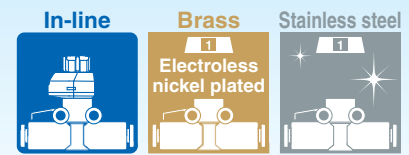


Speed Controller with Indicator

In-line Type

RoHS



The numerical indication of flow rate knob rotations

reduces flow setting time and setting errors!

"Made to Order" section has been added. Pages 3, 8

- Lubricant: Vaseline -X12
- Grease-free + Restrictor -X21
- Restrictor -X214
- Clean Series 10-



Flow rate can be controlled numerically with the

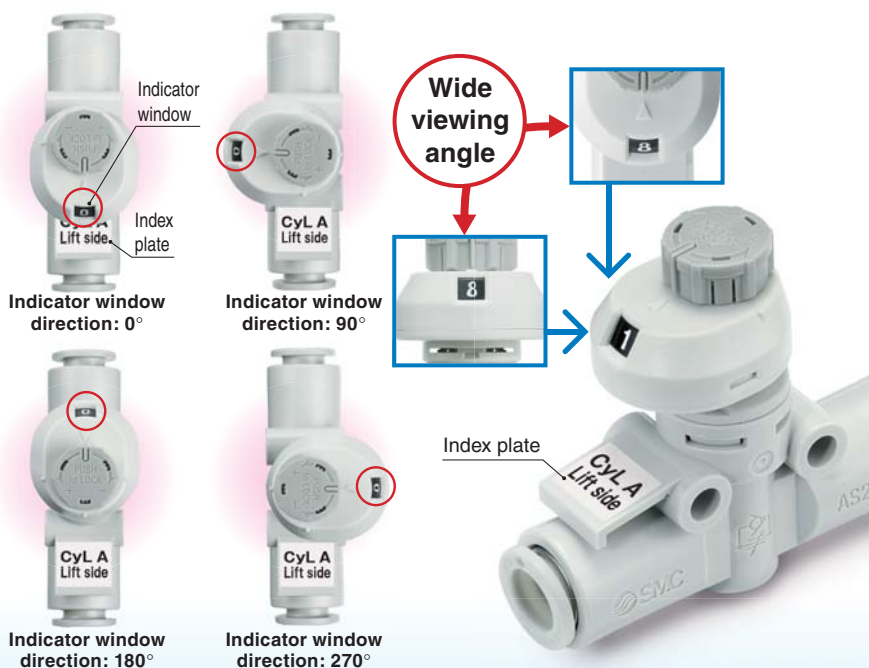
indicator window.



Numerical indication of knob rotations

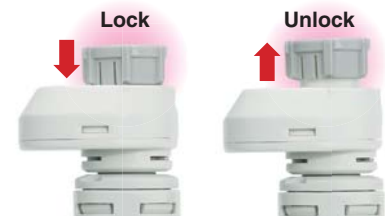
Body size 1		Body size 2 or larger	
Indicator window	Number of needle rotations	Indicator window	Number of needle rotations
1	1	1	1
2	2	2	2
⋮	⋮	⋮	⋮
8	8	10	10

4 indicator window directions available



Larger Push-lock type knob

Easy to lock



The larger knob and marking of every 90° mark allows for easier operation.

Body size	Ø D [mm]
1	9.4
2	12 (Port size 1/8) 13 (Port size 1/4)
3	16.6
4	18.8

AS-FS Series



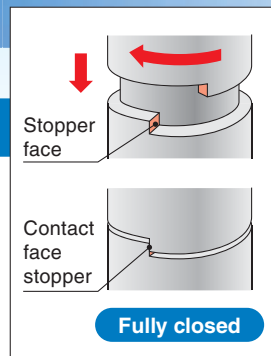
CAT.EUS20-244B-UK

Flow Rate Reproducibility



Improved reproducibility of flow rate

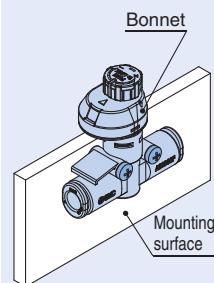
Stable knob position when fully closed (no flow rate) onto the contact face stopper (rotating stopper).
Minimal flow rate variations between knob rotations



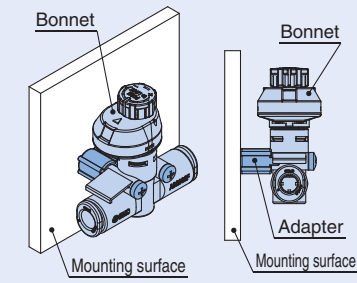
Mounting Variations

Direct mounting

If the mounting surface does not interfere with the bonnet:

