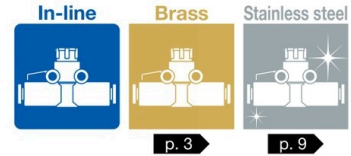


# Speed Controller with One-touch Fittings

## In-line Type

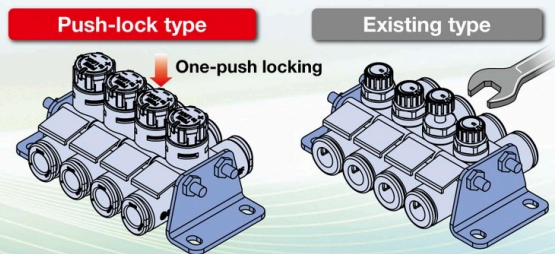
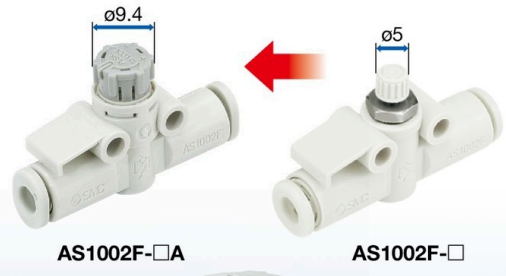
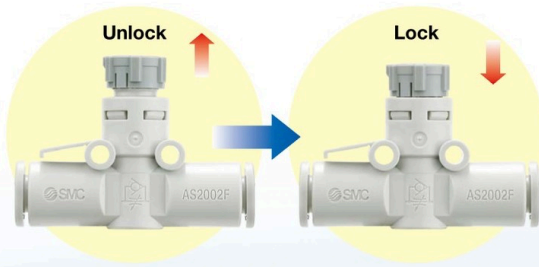
RoHS



**Easy to use**  
**Reduces flow setting time!**  
**Push-lock type**

**Knob O.D.: Almost doubled!**

• Easy to lock

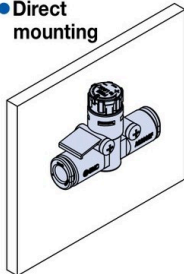


Much easier to lock than the existing type which requires a wrench

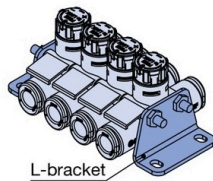


### Mounting Variations

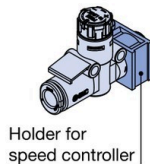
• Direct mounting



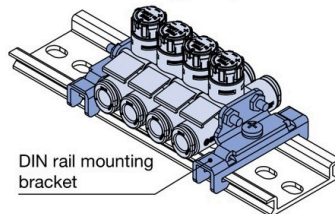
• L-bracket mounting p. 4



• Holder mounting p. 10

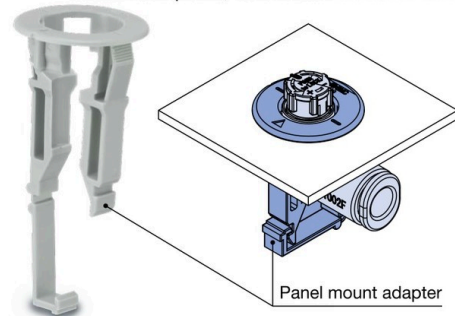


• DIN rail mounting p. 4



**New A panel mount type has been added.** p. 5

No tools required, Reduced installation work



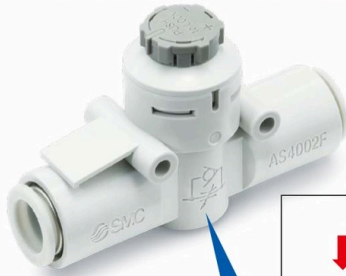
# AS Series

CAT.ES20-243C



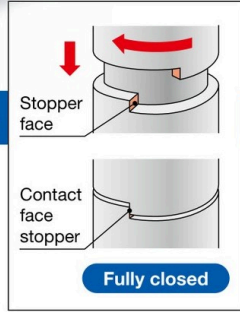
# AS Series

## Flow Rate Reproducibility



### Improved reproducibility of flow rate

Stable knob position when fully closed (no flow rate) onto the contact face stopper (rotating stopper). Minimal flow rate variations between knob rotations



## Lightweight

Weight: Approx. **27% lighter**



## Larger Knob

Existing type	AS1002F	AS2002F	AS2052F	AS3002F	AS4002F
 ø5 mm	 ø9.4 mm	 ø12 mm	 ø13 mm	 ø16.6 mm	 ø18.8 mm
 Hard to hold small knob Hard to make fine adjustments	 Easy to turn large knob Easy to make fine adjustments				

## Easy Identification of Product Type

### By index plate

It is possible to identify the product when multiple controllers are mounted and identify the flow direction by attaching an identification label.



### Index plate

(Example with identification label attached)

### By color

Model	Release button color	
	Metric	Inch
 AS□2F	Light gray 	Orange 
 AS□2FG	White 	White 





## Speed Controller with One-touch Fittings (In-line Type)

### Series Variations

Electroless nickel plating type [p. 3](#) Stainless steel type [p. 9](#)

Model	Applicable tubing O.D.												Metal parts material	Applicable tubing material	
	Metric size						Inch size								
	3.2	4	6	8	10	12	1/8"	5/32"	1/4"	5/16"	3/8"	1/2"			
AS1002F	●	●	●				●	●	●					-Brass -Stainless steel	Nylon (T, TIA series) Soft nylon (TS, TISA series) Polyurethane (T, TIUB series) Fluoropolymer (TLM, TILM series) (TH, TIH series)
AS2002F		●	●					●	●						
AS2052F			●	●					●	●					
AS3002F			●	●	●	●			●	●	●				
AS4002F				●	●	●				●	●	●			



### Made to Order [pp. 3, 9](#)

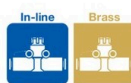
**Restrictor**

- Flow control of air blow and air purge

Grease-free (Seal: Fluorine-coated) + Restrictor (Without check valve)	-X21
Restrictor (Without check valve)	-X214

## CONTENTS

Speed Controller with One-touch Fittings In-line Type **AS Series**



Model, Specifications, Flow Rate and Sonic Conductance, How to Order, Made to Order ..... p. 3

Options ..... p. 4

Needle Valve: Flow Rate Characteristics ..... p. 5

Dimensions ..... p. 6

Speed Controller with One-touch Fittings Stainless Steel Series In-line Type **AS-FG Series**



Model, Specifications, Flow Rate and Sonic Conductance, How to Order, Made to Order ..... p. 9

Options ..... p. 10

Needle Valve: Flow Rate Characteristics ..... p. 11

Dimensions ..... p. 12

[Related Equipment] Holder for Speed Controller TMH Series ..... p. 14

## Push-Lock Series Variations

Speed Controller with One-touch Fitting Elbow Type/Universal Type **AS Series**

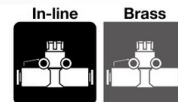
Refer to the **Web Catalog** for details.

Speed Controller with Indicator **AS-FS Series**

Refer to the **Web Catalog** for details.



# Speed Controller with One-touch Fittings In-line Type **AS Series**



## Model

Model	Applicable tubing O.D.											
	Metric size						Inch size					
	3.2	4	6	8	10	12	1/8"	5/32"	1/4"	5/16"	3/8"	1/2"
AS1002F	●	●	●				●	●	●			
AS2002F		●	●					●	●			
AS2052F			●	●					●	●		
AS3002F			●	●	●	●			●	●	●	
AS4002F					●	●					●	●

## Specifications

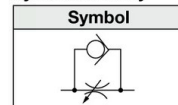
Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure	1 MPa
Min. operating pressure	0.1 MPa
Ambient and fluid temperatures	-5 to 60°C (No freezing)
Applicable tubing material	Nylon, Soft nylon, Polyurethane*1, FEP, PFA

\*1 Use caution at the max. operating pressure when using soft nylon or polyurethane tubing. (Refer to the **Web Catalog** for details.)

