

Speed Controller with One-touch Fittings

In-line Type

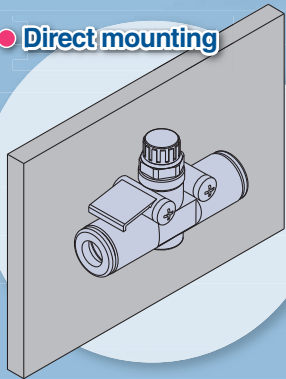
New

RoHS

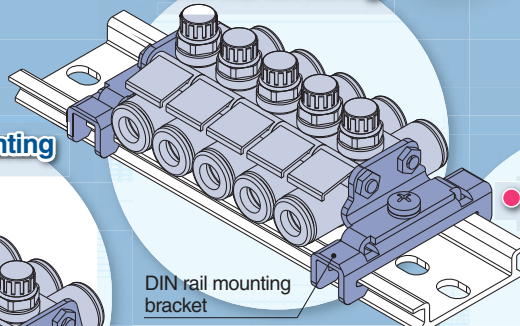


4 types of mounting variations

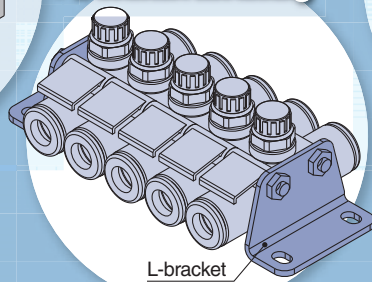
● Direct mounting



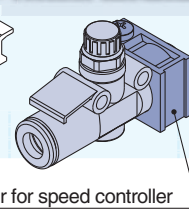
● DIN rail mounting



● L-bracket mounting

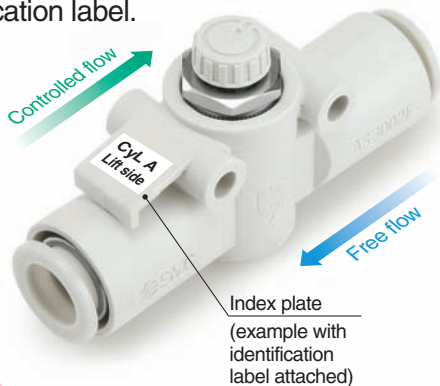


● Holder mounting



Index plate

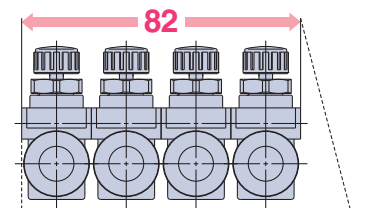
It is possible to **identify the product** when **multiple controllers are mounted** and **identify the flow direction** by attaching an identification label.



Compact

NEW

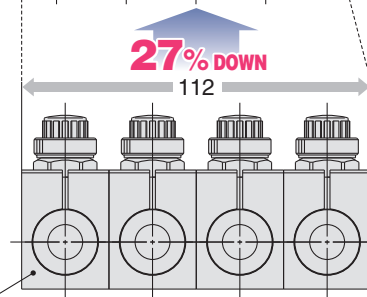
Four AS3002F-10 controllers connected



27% DOWN

Conventional

Four AS3001F-10 controllers connected with holders (TMH-10)



Lightweight

Reduced by **30%** compared with the conventional product (AS2002F-04)

Flow-rate characteristics are equivalent to the conventional product.

Series AS

SMC
CAT.NAS20-215B

Series AS

Series

Series	Applicable tube O.D.											Applicable cylinder bore size			
	Metric size						Inch size					(inch)		(mm)	
	2	3.2	4	6	8	10	12	1/8"	5/32"	1/4"	5/16"	3/8"	1/2"		
AS1002F	●							●	●	●				1/4"	2.5, 4, 6
AS2002F		●	●					●	●					1/4", 3/8", 5/8", 3/4"	6, 10, 16, 20
AS2052F			●	●					●	●				3/4", 1", 1 1/4", 1 1/2"	20, 25, 32, 40
AS3002F			●	●	●	●			●	●				1 1/2", 2", 2 1/2"	40, 50, 63
AS4002F					●	●					●	●		2 1/2", 3 1/4", 4"	63, 80, 100

