

# Speed Controller with One-touch Fitting Stainless Steel Series Elbow Type/Universal Type

## AS-FG Series



### 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.

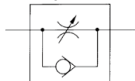


### Elbow type



### Universal type

#### Symbol



#### Flow Direction Symbols on Body

	Meter-out type	Meter-in type
Indication symbol		
Symbol		

### Model

Elbow type	Universal type	Port size	Applicable tubing O.D.															
			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 x 0.8	●	●	●													
AS22□1FG-01	AS23□1FG-01	R 1/8	●	●	●	●	*											
AS22□1FG-02	AS23□1FG-02	R 1/4	●	●	●	●												
AS32□1FG-02	AS33□1FG-02	R 1/4			●	●	●											
AS32□1FG-03	AS33□1FG-03	R 3/8			●	●	●											
AS42□1FG-04	AS43□1FG-04	R 1/2				●	●											
AS12□1FG-U10/32	AS13□1FG-U10/32	10-32 UNF						●	●	●	●							
AS22□1FG-N01	AS23□1FG-N01	NPT 1/8						●	●	●	●	●						
AS22□1FG-N02	AS23□1FG-N02	NPT 1/4							●	●	●	●	●					
AS32□1FG-N02	AS33□1FG-N02	NPT 1/4										●	●	●				
AS32□1FG-N03	AS33□1FG-N03	NPT 3/8											●	●	●			
AS42□1FG-N04	AS43□1FG-N04	NPT 1/2															●	●

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)
Applicable tubing material	Nylon, Soft nylon, Polyurethane

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

(Refer to pages 678 and 682 for details.)

### Flow Rate and Sonic Conductance

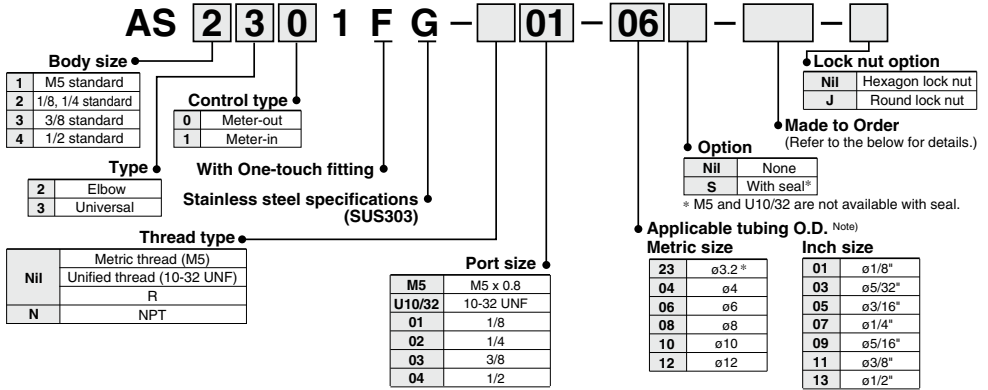
Model	AS12□1FG		AS22□1FG-□01		AS22□1FG-□02		AS32□1FG		AS42□1FG			
	AS12□1FG	AS23□1FG-01	AS23□1FG-01	AS23□1FG-02	AS33□1FG	AS43□1FG	AS33□1FG	AS43□1FG	AS43□1FG	AS43□1FG		
Tubing O.D.	Metric size	ø3.2 ø4 ø6	ø3.2 ø4	ø6 ø8 ø10	ø4 ø6 ø8 ø10	ø3/16" ø1/4" ø5/16" ø3/8"	ø1/4" ø5/16" ø3/8"	ø1/4" ø5/16" ø3/8"	ø3/8" ø3/8"	ø1/2"		
	Inch size	ø1/8" ø5/32" ø3/16" ø1/4"	ø1/8" ø5/32"	ø3/16" ø1/4" ø5/16"	ø5/32" ø3/16" ø1/4" ø5/16"	ø1/4" ø5/16" ø3/8"	ø1/4" ø5/16" ø3/8"	ø1/4" ø5/16" ø3/8"	ø3/8" ø3/8"	ø1/2"		
Controlled flow	Flow rate (L/min (ANR))	100	180	230	260	390	460	660	790	920	1580	1710
Free flow	Sonic conductance dm <sup>2</sup> /(s bar)	0.28	0.50	0.64	0.72	1.1	1.3	1.8	2.2	2.6	4.4	4.8
Critical pressure ratio	Controlled flow	0.2	0.25		0.3			0.25			0.25	
	Free flow	0.4	0.2		0.3			0.2			0.3	

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

Made to Order  
(Refer to page 986 for details.)



## How to Order



Note) For applicable tubing O.D. selection, refer to the Model on page 985.

\* Use ø1/8" tube.

## Made to Order



**1 Lubricant: Vaseline X12**

Ex.) AS1201FG-M5-23-X12

**3 Throttle Valve (Without Check Valve) X214**

Ex.) AS1201FG-M5-23-X214

Note) This product is a restrictor without a check valve (no control direction). Be aware that all part numbers are for a meter-out type; there is no part number for a meter-in type.

**2 Grease-free (Seal: Fluorine Coated) + Throttle Valve (Without Check Valve) X21**

Ex.) AS1201FG-M5-23-X21

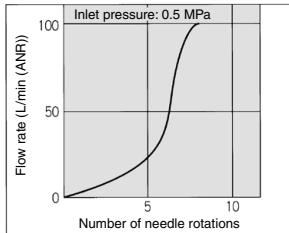
Note 1) Not particle-free

Note 2) This product is a restrictor without a check valve (no control direction). Be aware that all part numbers are for a meter-out type; there is no part number for a meter-in type.

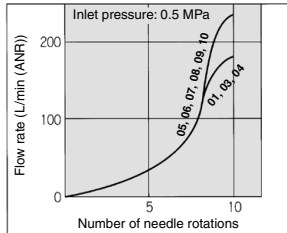
## Needle Valve/Flow Rate Characteristics

Note) The flow rate characteristics are representative values.