## Flow Rate and Sonic Conductance

Model	AS1002F-□A	AS2002F-□A	AS2052F-□A	AS3002F-□A	AS4002F-□A									
Tubing O.D.	Metric size Inch size	ø3.2 ø1/8"	ø4 ø5/32"	ø6 ø1/4"	ø6 ø1/4"	ø6 ø1/4"	ø8 ø5/16"	ø6 ø1/4"	ø8 ø5/16"	ø10 ø3/8"	ø12 —	ø10 ø3/8"	ø12 ø1/2"	
C values: Sonic conductance dm <sup>3</sup> /(s·bar)	Free flow	0.3	0.4	0.6	0.4	0.6	1.0	1.2	1.1	1.6	2.2	2.6	2.4	3.5
	Controlled flow	0.3		0.4	0.6	1.0	1.2	1.3	1.9	2.7	3.3	2.8	4.1	
b values: Critical pressure ratio	Free flow	0.3	0.2		0.3	0.1	0.2		0.2			0.3	0.2	
	Controlled flow	0.2	0.3	0.4	0.2		0.2	0.3	0.1		0.2		0.1	0.2

Flow Direction Symbol on Body



\* C and b values are for controlled flow with the needle fully open and free flow with the needle fully closed.  
\* The same specifications also apply to the AS-FG series (stainless steel type).

## How to Order

**AS 200 2 F - 06 A - □ - □**

Body size ●

100	M5 standard
200	1/8 standard
205	1/4 standard
300	3/8 standard
400	1/2 standard

With One-touch fittings ●

Panel mount adapter ●

Nil	None
3	With panel mount adapter

Push-lock type ●

Applicable tubing O.D.\*1

Metric size	Inch size
23	ø3.2*2
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12
01	ø1/8"
03	ø5/32"
07	ø1/4"
09	ø5/16"
11	ø3/8"
13	ø1/2"

\*1 For selecting applicable tubing O.D., refer to the "Model" shown above.  
\*2 Use ø1/8" tubing.

## Made to Order



Lubricant: Vaseline **-X12**

Example) AS2002F-04A-X12

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

Example) AS2002F-04A-X21

\* Not particle-free

Restrictor (Without check valve) **-X214**

Example) AS2002F-04A-X214

Clean Series **10-**

Example) 10-AS2002F-04A

\*1 Fluorine grease is used.  
\*2 The cleanliness class (ISO class) is 5.  
\*3 The panel mount adapter is packaged in a general environment.

## Caution

Be sure to read this before handling the products.  
Refer to the back cover for safety instructions.  
For flow control equipment precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website:  
<https://www.smcworld.com>



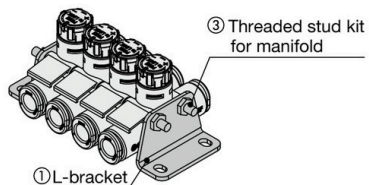


Speed Controller with One-touch Fittings  
In-line Type **AS Series**

**Options**

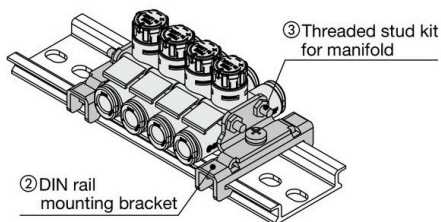
① L-Bracket

Part no.	Applicable model
AS-10L	AS1002F
AS-20L	AS2002F
AS-25L	AS2052F
AS-30L	AS3002F
AS-40L	AS4002F



② DIN Rail Mounting Bracket

Part no.	Applicable model
AS-10D	AS1002F
AS-20D	AS2002F
AS-25D	AS2052F
AS-30D	AS3002F
AS-40D	AS4002F



\* The DIN rail needs to be prepared by the customer.

③ Threaded Stud Kit for Manifold: Metric Size

Part number				Applicable model
4 stations	6 stations	8 stations	10 stations	
AS-32B	AS-33B	AS-35B	AS-36B	AS1002F-23A
	AS-34B	AS-36B	AS-37B	AS1002F-04A
			AS-38B	AS1002F-06A
			AS-38B	—
AS-32B	AS-34B	AS-36B	AS-37B	AS2002F-04A
			AS-38B	AS2002F-06A
AS-41B	AS-42B	AS-44B	AS-45B	AS2052F-06A
			AS-45B	—
			AS-45B	AS2052F-08A
AS-42B	AS-44B	AS-46B	AS-47B	AS3002F-06A
			AS-47B	—
			AS-47B	AS3002F-08A
			AS-47B	AS3002F-10A
			AS-47B	—
AS-43B	AS-45B	AS-47B	AS-48B	AS3002F-12A
			AS-48B	AS4002F-10A
			AS-48B	—
AS-43B	AS-45B	AS-47B	AS-48B	AS4002F-12A
			AS-48B	—

Details of Threaded Stud Kit for Manifold

Threaded stud			Accessories			
Part no.	Length	Quantity	Hexagon nut	Quantity	Flat washer	Quantity
AS-32B	62	2	M3	4	M3	4
AS-33B	72	2				
AS-34B	90	2				
AS-35B	104	2				
AS-36B	114	2				
AS-37B	135	2				
AS-38B	140	2				
AS-41B	78	2				
AS-42B	111	2	M4	4	M4	4
AS-43B	119	2				
AS-44B	147	2				
AS-45B	179	2				
AS-46B	191	2				
AS-47B	236	2				
AS-48B	277	2				

③ Threaded Stud Kit for Manifold: Inch Size

Part number				Applicable model
4 stations	6 stations	8 stations	10 stations	
AS-32B	AS-33B	AS-35B	AS-36B	AS1002F-01A
	AS-34B	AS-36B	AS-37B	AS1002F-03A
			AS-38B	—
			AS-38B	AS1002F-07A
AS-32B	AS-34B	AS-36B	AS-37B	AS2002F-03A
			AS-38B	—
AS-41B	AS-42B	AS-44B	AS-45B	AS2002F-07A
			AS-45B	—
			AS-45B	AS2052F-07A
AS-42B	AS-44B	AS-46B	AS-47B	AS2052F-09A
			AS-47B	—
			AS-47B	AS3002F-07A
			AS-47B	AS3002F-09A
			AS-47B	—
AS-43B	AS-45B	AS-47B	AS-48B	AS3002F-11A
			AS-48B	—
			AS-48B	AS4002F-11A
AS-43B	AS-45B	AS-47B	AS-48B	—
			AS-48B	AS4002F-13A

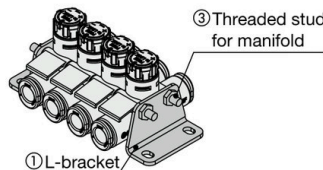
Ordering Example

Threaded studs for manifold are not included when L-bracket and DIN rail mounting bracket are ordered. Please order them according to the number of stations.

Ex.) AS2002F-04A

When connecting 4 pcs. and mounting L-brackets on both sides

- Speed controller  
AS2002F-04A ..... 4 pcs.
- L-bracket  
AS-20L ..... 2 pcs.
- Threaded stud kit for manifold  
AS-32B ..... 1 set





# AS Series

## Options

### ④ Panel Mount Adapter

Panel mount adapter model: Refer to the tables below.  
Metric Size Table

Applicable series	Applicable tubing O.D.					
	23 ø3.2	04 ø4	06 ø6	08 ø8	10 ø10	12 ø12
AS1002F-□A	PMA-1002-A	PMA-1002-B	—	—	—	—
AS2002F-□A	—	PMA-2002	—	—	—	—
AS2052F-□A	—	—	PMA-2052	—	—	—
AS3002F-□A	—	—	—	PMA-3002		—
AS4002F-□A	—	—	—	—	PMA-4002	—

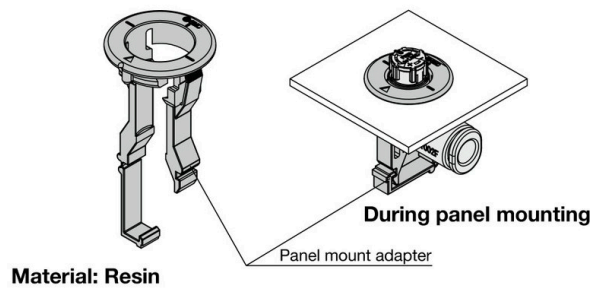
\* For the AS1002F, the part number varies depending on the applicable tubing O.D.