Specifications

Fluid	Air
Proof pressure	218 psi (1.5 MPa) 152 psi <small>Note 1)</small> (1.05 MPa <small>Note 1)</small>
Max. operating pressure	145 psi (1 MPa) 102 psi <small>Note 1)</small> (0.7 MPa <small>Note 1)</small>
Min. operating pressure	15 psi (0.1 MPa)
Ambient and fluid temperature	23 to 140°F (-5 to 60°C) (No freezing)
Applicable tube material <small>Note 2)</small>	Nylon, Soft nylon, Polyurethane

Note 1) In case of AS1002F-02

Note 2) Use caution at the max. operating pressure when using soft nylon or polyurethane tubing.

(Refer to pages 371 and 372 of Best Pneumatics Vol. 6)

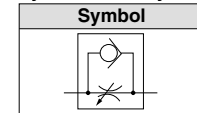
Note 3) Brass parts are all electroless nickel plated.

Flow Rate and Flow Coefficient

Series	AS1002F		AS2002F		AS2052F		AS3002F		AS4002F			
	Metric size	ø2	ø3.2, ø4, ø6	ø4	ø6	ø6	ø8	ø6	ø8	ø10, ø12	ø10	ø12
Tube O.D.	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"
Controlled flow (Free flow)	Flow rate (scfm)	0.7	3.5	4.6	8.1	10.2	16.3	13.8	23.3	32.5	32.5	55.8
	Cv	0.02	0.08	0.11	0.19	0.25	0.39	0.33	0.56	0.78	0.78	1.33

Note) Flow rate values are measured at 73 psi and 70°F.

Flow Direction Symbol on Body



How to Order



AS 400 2F - 12 - [] - []

Body size	
100	M3, M5 standard
200	1/8 standard
205	1/4 standard
300	3/8 standard
400	1/2 standard

Made to Order	
Metric size	Inch size
02	ø2
23	ø3.2*
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12



Lock nut option	
Nil	Hexagon lock nut
J	Round lock nut

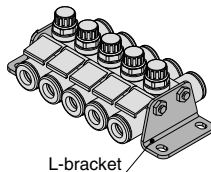
With one-touch fittings

* Use ø1/8" tube.

Options

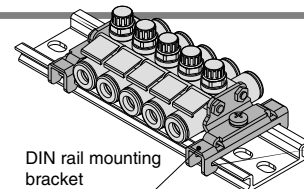
L-bracket

Part no.	Applicable series
AS-12L	AS1002F-02
AS-10L	AS1002F
AS-20L	AS2002F
AS-25L	AS2052F
AS-30L	AS3002F
AS-40L	AS4002F



DIN rail mounting bracket

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



* Bracket for AS1002F-02 is not available.

* Prepare DIN rail by user.

Part no. list of threaded stud kit for manifold

Model		4 stations	6 stations	8 stations	10 stations
Metric size	Inch size				
AS1002F-02	—	AS-31B	AS-32B	AS-33B	AS-34B
AS1002F-23	AS1002F-01	AS-32B	AS-34B	AS-33B	AS-34B
AS1002F-04	AS1002F-03			AS-35B	AS-36B
AS1002F-06	—			AS-36B	AS-37B
—	AS1002F-07			AS-38B	AS-38B
AS2002F-04	AS2002F-03	AS-32B	AS-34B	AS-35B	AS-37B
AS2002F-06	—			AS-36B	AS-38B
—	AS2002F-07			AS-36B	AS-38B
AS2052F-06	—			AS-36B	AS-38B
AS2052F-08	AS2052F-09	AS-41B	AS-42B	AS-44B	AS-45B
AS3002F-06	—	AS-42B	AS-44B	AS-45B	AS-47B
AS3002F-08	AS3002F-09			AS-46B	AS-47B
AS3002F-10	—			AS-46B	AS-47B
AS3002F-12	—			AS-46B	AS-47B
AS4002F-10	—			AS-46B	AS-47B
AS4002F-12	—			AS-46B	AS-47B
AS4002F-13	—	AS-43B	AS-45B	AS-47B	AS-48B

