

# Flame Resistant (Equivalent to UL-94 Standard V-0) Flat Head Screwdriver Adjustable Speed Controller with One-touch Fitting / Elbow Type

New

RoHS

Flame resistant resin (Equivalent to UL-94 Standard V-0)

Flat head screwdriver adjustable

Prevent accidental  
manual operation with  
adjustments made by  
flat head screwdriver



■ Thread type: G thread



**AS□2□1F-W2D Series**



CAT.ES20-250A

# Flame Resistant (Equivalent to UL-94 Standard V-0) Flat Head Screwdriver Adjustable Speed Controller with One-touch Fitting **AS□2□1F-W2D Series**



## Model

Elbow type	Port size	Applicable tubing O.D.			
		ø6	ø8	ø10	ø12
AS22□1F-G01-□W2D	G1/8	●	●	●	
AS22□1F-G02-□W2D	G1/4	●	●	●	
AS32□1F-G03-□W2D	G3/8		●	●	●
AS42□1F-G04-□W2D	G1/2			●	●

## Flow Direction Symbols on Body

	Meter-out	Meter-in
Indication symbol		
Symbol		

## ⚠ Caution

Be sure to read this before handling the products. Refer to the back cover for Safety Instructions. For Flow Control Equipment Precautions, refer to Handling Precautions for SMC Products and the Operation Manual on the SMC website, <http://www.smcworld.com>

## Specifications

Fluid	Air
Proof pressure	1.5 MPa
Maximum operating pressure	1 MPa
Minimum operating pressure	0.1 MPa
Ambient and fluid temperature	-5 to 60°C (No freezing)
Applicable tubing material *1	FR double layer, FR soft nylon

\*1 Use caution regarding the maximum tubing operating pressure. (For details, refer to the **Web Catalog**.)

## Flow Rate and Sonic Conductance

Model	AS22□1F-G01	AS22□1F-G02	AS32□1F-G03	AS42□1F-G04
Tubing O.D.	ø6, 8, 10	ø6, ø8, 10	ø8, ø10, 12	ø10, ø12
C values: Sonic conductance dm <sup>3</sup> /(s·bar)	Free flow	0.6, 1.1, 1.2	1.6, 2.2	4.2, 4.4
	Controlled flow	0.7, 1.1, 1.3	2.2, 2.6	4.4, 4.8
b values: Critical pressure ratio	Free flow	0.2, 0.3, 0.3	0.2, 0.2	0.3, 0.3
	Controlled flow	0.25, 0.3, 0.3	0.25, 0.25	0.25, 0.25

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

## How to Order

**AS 2 2 0 1 F - G 01 - 06 W2D**

**Body size**

2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard

**Elbow**

**Control method**

0	Meter-out
1	Meter-in

**With One-touch fitting**

**Thread type**

G	G thread
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**Flame resistant flat head screwdriver adjustable**

**Applicable tubing O.D.\*1**

Metric size	
06	ø6
08	ø8
10	ø10
12	ø12

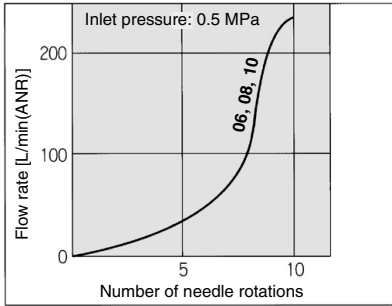
\*1 For selecting applicable tubing O.D., refer to the Model shown above.