### ④ Panel Mount Adapter

Panel mount adapter model: Refer to the tables below.  
Inch Size Table

Applicable series	Applicable tubing O.D.					
	01 ø1/8"	03 ø5/32"	07 ø1/4"	09 ø5/16"	11 ø3/8"	13 ø1/2"
AS1002F-□A	PMA-1002-A	PMA-1002-B	—	—	—	—
AS2002F-□A	—	PMA-2002	—	—	—	—
AS2052F-□A	—	—	PMA-2052	—	—	—
AS3002F-□A	—	—	—	PMA-3002		—
AS4002F-□A	—	—	—	—	PMA-4002	—

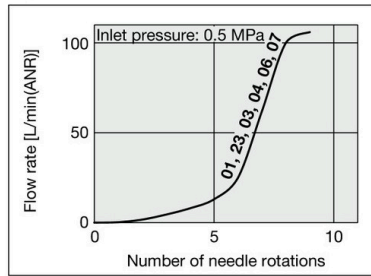
\* For the AS1002F, the part number varies depending on the applicable tubing O.D.



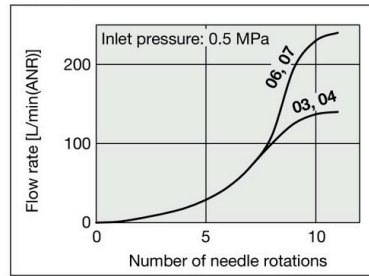
## Needle Valve: Flow Rate Characteristics

\* The flow rate characteristics are representative values.

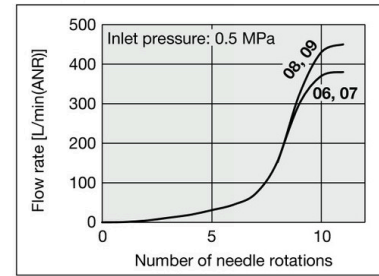
AS1002F-□A-□



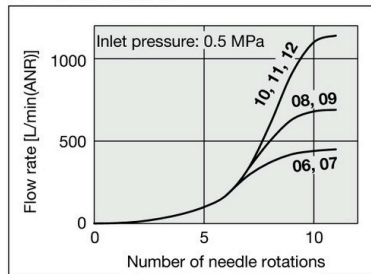
AS2002F-□A-□



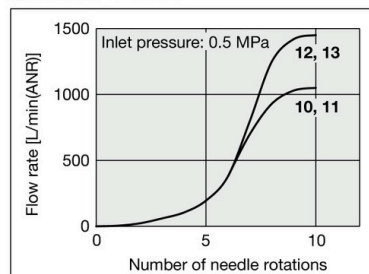
AS2052F-□A-□



AS3002F-□A-□



AS4002F-□A-□



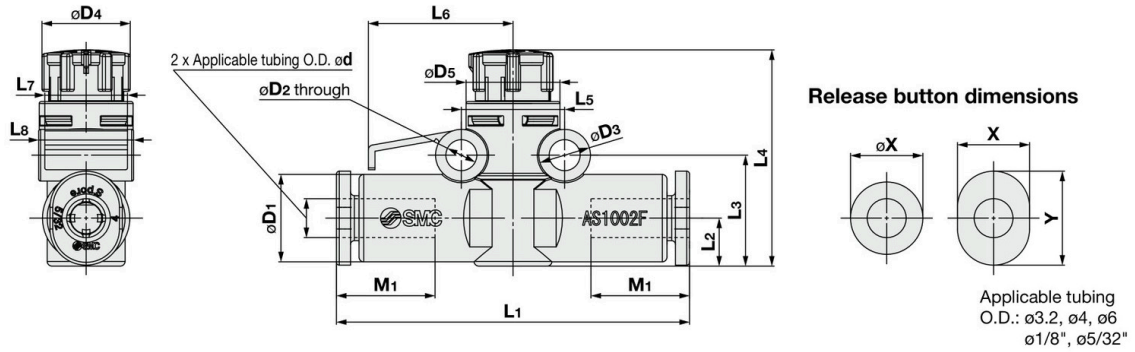
\* The numbers above the flow rate characteristic curves in the charts show the applicable tubing outside diameter as defined by the product number.

Refer to the operation manual for the construction.



Speed Controller with One-touch Fittings  
In-line Type **AS Series**

**Dimensions**



**Metric Size**

Model	Applicable tubing O.D. $\phi d$	$\phi D_1$	Release button		$\phi D_2$	$\phi D_3$	$\phi D_4$	$\phi D_5$	L1	L2	L3	L4*1		L5	L6	L7	L8	M1	Weight [g]
			$\phi X(X)$	Y								Max.	Min.						
AS1002F-23A	3.2	8.4	6.7	9.5	3.3	5.5	9.4	10	36.6	5.1	11.8	24.1	23	11	15.4	8.8	10.1	13.5	3.7
AS1002F-04A	4	9.3	7.7	10					37.6	6.1	12.8	25.1	24				12.3	13	4
AS1002F-06A	6	11.6	9.7	12	3.3	5.5	12	12	40.1	6.3	13.4	31.4	30	12.6	17	10.5	12.3	13	6.1
AS2002F-04A	4	9.3	7.7	10					41.3	6.3	13.4	31.4	30				12.3	13	6.9
AS2002F-06A	6	11.6	9.7	12	4.3	7.8	13	16	54.2	7.6	17.2	36.2	34.6	17	22.5	12	16.1	17	11.8
AS2052F-06A	6	12.8	11.5	—					57.2	8.5	18.1	37.1	35.5				19	13.8	
AS2052F-08A	8	15.2	13.5	—	4.5	8	16.6	20	60	9.8	21.7	42.9	41.3	21.8	25	12	20.5	17	18.1
AS3002F-06A	6	13.2	11.5	—					65								21.8	20.5	19
AS3002F-08A	8	15.2	13.5	—	4.3	8	18.8	26	70.4	11.3	23.7	51.3	49.7	28	33	14	21	24.8	36.3
AS3002F-10A	10	18.5	16.5	—					76								10.9	22.8	44
AS3002F-12A	12	20.9	18.5	—	4.3	8	18.8	26	76.9	11.3	23.7	51.3	49.7	28	33	14	21	36.3	36.3
AS4002F-10A	10	18.5	16.5	—					81.3								22	42	
AS4002F-12A	12	21.7	18.5	—													22	42	

\*1 Reference dimensions

**Inch Size**

Model	Applicable tubing O.D. $\phi d$	$\phi D_1$	Release button		$\phi D_2$	$\phi D_3$	$\phi D_4$	$\phi D_5$	L1	L2	L3	L4*1		L5	L6	L7	L8	M1	Weight [g]
			$\phi X(X)$	Y								Max.	Min.						
AS1002F-01A	1/8"	8.4	6.7	9.5	3.3	5.5	9.4	10	36.6	5.1	11.8	24.1	23	11	15.4	8.8	10.1	13.5	3.7
AS1002F-03A	5/32"	9.3	7.7	10					37.6	6.1	12.8	25.1	24				12.3	13	4
AS1002F-07A	1/4"	12	10.9	—	3.3	5.5	12	12	40.1	6.2	12.9	25.2	24.1	12.6	17	10.5	12.8	13.5	5.2
AS2002F-03A	5/32"	9.3	7.7	10					41.3	6.3	13.4	31.4	30				12.3	13	6.1
AS2002F-07A	1/4"	12	10.9	—	4.3	7.8	13	16	43.2	6.5	13.6	31.6	30.2	17	22.5	12	12.8	13.5	7.1
AS2052F-07A	1/4"	13.2	12	—					53.4	7.6	17.2	36.2	34.6				17	12.1	
AS2052F-09A	5/16"	15.2	13.5	—	4.5	8	16.6	20	57.2	8.5	18.1	37.1	35.5	21.8	25	12	16.1	17	13.8
AS3002F-07A	1/4"	13.2	12	—					59	21.8	17	17.9							
AS3002F-09A	5/16"	15.2	13.5	—	4.3	8	18.8	26	65	11.3	23.7	51.3	49.7	28	33	14	20.5	19	20
AS3002F-11A	3/8"	18.5	16	—					69.8								21	25	
AS4002F-11A	3/8"	18.5	16	—	4.3	8	18.8	26	76.9	11.3	23.7	51.3	49.7	28	33	14	21	36.7	36.7
AS4002F-13A	1/2"	21.7	20	—					81.3								22	40.4	

