

Water Resistant Stainless Steel Speed Controller

New

RoHS

The water-resistant construction and the stainless steel external parts allow for the product to be used in environments where it may come into contact with water droplets.

**Metal
material**

**External metal parts
stainless steel 316^{*1}**

^{*1} Stainless steel 304 (external metal parts excluding body A)

Grease

NSF H1 grease

Max. operating temperature 150 °C



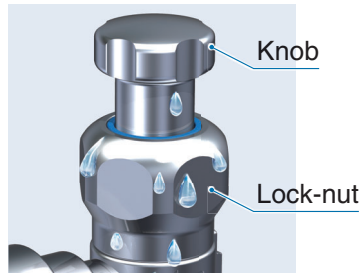
Equipment for the Food Manufacturing Industry

Improved water-resistance and washability

- Rounded knob and lock-nut make liquid pooling difficult.

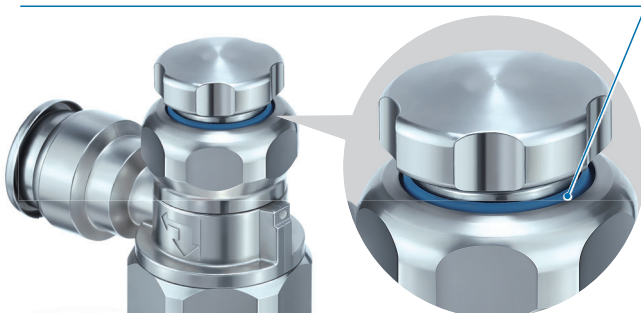


Existing ASG Series



HF2A-ASG-V Series

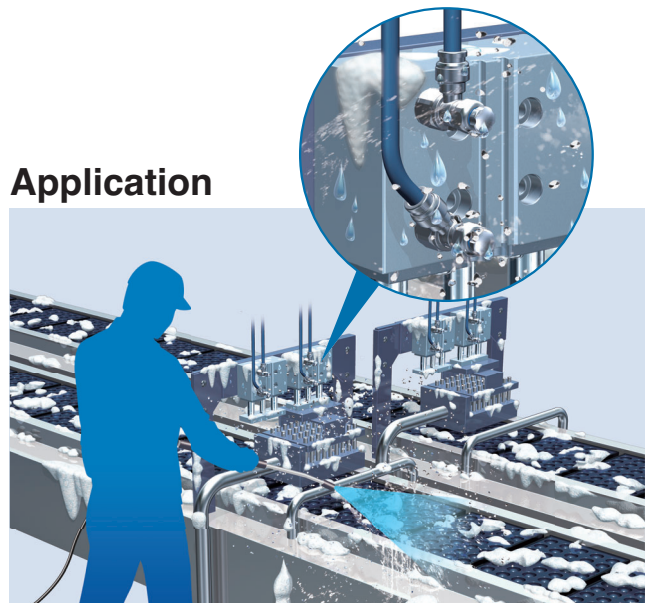
- Water-resistant construction due to seals
Blue FKM
Using materials complaint with FDA (US Drug and Food Administration) 177.2600



HF2A- Series

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

Application



HF2A-ASG-□ V Series



CAT.EUS20-301A-UK

Water Resistant Stainless Steel Speed Controller

HF2A-ASG-□V Series

RoHS

Model

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"
HF2A-ASG12□1-M5-□	M5 x 0.8	Gasket seal	●	●								
HF2A-ASG12□1-U10/32-□	10-32UNF							●	●			
HF2A-ASG22□1-□01-□	R G NPT	Sealant (R/NPT) Face seal (G)		●	●				●	●		
HF2A-ASG22□1-□02-□				●	●	●			●	●	●	
HF2A-ASG32□1-□03-□					●	●				●	●	
HF2A-ASG42□1-□04-□						●	●				●	●

