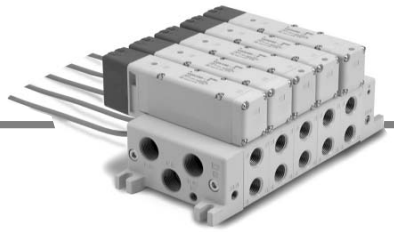
CAD

Series VQ5000

Base Mounted

Plug Lead Unit: C Kit (Connector Kit)



How to Order Manifold

VV5Q 5 5 – 08 03 C – W

Series

5	VQ5000

Manifold

5	Plug lead unit

Stations

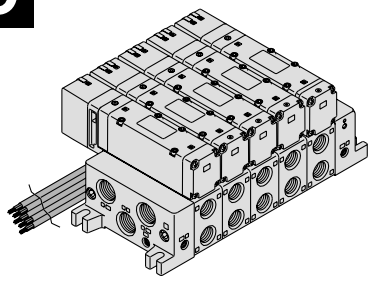
01	1 station
⋮	⋮
12	12 stations

Cylinder port

03	Rc 3/8
04	Rc 1/2
B	Bottom ported Rc 1/2
CM	Mixed

Kit type

C kit (Connector)



C	Connector kit	Max. 12 stations

Option

Symbol	Option
Nil	None
CD1 Note)	Exhaust cleaner for Rc 1: D side exhaust
CD2 Note)	Exhaust cleaner for Rc 1 1/2: D side exhaust
CU1 Note)	Exhaust cleaner for Rc 1: U side exhaust
CU2 Note)	Exhaust cleaner for Rc 1 1/2: U side exhaust
SB	Direct exhaust with silencer box: Exhaust from both U and D sides
SD Note)	Direct exhaust with silencer box: D side exhaust
SU Note)	Direct exhaust with silencer box: U side exhaust
W	IP65 enclosure

Note) Combination of [C^{U}_{D}□] and [S^{U}_{D}] is not possible.

Refer to page 2-6-2 (Grommet style) for wiring specifications.

How to Order Valves

VQ 5 1 5 0 □ – 5 G □ □ □

Series

5	VQ5000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
6	3 position double check

Seal

0	Metal seal
1	Rubber seal

Function

Nil	Standard type (1 W)
Y(1)	Low wattage type (0.5 W)
R(2)	External pilot

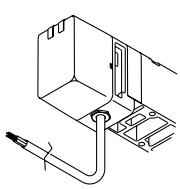
Note 1) Applicable to DC specification.
Note 2) Refer to page 2-6-39 for details on external pilot specifications.
Note 3) When two or more symbols are specified, indicate them alphabetically.

Coil voltage

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

Electrical entry

Grommet	G	Lead wire length 0.6 m
	H	Lead wire length 1.5 m

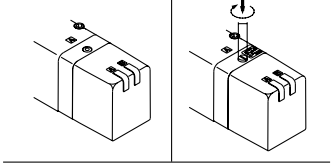


Light/Surge voltage suppressor

Nil	Yes
E	Without light, with surge voltage suppressor

Manual override

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



Enclosure

Nil	Dusttight
W	Dusttight/Low jetproof type (IP65)

How to Order Manifold Assembly

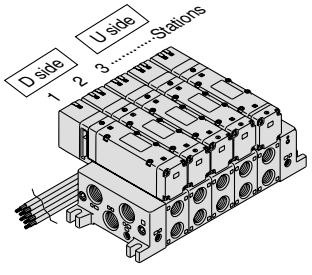
Specify the part numbers for valves and options together beneath the manifold base part number.

<Example>
Connector kit

W5Q55-05042C-z-1 set —Manifold base part no.
* VQ5150-5G ····· 2 sets—Valve part no. (Stations 1 and 2)
* VQ5250-5G ····· 2 sets— Valve part no. (Stations 3 and 4)
* VQ5350-5G ····· 1 set — Valve part no. (Station 5)

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

Enter in order starting from the first station on the D side.
When entry of part numbers becomes complicated, indicate in the manifold specification sheet.