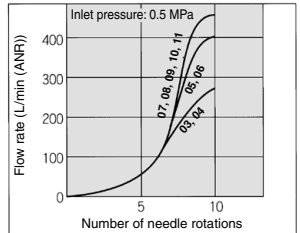
AS12□1FG  
AS13□1FG



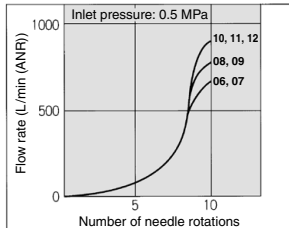
AS22□1FG-□01  
AS23□1FG-□01



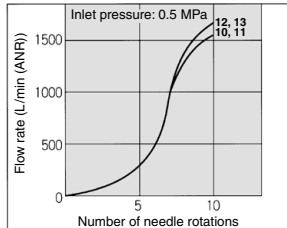
AS22□1FG-□02  
AS23□1FG-□02



AS32□1FG  
AS33□1FG



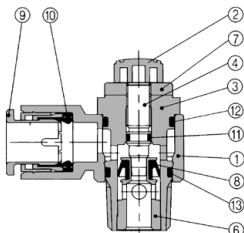
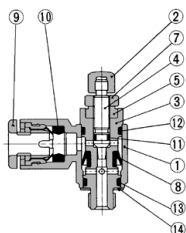
AS42□1FG  
AS43□1FG



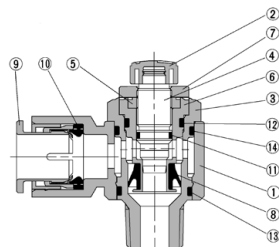
## Construction: Elbow Type

### Meter-out type

M5 type  
 U10/32 type

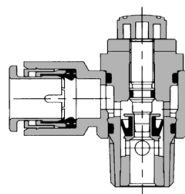
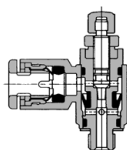


AS3201FG-02

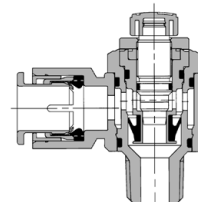


### Meter-in type

M5 type  
 U10/32 type



AS3211FG-02



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	—	
10	Seal	NBR	
11	O-ring	NBR	
12	O-ring	NBR	
13	O-ring	NBR	
14	O-ring	NBR	
15	Gasket	NBR, Stainless steel	M5 type only

### ⚠ Caution

Be sure to read this before handling the products.  
 Refer to page 11 for safety instructions and pages 19 to 22 for flow control equipment precautions.

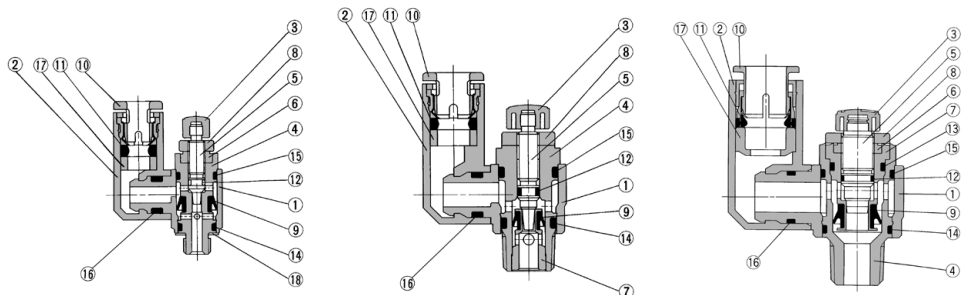
# AS-FG Series

## Construction: Universal Type

### Meter-out type

M5 type  
U10/32 type

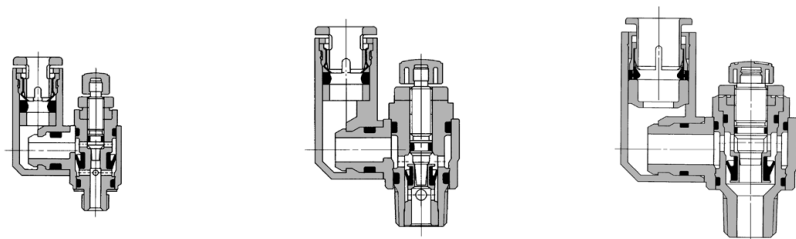
AS3301FG-02



### Meter-in type

M5 type  
U10/32 type

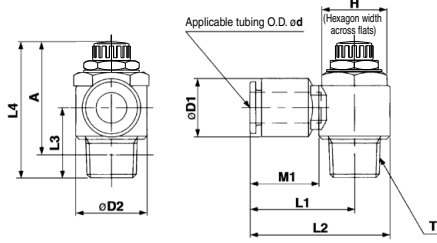
AS3311FG-02



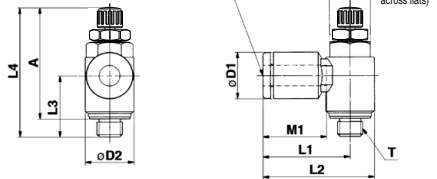
### Component Parts

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	—	
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	M5 type only

