

# Dual Speed Controller for Low Speed Operation with One-touch Fitting

# ASD-FM Series

RoHS

Two flow control valves and check valves integrated.

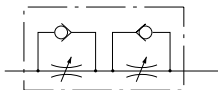
Prevention of a stick-slip phenomenon, and speed control of a single acting cylinder.

Stable speed control is achievable even with load fluctuations.

Low speed control for small bore cylinders.



Symbol



## Flow Direction Symbols on Body

	Meter-out type	Meter-in type
Indication symbol		
Symbol		

## Model

Model	Applicable tubing									
	Metric size				Inch size					
	4	6	8	10	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"
ASD230FM-M5	●	●								
ASD330FM-01		●	●							
ASD430FM-02		●	●	●						
ASD230FM-U10/32					●	●	●			
ASD330FM-N01							●	●	●	
ASD430FM-N02								●	●	●

## 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 <sup>(1)</sup>	Nylon, Soft nylon, Polyurethane

Note 1) Use caution regarding the max. operating pressure when soft nylon or polyurethane tubing is used.

(Refer to pages 464 to 465 for details.)

Note 2) Brass parts are all electroless nickel plated. The lock nut of the meter-out type is zinc chromate plated (the round lock nut is electroless nickel plated), then, the handle of the M5 type and the lock nut of the meter-in type are black zinc chromate plated.

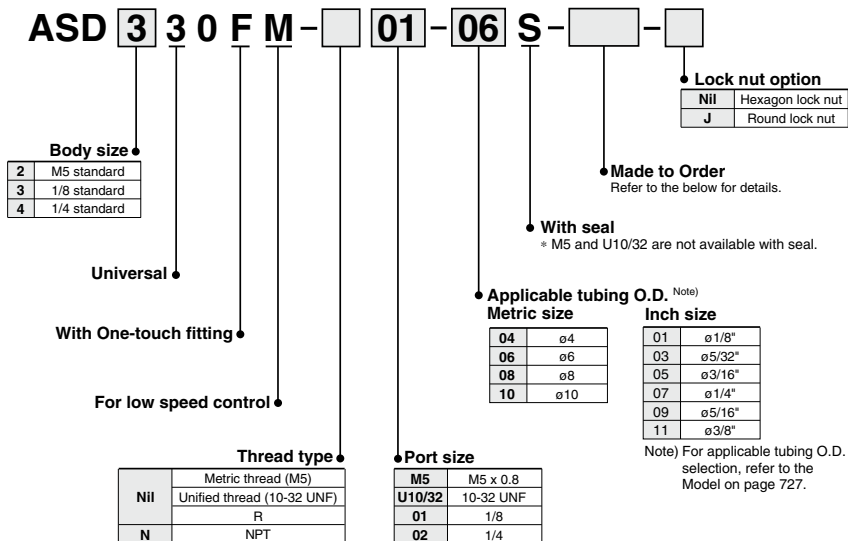
## Flow Rate and Sonic Conductance

Tubing O.D.	Model	ASD230FM	ASD330FM	ASD430FM	
	Metric size	ø4,ø6	ø6,ø8	ø6	ø8,ø10
	Inch size	ø1/8",ø5/32" ø3/16",ø1/4"	ø3/16",ø1/4"	—	ø1/4",ø5/16" ø3/8"
Controlled flow	Flow rate (L/min(ANR))	7	12	38	
	Sonic conductance dm <sup>3</sup> /(s bar)	0.02	0.04	0.12	
	Critical pressure ratio	0.25	0.2	0.2	
Free flow	Flow rate (L/min(ANR))	7	12	38	
	Sonic conductance dm <sup>3</sup> /(s bar)	0.02	0.04	0.12	
	Critical pressure ratio	0.3	0.15	0.15	

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

**Made to Order**  
(Refer to page 728 for details.)

## How to Order



## Made to Order



Lubricant: Vaseline

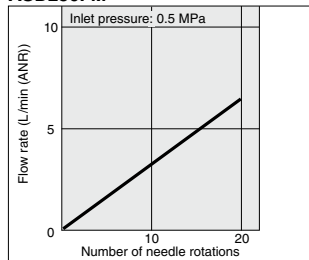
**X12**

Ex.) ASD230FM-M5-X12

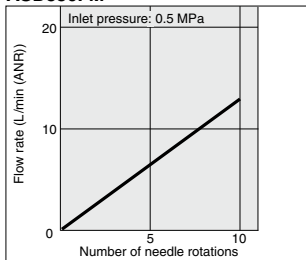
## Needle Valve/Flow Rate Characteristics

(Note) The flow rate characteristics are representative values.

