Stainless Steel Speed Controller with One-touch Fitting

New

RoHS

Improved environmental resistance with the all stainless steel exterior

Possible for use in environments such as

high temperature, water splashing, and where copper and zinc cannot be used

Max. operating temperature: 150°C

NSF H1 grease

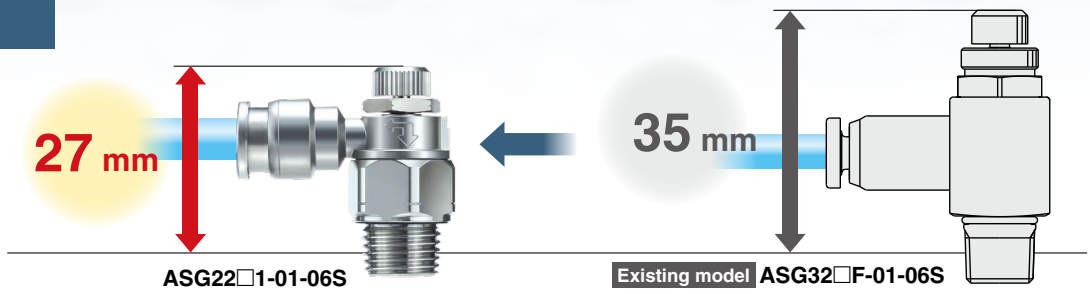
Connection thread: Supports M5, R, NPT, and G

Material: Stainless steel 316 (Body A)*1 FKM (Seal material)

*1 Stainless steel 304 is used as the material for parts other than body A.

Compact

Height reduced by 23%



Lightweight

Weight 21 g ASG22□1-01-06S ← Existing model 42 g ASG32□F-01-06S

Variations

Port size		Applicable tubing O.D.	
		Metric size	Inch size
M5 x 0.8		ø4, ø6	–
10-32UNF		–	ø5/32", ø1/4"
R NPT G	1/8	ø6, ø8	ø1/4", ø5/16"
	1/4	ø6, ø8, ø10	ø1/4", ø5/16", ø3/8"
	3/8	ø8, ø10	ø5/16", ø3/8"
	1/2	ø10, ø12	ø3/8", ø1/2"

* Metric size: R, G only, Inch size: NPT only

ASG Series

SMC

CAT.ES20-283A Ⓐ

Stainless Steel Speed Controller with One-touch Fitting

ASG Series

RoHS

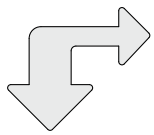
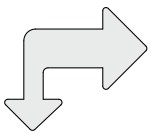
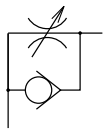
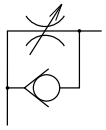
Model

One-touch fitting type

Model (Standard)	Port size		Seal method	Applicable tubing O.D.									
				Metric size (Applicable thread: R, G)					Inch size (Applicable thread: NPT)				
				4	6	8	10	12	5/32"	1/4"	5/16"	3/8"	1/2"
ASG12□1-M5-□	M5 x 0.8		Gasket seal	●	●								
ASG12□1-U10/32-□	10-32UNF								●	●			
ASG22□1-□01-□	R G NPT	1/8	Sealant (R/NPT) Face seal (G)		●	●				●	●		
ASG22□1-□02-□		1/4			●	●	●			●	●	●	
ASG32□1-□03-□		3/8				●	●				●	●	
ASG42□1-□04-□		1/2					●	●				●	●

∗1 "Without sealant" type can be selected as a standard option.
∗2 Meter-out and meter-in types can be visually differentiated by the flow direction symbol on the body.

Flow Direction Symbols on Body

	Meter-out	Meter-in
Indication symbol		
Symbol		

Specifications

Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure	1 MPa
Min. operating pressure	0.1 MPa
Ambient and fluid temperatures	0 to 150°C (No freezing)
Applicable tubing material∗1	FEP, PFA, Nylon, Soft nylon, Polyurethane, Polyolefin

∗1 Check the max. operating pressure of the tubing. (Please refer to the **Web Catalog** for details.)

Flow Rate and Sonic Conductance

Model		**ASG12□1-M5-□**	**ASG12□1-U10/32-□**	**ASG22□1-□01-□**	**ASG22□1-□02-□**	**ASG32□1-□03-□**	**ASG42□1-□04-□**
Tubing O.D.	Metric size	ø4, ø6	—	ø6, ø8	ø6, ø8, ø10	ø8, ø10	ø10, ø12
	Inch size	—	ø5/32, ø1/4	ø1/4, ø5/16	ø1/4, ø5/16, ø3/8	ø5/16, ø3/8	ø3/8, ø1/2
C values: Sonic conductance $dm^3/(s \cdot bar)$	Free flow	0.3	0.3	0.7	1.4	2.9	5.3
	Controlled flow	0.3	0.3	0.7	1.3	3.2	5
b values: Critical pressure ratio	Free flow	0.4	0.4	0.4	0.4	0.4	0.15
	Controlled flow	0.4	0.4	0.4	0.25	0.25	0.2

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

How to Order

ASG 2 2 0 1 – □ 01 – 06 S

Body size

1	M5 standard
2	01, 02 standard
3	03 standard
4	04 standard

Elbow

Control type

0	Meter-out
1	Meter-in

Thread type

Nil	R
N	NPT
G	G

Port size

M5	M5 x 0.8
U10/32	10-32UNF
01	1/8
02	1/4
03	3/8
04	1/2

Applicable tubing O.D.