Details of threaded stud kit for manifold

Part no.	Threaded stud		Accessories					
	Length (mm)	pcs.	Hexagon nut	Flat washer	pcs.			
AS-31B	38	2	M3	4	M3			
AS-32B	62	2						
AS-33B	72	2						
AS-34B	90	2						
AS-35B	104	2						
AS-36B	114	2						
AS-37B	135	2						
AS-38B	140	2						
AS-41B	78	2				M4	4	M4
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						

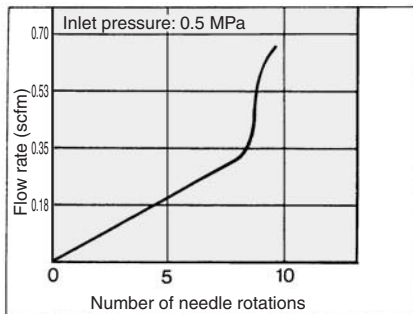
* Precautions when options are ordered

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

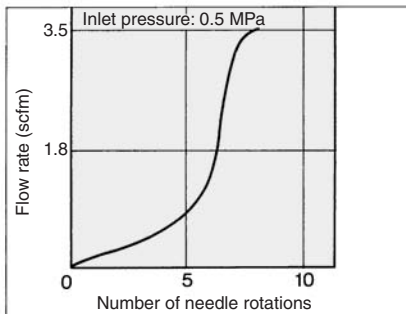
Ex.) AS2002F-04	When connecting 4 pcs. and mounting L-brackets on both sides	AS2002F-04 4 pcs.
		AS-20L 2 pcs.
		AS-32B 1 pc.