**Dimensions: Elbow Type**



**M5 type  
 U10/32 type**



**Metric Size**

Model	d	T	H	D1	D2	L1	L2	L3	L4 (1)		A (2)		M1	Weight (g)
									Max.	Min.	Max.	Min.		
AS12□1FG-M5-23	3.2	M5x0.8	8	8.4	9.6	17.3	22.1	12.3	28.6	25.8	25	22.2	12.7	7
AS12□1FG-M5-04	4	M5x0.8	8	9.3	9.6	17.3	22.1	12.3	28.6	25.8	25	22.2	12.7	7
AS12□1FG-M5-06	6	M5x0.8	8	11.6	11.6	18.1	22.9	11.7	28.6	25.8	25	22.2	13.5	7
AS22□1FG-01-23	3.2	R 1/8	12	9.3	14.2	20.4	27.5	14.3	38.1	31.1	32.1	27.1	12.7	16
AS22□1FG-01-04	4			9.3		20.4	27.5						12.7	17
AS22□1FG-01-06	6			11.6	14.2	20.4	27.5	13.4	35.2	30.2	32.1	27.1	13.5	16
AS22□1FG-01-08	8	R 1/8	12	15.2	15.2	25.3	32.4		38.9	34.9	34.4	29.4	18.5	19
AS22□1FG-01-10	10			18.5		32.1	39.2	14.1					21	21
AS22□1FG-02-04	4			10.4		25.2	34.4						16	32
AS22□1FG-02-06	6			12.8	18.5	25.2	34.4	17.7	39.9	34.9	34.4	29.4	17	34
AS22□1FG-02-08	8	R 1/4	17	15.2		27.2	36.4						18.5	34
AS22□1FG-02-10	10			18.5		35.3	44.5	18.3					21	36
AS32□1FG-02-06	6			12.8		27.8	39.3						17	60
AS32□1FG-02-08	8			15.2		29.5	41		48.3	42.8	37.8		18.5	63
AS32□1FG-02-10	10	R 1/4	19	18.5	23	31.8	43.3	21.3	48.3	43.3	42.8	37.8	21	67
AS32□1FG-02-12	12			20.9		32.8	44.3						22	69
AS32□1FG-03-06	6			12.8		27.8	39.3		45.4	40.4	40.2	35.2	17	55
AS32□1FG-03-08	8			15.2		29.5	41		45.4	40.4	40.2	35.2	18.5	57
AS32□1FG-03-10	10	R 3/8	19	18.5	23	31.8	43.3	19.8	45.4	40.4	40.2	35.2	21	59
AS32□1FG-03-12	12			20.9		32.8	44.3						22	61
AS42□1FG-04-10	10			18.5	28.6	33.8	47.9	24.5	56.7	49.2	49.6	42.1	21	100
AS42□1FG-04-12	12	R 1/2	24	20.9	28.6	35.2	49.5	24.5	56.7	49.2	49.6	42.1	22	101

Note 1) Reference dimensions  
 Note 2) Reference dimensions of M5 x 0.8, R threads after installation.

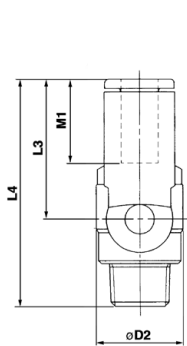
**Inch Size**

Model	d	T	H	D1	D2	L1	L2	L3	L4 (1)		A (2)		M1	Weight (g)
									Max.	Min.	Max.	Min.		
AS12□1FG-U10/32-01	1/8"			8.4		17.3	22.1	12.3					12.7	
AS12□1FG-U10/32-03	5/32"			9.3	9.6	17.3	22.1	12.3					12.7	
AS12□1FG-U10/32-05	3/16"			11.4		21.3	26.1	11.7	28.6	25.8	25	22.2	16.5	7
AS12□1FG-U10/32-07	1/4"			12		18.3	23.1						13.5	
AS22□1FG-N01-01	1/8"			9.3		20.4	27.5						12.7	16
AS22□1FG-N01-03	5/32"			11.4	14.2	23.1	30.2	13.4	35.2	30.2	32.1	27.1	16.5	17
AS22□1FG-N01-05	3/16"	NPT 1/8	12.7	11.4		23.1	30.2						16.5	19
AS22□1FG-N01-07	1/4"			13.2		23.9	31						17	19
AS22□1FG-N01-09	5/16"			15.2		25.3	32.4	14.1					18.5	21
AS22□1FG-N02-03	5/32"			10.4		25.2	34.4						16	32
AS22□1FG-N02-05	3/16"			11.4		24.9	34.2	17.7					16.5	34
AS22□1FG-N02-07	1/4"	NPT 1/4	17.5	13.2	18.5	25.2	34.5		39.9	34.9	34.4	29.4	17	34
AS22□1FG-N02-09	5/16"			15.2		27.2	36.4	18.2					18.5	36
AS22□1FG-N02-11	3/8"			17.9		35.3	44.5	18.8					21	38
AS32□1FG-N02-07	1/4"			13.2		27.8	39.3						17	60
AS32□1FG-N02-09	5/16"	NPT 1/4	19	15.2	23	29.5	41	21.3	48.3	43.3	42.8	37.8	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	19.8	45.4	40.4	40.2	35.2	18.5	57
AS32□1FG-N03-11	3/8"			17.9		31.8	43.3						21	59
AS32□1FG-N03-11	3/8"			17.9		31.8	43.3						21	59
AS42□1FG-N04-11	3/8"	NPT 1/2	23.8	17.9	28.6	33.6	47.9	24.5	56.7	49.2	49.6	42.1	21	100
AS42□1FG-N04-13	1/2"		28.6	21.7	28.6	35.2	49.5	24.5	56.7	49.2	49.6	42.1	22	101

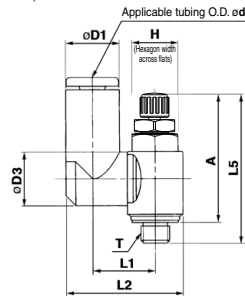
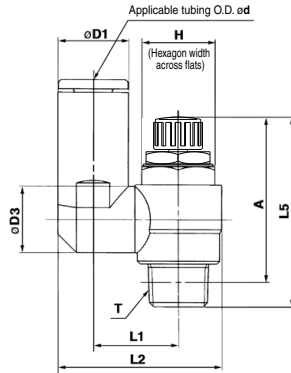
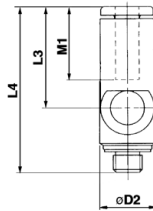
Note 1) Reference dimensions  
 Note 2) Reference dimensions of 10-32 UNF and NPT threads after installation.

