chanhvinh.com

3 Port Solenoid Valve
Direct Operated Poppet Type
VT325 Series
Rubber Seal

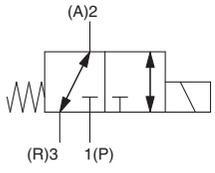
C: 0.61 dm³/(s·bar)
{Rc 3/8 (Passage 2 → 3)}

A single valve with 6 valve functions
(Universal porting type)
Six valve functions can be attained by selecting the piping ports. (Enabling the N.C. valve, N.O. valve, divider valve, selector valve, etc. to be used as desired.)

Suitable for use in vacuum applications
–101.2 kPa
(For vacuum specifications type: VT/VO325V)



Symbol



How to Order

VT325 □ - **02** **1** **D** □ - □ - □ - □ - **Q**

For manifold:
Enter "VO".

Valve option

—	Standard
V	For vacuum

Port size

02	1/4
03	3/8
00	Without connection port (For manifold)

Rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3	110 VAC, 50/60 Hz
4	220 VAC, 50/60 Hz
5	24 VDC
6	12 VDC
7	240 VAC, 50/60 Hz

Note) For other rated voltages, please consult with SMC.

Surge voltage suppressor

—	None
S	With surge voltage suppressor

Manual override

—	Non-locking type
M	Locking type (Tool required)

Thread type

—	Rc
F	G
N	NPT
T	NPTF

Electrical entry

D	DIN terminal
DL**	DIN terminal with indicator light
DO	DIN terminal, Without connector
DOL	DIN terminal with indicator light, Without connector

** For the coil rated voltage (Semi-Standard *), please contact SMC.
Note) A gasket must be ordered separately for DO and DOL.
Gasket part no.: DXT087-27-2

Manifold

Model	Applicable manifold	Accessory
VO325-00	B mount common exhaust type	Gasket (DXT083-13-1) Bolts (DXT083-19-1, 2 pcs.)

Specifications

Type of actuation	Direct operated type 2 position single solenoid
Fluid	Air
Operating pressure range	0 to 1.0 MPa
Ambient and fluid temperature	5 to 50 °C
Max. operating frequency	5 Hz
Response time (1)	30 ms or less (at the pressure of 0.5 MPa)
Lubrication	Not required (Use turbine oil Class 1 ISO VG32, if lubricated.)
Manual override	Non-locking push type
Impact/Vibration resistance (2)	150/50 m/s²
Enclosure	Dustproof

Note 1) Based on dynamic performance test, JIS B 8419: 2010. (Coil temperature: 20 °C, at rated voltage, without surge suppressor)
Note 2) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 1000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

Solenoid Specifications

Electrical entry			DIN terminal	
Coil rated voltage			100, 200 VAC, 50/60 Hz, 24 VDC	
Allowable voltage fluctuation			–15 to +10 % of rated voltage	
Apparent power (3)	AC	Inrush	50 Hz	75 VA
			60 Hz	60 VA
		Holding	50 Hz	27 VA
			60 Hz	17 VA
Power consumption (3)	DC		12 W	

Note 3) At rated voltage

chanhvinh.com

VT325 Series

Flow Rate Characteristics/Weight

Valve model	Port size	Flow rate characteristics															
		1 → 2 (P → A)				2 → 3 (A → R)				3 → 2 (R → A)				2 → 1 (A → P)			
		C [dm³/(s·bar)]	b	Cv	C [l/min /ANR)] *1	C [dm³/(s·bar)]	b	Cv	C [l/min /ANR)] *1	C [dm³/(s·bar)]	b	Cv	C [l/min /ANR)] *1	C [dm³/(s·bar)]	b	Cv	C [l/min /ANR)] *1
VT325	1/4	5.5	0.37	1.4	1464	5.9	0.35	1.5	1550	5.5	0.33	1.4	1425	5.7	0.32	1.4	1468
VT325V (Vacuum spec. type)																	
VT325	3/8	5.5	0.37	1.4	1464	6.1	0.37	1.6	1624	5.7	0.34	1.4	1487	6.6	0.25	1.5	1627
VT325V (Vacuum spec. type)																	

Note) Values for a single valve unit. It differs in the manifold case. Refer to manifold specifications on page 1452.

∗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.

Valve Option

1. For vacuum

Pressure range	–101.2 kPa to 0.1 MPa

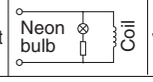
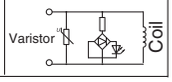
This vacuum model has less air leakage than the standard model under low pressure. It is recommended for vacuum application.

