Contact our sales office for delivery dates and prices as this is a special model.

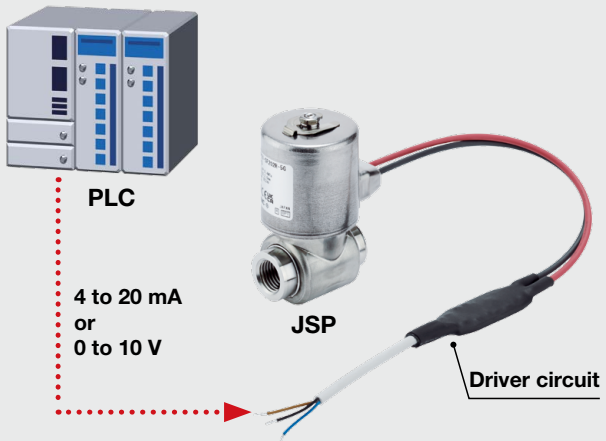
Specialized Product P.G. Point to Group information

Proportional Control Valve with Driver Circuit

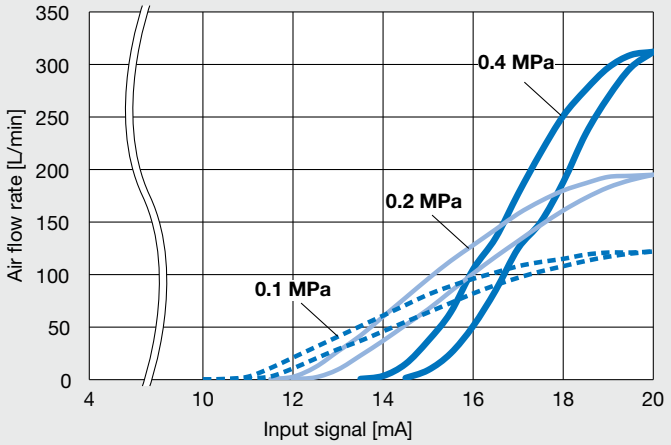
JSP-X12/X13

Features

- **Allows for control via 4 to 20 mA or 0 to 10 V input signals**
  General input signals from a PLC, etc., are converted into the valve drive current via the driver circuit.
- **Input signal: 4 to 20 mA (-X13)**
  : 0 to 10 V (-X12)



＊ 24 VDC power supply is required.

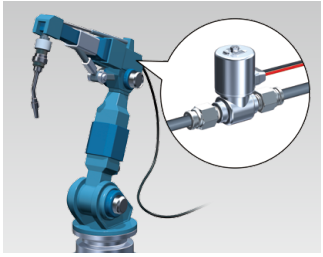


＊ For JSP2 (1, 3)-X13

Application Examples

Air

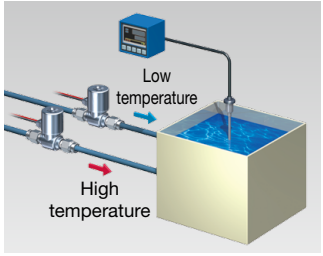
Shielding gases in welding machine



Rotation control of handpieces for dental use

Water

Water temperature control in hot water tank



Diluting

＊ Please use the product in accordance with the specifications provided in the catalogs/operation manuals. It is your responsibility to check the suitability for your workpiece and equipment.

⚠ Caution To ensure the safest possible operation of this product, please be sure to thoroughly read the **"Safety Instructions"** in the **Web Catalog** before use.

SMC Corporation URL: https://www.smcworld.com

SP258X-001E
P: EP

How to Order

Body Ported JSP 1 1 – S F 201 R – 5 G – B – XL1 – X12

Base Mounted JSP 1 3 – S F 200 – 5 G – XL1 – X12

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶ Size

Symbol	Size
1	10
2	20

❷ Body material

Symbol	Material
S	Stainless steel
C	Brass

❸ [Body Ported] Orifice diameter and Port size

Symbol	Orifice diameter [mmø]	Port size	Size	
			10	**20**
101	1.4	1/8	●	–
201	2.3	1/8	●	–
202	2.0	1/4	–	●
203		3/8	–	●
302	3.2	1/4	–	●
303		3/8	–	●

