4 Port Direct Operated Poppet Solenoid Valve

Series VQD1000

Unprecedented high speed, with stable response times

ON: 4 ms, OFF: 2 ms, Dispersion accuracy
±1 ms (With light/surge voltage suppressor
at a supply pressure of 0.5 MPa)
(Use clean and dry air.)

Compact and lightweight (34 g) with large flow capacity

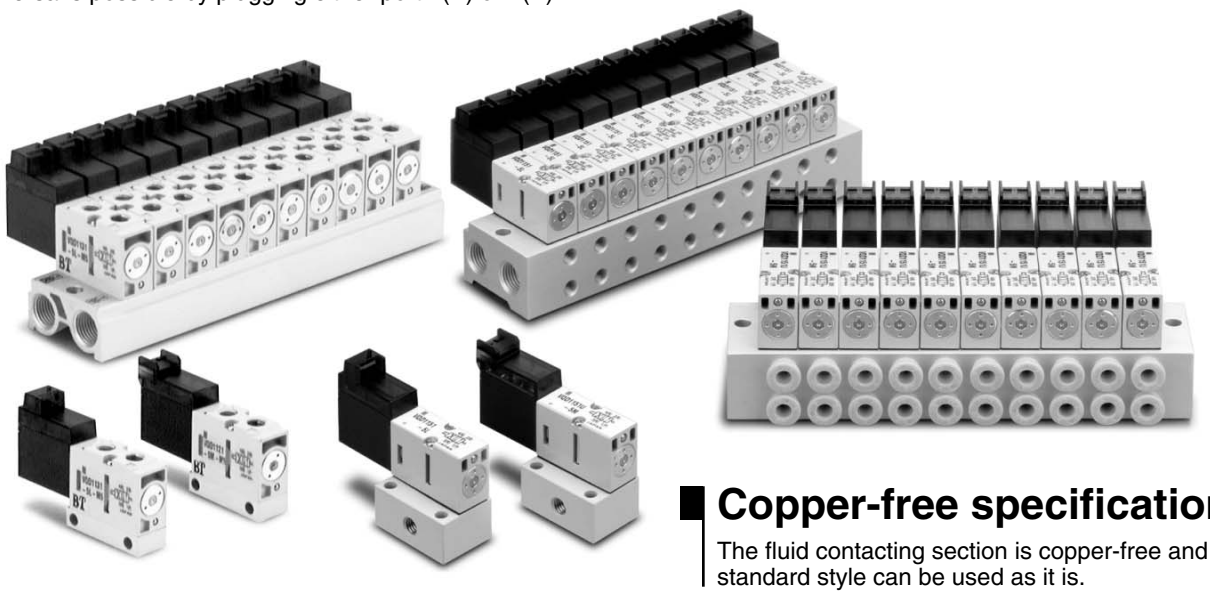
Body width of 10 mm, C: 0.22 dm³/(s·bar) 2 W
C: 0.27 dm³/(s·bar)
3.2 W (U type: Large flow)

Available in vacuum applications (Up to –100 kPa)

(Valve leakage: 0.03 cm³/s He or less)
Can be used in vacuum/release circuits
When used as a 3 port valve, conversion from N.O. to N.C. and vice versa is possible by plugging either port 4(A) or 2(B).

Clean room specifications available as special.

Main valve has no sliding seals or grease and air is not exhausted to the atmosphere.



Body ported **Base mounted**

Copper-free specifications

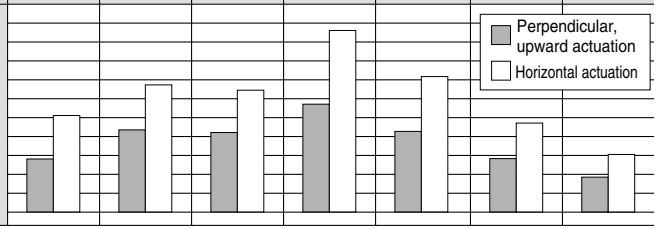
The fluid contacting section is copper-free and the standard style can be used as it is.

Cylinder Speed Chart

Base Mounted

Use as a guide for selection.
Please confirm the actual conditions with SMC Sizing Program.

Series	Average speed (mm/s)	Bore size						
		Series CJ2 Pressure 0.5 MPa Load factor 50% Stroke 60 mm			Series CM2 Pressure: 0.5 MPa Load ratio: 50% Stroke: 300 mm			
		ø6	ø10	ø16	ø20	ø25	ø32	ø40
VQD1151U	500							
	450							
	400							
	350							
	300							
	250							
	200							
	150							
	100							
	50							
	0							



∗ It is when the cylinder is extending that is meter-out controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
∗ The average velocity of the cylinder is what the stroke is divided by the total stroke time.
∗ Load factor: ((Load weight x 9.8)/Theoretical force) x 100%

Conditions

Base mounted		Series CJ2	Series CM2
VQD1151U	Tube bore x Length	TU0425 x 1 m	
	Speed controller	AS1201F-M5-04	AS2201F-02-04
	Silencer	AN120-M5	

⚠ Precautions 1

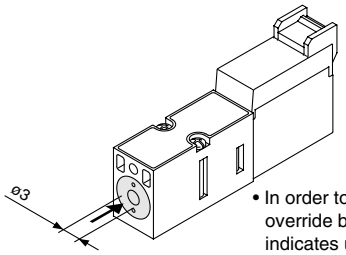
Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 2-9-2.

Manual Override Operation

⚠ Warning

Connected actuator is started by manual operation. Use the manual override after confirming that there is no danger.

■ **Non-locking push type (Tool required)**



• In order to turn it ON, push down the manual override button in the direction the arrow (→) indicates until it stops (approx. 0.5 mm), and release it to turn it OFF.

Continuous Energization

⚠ Warning

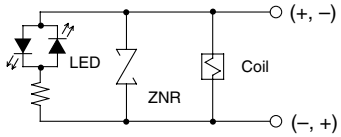
Coil temperature may get high due to ambient temperature or energizing duration. Do not touch the valve by hand directly.
When there is such a dangerous case to be touched by hands directly, install a protective cover.

Wiring Specifications

⚠ Caution

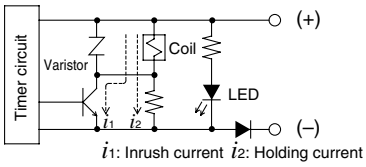
• Standard: 2 W specifications

	Lead wire	Connector
(+, –)	Red	C
(–, +)	Black	A



• Large flow: 3.2 W specifications (Power saver)

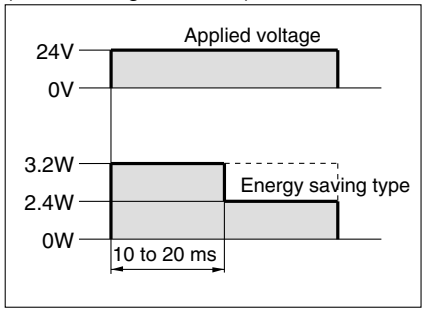
	Lead wire	Connector
(+)	Red	C
(–)	Black	A



i_1: Inrush current i_2: Holding current

For the 3.2 W specifications (power saver), power consumption at holding is reduced with the above circuit.
Refer to electrical power waveform as shown below.

<Energy saving type's electrical power waveform>
(Rated voltage: 24 VDC)



Simultaneous Energization

⚠ Caution

When it is the manifold and the adjacent valve is continuously energized, align them so that they would be energized or de-energized alternately.

Mounting of Valves

⚠ Caution

After confirming the gasket is correctly placed under the valve, securely tighten the bolts with the proper torque shown in the table below.

Proper tightening torque (N·m)
0.18 to 0.25

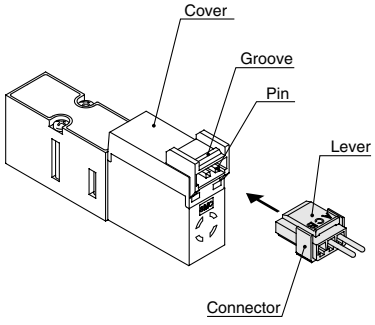
How to Use Plug Connector

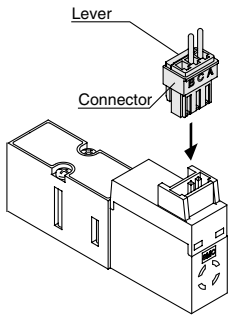
⚠ Caution

Attaching and detaching connectors

- To attach a connector, hold the lever and connector unit between your fingers and insert straight onto the pins of the solenoid valve so that the lever's pawl is pushed into the groove and locks.
- To detach a connector, remove the pawl from the groove by pushing the lever downward with your thumb, and pull the connector straight out.

Note) GENTLY pull the lead wire, otherwise it may cause contact failure or disconnection.





● How to order connector assembly

AXT661-14A-□

Lead wire length

Nil	300 mm
6	600 mm
10	1000 mm
20	2000 mm
30	3000 mm

● Plug connector lead wire length

Lead wire length of plug connector valve with lead wire is 300 mm. When ordering a valve with a lead wire of 600 mm or longer, be sure to indicate the model number of the valve without connector and connector assembly.

⚠ Precautions 2

Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 2-9-2.

