Series 10-VQ100 3 port solenoid valve

How to Order Valves

10 — VQ1 [1] 0 [ ] — [5] [F] [ ] — [ ]

Clean series

Series VQ
Compact 3 port valve

Type of actuation

1	Normally closed
2 Note)	Normally open

Note) Normally open type is available only with DC1W type.

Function

Nil	Standard (1W)
H	High pressure type (1.5W)
Y Note)	Low wattage type (0.5W)
L*	Latching type Positive common
N*	Latching type Negative common
U*	Large flow type

*: Option
Note) Except latching and large flow types. Use a low wattage type when operated under continuous energization.

Coil rated voltage

1	100 VAC (50/60Hz)
2	200 VAC (50/60Hz)
3	110 VAC (50/60Hz)
4	220 VAC (50/60Hz)
5	24 VDC
6	12 VDC
9	Other special voltages

For the special voltages, please consult with SMC.

Manual override

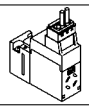
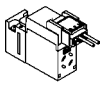
Nil	Non-locking push type (Tool required)
B*	Latching type: Push-locking type (Tool required)
	Locking type (Tool required)

*: Option
Note) Latching manual override: Push-locking type only.

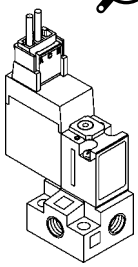
Port size

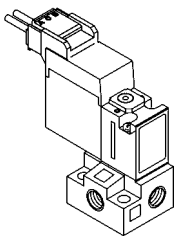
Nil	Without sub-plate
M3	With sub-plate
M5	With sub-plate

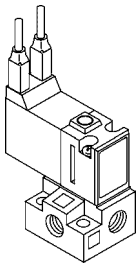
Electrical entry

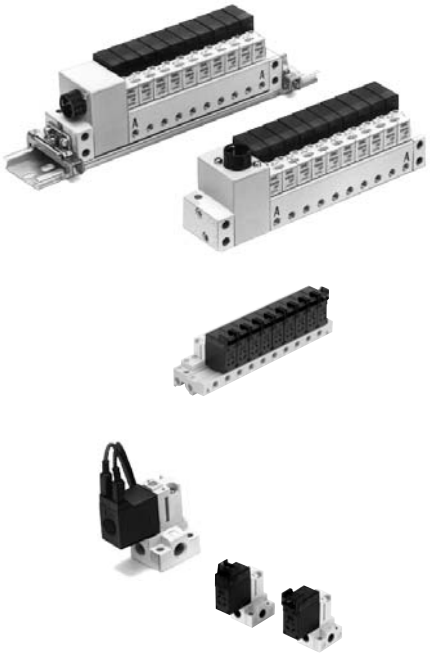
F	Plug-in With light/surge voltage suppressor (Only for plug-in manifold)	
L	L plug connector, with lead wire With light/surge voltage suppressor	
LO	L plug connector, without connector With light/surge voltage suppressor	
M	M plug connector, with lead wire With light/surge voltage suppressor	
MO	M plug connector, without connector With light/surge voltage suppressor	
G	Grommet	

Note) Grommet: No latching, AC and large flow types

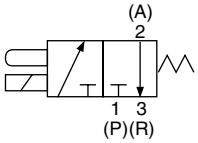

L plug connector


M plug connector

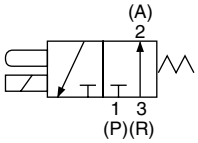

Grommet



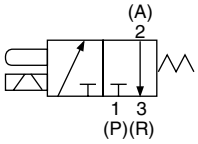
JIS Symbol



Normally closed



Normally open



Latching type

Standard specifications

Item				Type	Standard type (1 W)	High pressure type (1.5 W)	Low wattage type (0.5 W)
Valve specifications	Valve construction				3 port direct operated poppet		
	Fluid				Air / Inert gas		
	Maximum operating pressure				0.7MPa	0.8MPa	0.7MPa
	Minimum operating pressure (vacuum)				0 MPa (–100 kPa) Note 5)		
	Flow characteristics	1→2	C[dm³/(s·bar)]		0.055		0.042
			b		0.22		0.27
			Cv		0.014		0.011
		2→3	C[dm³/(s·bar)]		0.083		0.045
			b		0.28		0.28
			Cv		0.021		0.012
	Response time Note 1)				ON: 3.5ms, OFF: 2ms		ON: 3.5ms, OFF: 2.5ms
	Ambient and fluid temperature				–10 to 50°C Note 2)		
	Lubrication				Not required		
	Manual override				Non-locking push type / Locking type (tool required) Note 3)		
	Mounting orientation				Unrestricted		
	Shock/Vibration resistance Note 4)				150/30 m/s²		
	Enclosure				Dust tight		
	Weight				12.6g (L, M plug connector, Without sub-plate)		
Electrical specification	Coil rated voltage			DC	24V, 12V		
	Allowable voltage fluctuation				±10% of rated voltage		
	Coil insulation type				Equivalent to class B		
	Power consumption (Current)			DC	1 W (42 mA)	1.5 W (63 mA)	0.5 W (21 mA)
	Electrical entry				Grommet Plug-in, L plug connector, M plug connector (With light/surge voltage suppresser)		

Note 1) Based on JIS B8374-1993. With light/surge voltage suppressor (clean air).
Dispersion accuracy of ±1ms
Note 2) Use dry air to prevent condensation when operating at low temperatures.
Note 3) Locking style: Option.
Note 4) Impact resistance: No malfunction occurred when it is tested in the axial direction and at the right angles to the armature in both energized and de-energized states every once for each condition. (Initial value)

Vibration resistance: No malfunction occurred in one sweep between 45 and 2000Hz. Test was performed in the axial direction and at the right angles to the armature in both energized and de-energized states. (Initial value)

Note 5) In vacuum applications, 3 (R) port vacuum and 1 (P) port vacuum release pressure can be used.
(Differential pressure between 3 (P) and 1 (P) is up to the maximum operating pressure for each type.)