Needle Valve/Flow-rate Characteristics

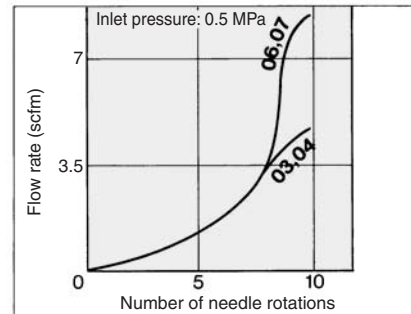
AS1002F-02



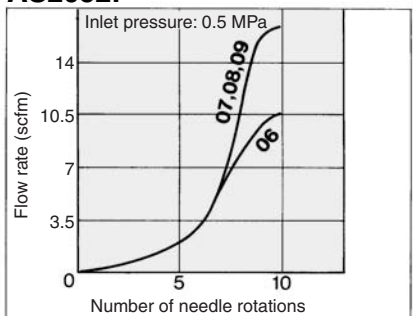
AS1002F



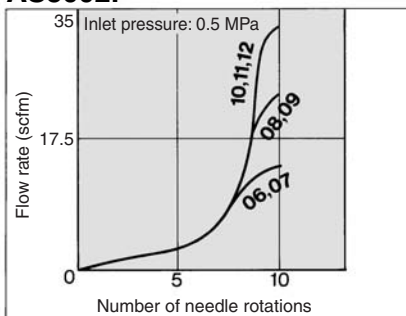
AS2002F



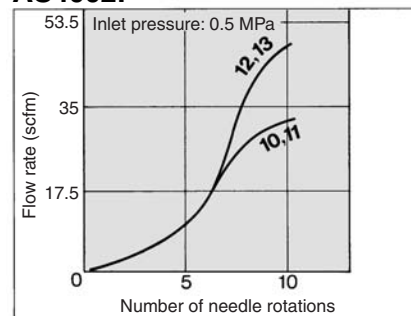
AS2052F



AS3002F

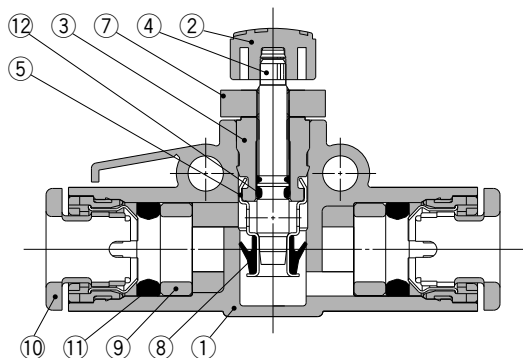


AS4002F

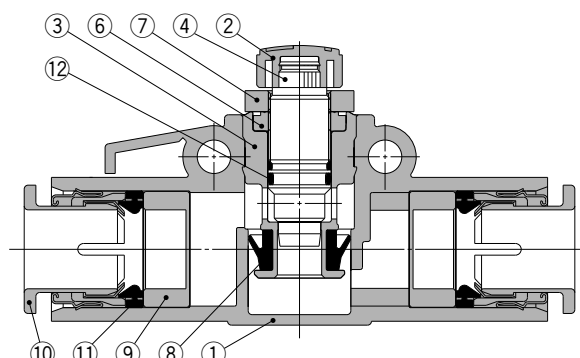


Construction

AS1002F, AS2002F, AS2052F



AS1002F-02, AS3002F, AS4002F



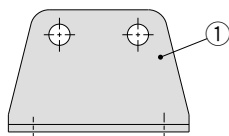
Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Handle	PBT	
3	Body B	Brass	Electroless nickel plated
4	Needle	Brass	Electroless nickel plated
5	Seat ring	Brass	Electroless nickel plated
6	Needle guide	Brass	Electroless nickel plated

No.	Description	Material	Note
7	Lock nut	Steel wire	Zinc chromated
8	U-seal	HNBR	
9	Spacer	POM ^{Note)}	
10	Cassette	—	
11	Seal	NBR	
12	O-ring	NBR	

Note) AS2052F, AS3002F, AS4002F are made of PBT. AS3002F-11, AS4002F-11, AS4002F-13 are made of electroless nickel plated brass.

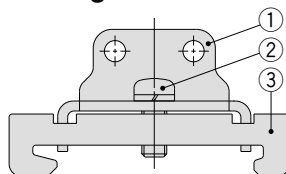
L-bracket



Component Part

No.	Description	Material
1	Bracket	Steel strip

DIN rail mounting bracket



Component Parts

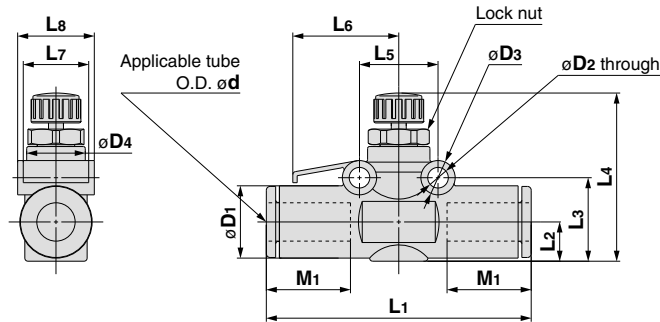
No.	Description	Material
1	Bracket	Steel strip
2	Cross recessed round head screw	Steel wire
3	Clasp	Steel strip

⚠ Caution

Be sure to read before handling.
Refer to back cover for Safety
Instructions and Best Pneumatics
Vol. 6 for Flow Control Equip-
ment Precautions.