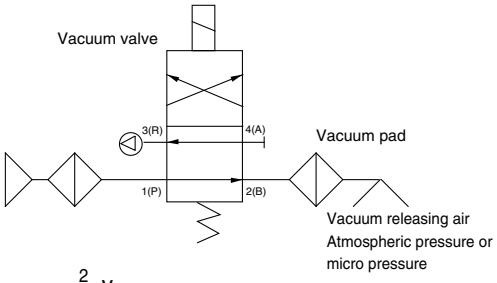
How to Use the Valve for Vacuum Applications

(When used as a 3 port valve)

⚠ Caution

Application example of "VQD11$\frac{2}{3}$1$\frac{V}{W}$"

(Symbols used are typical examples.)



- Use a VQD11$\frac{2}{3}$1$\frac{V}{W}$ valve for vacuum applications. Connect the vacuum source to the 3(R) port.
  * Air pressure cannot be applied to the 3(R) port.
- When used as a 3 port valve, conversion from N.O. to N.C. and vice versa is possible by plugging either port 4(A) or 2(B).
  * Cannot be used as 2 port valve.

How to Calculate the Flow Rate

For obtaining the flow rate, refer to pages 2-1-8 to 2-1-11.

4 Port Direct Operated Poppet Solenoid Valve

Series VQD1000

How to Order Valves

VQD11 [5] 1 [ ] — [5] [L] — [ ]

Body type

2	Body ported (Single unit)
3	Body ported (Manifold)
5	Base mounted

Port size

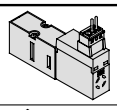
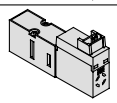
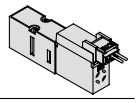
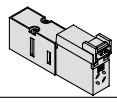
Body ported	M5	M5 thread
Base mounted	Nil	Without sub-plate (Manifold)
	M5	M5 thread

Valve option

Nil	Standard (2 W)
V	Vacuum (2 W)
U Note)	For large flow (3.2 W)
W Note)	For large flow, vacuum (3.2 W)

Note) Energy saving type

Electrical entry

L: Plug lead type L plug connector, With lead wire With light/surge voltage suppressor	
LO: Plug lead type L plug connector, Without lead wire With light/surge voltage suppressor	
M: Plug lead type M plug connector, With lead wire With light/ surge voltage suppressor	
MO: Plug lead type M plug connector, Without lead wire With light/surge voltage suppressor	

Rated voltage

5	24 VDC
6	12 VDC

Note) Please consult with SMC for other voltages.

L plug connector
Base mounted

L plug connector
Body ported

M plug connector
Base mounted

M plug connector
Body ported

Standard Specifications

Item			Type: Standard (2 W)	Type: Large flow type (3.2 W, Energy saving type)
Valve specifications	Valve construction		4 port direct operated poppet valve	
	Fluid		Air/Inert gas	
	Maximum operating pressure		0.7 MPa	
	Minimum operating pressure/Vacuum		0 MPa/–100 kPa	
	Response time(1)		ON: 4 ms, OFF: 2 ms	
	Ambient and fluid temperature		–10 to 50°C (2)	
	Lubrication		Not required	
	Manual override		Non-locking push type	
	Shock/Vibration resistance(3)		150/30 m/s²	
	Mounting position		Unrestricted	
	Enclosure		Dust tight	
	Weight		34 g (Without sub-plate)	
Electricity specifications	Coil rated voltage	DC	24 V, 12 V	
	Allowable voltage fluctuation		±10% of rated voltage	
	Coil insulation type		Class B or equivalent	
	Power consumption	DC	2 W	3.2 W (Energy saving type) (Inrush: 3.2 W, Holding: 2.4 W)
	Electrical entry		L plug connector, M plug connector (With indicator light and surge voltage suppressor)	

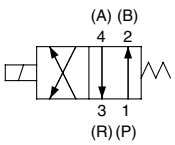
Note 1) Based on JIS B 8375-1981. Factor: With light/surge voltage suppressor (Use clean air).
Dispersion accuracy: ±1 ms

Note 2) Operating the valve at low temperatures may cause condensate to form, therefore dry air must be used.

Note 3) 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 2000 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)

JIS Symbol

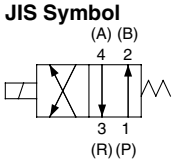


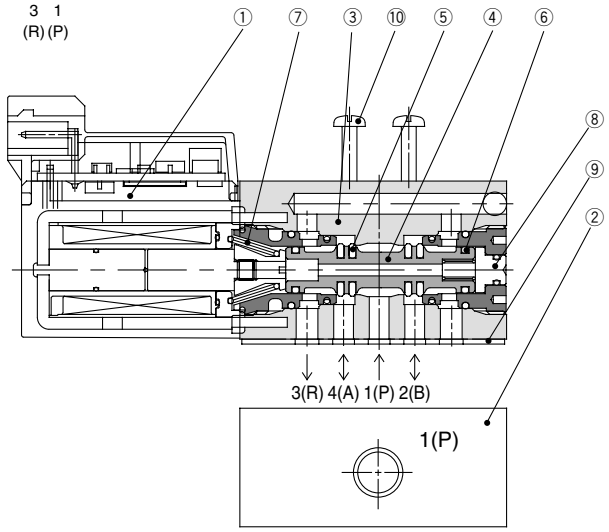
Flow Characteristics

Valve model		Port size	Flow characteristics					
			1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)		
			C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv
Body ported	**VQD1121-□$^{L}_{M}$-M5**	M5 x 0.8	0.22	0.16	0.05	0.19	0.31	0.05
	VQD1121$^{U}_{W}$-□$^{L}_{M}$-M5		0.27	0.24	0.07	0.28	0.28	0.07
Base mounted (With sub-plate)	**VQD1151-□$^{L}_{M}$-M5**		0.22	0.10	0.05	0.22	0.31	0.06
	VQD1151-$^{U}_{W}$□-$^{L}_{M}$ M5		0.27	0.25	0.07	0.27	0.28	0.07

Construction

JIS Symbol





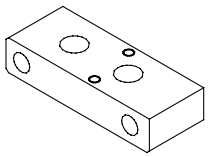
Component Parts

No	Description	Material	Note
①	Solenoid coil assembly	—	
②	Sub-plate	Aluminum	VQD1000-S-M5 (Base mounted only)
③	Body	ZDC	
④	Spool valve	Aluminum	
⑤	Poppet	HNBR	
⑥	Guide ring	Resin	
⑦	Return spring	Stainless steel	
⑧	Manual override	Aluminum	
⑨	Gasket	HNBR	VQD1000-9-1H
⑩	Round head combination screw	Steel	AXT632-7-13 (M1.7 x 18)

Note) Body cannot be disassembled.