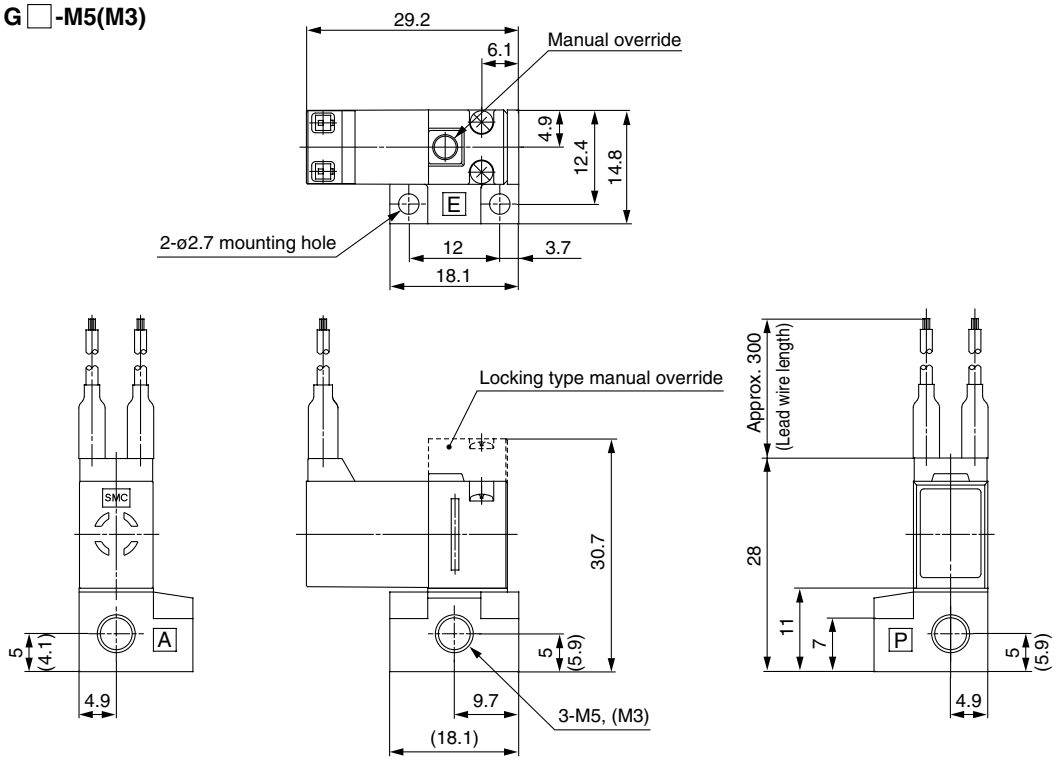
Option

Item				Latching type	AC type	Large flow type	Normally open
Valve specifications	Model			**10-VQ110L-□**	**10-VQ110-$\frac{1}{2}$□**	**10-VQ110U-□**	**10-VQ120-□**
	Maximum operating pressure			0.7MPa		0.6 MPa	0.5 MPa
	Minimum operating pressure			0 MPa (–100 kPa) Note 4) Note 5)			
	Flow characteristics	1→2 Note 6) (3→2)	C[dm³/(s·bar)]	0.042		0.14	0.04
			b	0.27		0.26	0.11
			Cv	0.011		0.036	0.009
		2→3 Note 6) (2→1)	C[dm³/(s·bar)]	0.045		0.14	0.044
			b	0.28		0.25	0.3
			Cv	0.012		0.036	0.011
	Response time Note 2)			5 ms or less	15 ms or less	5 ms or less	5ms or less
Electrical specification	Power consumption (Current)		24 VDC	1 W (42 mA)	—	0.7 W (29 mA) Note 3)	1 W (42 mA) Note 7)
			12 VDC	1 W (83 mA)	—	0.7 W (58 mA) Note 3)	1 W (83 mA) Note 7)
			100 VAC	0.6 VA (6 mA)	0.5 VA (5 mA)	—	
			110 VAC	0.65 VA (5.9 mA)	0.55 VA (5 mA)	—	
			200 VAC	1.2 VA (6 mA)	1.0 VA (5 mA)	—	
			220 VAC	1.3 VA (5.9mA)	1.1 VA (5 mA)	—	
	Electrical entry Note 1)			Plug-in, L plug connector, M plug connector (With light/surge voltage suppresser)			

Note 1) Grommet is available only for normally open type (without light/surge voltage suppressor).
Note 2) Based on JIS B 8374-1993, With light/surge voltage suppressor (clean air)
Note 3) Starting 3.1 W (10 ms after energization), Holding 0.7 W.
Note 4) In vacuum applications, 3 (R) port vacuum and 1 (P) port vacuum release pressure can be used. (Differential pressure between 3 (P) and 1 (P) is up to the maximum operating pressure for each type.)
Note 5) In the case of 1 (P) port vacuum and 3 (R) port vacuum release, use VQ120 (normally open type).
Note 6) ( ) denote the air passage for normally open type.
Note 7) Normally open type is available only with DC1W specification.

