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High Speed 2 Port Valve

New

CE UKCA RoHS

High speed response

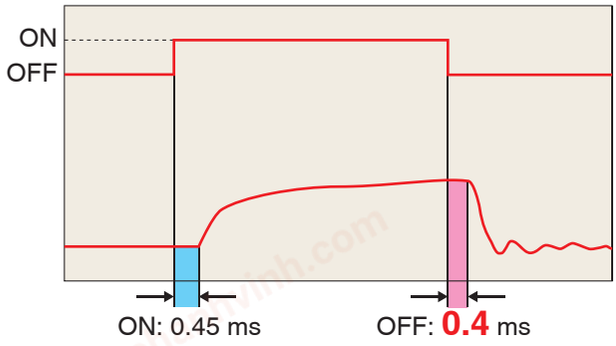
ON **0.45 ms** ±0.05 ms

OFF **0.4 ms** ±0.05 ms

9 mm Width



● 50 l/min 80 W type



* The response time is measured based on SMC test conditions. (Not guaranteed values)

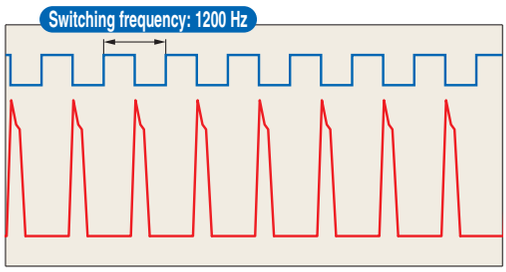
Long service life: 5 billion cycles or more

SMC's original valve and coil structure realizes a longer product life and requires less maintenance frequency.
(50 l/min type, 24 VDC, 0.25 MPa. Based on SMC life test conditions.)

High frequency: 1200 Hz

Good followability and response to successive electrical signal input. Continuous operation possible.

● 50 l/min 80 W type



2 mounting types

Quick disconnect type



Screw mount type



The manifold base should be prepared by users.

Low power consumption: 4 W

Continuous energisation for extended periods is possible.

Series SX10

SMC

CAT.EUS70-53A-UK

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Compact and Space-saving

* The manifold base should be prepared by users.



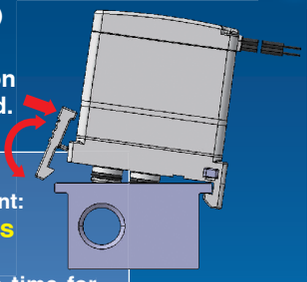


(Screw mount type)

Reduction in installation labour

(Quick disconnect type)

Can be mounted/ removed in one action and no tools required.



Required time for attachment/detachment: **Approx. 5 seconds** (per unit)

Reduces installation time for multiple numbers of valves.

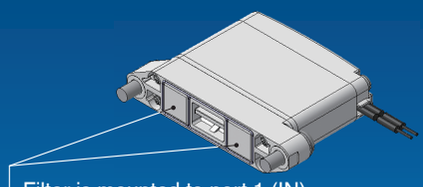
Coil temperature rise: 5 °C

(4 W type)