Valve Single Unit Option

Piping plate assembly
VQD1000-20A

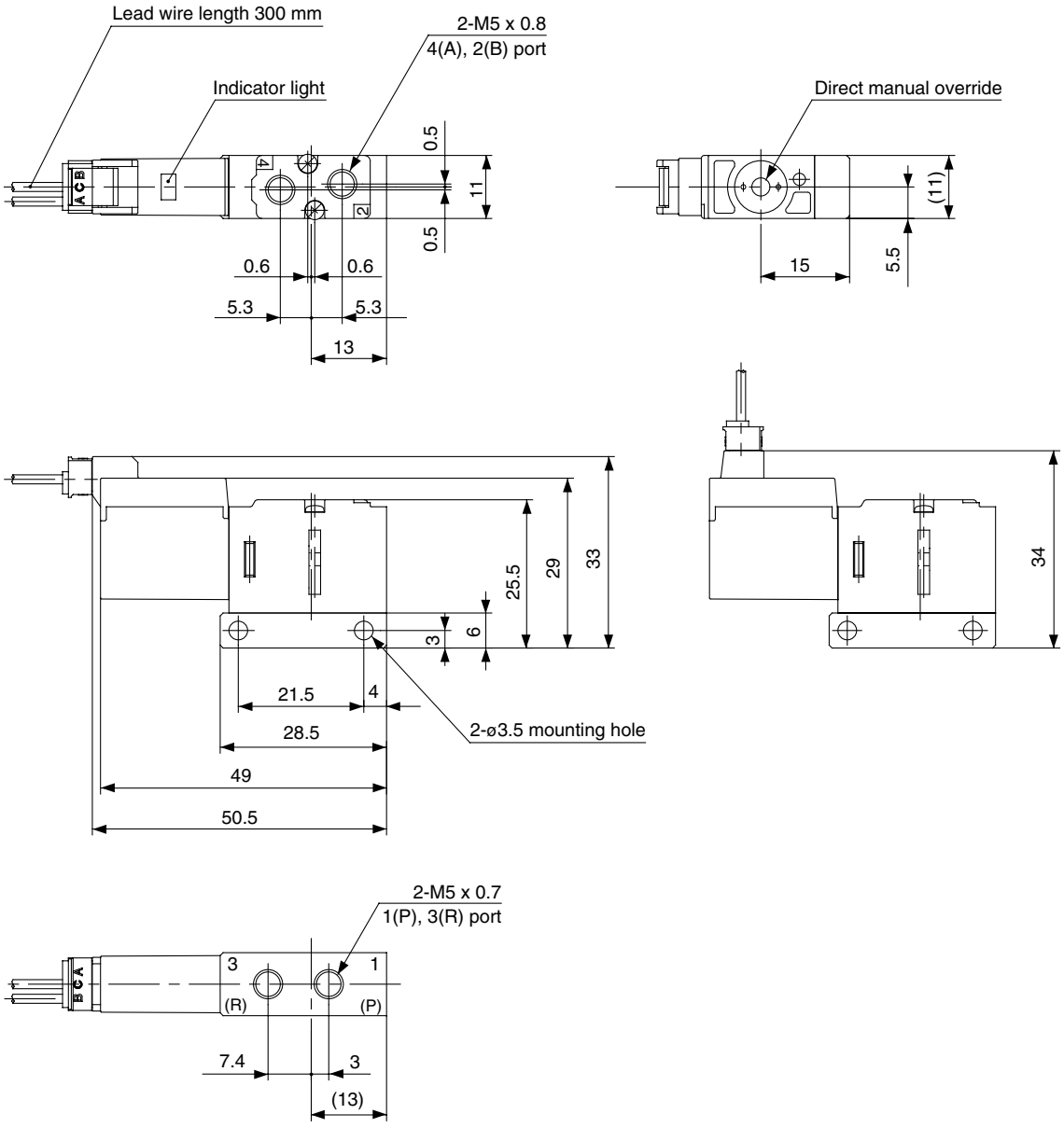


Manifold type (VQD1131) can be changed to single unit type (VQD1121) by mounting plate assembly.

Note) Plate should be mounted with manifold mounting screws (M1.7 x 20).
Proper tightening torque of thread: 0.18 to 0.25 N·m

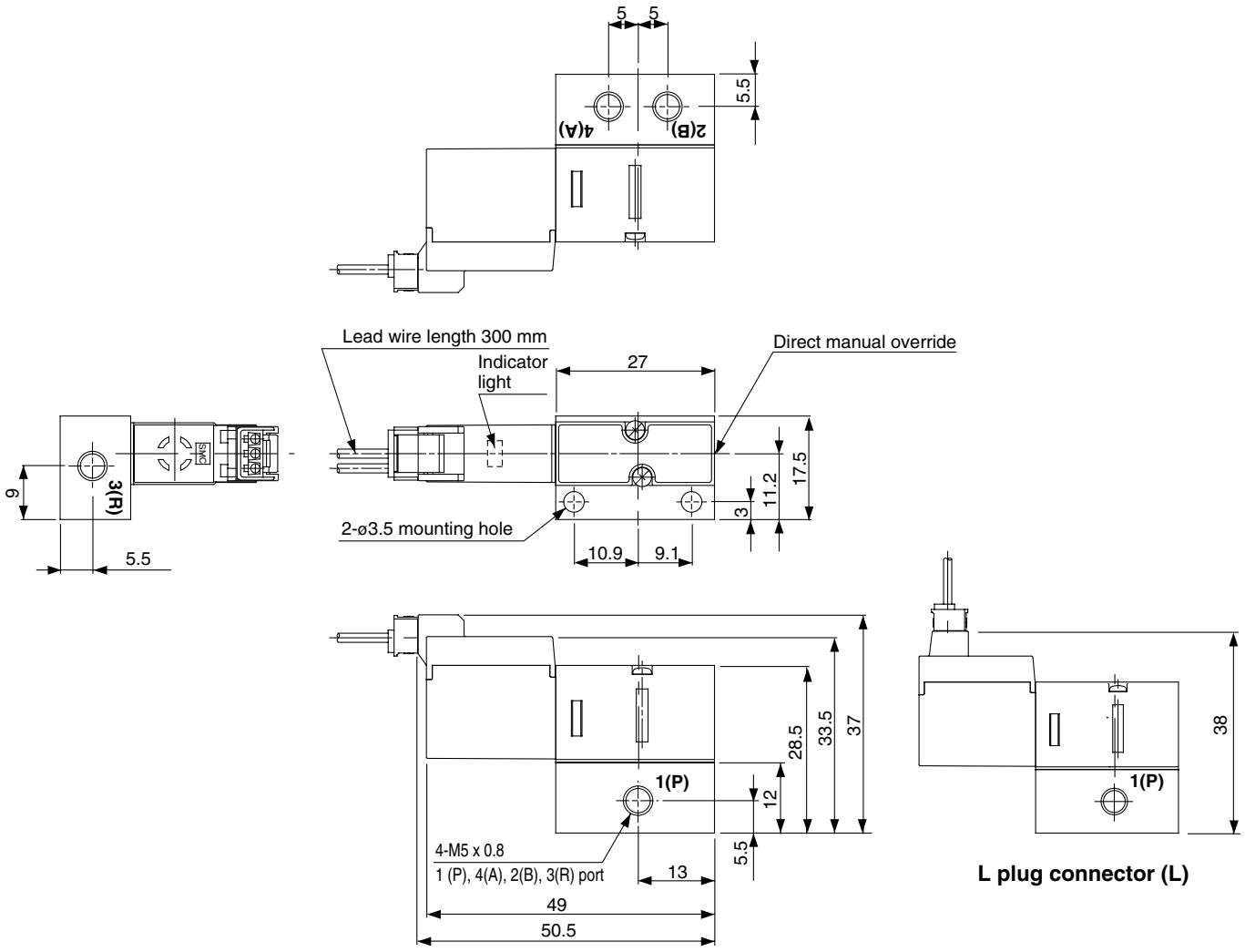
Dimensions

L plug connector: VQD1121□-□L-M5
M plug connector: VQD1121□-□M-M5



Dimensions

L plug connector: VQD1151□-□L-M5
M plug connector: VQD1151□-□M-M5



L plug connector (L)

M plug connector (M)

How to Order Manifold

Plug lead unit manifold

VV4QD1 5 □ □

Manifold

2	Body ported
5	Base mounted

Valve station

02	2 stations
⋮	⋮
20	20 stations (Max.)

Cylinder port (Base mounted only)

M5	M5 thread
C4	One-touch fitting for ø4

1(P), 3(R) port: Rc 1/8

How to Order Valves

VQD11 5 1 □ 5 L M5

Body type

3	Body ported
5	Base mounted

Valve option

Nil	Standard (2W)
V	Vacuum (2 W)
U Note)	For large flow (3.2 W)
W Note)	For large flow, vacuum (3.2 W)

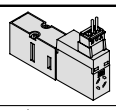
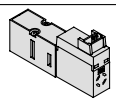
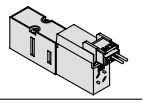
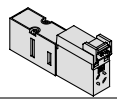
Note) Energy saving type

Rated voltage

5	24 VDC
6	12 VDC

Note) Please consult with SMC for other voltages.

Electrical entry

L: Plug lead type L plug connector, With lead wire With light/surge voltage suppressor	
LO: Plug lead type L plug connector, Without lead wire With light/surge voltage suppressor	
M: Plug lead type M plug connector, With lead wire With light/surge voltage suppressor	
MO: Plug lead type M plug connector, Without lead wire With light/surge voltage suppressor	

Port size (Body ported only)

M5	M5 thread

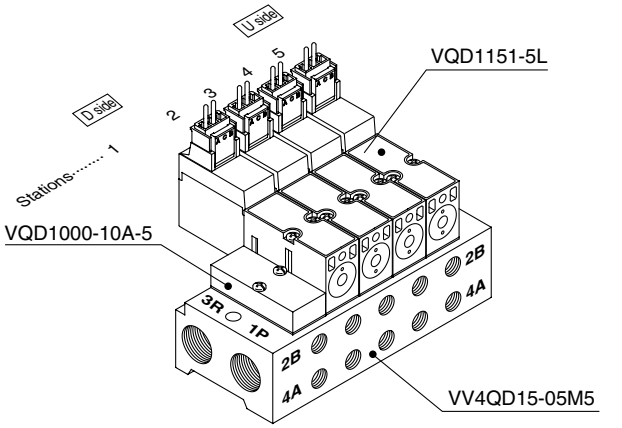
How to Order Manifold Assembly

Specify the part numbers for valves and options together beneath the manifold base part number.

<Example>
Plug lead unit manifold
VV4QD15-05M5·····1 set —— Manifold base part no.
∗VVQD1000-10A-5····1 set —— Blanking plate part no. (1st station)
∗VQD1151-5L·····4 sets — Valve part no. (2 to 5th station)

→ Prefix the asterisk to the part nos. of the solenoid valve, etc.

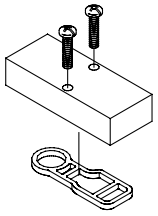
Enter in order starting from the first station on the D side.



Manifold Option

Blanking plate assembly/Body ported

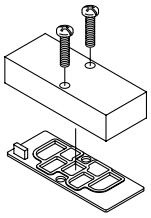
VVQD1000-10A-2



Blanking plate assembly includes 2 screws and gasket

Blanking plate assembly/Base mounted

VVQD1000-10A-5

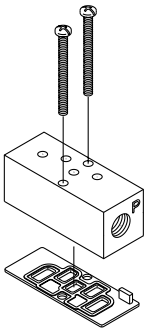


Blanking plate assembly includes 2 screws and gasket

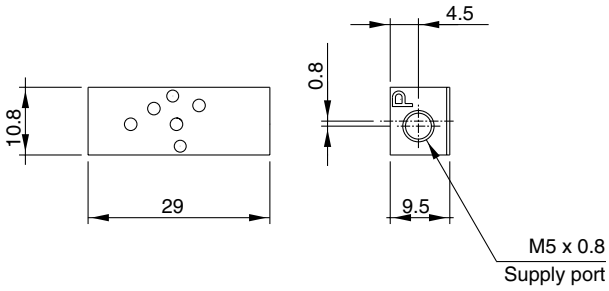
Individual SUP spacer/Base mounted

VVQD1000-P-M5-5

Mount the individual SUP spacer on the manifold base, and thus making it possible to have supply port individually for each valve.