❹ [Base mounted] Orifice diameter and Port size

Symbol	Orifice diameter [mmø]	Port size	Size	
			10	**20**
100	1.4	–	●	–
200	2.3	–	●	–
200	2.0	–	–	●
300	3.2	–	–	●

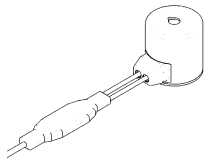
❺ Thread type

Symbol	Thread type
R	Rc
N	NPT
F	G

❻ Voltage source to Drive circuit/ Drive current

Symbol	Voltage source	Drive current	Size	
			10	**20**
5	24 VDC$^{+10\%}$	200 mA	●	–
		260 mA	–	●

❼ Electrical entry

Symbol	Electrical entry	
G	Grommet	

❽ Option

Symbol	Option
Nil	None
B	With bracket

❾ Lead wire length

Symbol	Lead wire length
Nil	300
XL1	600
XL2	1000

❿ Input signal

Symbol	Input signal
X12	0 to 10 V
X13	4 to 20 mA

Specifications

	Size		**10**	**20**
Valve specifications	**Valve construction**		Direct operated poppet	
	Fluid and fluid temperatures		Air: 0 to 50°C Water: 1 to 50°C (No freezing)∗1	
	Ambient temperature		0 to 50°C	
	Withstand pressure		1.0 MPa	
	Valve leakage/External leakage∗2		1 cm^3/min (ANR) or less	
	Mounting orientation∗3		Unrestricted	
	Enclosure∗4		IP67 (IP65 for the DIN terminal)	
	Body material		Stainless steel, Brass	
	Seal material		FKM	
Electrical specifications	**Input signal**∗5	**X12**	0 to 10 V	
		X13	4 to 20 mA	
	Voltage source∗5		24 VDC$^{+10\%}$	
	Drive current		0 to 200 mA	0 to 260 mA
	Power consumption∗6		4 W	
	Temperature rise∗6		80°C	
Standards			CE/UKCA	

∗1 Availability depends on the orifice diameter. Refer to the applicable fluid table.
∗2 The valve leakage rate is determined when the pressure differential is 0.05 MPa or more, upward orientation of solenoid, and ambient temperature of 20°C. Since the leakage from this product is not zero, it cannot be used for applications such as holding pressure in a pressure vessel.
∗3 It is recommended that the solenoid is mounted upwards to prevent accumulation of foreign matter.
∗4 This product has an IP67 enclosure, but if water enters the product, it may cause malfunction or failure.
∗5 Set the power voltage to 24 VDC and use an input signal of 0 to 10 V (X12) or 4 to 20 mA (X13).
∗6 This is the value conducted at the input signal of 10 V (X12) or 20 mA (X13).

Applicable Fluids

Applicable fluid	Orifice diameter [mm]			
	Size: **10**		Size: **20**	
	ø1.4	ø2.3	ø2	ø3.2
Air	●	●	●	●
Water	●	–	●	–

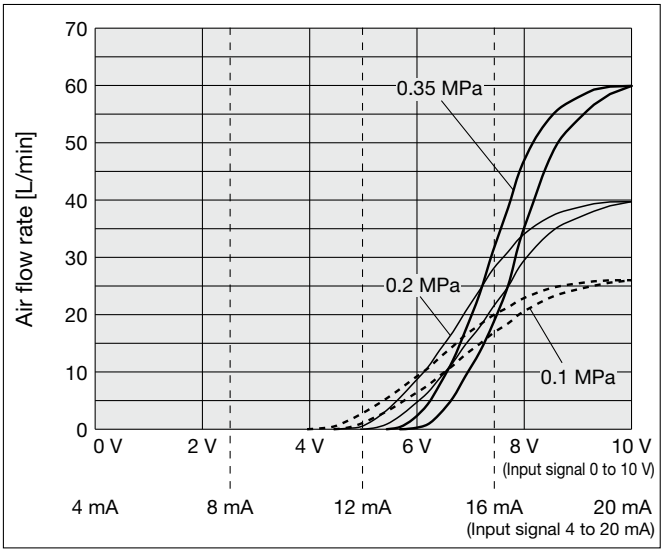
Flow Rate Characteristics

Size	Orifice diameter [mm]	Max. flow rate∗1 [Air] [L/min]	∗1, ∗2, ∗3 Max. flow rate [Water] [L/min]	Max. operating pressure differential∗4 [MPa]
10	1.4	50	1.5	0.35
	2.3	100	–	
20	2	125	3	0.4
	3.2	300	–	