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

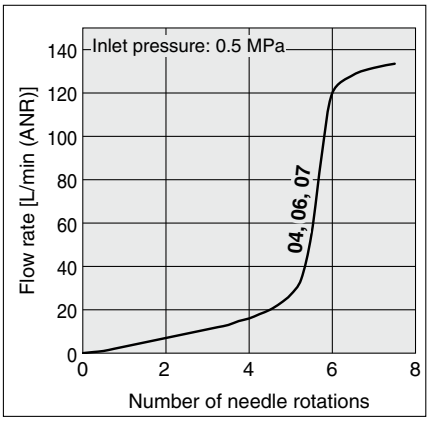
Option

Nil	Without sealant
S	With sealant

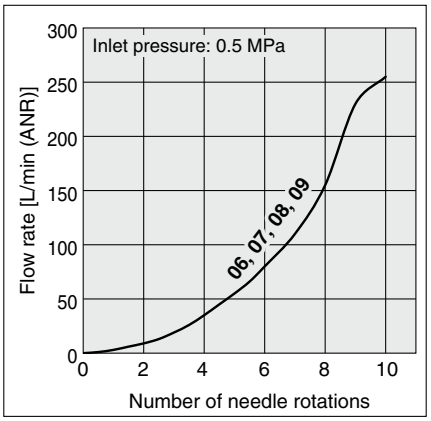
* Select Nil (Without sealant) for M5 and G thread.