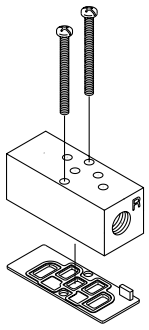
Individual SUP spacer with screw (2 pcs.) and gasket



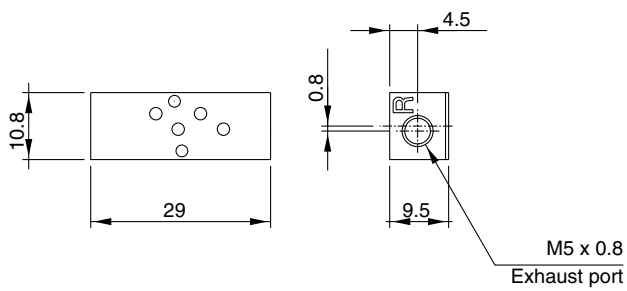
Individual EXH spacer/Base mounted

VVQD1000-R-M5-5

Mount the individual EXH spacer on the manifold base, and thus making it possible to have supply port individually for each valve. (Common EXH type)

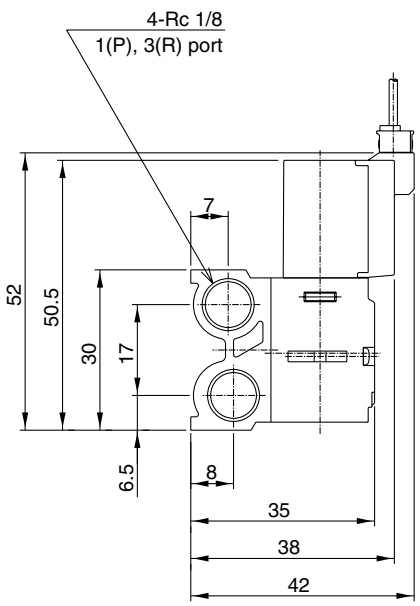


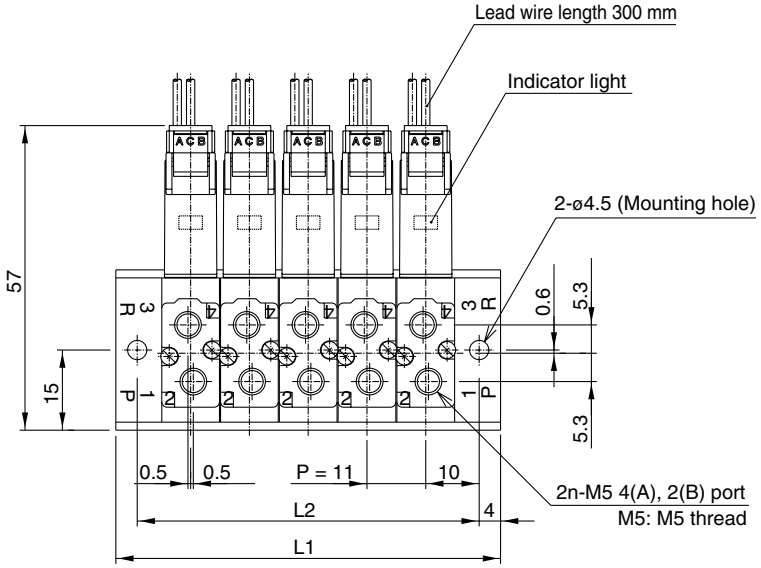
Individual EXH spacer with screw (2 pcs.) and gasket



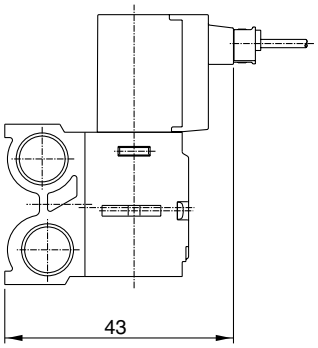
Dimensions

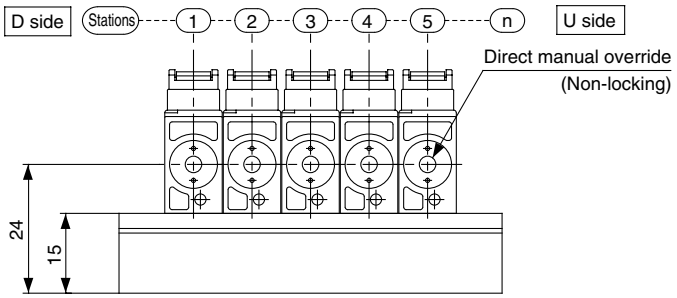
Plug lead unit manifold (VV4QD12-□)





M plug connector (M)





L plug connector (L)

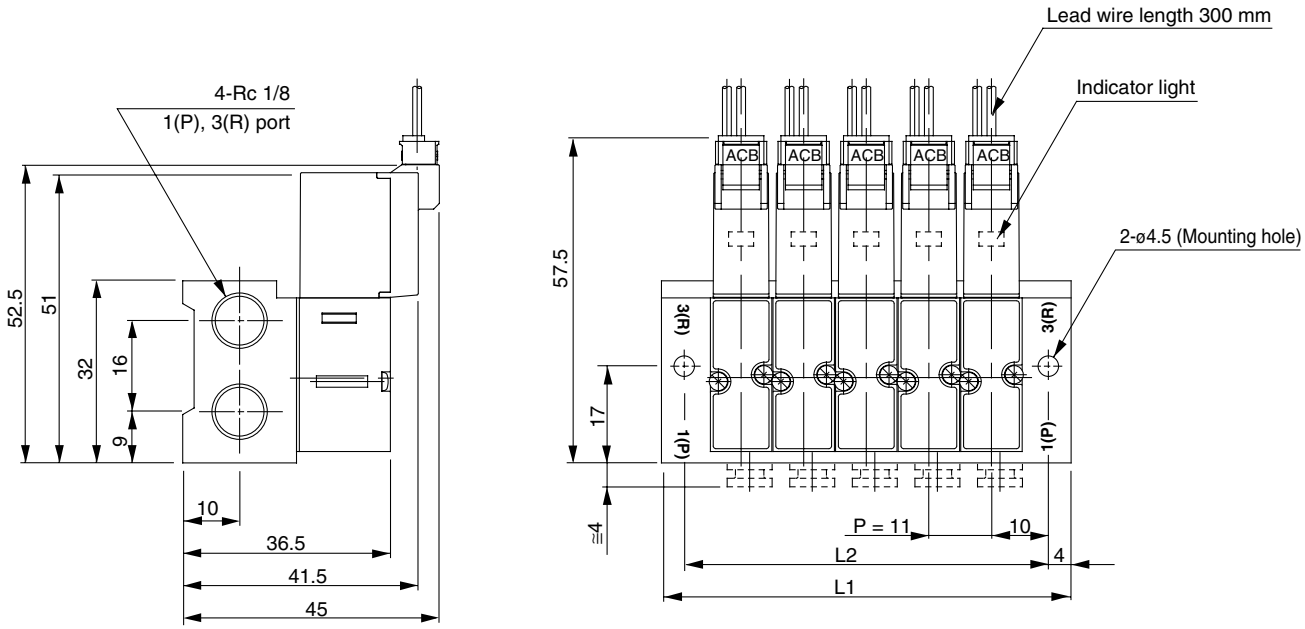
Dimensions

n: Stations

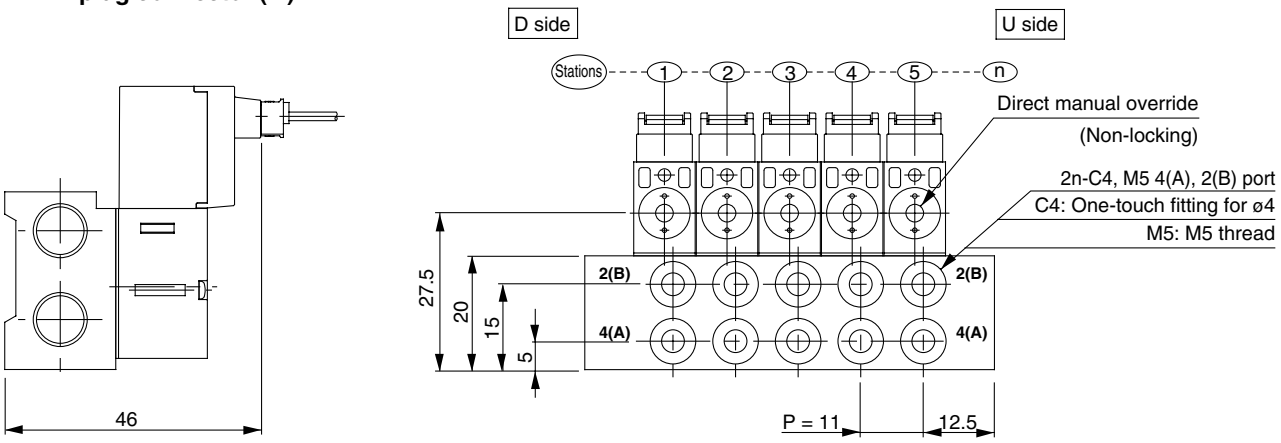
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	28	39	50	61	72	83	94	105	116	127	138	149	160	171	182	193	204	215	226	237
L2	20	31	42	53	64	75	86	97	108	119	130	141	152	163	174	185	196	207	218	229