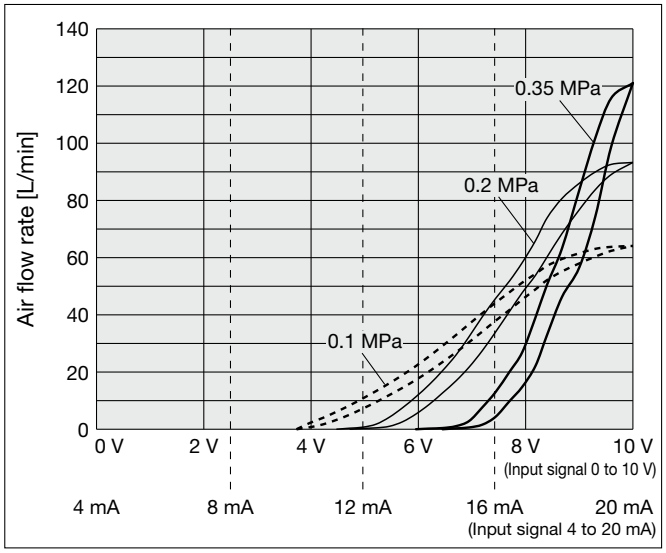
∗1 This is the value at the max. operating pressure differential.
∗2 When using size 20 with water, the inner piping diameter of the secondary side must be ø6.5 mm or more.
∗3 When a nozzle or similar is connected at the end of the pipe, the nozzle diameter should be larger than the orifice diameter.
∗4 Ensure that the inlet pressure of the product does not exceed the max. operating pressure differential.
Even when the pressure differential is within the max. operating pressure differential, if the secondary side pressure becomes high due to a restrictor, such as nozzle, on the secondary side, stable flow rate control may not be possible.
For guidance on allowable secondary side pressure, refer to the specific product precautions in the catalog.
∗ For hysteresis, refer to the catalog (the values without PWM control).