Series AS

Dimensions



Metric Size

Unit: mm

Model	Applicable tube O.D. ød	D1	D2	D3	D4	L1	L2	L3	L4 (Note)		L5	L6	L7	L8	M1	Weight (g)
									MAX.	MIN.						
AS1002F-02	2	6	3.2	5	6	25.4	3.4	7.9	20.9	18.4	11	9.8	5	6.7	8.8	3
AS1002F-23	3.2	8.4	3.3	5.5	9.1	36	4.4	11.1	23.8	21	11	15.4	8.8	9.8	12.7	5
AS1002F-04	4	9.3				37	5.1	11.8	24.5	21.7				10.1		5.5
AS1002F-06	6	11.6				39.5	6.1	12.8	25.5	22.7				12.3		6.5
AS2002F-04	4	9.3	3.3	5.5	10	40.7	5.2	12.3	28.9	25.4	12.6	17	10.5	11.5	12.7	8.5
AS2002F-06	6	11.6				42.5	6.3	13.4	30	26.5				12.3	9.5	
AS2052F-06	6	12.8	4.3	7.8	14	53.2	6.7	16.3	33.2	28.2	17	22.8	12	15.7	17	19
AS2052F-08	8	15.2				57.2	8	17.6	34.5	29.5				16.1	22	
AS3002F-06	6	13.2	4.3	8	19.3	59	7.4	19.3	38.6	33.6	22	25	12	20.5	17	36
AS3002F-08	8	15.2				65	8.2	20.1	39.4	34.4					18	38
AS3002F-10	10	18.5				70.8	9.8	21.7	41	36					21	42
AS3002F-12	12	20.9				76	10.9	22.8	42.1	37.1					22.1	44
AS4002F-10	10	18.5	4.3	8	25	76.9	10.3	22.7	51.6	44.1	28	33	14	26.2	21	76
AS4002F-12	12	21.7				81.3	11.3	23.7	52.6	45.1					22	82

Note) Reference dimensions

Inch Size

Unit: mm

Model	Applicable tube O.D. ød	D1	D2	D3	D4	L1	L2	L3	L4 (Note)		L5	L6	L7	L8	M1	Weight (g)
									MAX.	MIN.						
AS1002F-01	1/8"	8.4	3.3	5.5	9.1	36	4.5	11.2	23.8	21	11	15.4	8.8	9.8	12.7	5
AS1002F-03	5/32"	9.3				37	5.2	11.9	24.5	21.7				10.1		5.5
AS1002F-07	1/4"	12				39.5	6.1	12.8	25.5	22.7				12.8		6.5
AS2002F-03	5/32"	9.3	3.3	5.5	10	40.7	5.2	12.3	28.9	25.4	12.6	17	10.5	11.5	12.7	8.5
AS2002F-07	1/4"	12				42.6	6.5	13.6	30.2	26.7				12.8	9.5	
AS2052F-07	1/4"	13.2	4.3	7.8	14	53.4	6.9	16.5	33.4	28.4	17	22.8	12	15.7	17	19
AS2052F-09	5/16"	15.2				57.2	8	17.6	34.5	29.5				16.1	22	
AS3002F-07	1/4"	13.2	4.3	8	19.3	59	7.4	19.3	38.6	33.6	22	25	12	20.5	17	35
AS3002F-09	5/16"	15.2				65	8.2	20.1	39.4	34.4					18	38
AS3002F-11	3/8"	18.5				69.8	9.8	21.7	41	36					21	52
AS4002F-11	3/8"	18.5				76.9	10.3	22.7	51.6	44.1					21	86
AS4002F-13	1/2"	21.7	4.3	8	25	81.3	11.3	23.7	52.6	45.1	28	33	14	26.2	22	95

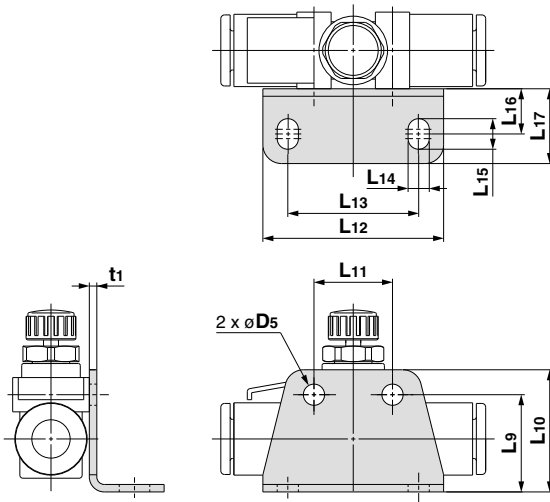
Note) Reference dimensions

It is possible to tighten the lock nut (hexagon) manually.
 If the nut needs to be fixed more firmly, retighten it with a tool. When using a tool, the nut needs to be tightened to the recommended tightening torque shown in the table.
 As a guide, it should be tightened by 15 to 30° with a tool after tightening it manually.
 Be careful not to damage the lock nut by applying too much torque.