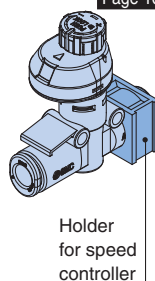


If the mounting surface interferes with the bonnet:
Adapter needed [Page 7](#)



Holder mounting

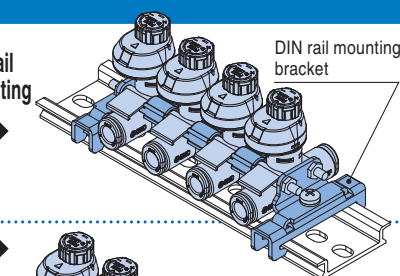
[Page 10](#)



DIN rail mounting

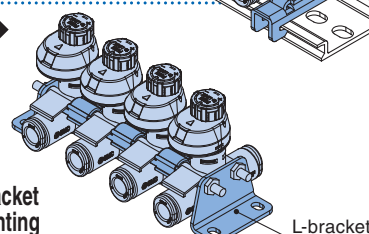
[Page 7](#)

[Page 7](#)



L-bracket mounting

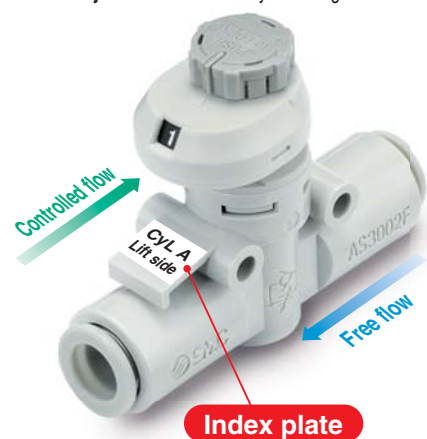
[Page 7](#)



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.








By colour

Model	Release button colour	
	Metric	Inch
AS-FS Page 3	Light grey	Orange
AS-FSG Page 8	White	White



Series Variations

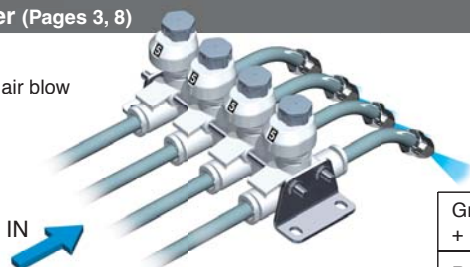
⊙ The electroless nickel plating type is standardised. ⊙ The stainless steel type is standardised.

	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"		
	AS1002FS□	●	●	●				●	●	●			· Brass · Stainless steel	Nylon (T, TIA series) Soft nylon (TS, TISA series) Polyurethane (T, TIUB series) Fluoropolymer (TLM, TILM series) (TH, TIH series)	
	AS2002FS□		●	●					●	●					
	AS2052FS□			●	●					●	●				
	AS3002FS□			●	●	●	●			●	●	●			
	AS4002FS□					●	●					●			●

Made to Order (Pages 3, 8)

Restrictor

- Flow control of air blow and air purge



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

-X21

Restrictor (Without check valve)

-X214

Push-Lock Series Variations

Speed Controller with One-touch Fitting AS Series

Body size	Port size	Applicable tubing O.D.	
		Metric size	Inch size
1 to 4	M5 to 1/2	Ø 2 to Ø 16	Ø 1/8" to Ø 1/2"



Refer to the web catalogue on www.smc.eu for details.

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

Body size	Port size	Applicable tubing O.D.	
		Metric size	Inch size
1 to 4	M5 to 1/2	Ø 3.2 to Ø 12	Ø 1/8" to Ø 1/2"

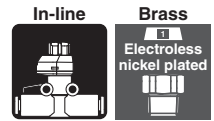


Refer to the web catalogue on www.smc.eu for details.

Speed Controller with Indicator (In-line Type) **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"
AS1002FS□	●	●	●				●	●	●			
AS2002FS□		●	●				●	●				
AS2052FS□			●	●					●	●		
AS3002FS□			●	●	●	●			●	●	●	
AS4002FS□					●	●					●	●

Specifications

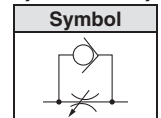
Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure	1 MPa
Min. operating pressure	0.1 MPa
Ambient and fluid temperatures	-5 to 60 °C (No freezing)
Applicable tubing material	Nylon, Soft nylon, Polyurethane*1, FEP, PFA

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

Flow Rate and Sonic Conductance

Model		AS1002FS□			AS2002FS□		AS2052FS□		AS3002FS□				AS4002FS□	
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

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-FSG series (stainless steel type).