Dimensions

Plug lead manifold unit (VV4QD15-□□)



M plug connector (M)



L plug connector (L)

Dimensions

n: Stations

L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	39	50	61	72	83	94	105	116	127	138	149	160	171	182	193	204	215	226	237
L2	31	42	53	64	75	86	97	108	119	130	141	152	163	174	185	196	207	218	229

Vacuum / Release Unit

Adaptable to 0603 chip

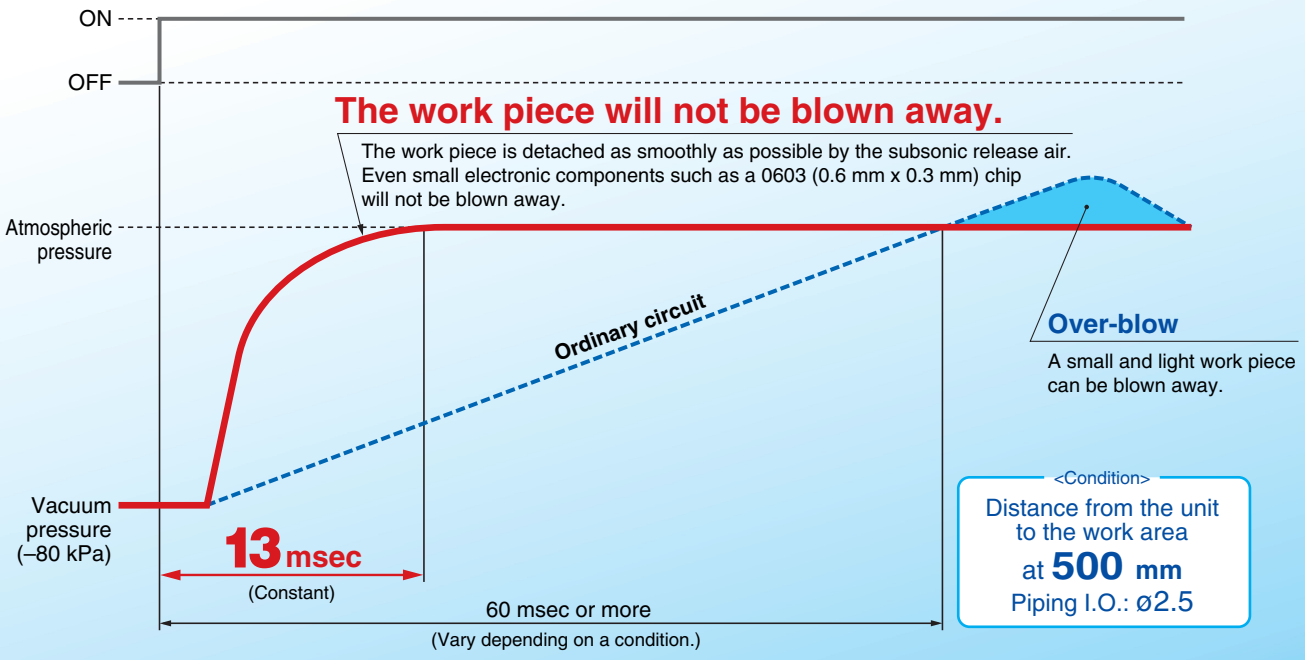
○ Response speed
13 msec (at 500 mm*)/**18.5 msec** (at 1000 mm*)

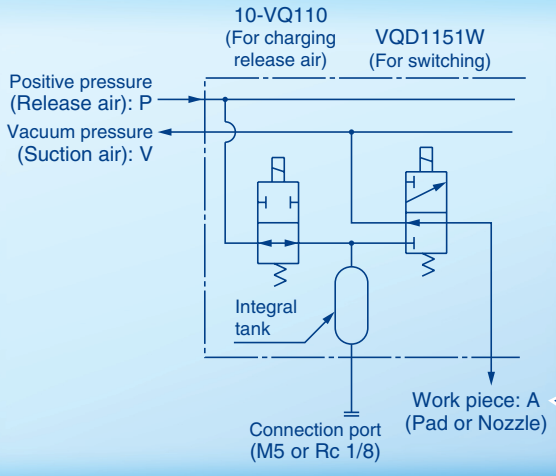
* Distance from the unit to the work area

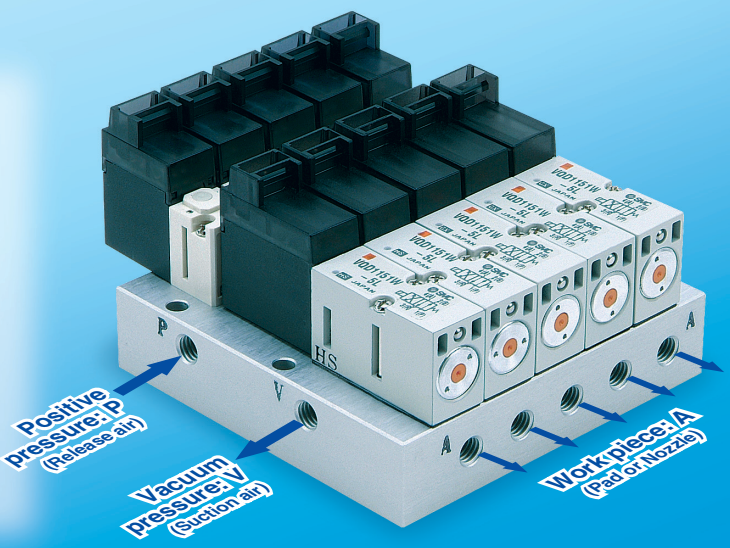
○ Smooth detachment of a work piece without over-blow
The work piece will not be blown away when the air is released.

○ No need to adjust the timing when switching between vacuum and positive pressure. (single signal control)

○ No need to design a restrictor circuit for release air.







Series VQD1000-V

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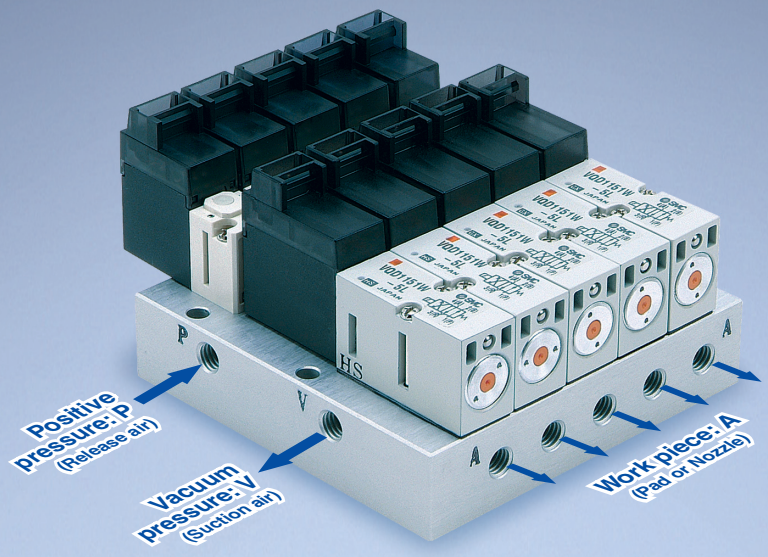
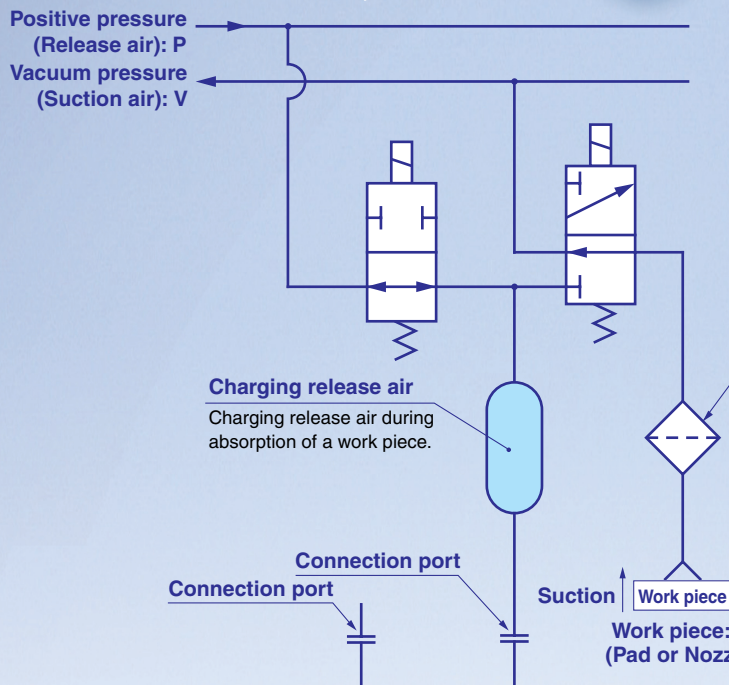
Vacuum / Release Unit

Series VQD1000-V





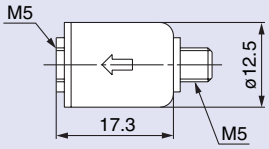
Suction filter can be cleaned.