Power consumption	Temperature rise
4 W type	5 °C
10 W type	14 °C

During continuous operation at 24 VDC, 0.25 MPa, 300 Hz

Filter attached type available

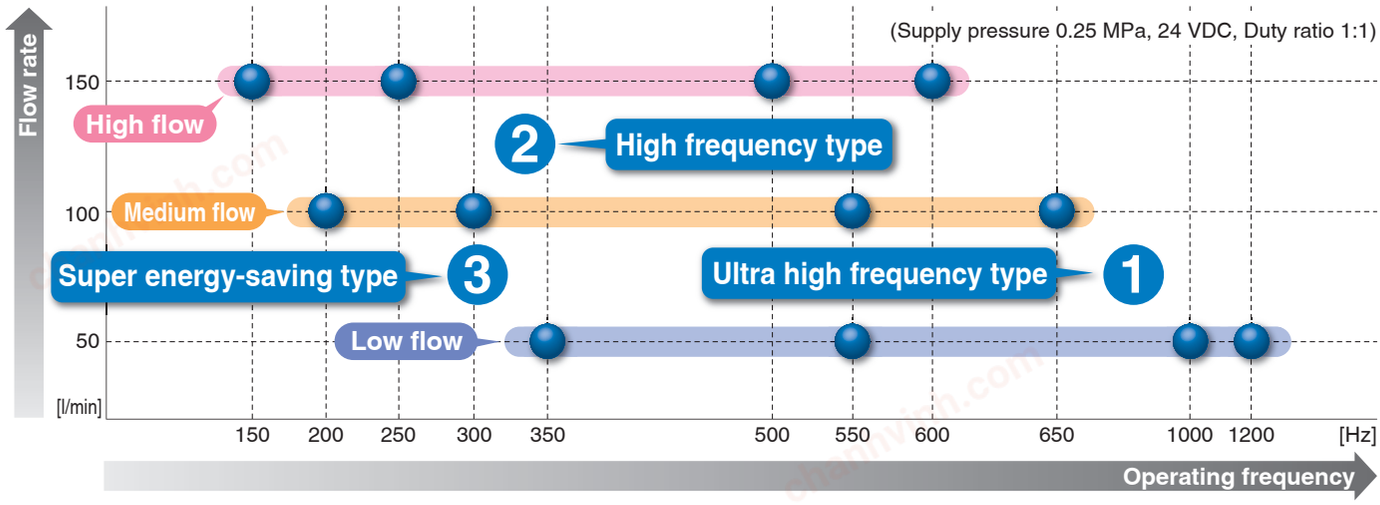


Filter is mounted to port 1 (IN).

Filter is mounted to port 1 (IN) for quick disconnect type as well.

Variations/Purpose of Usage (Guide)

Flow Rate/Operating Frequency



Specifications	Driver	Continuous energisation	Power consumption	OFF response time		
				50 l/min	100 l/min	150 l/min
① Ultra high frequency type 500 to 1200 Hz	For power saving driver (Refer to page 4.)	—	80 W, 40 W	**0.4 ms**	**0.55 ms**	**0.75 ms**
② High frequency type 250 to 550 Hz	Control driver is not necessary.	(Note)	10 W	**0.4 ms**	**0.55 ms**	**0.75 ms**
③ Super energy-saving type 150 to 350 Hz	Control driver is not necessary.	Possible	4 W	**0.4 ms**	**0.55 ms**	**0.75 ms**

(Note) Please consult with SMC for continuous energisation.

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Variations

All models have the same body size.



Select a model according to applications and purposes.

High speed response required for both ON and OFF

Select the 80 W or 40 W type.

Model	Power consumption	Flow rate	Max. operating frequency	Response time [ms]	
				ON	OFF
SX1□-A	80 W	50 l/min	1200 Hz	0.45	0.4
-B	40 W	50 l/min	1000 Hz	0.55	0.4
-E	80 W	100 l/min	650 Hz	0.55	0.55
-F	40 W	100 l/min	550 Hz	0.7	0.55
-J	80 W	150 l/min	600 Hz	0.6	0.75
-K	40 W	150 l/min	500 Hz	0.8	0.75

∗ Current needs to be limited.

High speed response required for OFF only without use of special control circuit

Select the 10 W type.

Model	Power consumption	Flow rate	Max. operating frequency	Response time [ms]	
				ON	OFF
SX1□-C	10 W	50 l/min	550 Hz	0.9	0.4
-G	10 W	100 l/min	300 Hz	1.1	0.55
-L	10 W	150 l/min	250 Hz	1.35	0.75

∗ Please consult with SMC for continuous energisation.

Saving energy and continuous energisation required

Select the 4 W type.

Model	Power consumption	Flow rate	Max. operating frequency	Response time [ms]	
				ON	OFF
SX1□-D	4 W	50 l/min	350 Hz	1.25	0.4
-H	4 W	100 l/min	200 Hz	1.7	0.55
-M	4 W	150 l/min	150 Hz	2.75	0.75

∗ Continuous energisation is possible.