Needle Valve: Flow Rate Characteristics

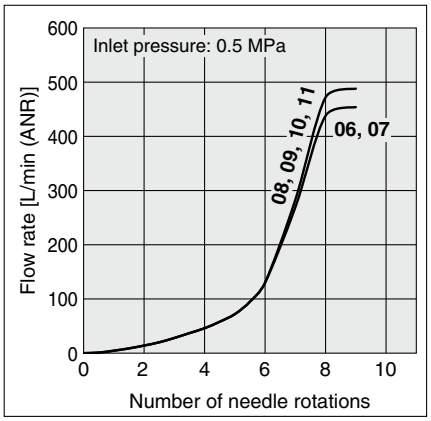
ASG12□1-M5-□



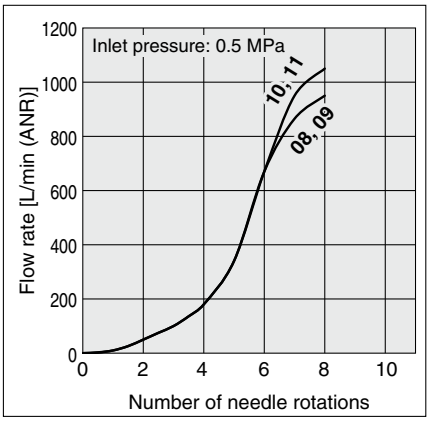
ASG22□1-01-□



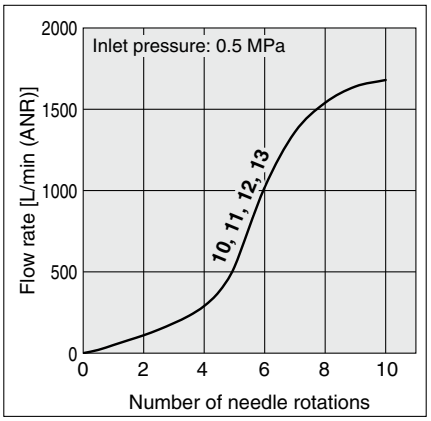
ASG22□1-02-□



ASG32□1-03-□



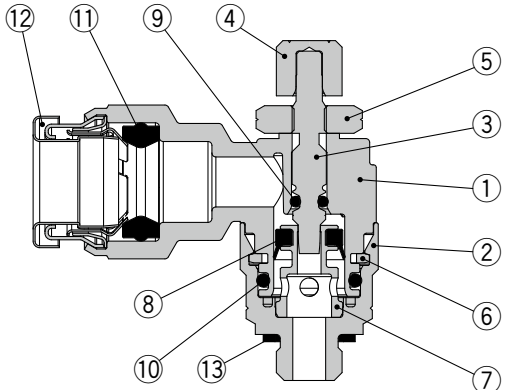
ASG42□1-04-□



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

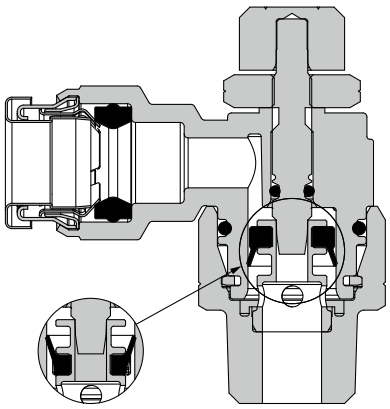
Construction

Seal method: Gasket seal
For M5



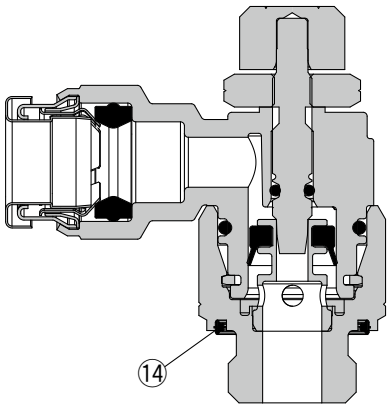
Meter-out

Seal method: Sealant
For R



Meter-in Meter-out

Seal method: Face seal
For G thread



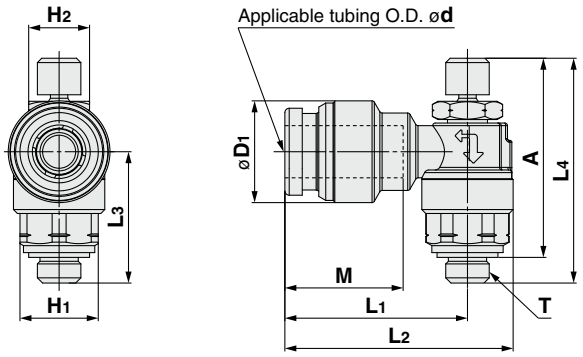
Meter-out

Component Parts

No.	Description	Material	Note
1	**Body A**	Stainless steel 316	
2	**Body B**	Stainless steel 304	
3	**Needle**	Stainless steel 304	
4	**Knob**	Stainless steel 304	
5	**Lock nut**	Stainless steel 304	
6	**C-ring**	Stainless steel 304	
7	**Seat ring**	Aluminum alloy	
8	**U-seal**	FKM	
9	**O-ring**	FKM	
10	**O-ring**	FKM	
11	**Seal**	FKM	
12	**Cassette**	Stainless steel 304	
13	**Gasket**	Stainless steel/FKM	M5
14	**Seal**	FKM	G thread type

Dimensions

One-touch fitting type
Seal method: Gasket seal
For M5, 10-32UNF



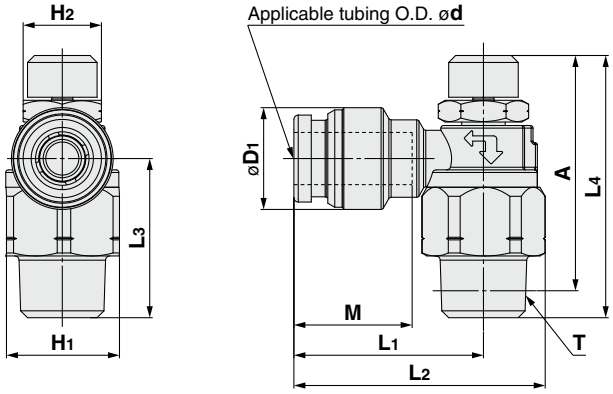
Metric Size [mm]

Model	d	T	H1	H2	D1	A Max.	L1	L2	L3	L4 Max.	M	Weight [g]
ASG12□1-M5-04	4	M5 x 0.8	9	7	9.0	26.0	16.3	21.6	15.1	28.9	12.6	9
ASG12□1-M5-06	6				11.7		21.0	26.3			13.6	12

Inch Size [mm]

Model	d	T	H1	H2	D1	A Max.	L1	L2	L3	L4 Max.	M	Weight [g]
ASG12□1-U10/32-03	5/32	10/32 UNF	9	7	9.0	26.0	16.3	21.6	15.1	28.9	12.6	9
ASG12□1-U10/32-07	1/4				11.7		21.0	26.2			13.5	12

One-touch fitting type
Seal method: Sealant
For R, NPT



Metric Size [mm]

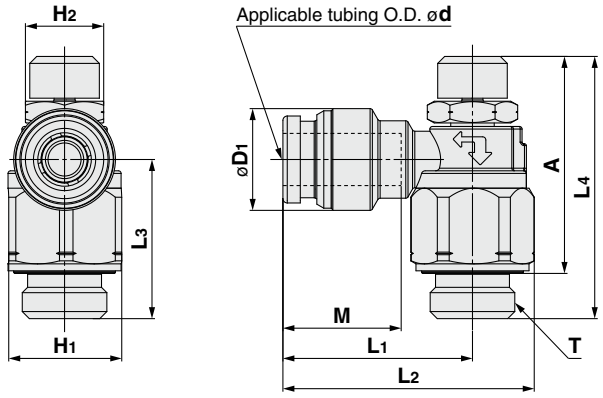
Model	d	T	H1	H2	D1	A Max.	L1	L2	L3	L4 Max.	M	Weight [g]
ASG22□1-01-06	6	R1/8	13	9	11.7	30.9	21.8	28.9	18.3	34	13.6	21
ASG22□1-01-08	8				13.7		24.7	31.8			16.1	23
ASG22□1-02-06	6	R1/4	17	12	11.7	34	24	33.3	23	39.5	13.6	37
ASG22□1-02-08	8				13.7		27.6	36.9			16.1	39
ASG22□1-02-10	10				16.7		30	39.2			17.0	43
ASG32□1-03-08	8	R3/8	22	14	13.7	40.3	29.2	41.1	26.9	45.5	16.1	66
ASG32□1-03-10	10				16.7		31.2	43.1			17.0	69
ASG42□1-04-10	10	R1/2	27	17	16.7	45.8	33.5	47.9	33.3	54.8	17.0	112
ASG42□1-04-12	12				19.6		35.5	49.9			18.6	117

Inch Size [mm]

Model	d	T	H1	H2	D1	A Max.	L1	L2	L3	L4 Max.	M	Weight [g]
ASG22□1-N01-07	1/4	N1/8	12.7	9	11.7	30.9	21.7	28.8	18.3	34	13.5	21
ASG22□1-N01-09	5/16				13.7		24.7	31.8			16.1	22
ASG22□1-N02-07	1/4	N1/4	17.46	12	11.7	34	23.9	33	23	39.6	13.5	37
ASG22□1-N02-09	5/16				13.7		27.6	36.9			16.1	39
ASG22□1-N02-11	3/8				16.7		29.5	38.6			16.6	44
ASG32□1-N03-09	5/16	N3/8	22.23	14	13.7	40.3	29.2	41.1	26.9	45.5	16.1	67
ASG32□1-N03-11	3/8				16.7		30.8	42.6			16.6	71
ASG42□1-N04-11	3/8	N1/2	27	17	16.7	45.8	33.1	49.2	33.3	54.8	16.6	113
ASG42□1-N04-13	1/2				19.6		35.3	49.4			18.5	116