SMC

Manifold Specifications

Series	Base model	Type of connection	Porting specifications			Maximum applicable stations	Applicable solenoid valve	5 station weight (kg)
			4(A), 2(B) port location	Port size Note)				
				1(P), 5(R1), 3(R2)	4(A), 2(B)			
VQ5000	**VV5Q55-□□□**	■ C kit–Grommet	Side	Rc 3/4 Option Direct exhaust with silencer box	Rc 3/8 Rc 1/2	2 to 12 stations	VQ5□50 VQ5□51	3.7 • Except solenoid valve weight
			Bottom		Rc 1/2			

Note) For details about international standard threads other than Rc threads, refer to "Option" on page 2-6-39.

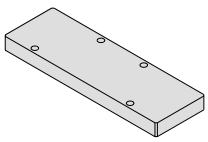
Flow Characteristics at the Number of Manifold Stations (Operated individually)

Model	Passage/Stations		Station 1	Station 5	Station 10
2 position metal seal **VQ5$^{1}_{2}$00**	1 → 4/2 (P → A/B)	C [dm³/(s·bar)]	11	11	11
		b	0.24	0.24	0.24
		Cv	2.7	2.7	2.7
	4/2 → 5/3 (A/B → EA/EB)	C [dm³/(s·bar)]	12	12	12
		b	0.14	0.14	0.14
		Cv	2.9	2.9	2.9
2 position rubber seal **VQ5$^{1}_{2}$01**	1 → 4/2 (→ RA/B)	C [dm³/(s·bar)]	12	12	12
		b	0.33	0.33	0.33
		Cv	3.4	3.4	3.4
	4/2 → 5/3 (A/B → EA/EB)	C [dm³/(s·bar)]	16	16	16
		b	0.33	0.33	0.33
		Cv	4.4	4.4	4.4

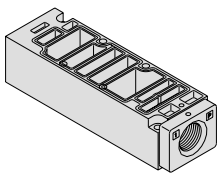
Note) For port size Rc 1/2

Manifold Option

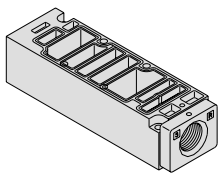
Blanking plate assembly
VVQ5000-10A-5



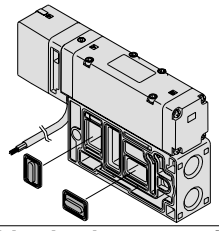
Individual SUP spacer
VVQ5000-P-5-$^{03}_{04}$



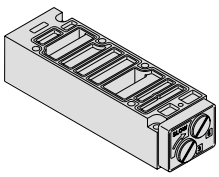
Individual EXH spacer
VVQ5000-R-5-$^{03}_{04}$



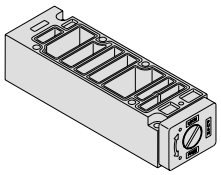
EXH block plate
VVQ5000-16A-2



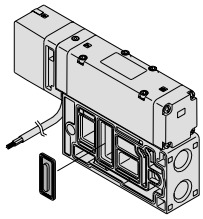
Throttle valve spacer
VVQ5000-20A-5



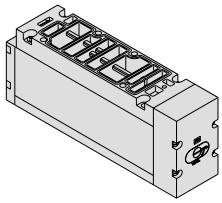
SUP stop valve spacer
VVQ5000-37A-5



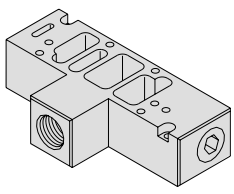
SUP block plate
VVQ5000-16A-1



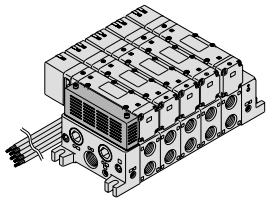
Double check spacer with residual pressure release valve
VVQ5000-25A-5



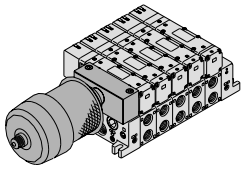
Release valve spacer
VVQ5000-24A-5D



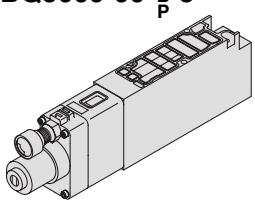
Direct exhaust with silencerbox
[-S$^{D}_{U}$]



For exhaust cleaner mounting
[-C$^{D}_{U}$□]