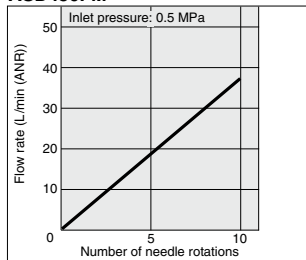
**ASD230FM**



**ASD330FM**



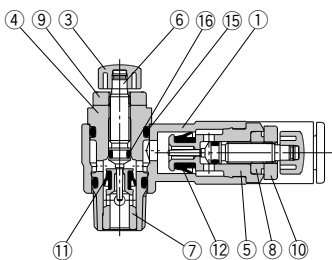
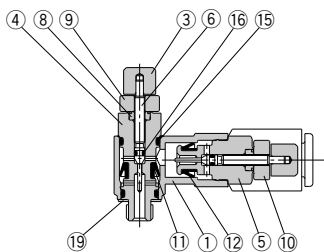
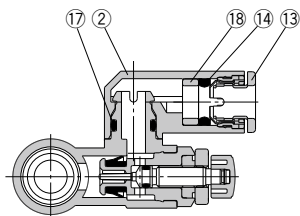
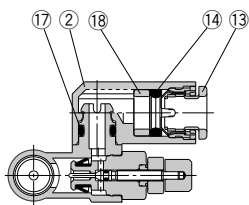
**ASD430FM**



## Construction

### ASD230FM

### ASD330FM/430FM



### Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Elbow body	PBT	
3	Handle	PBT <sup>(1)</sup>	Black
4	Body B	Brass	Electroless nickel plated
5	Body B	Brass	Electroless nickel plated
6	Needle	Brass	Electroless nickel plated
7	Seat ring	Brass	Electroless nickel plated
8	Needle guide	Brass	Electroless nickel plated
9	Lock nut	Steel <sup>(2)</sup>	Zinc chromated <sup>(3)</sup>
10	Lock nut	Steel <sup>(2)</sup>	Black zinc chromated

### Component Parts

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

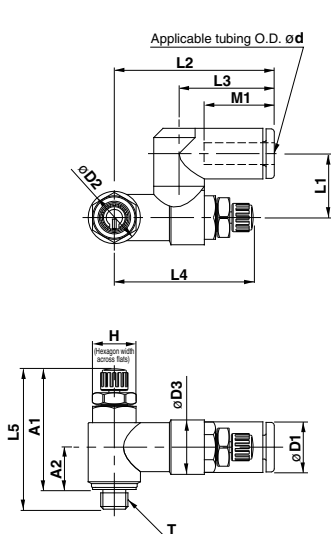
Note 1) ASD230FM type is made of brass (black zinc chromate plated).  
 Note 2) The material of the lock nut option-J (round type) is brass. However, note that only the ASD330FM and ASD430FM use steel.  
 Note 3) The surface treatment of the lock nut option-J (round type) is electroless nickel plated.

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

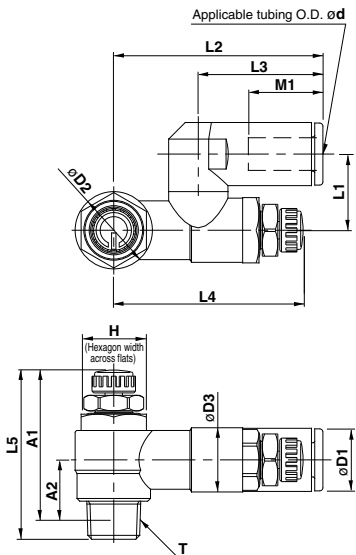
# ASD-FM Series

## Dimensions: Metric Size

### ASD230FM



### ASD330FM/430FM



## Metric Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4		L5 <sup>(1)</sup>		A1 <sup>(2)</sup>		A2 <sup>(2)</sup>	M1	Weight (g)
										Max.	Min.	Max.	Min.	Max.	Min.			
ASD230FM-M5-04	4	M5 x 0.8	8	9.3	9.6	10	11.7	29.4	17.5	34.6	29.6	33.8	28.8	30.1	25.1	7.8	12.9	12
ASD230FM-M5-06	6			11.6				20.6	13.7								13	
ASD330FM-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
ASD330FM-01-08S	8			15.2				28.2	18.5								31	
ASD430FM-02-06S	6	R 1/4	17	12.8	18.5	15	18	43.5	25.2	41.8	36.8	39.9	34.9	34.4	29.4	11	17	53
ASD430FM-02-08S	8			15.2				28.2	18.5								55	
ASD430FM-02-10S	10			18.5			19.7	49.3	31							21	58	