Dimensions

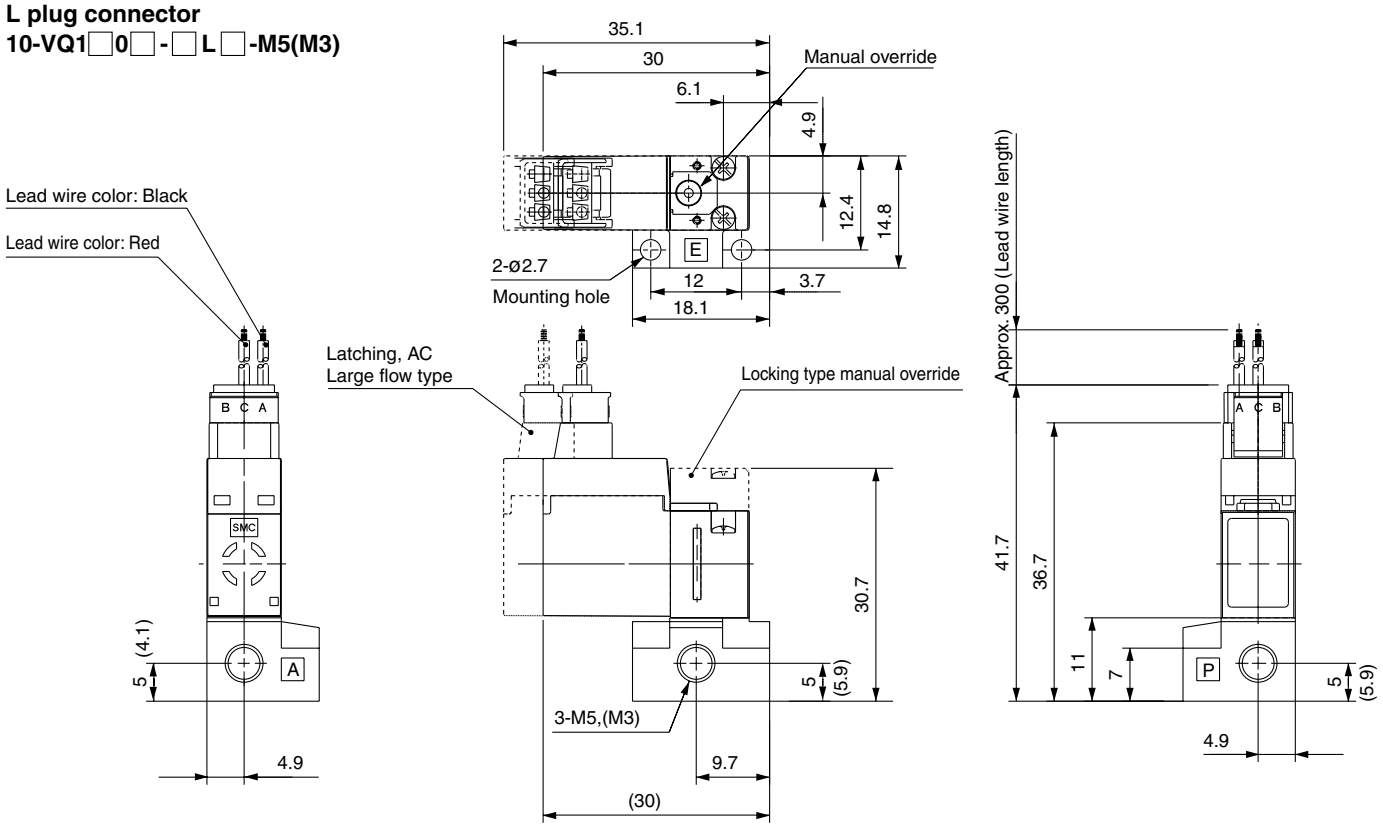
Grommet
10-VQ1□0□-□G□-M5(M3)



· ( ): M3
· Broken line: Locking type manual override.

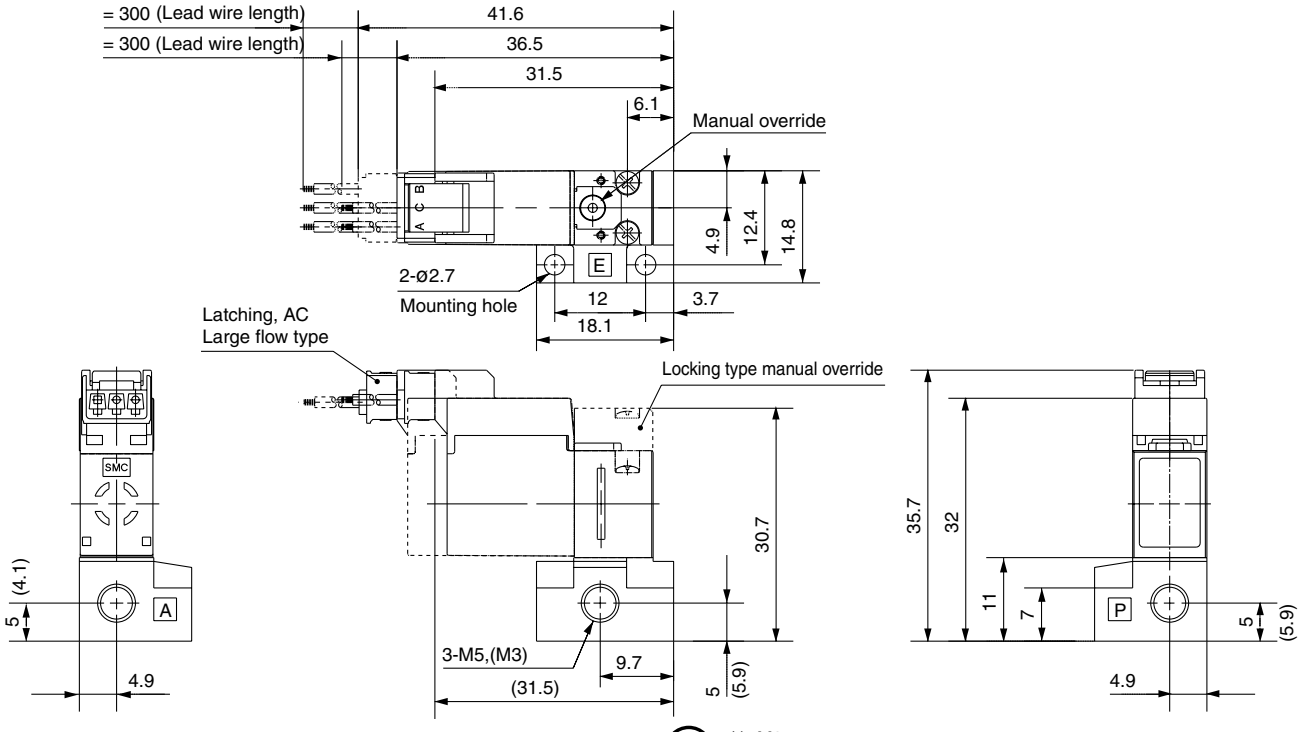
Dimensions

L plug connector
10-VQ1□0□-□L□-M5(M3)



· ( ): M3
· Broken line: Latching, AC and large flow
· Dashed line: Locking type manual override and push-locking type manual override (latching).