How to Order

AS **200** **2** **F** **S** **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

Made to Order

Applicable tubing O.D.*1

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

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

*2 Use Ø 1/8" tubing.

Indicator window direction

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

Made to Order



Lubricant: Vaseline

-X12

Example) AS2002FS-04-X12

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

-X21

Example) AS2002FS-04-X21

* Not particle-free

Restrictor (Without check valve)

-X214

Example) AS2002FS-04-X214

Clean Series

10-

Example) 10-AS2002FS-04

*1 Fluorine grease is used.

*2 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 "Operation Manual" on the SMC website: <http://www.smc.eu>

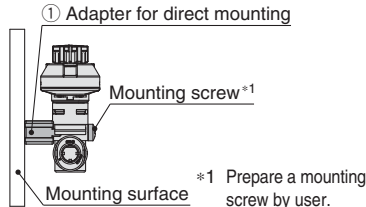
Options

① Adapter for Direct Mounting

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

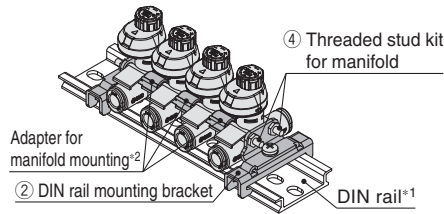
Part no.	Applicable model
AS-10A1	AS1002FS□
AS-20A1	AS2002FS□
AS-25A1	AS2052FS□
AS-30A1	AS3002FS□

* The AS4002FS□ can be mounted without the adapter.



② DIN Rail Mounting Bracket

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

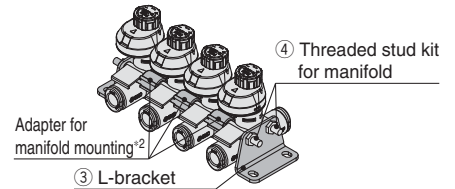


*1 Prepare DIN rail by user.

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

③ L-Bracket

Part no.	Applicable model
AS-10L	AS1002FS□
AS-20L	AS2002FS□
AS-25L	AS2052FS□
AS-30L	AS3002FS□
AS-40L	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	AS1002FS□-23	AS1002FS□-01
	AS-4AB	AS-6AB	AS-8AB AS-23AB	AS1002FS□-04	AS1002FS□-03
AS1002FS□-06				—	
AS-2AB				—	AS1002FS□-07
AS-9AB	AS-10AB	AS-11AB	AS-12AB	AS2002FS□-04	AS2002FS□-03
				AS2002FS□-06	—
				—	AS2002FS□-07
AS-13AB	AS-14AB	AS-15AB	AS-16AB	AS2052FS□-06	—
				—	AS2052FS□-07
				AS2052FS□-08	AS2052FS□-09
AS-17AB	AS-19AB	AS-20AB	AS-22AB	AS3002FS□-06	—
				—	AS3002FS□-07
				AS3002FS□-08	AS3002FS□-09
				AS3002FS□-10	—
AS-24AB			AS-25AB	—	AS3002FS□-11
AS-43B	AS-45B	AS-47B	AS-48B	AS3002FS□-12	—
				AS4002FS□-10	—
				—	AS4002FS□-11
				AS4002FS□-12	—
				—	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	Quantity	Flat washer
AS-1AB	AS-10A	3	72	2	M3	4	M3
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	AS-20A	3	180	2	M4	4	M4
AS-9AB			90	2			
AS-10AB		5	135	2			
AS-11AB			180	2			
AS-12AB		7	220	2			
AS-13AB			9	2			
AS-14AB		3	111	2			
AS-15AB			5	2			
AS-16AB	AS-25A	7	147	2			
AS-17AB			191	2			
AS-18AB		9	236	2			
AS-19AB			9	2			
AS-20AB		3	111	2			
AS-21AB			5	2			
AS-22AB		7	179	2			
AS-23AB			7	2			
AS-24AB	AS-30A	9	236	2			
AS-25AB			9	2			
AS-26AB		9	258	2			
AS-27AB			9	2			
AS-28AB		9	277	2			
AS-29AB			9	2			
AS-30AB		9	293	2			
AS-31AB			119	2			
AS-32AB	AS-40A	—	179	2			
AS-33AB			236	2			
AS-34AB		—	277	2			
AS-35AB			277	2			

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

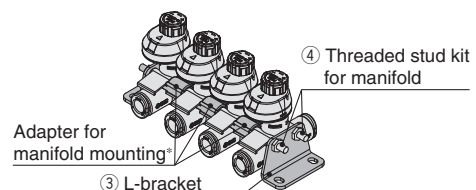
Ordering Example

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.) AS2002FS-06

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

- Speed controller **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.)