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High Speed 2 Port Valve
Series SX10



How to Order

SX1 2 F – A G

Valve mounting

1	Screw mount type Note)
2	Quick disconnect type

Note) Two mounting screws (M3 x 0.5) and a gasket are included. (packaged together)

Filter (IN port)

—	Without filter
F	With filter Note)

Note) Flow reduction rate
50 l/min: 5 % or less
100 l/min: 5 to 10 %
150 l/min: 10 to 15 %

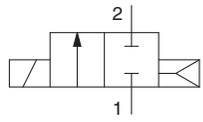
Flow rate/Operating frequency (at 24 VDC, 0.25 MPa)

Symbol	Flow rate [l/min]	Power consumption [W]	Max. operating frequency [Hz]
A	50	80	1200
B		40	1000
C		10	550
D		4	350
E	100	80	650
F		40	550
G		10	300
H		4	200
J	150	80	600
K		40	500
L		10	250
M		4	150

Lead wire (grommet) length

Symbol	Length
G	300 mm
H	500 mm
J	1000 mm

Symbol



Specifications

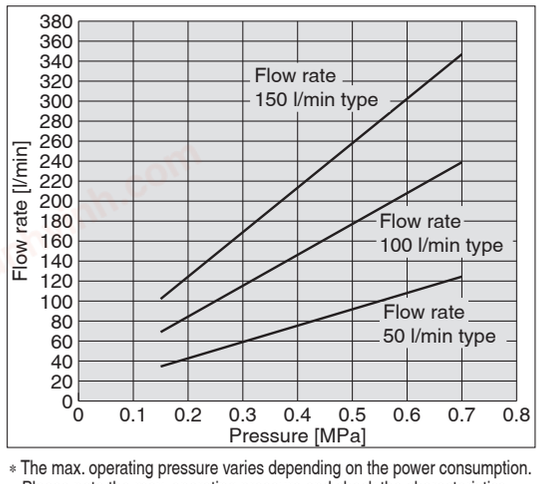
Flow rate [l/min] [at 0.25 MPa]		50				100				150			
Power consumption [W]		80	40	10	4	80	40	10	4	80	40	10	4
Type of actuation		2-position 2 port N.C., Air return											
Seal type		Metal poppet seal											
Valve width [mm]		9											
Fluid		Air											
Min. operating pressure [MPa]		0.15											
Coil resistance value [Ω]		7.2	14.4	58	144	7.2	14.4	58	144	7.2	14.4	58	144
Max. operating pressure [MPa] [at 24 VDC]		0.7	0.7	0.7	0.6	0.7	0.7	0.6	0.4	0.7	0.7	0.4	0.25
Ambient and fluid temperature [°C]		–10 to 50 (No freezing)											
Lubrication		Not required											
Mounting orientation		Unrestricted											
Impact/Vibration resistance [m/s²]		300/50											
Enclosure		Dustproof											
Electrical entry		Grommet											
Weight [g]	Screw mount type	27											
	Quick disconnect type	29											

Characteristics

Flow rate [L/min] [at 0.25 MPa]		50				100				150			
Power consumption [W]		80	40	10	4	80	40	10	4	80	40	10	4
Flow-rate characteristics	C [dm³/(s/bar)]	0.24				0.47				0.70			
	b	0.24				0.28				0.21			
	Cv	0.06				0.12				0.17			
Response time [ms] [at 0.25 MPa]	ON	0.45	0.55	0.9	1.25	0.55	0.7	1.1	1.7	0.6	0.8	1.35	2.75
	OFF	0.4	0.4	0.4	0.4	0.55	0.55	0.55	0.55	0.75	0.75	0.75	0.75
Max. operating frequency [Hz] [at 0.25 MPa]		1,200	1,000	550	350	650	550	300	200	600	500	250	150

Note 1) 24 VDC, Duty ratio 1:1
80 W: Current needs to be limited by using an energy saving driver circuit.
40 W: Current needs to be limited by using an energy saving driver circuit.
10 W: Energising time is one second at a maximum. Please consult with SMC for continuous energisation.
4 W: Continuous energisation is possible.
Note 2) The response time and maximum operating frequency are not guaranteed. (Actual values based on SMC test conditions)

Pressure/Flow-rate Characteristics (without filter)