⚠ Caution

1) Since this valve has slight air leakage, it can not be used for holding vacuum (including positive pressure holding) in the pressure container.

2. With surge voltage suppressor, with indicator light

Circuit for Indicator Light

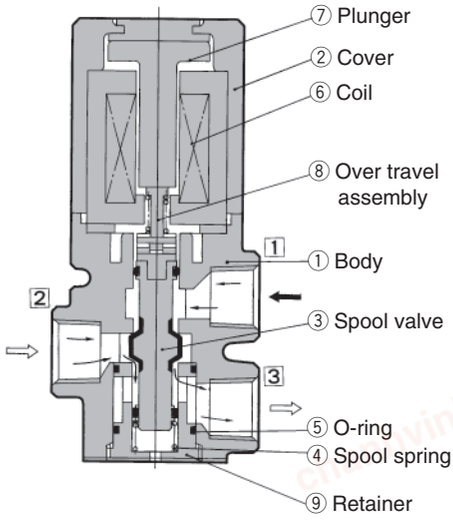
	AC	DC
DIN terminal with indicator light (DL)		

3. Manual override with lock

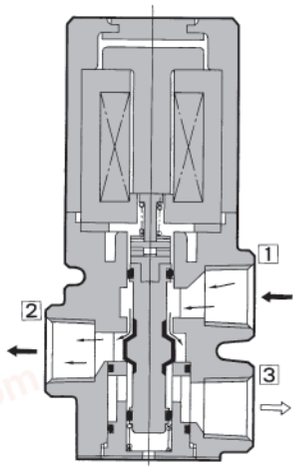
1) Using a screwdriver, push the manual override button that is located in the head portion of the solenoid valve in order to directly push the spool valve downward, thus causing the valve to switch.
2) With the button remaining pushed down, turn it approximately 90° clockwise or counterclockwise to maintain the manual override locked state.
3) To revert to the original state, keep the button pushed down and turn it approximately 90° clockwise.

Construction

De-energized



Energized



Operation principle

<De-energized>

The spool ③ is pushed upward by the force of the spring ④ and the air passage between port 2 and port 3 is opened and port 1 is blocked.

Air flow direction: 1 ⟷ Block, 2 ⟷ 3

<Energized>

When the coil ⑥ is energized the plunger ⑦ is pulled down depressing the spool ③ via the overtravel assembly ⑧ and the air passage between port 1 and port 2 is opened and port 3 is blocked.

Air flow direction: 1 ⟷ 2, 3 ⟷ Block

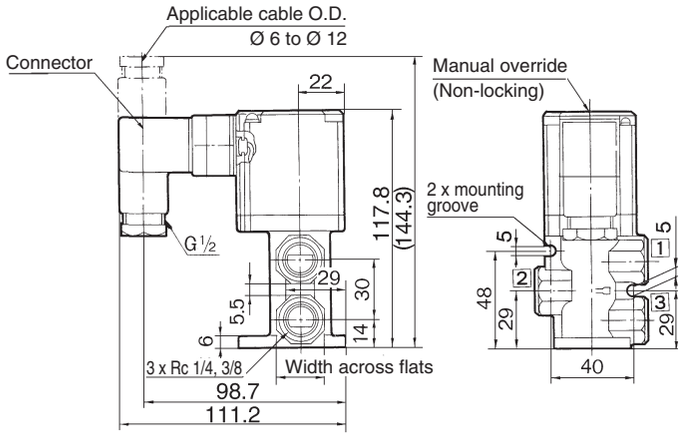
Component Parts

No.	Description	Material	Note
1	**Body**	Aluminium die-casted	Platinum silver
2	**Cover**	Aluminium die-casted	Platinum silver
3	**Spool valve**	Aluminium, NBR	

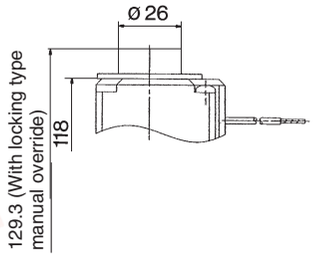
chanhvinh.com

Dimensions

DIN terminal (D)



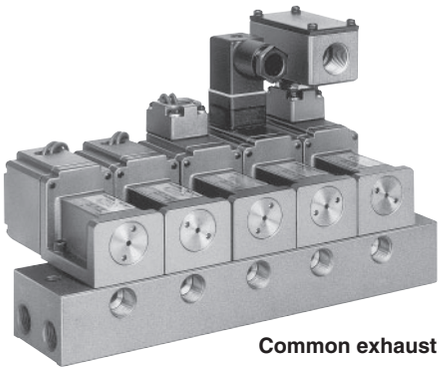
With locking manual override



chanhvinh.com

VT325 Series
Manifold Specifications

The VT325 series Manifold Model has a B mount type with common exhaust.