Dimensions

One-touch fitting type
Seal method: Face seal
For G thread



Metric Size [mm]

Model	d	T	H1	H2	D1	A Max.	L1	L2	L3	L4 Max.	M	Weight [g]
ASG22□1-G01-06	6	G1/8	13	9	11.7	28.8	21.8	28.9	18.3	34	13.6	22
ASG22□1-G01-08	8				13.7		24.7	31.7			16.1	23
ASG22□1-G02-06	6	G1/4	17	12	11.7	31.6	24	33.2	23	39.6	13.6	38
ASG22□1-G02-08	8				13.7		27.6	36.8			16.1	40
ASG22□1-G02-10	10				16.7		29.9	39.1			17.0	44
ASG32□1-G03-08	8	G3/8	22	14	13.7	38	29.2	41	26.9	45.5	16.1	69
ASG32□1-G03-10	10				16.6		31.2	43			17.0	72
ASG42□1-G04-10	10	G1/2	27	17	16.6	45.8	33.5	47.6	33.3	54.8	17.0	119
ASG42□1-G04-12	12				19.6		35.5	49.6			18.6	124

ASG 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.smcworld.com

Design and Selection

⚠ Warning

1. Confirm the specifications.

The products in this catalog 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. Products mentioned in this catalog are not designed for use as stop valves 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.

Doing so 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.

Also, depending on product specifications, there may be variations in the zero needle rotations position of the flow rate characteristics.

5. Sonic conductance (C) and critical pressure ratio (b) values for products are representative values.
For controlled flow direction values the needle is fully open. For free flow direction values the needle is fully closed.

6. Check if PTFE can be used in the application.

PTFE powder (Polytetrafluoroethylene resin) is included in the seal material of the male thread type piping taper thread. Confirm that the use of it will not cause any adverse effects on the system. Please contact SMC if the Safety Data Sheet (SDS) is required.

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

Mounting

⚠ Warning

1. Operation manual

Install the product and operate it only after reading the operation manual carefully and understanding its contents.

Also, keep the manual where it can be referred to as necessary.

2. Ensure sufficient space for maintenance activities.

When installing the products, allow access for maintenance and inspection.

3. Tighten threads with the proper tightening torque.

When installing the products, follow the listed torque specifications.

4. Use R external threads with Rc internal threads.

5. Confirm that the lock nut is tightened.

A loose lock nut may cause speed changes in the actuator.

6. Check the degree of rotation of the needle valve.

The products in this catalog are retainer type so that the needle is not removed completely. Over rotation will cause damage.

Mounting

⚠ Warning

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

This can cause the idle rotation of the knob or damage.

8. Confirm the air flow direction.

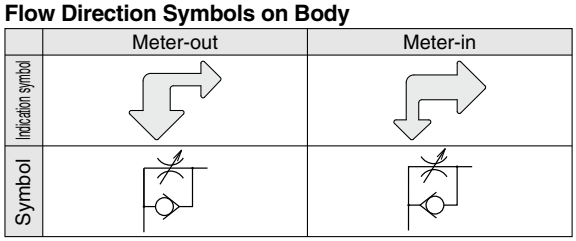
Mounting backward is dangerous because the speed adjustment needle will not work, and the actuator may lurch suddenly.

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

Loose needle valves may cause unexpected sudden actuator extension.

When a needle valve is turned clockwise, it is closed and cylinder speed decreases. When a needle valve is turned counterclockwise, it is open and cylinder speed increases.

Flow Direction Symbols on Body

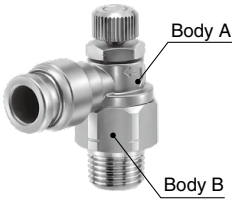


10. Do not apply excessive force or shock to the body or fittings with an impact tool.

It can cause damage or air leakage.

11. To install/remove the product, use an appropriate wrench to tighten/loosen at the supplied nut on body B.

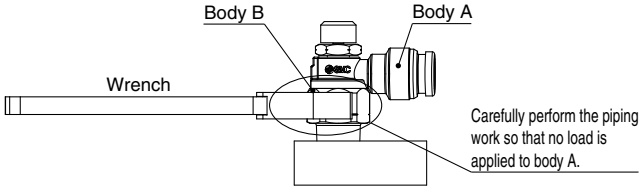
Do not apply torque at other points, as the product may be damaged. Rotate body A manually for positioning after installation.



⚠ Caution

1. When performing the piping work, turn the tightening tool in the horizontal direction to the hexagon across flats of body B so that any moment is not applied to the body.

If the tool is in contact with the body, this may cause the body to come off.



2. Body A can be slightly rotated for positioning, but it cannot be used as a rotating part.

This will cause metal debris by wearing, which may enter the operating fluid or cause fitting damage.

3. If the connection tube oscillates or turns, do not use this product.

Failure to do so may result in fitting breakage or detachment of the body.

ASG 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.smcworld.com

Mounting

⚠ Caution

For M5

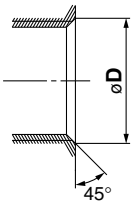
Tightening method

First, tighten it by hand, then give it an additional 1/6 turn to 1/4 turn with a wrench. The reference value for the tightening torque is 1 to 1.5 N·m.

* Excessive tightening may damage the thread portion or deform the gasket and cause air leakage.
  If the screw is too shallowly screwed in, it may come loose or air may leak.

Chamfered area for female thread

1. In compliance with ISO 16030 Standards (air pressure fluid dynamics – connection – ports and stud ends), the chamfered thread sizes shown below are recommended.