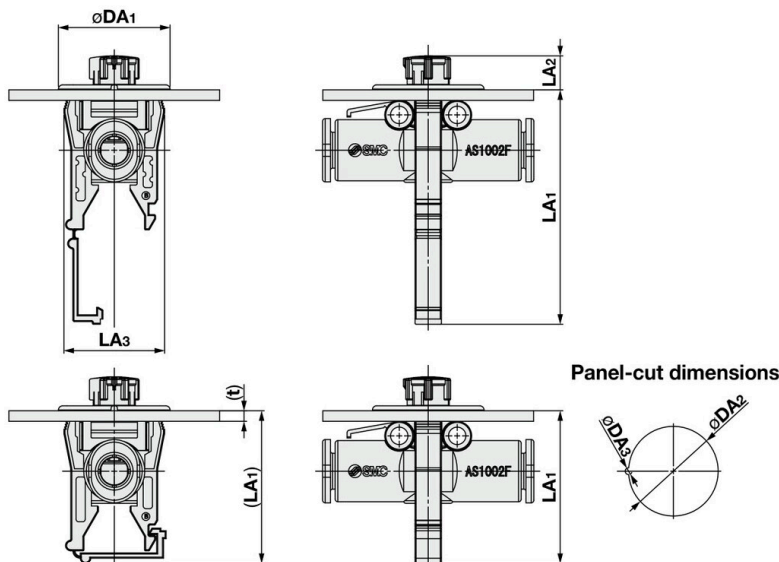
\*1 Reference dimensions



# AS Series

## Dimensions: With Panel Mount Adapter

Refer to the operation manual for panel mounting instructions.



### Metric Size

[mm]

Model	Applicable tubing O.D. $\phi d$	$LA1^{*1}$		$LA2^{*1}$		$LA3^{*2}$	$\phi DA1$	Panel-cut dimensions		Applicable panel thickness $t$	Weight [g]
		Max.	Min.	Max.	Min.			$\phi DA2^{*3}$ (+0.1/0)	$\phi DA3^{*3}$ (+0.1/0)		
AS1002F(G)-23A-3	3.2	44.5	29.0	7.6	6.5	19.1	$\phi 21.2$	$\phi 17.5$	$\phi 2$	1 to 2	5.1
AS1002F(G)-04A-3	4	44.5	29.0	7.6	6.5	19.1	$\phi 21.2$	$\phi 17.5$	$\phi 2$		5.4
AS1002F(G)-06A-3	6	44.5	29.0	7.6	6.5	19.1	$\phi 21.2$	$\phi 17.5$	$\phi 2$		6.3
AS2002F(G)-04A-3	4	53.3	35.2	8.7	7.3	22.1	$\phi 24.2$	$\phi 20.5$	$\phi 2$	1 to 3.5	7.9
AS2002F(G)-06A-3	6	53.3	35.2	8.7	7.3	22.1	$\phi 24.2$	$\phi 20.5$	$\phi 2$		8.7
AS2052F(G)-06A-3	6	59.2	39.6	10.1	8.5	24.1	$\phi 26.7$	$\phi 22.5$	$\phi 2.5$		14.5
AS2052F(G)-08A-3	8	59.2	39.6	10.1	8.5	24.1	$\phi 26.7$	$\phi 22.5$	$\phi 2.5$		16.5
AS3002F(G)-06A-3	6	67.0	44.2	11.3	9.7	28.1	$\phi 31.2$	$\phi 26$	$\phi 3$		22.2
AS3002F(G)-08A-3	8	67.0	44.2	11.3	9.7	28.1	$\phi 31.2$	$\phi 26$	$\phi 3$		24.1
AS3002F(G)-10A-3	10	67.0	44.2	11.3	9.7	28.1	$\phi 31.2$	$\phi 26$	$\phi 3$		28.9
AS3002F(G)-12A-3	12	67.0	44.2	11.3	9.7	28.1	$\phi 31.2$	$\phi 26$	$\phi 3$		33.2
AS4002F(G)-10A-3	10	74.1	48.5	13.0	11.4	34.1	$\phi 39.2$	$\phi 32.5$	$\phi 5$		42.5
AS4002F(G)-12A-3	12	74.1	48.5	13.0	11.4	34.1	$\phi 39.2$	$\phi 32.5$	$\phi 5$		48.2

\*1 Reference dimensions

\*2 Max. dimension before panel mounting

\*3 Be sure to check the following dimensional tolerances or the "Specific Product Precautions" page before cutting the panel.  $\phi DA2$  [+0.1/0]  $\phi DA3$  [+0.1/0]  
In addition, the center position of  $\phi DA3$  is on the circumference of  $\phi DA2$ .

\* Refer to the speed controller dimensions on page 6 for the dimensions of speed controllers not listed in this table.

### Inch Size

[mm]

Model	Applicable tubing O.D. $\phi d$	$LA1^{*1}$		$LA2^{*1}$		$LA3^{*2}$	$\phi DA1$	Panel-cut dimensions		Applicable panel thickness $t$	Weight [g]
		Max.	Min.	Max.	Min.			$\phi DA2^{*3}$ (+0.1/0)	$\phi DA3^{*3}$ (+0.1/0)		
AS1002F(G)-01A-3	1/8"	44.5	29.0	7.6	6.5	19.1	$\phi 21.2$	$\phi 17.5$	$\phi 2$	1 to 2	5.1
AS1002F(G)-03A-3	5/32"	44.5	29.0	7.6	6.5	19.1	$\phi 21.2$	$\phi 17.5$	$\phi 2$		5.4
AS1002F(G)-07A-3	1/4"	44.5	29.0	7.6	6.5	19.1	$\phi 21.2$	$\phi 17.5$	$\phi 2$		6.5
AS2002F(G)-03A-3	5/32"	53.3	35.2	8.7	7.3	22.1	$\phi 24.2$	$\phi 20.5$	$\phi 2$	1 to 3.5	7.9
AS2002F(G)-07A-3	1/4"	53.3	35.2	8.7	7.3	22.1	$\phi 24.2$	$\phi 20.5$	$\phi 2$		8.9
AS2052F(G)-07A-3	1/4"	59.2	39.6	10.1	8.5	24.1	$\phi 26.7$	$\phi 22.5$	$\phi 2.5$		14.8
AS2052F(G)-09A-3	5/16"	59.2	39.6	10.1	8.5	24.1	$\phi 26.7$	$\phi 22.5$	$\phi 2.5$		16.5
AS3002F(G)-07A-3	1/4"	67.0	44.2	11.3	9.7	28.1	$\phi 31.2$	$\phi 26$	$\phi 3$		22.0
AS3002F(G)-09A-3	5/16"	67.0	44.2	11.3	9.7	28.1	$\phi 31.2$	$\phi 26$	$\phi 3$		24.1
AS3002F(G)-11A-3	3/8"	67.0	44.2	11.3	9.7	28.1	$\phi 31.2$	$\phi 26$	$\phi 3$		29.1
AS4002F(G)-11A-3	3/8"	74.1	48.5	13.0	11.4	34.1	$\phi 39.2$	$\phi 32.5$	$\phi 5$		42.9
AS4002F(G)-13A-3	1/2"	74.1	48.5	13.0	11.4	34.1	$\phi 39.2$	$\phi 32.5$	$\phi 5$		46.6

\*1 Reference dimensions

\*2 Max. dimension before panel mounting

\*3 Be sure to check the following dimensional tolerances or the "Specific Product Precautions" page before cutting the panel.  $\phi DA2$  [+0.1/0]  $\phi DA3$  [+0.1/0]  
In addition, the center position of  $\phi DA3$  is on the circumference of  $\phi DA2$ .

