

Speed Controller with Indicator (In-line Type)

10-AS-FS Series



RoHS

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"
10-AS1002FS□	●	●	●				●					
10-AS2002FS□		●	●					●	●			
10-AS2052FS□			●	●					●	●		
10-AS3002FS□				●	●					●	●	
10-AS4002FS□					●	●					●	●

Specifications

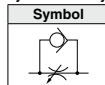
Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure	1 MPa
Min. operating pressure	0.1 MPa
Ambient and fluid temperatures	-5 to 60°C (No freezing)
Applicable tubing material	Nylon, Soft nylon, Polyurethane ^{*1} , FEP, PFA
Grease	Fluorine grease
Cleanliness class (ISO class)	Class 5

*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		10-AS1002FS□	10-AS2002FS□	10-AS2052FS□	10-AS3002FS□	10-AS4002FS□								
Tubing O.D.	Metric size	ø3.2	ø4	ø6	ø6	ø8	ø6	ø8	ø10	ø12	ø10	ø12		
	Inch size	ø1/8"	ø5/32"	ø1/4"	ø5/32"	ø1/4"	ø1/4"	ø5/16"	ø1/4"	ø5/16"	ø3/8"	—	ø3/8"	ø1/2"
C values: Sonic conductance dm ³ /(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	0.3		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 10-AS-FSG series (stainless steel type).

How to Order

10-AS 200 2 FS 1 - 06

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

With indicator

Indicator window direction

Nil	0°	Indicator window	2	90°	Index plate
		Index plate			Indicator window
1	180°	Indicator window	3	270°	Index plate
		Index plate			Indicator window

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.

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:
<http://www.smcworld.com>

Options

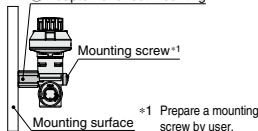
① Adapter for Direct Mounting

* For use when the mounting surface interferes with the bonnet.

Part no.	Applicable model
AS-10A1	10-AS1002FS□
AS-20A1	10-AS2002FS□
AS-25A1	10-AS2052FS□
AS-30A1	10-AS3002FS□
AS-40A1	10-AS4002FS□

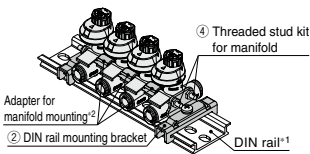
* The 10-AS4002FS□ can be mounted without the adapter.

① Adapter for direct mounting



② DIN Rail Mounting Bracket

Part no.	Applicable model
AS-10D	10-AS1002FS□
AS-20D	10-AS2002FS□
AS-25D	10-AS2052FS□
AS-30D	10-AS3002FS□
AS-40D	10-AS4002FS□

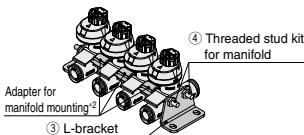


*1 Prepare DIN rail by user.

*2 It is included in the threaded stud kit for manifold (excluding the 10-AS4002FS□). Refer to the following details of the kit.

③ L-Bracket

Part no.	Applicable model
AS-10L	10-AS1002FS□
AS-20L	10-AS2002FS□
AS-25L	10-AS2052FS□
AS-30L	10-AS3002FS□
AS-40L	10-AS4002FS□