# AS-FG Series

## Dimensions: Universal Type



M5 type  
U10/32 type



### Metric Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4	L5 (1)		A (2)		M1	Weight (g)
											Max.	Min.	Max.	Min.		
AS13□1FG-M5-23	3.2		8.4					19.8	17.5	28.7	28.6	25	22.2	12.7	7	
AS13□1FG-M5-04	4	M5 x 0.8	9.3	9.6	9.3	10.8	20.3	21.4	20.6	31.8				13.5	7	
AS13□1FG-M5-06	6		11.6					21.4	20.6	31.8				13.5	7	
AS23□1FG-01-23	3.2		8.4					9.3	13.1	24.4	17.5	30.9		12.7	17	
AS23□1FG-01-04	4		9.3					14.2	24.4	35.2	30.2	32.1	27.1	12.7	17	
AS23□1FG-01-06	6	R 1/8	11.6	14.2	10.9	14	26.9	22.9	26.9	36.3				13.5	18	
AS23□1FG-01-08	8		15.2		12.9	16.2	30.9	28.2	40.8					18.5	21	
AS23□1FG-01-08	8		15.2		12.9	16.2	30.9	28.2	40.8					18.5	21	
AS23□1FG-02-04	4		10.4		10.9	16.2	30.6	21.9	39.6					16	32	
AS23□1FG-02-06	6		12.8		16.4	34	25.2	42.1						17	33	
AS23□1FG-02-08	8	R 1/4	15.2	18.5	12.9	18.3	35.2	28.2	45.1	39.9	34.9	34.4	29.4	18.5	36	
AS23□1FG-02-10	10		18.5		20.2	30.2	38.7	31	47.9					21	40	
AS33□1FG-02-06	6		12.8		12.9	20.6	38.5	25.2	46.5					17	60	
AS33□1FG-02-08	8		15.2		20.9	38.7	28.2	49.5						18.5	63	
AS33□1FG-02-10	10	R 1/4	18.5	23	23	43.7	32.6	54.2		48.3	43.3	42.8	37.8	21	67	
AS33□1FG-02-12	12		20.9		16.2	23	44.9	34.4	55.7					22	69	
AS33□1FG-03-06	6		12.8		12.9	20.6	38.5	25.2	45					17	56	
AS33□1FG-03-08	8		15.2		23	39.7	28.2	48		45.4	40.4	40	35	18.5	59	
AS33□1FG-03-10	10	R 3/8	18.5	23	18.5	23	43.7	32.6	52.4					21	63	
AS33□1FG-03-12	12		20.9		16.2	23	44.9	34.4	54.2					22	65	
AS43□1FG-04-10	10		18.5		16.2	25.8	49.4	32.6	57.1					21	104	
AS43□1FG-04-12	12	R 1/2	21.7	28.6	19.4	28.6	52	36.3	60.8	56.7	49.2	49.6	42.1	22	105	

Note 1) Reference dimensions

Note 2) 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 (1)		A (2)		M1	Weight (g)
											Max.	Min.	Max.	Min.		
AS13□1FG-U10/32-01	1/8"		8.4					19.8	17.5	28.7				12.7	7	
AS13□1FG-U10/32-03	5/32"	10-32 UNF	9.3	9.6	9.3	10.8	20.3	21.4	20.6	31.8	28.6	25.8	25	22.2	16.5	8
AS13□1FG-U10/32-05	3/16"	UNF	11.4					21.3	23.3	34.5				13.7	8	
AS13□1FG-U10/32-07	1/4"		12					21.6	20.7	31.9				13.7	8	
AS23□1FG-N01-01	1/8"		8.4					9.3	13.1	24.4	17.5	30.9		12.7	17	
AS23□1FG-N01-03	5/32"		9.3					12	24.9	35.2	30.2	32.1	27.1	12.7	17	
AS23□1FG-N01-05	3/16"	NPT 1/8	10.4	10.9	14	26.8	23.9							16.5	18	
AS23□1FG-N01-07	1/4"		12					12.9	16.2	29.6	26.6	36.3		18.5	19	
AS23□1FG-N01-09	5/16"		15.2		15.2			15.2		30.9	28.2	40.8		21	21	
AS23□1FG-N02-03	5/32"		10.4		10.9	16.2	30.6	21.9	39.6					16	32	
AS23□1FG-N02-05	3/16"		11.4		10.9	16.2	31.1	23.9	42.1					17	33	
AS23□1FG-N02-07	1/4"	NPT 1/4	12.8	16.3	12.9	18.3	35.2	28.2	47.9	39.9	34.9	34.4	29.4	18.5	36	
AS23□1FG-N02-09	5/16"		15.2		20.2	30.2	38.7	31	47.9					21	40	
AS23□1FG-N02-11	3/8"		17.9											21	39	
AS33□1FG-N02-07	1/4"	NPT 1/4	13.2	12.9	20.6	38.7	25.6	46.5						17	60	
AS33□1FG-N02-09	5/16"		15.2	16.2	23	39.7	28.2	49.5		48.3	43.3	42.8	37.8	18.5	63	
AS33□1FG-N03-08	3/8"		17.9		16.2	23	43.7	32.6	53.9					21	69	
AS33□1FG-N03-07	1/4"		13.2		12.9	20.6	38.7	25.6	45					17	56	
AS33□1FG-N03-09	5/16"	NPT 3/8	15.2	16.2	23	39.7	28.2	49.5		45.4	40.4	40.2	35.2	18.5	59	
AS33□1FG-N03-11	3/8"		17.9		16.2	23	43.7	32.6	52.4					21	65	
AS43□1FG-N04-11	3/8"	NPT 1/2	17.9	23	17.9	29	49.4	32.6	54.4					21	104	
AS43□1FG-N04-13	1/2"		21.7	28.6	19.4	28.6	52	36.3	61.1	56.7	49.2	49.6	42.1	22	106	

Note 1) Reference dimensions

Note 2) Reference dimensions of 10-32 UNF and NPT threads after installation.

# Speed Controller with One-touch Fitting Stainless Steel Series In-line Type

## AS-FG Series



### Model

Model	Applicable tubing O.D.												
	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"
AS1001FG	●	●	●				●	●	●	●			
AS2001FG		●	●					●	●	●			
AS2051FG				●	●				●	●	●		
AS3001FG			●	●	●	●				●	●	●	
AS4001FG					●	●						●	●

### 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)
Applicable tubing material	Nylon, Soft nylon, Polyurethane

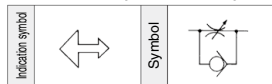
Note) Use caution regarding the max. operating pressure when soft nylon or polyurethane tubing is used.  
(Refer to pages 678 and 682 for details.)