\* Refer to the speed controller dimensions on page 6 for the dimensions of speed controllers not listed in this table.

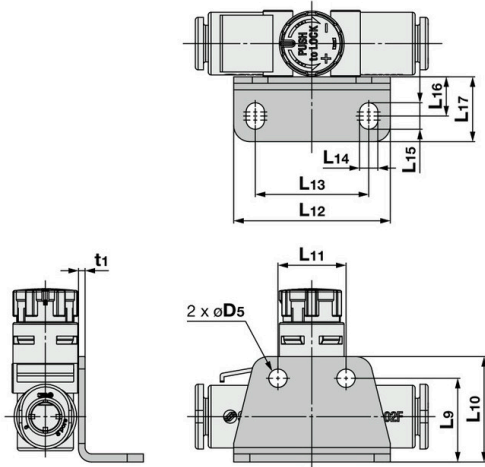




Speed Controller with One-touch Fittings  
In-line Type **AS Series**

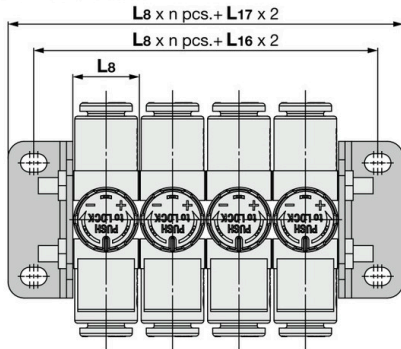
**Dimensions**

**L-Bracket**  
Bracket on a single side



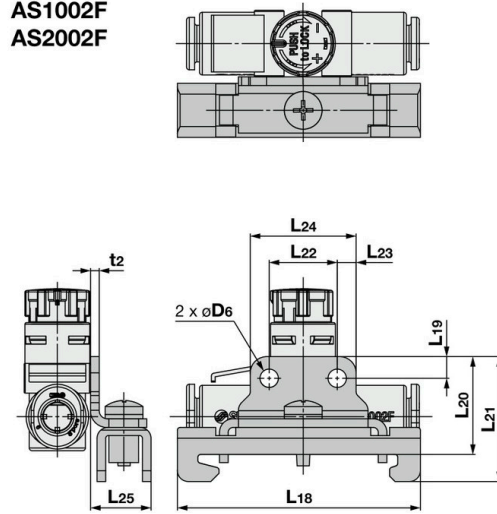
Part no.	Applicable model	D5	L9	L10	L11	L12	L13	L14	L15	L16	L17	t1
AS-10L	AS1002F	3.4	14.8	18.3	11	27.5	19.5	3.4	4.9	7.3	12	1
AS-20L	AS2002F		15.6	19.6	12.6	29	21					
AS-25L	AS2052F	4.5	19.6	24.6	17	38	28	4.5	6.5	9.5	15.5	1.2
AS-30L	AS3002F		24.8	29.8	22	43	33					
AS-40L	AS4002F	25.7	30.7	28	49	39						1.4

**Brackets on both sides**

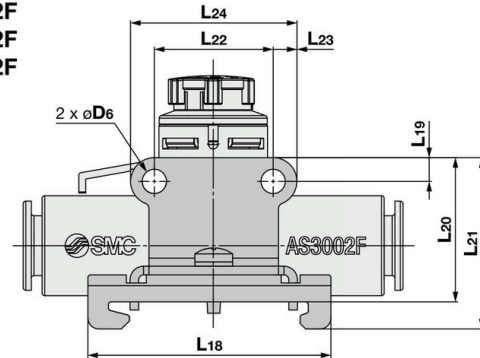


- \* Refer to page 6 for Ls.
- \* The figure above shows the manifold with speed controllers connected using two L-brackets and a threaded stud kit for manifold. Refer to page 4 for threaded stud kits for manifold.

**DIN Rail Mounting Bracket**  
Bracket on a single side

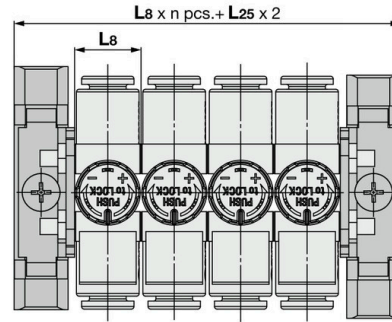


**AS2052F**  
**AS3002F**  
**AS4002F**



Part no.	Applicable model	D6	L18	L19	L20	L21	L22	L23	L24	L25	t2
AS-10D	AS1002F	3.4		3.5	18.2	23.2	11	3.5	18		
AS-20D	AS2002F				18.6	23.6	12.6				
AS-25D	AS2052F	4.5		4.4	22	27	17	4.4	25.8	11.3	1.6
AS-30D	AS3002F				27.2	32.2	22				
AS-40D	AS4002F	28.1	33.1	28	36.8						

**Brackets on both sides**

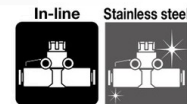


- \* Refer to page 6 for Ls.
- \* The figure above shows the manifold with speed controllers connected using two DIN rail mounting brackets and a threaded stud kit for manifold. Refer to page 4 for threaded stud kits for manifold.





# Speed Controller with One-touch Fittings 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"	1/4"	5/16"	3/8"	1/2"	
AS1002FG	●	●	●				●	●	●				
AS2002FG		●	●					●	●				
AS2052FG			●	●					●	●			
AS3002FG			●	●	●	●			●	●	●		
AS4002FG					●	●					●	●	

## Specifications

Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure	1 MPa
Min. operating pressure	0.1 MPa
Ambient and fluid temperatures	-5 to 60°C (No freezing)
Applicable tubing material	Nylon, Soft nylon, Polyurethane*1, FEP, PFA

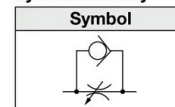
\*1 Use caution at the max. operating pressure when using soft nylon or polyurethane tubing. (Refer to the **Web Catalog** for details.)

## Flow Rate and Sonic Conductance

Model	Metric size	AS1002FG-□A			AS2002FG-□A		AS2052FG-□A		AS3002FG-□A				AS4002FG-□A	
		ø3.2	ø4	ø6	ø4	ø6	ø6	ø8	ø6	ø8	ø10	ø12	ø10	ø12
C values: Sonic conductance dm <sup>3</sup> /(s·bar)	Free flow	0.3	0.4	0.6	0.4	0.6	1.0	1.2	1.1	1.6	2.2	2.6	2.4	3.5
	Controlled flow	0.3			0.4	0.6	1.0	1.2	1.3	1.9	2.7	3.3	2.8	4.1
b values: Critical pressure ratio	Free flow	0.3	0.2		0.3	0.1	0.2		0.2				0.3	0.2
	Controlled flow	0.2	0.3	0.4	0.2		0.2	0.3	0.1		0.2		0.1	0.2

\* C and b values are for controlled flow with the needle fully open and free flow with the needle fully closed.

Flow Direction Symbol on Body



## How to Order

AS **200** 2 FG - **06** A -   

Body size ●

100	M5 standard
200	1/8 standard
205	1/4 standard
300	3/8 standard
400	1/2 standard

With One-touch fittings ●

Stainless steel type (Stainless steel 303) ●

- \* The material can be visually identified by color of the release button.
- Stainless steel type: White
- \* White is also used for inch size.

Push-lock type ●

Applicable tubing O.D.\*1

Metric size		Inch size	
23	ø3.2*2	01	ø1/8"
04	ø4	03	ø5/32"
06	ø6	07	ø1/4"
08	ø8	09	ø5/16"
10	ø10	11	ø3/8"
12	ø12	13	ø1/2"

\*1 For selecting applicable tubing O.D., refer to the "Model" shown above.

\*2 Use ø1/8" tubing.

## Made to Order



Lubricant: Vaseline **-X12**

Example) AS2002FG-06A-X12

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

Example) AS2002FG-06A-X21

\* Not particle-free

Restrictor (Without check valve) **-X214**

Example) AS2002FG-06A-X214

Clean Series **10-**

Example) 10-AS2002FG-06A

\*1 Fluorine grease is used.

