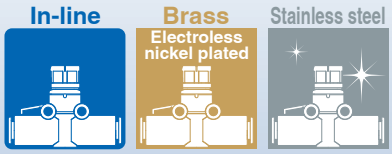
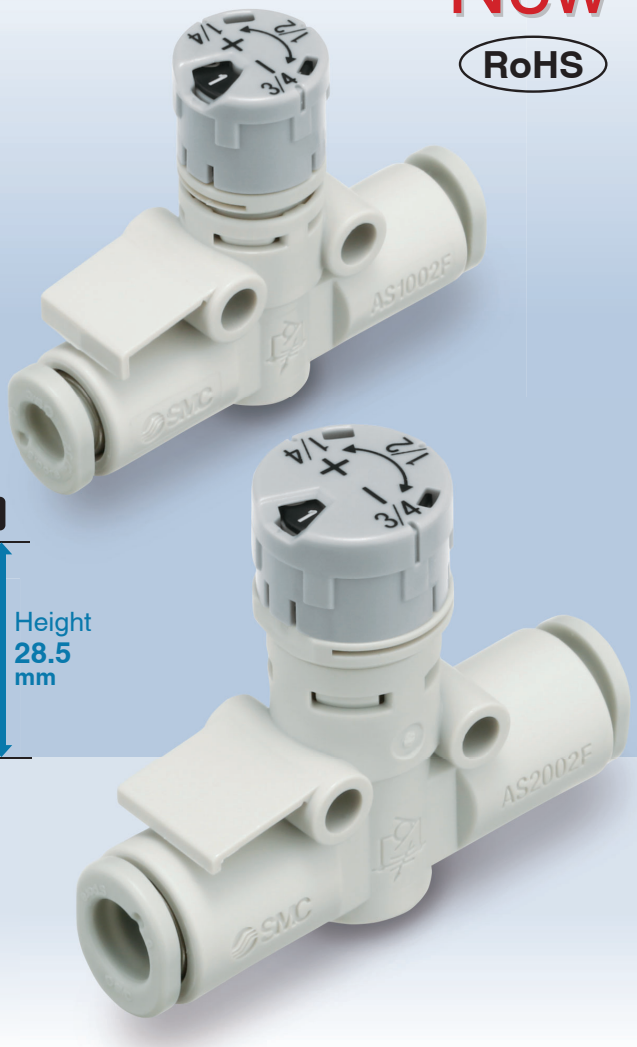
Speed Controller with Compact Indicator

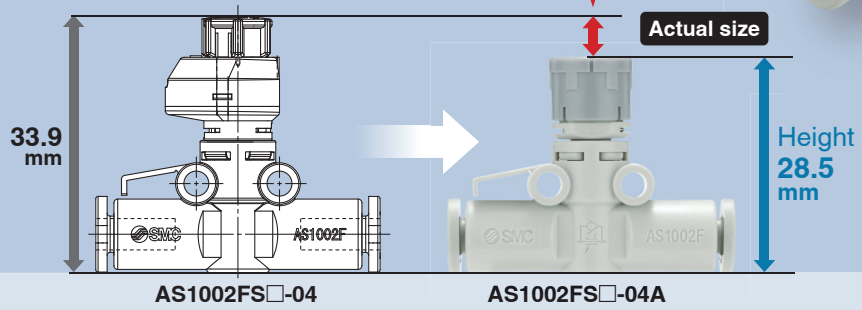
New

RoHS

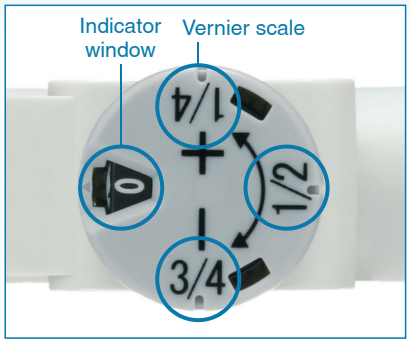




Height
Max. 5.4 mm shorter



Flow rate can be controlled numerically with the indicator window.

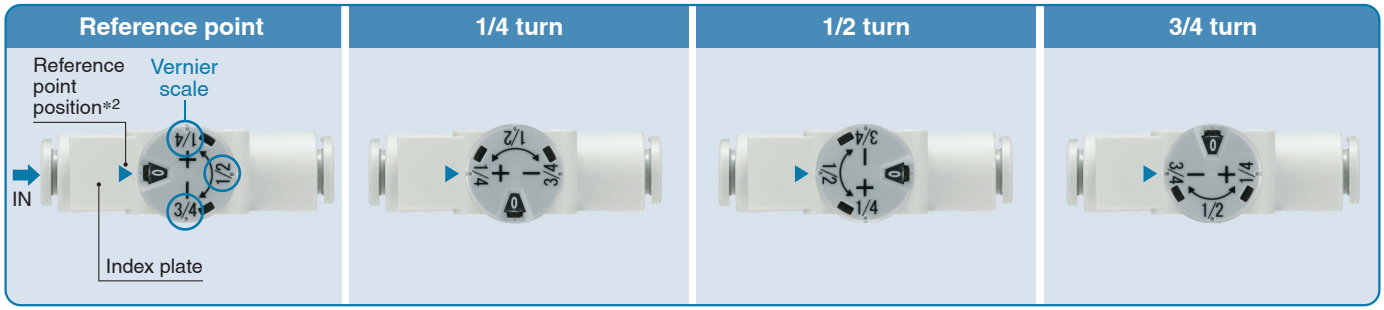


Indicator window	Vernier scale
0	1/4
	1/2
	3/4
⋮	⋮
10*1	1/4
	1/2
	3/4

*1 Body size 100 makes 8 rotations.

- Due to the vernier indication, it is possible to configure fine settings in 1/4 increments.
  - 32 divisions (body size 100)
  - 40 divisions (body size 200)
- Reduces work-hours and setting mistakes

*2 For AS2002FS size (The number of reference points differs depending on the size. For details, refer to page 9.)



