

# Stainless Steel Throttle Valve 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)\*1  
**FKM** (Seal) Refer to **page 4** for details.

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

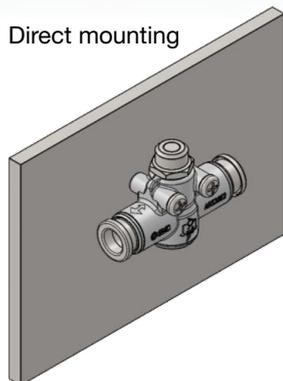
**Max. operating temperature:**  
**150°C**

**NSF H1 grease**

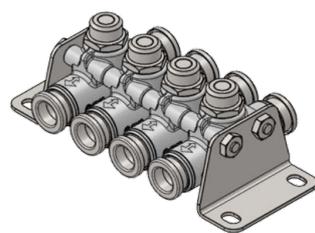
**Fluid: Air, Water, N<sub>2</sub>**

### Mounting variations

Direct mounting



L-bracket mounting



### Equipment for the Food Manufacturing Industry

#### HF2B- Series

- Lubricants or rust proof agents are not used for the external parts and fluid contact parts. Otherwise, lubricants or rust proof agents for the food machinery are being used.
- US FDA compliant materials are used.

#### Applicable tubing O.D.

Metric  $\varnothing 4, \varnothing 6, \varnothing 8, \varnothing 10, \varnothing 12$

Inch  $\varnothing 5/32", \varnothing 1/4", \varnothing 5/16", \varnothing 3/8", \varnothing 1/2"$

## HF2B-ASG-□TV Series

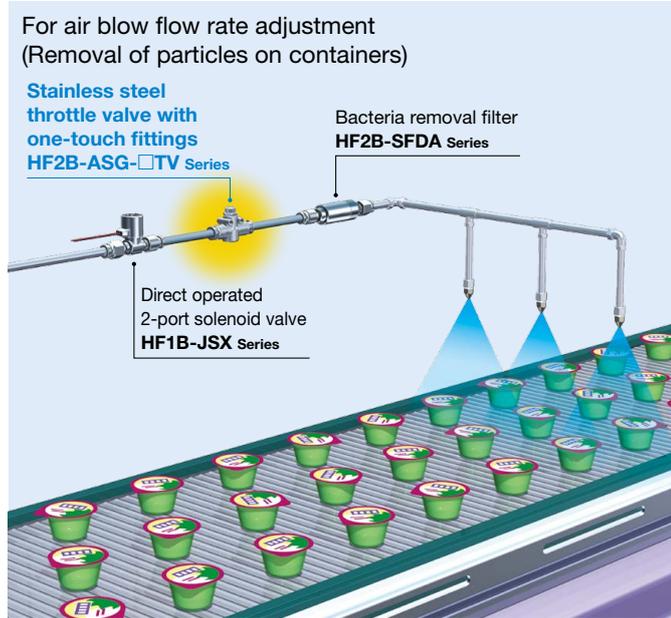
SMC

CAT.ES20-320A

# Stainless Steel Throttle Valve with One-touch Fittings **HF2B-ASG-□TV Series**

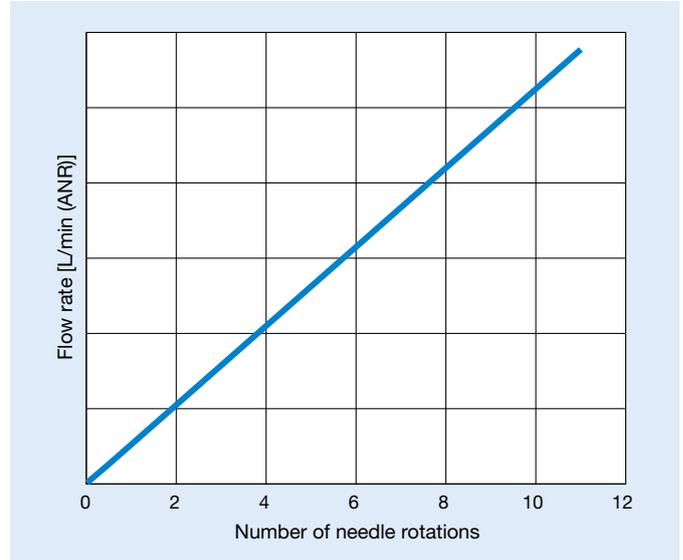
## Can be used in food manufacturing processes