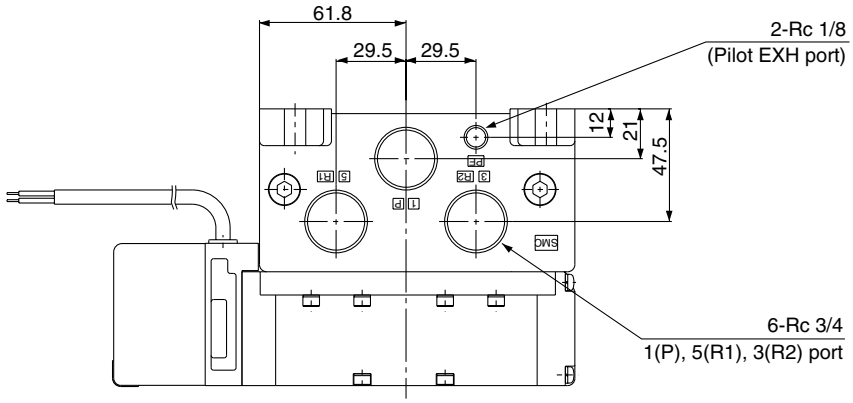


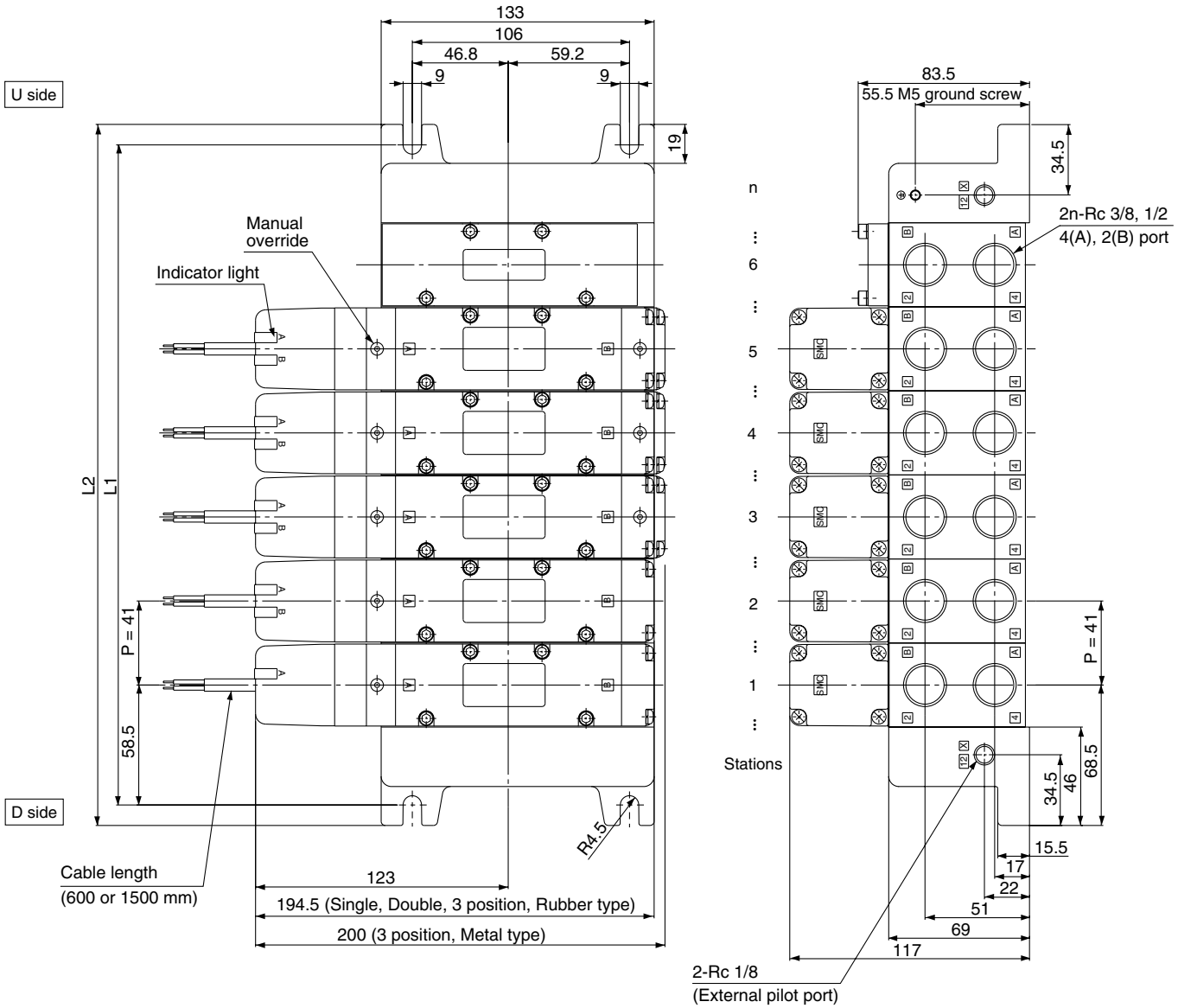
Interface regulator
ARBQ5000-00-$^{A}_{B}$$^{}_{P}$-5