AS-FSA Series

SMC

CAT.EUS20-281A-UK

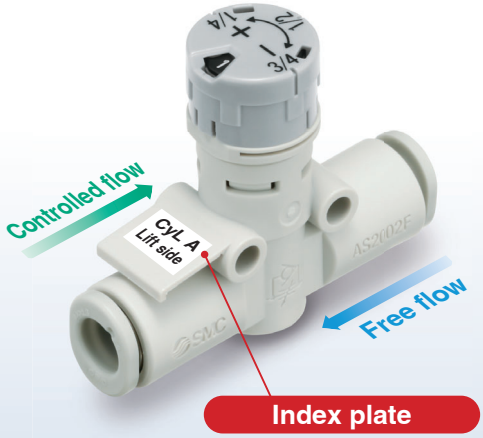
Series Variations

Model	Applicable tubing O.D.												Max. number of rotations
	Metric size						Inch size						
	3.2	4	6	8	10	12	1/8"	5/32"	1/4"	5/16"	3/8"	1/2"	
AS1002FS□A	●	●	●				●	●	●				8
AS2002FS□A		●	●					●	●				10
AS2052FS□A			●	●					●	●			
AS3002FS□A			●	●	●	●			●	●	●		
AS4002FS□A					●	●					●	●	

Easy Identification of Product Type

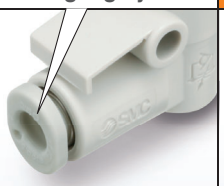
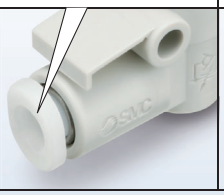
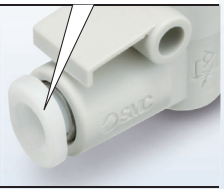
By index plate

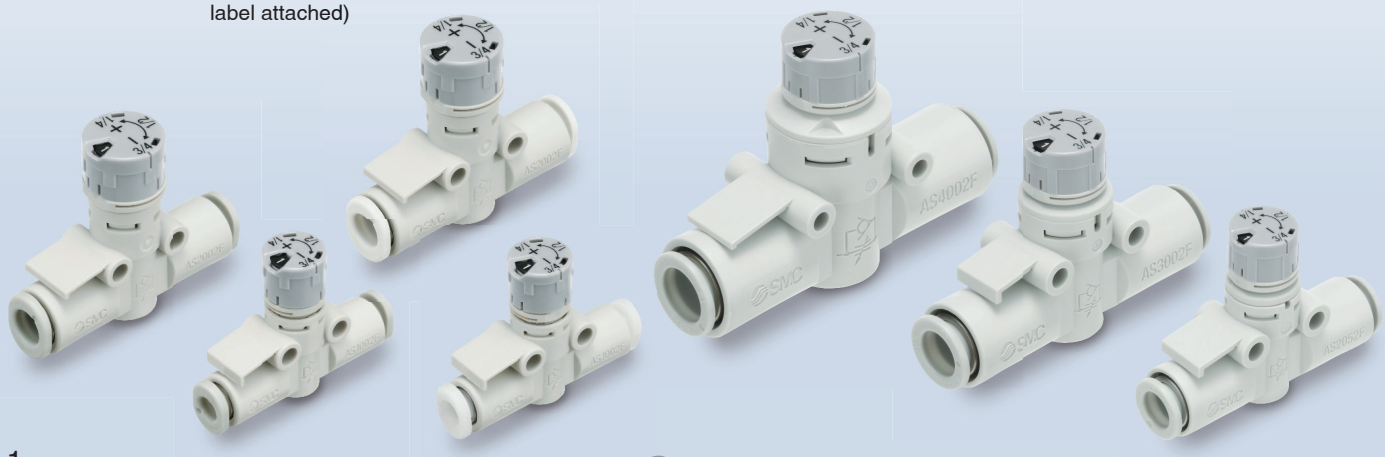
It is possible to **identify the product when multiple controllers are mounted** and **identify the flow direction** by attaching an identification label.



(Example with identification label attached)

By color

Model	Release button color	
	Metric	Inch
p. 2  **AS-FSA Series**	Light gray 	Orange 
p. 7  **AS-FSGA Series**	White 	White 



SMC

Speed Controller with Compact Indicator
In-line Type
AS-FSA Series



RoHS

In-line | Brass, Electroless nickel plated

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"
AS1002FS□A	●	●	●				●	●	●			
AS2002FS□A		●	●					●	●			
AS2052FS□A			●	●					●	●		
AS3002FS□A			●	●	●	●			●	●	●	
AS4002FS□A					●	●					●	●

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 **catalogue on https://www.smc.eu** for details.)

Flow Rate and Sonic Conductance

Model		AS1002FS□A			AS2002FS□A		AS2052FS□A		AS3002FS□A				AS4002FS□A	
Tubing O.D.	Metric size	Ø 3.2	Ø 4	Ø 6	Ø 4	Ø 6	Ø 6	Ø 8	Ø 6	Ø 8	Ø 10	Ø 12	Ø 10	Ø 12
	Inch size	Ø 1/8"	Ø 5/32"	Ø 1/4"	Ø 5/32"	Ø 1/4"	Ø 1/4"	Ø 5/16"	Ø 1/4"	Ø 5/16"	Ø 3/8"	—	Ø 3/8"	Ø 1/2"
C values: Sonic conductance dm³/(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
Q [l/min (ANR)]*1	Free flow	76	96	144	102	136	240	287	263	383	527	623	610	838
	Controlled flow	72	76	82	96	144	240	305	295	431	647	790	636	982

Flow Direction Symbol on Body

Symbol


* 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-FSG series (stainless steel type).
*1 These values have been calculated according to ISO 6358 and indicate the flow rate under standard conditions with an inlet pressure of 0.6 MPa (relative pressure) and a pressure drop of 0.1 MPa.