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

Flow Rate and Sonic Conductance

Model		HF2A-ASG12□1-M5-□	HF2A-ASG12□1-U10/32-□	HF2A-ASG22□1-□01-□	HF2A-ASG22□1-□02-□	HF2A-ASG32□1-□03-□	HF2A-ASG42□1-□04-□
Tubing O.D.	Metric size	Ø 4, Ø 6	—	Ø 6, Ø 8	Ø 6, Ø 8, Ø 10	Ø 8, Ø 10	Ø 10, Ø 12
	Inch size	—	Ø 5/32, Ø 1/4	Ø 1/4, Ø 5/16	Ø 1/4, Ø 5/16, Ø 3/8	Ø 5/16, Ø 3/8	Ø 3/8, Ø 1/2
C values: Sonic conductance dm ³ /(s·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
Q[l/min (ANR)]*1	Free flow	82	82	190	381	789	1235
	Controlled flow	82	82	190	321	789	1198

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

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

How to Order

HF2A-ASG 2 2 0 1 - □ 01 - 06 S V

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

—	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

Water resistant


Option

—	Without sealant
S	With sealant

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

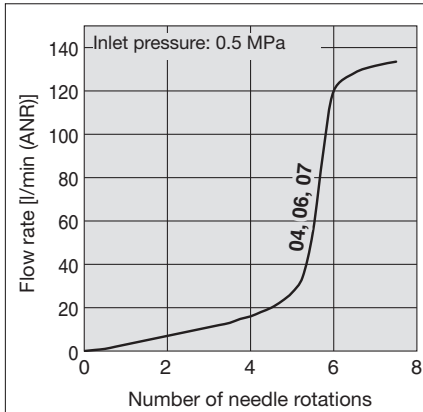
Applicable tubing O.D.

Metric size		Inch size	
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"