Series	Proper tightening torque (ft.lb)
AS1002F-02	0.05
AS1002F	0.15
AS2002F	0.22
AS2052F	0.74
AS3002F	1.5
AS4002F	3

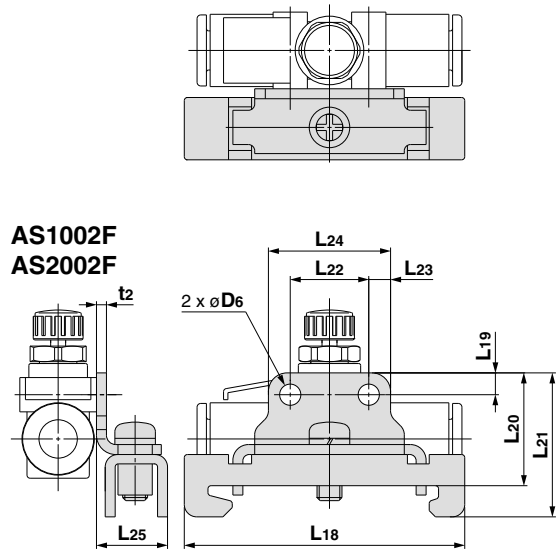
L-bracket

Bracket on a single side



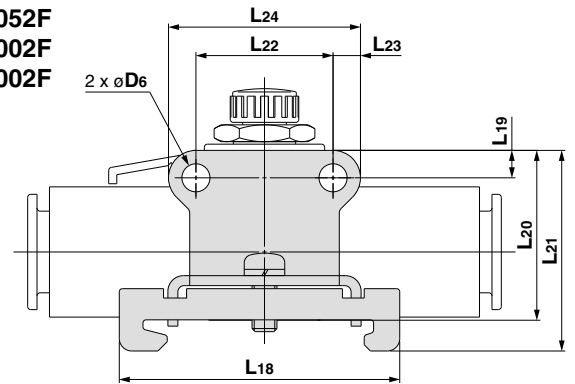
DIN rail mounting bracket

Bracket on a single side



AS1002F
AS2002F

AS2052F
AS3002F
AS4002F



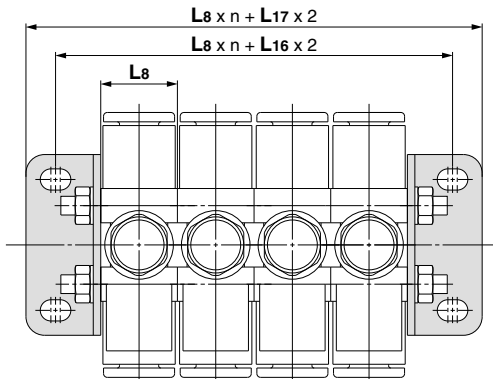
Unit: mm

Part no.	Applicable series	D5	L9	L10	L11	L12	L13	L14	L15	L16	L17	t1
AS-12L	AS1002F-02		9.9	13.4	11	27.5	19.5					1
AS-10L	AS1002F	3.4	14.8	18.3				3.4	4.9	7.3	12	
AS-20L	AS2002F		15.6	19.6	12.6	29	21					1.2
AS-25L	AS2052F		19.6	24.6	17	38	28					
AS-30L	AS3002F	4.5	24.8	29.8	22	43	33	4.5	6.5	9.5	15.5	
AS-40L	AS4002F		25.7	30.7	28	49	39					1.4

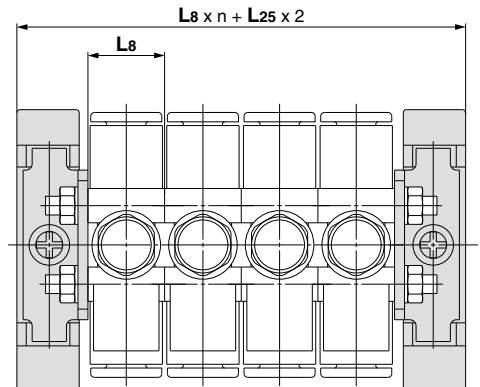
Unit: mm

Part no.	Applicable series	D6	L18	L19	L20	L21	L22	L23	L24	L25	t2
AS-10D	AS1002F	3.4		3.5	18.2	23.2	11		18		
AS-20D	AS2002F				18.6	23.6	12.6	3.5	19.6		
AS-25D	AS2052F	45			22	27	17		25.8	11.2	1.6
AS-30D	AS3002F	4.5		4.4	27.2	32.2	22	4.4	30.8		
AS-40D	AS4002F				28.1	33.1	28		36.8		

Brackets on both sides



Brackets on both sides



*1 Refer to page 3 for L8.