How to Order

AS 200 2 F S – 06 A – [ ]

- **200** — Body size
- **2** — With One-touch fittings
- **F** — With indicator
- **S** — With compact indicator
- **06** — Applicable tubing O.D.*1
- **A** — Made to Order

100	M5 standard	Index plate / Reference point position
200	1/8 standard	Index plate / Reference point position
205	1/4 standard	
300	3/8 standard	
400	1/2 standard	

Applicable tubing O.D.*1

Metric size		Inch size	
23	Ø 3.2*2	**01**	Ø 1/8"
04	Ø 4	**03**	Ø 5/32"
06	Ø 6	**07**	Ø 1/4"
08	Ø 8	**09**	Ø 5/16"
10	Ø 10	**11**	Ø 3/8"
12	Ø 12	**13**	Ø 1/2"

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

Made to Order

Made to Order

Lubricant: Vaseline **-X12**

Example) **AS2002FS-04A-X12**

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

Example) **AS2002FS-04A-X21**

* Not particle-free
* The parts in contact with fluid are grease-free.

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

Example) **AS2002FS-04A-X214**

Clean Series **10-**

Example) **10-AS2002FS-04A**

* Fluorine grease is used.
* The cleanliness class (ISO class) is 5.

⚠ Caution

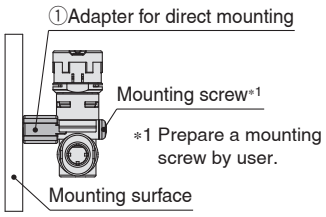
Be sure to read this before handling the products. Refer to the back cover for safety instructions. For flow control equipment precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smc.eu

Options

① Adapter for Direct Mounting

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

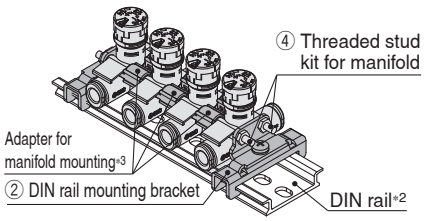
Part no.	Applicable model
AS-10A1	AS1002FS□A
AS-20A1	AS2002FS□A



∗ The AS2052FS□A, AS3002FS□A, and AS4002FS□A can be mounted without an adapter.

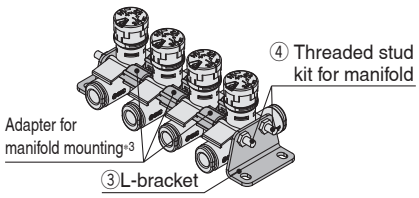
② DIN Rail Mounting Bracket

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



③ L-Bracket

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



∗2 Prepare DIN rail by user.
∗3 It is included in the threaded stud kit for manifold. Refer to the following details of the kit.

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**	AS1002FS□-23A	AS1002FS□-01A
				AS1002FS□-04A	AS1002FS□-03A
	AS-4AB	**AS-6AB**	**AS-8AB**	AS1002FS□-06A	—
AS-2AB			**AS-23AB**	—	AS1002FS□-07A
AS-9AB	**AS-10AB**	**AS-11AB**	**AS-12AB**	AS2002FS□-04A	AS2002FS□-03A
				AS2002FS□-06A	—
				—	AS2002FS□-07A
AS-41B	**AS-42B**	**AS-44B**	**AS-45B**	AS2052FS□-06A	—
				—	AS2052FS□-07A
				AS2052FS□-08A	AS2052FS□-09A
AS-42B	**AS-44B**	**AS-45B**	**AS-47B**	AS3002FS□-06A	—
	AS-44B			—	AS3002FS□-07A
				AS3002FS□-08A	AS3002FS□-09A
		AS-46B		AS3002FS□-10A	—
				—	AS3002FS□-11A
				AS3002FS□-12A	—
AS-43B	**AS-45B**	**AS-47B**	**AS-48B**	AS4002FS□-10A	—
				—	AS4002FS□-11A
				AS4002FS□-12A	—
				—	AS4002FS□-13A

∗ AS2052FS□A to AS4002FS□A sizes can be mounted with the threaded stud kit only.

Details of Threaded Stud Kit for Manifold

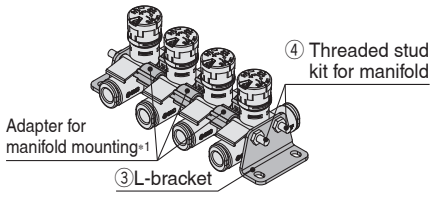
Part no.	Adapter for manifold mounting		Threaded stud		Accessories			
	Part no.	Quantity	Length	Quantity	Hexagon nut	Quantity	Flat washer	Quantity
AS-1AB	AS-10A	3	72	2	M3	4	M3	4
AS-2AB			90	2				
AS-3AB		5	104	2				
AS-4AB			114	2				
AS-5AB		7	135	2				
AS-6AB			143	2				
AS-7AB		9	167	2				
AS-8AB			170	2				
AS-23AB			180	2				
AS-9AB	AS-20A	3	90	2				
AS-10AB		5	135	2				
AS-11AB		7	180	2				
AS-12AB		9	220	2				
AS-41B	—		78	2	M4	4	M4	4
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				

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.) AS2002FS-06A
When connecting 4 pcs. and mounting L-brackets on both sides

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

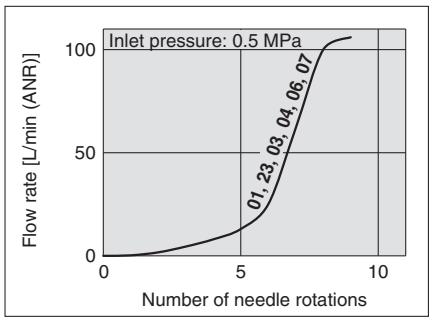


∗1 It is included in the threaded stud kit for manifold. Refer to the details of the kit shown on the left.

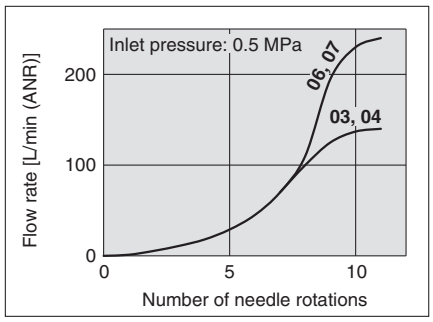
Needle Valve: Flow Rate Characteristics

∗ The flow rate characteristics are representative values.