Common exhaust

How to Order Manifold

VVT34 [0] - [05] [1] - [ ] [ ] - Q

Porting specifications

Symbol	P	A	R
0	Side	Side	Side
1	Side	Bottom	Side

Valve stations

02	2 stations
⋮	⋮
17	17 stations

Exhaust port type

1	Common exhaust

Port size

Symbol	Port size
02	1/4
03	3/8

Thread type

—	Rc
F	G
N	NPT
T	NPTF

∗Instruct by specifying the valves and blanking plate to be mounted on the manifold along with the manifold base model no.
<Example>
VVT340-051····· 1 pc.
VO325-001G····· 4 pcs.
DXT083-21A·····1 pc.

Manifold Specifications

Manifold type	B mount
Max. number of stations	17 stations Note)
Applicable solenoid valve	VO325-00

Exhaust port type	Port location/Port size			Port direction		
	P	A	R	P	A	R
Common	Base 1/4, 3/8	Base 1/4, 3/8	Base 1/4, 3/8	Side	Side/Bottom	Side

Option	Blanking plate (With gasket, screw)	DXT083-21A

Note) If there are more than 4 stations, supply air from both P ports and exhaust from both R ports.

Accessory for Applicable

Description	Part no.	Qty.
Manifold gasket	DXT083-13-1	1 pc.
Hexagon socket head screw	DXT083-19-1	2 pcs.

Flow Rate Characteristics/Weight

Valve model	Flow rate characteristics															
	1 → 2 (P → A)				2 → 3 (A → R)				3 → 2 (R → A)				2 → 1 (A → P)			
	C [dm³/(s·bar)]	b	Cv	C [l/min /ANR)] ∗1	C [dm³/(s·bar)]	b	Cv	C [l/min /ANR)] ∗1	C [dm³/(s·bar)]	b	Cv	C [l/min /ANR)] ∗1	C [dm³/(s·bar)]	b	Cv	C [l/min /ANR)] ∗1
VO325	4.1	0.24	1.0	1004	4.4	0.18	1.0	1042	4.5	0.15	1.0	1048	4.3	0.23	1.0	1047
VO325V (Vacuum spec. type)																

∗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.

⚠Precautions

⚠Warning

When mounting valves on the manifold base, the mounting orientation is decided. If it is mounted in the wrong direction, connected equipment may malfunction. Mount it by referring to external dimensions on page 1453. Besides, the external dimensions are showing the case of N.C. specifications.

⚠Caution

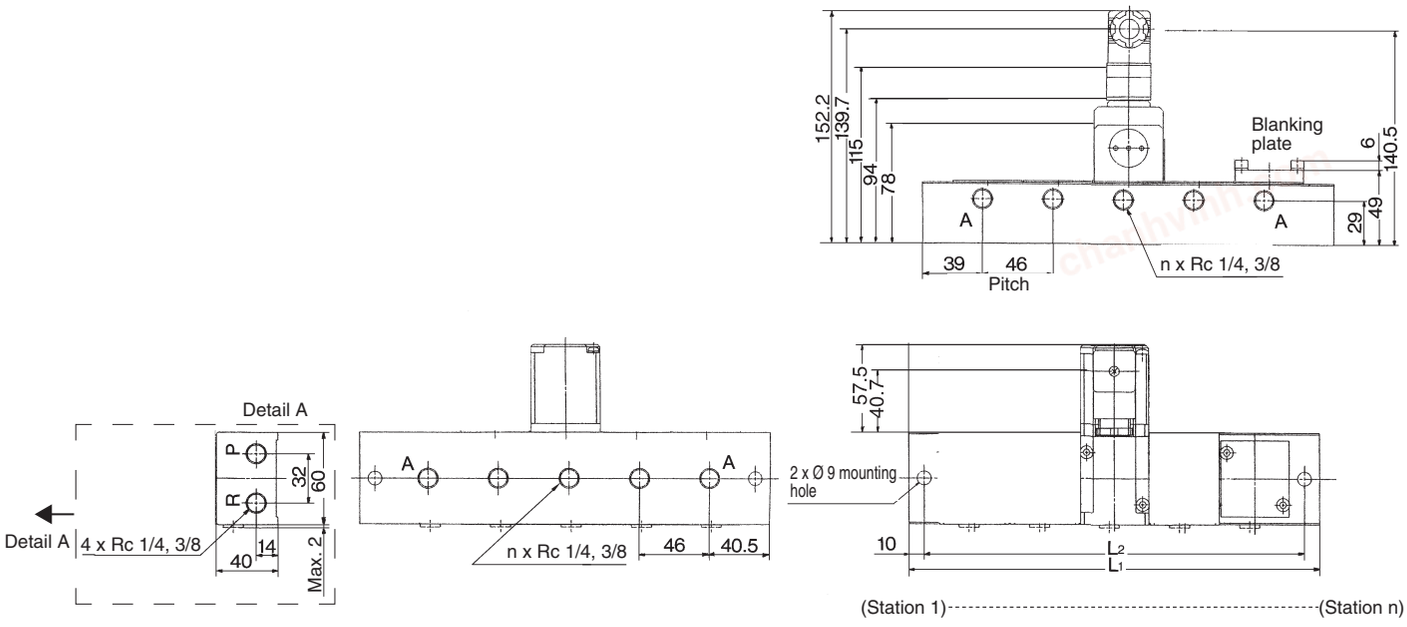
Changing from N.C. to N.O.

