	NPT 1/4	17.5	10.4	18.5	25.2	34.5	18.2	40.4	35.4	34.4	29.4	16	32				
AS22□1FG-N02-05	3/16"			11.4									24.9		34.2	17		
AS22□1FG-N02-07	1/4"			13.2									27.8		39.3	20	18.5	34
AS22□1FG-N02-09	5/16"			15.2									27.2		36.4	20	21	36
AS22□1FG-N02-11	3/8"	17.9	33.9	43.2	20	21	36											
AS32□1FG-N02-07	1/4"	NPT 1/4	19	13.2	23	29.5	41	21.8	48.8	43.8	42.8	37.8	17	60				
AS32□1FG-N02-09	5/16"			15.2									18.5		63			
AS32□1FG-N02-11	3/8"			17.9									31.8		43.3	21	67	
AS32□1FG-N03-07	1/4"			13.2									27.8		39.3	17	55	
AS32□1FG-N03-09	5/16"	NPT 3/8	19	15.2	23	29.5	41	20.9	46.5	41.5	40.2	35.2	18.5	57				
AS32□1FG-N03-11	3/8"			17.9									31.8		43.3	21	59	
AS42□1FG-N04-11	3/8"			17.9									33.6		47.9	21	100	
AS42□1FG-N04-13	1/2"			23.8									21.7		28.6	25.4	57.6	50.1

\* Reference dimensions of 10-32UNF and NPT threads after installation.

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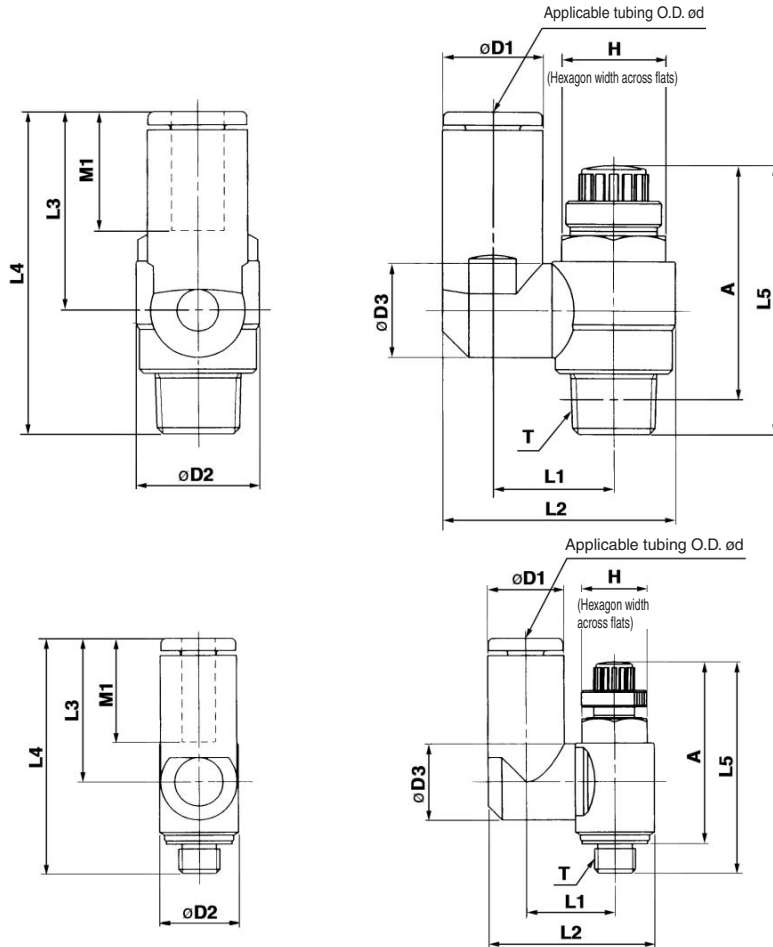
ASS