If you energize the VQD1151W, you can clean the suction filter using positive-pressure air blowing.

Suction filter (installed near a work)

Recommended: FGZG220A-B40 (Filtration rating 40 m)

FGZG220A-B40 / Internal volume: 0.21 cm³



* When cleaning (air-blowing), use a pressure of 1.5 MPa or greater, repeating the process several times but for less than 2 seconds at a time.

When the distance between work pieces is fluctuated.

Compatible with an atmospheric release pressure circuit

Possible to make it an atmospheric release type by installing a check valve on the connecting port and by setting the release air pressure (P) lower. (When the release air is running low, the pressure inside the tank changes to vacuum from the positive pressure. In this case, the pressure is rapidly released to the atmosphere due to the check valve.)

Atmospheric pressure suction port

Recommended check valve AKH04B-M5

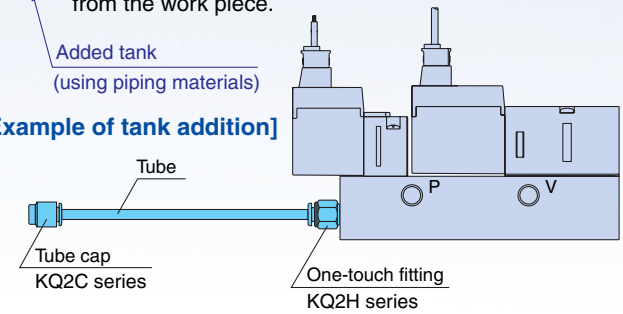
When the release pressure is running low.

Additionally a tank can be installed.

Possible to add a tank for charging release air in accordance with the distance (volume) between the unit from the work piece.

Added tank (using piping materials)

[Example of tank addition]



Made to Order Vacuum shut type (normally closed) when de-energized

* Please contact SMC for details.

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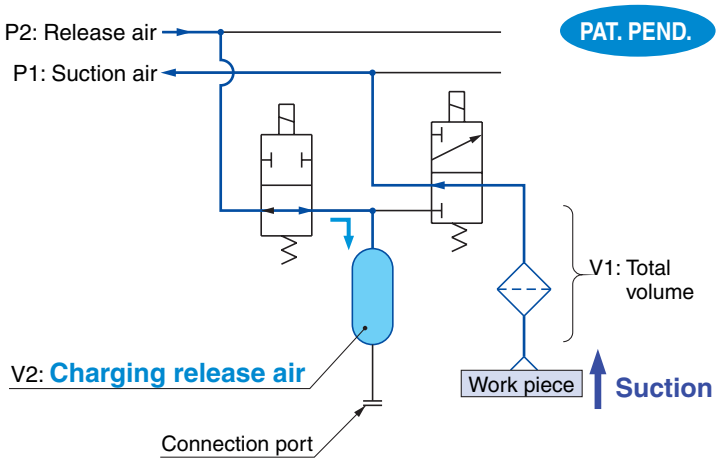
Working principle

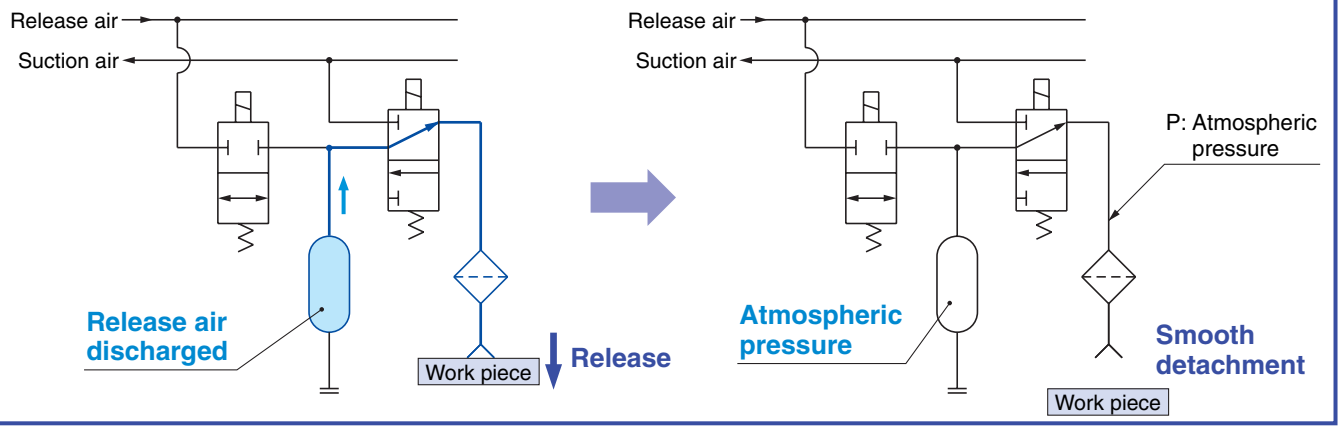
When de-energized Vacuum absorption

De-energizing 2 solenoid valves simultaneously
Charging release air during absorption of a work piece



When energized Release → Shut

Energizing 2 solenoid valves simultaneously
Release air is discharged and the pressure required for detaching / releasing a work piece turns to atmospheric pressure, resulting in smooth detachment.



<Relationship between pressure and a release air tank>

$$P2 = \frac{(P + 0.1) \times (V1 + V2) - (P1 + 0.1) \times V1}{V2} - 0.1$$

P1: Suction vacuum pressure / Negative pressure (MPa)
P2: Release pressure / Positive pressure (MPa)
P: Detaching (Release) pressure (MPa)
∗ 0 MPa (atmospheric pressure) is normal.

V1: Total volume from a unit to a work (cm^3)
V2: Volume of a release air tank (cm^3)
(VQD1000-V type: 0.8c m^3
VQD1000-VL type: 3.2 cm^3)

P2: Release Air Guideline

Distance between the unit and the work area (mm)		300	500	1000	2000
V1: Total volume from the unit to the work area (cm^3)		1.68	2.66	5.12	10.02
P2: Release pressure (MPa)	VQD1000-V	0.19	0.30	0.58	—
	VQD1000-VL	—	0.07	0.14	0.28

<Conditions> • Suction vacuum pressure (P1): –90 kPa (–0.090 MPa)
• Piping tube size: ø4 (I.D. ø2.5)
• Suction filter: When mounting FGZG220A-B040 (internal volume: 0.21 cm^3)

[How to Adjust]

1. Adjust P2 release pressure, using a regulator, in accordance with V1 volume. We recommend that you use our precision type, IR series.
2. When V1 volume differs in the same manifold, equalize it by adjusting the length or internal diameter of the piping. Even when the piping length is extended a good response is ensured.

Vacuum / Release Unit
Series VQD1000-V

How to Order

Vacuum / Release Unit **VQD1000−V** □ **−05−5** □

Volume of release air tank: V2

Nil	0.8 cm³	Guideline: 1 m or shorter distanced from a work piece
L	3.2 cm³	Guideline: 1 m or longer distanced from a work piece

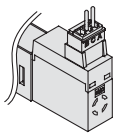
Note) Calculate according to the related formula between pressure and a release air tank on front matter 1, and select either one.

Stations

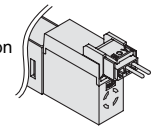
01	1 unit (1 station)
02	2 units (2 stations)
⋮	⋮
10	10 units (10 stations)

Electrical entry

Nil: L plug connector
* Standard type

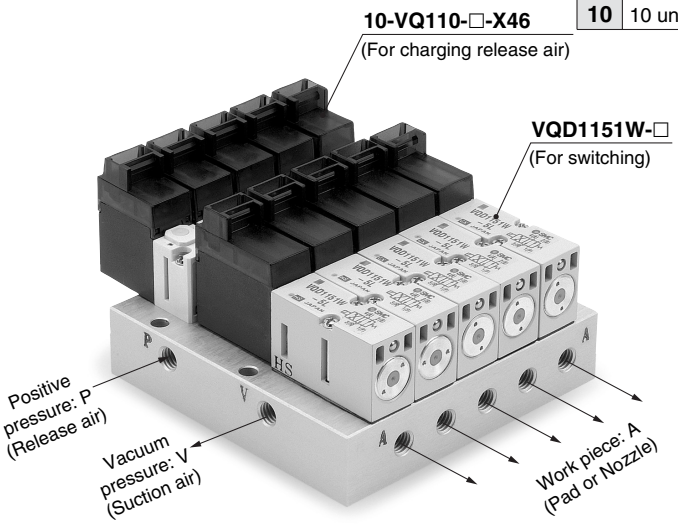


M: M plug connector
* Performances in valve installation/de-installation and handling of a connector is less ensured.