M plug connector
10-VQ1□0-□M□-M5(M3)



· ( ): M3
· Broken line: Latching, AC and large flow
· Dashed line: Locking type manual override and push-locking type manual override (latching).

How to Order Manifold

Plug-in unit Manifold **10 — VV3Q 1 1 — 08 C U 1 — D**

Clean series

Applicable solenoid valve (Plug-in type)
10-VQ1□0□-□F

· When mounting a latching type, please consult with SMC.
· Possible to mount U (large flow) type.

Series

1	VQ100

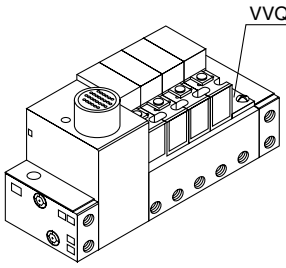
Manifold base model no.

1	Plug-in unit

Note) Normally closed and normally open styles cannot be mounted on the same manifold.

Stations

02	2 stations
⋮	⋮
18	18 stations



Electrical entry

C	Multi-connector type

Electrical entry

U	Top entry
S	Side entry

Cable length

0	Without cable
1	With cable (1.5 m)
2	With cable (3 m)
3	With cable (5 m)

Option

Nil	None
D	DIN rail mounted (With standard length of DIN rail)
DO[Note 1)]	DIN rail mounted (Without DIN rail)

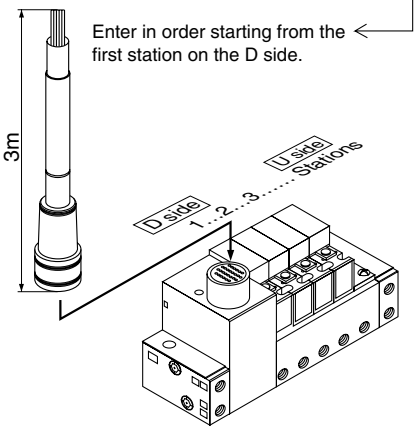
Note 1) Order DIN rail separately.
For DIN rail model number, refer to page 713.

How to Order Manifold Assembly

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

<Example>
Plug-in unit manifold with cable (3 m)
10-VV3Q11-05CU2 ···1 set —— Manifold Base part no.
∗ **10-VQ110-5F** ····· 4 sets —— Valve part no. (1st to 4th station)
∗ **VVQ100-10A-1**····· 1 set —— Blanking plate Part no. (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.



How to Order Valves

10 — VQ1 1 0 □ — 5 F □

Clean series

Series VQ
Compact 3 port valve

Type of actuation

1	Normally closed
2[Note)]	Normally open

Note) Normally open type is available only with standard type. (1 W)

Function

Nil	Standard type (1W)
H	High pressure type (1.5W)
Y[Note)]	Low wattage type(0.5W)
U∗	Large flow type

∗: Option
Note) Except large flow type. Use a low wattage type when operated under continuous energization.

Coil rated voltage

1	100 VAC (50/60Hz)
2	200 VAC (50/60Hz)
3	110 VAC (50/60Hz)
4	220 VAC (50/60Hz)
5	24 VDC
6	12 VDC
9	Other special voltages

For the special voltages, please consult with SMC.

Electrical entry

F	Plug-in With light/surge voltage suppresser (Only for plug-in manifold)

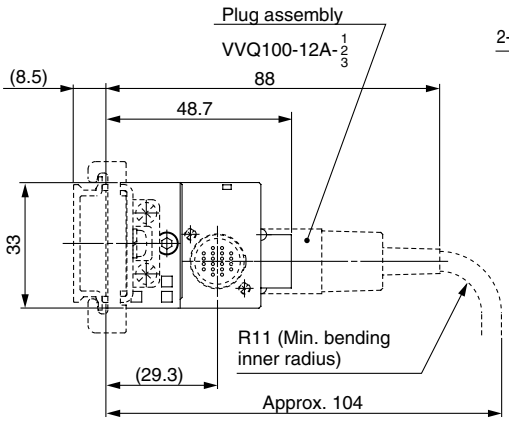
Manual override

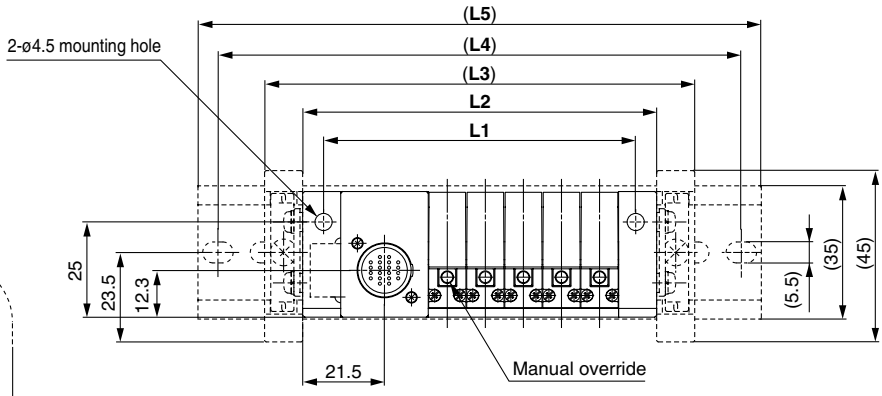
Nil	Non-locking push type (tool required)
B∗	Locking type (tool required)

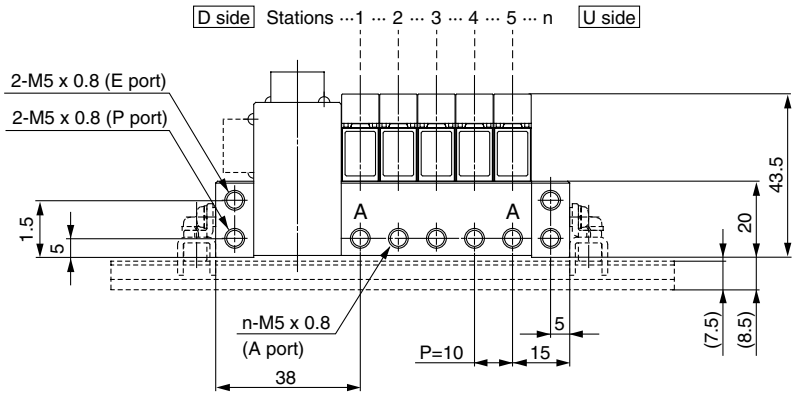
∗: Option

Plug-in unit (10-VV3Q11) Manifold with multi-connector

The broken line indicates DIN rail mounted style (-D) and side entry connection (S).