### Flow Rate and Sonic Conductance

Model		AS1001FG	AS2001FG		AS2051FG		AS3001FG			AS4001FG	
Tubing O.D.	Metric size	ø3.2 ø4 ø6	ø4	ø6	ø6	ø8	ø6	ø8	ø10 ø12	ø10	ø12
	Inch size	ø1/8" ø5/32" ø3/16"	ø5/32"	ø3/16" ø1/4"	ø3/16"	ø1/4" ø5/16"	ø1/4"	ø5/16"	ø3/8"	ø3/8"	ø1/2"
Controlled flow	Flow rate (L/min (ANR))	100	130	230	290	460	420	660	920	1050	1390
Free flow	Sonic conductance dm <sup>3</sup> /(s·bar)	0.28	0.36	0.64	0.8	1.3	1.2	1.8	2.6	2.9	3.9
Critical pressure ratio	Controlled flow	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Free flow	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25

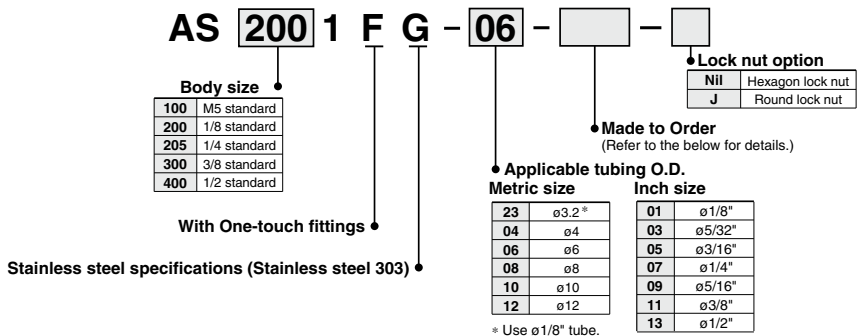
Note) Flow rate values are measured at 0.5 MPa and 20°C.

### Flow Direction Symbols on Body



**Made to Order**  
(Refer to page 1002 for details.)

## How to Order



## Made to Order



Lubricant: Vaseline

**X12**

Ex.) AS1001FG-04-X12

Grease-free (Seal: Fluorine Coated) + Throttle Valve (Without Check Valve)

**X21**

Ex.) AS1001FG-04-X21

Note) Not particle-free

Throttle Valve (Without Check Valve)

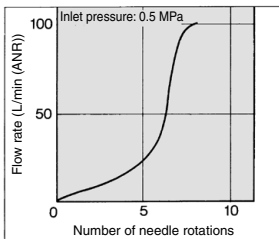
**X214**

Ex.) AS1001FG-04-X214

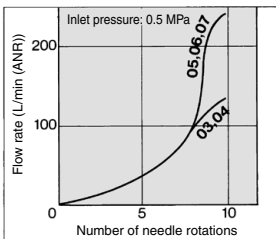
## Needle Valve/Flow Rate Characteristics

Note) The flow rate characteristics are representative values.

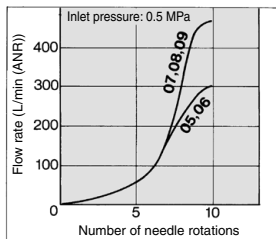
**AS1001FG**



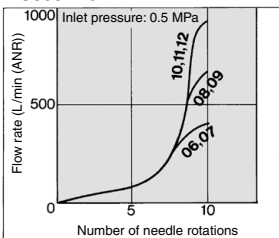
**AS2001FG**



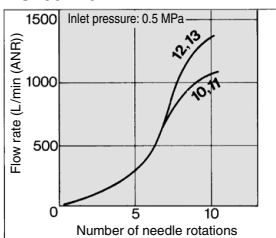
**AS2051FG**



**AS3001FG**

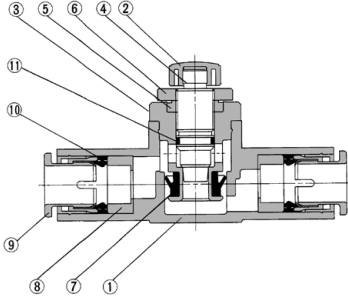


**AS4001FG**





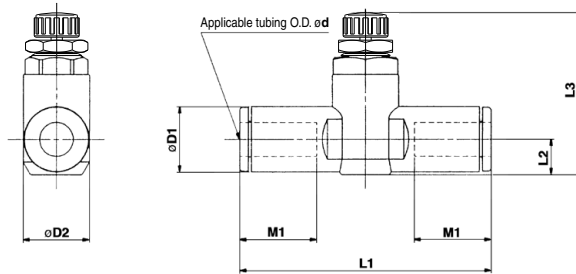
## Construction



### 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	Lock nut	Stainless steel 303	
7	U seal	HNBR	
8	Spacer	—	
9	Cassette	—	
10	Seal	NBR	
11	O-ring	NBR	

## Dimensions



### Metric Size

Model	d	D1	D2	L1	L2	L3 <sup>(1)</sup>		M1	Weight (g)
						Max.	Min.		
AS1001FG-23	3.2	8.4	10.5	38	4.5	23.5	20.7	12.7	6
AS1001FG-04	4	9.3		39.2	5.2	24.2	21.4	7	7
AS1001FG-06	6	11.6	12.3	40.7	6.2	25.2	22.4	13.5	8
AS2001FG-04	4	9.3		40.7	5.2	32.6	27.6	12.7	12
AS2001FG-06	6	11.6	15.5	44.8	6.3	33.7	28.7	13.5	13
AS2051FG-06	6	12.8		53.2	6.7	35.2	30.2	17	22
AS2051FG-08	8	15.2	20.6	59.8	8.1	32.6	27.6	18	25
AS3001FG-06	6	12.8		59	7.4	38.3	33.3	17	36
AS3001FG-08	8	15.2	27.6	64.4	8.2	39.1	34.1	18	40
AS3001FG-10	10	18.5		71.6	9.8	40.6	35.6	21	44
AS3001FG-12	12	20.9	27.6	76	11	41.8	36.8	22	48
AS4001FG-10	10	18.5		77.7	11.3	51.1	43.6	21	85
AS4001FG-12	12	20.9		82.1		52.1	44.6	22	89