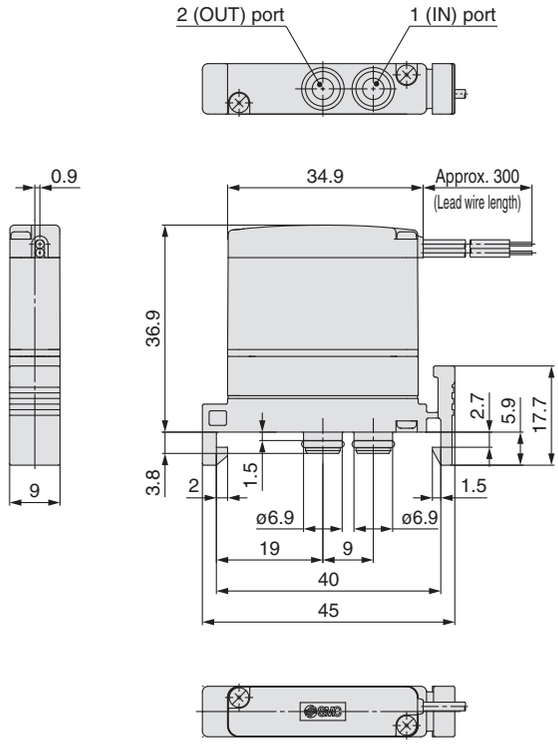


* The max. operating pressure varies depending on the power consumption. Please note the max. operating pressure and check the characteristics. Refer to the specifications above for the power consumption and the max. operating pressure.

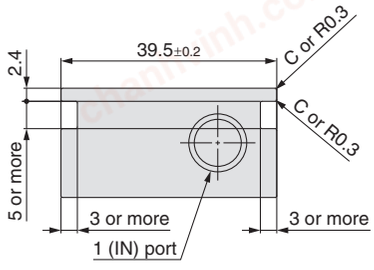
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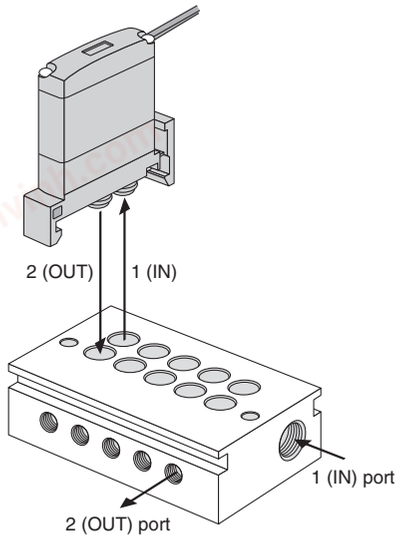
Dimensions

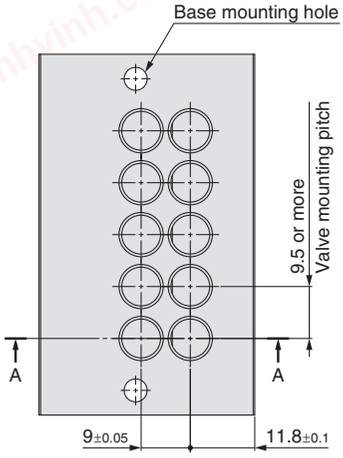
SX12-□G Quick disconnect type

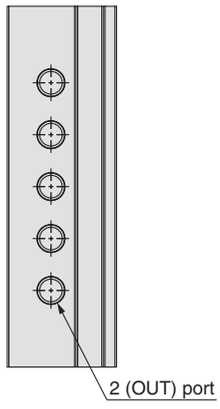


Manifold base recommended dimensions

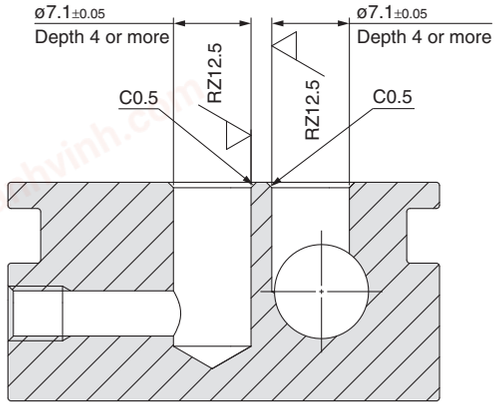








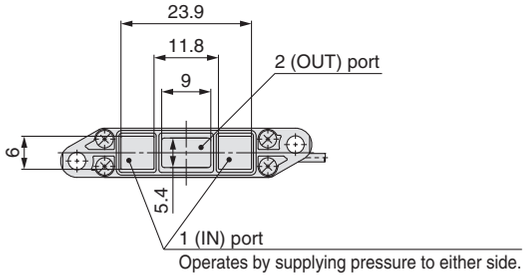
Sectional view A-A (2:1)