Dimensions

Formula: L1 = 10n + 32 L2 = 10n + 43 n: Stations (Max. 18 stations)

L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
L1	52	62	72	82	92	102	112	122	132	142	152	162	172	182	192	202	212
L2	63	73	83	93	103	113	123	133	143	153	163	173	183	193	203	213	223
(**L3**)	83	93	103	113	123	133	143	153	163	173	183	193	203	213	223	233	243
(**L4**)	112.5	112.5	125	137.5	150	162.5	162.5	175	187.5	200	212.5	212.5	225	237.5	250	262.5	262.5
(**L5**)	123	123	135.5	148	160.5	173	173	185.5	198	210.5	223	223	235.5	248	260.5	273	273

How to Order Manifold

Plug lead unit Manifold **10 — VV3Q 1 2 — 08 01N**

Clean series

Applicable solenoid valve (Plug lead type)
10-VQ1□0□-□L
10-VQ1□0□-□M
10-VQ1□0□-□G

Series

1	VQ100

Manifold base model no.

2	Plug lead unit
2U	Plug lead unit Type U (large flow) mounting base

Note) Normally closed and normally open styles cannot be mounted on the same manifold.

Stations

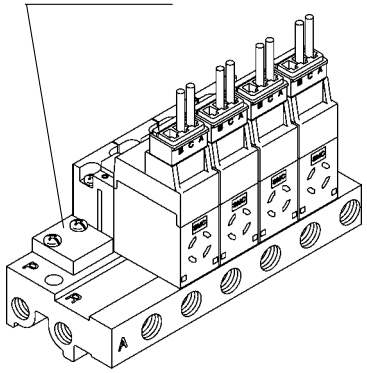
02	2 stations
⋮	⋮
20	20 stations

Port size * and thread

Nil	M5, Rc1/8
01N	NPT1/8
01T	NPTF1/8
01F	PF1/8

* Only thread port size 1/8 (2U type, P, E ports) has choice of thread.

VVQ1000-10A-2



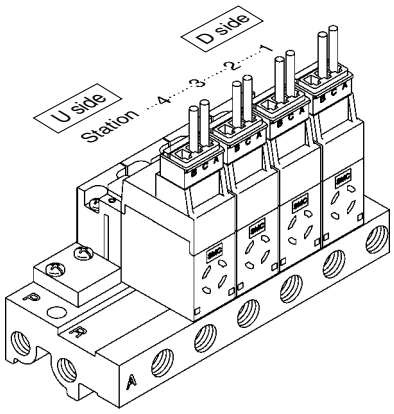
How to Order Valve Manifold Assembly

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

<Example>
Plug lead unit manifold
10-VV3Q12-05 ·····1 set————————Manifold base part no.
* **10-VQ110-5L** ····· 4 sets——Valve part no. (1st to 4th stations)
* **VVQ100-10A-2** ···· 1 set — Blanking plate part no. (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.



How to Order Valves

10 — VQ1 1 0 — 5 L

Clean series

Series VQ
Compact 3 port valve

Type of actuation

1	Normally closed
2 Note)	Normally open

Note) Normally open type is available only with standard type. (1 W)

Function

Nil	Standard type (1W)
H	High pressure type (1.5W)
Y Note)	Low wattage type(0.5W)
L*	Latching Positive common
N*	Latching Negative common
U*	Large flow type

*: Option
Note) Except latching and large flow types. Use a low wattage type when operated under continuous energization.

Coil rated voltage

1	100 VAC (50/60Hz)
2	200 VAC (50/60Hz)
3	110 VAC (50/60Hz)
4	220 VAC (50/60Hz)
5	24 VDC
6	12 VDC
9	Other special voltages

For the special voltages, please consult with SMC.

Manual override

Nil	Non-locking push type (tool required)
	Latching type: Push-locking type (tool required)
B*	Locking type (tool required)