Female thread size	Chamfer dimension ø**D** (Recommended value)
M5	5.1 to 5.4
10-32UNF	5.0 to 5.3

For R Thread (With sealant)

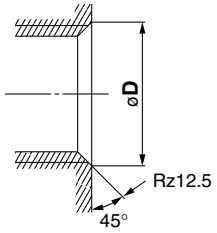
Tightening method

1. The proper tightening torques of the fittings are as shown in the table below.
   As a guide, tighten it by hand, then turn it two or three turns with a wrench.
   Check the dimensions of each product for the hexagon width across flats.

Connection thread size	Proper tightening torque [N·m]
NPT, R1/8	3 to 5
NPT, R1/4	8 to 12
NPT, R3/8	15 to 20
NPT, R1/2	20 to 25

Chamfered area for female thread

By chamfering as shown in the following table, machining of threads is easier and effective for burr prevention.



Connection thread size	Chamfer dimension ø**D** (Recommended value)	
	Rc	NPT, NPTF
1/8	10.2 to 10.4	10.5 to 10.7
1/4	13.6 to 13.8	14.1 to 14.3
3/8	17.1 to 17.3	17.4 to 17.6
1/2	21.4 to 21.6	21.7 to 21.9

* For Uni thread, Rz 12.5 is necessary for sealing at the chamfered part.

For G Thread (Face seal)

Tightening method

First, tighten the threaded portion by hand, then use a proper wrench, which could be suitable for the width across flats of the hexagon body, to tighten it further at a wrench tightening angle shown in the table below. For a tightening torque guide, refer to the table below. Check the dimensions of each product for the hexagon width across flats.

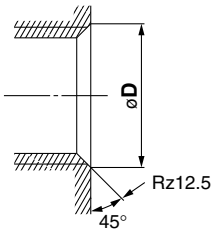
1) The proper tightening torques of the fittings are as shown in the table below.

Connection thread size	Proper tightening torque [N·m]
G1/8	3 to 5
G1/4	8 to 12
G3/8	15 to 20
G1/2	20 to 25

2) Insufficient tightening may loosen the threads, or cause air leakage.
3) Reuse
   (1) Normally, fittings with a sealant can be reused up to 6 to 10 times.
   (2) The seal ring cannot be replaced.

Chamfered area for female thread (Recommended value)

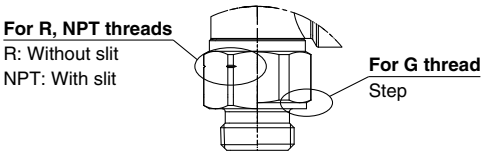
1. Conforming to ISO 16030-2001, the chamfered dimensions shown in the table below are recommended. By chamfering as shown in the table below, machining of threads is easier and effective for burr prevention.



Nominal thread size	Chamfered dimension ø**D**	
	Min.	Max.
1/8	9.8	10.2
1/4	13.3	13.7
3/8	16.8	17.2
1/2	21.0	21.4

2. Use G external threads with G internal threads.

How to distinguish between G and R threads



The proper tightening torques for hexagon lock nuts are shown in the table below.

For standard installation, turn 15 to 30° using a tool, after fastening by hand. Pay attention not to over tighten the product. Check the dimensions for each product for the width across flats.

Body size	Proper tightening torque [N·m]	Lock nut width across flats
M5	0.17	7
1/8	0.3	9
1/4	1	12
3/8	1.5	14
1/2	2	17

Specific Product Precautions 3

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

Piping Threads with Sealant

⚠ Caution

1. If the fitting is tightened with excessive torque, a large amount of sealant will seep out. Remove the excess sealant.

2. Insufficient tightening may loosen the threads or cause air leakage.

3. For reuse

1) Normally, fittings with a sealant can be reused up to 2 to 3 times.

2) To prevent air leakage through the sealant, remove any loose sealant stuck to the fitting by blowing air over the threaded portion.

3) If the sealant no longer provides effective sealing, wind sealant tape over the sealant before reusing. Do not use any form other than the tape type of sealant.

4. Once the fitting has been tightened, backing it out to its original position often causes the sealant to become defective. Air leakage will occur.

5. Use R external threads with Rc internal threads and NPT external threads with NPT internal threads.

Piping

⚠ Caution

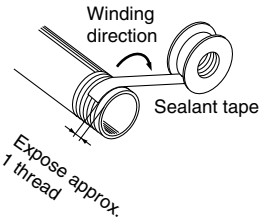
1. For handling One-touch fittings, refer to the Fittings and Tubing Precautions and the KQG2 Series Specific Product Precautions in the Web Catalog.

2. Preparation before piping

Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil, and other debris from inside the pipe.

3. Winding of sealant tape

When screwing piping or fittings into ports, ensure that chips from the pipe threads or sealing material do not enter the piping. Also, if sealant tape is used, leave 1 thread ridge exposed at the end of the threads.



⚠ 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 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, 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 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.

⚠ 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.

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

SMC Corporation
Akihabara UDX 15F,
4-14-1, Sotokanda, Chiyoda-ku, Tokyo 101-0021, JAPAN
Phone: 03-5207-8249 Fax: 03-5298-5362
https://www.smcworld.com

Stainless Steel Speed Controller with One-touch Fittings

In-line Type

New

RoHS

Improved corrosion/heat resistance with the all stainless steel exterior

Possible for use in environments such as high temperature, water splashing, and where copper and zinc cannot be used

Material:
Stainless steel 316 (External metal parts)*
FKM (Seal)

Refer to **page 3** for details.