④ Threaded Stud Kit for Manifold

Part number				Applicable model	
4 stations	6 stations	8 stations	10 stations	Metric size	Inch size
AS-1AB	AS-3AB	AS-5AB	AS-7AB	10-AS1002FS□-23	10-AS1002FS□-01
				10-AS1002FS□-04	10-AS1002FS□-03
AS-2AB	AS-4AB	AS-6AB	AS-8AB AS-23AB	10-AS1002FS□-06	10-AS1002FS□-07
				10-AS2002FS□-04	10-AS2002FS□-03
AS-9AB	AS-10AB	AS-11AB	AS-12AB	10-AS2002FS□-06	10-AS2002FS□-07
				10-AS2002FS□-06	10-AS2002FS□-07
AS-13AB	AS-14AB	AS-15AB	AS-16AB	10-AS2052FS□-06	10-AS2052FS□-07
				10-AS2052FS□-08	10-AS2052FS□-09
				10-AS3002FS□-06	10-AS3002FS□-07
AS-17AB	AS-19AB	AS-20AB	AS-22AB	10-AS3002FS□-08	10-AS3002FS□-09
				10-AS3002FS□-10	10-AS3002FS□-11
				10-AS3002FS□-12	10-AS3002FS□-11
AS-24AB			AS-25AB	10-AS4002FS□-10	10-AS4002FS□-11
				10-AS4002FS□-12	10-AS4002FS□-13
AS-43B	AS-45B	AS-47B	AS-48B	10-AS4002FS□-12	10-AS4002FS□-13
				10-AS4002FS□-12	10-AS4002FS□-13

Details of Threaded Stud Kit for Manifold

Part no.	Adapter for manifold mounting		Threaded stud		Accessories				
	Part no.	Quantity	Length	Quantity	Hexagon nut	Flat washer	Quantity		
AS-1AB	AS-10A	3	72	2	M3	4	M3	4	
AS-2AB			90						
AS-3AB		5	104	2					
AS-4AB			114						
AS-5AB		7	135	2					
AS-6AB			143						
AS-7AB		9	167	2					
AS-8AB			170						
AS-23AB		AS-20A	3	90		2			
AS-9AB				135					
AS-10AB	7		180	2					
AS-11AB			220						
AS-12AB	3		111	2					
AS-13AB			147						
AS-14AB	7		191	2					
AS-15AB			236						
AS-16AB	AS-30A		3	111	2	M4	4	M4	4
AS-17AB				119					
AS-24AB		5	179	2					
AS-19AB			236						
AS-20AB		7	258	2					
AS-21AB			277						
AS-22AB		9	293	2					
AS-25AB			119						
AS-43B		—	—	179	2				
AS-45B				236					
AS-47B	277								
AS-48B	277								

* 10-AS4002FS□ type can be mounted with the threaded stud kit only (Adapter for manifold mounting is not required).

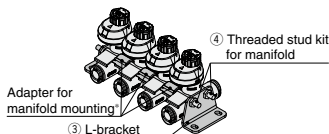
Ordering Example

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.) 10-AS2002FS-06

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

- Speed controller **10-AS2002FS-06** ... 4 pcs.
- L-bracket **AS-20L** 2 pcs.
- Threaded stud kit for manifold **AS-9AB** 1 set (Adapter for manifold mounting is included.)



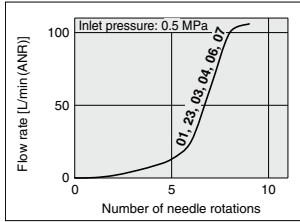
* It is included in the threaded stud kit for manifold (excluding the 10-AS4002FS□). Refer to the details of the kit shown on the left.

10-AS-FS Series

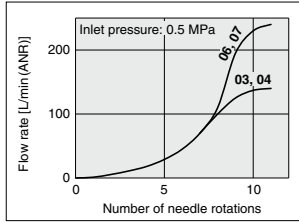
Needle Valve: Flow Rate Characteristics

* The flow rate characteristics are representative values.