Note 1) Reference dimensions

### Inch Size

Model	d	D1	D2	L1	L2	L3 <sup>(1)</sup>		M1	Weight (g)
						Max.	Min.		
AS1001FG-01	1/8"	8.4	10.5	38	4.5	23.5	20.7	12.7	6
AS1001FG-03	3/32"	9.3		39.2	5.2	24.2	21.4	7	7
AS1001FG-05	3/16"	11.4	12.3	48.7	6.2	25.2	22.4	13.5	12
AS1001FG-07	1/4"	12		40.7					
AS2001FG-03	5/32"	9.3	15.5	40.7	5.2	32.6	27.6	12.7	12
AS2001FG-05	3/16"	11.4		50	6.2	33.6	28.6	16.5	18
AS2001FG-07	1/4"	13.2	20.6	52.2	7.1	34.5	29.5	17	16
AS2051FG-05	3/16"	11.4		52.2	6.2	34.6	29.6	16.5	24
AS2051FG-07	1/4"	13.2	27.6	54.4	7.1	35.5	30.5	17	22
AS2051FG-09	5/16"	15.2		59.8	8.1	32.6	27.6	18	25
AS3001FG-07	1/4"	13.2	27.6	59	7.4	38.3	33.3	17	36
AS3001FG-09	5/16"	15.2		64.4	8.2	39.1	34.1	18	40
AS3001FG-11	3/8"	17.9	27.6	70.8	9.5	40.3	35.3	21	52
AS4001FG-11	3/8"	17.9		76.9	10.3	51	43.5	21	93
AS4001FG-13	1/2"	21.7		83.1	11.6	52.4	44.9	22	106

Note 1) Reference dimensions

# Dual Speed Controller with One-touch Fittings Stainless Steel Series

# ASD-FG Series

RoHS

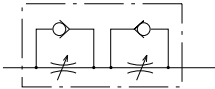
Two flow control valves and check valves have been integrated.

Prevention of stick-slip phenomenon, and speed control of a single acting cylinder.

Stable speed control is achievable even with load fluctuations.



Symbol



## Flow Direction Symbols on Body

	Meter-out type	Meter-in type
Indication symbol		
Symbol		

Made to Order



Lubricant: Vaseline

**X12**

## Model

Model	Port size	Applicable tubing O.D.															
		Metric size					Inch size										
		4	6	8	10	12	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"					
ASD230FG-M5	M5 x 0.8	●	●														
ASD330FG-01	R 1/8		●	●													
ASD430FG-02	R 1/4		●	●	●												
ASD530FG-02	R 1/4		●	●	●	●											
ASD530FG-03	R 3/8		●	●	●	●											
ASD630FG-04	R 1/2				●	●											
ASD230FG-U10/32	10-32 UNF							●	●		●	●					
ASD330FG-N01	NPT 1/8										●	●	●				
ASD430FG-N02	NPT 1/4											●	●	●			
ASD530FG-N02	NPT 1/4											●	●	●			
ASD530FG-N03	NPT 3/8											●	●	●			
ASD630FG-N04	NPT 1/2												●	●			

## 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)
Applicable tubing material	Nylon, Soft nylon, Polyurethane

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

(Refer to pages 678 and 682 for details.)

## Flow Rate and Sonic Conductance

Model	Metric size	ASD230FG		ASD330FG		ASD430FG		ASD530FG			ASD630FG	
		ø4, ø6	ø6, ø8	ø6	ø8, ø10	ø6	ø8	ø10, ø12	ø10	ø12		
Tubing O.D.	Metric size	ø3/16"	ø1/4"	ø3/16"	ø1/4"	ø1/4"	ø5/16"	ø3/8"	—	—	—	—
	Inch size	ø1/8"	ø1/8"	ø1/8"	ø1/8"	ø1/8"	ø1/8"	ø1/8"	ø3/8"	—	—	ø3/8"
Controlled flow	Flow rate (L/min (ANR))	75	175	295	350	500	600	700	1200	1300		
	Free flow	Sonic conductance dm <sup>3</sup> /(s·bar)	0.21	0.49	0.82	0.97	1.4	1.7	1.9	3.3	3.6	
Critical pressure ratio	Controlled flow	0.25	0.2		0.2		0.2				0.2	
	Free flow	0.3	0.15		0.15		0.15				0.15	

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

### How to Order

ASD **3** 30 FG - **01** - **06** S -  -

• **Body size**

2	M5 standard
3	1/8 standard
4	1/4 standard
5	3/8 standard
6	1/2 standard

• **Universal**

• **With One-touch fitting**

• **Stainless steel specifications (SUS303)**

• **Thread type**

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

• **Lock nut option**

NII	Hexagon lock nut
J	Round lock nut

• **Made to Order**

X12 | Lubricant: Vaseline

• **With seal**

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

• **Applicable tubing O.D. (Note)**

**Metric size**

04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

**Inch size**

01	ø1/8"
03	ø5/32"
05	ø3/16"
07	ø1/4"
09	ø5/16"
11	ø3/8"

(Note) For applicable tubing O.D. selection, refer to the Model on page 1004.

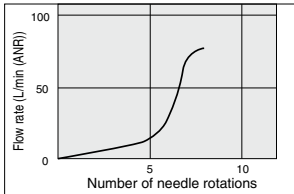
• **Port size**

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

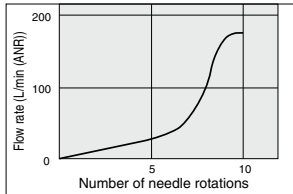
### Needle Valve/Flow Rate Characteristics

(Note) The flow rate characteristics are representative values.