The valves are assembled as N.C. valves at the time of shipment.
By removing the two retaining screws from the desired valves, and rotating each valve body 180° and reassembling it on the manifold base, it is possible to reassemble an N.C. valve as an N.O. valve. (When doing so, make sure that a gasket is attached to the mounting surface of the valve.) Properly tighten the screws.
The tightening torque of the retaining screws is 3 N·m.

chanhvinh.com

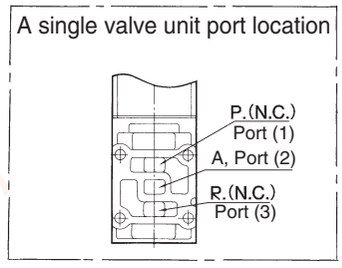
Dimensions

Common exhaust



Bottom ported

For bottom ported



n: Stations

Symbol \ n	2	3	4	5	6	7	8	9	10
L1	131	177	223	269	315	361	407	453	499
L2	111	157	203	249	295	341	387	433	479

Formula: $L_1 = 46n + 39$, $L_2 = 46n + 19$

chanhvinh.com

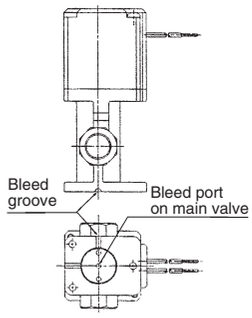
VT325 Series
Specific Product Precautions

Be sure to read this before handling the products.

⚠ Caution

1. The bottom of the solenoid valve has a breather hole for the main valve. Take proper measures to prevent this hole from being blocked as this will lead to a malfunction.

∗ Ordinarily, when the solenoid valve is mounted on a metal surface, it can breathe through the breather hole, via the breather groove. However, in particular, if the surface to be mounted is made of the rubber, the rubber could deform and block the hole.



Bottom of the solenoid valve

2. Make sure that dust and/or other foreign materials do not enter the valve from the unused port (e.g. exhaust port).

How to Calculate the Flow Rate

For obtaining the flow rate, refer to front matter.

How to Use DIN Terminal

1. Disassembly

1) After loosening the screw ①, then if the housing ④ is pulled in the direction of the screw ①, the connector will be removed from the body of equipment (solenoid, etc.).
2) Pull the screw ①, and then remove gasket ②a or ②b.
3) On the bottom part of the terminal block ③, there's a cut-off part (indication of an arrow) ③a. If a small flat head screwdriver is inserted between the opening in the bottom, terminal block ③ will be removed from the housing ④.
(Refer to the figure below.)
4) Remove the cable gland ⑤ and plain washer ⑥ and rubber seal ⑦.

2. Wiring

1) Pass the cable ⑧ through the cable gland ⑤, washer ⑥, rubber seal ⑦ in this order, and then insert them into the housing ④.
2) Dimensions of the cable ⑧ are the figure as below. Skin the cable and crimp the crimped terminal ⑨ to the edges.
3) Remove the screw with washer ③e from the bracket ③e. (Loosen in the case of Y shape type terminal.) As shown in the below figure, mount a crimped terminal ⑨, and then again tighten the screw ③e.

Note) Tighten within the tightening torque of 0.5 N·m ±15%.

Note: a It is possible to wire even in the state of bare wire. In that case, loosen the screw with washer ③e and place a lead wire into the bracket ③d, and then tighten it once again.
b The maximum size for the round terminal ⑨ is 1.25 mm²—3.5 and for the Y terminal is 1.25 mm²—4.
c Cable ⑧ outside diameter: Ø 6 to Ø 12 mm

Note) For the one with the outside diameter ranged between Ø 9 to Ø 12 remove the inside parts of the rubber seal ⑦ before using.