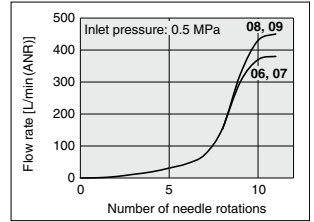
10-AS1002FS□



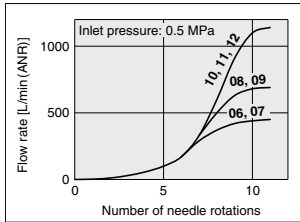
10-AS2002FS□



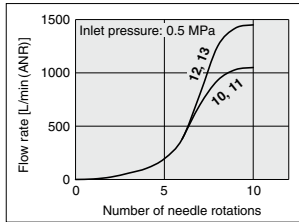
10-AS2052FS□



10-AS3002FS□

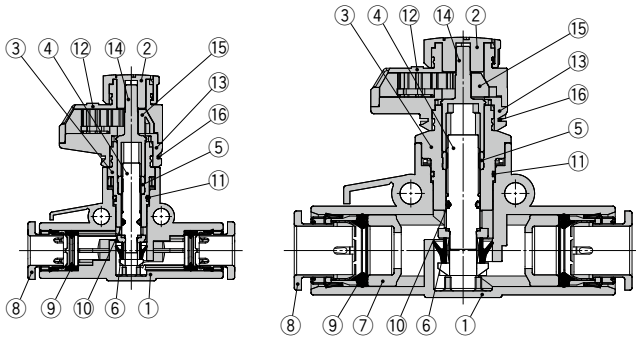


10-AS4002FS□



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

Construction

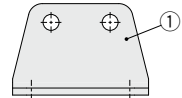


Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Knob	POM	
3	Body B	PBT	
4	Needle	PBT	
5	Needle guide	Brass	Electroless nickel plating
6	U-seal	HNBR	
7	Spacer	PBT ¹⁾	
8	Cassette	—	
9	Seal	NBR	
10	O-ring	NBR	
11	O-ring	NBR	
12	Bonnet A	POM	
13	Bonnet B	POM	
14	Gear	PPS	
15	Indicator gear	POM	
16	Clip	Stainless steel	

*1 The 10-AS3002FS□-11, 10-AS4002FS□-11, 10-AS4002FS□-13 are made of electroless nickel plated brass.

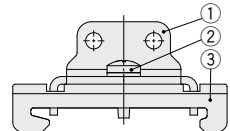
L-Bracket



Component Parts

No.	Description	Material
1	Bracket	Steel strip

DIN Rail Mounting Bracket

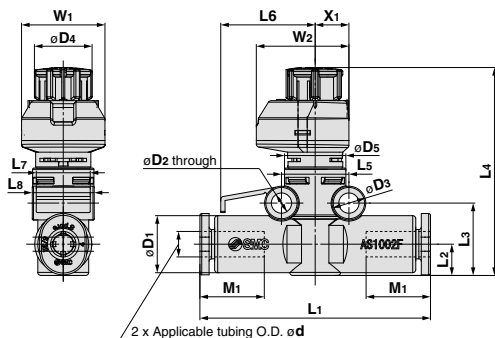


Component Parts

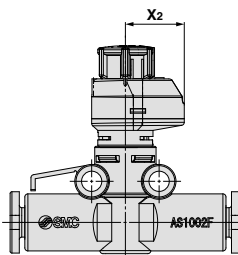
No.	Description	Material
1	Bracket	Steel strip
2	Cross recessed round head screw	Steel wire
3	Clasp	Steel strip

Dimensions

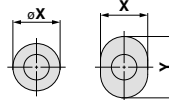
Indicator window direction: 0°



Indicator window direction: 180°



Release button dimensions



Applicable tubing
O.D.: ø3.2, ø4, ø6
ø1/8", ø5/32"