*2 The above figure shows the manifold with controllers connected using two L-brackets and a threaded stud kit for manifold. Refer to page 1 for threaded stud kits for manifold.

*1 Refer to page 3 for L8.

*2 The above figure shows the manifold with controllers connected using two DIN rail mounting brackets and a threaded stud kit for manifold. Refer to page 1 for threaded stud kits for manifold.

Holder for Speed Controller

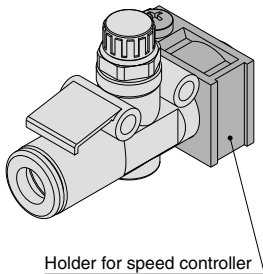
Series *TMH*

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

Possible to hold a single controller.



● Holder mounting



Holder for speed controller

Specifications

Ambient temperature	-4 to 140°F (-20 to 60°C)
Material	Polypropylene
Color	White

Accessory: Cross Recessed Round Head Screw for Mounting

Model		Size (Nominal x Length)	Piece
Metric size	Inch size	M3 x 15	1
TMH-23J	TMH-01J		
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 below table.

Metric Size

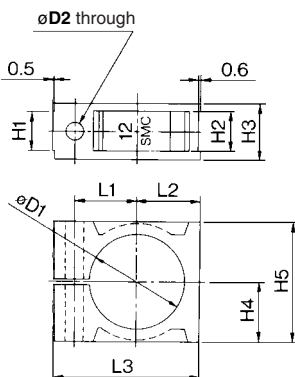
Applicable series	Tube size	Applicable tube					
		23 ø3.2	04 ø4	06 ø6	08 ø8	10 ø10	12 ø12
AS1002F	TMH-23J	TMH-04J	TMH-06J	TMH-08	TMH-10	TMH-12	
AS2002F							
AS2052F			TMH-06	TMH-08	TMH-10	TMH-12	
AS3002F			TMH-07				
AS4002F						TMH-13	

Note) The applicable TMH for AS1002F-02 is not available.

Inch Size

Applicable series	Tube size	Applicable tube					
		01 ø1/8"	03 ø5/32"	07 ø1/4"	09 ø5/16"	11 ø3/8"	13 ø1/2"
AS1002F	TMH-01J	TMH-03J	TMH-07J	TMH-09	TMH-10	TMH-13	
AS2002F							
AS2052F			TMH-07	TMH-09	TMH-10	TMH-13	
AS3002F							
AS4002F							

Dimensions





Model		øD1	øD2	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										6
—	TMH-07	13.5	4.3	7.1	7.2	11.1	10	20	11	10.6	26.5	1/4
TMH-08	TMH-09	15.5										8 5/16
TMH-10	—	18.8										10
TMH-12	—	21.2	4.3	9.5	9.6	13.5	14	28	14.2	14.6	34	12
—	TMH-13	22										1/2


Unit: mm

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), American National Standards Institute (ANSI)*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.

ANSI / (NFPA) T2.25.1 R2: Pneumatic fluid power - Systems standard for industrial machinery.

NFPA (Fluid) T2.24.1 R1: Hydraulic fluid power - Systems standard for stationary industrial machinery.

NF PA 79: Electrical Standard for Industrial Machinery.

ANSI / RIA / ISO 10218 -1: Robots for Industrial Environment - Safety Requirements - Part 1 - Robot. 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 catalog 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 catalog.
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.*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 catalog for the particular products.

*2) Vacuum pads are excluded from this 1 year warranty.

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.

Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

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.

Revision history

Edition B * Addition of round lock nut to lock nut option.

OZ

Safety Instructions

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



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