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ASF

# Series AS-FG

## Dimensions: Universal Type



### M5 type U10/32 type

### Metric Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4	L5		A*		M1	Weight (g)
											Max.	Min.	Max.	Min.		
AS13□1FG-M5-23	3.2			8.4			19.8				28.6	25.8	25	22.2	12.7	7
AS13□1FG-M5-04	4	M5 x 0.8	8	9.3	9.6	9.3	10.8	20.3							13.5	
AS13□1FG-M5-06	6			11.6					21.4	20.6	31.8					
AS23□1FG-01-23	3.2			8.4			13.1	24.4							17	
AS23□1FG-01-04	4			9.3			13.1	24.9							17	
AS23□1FG-01-06	6	R 1/8	12	11.6	14.2		10.9	14	26.9	22.9	37.2				18	
AS23□1FG-01-08	8			15.2			12.9	16.2	30.9	28.2	41.7				21	
AS23□1FG-02-04	4			10.4			10.9	16.2	30.6	21.9	40.1				32	
AS23□1FG-02-06	6			12.8			18.4	34	25.2	42.6					33	
AS23□1FG-02-08	8	R 1/4	17	15.2	18.5		12.9	18.3	35.2	28.2	45.6	40.4	35.4	34.4	29.4	36
AS23□1FG-02-10	10			18.5				20.2	38.7	31	48.4				40	
AS33□1FG-02-06	6			12.8			12.9	20.6	38.5	25.2	47				60	
AS33□1FG-02-08	8			15.2					39.7	28.2	50	48.8	43.8	42.8	37.8	63
AS33□1FG-02-10	10	R 1/4	19	18.5	23				43.7	32.6	54.4				67	
AS33□1FG-02-12	12			20.9			16.2	23	44.9	34.4	56.2				69	
AS33□1FG-03-06	6			12.8			12.9	20.6	38.5	25.2	46.1				56	
AS33□1FG-03-08	8	R 3/8	19	15.2	23				39.7	28.2	49.1	46.5	41.5	40	35	59
AS33□1FG-03-10	10			18.5					43.7	32.6	53.5				63	
AS33□1FG-03-12	12			20.9			16.2	23	44.9	34.4	55.3				65	
AS43□1FG-04-10	10	R 1/2	24	18.5	28.6		16.2	25.8	49.4	32.6	58	57.6	50.1	49.6	42.1	104
AS43□1FG-04-12	12			20.9			19.4	26.8	52	36.3	61.7				105	

\* Reference dimensions of M5 x 0.8, R threads after installation.

### Inch Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4	L5		A*		M1	Weight (g)
											Max.	Min.	Max.	Min.		
AS13□1FG-U10/32-01	1/8"			8.4			19.8				28.6	25.8	25	22.2	12.7	7
AS13□1FG-U10/32-03	5/32"			9.3			10.8	20.3							13.5	
AS13□1FG-U10/32-05	3/16"	10-32 UNF	8	11.4	9.6	9.3	10.8	21.3	23.3	34.5					16.5	
AS13□1FG-U10/32-07	1/4"			12				21.6	20.7	31.9					13.7	
AS23□1FG-N01-01	1/8"			8.4			13.1	24.4							17	
AS23□1FG-N01-03	5/32"			9.3			13.1	24.9							17	
AS23□1FG-N01-05	3/16"	NPT 1/8	12.7	11.4	14		10.9	14	26.8	23.9	36.1	31.1	32.1	27.1	16.5	
AS23□1FG-N01-07	1/4"			13.2			12.9	16.2	29.9	25.6	37.2				18.5	
AS23□1FG-N01-09	5/16"			15.2					30.9	28.2	41.7				21	
AS23□1FG-N02-03	5/32"			10.4					30.6	21.9	40.1				32	
AS23□1FG-N02-05	3/16"			11.4			10.9	16.2	31.1	23.9	42.6				33	
AS23□1FG-N02-07	1/4"	NPT 1/4	17.5	13.2	19				34.2	25.6	45.6	40.4	35	34.4	29.4	36
AS23□1FG-N02-09	5/16"			15.2			12.9	18.3	35.2	28.2	48.4				39	
AS23□1FG-N02-11	3/8"			17.9					20.2	38.7	31	47			40	
AS33□1FG-N02-07	1/4"			13.2					38.7	25.6	50				60	
AS33□1FG-N02-09	5/16"	NPT 1/4	19	15.2	23		12.9	20.6	39.7	28.2	54.4	48.8	43.8	42.8	37.8	63
AS33□1FG-N02-11	3/8"			17.9			16.2	23	43.7	32.6	56.2				69	
AS33□1FG-N03-07	1/4"			13.2					38.7	25.6	46.1				56	
AS33□1FG-N03-09	5/16"	NPT 3/8	19	15.2	23		12.9	20.6	39.7	28.2	49.1	46.5	41.5	40.2	35.2	59
AS33□1FG-N03-11	3/8"			17.9			16.2	23	43.7	32.6	53.5				65	
AS43□1FG-N04-11	3/8"	NPT 3/8	23.8	17.9	29		16.2	25.8	49.4	32.6	55.3	57.6	50.1	49.6	42.1	104
AS43□1FG-N04-13	1/2"	NPT 1/2	28.8	21.7	29		19.4	26.8	52	36.3	58				106	

\* Reference dimensions of 10-32UNF and NPT threads after installation.