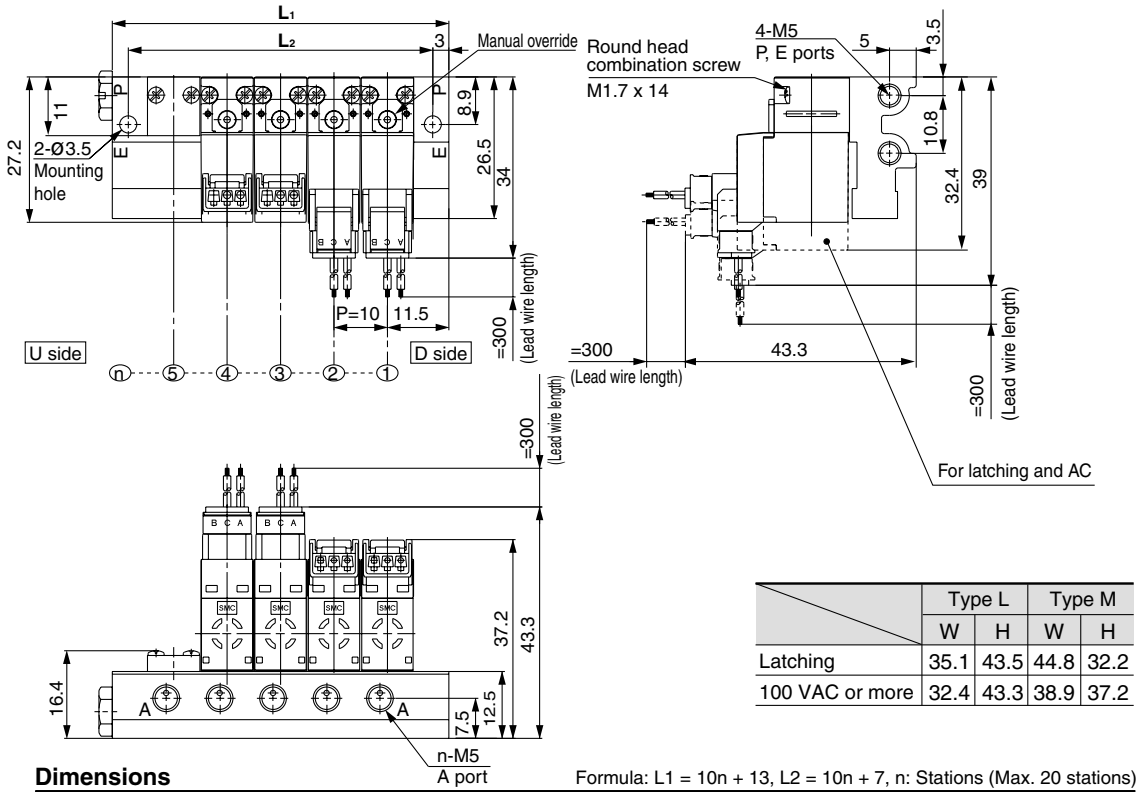
* : Option
Note) Latching manual override: Push-locking type only.

Electrical entry

L	L plug connector, With lead wire With light/surge voltage suppresser
LO	L plug connector, Without connector With light/surge voltage suppresser
M	M plug connector, With lead wire With light/surge voltage suppresser
MO	M plug connector, Without connector With light/surge voltage suppresser
G	Grommet

Note) Grommet: No latching, AC and large flow types

Plug lead unit manifold (10-VV3Q12)

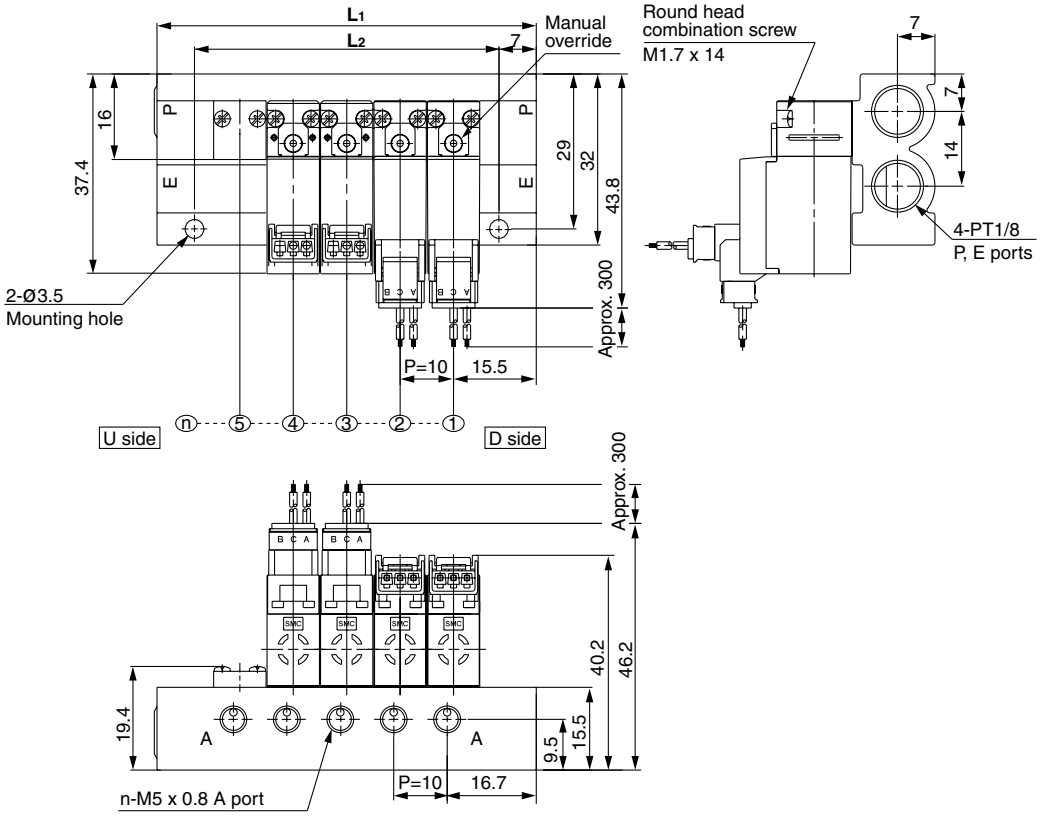


	Type L		Type M	
	W	H	W	H
Latching	35.1	43.5	44.8	32.2
100 VAC or more	32.4	43.3	38.9	37.2

Dimensions Formula: L1 = 10n + 13, L2 = 10n + 7, n: Stations (Max. 20 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	23	33	43	53	63	73	83	93	103	113	123	133	143	153	163	173	183	193	203	213
L2	17	27	37	47	57	67	77	87	97	107	117	127	137	147	157	167	177	187	197	207

Plug lead unit, Type U (large flow) mounted manifold (10-VV3Q12U)



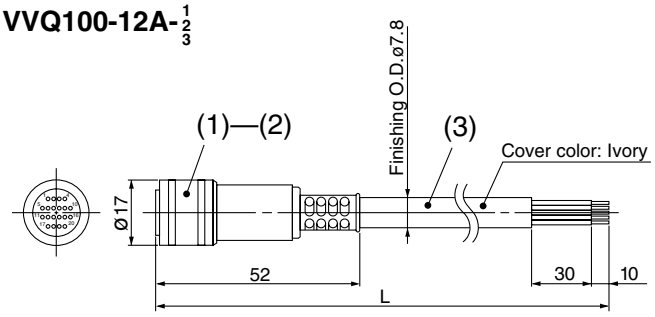
Dimensions Formula: L1 = 10n + 21, L2 = 10n + 7, n: Stations (Max. 20 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	31	41	51	61	71	81	91	101	111	121	131	141	151	161	171	181	191	201	211	221
L2	17	27	37	47	57	67	77	87	97	107	117	127	137	147	157	167	177	187	197	207