Flow Rate Characteristics

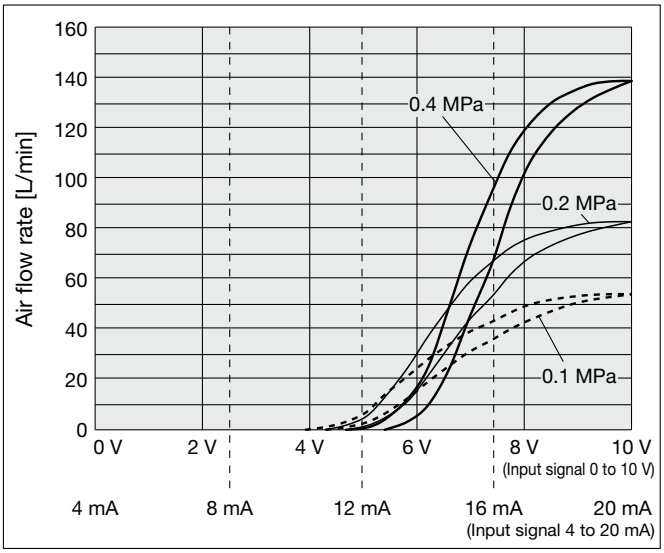
Size 10 **Orifice diameter ø1.4 [Air]**



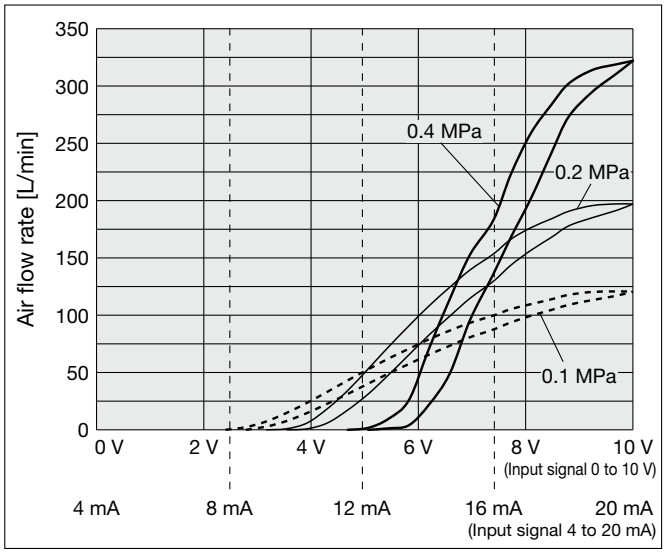
Size 10 **Orifice diameter ø2.3 [Air]**



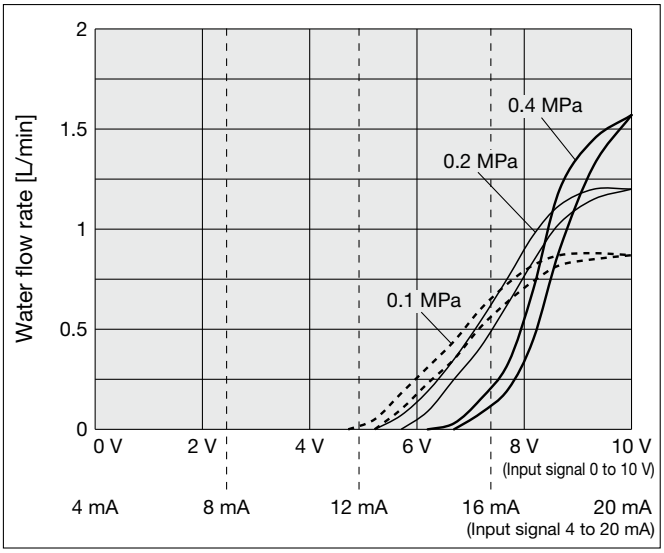
Size 20 **Orifice diameter ø2.0 [Air]**



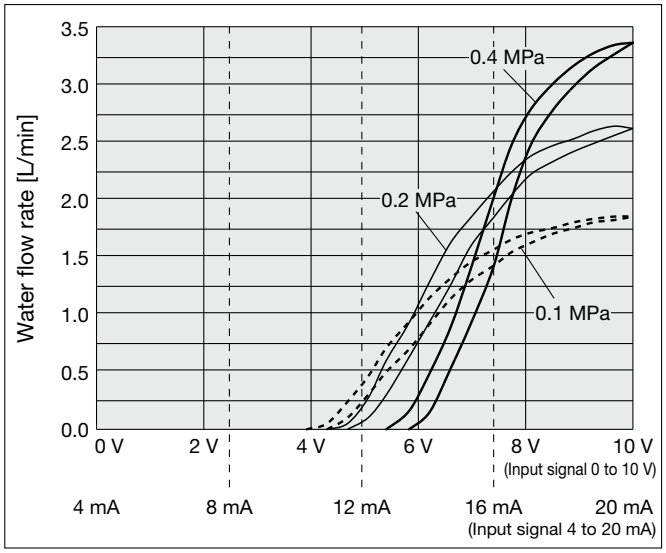
Size 20 **Orifice diameter ø3.2 [Air]**



Size 10 **Orifice diameter ø1.4 [Water]**

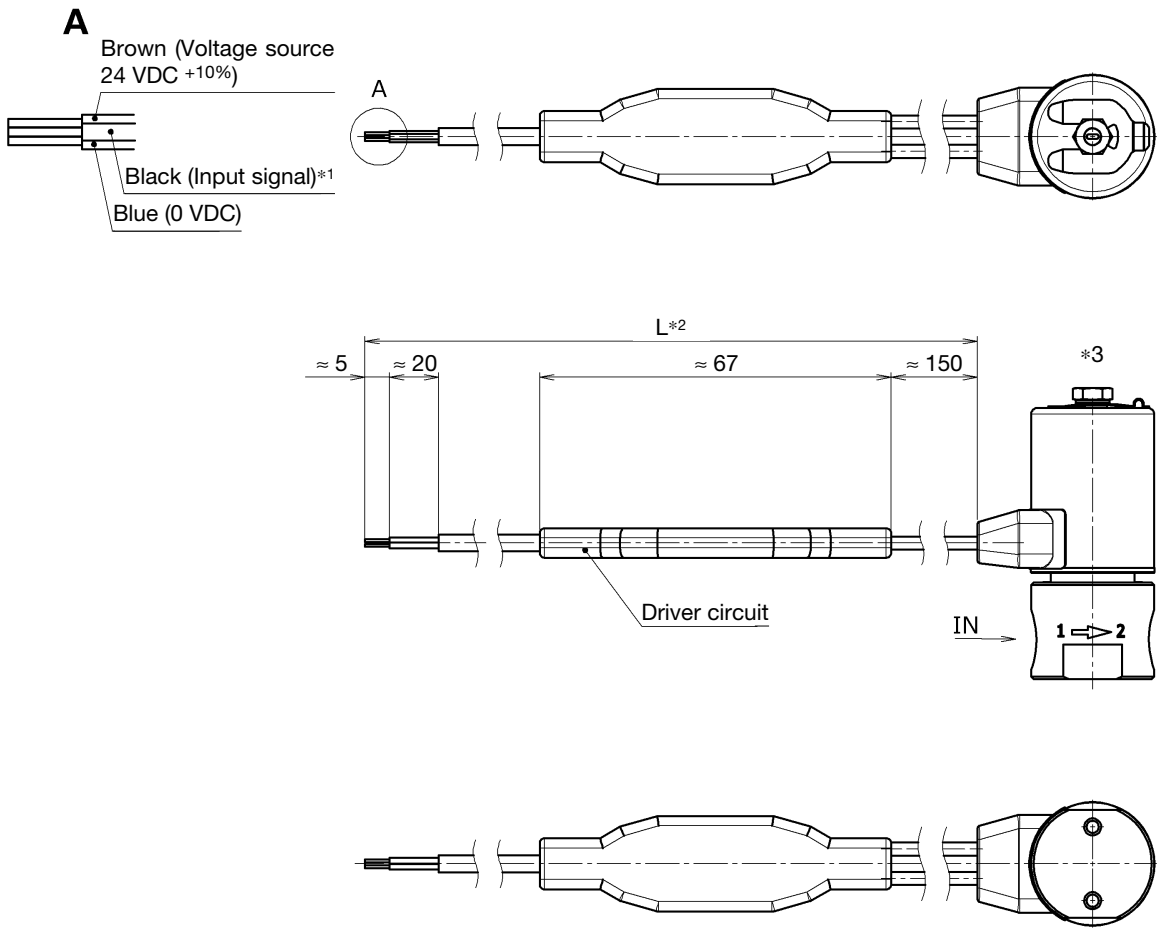


Size 20 **Orifice diameter ø2.0 [Water]**



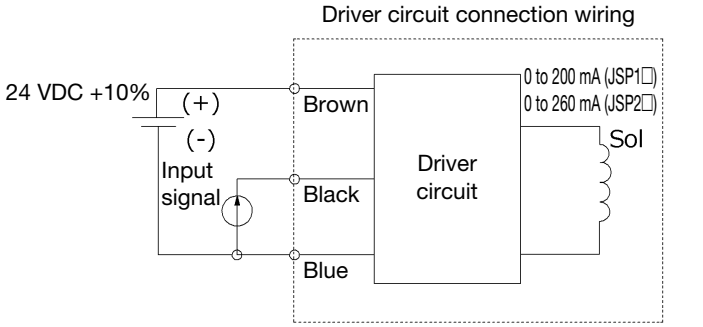
* The flow rate characteristics graph are only guides, and they indicate the values when the secondary side pressure is 0 MPa.
* The flow rate characteristics may differ depending on the individual unit, body types, body materials, operating conditions, and piping conditions. Fully conduct a check under the actual operating conditions, and select a model with a sufficient margin with respect to the required flow rate.

Dimensions



*1 For input signal, please refer to "How to Order."
*2 For lead wire length (L), please refer to "How to Order."
*3 Dimensions other than the driver circuit are equivalent to those of the JSP series standard products. Please refer to the catalog.
The valve shown in the figure above is an example: JSP11-(C, S)F□01□-5G-□-□-X12.

Driver Circuit Connection Wiring



Brown ··· Voltage source (24 VDC +10%)
Black····· Input signal*4
Blue ····· 0 VDC

*4 For input signal, please refer to "How to Order."