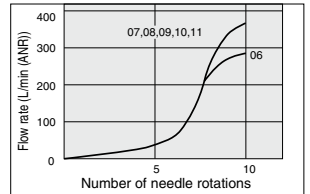
**ASD230FG**



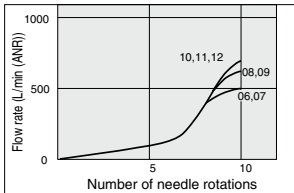
**ASD330FG**



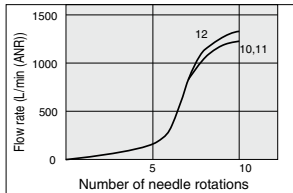
**ASD430FG**



**ASD530FG**



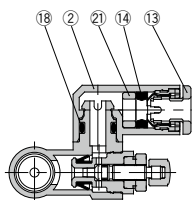
**ASD630FG**



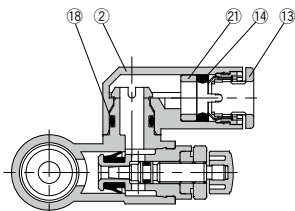
# ASD-FG Series

## Construction

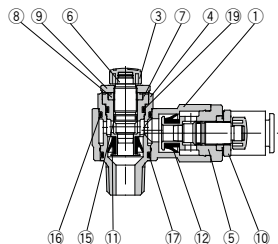
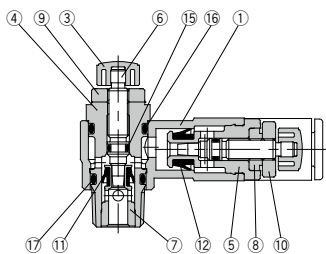
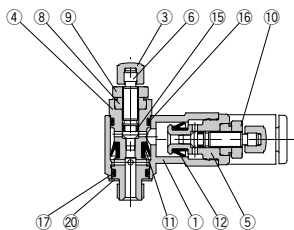
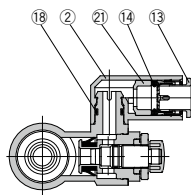
ASD230FG



ASD330FG/430FG  
ASD530FG/630FG



ASD530FG-02



### Component Parts

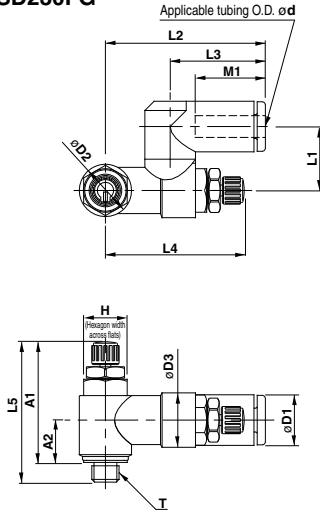
No.	Description	Material	Note
1	Body A	PBT	
2	Elbow body	PBT	
3	Handle	PBT	
4	Body B	Stainless steel 303	
5	Body B	Stainless steel 303	
6	Needle	Stainless steel 303	
7	Seat ring	Stainless steel 303	
8	Needle guide	Stainless steel 303	
9	Lock nut	Stainless steel 303	
10	Lock nut	Stainless steel 303	
11	U seal	HNBR	

No.	Description	Material	Note
12	U seal	HNBR	
13	Cassette	—	
14	Seal	NBR	
15	O-ring	NBR	
16	O-ring	NBR	
17	O-ring	NBR	
18	O-ring	NBR	
19	O-ring	NBR	
20	Gasket	NBR, Steel	M5 type only
21	Spacer	—	

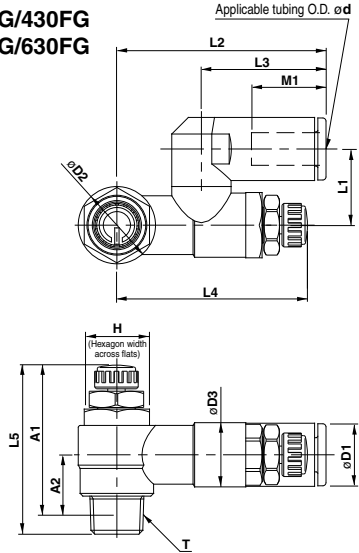
# Dual Speed Controller with One-touch Fittings Stainless Steel Series **ASD-FG Series**

## Dimensions: Metric Size

**ASD230FG**



**ASD330FG/430FG  
ASD530FG/630FG**



## Metric Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4 <sup>(1)</sup>		L5 <sup>(1)</sup>		A1 <sup>(2)</sup>		A2 <sup>(2)</sup>	M1	Weight (g)
										Max.	Min.	Max.	Min.	Max.	Min.			
ASD230FG-M5-04	4	M5 x 0.8	8	9.3	9.6	10	11.7	29.4	17.5	28.3	25.5	28.6	25.8	25	22.2	7.8	12.9	12
ASD230FG-M5-06	6			11.6				20.6	13									
ASD330FG-01-06S	6	R 1/8	12	11.6	14.2	11.8	14	38.5	22.9	39.6	34.6	35.2	30.2	32.1	27.1	10.6	13.7	29
ASD330FG-01-08S	8			15.2				28.2	31									
ASD430FG-02-06S	6	R 1/4	17	12.8	18.5	15	18	43.5	25.2	41.7	36.7	39.9	34.9	34.4	29.4	11	17	53
ASD430FG-02-08S	8			15.2				28.2	29									
ASD430FG-02-10S	10			18.5			19.7	49.3	31								21	58
ASD530FG-02-06S	6	R 1/4	19	12.8	23	19.8	20.3	48.3	25.2	46.9	41.9	48.3	43.3	42.8	37.8	15.4	17	74
ASD530FG-02-08S	8			15.2				28.2	29									
ASD530FG-02-10S	10			18.5			23.1	54.1	32.6								21	80
ASD530FG-02-12S	12			20.9				55.9	34.4								22	83
ASD530FG-03-06S	6	R 3/8	19	12.8	23	19.8	20.3	48.3	25.2	46.9	41.9	45.4	40.4	40	35	14	17	74
ASD530FG-03-08S	8			15.2				28.2	29									
ASD530FG-03-10S	10			18.5			23.1	54.1	32.6								21	98
ASD530FG-03-12S	12			20.9				55.9	34.4								22	101
ASD630FG-04-10S	10	R 1/2	24	18.5	28.6	26.5	25.9	64.3	32.6	64.8	57.3	56.7	49.2	49.6	42.1	18.6	21	177
ASD630FG-04-12S	12			20.9				34.4	22									179