For the blowing and air purge (nitrogen filling) of food products



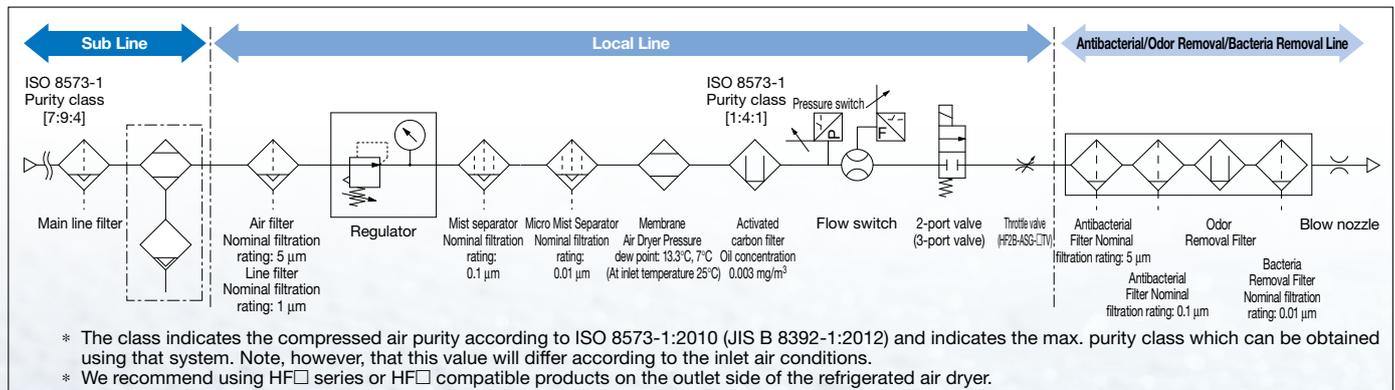
## Flow rate characteristics: Uses linear characteristics

Control characteristics suitable for air blow and filling process flow rate adjustment\*



\* Easy adjustment is possible due to the proportional relationship between needle rotation speed and flow rate.

## Pneumatic equipment circuit of air blower for food application (example)



## Equipment for the Food Manufacturing Industry

Lineup of equipment for various food production processes  
Designed to help in meeting HACCP, PRP, and other standards, Applicable for a diverse range of food manufacturing processes, Possible to blow directly onto food

### Equipment for the Food Manufacturing Industry



- Ice cream manufacturing process
- Meat and poultry manufacturing process
- Confectionery manufacturing process
- Processed cheese manufacturing process
- Bread manufacturing process
- Beverage manufacturing process

# Stainless Steel Throttle Valve with One-touch Fittings In-line Type

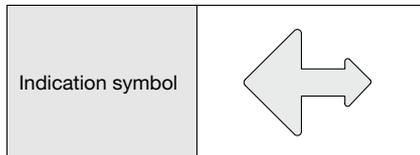
## HF2B-ASG-□TV Series

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"
HF2B-ASG1002-□TV	●					●				
HF2B-ASG2002-□TV		●					●			
HF2B-ASG2052-□TV			●					●		
HF2B-ASG3002-□TV				●					●	
HF2B-ASG4002-□TV					●					●

### Flow Direction Symbols on Body



### \* Temperature Condition of Mounting the Inner Sleeve

Tubing	Temperature
FEP tubing/TH Series	80°C or more
Super PFA tubing/TL Series	120°C or more

### Specifications

Fluid	Air, N <sub>2</sub> , Water
Proof pressure	1.5 MPa
Max. operating pressure*1	1 MPa
Min. operating pressure	0 MPa
Ambient and fluid temperatures	Air, N <sub>2</sub> : 0 to 150°C (No freezing) Water: 1 to 60°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.)