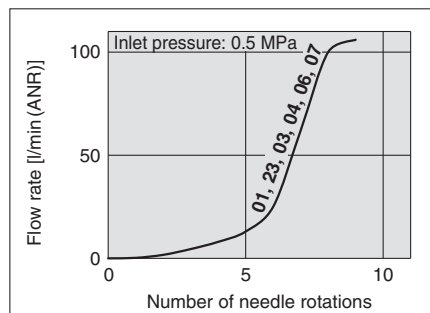
* It is included in the threaded stud kit for manifold (excluding the AS4002FS□). Refer to the details of the kit shown on the left.

AS-FS Series

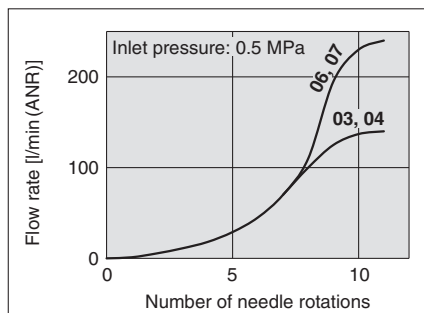
Needle Valve: Flow Rate Characteristics

* The flow rate characteristics are representative values.

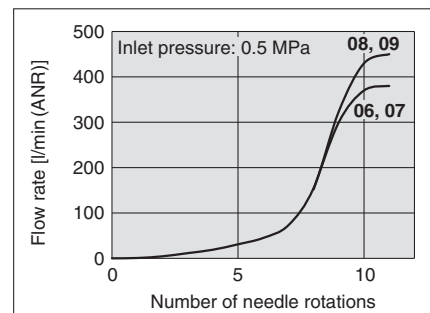
AS1002FS□



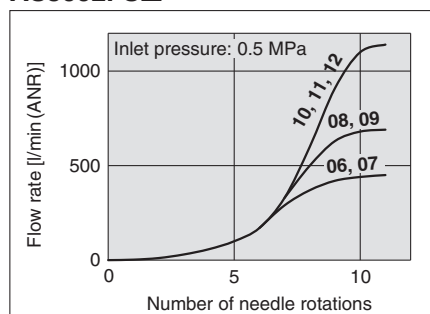
AS2002FS□



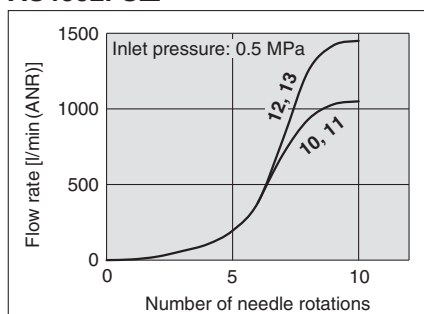
AS2052FS□



AS3002FS□

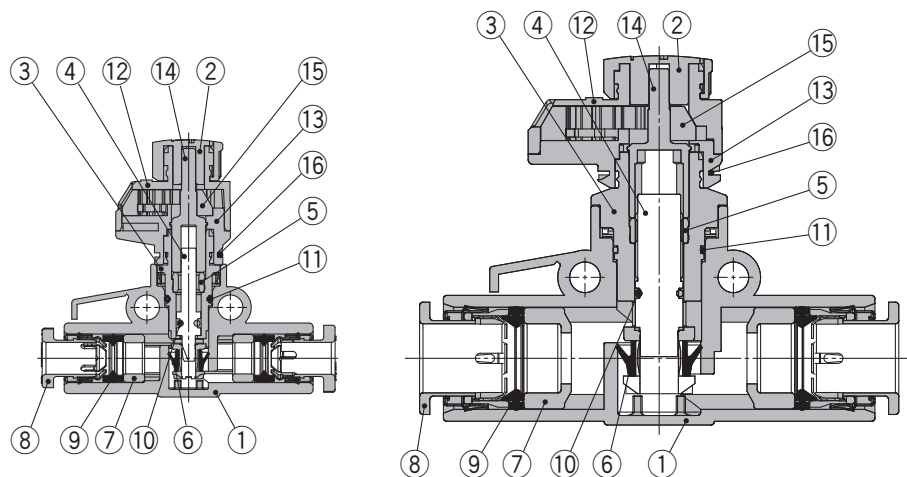


AS4002FS□



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

Construction

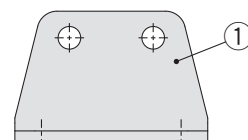


Component Parts

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 AS3002FS□-11, AS4002FS□-11, AS4002FS□-13 are made of electroless nickel plated brass.