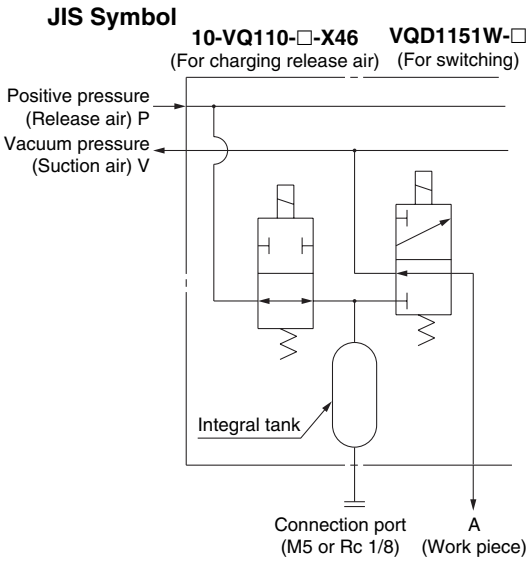


Voltage

5	24 VDC
6	12 VDC



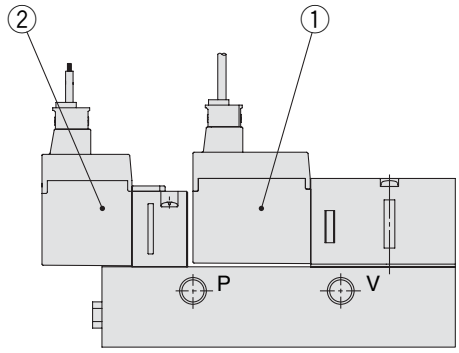
JIS Symbol



Specifications

Valve specifications	**Valve construction**		Direct operated poppet valve
	Fluid		Air, Inert gas/Low ozone resistant product
	Operating pressure range	**Suction (negative pressure)**	0 to –100 kPa
		Release (positive pressure)	0 to 0.7 MPa
	Response time	**Suction (OFF)**	2 1 msec
		Release (ON)	4 1 msec
	Suction flow rate/Sonic conductance		16 ℓ/min/0.27 $dm^3/(s \cdot bar)$
	Manual override		Non-locking push type
	Shock/Vibration resistance		150/30 m/s^2
	Mounting postion		Unrestricted
	Enclosure		Dusttight
Electric specifications	**Coil rated voltage**		24 VDC, 12 VDC
	Allowable rated voltage		10% of rated voltage
	Coil insulation type		Class B or equivalent
	Power consumption	**VQD1151W (for switching)**	3.2 W energy saving type (Inrush: 3.2 W, Holding: 2.4 W)
		10-VQ110 (for release supply)	1 W
	Electrical entry		L/M plug connector (with light/surge voltage suppressor)

Replacement Parts



① Solenoid valve for switching

VQD1151W – 5 L

Voltage	
5	24 VDC
6	12 VDC

Electrical entry	
L	L plug connector
M	M plug connector

② Solenoid valve for charging release air

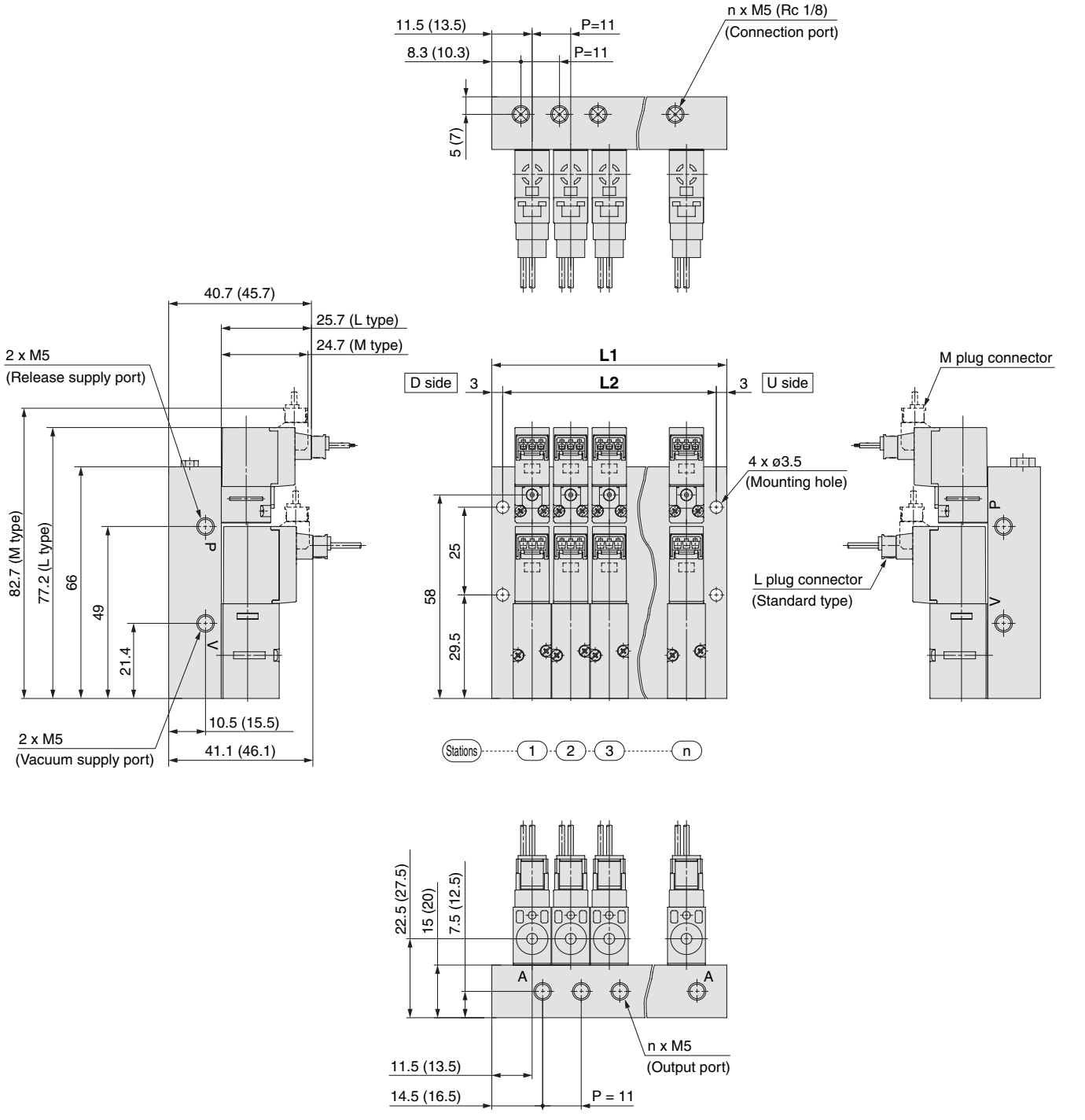
10-VQ110 – 5 L – X46

Voltage	
5	24 VDC
6	12 VDC

Electrical entry	
L	L plug connector
M	M plug connector

Note) Product with specification on pressurizing R port.
If a standard product is used, external leakage may occur.

Replacement Parts



L: Dimensions (VQD1000-V-□□ / Standard type: Tank volume 0.8 cm³)

L \ n	1	2	3	4	5	6	7	8	9	10
L1	23	34	45	56	67	78	89	100	111	122
L2	17	28	39	50	61	72	83	94	105	116

Formula: L1 = 11n + 12, L2 = 11n + 6 (Max. 10 stations)

L: Dimensions (VQD1000-VL-□□ / Tank volume 3.2 cm³)

L \ n	1	2	3	4	5	6	7	8	9	10
L1	25	36	47	58	69	80	91	102	113	124
L2	19	30	41	52	63	74	85	96	107	118

Formula: L1 = 11n + 14, L2 = 11n + 8 (Max. 10 stations)

The dimensions shown in brackets indicate the VQD1000-VL-□□ / tank volume 3.2 cm³.

Series VQD1000-V
Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by labels of **"Caution", "Warning"** or **"Danger"**. To ensure safety, be sure to observe ISO 4414 Note 1), JIS B 8370 Note 2) and other safety practices.

■Explanation of the labels

Labels	Explanation of the labels
⚠ **Danger**	In extreme conditions, there is a possible result of serious injury or loss of life.
⚠ **Warning**	Operator error could result in serious injury or loss of life.
⚠ **Caution**	Operator error could result in injury Note 3) or equipment damage. Note 4)

Note 1) ISO 4414: Pneumatic fluid power – General rules relating to systems
Note 2) JIS B 8370: General Rules for Pneumatic Equipment
Note 3) Injury indicates light wounds, burns and electrical shocks that do not require hospitalization or hospital visits for long-term medical treatment.
Note 4) Equipment damage refers to extensive damage to the equipment and surrounding devices.

■Selection/Handling/Applications

1. The compatibility of the pneumatic equipment is the responsibility of the person who designs the pneumatic system or decides its specifications.
Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or post analysis and/or tests to meet the specific requirements. The expected performance and safety assurance are the responsibility of the person who has determined the compatibility of the system. This person should continuously review the suitability of all items specified, referring to the latest catalog information with a view to giving due consideration to any possibility of equipment failure when configuring a system.

2.Only trained personnel should operate pneumatic machinery and equipment.
Compressed air can be dangerous if handled incorrectly. Assembly, handling or repair of the systems using pneumatic equipment should be performed by trained and experienced operators. (Understanding JIS B 8370 General Rules for Pneumatic Equipment, and other safety rules are included.)