\*2 The cleanliness class (ISO class) is 5.

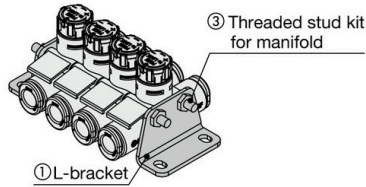


Speed Controller with One-touch Fittings Stainless Steel Series **AS-FG Series**  
In-line Type

**Options**

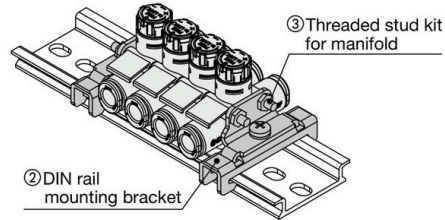
① L-Bracket

Part no.	Applicable model
AS-10L	AS1002FG
AS-20L	AS2002FG
AS-25L	AS2052FG
AS-30L	AS3002FG
AS-40L	AS4002FG



② DIN Rail Mounting Bracket

Part no.	Applicable model
AS-10D	AS1002FG
AS-20D	AS2002FG
AS-25D	AS2052FG
AS-30D	AS3002FG
AS-40D	AS4002FG



\* The DIN rail needs to be prepared by the customer.

③ Threaded Stud Kit for Manifold: Metric Size

Part number				Applicable model
4 stations	6 stations	8 stations	10 stations	
AS-32B	AS-33B	AS-35B	AS-36B	AS1002FG-23A
	AS-34B	AS-36B	AS-37B	AS1002FG-04A
			AS-38B	AS1002FG-06A
AS-32B	AS-34B	AS-36B	AS-37B	AS2002FG-04A
			AS-38B	AS2002FG-06A
			AS-38B	—
AS-41B	AS-42B	AS-44B	AS-45B	AS2052FG-06A
			AS-45B	—
			AS-45B	AS2052FG-08A
AS-42B	AS-44B	AS-45B	AS-47B	AS3002FG-06A
				AS3002FG-08A
				AS3002FG-10A
				AS3002FG-12A
				AS4002FG-10A
AS-43B	AS-45B	AS-47B	AS-48B	AS4002FG-10A
				AS4002FG-12A
				—

Details of Threaded Stud Kit for Manifold

Threaded stud			Accessories			
Part no.	Length	Quantity	Hexagon nut	Quantity	Flat washer	Quantity
AS-32B	62	2	M3	4	M3	4
AS-33B	72	2				
AS-34B	90	2				
AS-35B	104	2				
AS-36B	114	2				
AS-37B	135	2				
AS-38B	140	2	M4	4	M4	4
AS-41B	78	2				
AS-42B	111	2				
AS-43B	119	2				
AS-44B	147	2				
AS-45B	179	2				
AS-46B	191	2				
AS-47B	236	2				
AS-48B	277	2				

③ Threaded Stud Kit for Manifold: Inch Size

Part number				Applicable model
4 stations	6 stations	8 stations	10 stations	
AS-32B	AS-33B	AS-35B	AS-36B	AS1002FG-01A
	AS-34B	AS-36B	AS-37B	AS1002FG-03A
			AS-38B	—
AS-32B	AS-34B	AS-36B	AS-37B	AS1002FG-07A
			AS-38B	AS2002FG-03A
			AS-38B	AS2002FG-07A
AS-41B	AS-42B	AS-44B	AS-45B	AS2052FG-07A
			AS-45B	AS2052FG-09A
			AS-45B	—
AS-42B	AS-44B	AS-45B	AS-47B	AS3002FG-07A
				AS3002FG-09A
				AS3002FG-11A
				AS3002FG-13A
				AS4002FG-11A
AS-43B	AS-45B	AS-47B	AS-48B	AS4002FG-11A
				AS4002FG-13A
				—

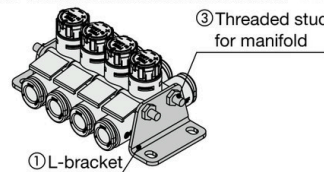
Ordering Example

Threaded studs for manifold are not included when L-bracket and DIN rail mounting bracket are ordered. Please order them according to the number of stations.

Ex.) AS2002FG-04A

When connecting 4 pcs. and mounting L-brackets on both sides

- Speed controller  
AS2002FG-04A ..... 4 pcs.
- L-bracket  
AS-20L ..... 2 pcs.
- Threaded stud kit for manifold  
AS-32B ..... 1 set





# AS-FG Series

## Options

### ④ Panel Mount Adapter

Panel mount adapter model: Refer to the tables below.  
Metric Size Table

Applicable series	Applicable tubing O.D.					
	23 ø3.2	04 ø4	06 ø6	08 ø8	10 ø10	12 ø12
AS1002FG-□A	PMA-1002-A	PMA-1002-B	—	—	—	—
AS2002FG-□A	—	PMA-2002		—	—	—
AS2052FG-□A	—	—	PMA-2052		—	—
AS3002FG-□A	—	—	PMA-3002			—
AS4002FG-□A	—	—	—	—	PMA-4002	

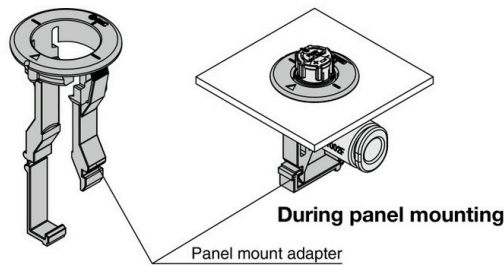
\* For the AS1002FG, the part number varies depending on the applicable tubing O.D.

### ④ Panel Mount Adapter

Panel mount adapter model: Refer to the tables below.  
Inch Size Table

Applicable series	Applicable tubing O.D.					
	01 ø1/8"	03 ø5/32"	07 ø1/4"	09 ø5/16"	11 ø3/8"	13 ø1/2"
AS1002FG-□A	PMA-1002-A	PMA-1002-B	—	—	—	—
AS2002FG-□A	—	PMA-2002		—	—	—
AS2052FG-□A	—	—	PMA-2052		—	—
AS3002FG-□A	—	—	PMA-3002			—
AS4002FG-□A	—	—	—	—	PMA-4002	

\* For the AS1002FG, the part number varies depending on the applicable tubing O.D.

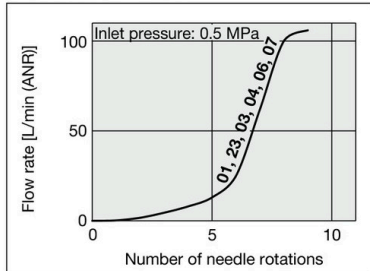


The dimensions when the panel mount adapter is mounted to the speed controller are the same as those of the standard AS□□□2F-□A-3 (brass type).

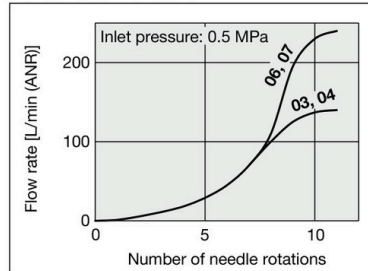
## Needle Valve: Flow Rate Characteristics

\* The flow rate characteristics are representative values.