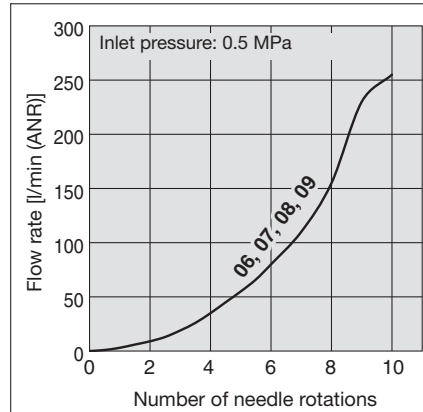


Needle Valve: Flow Rate Characteristics

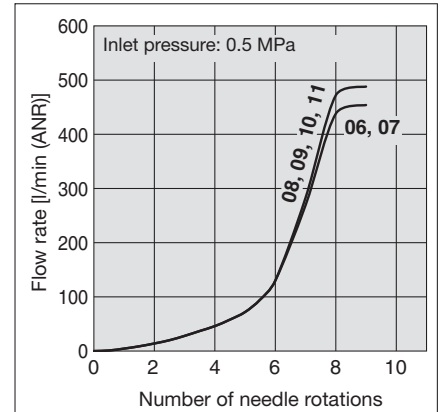
HF2A-ASG12□1-M5-□



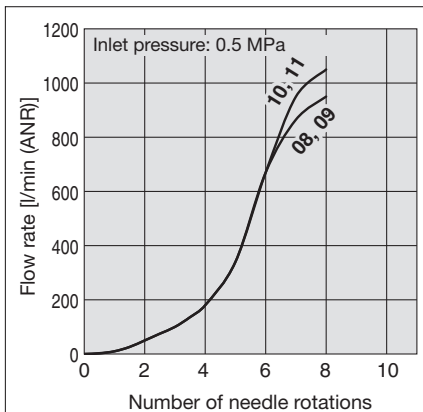
HF2A-ASG22□1-01-□



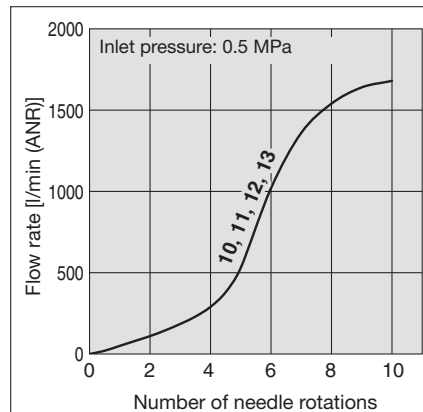
HF2A-ASG22□1-02-□



HF2A-ASG32□1-03-□



HF2A-ASG42□1-04-□



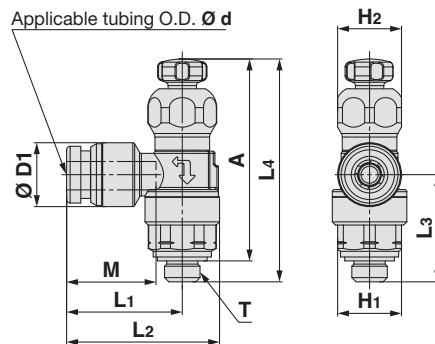
* The flow rate characteristics are representative values.

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

HF2A-ASG-□V Series

Dimensions

Seal method: Gasket seal
For M5, 10-32UNF



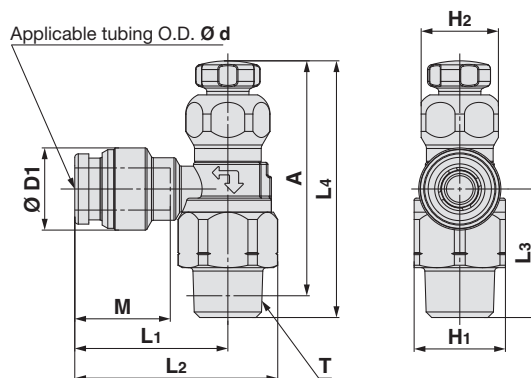
Metric Size

Model	d	T	H ₁	H ₂	D ₁	A Max.	L ₁	L ₂	L ₃	L ₄ Max.	M	Weight [g]
HF2A-ASG12□1-M5-04V	4	M5 x 0.8	9	9	9.0	32	16.3	21.6	15.1	35	12.6	12
HF2A-ASG12□1-M5-06V	6				11.7		21.0	26.3			13.6	14

Inch Size

Model	d	T	H ₁	H ₂	D ₁	A Max.	L ₁	L ₂	L ₃	L ₄ Max.	M	Weight [g]
HF2A-ASG12□1-U10/32-03V	5/32	10/32 UNF	9	9	9.0	32	16.3	21.6	15.1	35	12.6	12
HF2A-ASG12□1-U10/32-07V	1/4				11.7		21.0	26.2			13.5	14

Seal method: Sealant
For R, NPT



Metric Size

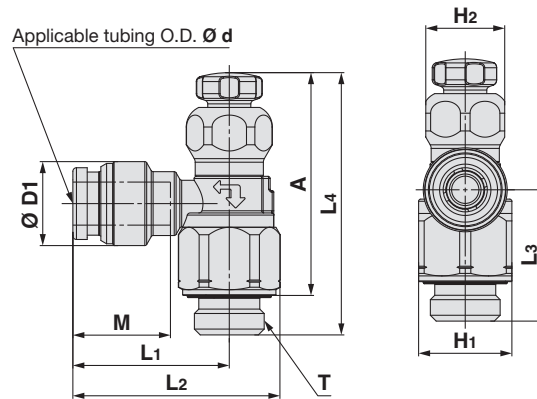
Model	d	T	H ₁	H ₂	D ₁	A Max.	L ₁	L ₂	L ₃	L ₄ Max.	M	Weight [g]
HF2A-ASG22□1-01-06V	6	R1/8	13	11	11.7	37	21.8	28.9	18.3	40	13.6	26
HF2A-ASG22□1-01-08V	8				13.7		24.7	31.8			16.1	27
HF2A-ASG22□1-02-06V	6	R1/4	17	14	11.7	42	24	33.3	23	48	13.6	47
HF2A-ASG22□1-02-08V	8				13.7		27.6	36.9			16.1	49
HF2A-ASG22□1-02-10V	10				16.7		30	39.2			17.0	53
HF2A-ASG32□1-03-08V	8	R3/8	22	19	13.7	49	29.2	41.1	26.9	55	16.1	89
HF2A-ASG32□1-03-10V	10				16.7		31.2	43.1			17.0	92
HF2A-ASG42□1-04-10V	10	R1/2	27	22	16.7	57	33.5	47.9	33.3	64	17.0	143
HF2A-ASG42□1-04-12V	12				19.6		35.5	49.9			18.6	148