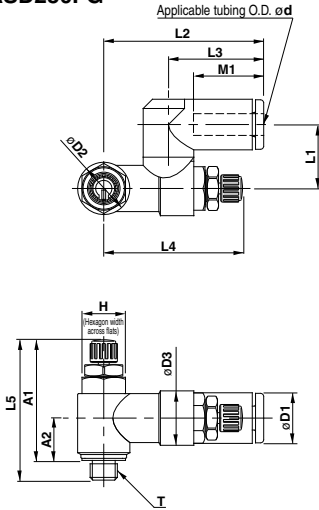
Note 1) Reference dimensions

Note 2) Reference dimensions of M5 x 0.8, R threads after installation.

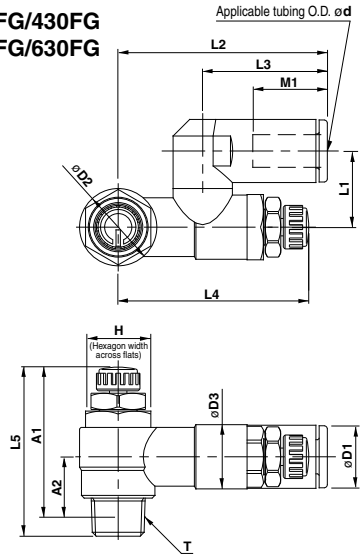
# ASD-FG Series

## Dimensions: Inch Size

ASD230FG



ASD330FG/430FG  
ASD530FG/630FG



## Inch Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4 <sup>(1)</sup>		L5 <sup>(1)</sup>		A1 <sup>(2)</sup>		A2 <sup>(2)</sup>	M1	Weight (g)	
										Max.	Min.	Max.	Min.	Max.	Min.				
ASD230FG-U10/32-01	1/8"	10-32 UNF	8	8.4	9.6	10	11.7	29.4	17.5	28.3	25.5	28.6	25.8	25	22.2	7.8	12.9	12	
ASD230FG-U10/32-03	5/32"			9.3													35.2	23.3	13
ASD230FG-U10/32-05	3/16"			11.4													32.6	20.7	15
ASD230FG-U10/32-07	1/4"			12													13.5	13	
ASD330FG-N01-05S	3/16"	NPT 1/8	12.7	11.6	14.2	11.8	14	38.5	23.9	39.6	34.6	35.2	30.2	32	27	10.6	16.5	30	
ASD330FG-N01-07S	1/4"			13.2													42.2	25.6	17
ASD330FG-N01-09S	5/16"			15.2													44.8	28.2	31
ASD430FG-N02-07S	1/4"	NPT 1/4	17.5	13.2	18.5	15	18	43.9	25.6	41.7	36.7	39.9	34.9	34.6	29.6	11	17	55	
ASD430FG-N02-09S	5/16"			15.2													46.5	28.2	18.5
ASD430FG-N02-11S	3/8"			18.5													49.3	31	21
ASD530FG-N02-07S	1/4"	NPT 1/4	19	13.2	23	19.8	20.3	48.7	25.6	46.9	41.9	48.3	43.3	43	38	15.4	17	76	
ASD530FG-N02-09S	5/16"			15.2													51.3	28.2	18.5
ASD530FG-N02-11S	3/8"			18.5													54.1	32.6	21
ASD530FG-N03-07S	1/4"	NPT 3/8	19	13.2	23	19.8	20.3	48.7	25.6	46.9	41.9	45.4	40.4	40.3	35.3	14	17	93	
ASD530FG-N03-09S	5/16"			15.2													51.3	28.2	18.5
ASD530FG-N03-11S	3/8"			18.5													54.1	32.6	21
ASD630FG-N04-11S	3/8"	NPT 1/2	23.8	18.5	28.6	26.5	25.9	64.3	32.6	64.8	57.3	56.7	49.2	46.9	42.1	18.6	21	180	

Note 1) Reference dimensions

Note 2) Reference dimensions of 10-32UNF and NPT threads after installation.



# ASD-FG Series Specific Product Precautions

Be sure to read this before handling the products.

Refer to page 11 for safety instructions and pages 19 to 22 for flow control equipment precautions.

## Design/Selection

### ⚠ Caution

#### 1. Single acting cylinder

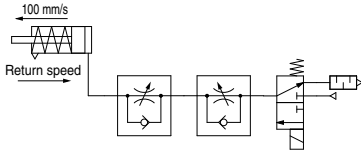
When controlling a single acting cylinder, the cylinder's return speed will differ depending on the operating conditions. Operate after confirming the maximum return speeds shown in the table below.

Speed Controller	Cylinder	Solenoid valve	Tubing	Silencer	Maximum return speed (mm/s)		
					100	200	300
ASD230FG	CJ2	SYJ500	TU0604 1 m	AN110-01	ø6		
					ø10		
					ø16		
					Cylinder size		
ASD330FG	CM2	SYJ700	TU0604 1 m	AN110-01	ø20		
					ø25		
					ø32		
					Cylinder size		

\* Values at 0.5 MPa and 20°C.

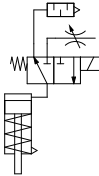
<Operating conditions>

- Cylinder extension speed: 100 mm/s
- Meter-out needle fully open



(Reference) Recommended circuit for high return speed

When low extension speed and high return speed are desired, the following circuit using 3-port is recommended.



Note) Use AS-FG series with -X214 for the throttle valve.