Front view

Right side view

Metric Size

Model	Applicable tubing O.D. ød	D1	Release button		D2	D3	D4	D5	L1	L2	L3	L4*1		L5	L6	L7	L8	M1	W1	W2	X1	X2	Weight [g]	
			øX(X)	Y								Max.	Min.											
10-AS1002FS□-23	3.2	8.4	6.7	9.5					36.6	5.1	11.8	36.4	33.9											5.2
10-AS1002FS□-04	4	9.3	7.7	10	3.3	5.5	9.4	10	37.6															5.5
10-AS1002FS□-06	6	11.6	9.7	12					40.1	6.1	12.8	37.4	34.9											6.6
10-AS2002FS□-04	4	9.3	7.7	10					41.3															9.5
10-AS2002FS□-06	6	11.6	9.7	12	3.3	5.5	12	12	43.1	6.3	13.4	44.5	43											10.4
10-AS2052FS□-06	6	12.8	11.5	—					54.2	7.6	17.2	49	47.6											16
10-AS2052FS□-08	8	15.2	13.5	—	4.3	7.8	13	16	57.2	8.5	18.1	49.9	48.5	17	22.5	12	16.1		21.5	24	7.8	16.2		18.4
10-AS3002FS□-06	6	13.2	11.5	—					60															23.8
10-AS3002FS□-08	8	15.2	13.5	—					65															26
10-AS3002FS□-10	10	18.5	16.5	—	4.5	8	16.6	20	70.4	9.8	21.7	55.7	54.3	21.8	25	12	20.5		24.5	28.5	9.3	19.2		30.6
10-AS3002FS□-12	12	20.9	18.5	—					76	10.9	22.8	56.8	55.4				22.1							34.2
10-AS4002FS□-10	10	18.5	16.5	—					76.9															42.5
10-AS4002FS□-12	12	21.7	18.5	—	4.3	8	18.8	26	81.3	11.3	23.7	64.3	62.7	28	33	14	26.2		26	29	10	19		47.9

*1 Reference dimensions

Inch Size

Model	Applicable tubing O.D. ød	D1	Release button		D2	D3	D4	D5	L1	L2	L3	L4*1		L5	L6	L7	L8	M1	W1	W2	X1	X2	Weight [g]	
			øX(X)	Y								Max.	Min.											
10-AS1002FS□-01	1/8"	8.4	6.7	9.5					36.6															5.2
10-AS1002FS□-03	5/32"	9.3	7.7	10	3.3	5.5	9.4	10	37.6															5.5
10-AS1002FS□-07	1/4"	12	10.9	—					40.1	6.2	12.9	37.5	35											6.7
10-AS2002FS□-03	5/32"	9.3	7.7	10					41.3	6.3	13.4	44.5	43											9.5
10-AS2002FS□-07	1/4"	12	10.9	—	3.3	5.5	12	12	43.2	6.5	13.6	44.7	43.2											10.6
10-AS2052FS□-07	1/4"	13.2	12	—					53.4	7.6	17.2	49	47.6											16.4
10-AS2052FS□-09	5/16"	15.2	13.5	—	4.3	7.8	13	16	57.2	8.5	18.1	49.9	48.5	17	22.5	12	16.1		21.5	24	7.8	16.2		18.4
10-AS3002FS□-07	1/4"	13.2	12	—					59															23.6
10-AS3002FS□-09	5/16"	15.2	13.5	—	4.5	8	16.6	20	65	9.8	21.7	55.7	54.3	21.8	25	12	20.5		24.5	28.5	9.3	19.2		26
10-AS3002FS□-11	3/8"	18.5	16	—					69.8															38.1
10-AS4002FS□-11	3/8"	18.5	16	—					76.9															50.2
10-AS4002FS□-13	1/2"	21.7	20	—	4.3	8	18.8	26	81.3	11.3	23.7	64.3	62.7	28	33	14	26.2		26	29	10	19		57.4