\* It is recommended that you use the inner sleeve in the following conditions.

- When using in an environment where the fluid temperature changes drastically.
- When using at a high temperature.

### Metric Size Cross Reference Table of the Inner Sleeve

Tubing O.D.	Tubing material			Applicable inner sleeve	
	TUS (Soft polyurethane)	TH/TIH (FEP)	TL/TIL (Super PFA)	Part no.	Length
ø4	—	TH0402	—	<b>TJ-0402</b>	18
	TUS0425	TH0425	—	<b>TJ-0425</b>	18
	—	—	TL0403	<b>TJ-0403</b>	18
ø6	TUS0604	TH0604	TL0604	<b>TJ-0604</b>	19
	TUS0805	—	—	<b>TJ-0805</b>	20.5
ø8	—	TH0806	TL0806	<b>TJ-0806</b>	20.5
	TUS1065	—	—	<b>TJ-1065</b>	23
ø10	—	TH1075	—	<b>TJ-1075</b>	23
	—	TH1008	TL1008	<b>TJ-1008</b>	24
	TUS1208	—	—	<b>TJ-1208</b>	24
ø12	—	TH1209	—	<b>TJ-1209</b>	24
	—	TH1210	TL1210	<b>TJ-1210</b>	24
	—	—	—	—	—

\* C2700 + Electroless nickel plated is used for the TJ series.

### Inch Size Cross Reference Table of the Inner Sleeve

Tubing O.D.	Tubing material		Applicable inner sleeve	
	TH/TIH (FEP)	TL/TIL (Super PFA)	Part no.	Length
ø5/32"	TH0402	—	<b>TJ-0402</b>	18
	TH0425	—	<b>TJ-0425</b>	18
	—	TL0403	<b>TJ-0403</b>	18
ø1/4"	TIHB07	TIL07	<b>TJ-0604</b>	19
	TIHA07	—	<b>TJ-0746</b>	19
ø5/16"	TH0806	TL0806	<b>TJ-0806</b>	20.5
	TIHB11	TIL11	<b>TJ-1065</b>	23
ø3/8"	TIHA11	—	<b>TJ-1107</b>	23
	TIH13	TIL13	<b>TJ-1395</b>	24

\* C2700 + Electroless nickel plated is used for the TJ series.

### Flow Rate and Sonic Conductance

Model		HF2B-ASG1002-□TV	HF2B-ASG2002-□TV	HF2B-ASG2052-□TV	HF2B-ASG3002-□TV	HF2B-ASG4002-□TV
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 [dm <sup>3</sup> /(s·bar)]		0.18	0.35	0.6	1.3	1.9
b values: Critical pressure ratio		0.40	0.40	0.35	0.30	0.30

\* The C and b values are for when the knob is in a fully open state.

# HF2B-ASG-□TV Series



## How to Order

**HF2B-ASG 200 2-06 TV**

### Body size

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

### Throttle valve

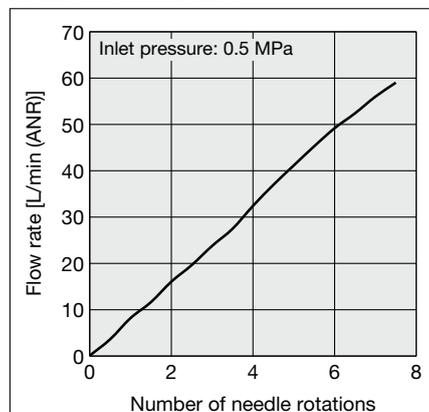
### Applicable tubing O.D.