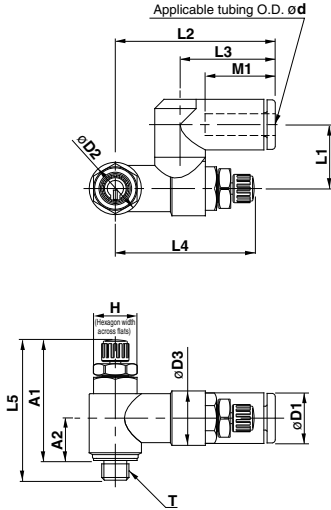
Note 1) Reference dimensions

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

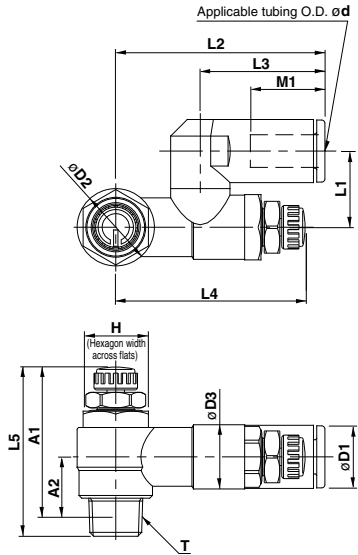
# Dual Speed Controller for Low Speed Operation with One-touch Fitting **ASD-FM Series**

## Dimensions: Inch Size

### ASD230FM



### ASD330FM/430FM



## Inch Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4		L5 <sup>(1)</sup>		A1 <sup>(2)</sup>		A2 <sup>(2)</sup>	M1	Weight (g)
										Max.	Min.	Max.	Min.	Max.	Min.			
ASD230FM-U10/32-01	1/8"	10-32 UNF	8	8.4	9.6	10	11.7	29.4	17.5	34.6	29.6	33.8	28.8	30.1	25.1	7.8	12.9	12
ASD230FM-U10/32-03	5/32"			9.3				23.3	13									
ASD230FM-U10/32-05	3/16"			11.4				20.7	14									
ASD330FM-U10/32-07	1/4"		12	32.6	20.7			39.6	34.6								13.5	15
ASD330FM-N01-05S	3/16"		11.4	14	39.5	23.9	14	39.5	23.9	39.6	34.6	35.2	30.2	32	27	10.6	17	31
ASD330FM-N01-07S	1/4"	NPT 1/8	12.7	13.2	14.2	11.8	15.8	42.2	25.6	38.9	33.9	35.2	30.2	32	27	10.6	17	31
ASD330FM-N01-09S	5/16"			15.2				44.8	28.2								18.5	
ASD430FM-N02-07S	1/4"		13.2	14.2	11.8	14	15.8	43.9	25.6	39.6	34.6	35.2	30.2	32	27	10.6	17	31
ASD430FM-N02-09S	5/16"	NPT 1/4	17.5	15.2	18.5	15	18	46.5	28.2	41.7	36.7	39.9	34.9	34.6	29.6	11	18.5	55
ASD430FM-N02-11S	3/8"		18.5	19.7	49.3	32.6	19.7	49.3	32.6							21	62	

Note 1) Reference dimensions

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

- 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



# ASD-FM Series Specific Product Precautions

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

## Design/Selection

### ⚠ Caution

#### 1. Single acting cylinder

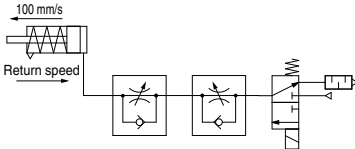
When controlling a single acting cylinder, the cylinder's return speed will differ depending on the operating conditions. Operate after confirming the maximum return speeds shown in the table below.

Speed Controller	Cylinder	Solenoid valve	Tubing	Silencer	Max. return speed (mm/s)		
					10	20	30
ASD230FM	CJ2	SYJ500	TU0604 1 m	AN110-01	ø6		
					ø10		
					ø16		
					Cylinder size		
ASD330FM	CM2	SYJ700	TU0604 1 m	AN110-01	ø20		
					ø25		
					ø32		
					Cylinder size		

<Operating conditions>

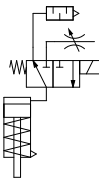
- Cylinder extension speed: 100 mm/s
- Meter-out needle fully open

\* Values are measured at 0.5 MPa and 20°C.



(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-FM series with -X214 for the throttle valve.