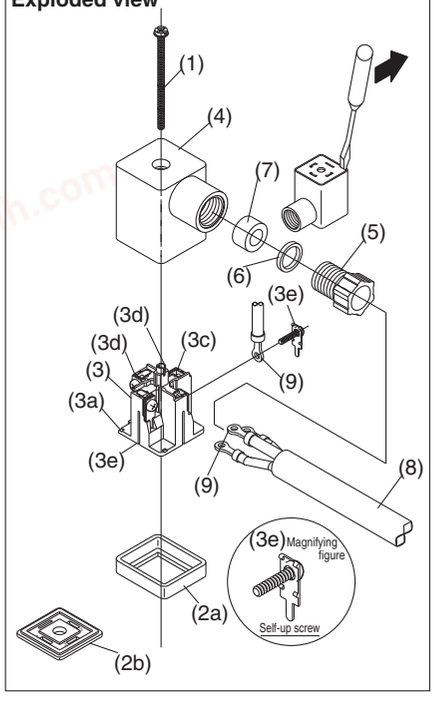
3. Assembly

1) Terminal box ③ connected with housing ④ should be reinstated. (Push it down until you hear the click sound.)
2) Putting rubber seal ⑦, plain washer ⑥, in this order into the cable introducing slit on the housing ④, then further tighten the cable gland ⑤ securely.
3) By inserting gasket ②a or ②b between the bottom part of the terminal box ③ and a plug on an equipment, screw in ① on top of the housing ④ and tighten it.

Note) Tighten within the tightening torque of 0.5 N·m ±20 %.

Note: The orientation of a connector can be changed arbitrarily, depending on the combination of a housing ④ and a terminal box ③.

Exploded view



Connector for DIN Terminal

Description	Part no.
DIN connector	GDM2C

chanhvinh.com

⚠ 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 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. **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 catalogue.
   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 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.

⚠ 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.

chanhvinh.com

SMC Corporation (Europe)

Austria	+43 (0)2262622800	www.smc.at	office@smc.at
Belgium	+32 (0)33551464	www.smc.be	info@smc.be
Bulgaria	+359 (0)2807670	www.smc.bg	office@smc.bg
Croatia	+385 (0)13707288	www.smc.hr	office@smc.hr
Czech Republic	+420 541424611	www.smc.cz	office@smc.cz
Denmark	+45 70252900	www.smcdk.com	smc@smcdk.com
Estonia	+372 6510370	www.smcpneumatics.ee	smc@info@smcee.ee
Finland	+358 207513513	www.smc.fi	smcfi@smc.fi
France	+33 (0)164761000	www.smc-france.fr	info@smc-france.fr
Germany	+49 (0)61034020	www.smc.de	info@smc.de
Greece	+30 210 2717265	www.smchellas.gr	sales@smchellas.gr
Hungary	+36 23513000	www.smc.hu	office@smc.hu
Ireland	+353 (0)14039000	www.smcautomation.ie	sales@smcautomation.ie
Italy	+39 03990691	www.smcitalia.it	mailbox@smcitalia.it
Latvia	+371 67817700	www.smc.lv	info@smc.lv
Lithuania	+370 5 2308118	www.smclt.lt	info@smclt.lt
Netherlands	+31 (0)205318888	www.smc.nl	info@smc.nl
Norway	+47 67129020	www.smc-norge.no	post@smc-norge.no
Poland	+48 222119600	www.smc.pl	office@smc.pl
Portugal	+351 214724500	www.smc.eu	apoioclientept@smc.smces.es
Romania	+40 213205111	www.smcromania.ro	smcromania@smcromania.ro
Russia	+7 8127185445	www.smc-pneumatik.ru	info@smc-pneumatik.ru
Slovakia	+421 (0)413213212	www.smc.sk	office@smc.sk
Slovenia	+386 (0)73885412	www.smc.si	office@smc.si
Spain	+34 945184100	www.smc.eu	post@smc.smces.es
Sweden	+46 (0)86031240	www.smc.nu	smc@smc.nu
Switzerland	+41 (0)523963131	www.smc.ch	info@smc.ch
Turkey	+90 212 489 0 440	www.smcpnomatik.com.tr	info@smcpnomatik.com.tr
UK	+44 (0)845 121 5122	www.smc.uk	sales@smc.uk

Printing AQ 00 Printed in Spain

Specifications are subject to change without prior notice and any obligation on the part of the manufacturer