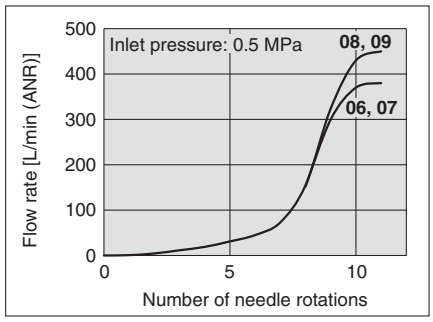
AS1002FS□A



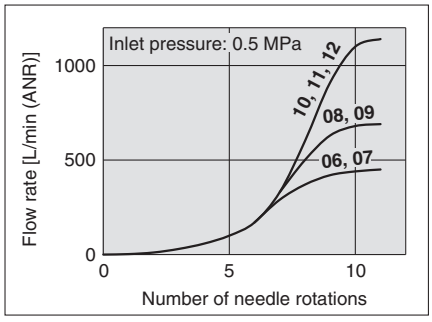
AS2002FS□A



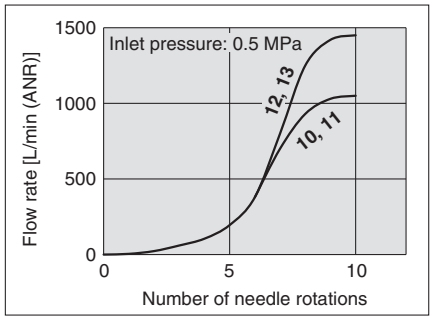
AS2052FS□A



AS3002FS□A

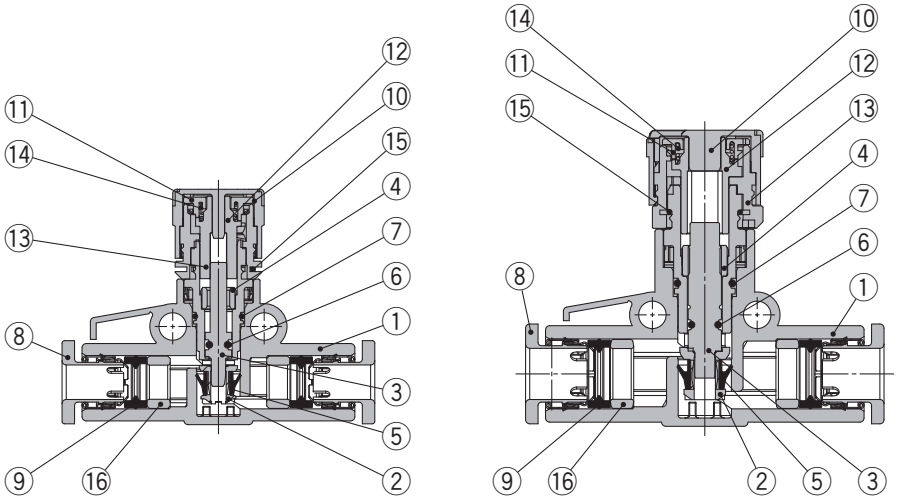


AS4002FS□A



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

Construction



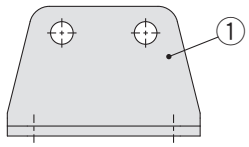
Component Parts

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

∗1 AS1002FS-23A, AS1002FS-01A, AS1002FS-07A, and AS2002FS-07A are not equipped with a spacer.

∗2 The AS3002FS□-11A, AS4002FS□-11A, and AS4002FS□-13A are made of electroless nickel plated brass.

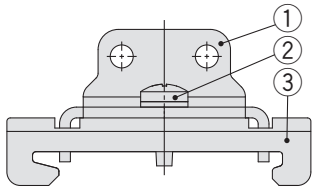
L-Bracket



Component Parts

No.	Description	Material
1	**Bracket**	Steel strip

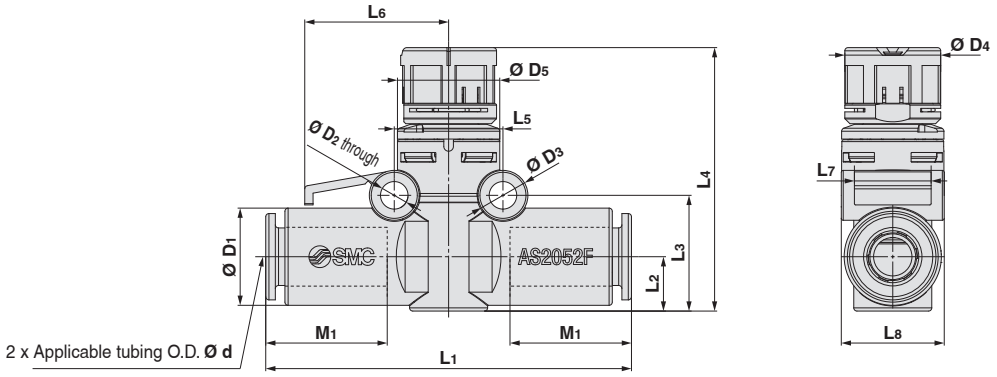
DIN Rail Mounting Bracket



Component Parts

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

Dimensions



Right side view **Front view**

Metric Size

[mm]