**Port size**

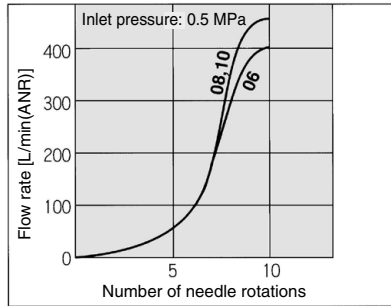
01	1/8
02	1/4
03	3/8
04	1/2

## Needle Valve/Flow Rate Characteristics

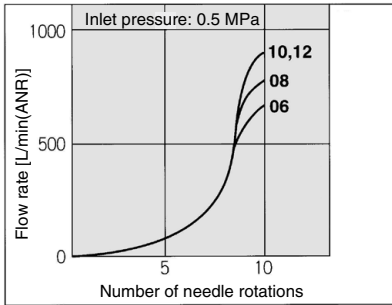
AS2201F-G01, AS2211F-G01



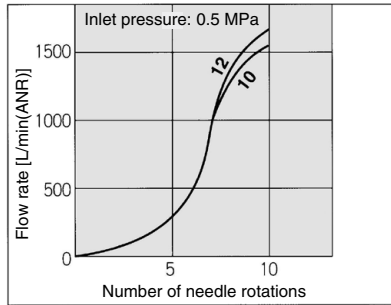
AS2201F-G02, AS2211F-G02



AS3201F, AS3211F

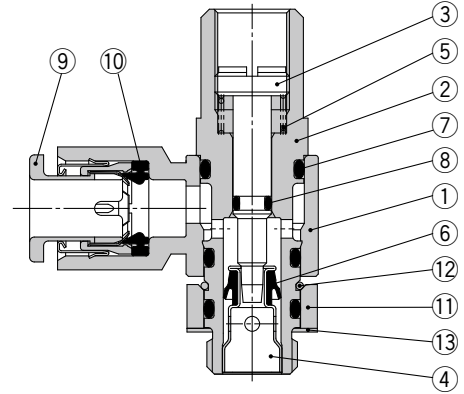


AS4201F, AS4211F



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

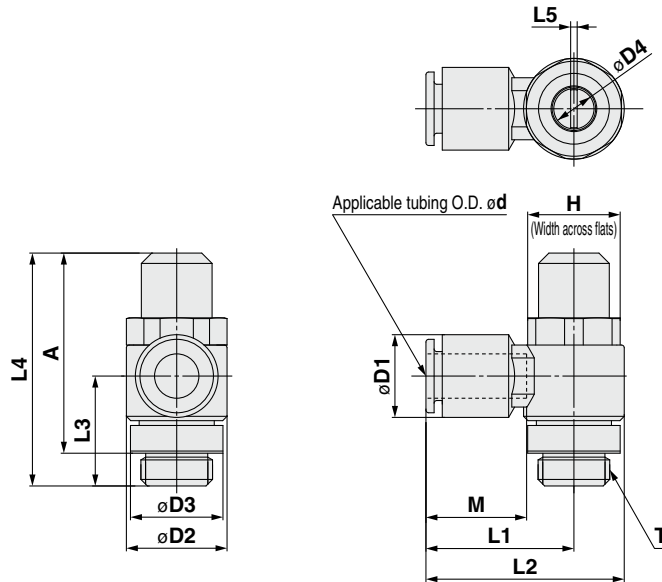
## Construction



### Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Body B	Brass	Electroless nickel plating
3	Needle	Brass	Electroless nickel plating
4	Seat ring	Brass	Electroless nickel plating
5	Spring	Steel wire	
6	U-seal	HNBR	
7	O-ring	NBR	
8	O-ring	NBR	
9	Cassette	—	
10	Seal	NBR	
11	Spacer	Brass	Electroless nickel plating
12	C-ring	Steel wire	
13	Gasket	NBR/Stainless steel	


## Dimensions





Model	T	H	D1	D2	D3	D4	L1	L2	L3	L4	L5	A	M	Weight [g]
AS22□1F-G01-06W2D	G1/8	12	13.2	14.2	14	7.2	23	31	17.6	39.2	1.2	34.7	17	26
AS22□1F-G01-08W2D			15.2				25.3	32.4					18.5	28
AS22□1F-G01-10W2D			18.5				32.1	39.2					21	30
AS22□1F-G02-06W2D	G1/4	17	13.2	18.5	17	7.2	25.2	34.4	20.2	42.8	1.2	36.8	17	46
AS22□1F-G02-08W2D			15.2				27.2	36.4					18.5	48
AS22□1F-G02-10W2D			18.5				35.3	44.5					21	50
AS32□1F-G03-08W2D	G3/8	19	15.2	23	21	9.8	29.7	41.2	22.7	55.6	1.2	49.5	18.5	87
AS32□1F-G03-10W2D			18.5				31.6	43.1					21	89
AS32□1F-G03-12W2D			20.9				32.8	44.3					22	91
AS42□1F-G04-10W2D	G1/2	24	19.5	28.6	25	12.4	33.6	47.9	26.8	65.3	1.2	56.7	21	150
AS42□1F-G04-12W2D			20.9				34.6	48.9					22	156

## 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.