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"

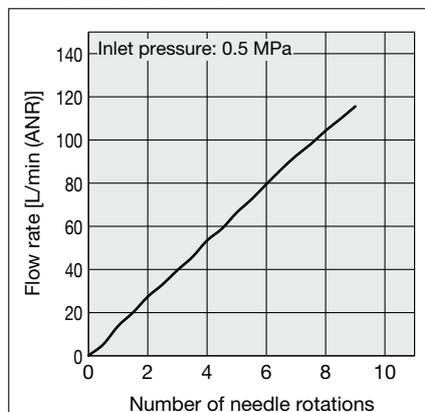
\* For selecting applicable tubing O.D., refer to the "Model" on page 2.

## Needle Valve: Flow Rate Characteristics

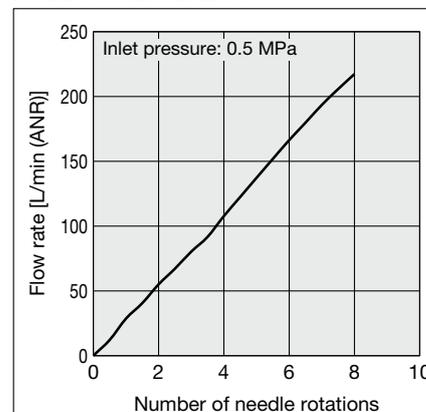
HF2B-ASG1002-□TV



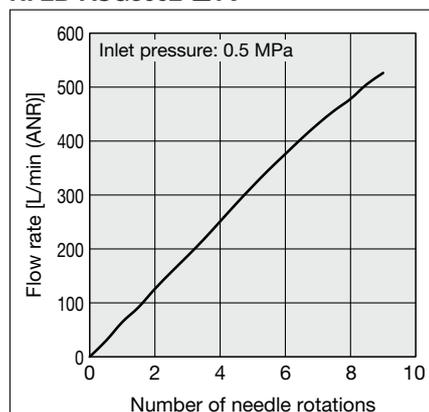
HF2B-ASG2002-□TV



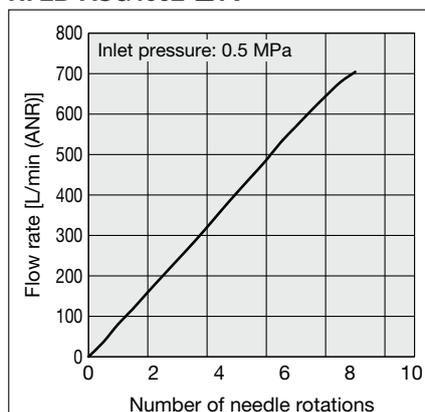
HF2B-ASG2052-□TV



HF2B-ASG3002-□TV

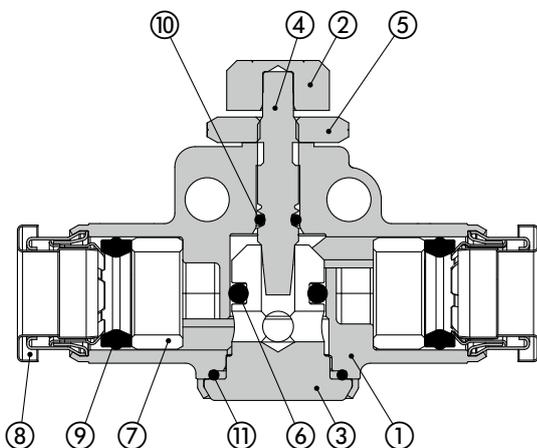


HF2B-ASG4002-□TV



\* The flow rate characteristics are representative values.