Model	Applicable tubing O.D. Ø **d**	**D1**	Release button Ø **X** (**X**)	Release button **Y**	**D2**	**D3**	**D4**	**D5**	**L1**	**L2**	**L3**	**L4**∗1 Max.	**L4**∗1 Min.	**L5**	**L6**	**L7**	**L8**	**M1**	Weight [g]
AS1002FS□-23A	3.2	8.4	6.7	9.5	3.3	5.5	11	10	36.6	5.1	11.8	29.6	28.5	11	15.4	8.8	10.1	13.5	4.4
AS1002FS□-04A	4	9.3	7.7	10	3.3	5.5	11	10	37.6	5.1	11.8	29.6	28.5	11	15.4	8.8	10.1	13	4.7
AS1002FS□-06A	6	11.6	9.7	12	3.3	5.5	11	10	40.1	6.1	12.8	30.6	29.5	11	15.4	8.8	12.3	13	5.8
AS2002FS□-04A	4	9.3	7.7	10	3.3	5.5	14	12	41.3	6.3	13.4	37.2	35.7	12.6	17	10.5	12.3	13	6.9
AS2002FS□-06A	6	11.6	9.7	12	3.3	5.5	14	12	43.1	6.3	13.4	37.2	35.7	12.6	17	10.5	12.3	13	7.8
AS2052FS□-06A	6	12.8	11.5	—	4.3	7.8	15	16	54.2	7.6	17.2	42.6	41.1	17	22.5	12	16.1	17	13.2
AS2052FS□-08A	8	15.2	13.5	—	4.3	7.8	15	16	57.2	8.5	18.1	43.5	42	17	22.5	12	16.1	19	15.6
AS3002FS□-06A	6	13.2	11.5	—	4.5	8	17.7	20	60	9.8	21.7	49.9	48.4	21.8	25	12	20.5	17	20.6
AS3002FS□-08A	8	15.2	13.5	—	4.5	8	17.7	20	65	9.8	21.7	49.9	48.4	21.8	25	12	20.5	19	22.8
AS3002FS□-10A	10	18.5	16.5	—	4.5	8	17.7	20	70.4	9.8	21.7	49.9	48.4	21.8	25	12	20.5	21	27.4
AS3002FS□-12A	12	20.9	18.5	—	4.5	8	17.7	20	76	10.9	22.8	51	49.5	21.8	25	12	22.1	22	31
AS4002FS□-10A	10	18.5	16.5	—	4.3	8	19.7	26	76.9	11.3	23.7	58.7	57.2	28	33	14	26.2	21	39.4
AS4002FS□-12A	12	21.7	18.5	—	4.3	8	19.7	26	81.3	11.3	23.7	58.7	57.2	28	33	14	26.2	22	44.8

∗1 Reference dimensions

Inch Size

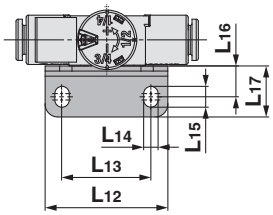
[mm]

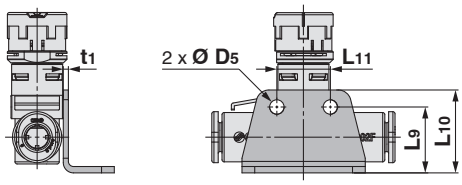
Model	Applicable tubing O.D. Ø **d**	**D1**	Release button Ø **X** (**X**)	Release button **Y**	**D2**	**D3**	**D4**	**D5**	**L1**	**L2**	**L3**	**L4**∗2 Max.	**L4**∗2 Min.	**L5**	**L6**	**L7**	**L8**	**M1**	Weight [g]
AS1002FS□-01A	1/8"	8.4	6.7	9.5	3.3	5.5	11	10	36.6	5.1	11.8	29.6	28.5	11	15.4	8.8	10.1	13.5	4.26
AS1002FS□-03A	5/32"	9.3	7.7	10	3.3	5.5	11	10	37.6	5.1	11.8	29.6	28.5	11	15.4	8.8	10.1	13	4.56
AS1002FS□-07A	1/4"	12	10.9	—	3.3	5.5	11	10	40.1	6.2	12.9	30.7	29.6	11	15.4	8.8	12.8	13.5	5.76
AS2002FS□-03A	5/32"	9.3	7.7	10	3.3	5.5	14	12	41.3	6.3	13.4	37.2	35.7	12.6	17	10.5	12.3	13	7.05
AS2002FS□-07A	1/4"	12	10.9	—	3.3	5.5	14	12	43.2	6.5	13.6	37.4	35.9	12.6	17	10.5	12.8	13.5	8.15
AS2052FS□-07A	1/4"	13.2	12	—	4.3	7.8	15	16	53.4	7.6	17.2	42.6	41.1	17	22.5	12	16.1	17	13.6
AS2052FS□-09A	5/16"	15.2	13.5	—	4.3	7.8	15	16	57.2	8.5	18.1	43.5	42	17	22.5	12	16.1	19	15.6
AS3002FS□-07A	1/4"	13.2	12	—	4.5	8	17.7	20	59	9.8	21.7	49.9	48.4	21.8	25	12	20.5	17	20.4
AS3002FS□-09A	5/16"	15.2	13.5	—	4.5	8	17.7	20	65	9.8	21.7	49.9	48.4	21.8	25	12	20.5	19	22.8
AS3002FS□-11A	3/8"	18.5	16	—	4.5	8	17.7	20	69.8	9.8	21.7	49.9	48.4	21.8	25	12	20.5	21	34.9
AS4002FS□-11A	3/8"	18.5	16	—	4.3	8	19.7	26	76.9	11.3	23.7	58.7	57.2	28	33	14	26.2	21	47.1
AS4002FS□-13A	1/2"	21.7	20	—	4.3	8	19.7	26	81.3	11.3	23.7	58.7	57.2	28	33	14	26.2	22	54.3

∗2 Reference dimensions

Dimensions

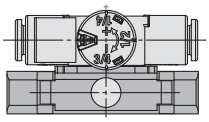
L-Bracket
Bracket on a single side

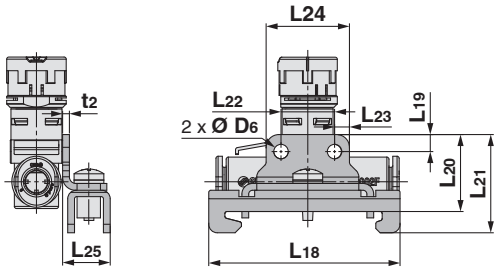




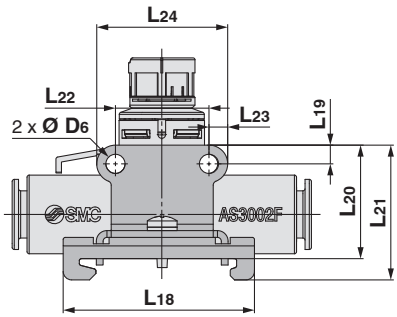
DIN Rail Mounting Bracket
Bracket on a single side