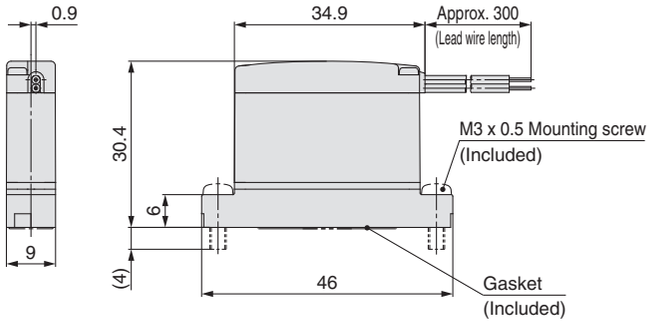


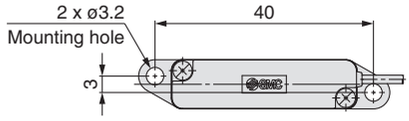
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Dimensions

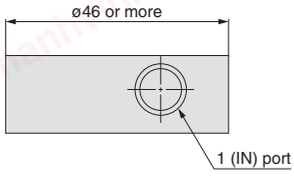
SX11-□G Screw mount type

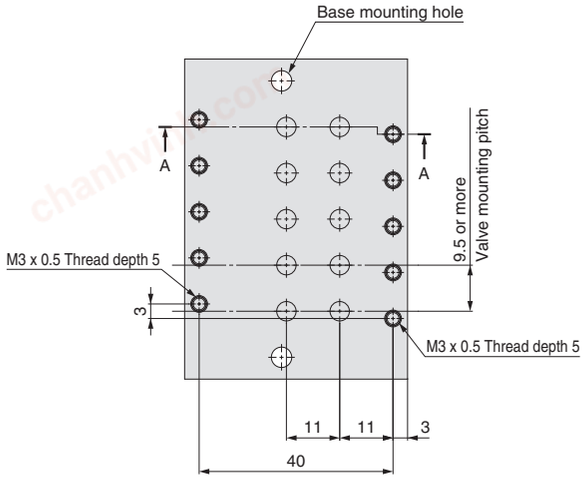


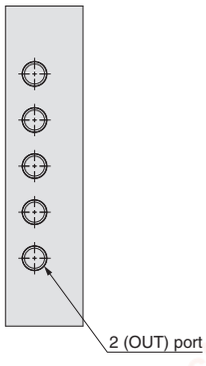


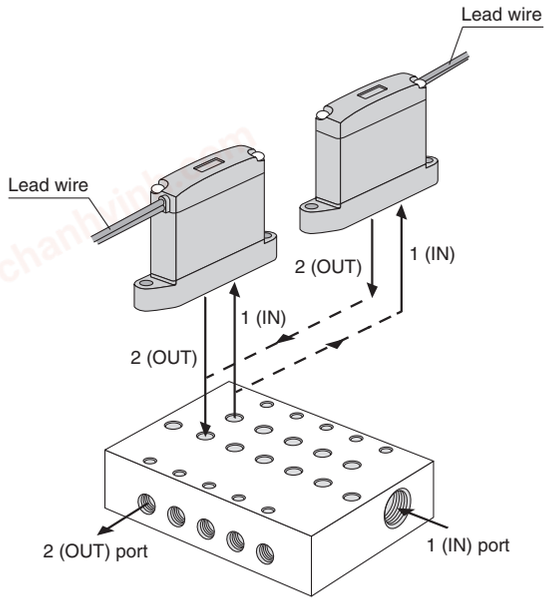


Manifold base recommended dimensions



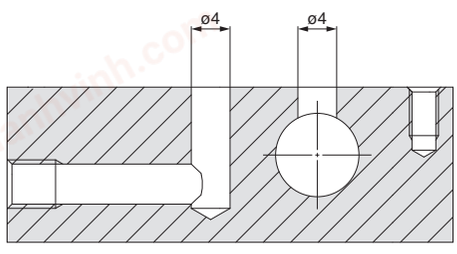






Electrical entry can be on the either side, right or left.