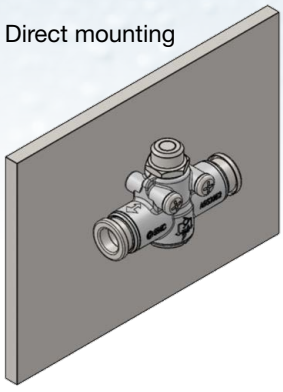
* Stainless steel 304 is used as the material for parts other than body A.

Max. operating temperature: 150°C

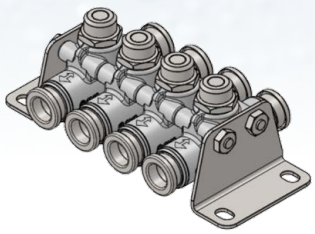
NSF H1 grease

Mounting variations

Direct mounting



L-bracket mounting



Applicable tubing O.D.

Metric	ø4, ø6, ø8, ø10, ø12
Inch	ø5/32", ø1/4", ø5/16", ø3/8", ø1/2"

***ASG* Series**

SMC

CAT.ES20-307A

Stainless Steel Speed Controller with One-touch Fittings In-line Type

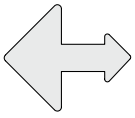
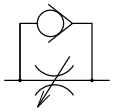
ASG Series

RoHS

Model

Model	Applicable tubing O.D.									
	Metric size					Inch size				
	ø4	ø6	ø8	ø10	ø12	ø5/32"	ø1/4"	ø5/16"	ø3/8"	ø1/2"
ASG1002-□	●					●				
ASG2002-□		●					●			
ASG2052-□			●					●		
ASG3002-□				●					●	
ASG4002-□					●					●

Flow Direction Symbols on Body

Indication symbol	
Symbol	

Specifications

Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure	1 MPa
Min. operating pressure	0.1 MPa
Ambient and fluid temperatures	0 to 150°C (No freezing)
Applicable tubing material∗1	FEP, PFA, Nylon, Soft nylon, Polyurethane, Polyolefin

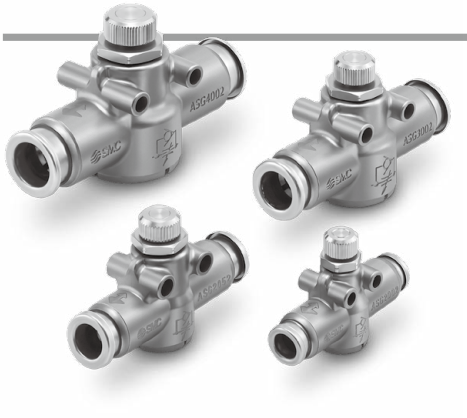
∗1 Check the max. operating pressure of the tubing. (Please refer to the **Web Catalog** for details.)

Flow Rate and Sonic Conductance

Model		**ASG1002-□**	**ASG2002-□**	**ASG2052-□**	**ASG3002-□**	**ASG4002-□**
Tubing O.D.	Metric size	ø4	ø6	ø8	ø10	ø12
	Inch size	ø5/32"	ø1/4"	ø5/16"	ø3/8"	ø1/2"
C values: Sonic conductance	Free flow	0.3	0.7	1.3	2.7	3.5
	Controlled flow	0.3	0.65	1.2	2.6	4.0
b values: Critical pressure ratio	Free flow	0.3	0.3	0.3	0.3	0.25
	Controlled flow	0.25	0.25	0.2	0.25	0.20

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

SMC



How to Order

ASG 200 2 – 06

Body size

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

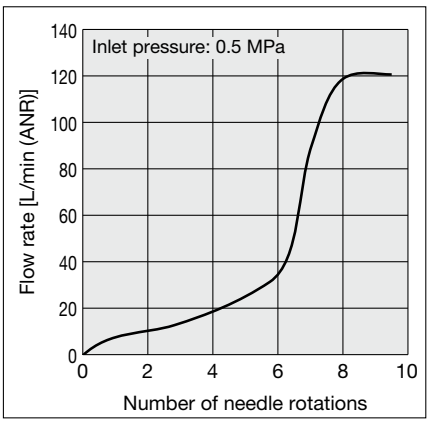
Applicable tubing O.D.

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

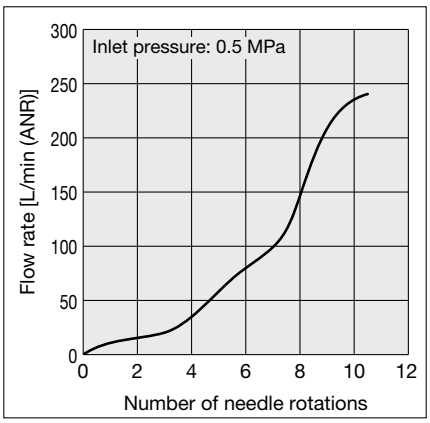
∗ For selecting applicable tubing O.D., refer to the "Model" on page 1.