AS1002FS□A
AS2002FS□A





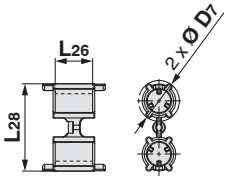
AS2052FS□A
AS3002FS□A
AS4002FS□A



Part no.	Applicable model	D5	L9	L10	L11	L12	L13	L14	L15	L16	L17	t1
AS-10L	**AS1002FS□A**	3.4	14.8	18.3	11	27.5	19.5	3.4	4.9	7.3	12	1
AS-20L	**AS2002FS□A**		15.6	19.6	12.6	29	21					1.2
AS-25L	**AS2052FS□A**	4.5	19.6	24.6	17	38	28	4.5	6.5	9.5	15.5	
AS-30L	**AS3002FS□A**		24.8	29.8	22	43	33					1.4
AS-40L	**AS4002FS□A**		25.7	30.7	28	49	39					

Part no.	Applicable model	D6	L18	L19	L20	L21	L22	L23	L24	L25	t2
AS-10D	**AS1002FS□A**	3.4	45	3.5	18.2	23.2	11	3.5	18	11.3	1.6
AS-20D	**AS2002FS□A**				18.6	23.6	12.6		19.6		
AS-25D	**AS2052FS□A**	4.5		4.4	22	27	17	4.4	25.8		
AS-30D	**AS3002FS□A**				27.2	32.2	22		30.8		
AS-40D	**AS4002FS□A**				28.1	33.1	28		36.8		

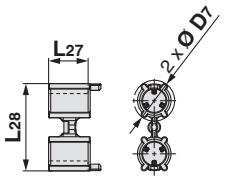
Adapter for Manifold Mounting
Part no.: AS-□□A



Part no.	Applicable model	D7	L26	L28
AS-10A	**AS1002FS□A**	9.2	4	18.7
AS-20A	**AS2002FS□A**	9.4	8.8	20.4

∗ The AS2052FS□A, AS3002FS□A, and AS4002FS□A can be mounted without an adapter.

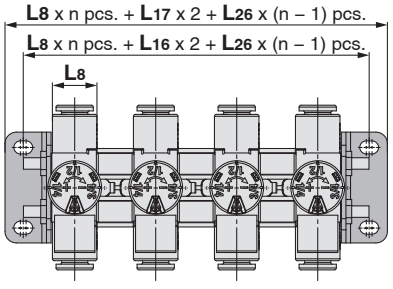
Adapter for Direct Mounting
Part no.: AS-□□A1



Part no.	Applicable model	D7	L27	L28
AS-10A1	**AS1002FS□A**	9.2	4.5	18.7
AS-20A1	**AS2002FS□A**	9.4	9.3	20.4

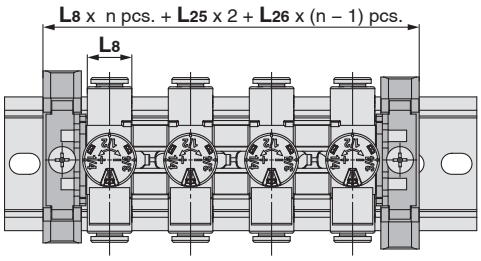
∗ The AS2052FS□A, AS3002FS□A, and AS4002FS□A can be mounted without an adapter.

L-Bracket
Brackets on both sides



∗ Refer to page 5 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 3 for threaded stud kits for manifold.

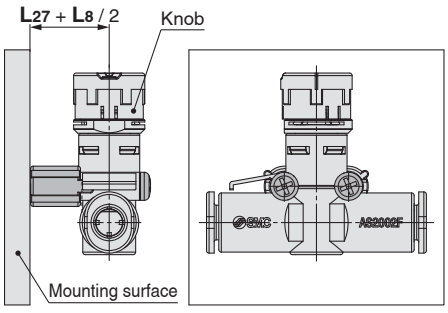
DIN Rail Mounting Bracket
Brackets on both sides



∗ Refer to page 5 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 3 for threaded stud kits for manifold.

Adapter
Direct mounting

∗ For use when the mounting surface interferes with the knob.



∗ Refer to page 5 for L8.
∗ The AS2052FS□A, AS3002FS□A, and AS4002FS□A can be mounted without an adapter.

Speed Controller with Compact Indicator
Stainless Steel Type In-line Type
AS-FSGA Series



RoHS

In-line



Stainless steel



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"
AS1002FSG□A	●	●	●				●	●	●			
AS2002FSG□A		●	●					●	●			
AS2052FSG□A			●	●					●	●		
AS3002FSG□A			●	●	●	●			●	●	●	
AS4002FSG□A					●	●					●	●

Specifications

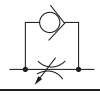
Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure	1 MPa
Min. operating pressure	0.1 MPa
Ambient and fluid temperatures	–5 to 60 °C (No freezing)
Applicable tubing material	Nylon, Soft nylon, Polyurethane*1, FEP, PFA

*1 Use caution at the max. operating pressure when using soft nylon or polyurethane tubing. (Refer to the **catalogue on https://www.smc.eu** for details.)

Flow Rate and Sonic Conductance

Model		AS1002FSG□A			AS2002FSG□A		AS2052FSG□A		AS3002FSG□A				AS4002FSG□A	
Tubing O.D.	Metric size	O 3.2	O 4	O 6	O 4	O 6	O 6	O 8	O 6	O 8	O 10	O 12	O 10	O 12
	Inch size	O 1/8"	O 5/32"	O 1/4"	O 5/32"	O 1/4"	O 1/4"	O 5/16"	O 1/4"	O 5/16"	O 3/8"	—	O 3/8"	O 1/2"
C values: Sonic conductance dm³/(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
Q [l/min (ANR)]*1	Free flow	76	96	144	102	136	240	287	263	383	527	623	610	838
	Controlled flow	72	76	82	96	144	240	305	295	431	647	790	636	982

Flow Direction Symbol on Body

Symbol


* 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-FS series (standard type).
*1 These values have been calculated according to ISO 6358 and indicate the flow rate under standard conditions with an inlet pressure of 0.6 MPa (relative pressure) and a pressure drop of 0.1 MPa.

How to Order

AS 200 2 F S G – 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

With indicator

Stainless steel type (Stainless steel 303)
* The material can be visually identified by colour of the release button.
  Stainless steel type: White
* White is also used for inch size.