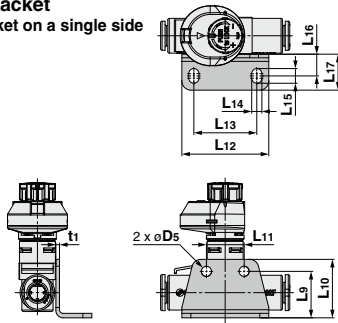
*1 Reference dimensions

10-AS-FS Series

Dimensions

L-Bracket

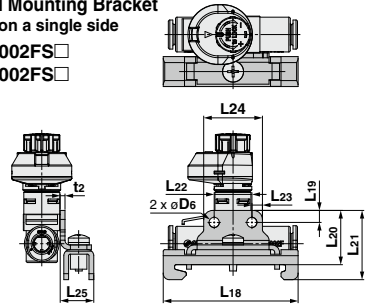
Bracket on a single side



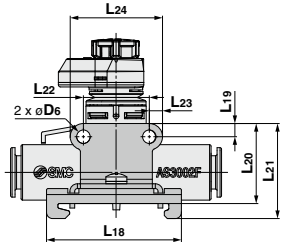
DIN Rail Mounting Bracket

Bracket on a single side

10-AS1002FS □
10-AS2002FS □



10-AS2052FS □
10-AS3002FS □
10-AS4002FS □

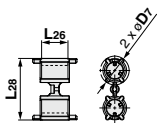


Part no.	Applicable model	D5	L9	L10	L11	L12	L13	L14	L15	L16	L17	t1
AS-10L	10-AS1002FS □	3.4	14.8	18.3	11	27.5	19.5	3.4	4.9	7.3	12	1
AS-20L	10-AS2002FS □		15.6	19.6	12.6	29	21					
AS-25L	10-AS2052FS □	4.5	19.6	24.6	17	38	28	4.5	6.5	9.5	15.5	1.4
AS-30L	10-AS3002FS □		24.8	29.8	22	43	33					
AS-40L	10-AS4002FS □	25.7	30.7	28	49	39						

Part no.	Applicable model	D6	L18	L19	L20	L21	L22	L23	L24	L25	t2
AS-10D	10-AS1002FS □	3.4	3.5	18.2	23.2	11	18	3.5	18	19.6	1.6
AS-20D	10-AS2002FS □										
AS-25D	10-AS2052FS □	4.5	4.4	22	27	17	25.8	4.4	30.8	32.1	
AS-30D	10-AS3002FS □										27.2
AS-40D	10-AS4002FS □	28.1	33.1	28	36.8						

Adapter for Manifold Mounting

Part no.: AS-□□A

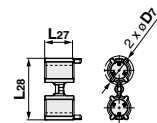


Part no.	Applicable model	D7	L26	L28
AS-10A	10-AS1002FS □	9.2	4	18.7
AS-20A	10-AS2002FS □	9.4	8.8	20.4
AS-25A	10-AS2052FS □	11.4	6.3	27
AS-30A	10-AS3002FS □	11.8	5.9	32.1

* The 10-AS4002FS □ can be mounted without the adapter.

Adapter for Direct Mounting

Part no.: AS-□□A1

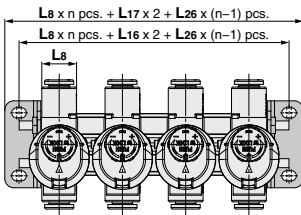


Part no.	Applicable model	D7	L27	L28
AS-10A1	10-AS1002FS □	9.2	4.5	18.7
AS-20A1	10-AS2002FS □	9.4	9.3	20.4
AS-25A1	10-AS2052FS □	11.4	7.1	27
AS-30A1	10-AS3002FS □	11.8	6.4	32.1

* The 10-AS4002FS □ can be mounted without the adapter.

L-Bracket

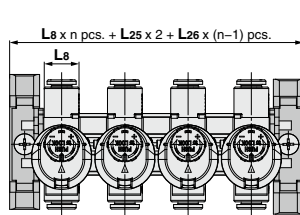
Brackets on both sides



- * Refer to page 6 for L8.
- * The figure above shows the manifold with speed controllers connected using two L-brackets, adapters and a threaded stud kit for manifold. Refer to page 4 for threaded stud kits for manifold.
- * Cannot connect the speed controller when the indicator window direction is 90° or 270°.

DIN Rail Mounting Bracket

Brackets on both sides

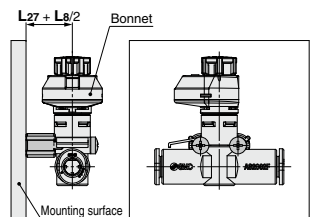


- * Refer to page 6 for L8.
- * The figure above shows the manifold with speed controllers connected using two DIN rail mounting brackets, adapters and a threaded stud kit for manifold. Refer to page 4 for threaded stud kits for manifold.
- * Cannot connect the speed controller when the indicator window direction is 90° or 270°.

Adapter

Direct mounting

* For use when the mounting surface interferes with the bonnet.



- * Refer to page 6 for L8.
- * The 10-AS4002FS can be mounted directly without the adapter.