3. Do not service the machinery/equipment or attempt to remove components until safety is confirmed.
1. Inspection and maintenance of the machinery/equipment should only be performed once measures to prevent falling or runaway of the driven objects have been confirmed.
2. If the equipment must be removed, confirm the safety process as mentioned above. Turn off the supply pressure for the equipment and exhaust all residual compressed air in the system, and release all the energy (liquid pressure, spring, condenser, gravity).
3. Before the machinery/equipment is restarted, take measures to prevent quick extension of a cylinder piston rod, etc.

4. If the equipment will be used in the following conditions or environment, please contact SMC first and be sure to take all necessary safety precautions.
1. Conditions and environments beyond the given specifications, or if product is used outdoors.
2. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverages, recreation equipment, emergency stop circuits, clutch and brake circuits in press applications, or safety equipment.
3. An application which has the possibility of having negative effects on people, property, requiring special safety analysis.
4. If the products are used in an interlock circuit, prepare a double interlock style circuit with a mechanical protection function for the prevention of a breakdown. And, examine the devices periodically if they function normally or not.

■Exemption from liability

1. SMC is exempted from liability for any damages caused by earthquakes, fire for which SMC is not responsible for, actions by a third person, accidents, customer error with or without intention, product misuse, and any other damages caused by abnormal operating conditions.

2. SMC is exempted from liability for any accompanied damages, such as profit loss and discontinuation of business operation, caused by the operation or incompetency to operate our products.

3. SMC is exempted from liability for any damages caused by operations, which the catalogs and instruction manuals have not introduced, and operations outside of the specification range.

4. SMC is exempted from liability for any damages caused by malfunctions of our products when combined with other devices or software in which SMC is not involved in.

Series VQD1000-V
Specific Product Precautions

Be sure to read this before handling.
For Safety Instructions, refer to the back of page 1. For Common Precautions, refer to "Precautions for Handling Pneumatic Devices" (M-03-E3A).

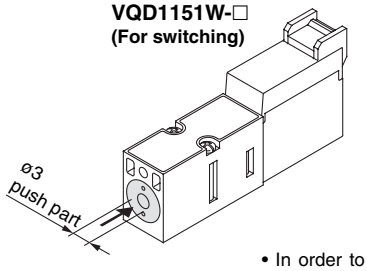
Manual Override Operation

⚠ Warning

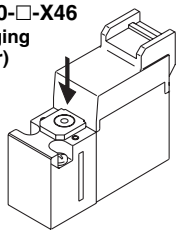
Connected actuator is started by manual operation. Use the manual override after confirming that there is no danger.

■ **Non-locking push type (Tool required)**

VQD1151W-□
(For switching)



10-VQ110-□-X46
(For charging release air)

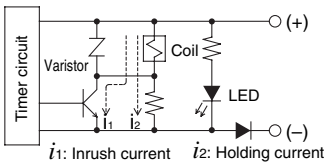


- In order to turn it ON, push down the manual override button in the direction the arrow (→) indicates until it stops (approx. 0.5 mm), and release it to turn it OFF.

Wiring Specifications

⚠ Caution

VQD1151W-□
(For switching)

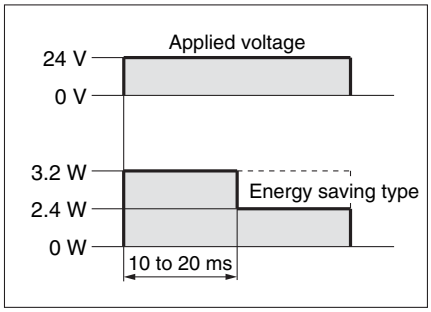


i_1: Inrush current i_2: Holding current

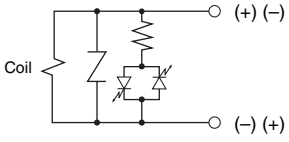
	Lead wire	Connector
(+)	Red	C
(–)	Black	A

For the VQD1151W specifications (energy saving type), power consumption at holding is reduced with the above circuit.
Refer to electrical power waveform as shown below.

<Energy saving type's electrical power waveform>
(Rated voltage: at 24 VDC)



10-VQ110-□-X46
(For charging release air)



	Lead wire	Connector
(+) (–)	Red	C
(–) (+)	Black	A

Continuous Energization

⚠ Warning

Coil temperature may get high due to ambient temperature or energizing duration. Do not touch the valve by hand directly. When there is such a dangerous case to be touched by hand directly, install a protective cover.

⚠ Caution

When simultaneously energizing 3 stations or more, make sure to place an energized and non-energized valve alternatively.
However, if this is not possible and 3 stations or more need to be energized simultaneously, the energizing time should be less than 30 minutes to achieve an energized status not exceeding 50%.

Valve Mounting

⚠ Caution

After confirming the gasket is correctly placed under the valve, securely tighten the bolts with the proper torque shown in the table below.

Proper tightening torque (N·m)
0.18 to 0.25

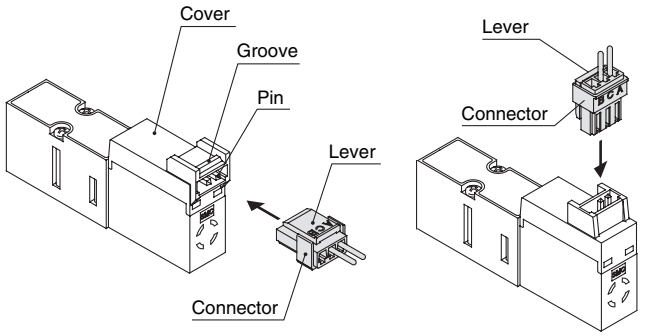
How to Use Plug Connector

⚠ Caution

Attaching and detaching connectors

- To attach a connector, hold the lever and connector unit between your fingers and insert straight onto the pins of the solenoid valve so that the lever's pawl is pushed into the groove and locks.
- To detach a connector, remove the pawl from the groove by pushing the lever downward with your thumb, and pull the connector straight out.

Note) Gently pull the lead wire, otherwise it may cause contact failure or disconnection.



When Piping to a Product

⚠ Caution

When piping to a product, check the supply port, etc.

Also, when tightening the piping tube, clamp the base unit to avoid any undue force from being applied to the valve.
If a force of 120 N or more is applied to the coil especially, the connecting pin may be deformed, resulting in malfunction.

Back page 2

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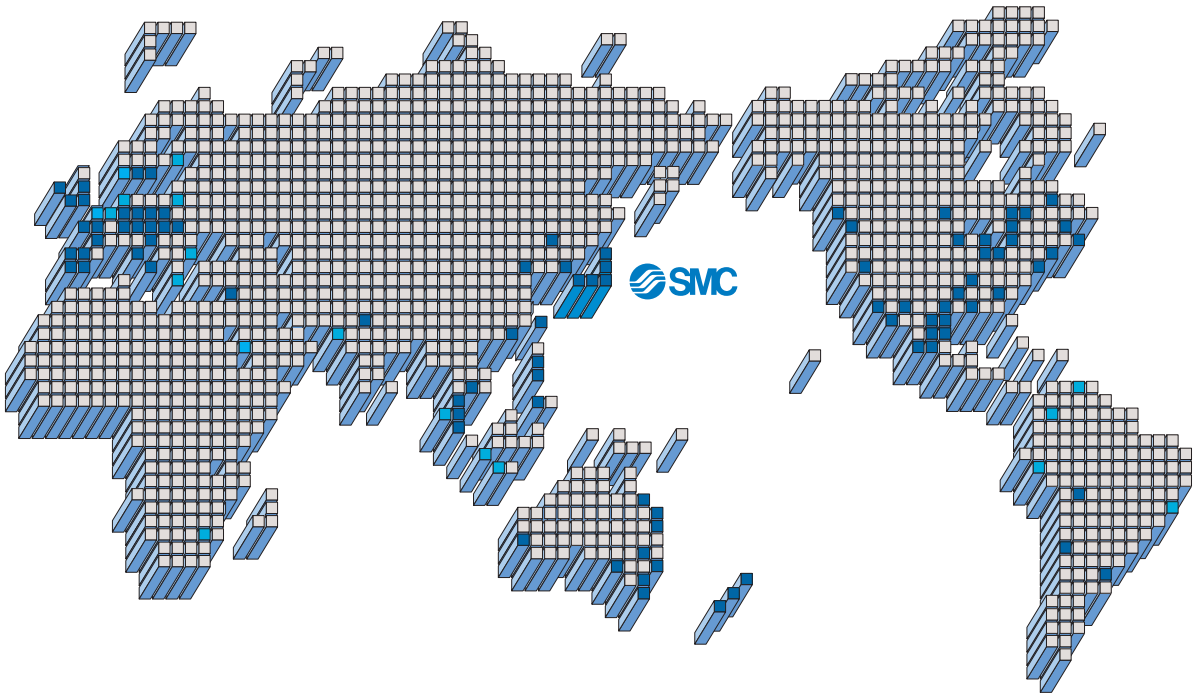

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⚠ Safety Instructions	Be sure to read “Precautions for Handling Pneumatic Devices” (M-03-E3A) before using.

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