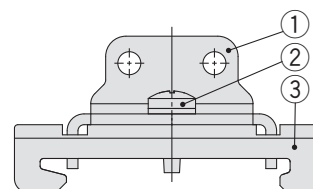
L-Bracket



Component Parts

No.	Description	Material
1	Bracket	Steel strip

DIN Rail Mounting Bracket

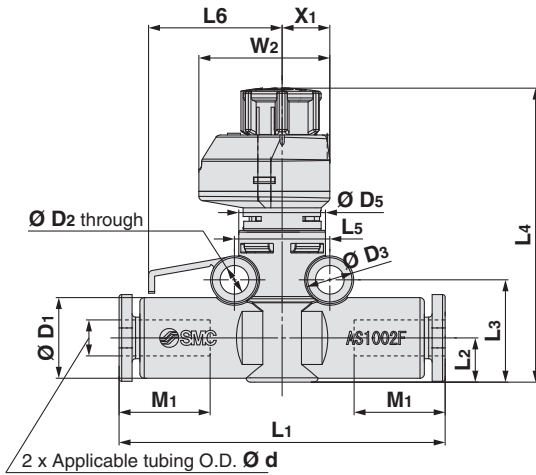


Component Parts

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

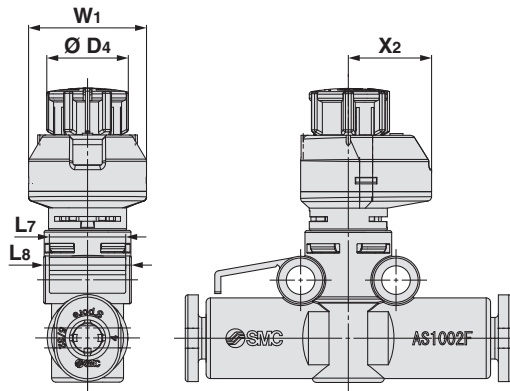
Dimensions

Indicator window direction: 0°



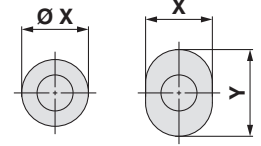
Right side view

Indicator window direction: 180°



Front view

Release button dimensions



Applicable tubing
O.D.: Ø 3.2, Ø 4, Ø 6
Ø 1/8", Ø 5/32"

Metric Size

Model	Applicable tubing O.D. Ø d	D1	Release button		D2	D3	D4	D5	L1	L2	L3	L4*1		L5	L6	L7	L8	M1	W1	W2	X1	X2	Weight [g]
			Ø X(X)	Y								Max.	Min.										
AS1002FS□-23	3.2	8.4	6.7	9.5					36.6	5.1	11.8	36.4	33.9				10.1	13.5					5.2
AS1002FS□-04	4	9.3	7.7	10	3.3	5.5	9.4	10	37.6					11	15.4	8.8	12.3	13	13.6	15.1	5.5	9.6	5.5
AS1002FS□-06	6	11.6	9.7	12					40.1	6.1	12.8	37.4	34.9										6.6
AS2002FS□-04	4	9.3	7.7	10	3.3	5.5	12	12	41.3	6.3	13.4	44.5	43	12.6	17	10.5	12.3	13	20	21.5	6.5	15	9.5
AS2002FS□-06	6	11.6	9.7	12					43.1														10.4
AS2052FS□-06	6	12.8	11.5	—	4.3	7.8	13	16	54.2	7.6	17.2	49	47.6	17	22.5	12	16.1	17	21.5	24	7.8	16.2	16
AS2052FS□-08	8	15.2	13.5	—					57.2	8.5	18.1	49.9	48.5					19					18.4
AS3002FS□-06	6	13.2	11.5	—					60									17					23.8
AS3002FS□-08	8	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	19	24.5	28.5	9.3	19.2	26
AS3002FS□-10	10	18.5	16.5	—					70.4									21					30.6
AS3002FS□-12	12	20.9	18.5	—					76	10.9	22.8	56.8	55.4				22.1	22					34.2
AS4002FS□-10	10	18.5	16.5	—					76.9									21					42.5
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	22	26	29	10	19	47.9