Applicable tubing O.D.*1

Metric size		Inch size	
23	O 3.2*2	**01**	O 1/8"
04	O 4	**03**	O 5/32"
06	O 6	**07**	O 1/4"
08	O 8	**09**	O 5/16"
10	O 10	**11**	O 3/8"
12	O 12	**13**	O 1/2"

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

With compact indicator

Made to Order

Dimensions, flow rate characteristics and options are the same as standard product (brass needle guide).
Refer to page 6 for the manifolds (DIN rail bracket mounting/L-bracket mounting).

Made to Order

Made to Order

Lubricant: Vaseline **-X12**

Example) AS2002FSG-04A-X12

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

Example) AS2002FSG-04A-X21
* Not particle-free
* The parts in contact with fluid are grease-free.

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

Example) AS2002FSG-04A-X214

Clean Series **10-**

Example) 10-AS2002FSG-04A
* Fluorine grease is used.
* The cleanliness class (ISO class) is 5.

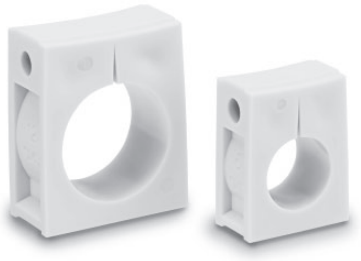
⚠ Caution

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.smc.eu

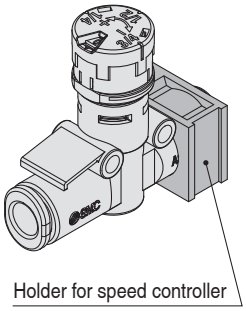
Holder for Speed Controller
TMH Series

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
Colour	White

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

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

Series

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

Metric Size

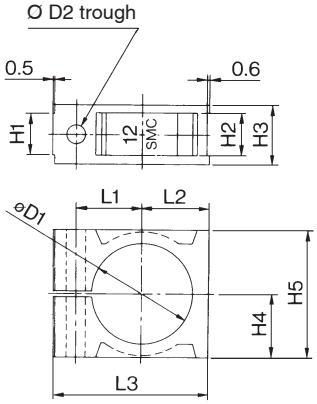
Tubing size / Applicable model	Applicable tubing					
	23	04	06	08	10	12
	Ø 3.2	Ø 4	Ø 6	Ø 8	Ø 10	Ø 12
AS1002FS(G)□A	**TMH-23J**	**TMH-04J**	**TMH-06J**			
AS2002FS(G)□A						
AS2052FS(G)□A			**TMH-06**	**TMH-08**		
AS3002FS(G)□A			**TMH-07**		**TMH-10**	**TMH-12**
AS4002FS(G)□A						**TMH-13**

∗ The applicable TMH for the AS1002FS□-02 is not available.

Inch Size

Tubing size / Applicable model	Applicable tubing					
	01	03	07	09	11	13
	Ø 1/8"	Ø 5/32"	Ø 1/4"	Ø 5/16"	Ø 3/8"	Ø 1/2"
AS1002FS(G)□A	**TMH-01J**	**TMH-03J**	**TMH-07J**			
AS2002FS(G)□A						
AS2052FS(G)□A			**TMH-07**	**TMH-09**		
AS3002FS(G)□A					**TMH-10**	
AS4002FS(G)□A						**TMH-13**

Dimensions



Part no.		Ø D1	Ø D2	H1	H2	H3	H4	H5	L1	L2	L3	Symbol
Metric size	Inch size											
TMH-23J	**TMH-01J**	8.5	3.3	4.5	4.6	7.5	6	12	7.2	6.6	18	1/8J
TMH-04J	**TMH-03J**	9.4										4 5/32J
TMH-06J	—	11.7	3.3	6.3	6.4	9.3	7.7	15.4	8.5	8.3	21	6J
—	**TMH-07J**	12.1										1/4J
TMH-06	—	13.1	4.3	7.1	7.2	11.1	10	20	11	10.6	26.5	6
—	**TMH-07**	13.5										1/4
TMH-08	**TMH-09**	15.5										8 5/16
TMH-10	—	18.8	4.3	9.5	9.6	13.5	14	28	14.2	14.6	34	10
TMH-12	—	21.2										12
—	**TMH-13**	22										1/2

AS-FSA Series
Specific Product Precautions 1

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.smc.eu

Design and Selection

⚠ Warning

1. Check the specifications.

The products in this catalogue are designed to be used in compressed air systems (including vacuum) only.
If the products are used in an environment where pressure or temperature is out of the specified range, damage and/or malfunction may result. Do not use under such conditions. (Refer to the specifications.)
Please contact SMC when using a fluid other than compressed air (including vacuum).
We do not guarantee against any damage if the product is used outside of the specification range.

2. The products in this catalogue are not designed for the use as stop valve with zero air leakage.

A certain amount of leakage is allowed in the product's specifications.
Tightening the needle to reduce leakage to zero may result in equipment damage.

3. Do not disassemble the product or make any modifications, including additional machining.

It may cause human injury and/or an accident.

4. The flow rate characteristics for each product are representative values.

The flow rate characteristics are characteristics of each individual product. Actual values may differ depending on the piping, circuitry, pressure conditions, etc.

5. Sonic conductance (C) and critical pressure ratio (b) values for products are representative values. The speed controller's controlled flow values are with the needle fully open and free flow with the needle fully closed.

6. Speed controllers are designed to control the speed of the actuator.

When it is used for adjusting the flow rate of the air blow, use a restrictor without a check valve function (X214 or X21).

Mounting

⚠ Warning

1. Operation Manual

Install the products and operate them only after reading the Operation Manual carefully and understanding its contents. Also, keep the Operation Manual where it can be referred to as necessary.

2. Ensure sufficient space for maintenance activities.

When installing the products, allow access for maintenance.

3. Tighten threads with the proper tightening torque.

When installing the products, follow the listed proper torque.

Mounting

⚠ Warning

4. After pushing the knob down to lock, confirm that it is locked.

It should not be possible to rotate the knob to the right or to the left. If the knob is pulled with force, it may break. Do not pull the knob with excessive force.