## 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	O-ring	FKM	
7	Spacer	Stainless steel 303	
8	Cassette	Stainless steel 304	
9	Seal	FKM	
10	O-ring	FKM	
11	O-ring	FKM	

## Options

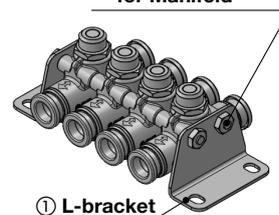
### ① L-Bracket (Material: Stainless steel 304)

Part number	Applicable model
ASG-10L	HF2B-ASG1002-□TV
ASG-20L	HF2B-ASG2002-□TV
ASG-25L	HF2B-ASG2052-□TV
ASG-30L	HF2B-ASG3002-□TV
ASG-40L	HF2B-ASG4002-□TV

### 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	HF2B-ASG1002-□TV
		ASG-34B	ASG-35B	HF2B-ASG2002-□TV
ASG-41B	ASG-42B	ASG-44B	ASG-45B	HF2B-ASG2052-□TV
ASG-42B	ASG-44B	ASG-46B	ASG-47B	HF2B-ASG3002-□TV
ASG-43B	ASG-45B	ASG-47B	ASG-48B	HF2B-ASG4002-□TV

### ② Threaded Stud Kit for Manifold



### 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				

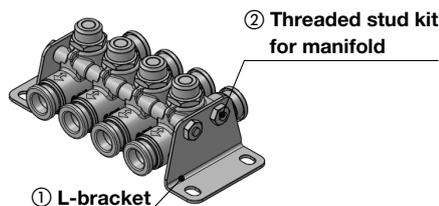
### Ordering Example

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

#### Ex.) HF2B-ASG2002-06TV

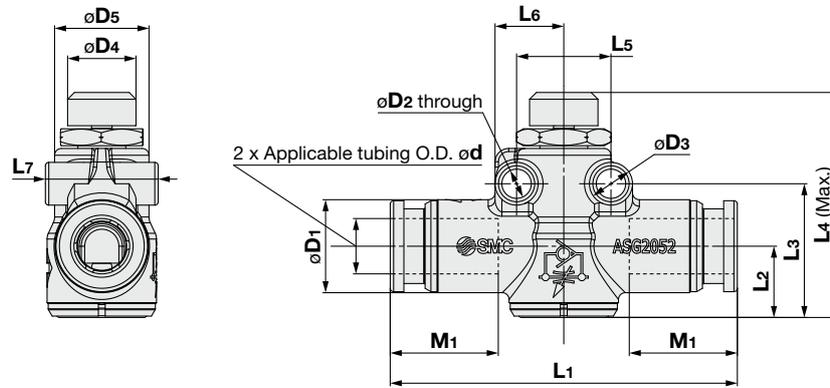
When connecting 4 pcs. and mounting L-brackets on both sides

- Speed controller  
HF2B-ASG2002-06TV ..... 4 pcs.
- L-bracket  
ASG-20L ..... 2 pcs.
- Threaded stud kit for manifold  
ASG-31B ..... 1 set



# HF2B-ASG-□TV Series

## Dimensions



### Metric Size

Model	$\phi D1$	$\phi D2$	$\phi D3$	$\phi D4$	$\phi D5$	$L1$	$L2$	$L3$	$L4$	$L5$	$L6$	$L7$	$M1$	Weight [g]
									Max.					
HF2B-ASG1002-04TV	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
HF2B-ASG2002-06TV	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
HF2B-ASG2052-08TV	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
HF2B-ASG3002-10TV	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
HF2B-ASG4002-12TV	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