Manifold option

Plug assembly

VVQ100-12A-$^{1}_{2}_{3}$



1	Plug	RP13A-12PS-20SC <Made by Hirose Electric Co., Ltd.>
2	Female contact	RP19-SC-222 <Made by Hirose Electric Co., Ltd.>
3	Vinyl multi-core cable	VVRF 0.2mm^2 20 core

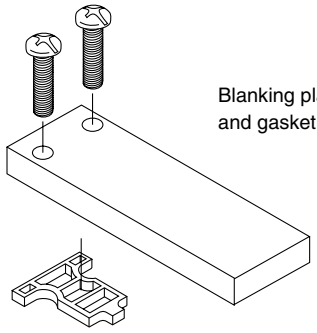
Cable length

Part no.	L dimension
VVQ100-12A-1	1.5 m
VVQ100-12A-2	3m
VVQ100-12A-3	5m

Blanking plate assembly

VVQ100-10A-1

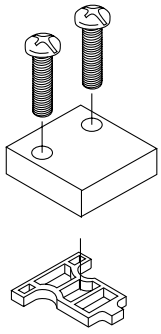
Plug-in unit (**VV3Q11**) for manifold with multiple connectors



Blanking plate with 2 screws and gasket

VVQ100-10A-2

Plug lead unit (**VV3Q12**) for manifold



Blanking plate with 2 screws and gasket

VV3Q11 For manifold with multi-connector

<D side end plate assembly>
D side end plate assembly part no.

VVQ100-3A-□

Option

1	Standard type
2	DIN rail mounting type

<U side end plate assembly>
U side end plate assembly part no.

VVQ100-2A-□

Option

1	Standard type
2	DIN rail mounting type

<DIN rail mounting bracket assembly>
DIN rail mounting bracket assembly part no.

AXT802-1A-□

Mounting direction

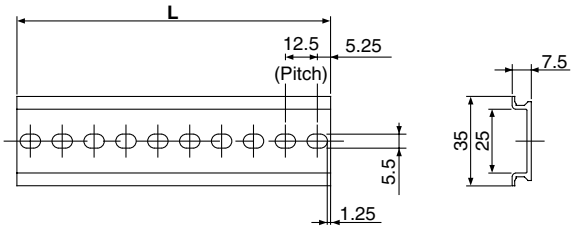
D	D side mounting
U	U side mounting

Note) The number of manifold stations cannot be changed.

How to Order Only DIN Rail

DIN rail part no.: **AXT100-DR-□**

* Refer to DIN rail dimension table below and put number into □ to order DIN rail.
Refer to the manifold dimensions on page 710 to determine L dimension.



L dimensions L=12.5n+10.5

No.	1	2	3	4	5	6	7	8	9	10
L dimension	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5
No.	11	12	13	14	15	16	17	18	19	20
L dimension	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5
No.	21	22	23	24	25	26	27	28	29	30
L dimension	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5
No.	31	32	33	34	35	36	37	38	39	40
L dimension	398	410.5	423	435.5	448	460.5	473	485.5	498	510.5

3/4/5 Port Solenoid Valve Common Precautions 1

Be sure to read before handling.
Refer to the main text for detailed precautions on every series.

Caution on design

⚠ Warning

1. Actuator drive

When an actuator, such as a cylinder, is to be driven using a valve, take appropriate measures to prevent potential danger caused by actuator operation.

2. Intermediate stop

In the case of 3 position closed center or perfect valve style, it is difficult to make an intermediate stop at the required position accurately and precisely due to compressibility of air.

Furthermore, since valves and cylinders are not guaranteed for zero air leakage, it may not be possible to hold a stopped position for an extended period of time.

Consult SMC if it is necessary to hold a stopped position for an extended period of time.

3. Effect of back pressure when using a manifold

Use caution when valves are used on a manifold, as actuator may malfunction due to back-pressure.

In the case of 3 position closed exhaust center valve or single acting cylinder, take appropriate measures to prevent the malfunction using an individual EXH interface assembly or individual exhaust manifold.

4. Holding of pressure (including vacuum)

Since valves are subject to air leakage, they cannot be used for applications such as holding pressure (including vacuum) in a pressure vessel.

5. Cannot be used as an emergency shut-off valve.

The valves presented in this catalog are not designed for safety applications such as an emergency shut-off valve. If the valves are used in this type of system, other reliable safety assurance measures should also be adopted.

6. Maintenance space

The installation should allow sufficient space for maintenance activities.

7. Release of residual pressure

Install a system for releasing of residual pressure for maintenance purpose. Especially in the case of 3 position closed center valve or double check valve, ensure the release of residual pressure between valve and cylinder.

8. Vacuum applications

When valves are used for vacuum switching, etc., take measures to prevent suction of external dust or other contaminants that may lead to valve malfunction. Direct operated or external pilot operated style is recommended for this application. Please contact SMC if necessary to use internal pilot operated or air operated style.

Selection

⚠ Warning

1. Confirm the specifications.

The products presented in this catalog are designed only for use in compressed air systems (including vacuum). Do not operate at pressures or temperatures, etc., beyond the range of specifications, as this can cause damage or malfunction. (Refer to specifications.)

Contact SMC when using fluid other than compressed air (including vacuum).

2. Extended periods of continuous energization

Contact SMC if valves will be continuously energized for a long period of time.

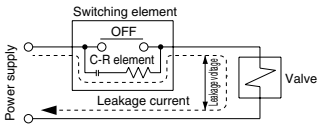
⚠ Caution

1. Momentary energization

If a double solenoid valve will be operated with momentary energization, it should be energized for at least 0.1 second.

2. Leakage voltage

When C-R device (surge voltage suppressor) is used for the protection of switching device, note that voltage leakage will be increased by passing voltage leakage through C-R device.