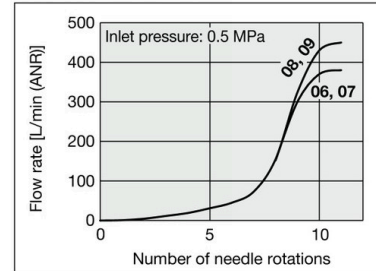
### AS1002FG-□A



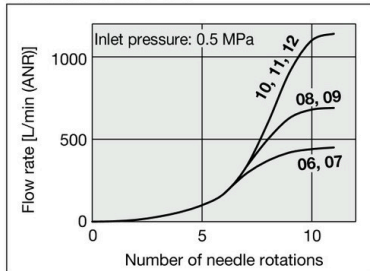
### AS2002FG-□A



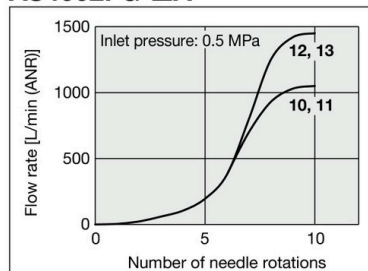
### AS2052FG-□A



### AS3002FG-□A



### AS4002FG-□A



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

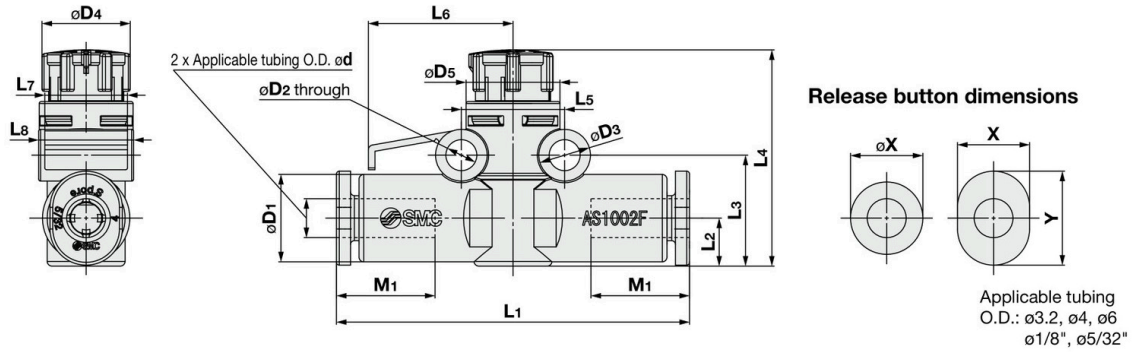
Refer to the operation manual for the construction.





Speed Controller with One-touch Fittings Stainless Steel Series **AS-FG Series**  
In-line Type

**Dimensions**



**Metric Size**

Model	Applicable tubing O.D.ød	øD1	Release button		øD2	øD3	øD4	øD5	L1	L2	L3	L4*1		L5	L6	L7	L8	M1	Weight [g]
			øX(X)	Y								Max.	Min.						
AS1002FG-23A	3.2	8.4	6.7	9.5					36.6	5.1	11.8	24.1	23				10.1	13.5	3.7
AS1002FG-04A	4	9.3	7.7	10	3.3	5.5	9.4	10	37.6					11	15.4	8.8	10.1	13	4
AS1002FG-06A	6	11.6	9.7	12					40.1	6.1	12.8	25.1	24				12.3	13	5
AS2002FG-04A	4	9.3	7.7	10	3.3	5.5	12	12	41.3	6.3	13.4	31.4	30	12.6	17	10.5	12.3	13	6.1
AS2002FG-06A	6	11.6	9.7	12					43.1										6.9
AS2052FG-06A	6	12.8	11.5	—	4.3	7.8	13	16	54.2	7.6	17.2	36.2	34.6	17	22.5	12	16.1	17	11.8
AS2052FG-08A	8	15.2	13.5	—					57.2	8.5	18.1	37.1	35.5				19	19	13.8
AS3002FG-06A	6	13.2	11.5	—					60									17	18.1
AS3002FG-08A	8	15.2	13.5	—	4.5	8	16.6	20	65	9.8	21.7	42.9	41.3	21.8	25	12	20.5	19	20
AS3002FG-10A	10	18.5	16.5	—					70.4									21	24.8
AS3002FG-12A	12	20.9	18.5	—					76	10.9	22.8	44	42.4				22.1	22	29.1
AS4002FG-10A	10	18.5	16.5	—	4.3	8	18.8	26	76.9	11.3	23.7	51.3	49.7	28	33	14	26.2	21	36.3
AS4002FG-12A	12	21.7	18.5	—					81.3									22	42

\*1 Reference dimensions

**Inch Size**

Model	Applicable tubing O.D.ød	øD1	Release button		øD2	øD3	øD4	øD5	L1	L2	L3	L4*1		L5	L6	L7	L8	M1	Weight [g]
			øX(X)	Y								Max.	Min.						
AS1002FG-01A	1/8"	8.4	6.7	9.5					36.6	5.1	11.8	24.1	23				10.1	13.5	3.7
AS1002FG-03A	5/32"	9.3	7.7	10	3.3	5.5	9.4	10	37.6					11	15.4	8.8	10.1	13	4
AS1002FG-07A	1/4"	12	10.9	—					40.1	6.2	12.9	25.2	24.1				12.8	13.5	5.2
AS2002FG-03A	5/32"	9.3	7.7	10	3.3	5.5	12	12	41.3	6.3	13.4	31.4	30	12.6	17	10.5	12.3	13	6.1
AS2002FG-07A	1/4"	12	10.9	—					43.2	6.5	13.6	31.6	30.2				12.8	13.5	7.1
AS2052FG-07A	1/4"	13.2	12	—	4.3	7.8	13	16	53.4	7.6	17.2	36.2	34.6	17	22.5	12	16.1	17	12.1
AS2052FG-09A	5/16"	15.2	13.5	—					57.2	8.5	18.1	37.1	35.5				19	19	13.8
AS3002FG-07A	1/4"	13.2	12	—					59									17	17.9
AS3002FG-09A	5/16"	15.2	13.5	—	4.5	8	16.6	20	65	9.8	21.7	42.9	41.3	21.8	25	12	20.5	19	20
AS3002FG-11A	3/8"	18.5	16	—					69.8									21	25
AS4002FG-11A	3/8"	18.5	16	—	4.3	8	18.8	26	76.9	11.3	23.7	51.3	49.7	28	33	14	26.2	21	36.7
AS4002FG-13A	1/2"	21.7	20	—					81.3									22	40.4

\*1 Reference dimensions



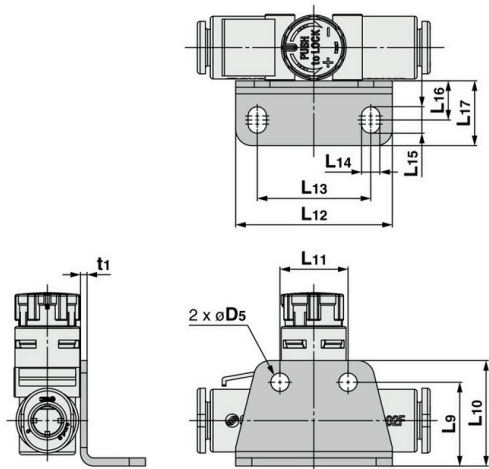


# AS-FG Series

## Dimensions

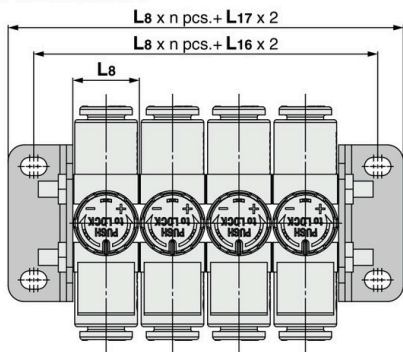
### L-Bracket

Bracket on a single side



Part no.	Applicable model	D5	L9	L10	L11	L12	L13	L14	L15	L16	L17	t1
AS-10L	AS1002FG	3.4	14.8	18.3	11	27.5	19.5					1
AS-20L	AS2002FG		15.6	19.6	12.6	29	21	3.4	4.9	7.3	12	1.2
AS-25L	AS2052FG		19.6	24.6	17	38	28					
AS-30L	AS3002FG	4.5	24.8	29.8	22	43	33	4.5	6.5	9.5	15.5	1.4
AS-40L	AS4002FG		25.7	30.7	28	49	39					

### Brackets on both sides

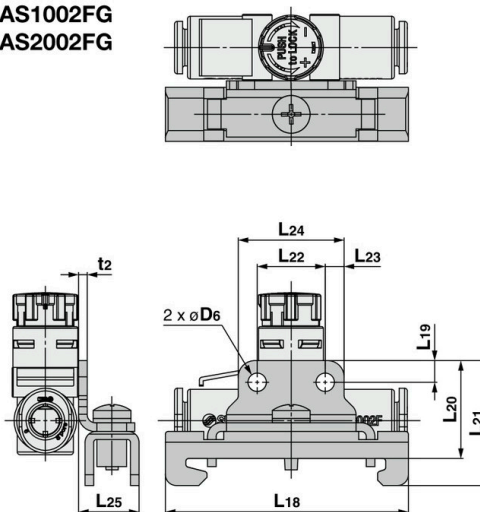


- \* Refer to page 12 for L8.
- \* The figure above shows the manifold with speed controllers connected using two L-brackets and a threaded stud kit for manifold. Refer to page 10 for threaded stud kits for manifold.