Locked



Unlocked

5. Slowly turn the knob in the opening direction or closing direction.

Body size	Guide for rotation speed rev/sec
100, 200	1 or less
205	0.9 or less
300, 400	0.7 or less

If quick reciprocal operations between two graduations like 0 → 1 → 0, which is not conducted in usual flow rate setting, are conducted, a scale malfunctioning may occur. Guide for rotation speed: 1 [rev/sec] or below

6. Do not turn the knob forcibly to prevent the scale from going outside the scale display range.

The scale may indicate a wrong value, possibly leading to a wrong setting.
Wrong use example: While the scale indication range is 0 to 8, forcefully turning the knob in the opening direction from graduation 8 caused the scale to indicate 0.

Body size	Scale indication range
100	0 to 8 graduations
200, 205, 300, 400	0 to 10 graduations



7. Do not use tools such as pliers to rotate the knob.

It can cause idle rotation of the knob or damage.

8. Verify the air flow direction.

Mounting backward is dangerous, because the speed adjustment needle will not work and the actuator may lurch suddenly.

9. Adjust the speed by opening the needle slowly from the fully closed state.

Loose needle valves may cause unexpected sudden actuator lurching.
When a needle valve is turned clockwise, it is closed and actuator speed decreases. When a needle valve is turned counterclockwise, it is open and actuator speed increases.

10. Do not apply excessive force or shock to the body, indicator part, or fittings with an impact tool.

It can cause damage or air leakage.

11. Refer to the Fittings and Tubing Precautions on the SMC website for handling One-touch fittings.

AS-FSA Series
Specific Product Precautions 2

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.smc.eu

Mounting

⚠Caution

1. This product has a stopper for fully close in rotating direction. Excess torque may break the stopper. Table below shows the maximum allowable torque of the knob.

Body size	Maximum allowable torque [N·m]
100	0.05
200	0.07
205	0.16
300	0.2
400	0.4

2. Actuator speed needs to be checked each time the setting is changed.

Individual product difference due to tolerance of the components, individual actuator difference, operating conditions and temperature, etc. may cause a large variation in the actuator speed, and for this reason, the final actuator speed needs to be checked every time the setting is changed.

3. Force for lifting the knob is specified as shown in the table below.

Larger lifting force than specified in the table below will cause removal of the knob, flow rate not according to the flow rate characteristics curve, incorrect flow indication with the indicator or damage to the product.

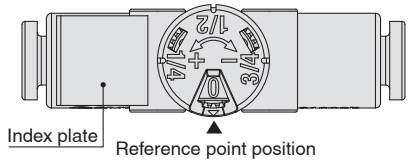
Body size	Knob lifting force
100	1 to 1.5 N
200, 205, 300, 400	3.5 to 4 N

Reference Point

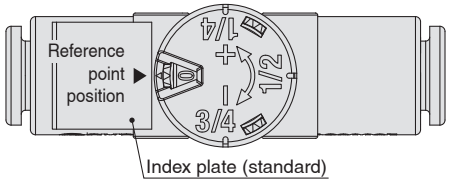
The reference point (scale zero point) of this product differs depending on the product number.

Refer to the applicable stroke table for details.

Body size 100



Body sizes 200, 205, 300, 400



⚠ 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.

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

1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines. (Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots - Safety.
etc.

⚠ Warning

1. 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 catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. 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.

3. Do not service or attempt to remove product and machinery/ equipment until safety is confirmed.
1. 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.
2. 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.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.
1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalogue.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

⚠ Caution

1. The product is provided for use in manufacturing industries.
The product herein described is basically provided for peaceful use in manufacturing industries.
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
If anything is unclear, contact your nearest sales branch.

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

1. 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.
2. 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.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalogue 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

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. 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.

⚠ Caution

SMC products are not intended for use as instruments for legal metrology.
Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country.
Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

SMC Corporation (Europe)

Austria	+43 (0)2262622800	www.smc.at	office@smc.at
Belgium	+32 (0)33551464	www.smc.be	info@smc.be
Bulgaria	+359 (0)2807670	www.smc.bg	office@smc.bg
Croatia	+385 (0)13707288	www.smc.hr	office@smc.hr
Czech Republic	+420 541424611	www.smc.cz	office@smc.cz
Denmark	+45 70252900	www.smcdk.com	smc@smcdk.com
Estonia	+372 651 0370	www.smcee.ee	info@smcee.ee
Finland	+358 207513513	www.smc.fi	smcfi@smc.fi
France	+33 (0)164761000	www.smc-france.fr	supportclient@smc-france.fr
Germany	+49 (0)61034020	www.smc.de	info@smc.de
Greece	+30 210 2717265	www.smchellas.gr	sales@smchellas.gr
Hungary	+36 23513000	www.smc.hu	office@smc.hu
Ireland	+353 (0)14039000	www.smcautomation.ie	sales@smcautomation.ie
Italy	+39 03990691	www.smcitalia.it	mailbox@smcitalia.it
Latvia	+371 67817700	www.smc.lv	info@smc.lv
Lithuania	+370 5 2308118	www.smclt.lt	info@smclt.lt
Netherlands	+31 (0)205318888	www.smc.nl	info@smc.nl
Norway	+47 67129020	www.smc-norge.no	post@smc-norge.no
Poland	+48 222119600	www.smc.pl	office@smc.pl
Portugal	+351 214724500	www.smc.eu	apoioclientept@smc.smces.es
Romania	+40 213205111	www.smcromania.ro	smcromania@smcromania.ro
Russia	+7 (812)3036600	www.smc.eu	sales@smcru.com
Slovakia	+421 (0)413213212	www.smc.sk	office@smc.sk
Slovenia	+386 (0)73885412	www.smc.si	office@smc.si
Spain	+34 945184100	www.smc.eu	post@smc.smces.es
Sweden	+46 (0)86031240	www.smc.nu	smc@smc.nu
Switzerland	+41 (0)523963131	www.smc.ch	info@smc.ch
Turkey	+90 212 489 0 440	www.smcturkey.com.tr	satis@smcturkey.com.tr
UK	+44 (0)845 121 5122	www.smc.uk	sales@smc.uk
South Africa	+27 10 900 1233	www.smcza.co.za	zasales@smcza.co.za

Printing BQ 00 Printed in Spain

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