

# Series (21-)AS-FPQ/FPG

Clean Speed Controller with One-touch Fittings (Elbow type)



## How to Order

AS 2 2 1 1 F P G 01 06

21 - AS 2 2 1 1 F P Q 01 06

**• Metal part material**

Q	Brass (Electroless nickel plated)
G	Stainless steel (Stainless steel 304)

**• Lock nut option**

Nil	Hexagon lock nut
J	Round lock nut

**• Applicable tubing O.D. (mm)** <sup>(Note)</sup>

Metric size	
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

(Note) Refer to the following Model list for selection of applicable tubing O.D.

**• Connection port size**

M5	M5 x 0.8
01	R1/8
02	R1/4
03	R3/8
04	R1/2

**• Metal part material**

Q	Brass (Electroless nickel plated)
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**Body size**

1	M5 standard
2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard

**Type**

2	Elbow
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**Control type**

0	Meter-out
1	Meter-in

**• Copper, fluorine and silicone-free + Low particle generation**

**AS-FPQ / Brass (Electroless nickel plated)**  
Release button color: Light gray

**AS-FPG / Stainless steel (Stainless steel 304)**  
Release button color: Light blue

**With One-touch fittings**

**Clean specification**

## Model

Elbow type	Connection port size	Applicable tubing O.D. (mm)				
		4	6	8	10	12
(21-) AS12□1FP□-M5	M5 x 0.8	●	●			
(21-) AS22□1FP□-01	R1/8	●	●	●		
(21-) AS22□1FP□-02	R1/4	●	●	●	●	
(21-) AS32□1FP□-03	R3/8		●	●	●	●
(21-) AS42□1FP□-04	R1/2				●	●

**Specifications**

<b>Proof pressure (20°C)</b>	1.5 MPa
<b>Max. operating pressure (20°C)</b>	1 MPa <sup>(Note 1)</sup>
<b>Min. operating pressure</b>	0.1 MPa
<b>Ambient and fluid temperature</b>	-5 to 60°C (No freezing)
<b>Grease</b>	Fluorine grease 21-: Lithium soap based grease
<b>Cleanliness class (ISO class)</b>	Class 3

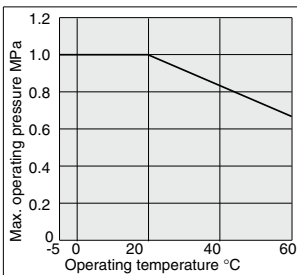
Note 1) The maximum operating pressure is the value at 20°C. Refer to operating pressure curve for values at other temperatures.

**Flow Rate and Sonic Conduction**

Model		(21-)AS12□1FP□-M5	(21-)AS22□1FP□-01		(21-)AS22□1FP□-02			(21-)AS32□1FP□-03			(21-)AS42□1FP□-04	
<b>Tubing O.D.</b>	Metric size	ø4	ø4	ø6	ø4	ø6	ø8	ø6	ø8	ø10	ø10	ø12
		ø6		ø8			ø10					
<b>Controlled flow</b>	Flow rate L/min (ANR)	100	180	230	260	390	460	660	790	920	1580	1710
	Sonic conduction $\frac{dm^3}{(s \cdot bar)}$	0.28	0.5	0.64	0.72	1.1	1.3	1.8	2.2	2.6	4.4	4.8
<b>Critical pressure ratio</b>	Controlled flow	0.2	0.25		0.3			0.25			0.25	
	Free flow	0.4	0.2		0.3			0.2			0.3	

Note) Flow rate values are measured at 0.5 MPa and 20°C.

**Relationship Between Operating Temperature and Maximum Operating Pressure**



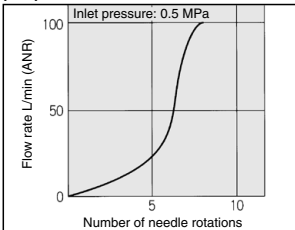
**Recommended Applicable Tubing**

<b>Tubing material</b>	Clean series polyurethane tubing: 10-series
<b>Tubing O.D.</b>	ø4, ø6, ø8, ø10, ø12

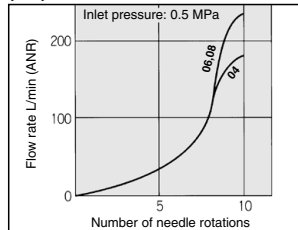
Polyurethane tubing: TU series, Nylon tubing: T series  
Soft nylon tubing TS series can also be used. However, the degree of cleanliness will decline.