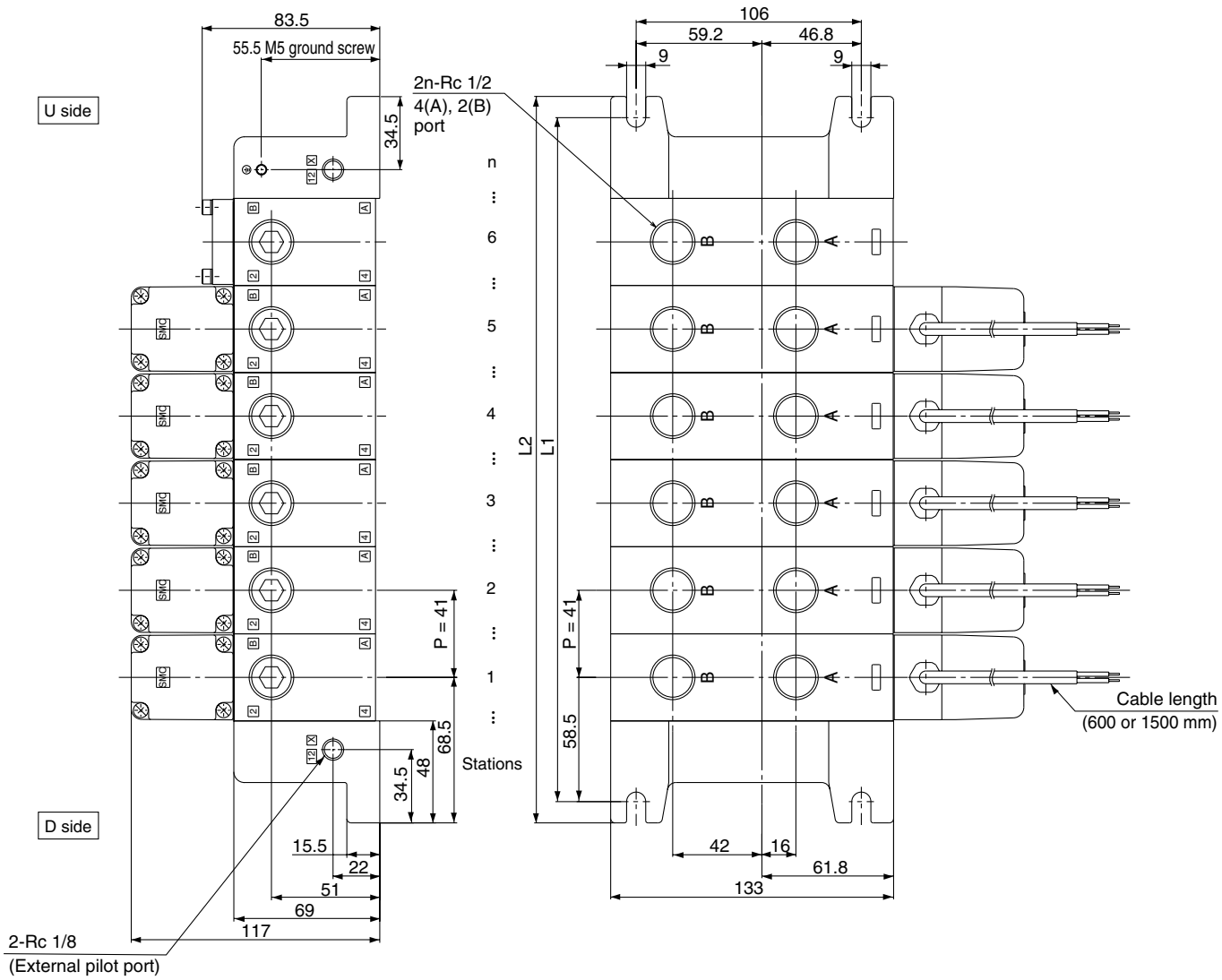
• Refer to pages 2-6-34 to 2-6-39 for detailed dimensions of each option.
For replacement parts, refer to page 2-6-43.