Needle Valve: Flow Rate Characteristics

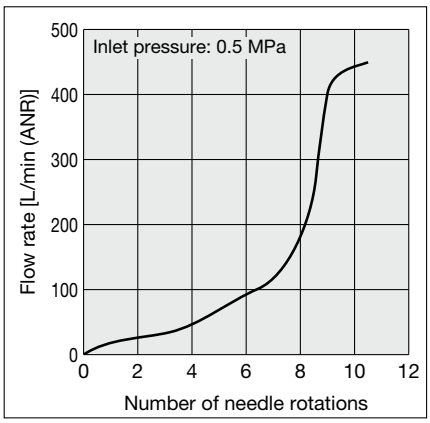
ASG1002-□



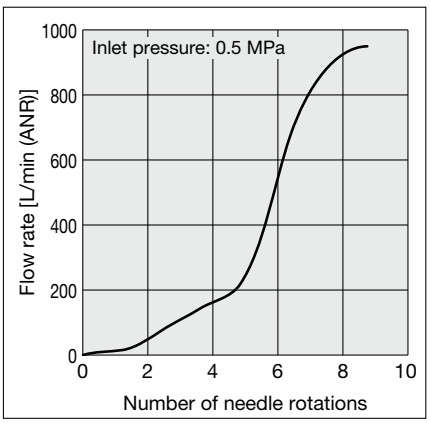
ASG2002-□



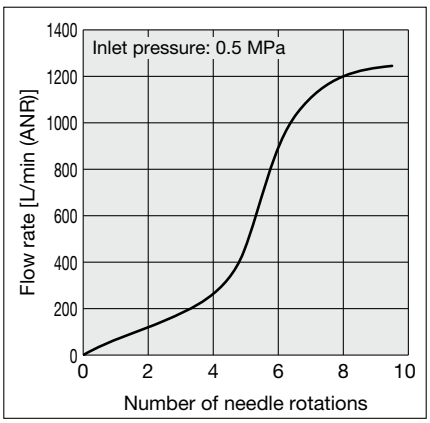
ASG2052-□



ASG3002-□

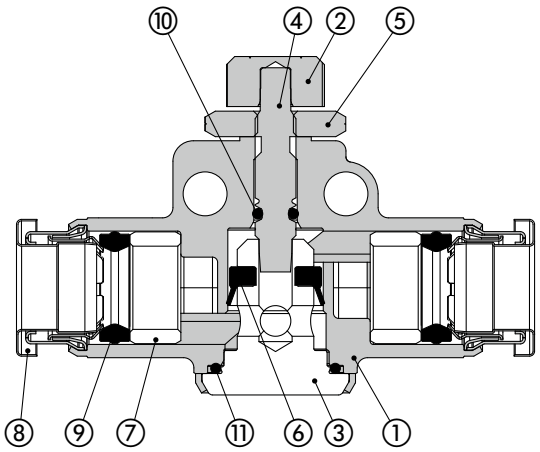


ASG4002-□



∗ The flow rate characteristics are representative values.
∗ 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**	Stainless steel 316	
2	**Knob**	Stainless steel 304	
3	**Seat ring**	Stainless steel 304	
4	**Needle**	Stainless steel 304	
5	**Lock nut**	Stainless steel 304	
6	**U-seal**	FKM	
7	**Spacer**	Stainless steel 303	
8	**Cassette**	Stainless steel 304	
9	**Seal**	FKM	
10	**O-ring**	FKM	
11	**O-ring**	FKM	

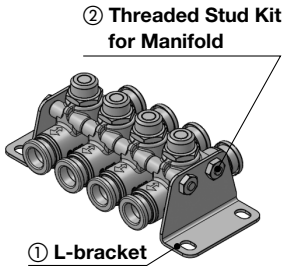
Options

① L-Bracket
(Material: Stainless steel 304)

Part number	Applicable model
ASG-10L	ASG1002-☐
ASG-20L	ASG2002-☐
ASG-25L	ASG2052-☐
ASG-30L	ASG3002-☐
ASG-40L	ASG4002-☐

② Threaded Stud Kit for Manifold
(Material: Stainless steel 304)

Part number				Applicable model
4 stations	6 stations	8 stations	10 stations	
ASG-31B	**ASG-32B**	**ASG-33B**	**ASG-34B**	ASG1002-☐
		ASG-34B	**ASG-35B**	ASG2002-☐
ASG-41B	**ASG-42B**	**ASG-44B**	**ASG-45B**	ASG2052-☐
ASG-42B	**ASG-44B**	**ASG-46B**	**ASG-47B**	ASG3002-☐
ASG-43B	**ASG-45B**	**ASG-47B**	**ASG-48B**	ASG4002-☐



③ Details of Threaded Stud Kit for Manifold

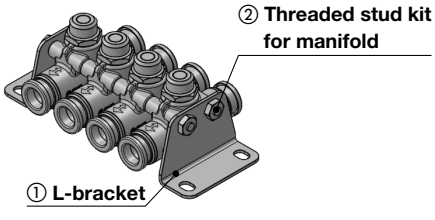
Threaded stud			Accessories			
Part number	Length	Quantity	Hexagon nut	Quantity	Flat washer	Quantity
ASG-31B	65	2	M3	4	M3	4
ASG-32B	93	2				
ASG-33B	107	2				
ASG-34B	132	2				
ASG-35B	150	2				
ASG-41B	78	2	M4	4	M4	4
ASG-42B	111	2				
ASG-43B	123	2				
ASG-44B	149	2				
ASG-45B	178	2				
ASG-46B	195	2				
ASG-47B	241	2				
ASG-48B	290	2				

Ordering Example

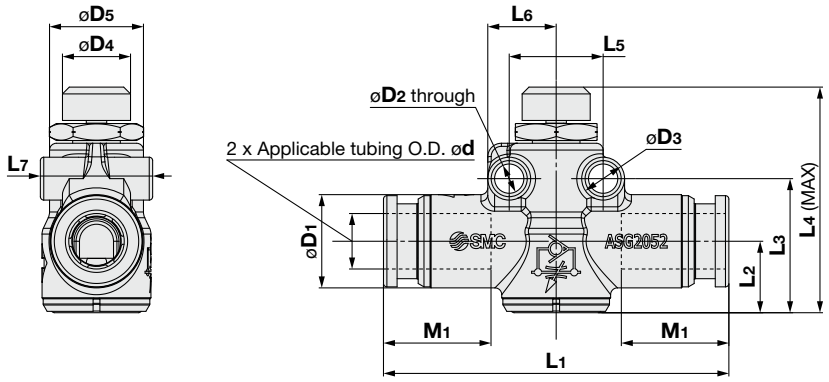
Threaded studs for manifold are not included with the L-bracket.
Please order them according to the number of stations.