*1 Reference dimensions

Inch Size

Model	Applicable tubing O.D. Ø d	D1	Release button		D2	D3	D4	D5	L1	L2	L3	L4*1		L5	L6	L7	L8	M1	W1	W2	X1	X2	Weight [g]
			Ø X(X)	Y								Max.	Min.										
AS1002FS□-01	1/8"	8.4	6.7	9.5					36.6	5.1	11.8	36.4	33.9				10.1	13.5					5.2
AS1002FS□-03	5/32"	9.3	7.7	10	3.3	5.5	9.4	10	37.6					11	15.4	8.8	12.8	13.5	13.6	15.1	5.5	9.6	5.5
AS1002FS□-07	1/4"	12	10.9	—					40.1	6.2	12.9	37.5	35										6.7
AS2002FS□-03	5/32"	9.3	7.7	10	3.3	5.5	12	12	41.3	6.3	13.4	44.5	43	12.6	17	10.5	12.3	13.5	20	21.5	6.5	15	9.5
AS2002FS□-07	1/4"	12	10.9	—					43.2	6.5	13.6	44.7	43.2				12.8						10.6
AS2052FS□-07	1/4"	13.2	12	—	4.3	7.8	13	16	53.4	7.6	17.2	49	47.6	17	22.5	12	16.1	17	21.5	24	7.8	16.2	16.4
AS2052FS□-09	5/16"	15.2	13.5	—					57.2	8.5	18.1	49.9	48.5					19					18.4
AS3002FS□-07	1/4"	13.2	12	—					59									17					23.6
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	19	24.5	28.5	9.3	19.2	26
AS3002FS□-11	3/8"	18.5	16	—					69.8									21					38.1
AS4002FS□-11	3/8"	18.5	16	—					76.9									21					50.2
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	22	26	29	10	19	57.4

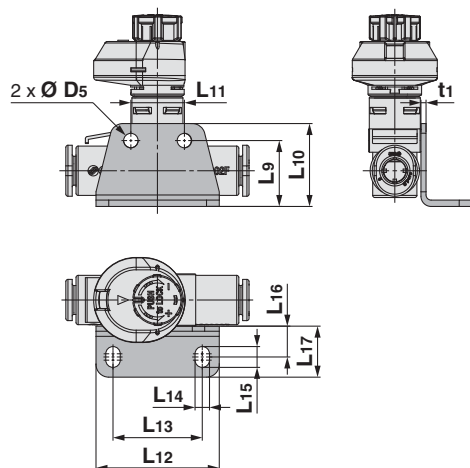
*1 Reference dimensions

AS-FS Series

Dimensions

L-Bracket

Bracket on a single side



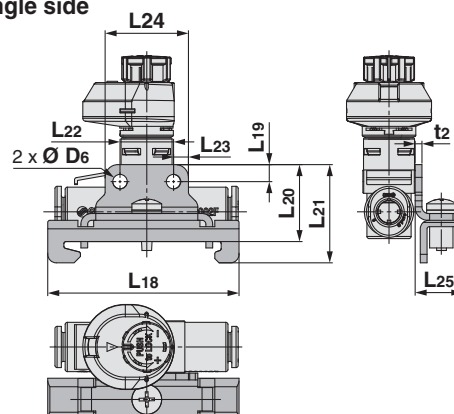
Part no.	Applicable model	D5	L9	L10	L11	L12	L13	L14	L15	L16	L17	t1
AS-10L	AS1002FS□	3.4	14.8	18.3	11	27.5	19.5	3.4	4.9	7.3	12	1
AS-20L	AS2002FS□		15.6	19.6	12.6	29	21					1.2
AS-25L	AS2052FS□		19.6	24.6	17	38	28					
AS-30L	AS3002FS□	4.5	24.8	29.8	22	43	33	4.5	6.5	9.5	15.5	1.4
AS-40L	AS4002FS□		25.7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

DIN Rail Mounting Bracket

Bracket on a single side

AS1002FS□

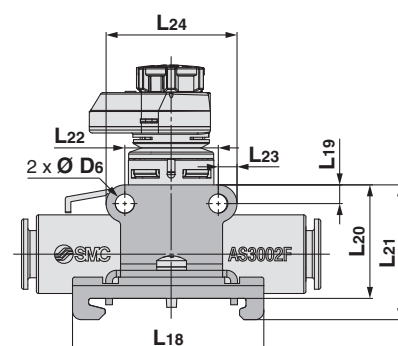
AS2002FS□



AS2052FS□

AS3002FS□

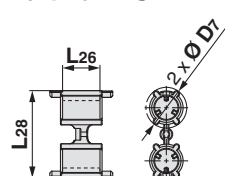
AS4002FS□



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

Adapter for Manifold Mounting

Part no.: AS-□□A

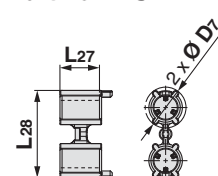


Part no.	Applicable model	D7	L26	L28
AS-10A	AS1002FS□	9.2	4	18.7
AS-20A	AS2002FS□	9.4	8.8	20.4
AS-25A	AS2052FS□	11.4	6.3	27
AS-30A	AS3002FS□	11.8	5.9	32.1

* The AS4002FS□ can be mounted without the adapter.