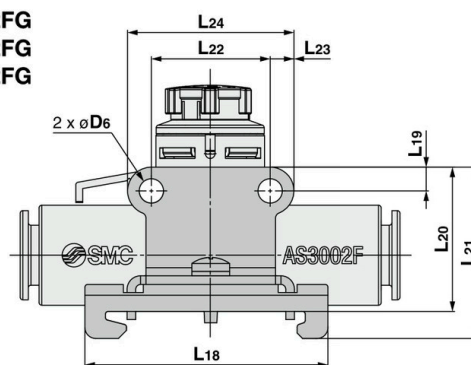
### DIN Rail Mounting Bracket

Bracket on a single side

AS1002FG  
AS2002FG

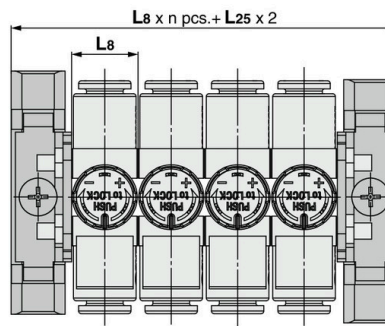


AS2052FG  
AS3002FG  
AS4002FG



Part no.	Applicable model	D6	L18	L19	L20	L21	L22	L23	L24	L25	t2
AS-10D	AS1002FG	3.4		3.5	18.2	23.2	11		18		
AS-20D	AS2002FG				18.6	23.6	12.6	3.5	19.6		
AS-25D	AS2052FG		45		22	27	17		25.8	11.3	1.6
AS-30D	AS3002FG	4.5		4.4	27.2	32.2	22	4.4	30.8		
AS-40D	AS4002FG				28.1	33.1	28		36.8		

### Brackets on both sides



- \* Refer to page 12 for L8.
- \* The figure above shows the manifold with speed controllers connected using two DIN rail mounting brackets and a threaded stud kit for manifold. Refer to page 10 for threaded stud kits for manifold.



## Related Equipment

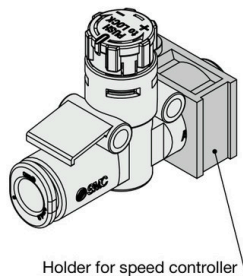
# Holder for Speed Controller TMH Series

A holder for securing a speed controller with One-touch fittings (In-line type)

Possible to hold a single controller



### Holder mounting



### Specifications

Ambient temperature	-20 to 60°C
Material	Polypropylene
Color	White

Accessory: Cross Recessed Round Head Screw for Mounting (Zinc chromated)

Part no.		Size (Nominal x Length)	Quantity
Metric size	Inch size		
<b>TMH-23J</b>	<b>TMH-01J</b>	M3 x 15	1
<b>TMH-04J</b>	<b>TMH-03J</b>		
<b>TMH-06J</b>	<b>TMH-07J</b>	M3 x 20	
<b>TMH-06</b>	<b>TMH-07</b>	M4 x 25	
<b>TMH-08</b>	<b>TMH-09</b>		
<b>TMH-10</b>	—	M4 x 35	
<b>TMH-12</b>	<b>TMH-13</b>		

### Series

Select the applicable holder/TMH for each speed controller from the table below.

#### Metric Size

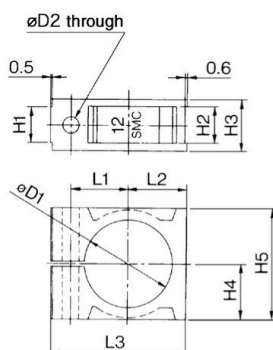
Applicable model	Applicable tubing					
	23 ø3.2	04 ø4	06 ø6	08 ø8	10 ø10	12 ø12
AS1002F(G)	<b>TMH-23J</b>	<b>TMH-04J</b>	<b>TMH-06J</b>			
AS2002F(G)						
AS2052F(G)			<b>TMH-06</b>	<b>TMH-08</b>		
AS3002F(G)			<b>TMH-07</b>			
AS4002F(G)					<b>TMH-10</b>	<b>TMH-12</b> <b>TMH-13</b>

\* The applicable TMH for the AS1002F(G)-02 is not available.

#### Inch Size

Applicable model	Applicable tubing					
	01 ø1/8"	03 ø5/32"	07 ø1/4"	09 ø5/16"	11 ø3/8"	13 ø1/2"
AS1002F(G)	<b>TMH-01J</b>	<b>TMH-03J</b>	<b>TMH-07J</b>			
AS2002F(G)						
AS2052F(G)			<b>TMH-07</b>	<b>TMH-09</b>		
AS3002F(G)						<b>TMH-10</b>
AS4002F(G)						<b>TMH-13</b>

### Dimensions



Part no.		øD1	øD2	H1	H2	H3	H4	H5	L1	L2	L3	Symbol
Metric size	Inch size											
<b>TMH-23J</b>	<b>TMH-01J</b>	8.5	3.3	4.5	4.6	7.5	6	12	7.2	6.6	18	1/8J
<b>TMH-04J</b>	<b>TMH-03J</b>	9.4										4 5/32J
<b>TMH-06J</b>	—	11.7	3.3	6.3	6.4	9.3	7.7	15.4	8.5	8.3	21	6J
—	<b>TMH-07J</b>	12.1										1/4J
<b>TMH-06</b>	—	13.1										6
—	<b>TMH-07</b>	13.5	4.3	7.1	7.2	11.1	10	20	11	10.6	26.5	1/4
<b>TMH-08</b>	<b>TMH-09</b>	15.5										8 5/16
<b>TMH-10</b>	—	18.8										10
<b>TMH-12</b>	—	21.2	4.3	9.5	9.6	13.5	14	28	14.2	14.6	34	12
—	<b>TMH-13</b>	22										1/2



**⚠ Safety Instructions**

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “**Caution**,” “**Warning**” or “**Danger**.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)\*1), and other safety regulations.

- ⚠ Danger :** **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
- ⚠ Warning:** **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
- ⚠ Caution:** **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

\*1) ISO 4414: Pneumatic fluid power - General rules and safety requirements for systems and their components  
 ISO 4413: Hydraulic fluid power - General rules and safety requirements for systems and their components  
 IEC 60204-1: Safety of machinery - Electrical equipment of machines - Part 1: General requirements  
 ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots etc.

**⚠ Warning**

- The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.**  
 Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.
- Only personnel with appropriate training should operate machinery and equipment.**  
 The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.
- Do not service or attempt to remove product and machinery/equipment until safety is confirmed.**
  - The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
  - When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
  - Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.
- Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not covered.**
  - Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
  - Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogs and operation manuals.
  - Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

**⚠ Caution**

**We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.**  
**Use in non-manufacturing industries is not covered.**  
 Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.  
 The new Measurement Act prohibits use of any unit other than SI units in Japan.

**Limited warranty and Disclaimer/ Compliance Requirements**  
 The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.  
 Read and accept them before using the product.

**Limited warranty and Disclaimer**

- The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.\*2)  
 Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
- For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
- Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.  
 \*2) **Vacuum pads are excluded from this 1 year warranty.**  
 A vacuum pad is a consumable part, so it is warranted for a year after it is delivered. Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

**Compliance Requirements**

- The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
- The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Revision History	
<b>Edition B</b>	* “Made to Order” section has been added. * Errors in text have been corrected. <span style="float: right;">WQ</span>
<b>Edition C</b>	* A panel mount type has been added. * The number of pages has been increased from 12 to 16.

**⚠ Safety Instructions** Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.

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Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.

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