Inch Size

Model	d	T	H ₁	H ₂	D ₁	A Max.	L ₁	L ₂	L ₃	L ₄ Max.	M	Weight [g]
HF2A-ASG22□1-N01-07V	1/4	N1/8	12.7	11	11.7	37	21.7	28.8	18.3	40	13.5	25
HF2A-ASG22□1-N01-09V	5/16				13.7		24.7	31.8			16.1	27
HF2A-ASG22□1-N02-07V	1/4	N1/4	17.46	14	11.7	42	23.9	33	23	48	13.5	48
HF2A-ASG22□1-N02-09V	5/16				13.7		27.6	36.9			16.1	50
HF2A-ASG22□1-N02-11V	3/8				16.7		29.5	38.6			16.6	55
HF2A-ASG32□1-N03-09V	5/16	N3/8	22.23	19	13.7	49	29.2	41.1	26.9	55	16.1	90
HF2A-ASG32□1-N03-11V	3/8				16.7		30.8	42.6			16.6	93
HF2A-ASG42□1-N04-11V	3/8	N1/2	27	22	16.7	57	33.1	49.2	33.3	64	16.6	143
HF2A-ASG42□1-N04-13V	1/2				19.6		35.3	49.4			18.5	146

Dimensions

Seal method: Face seal
For G thread



Metric Size

[mm]

Model	d	T	H1	H2	D1	A	L1	L2	L3	L4	M	Weight [g]
						Max.				Max.		
HF2A-ASG22□1-G01-06V	6	G1/8	13	11	11.7	35	21.8	28.9	18.3	40	13.6	26
HF2A-ASG22□1-G01-08V	8				13.7		24.7	31.7			16.1	28
HF2A-ASG22□1-G02-06V	6	G1/4	17	14	11.7	40	24	33.2	23	48	13.6	48
HF2A-ASG22□1-G02-08V	8				13.7		27.6	36.8			16.1	50
HF2A-ASG22□1-G02-10V	10				16.7		29.9	39.1			17.0	54
HF2A-ASG32□1-G03-08V	8	G3/8	22	19	13.7	47	29.2	41	26.9	55	16.1	92
HF2A-ASG32□1-G03-10V	10				16.6		31.2	43			17.0	95
HF2A-ASG42□1-G04-10V	10	G1/2	27	22	16.6	55	33.5	47.6	33.3	64	17.0	150
HF2A-ASG42□1-G04-12V	12				19.6		35.5	49.6			18.6	155



HF2A-ASG-□ V Series

Specific Product Precautions

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

Design and Selection

Warning

1. 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.

Operating Environment

Caution

Check the following items when cleaning the product.

1. Clean the fitting while it is still connected to the equipment. Do not clean when the tubing and body are not connected.

2. Fully tighten the lock nut before cleaning.

3. Check the conditions before cleaning.

Make sure to use under conditions in which the speed controller material will not be affected or damaged by chemical solution, temperature, or water pressure. As a guide, it is permissible to use under the conditions subject to dust and water. (equivalent to IP65.)

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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