Ex.) ASG2002-04
When connecting 4 pcs. and mounting L-brackets on both sides

- Speed controller
  ASG2002-04 ..... 4 pcs.
- L-bracket
  ASG-20L ..... 2 pcs.
- Threaded stud kit for manifold
  ASG-31B ..... 1 set



Dimensions



Metric Size

[mm]

Model	øD1	øD2	øD3	øD4	øD5	L1	L2	L3	L4 Max.	L5	L6	L7	M1	Weight [g]
ASG1002-04	9.1	3.3	5.3	5.0	8.0	35.8	7.8	13.9	27.8	8.0	6.7	12.2	12.6	19.4
ASG2002-06	11.4	3.3	5.3	8.0	9.8	42.8	9.1	16.5	33.0	9.8	7.6	14.0	13.6	33.0
ASG2052-08	13.7	4.3	6.3	10.0	13.8	50.8	10.5	19.7	37.7	13.8	10.1	16.5	16.1	55.1
ASG3002-10	16.6	4.3	6.3	11.0	17.4	62.2	12.5	23.5	42.9	17.4	11.9	22.8	17.0	105.8
ASG4002-12	19.6	4.5	7.0	14.0	21.0	73.6	14.4	26.3	49.6	21.0	14.0	27.7	18.6	169.3

Inch Size

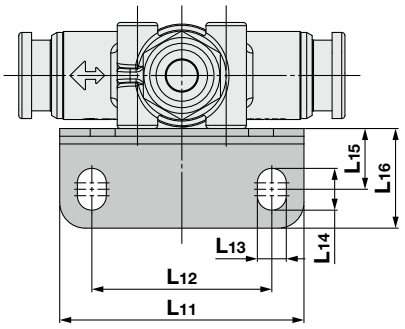
[mm]

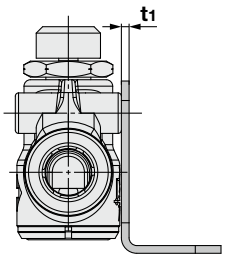
Model	øD1	øD2	øD3	øD4	øD5	L1	L2	L3	L4 Max.	L5	L6	L7	M1	Weight [g]
ASG1002-03	9.1	3.3	5.3	5.0	8.0	35.8	7.8	13.9	27.8	8.0	6.7	12.2	12.6	19.4
ASG2002-07	11.4	3.3	5.3	8.0	9.8	42.8	9.1	16.5	33.0	9.8	7.6	14.0	13.6	33.0
ASG2052-09	13.7	4.3	6.3	10.0	13.8	50.8	10.5	19.7	37.7	13.8	10.1	16.5	16.1	55.1
ASG3002-11	16.6	4.3	6.3	11.0	17.4	62.2	12.5	23.5	42.9	17.4	11.9	22.8	17.0	105.8
ASG4002-13	19.6	4.5	7.0	14.0	21.0	73.6	14.4	26.3	49.6	21.0	14.0	27.7	18.6	169.3

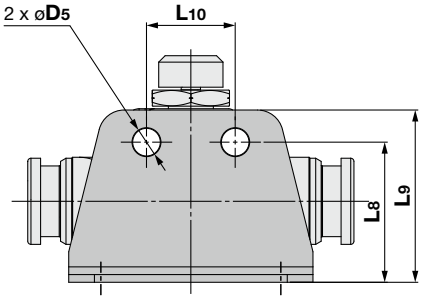
Dimensions

L-Bracket

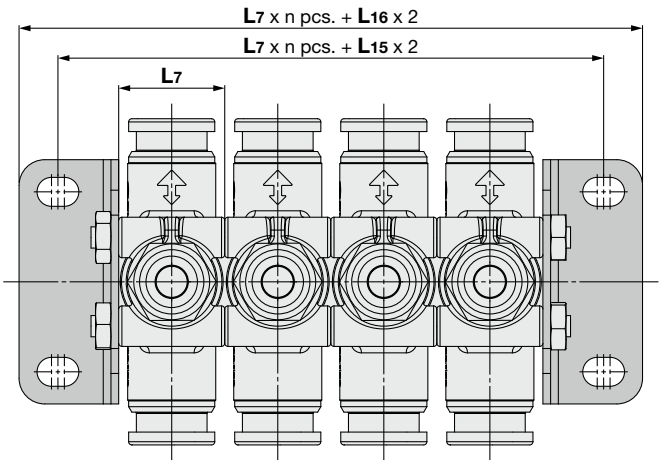
Bracket on a single side







Brackets on both sides



Part number	Applicable model	D5	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16	t1
ASG-10L	**ASG1002-□**	3.4	12.2	16.0	19.5	8.0	27.5	19.5	3.4	4.9	7.3	12.0	1
ASG-20L	**ASG2002-□**	3.4	14.0	18.6	22.6	9.8	29.0	21.0	3.4	4.9	7.3	12.0	1.2
ASG-25L	**ASG2052-□**	4.5	16.5	21.8	26.8	13.8	38.0	28.0	4.5	6.5	9.5	15.5	
ASG-30L	**ASG3002-□**	4.5	22.8	25.9	30.9	17.4	43.0	33.0	4.5	6.5	9.5	15.5	1.5
ASG-40L	**ASG4002-□**	4.5	27.7	28.7	33.7	21.0	49.0	39.0	4.5	6.5	9.5	15.5	

⚠ 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 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. 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 catalogs 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 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.

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

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