**Needle Valve / Flow Rate Characteristics**

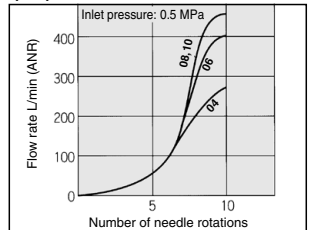
(21-)AS12□1FP□-M5



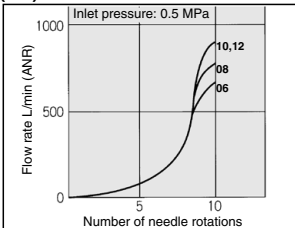
(21-)AS22□1FP□-01



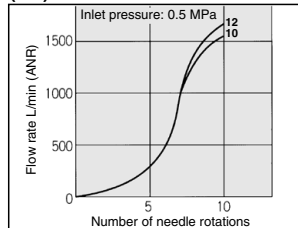
(21-)AS22□1FP□-02



(21-)AS32□1FP□-03

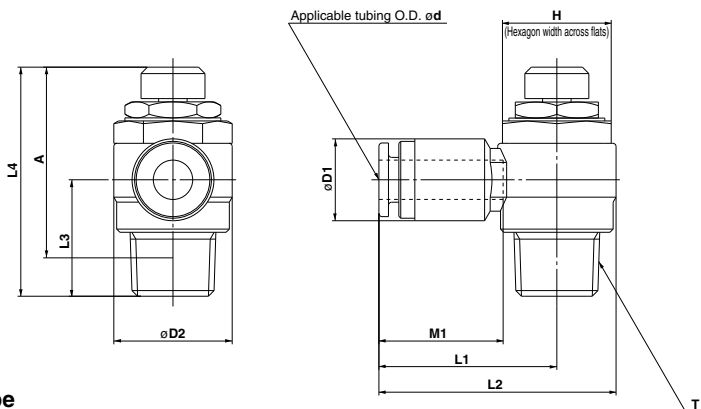


(21-)AS42□1FP□-04

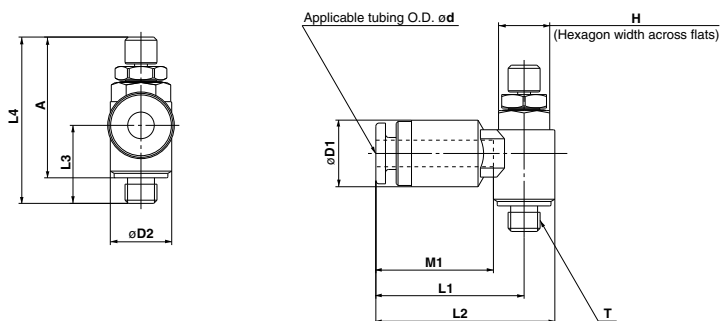


Directional Control Valves  
 Air Cylinders  
 Rotary Actuators  
 Air Grippers  
 Air Preparation Equipment  
 Modular F. R.  
 Pressure Control Equipment  
 Fittings & Tubing  
 Flow Control Equipment  
 Pressure Switches/ Pressure Sensors

Dimensions



M5 type



Model	Tubing O.D. d	T	H	D1	D2	L1	L2	L3	L4		A <sup>Note 1)</sup>		M1	Weight (g) <sup>Note 2)</sup>	
									MAX.	MIN.	MAX.	MIN.		* 1	* 2
(21-) AS12□1FP□-M5-04	4	M5 x 0.8	8	10.4	9.6	23.2	28	12.2	28.3	25.5	25	22.2	18.4	7	7
(21-) AS12□1FP□-M5-06	6			24.2		29	19.4						8	8	
(21-) AS22□1FP□-01-04	4	R1/8	12	10.4	14.2	25.3	32.4	14.3	36.4	31.4	32.4	27.4	18.4	17	17
(21-) AS22□1FP□-01-06	6			26.3		33.4	19.4						18	18	
(21-) AS22□1FP□-01-08	8			28.5		35.6	21.9						20	20	
(21-) AS22□1FP□-02-04	4			10.4		27.8	37						18.4	33	33
(21-) AS22□1FP□-02-06	6	R1/4	17	12.8	18.5	30.4	39.6	18.2	40.8	35.8	34.8	29.8	19.4	35	35
(21-) AS22□1FP□-02-08	8			38.3		47.5	20						23.8	38	38
(21-) AS22□1FP□-02-10	10			18.5		30.4	41.9						19.4	59	55
(21-) AS32□1FP□-03-06	6			15.2		32.9	44.4						21.9	61	57
(21-) AS32□1FP□-03-08	8	R3/8	19	18.5	23	34.6	46.1	20.9	46.9	41.9	40.6	35.6	23.8	63	59
(21-) AS32□1FP□-03-10	10			35.8		47.3	25						65	61	
(21-) AS32□1FP□-03-12	12			20.9		36.6	50.9						23.8	107	100
(21-) AS42□1FP□-04-10	10			18.5		38.2	52.5						25	109	102
(21-) AS42□1FP□-04-12	12	R1/2	24	21.7	28.6	55.6	50.6	47.4	42.4	25	109	102			

Note 1) Reference dimensions of threads after installation.

Note 2) \* 1 is the weight of type (21-)AS□2□1FPQ (Brass + Electroless nickel plated). \* 2 is the weight of type AS□2□1FPG (SUS304).