Adapter for Direct Mounting

Part no.: AS-□□A1

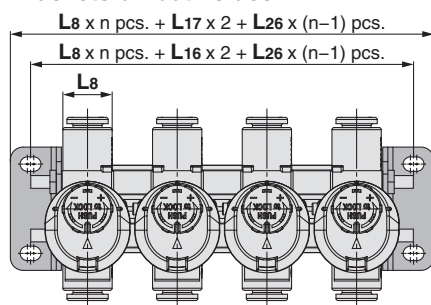


Part no.	Applicable model	D7	L27	L28
AS-10A1	AS1002FS□	9.2	4.5	18.7
AS-20A1	AS2002FS□	9.4	9.3	20.4
AS-25A1	AS2052FS□	11.4	7.1	27
AS-30A1	AS3002FS□	11.8	6.4	32.1

* The AS4002FS□ can be mounted without the adapter.

L-Bracket

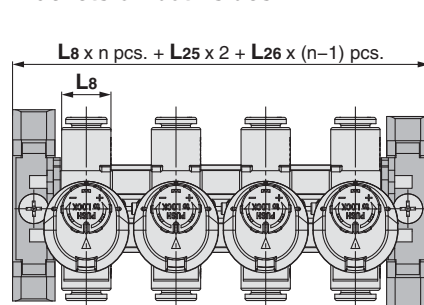
Brackets on both sides



- * 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

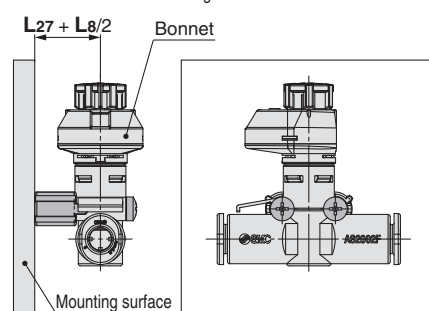


- * Refer to page 6 for L8.
- * The figure above shows the manifold with speed controllers connected using two DIN rail mounting brackets, adapters and a threaded stud kit for manifold. Refer to page 4 for threaded stud kits for manifold.
- * Cannot connect the speed controller when the indicator window 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 AS4002FS can be mounted directly without the adapter.

Stainless Steel Type Speed Controller with Indicator (In-line Type)

AS-FSG 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	●	●	●				●	●	●			
AS2002FSG		●	●					●	●			
AS2052FSG			●	●					●	●		
AS3002FSG			●	●	●	●			●	●	●	
AS4002FSG					●	●					●	●

Specifications

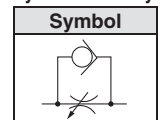
Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure	1 MPa
Min. operating pressure	0.1 MPa
Ambient and fluid temperatures	-5 to 60 °C (No freezing)
Applicable tubing material	Nylon, Soft nylon, Polyurethane*1, FEP, PFA

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

Flow Rate and Sonic Conductance

Model		AS1002FSG			AS2002FSG		AS2052FSG		AS3002FSG				AS4002FSG	
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

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.

How to Order

AS 200 2 F S G 1 - 06 -

Body size

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

With indicator

Made to Order

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.

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.

Indicator direction

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

Made to Order

Made to Order

Lubricant: Vaseline

-X12

Example) AS2002FSG-04-X12

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

-X21

Example) AS2002FSG-04-X21

* Not particle-free

Restrictor (Without check valve)