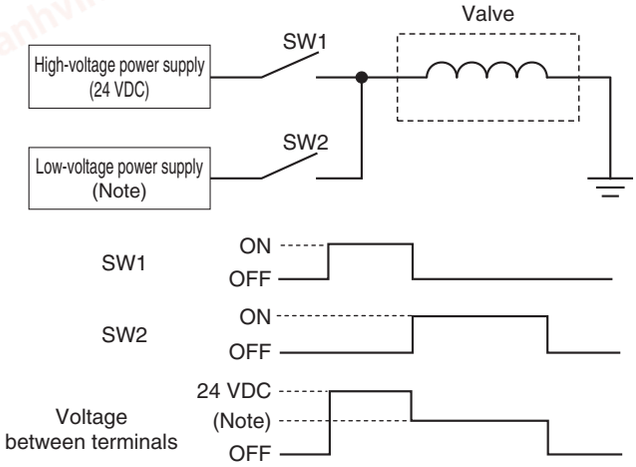
Sectional view A-A (2:1)



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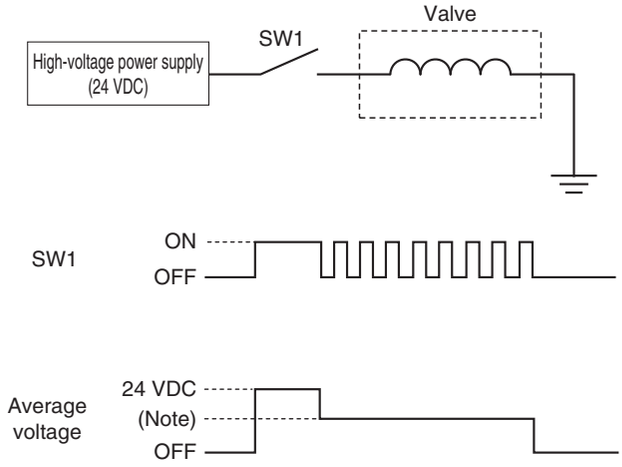
Control Method (Operation example with an energy saving driver circuit)

1. Control with 2 power supplies, starting power supply and holding power supply. Switching system from high voltage to low voltage



(Note) 80 W type: 3 to 6 VDC
40 W type: 4 to 8 VDC
10 W type: 8 to 16 VDC

2. High speed switching control of high voltage by PWM control*. (*: PWM control circuit not currently available.)



⚠ Specific Product Precautions

Be sure to read before handling. Refer to back cover for Safety Instructions. For 2 Port Solenoid Valves for Fluid Control Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website, http://www.smc.eu

Continuous Energisation (at 24 VDC)

⚠ Caution

1. Power consumption 80 W type: Not available

When operating with an energy saving driver, continuous energisation with the holding voltage of 3 to 6 VDC is possible.

2. Power consumption 40 W type: Not available

When operating with an energy saving driver, continuous energisation with the holding voltage of 4 to 8 VDC is possible.

3. Power consumption 10 W type: Please consult with SMC.

When operating with an energy saving driver, continuous energisation with the holding voltage of 8 to 16 VDC is possible.

4. Power consumption 4 W type: Available

Energised Time/Non-energised Time (When not using power saving driver)

⚠ Caution

1. Non-energised time (OFF) must be set longer than the energised time (ON).

2. For use with voltages other than 24 VDC, please consult with SMC with the operating condition information of pressure, voltage, energised time and non-energised time.

Others

⚠ Caution

1. If the valve is energised without air supply, the coil may be burned. Make sure to supply pressure to the valve when energising.

2. Please contact SMC for the product usage with a voltage at 75 VDC or more. Standard required by CE /UKCA mark is different.

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⚠ 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.

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Netherlands	+31 (0)205318888	www.smc.nl	info@smc.nl
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