Residual voltage leakage should not exceed the following values.

DC coil

- SZ/SY/SYJ: 3% or less of rated voltage
- SQ/VQ/VQZ/VQD: 2% or less of rated voltage

AC coil

- SQ: 12.5% or less of rated voltage
- SZ/SY/SYJ: 8% or less of rated voltage
- VQ/VQZ/VQD: 2% or less of rated voltage

3. Use in low temperature environments

Unless otherwise specified, valve can be used to temperature extremes to –10°C. However, appropriate measures should be taken to avoid freezing, drainage or condensation.

4. Operation for air blowing

When using a solenoid valve for air blow, use an external pilot type or direct solenoid operated type.

Also, supply compressed air within the pressure range specified in the specifications to the external pilot port.

5. Mounting orientation

Rubber seal: Refer to the specifications of each series.

Metal seal: Mounting orientation of single solenoid is universal. When installing double solenoid or 3 position style, mount the valve so that spool valve will be horizontal.

3/4/5 port solenoid valve
Common precautions 2

Be sure to read before handling.
Refer to the main text for detailed precautions on every series.

Mounting

⚠ Warning

1. If air leakage increases or equipment does not operate properly, stop operation.
Check mounting conditions when air and power supplies are connected. Function and leakage tests should be performed after installation.

2. Instruction manuals
Install the products and operate them only after reading the instruction manual carefully and understanding its contents.
Also keep the manual where it can be referred to as necessary.

3. Painting and coating
Warnings or specifications printed on or affixed to the products should not be erased, removed or covered up.
Please consult with SMC if paint is to be applied to resin parts, as this may have an adverse effect due to the paint solvent.

Piping

⚠ Caution

1. When closed center and double check valve are used.
When a closed center and perfect valve are used, check the piping to prevent air leakage from the piping between valve and cylinder.

2. Strictly observe the specified tightening torque.
When installing fittings onto a valve, tighten with the proper tightening torque shown below.

Tightening torque

Connection thread	Appropriate tightening torque N·m
M3	0.3 to 0.5
M5	1.5 to 2
Rc1/8	7 to 9
Rc1/4	12 to 14
Rc3/8	22 to 24
Rc1/2	28 to 30
Rc3/4	28 to 30
Rc1	36 to 38
Rc11/4	40 to 42
Rc11/2	48 to 50
Rc2	48 to 50

3. Piping to products
When piping to a product, refer to the instruction manual to avoid mistakes regarding the supply port, etc.

Wiring

⚠ Caution

1. Polarity
When connecting power to a DC specification solenoid valve equipped with light/surge voltage suppressor, check for polarity. If there is polarity, take note of the following points.

Without diode to protect polarity:
If a mistake is made regarding polarity, the diode in the valve, the control device switching element or power supply equipment, etc. may burn out.

With diode to protect polarity:
If polarity connection is wrong, the valve does not switch.

2. Applied voltage
When electric power is connected to a solenoid valve, be careful to apply the proper voltage. Improper voltage may cause malfunction or coil damage.

3. Confirmation of connections
After completing the wiring, confirm that the connections are correct.

3/4/5 Port Solenoid Valve Common Precautions 3

Be sure to read before handling.
Refer to the main text for detailed precautions on every series.

Air Supply

⚠Warning

1. Use clean air.
Do not use compressed air which contains chemicals, salt or corrosive gases, etc. as this can cause damage or malfunction.

⚠Caution

1. Install air filters.
Install air filter close to valves at their inlet side. A filtration degree of the filter should be 5μm or less.

2. Install an aftercooler, air dryer or water separator (drain catch), etc.
Air that includes excessive drainage may cause malfunction of valves and other pneumatic equipment. To prevent this, install an air dryer, aftercooler or water separator, etc.

3. When a large amount of carbon dust is generated, install a mist separator on the inlet side of the valve to eliminate dust.
When a large amount of carbon dust is generated from the compressor, it may attach to the inside of the valve, which may cause malfunction.

Operating environment

⚠Warning

1. Do not use in atmospheres where the valve is in direct contact with corrosive gases or chemicals.

2. Do not use in explosive atmosphere.

3. Do not use in a place subject to heavy vibrations and/or shocks. Check the specifications for each series.

4. Install a protection cover if the product is exposed to direct sunlight.

5. Remove the emissive heat when there is a source of heat around the product.

6. When the solenoid valve is mounted in a control panel or is energized for a long time, make sure that ambient temperature is within the valve specification range.

Maintenance

⚠Warning

1. Perform maintenance procedures as shown in the instruction manual.
If it is handled improperly, malfunction or damage of machinery or equipment may occur.

2. Removal of equipment, and supply/exhaust of compressed air
Before detaching the equipment, first confirm that measures are in place to prevent dropping of workpieces and run-away of equipment, etc. Then cut the supply pressure and power, and exhaust all compressed air from the system using its residual pressure release function.
In the case of 3 position closed center or perfect valve style, exhaust the residual pressure between valve and cylinder.
When the equipment is started again after remounting or replacement, first confirm that measures are in place to prevent lurching of actuators, etc. and then confirm that the equipment is operating normally.

3. Low frequency operation
Valves should be switched at least once every 30 days to avoid malfunctions. (Use caution regarding the air supply.)

4. Manual override operation
When the manual override is operated, connected equipment will be actuated.
Confirm safety before operation.

⚠Caution

1. Drain flushing
Remove drainage from air filters regularly.

· Maintenance
When placing an order of optional part separately, the part is not double packed if its part no. does not include a prefix of "10-". When such part is brought into a clean room, give flushing to the part with highly purified air to remove dust attached to the valve surface completely.
When replacing or mounting a valve (including pilot valve) or an optional part, be sure to tighten it with the specified tightening torque and make sure that no leakage occurs.

· In the case of external pilot
When an external pilot solenoid valve is used, air is exhausted also from PE port (pilot exhaust). Therefore, such air should be exhausted to the outside of cleanroom. (If the port is plugged, it may cause malfunction.)