-X214

Example) AS2002FSG-04-X214

Clean Series

10-

Example) 10-AS2002FSG-04

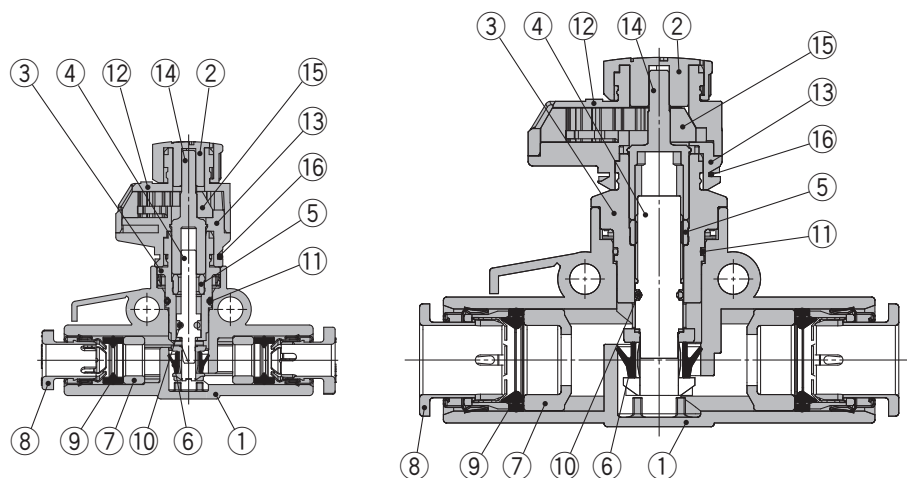
*1 Fluorine grease is used.

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

Dimensions, flow rate characteristics and options are the same as standard product (brass needle guide). Refer to page 4 for the manifolds (DIN rail bracket mounting/L-bracket mounting).

AS-FSG Series

Construction

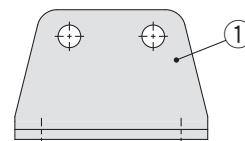


Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Knob	POM	
3	Body B	PBT	
4	Needle	PBT	
5	Needle guide	Stainless steel	
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 AS3002FS□-11, AS4002FS□-11, AS4002FS□-13 are made of stainless steel.

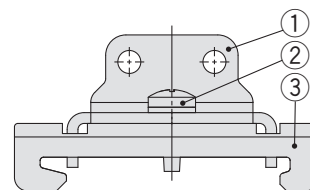
L-Bracket



Component Parts

No.	Description	Material
1	Bracket	Steel strip

DIN Rail Mounting Bracket



Component Parts

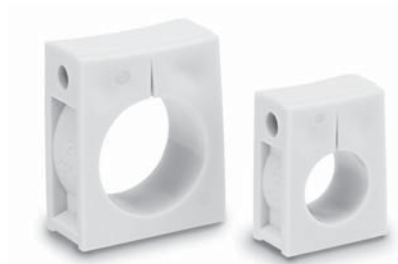
No.	Description	Material
1	Bracket	Steel strip
2	Cross recessed round head screw	Steel wire
3	Clasp	Steel strip

Related Equipment

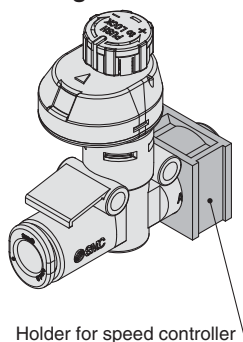
Holder for Speed Controller TMH Series

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
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		
TMH-08	TMH-09	M4 x 25	
TMH-10	—		
TMH-12	TMH-13	M4 x 35	

Series

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

Metric Size

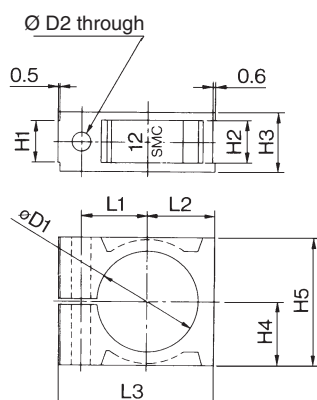
Tubing size Applicable model	Applicable tubing					
	23 Ø 3.2	04 Ø 4	06 Ø 6	08 Ø 8	10 Ø 10	12 Ø 12
AS1002FS□	TMH-23J	TMH-04J	TMH-06J			
AS2002FS□						
AS2052FS□			TMH-06	TMH-08		
AS3002FS□			TMH-07			
AS4002FS□					TMH-10	TMH-12 TMH-13

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

Inch Size

Tubing size Applicable model	Applicable tubing					
	01 Ø 1/8"	03 Ø 5/32"	07 Ø 1/4"	09 Ø 5/16"	11 Ø 3/8"	13 Ø 1/2"
AS1002FS□	TMH-01J	TMH-03J	TMH-07J			
AS2002FS□						
AS2052FS□			TMH-07	TMH-09		
AS3002FS□						
AS4002FS□					TMH-10	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	4.3	9.5	9.6	13.5	14	28	14.2	14.6	34	8 5/16
TMH-10	—	18.8										10
TMH-12	—	21.2	4.3									12
—	TMH-13	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

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. 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.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. 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 catalogues and operation manuals.
3. 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

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.

Safety Instructions

Be sure to read “Handling Precautions for SMC Products” (M-E03-3) before using.

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South Africa	+27 10 900 1233	www.smcza.co.za	Sales.za@smc.com