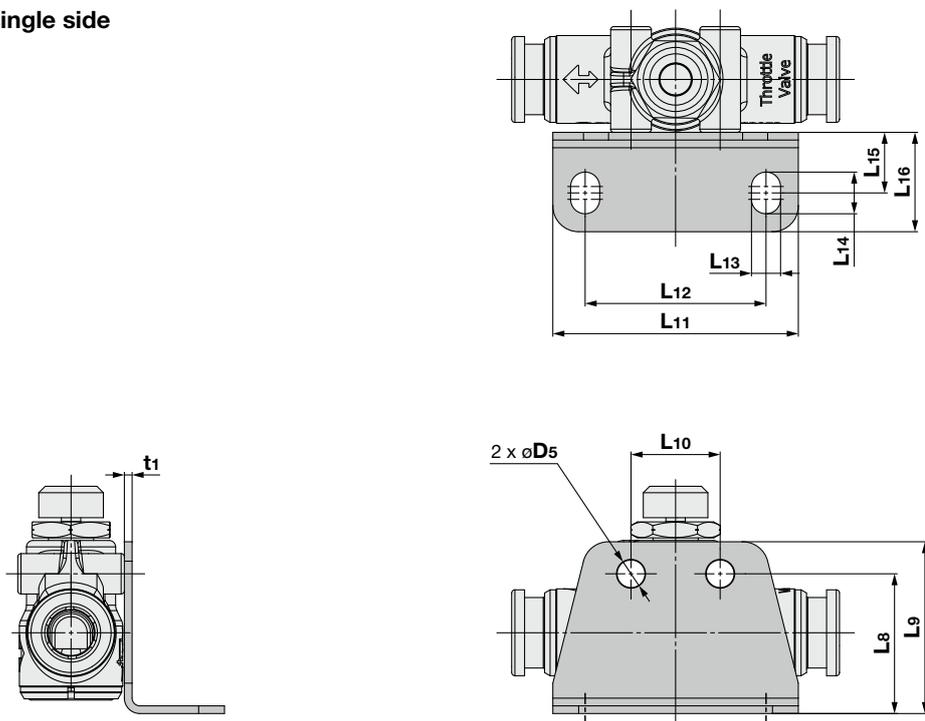
### Inch Size

Model	$\phi D1$	$\phi D2$	$\phi D3$	$\phi D4$	$\phi D5$	$L1$	$L2$	$L3$	$L4$	$L5$	$L6$	$L7$	$M1$	Weight [g]
									Max.					
HF2B-ASG1002-03TV	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
HF2B-ASG2002-07TV	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
HF2B-ASG2052-09TV	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
HF2B-ASG3002-11TV	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
HF2B-ASG4002-13TV	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

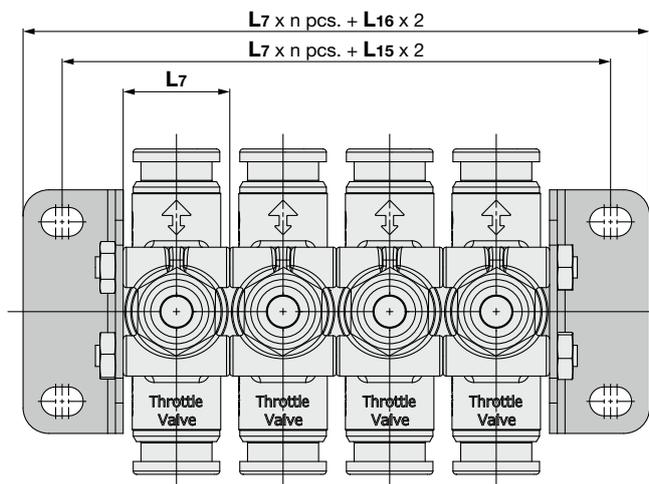
## Dimensions

### 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	HF2B-ASG1002-□TV	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	HF2B-ASG2002-□TV	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	HF2B-ASG2052-□TV	4.5	16.5	21.8	26.8	13.8	38.0	28.0	4.5	6.5	9.5	15.5	
ASG-30L	HF2B-ASG3002-□TV	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	HF2B-ASG4002-□TV	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. SMC products cannot be used beyond their specifications. They are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not allowed.

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, combustion 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

**SMC develops, designs, and manufactures products to be used for automatic control equipment, and provides them for peaceful use in manufacturing industries.**

**Use in non-manufacturing industries is not allowed.**

Products SMC manufactures and sells cannot be used for the purpose of transactions or certification specified in the Measurement Act of each country. 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) **Suction cups (Vacuum pads) are excluded from this 1 year warranty.**

A suction cup (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 suction cup (vacuum pad) or failure due to the deterioration of rubber material are not allowed 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.