C Kit (Connector)





Bottom ported drawing



Dimensions

Formula: $L_1 = 41n + 76$, $L_2 = 41n + 96$
n: Stations (Maximum 12 stations)

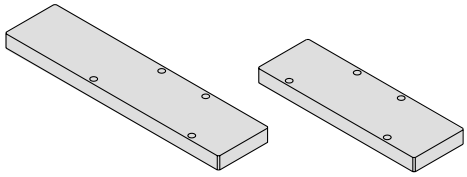
L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L_1	117	158	199	240	281	322	363	404	445	486	527	568
L_2	137	178	219	260	301	342	383	424	465	506	547	588

Manifold Option Parts

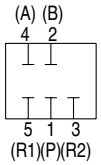
Blanking plate assembly

VVQ5000-10A-1 (Plug-in type)
VVQ5000-10A-5 (Plug lead type)

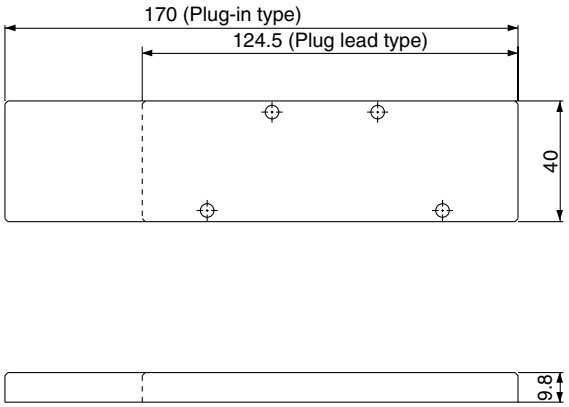
It is used by attaching on the manifold block for being prepared for removing a valve for maintenance reasons or planning to mount a spare valve, etc.



Plug-in type　　Plug lead type



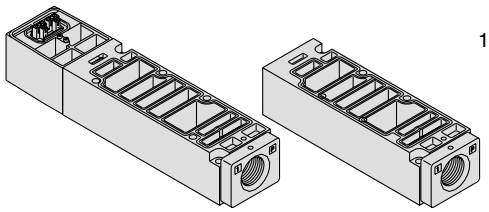
Circuit diagram



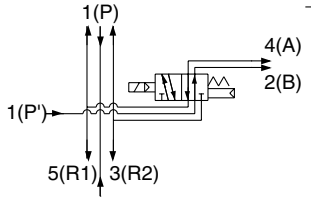
Individual SUP spacer

VVQ5000-P-1-$^{03}_{04}$ (Plug-in type)
VVQ5000-P-5-$^{03}_{04}$ (Plug lead type)

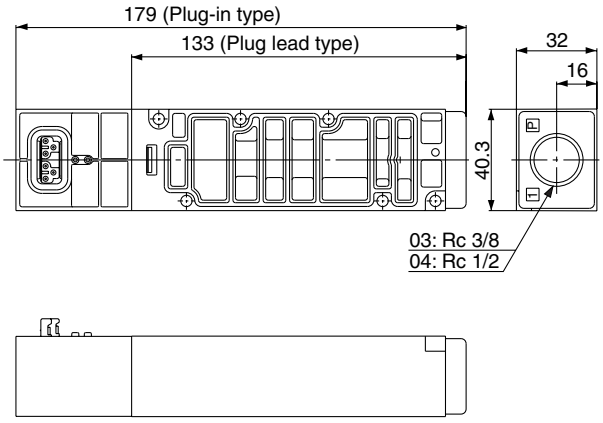
By mounting individual SUP spacers on a manifold block, it is possible to provide individual supply ports for each valve.



Plug-in type　　Plug llead type



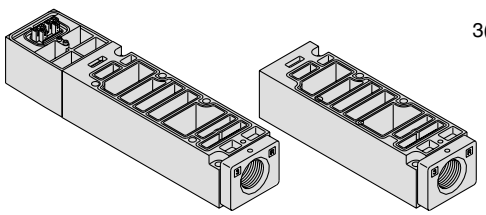
Circuit diagram



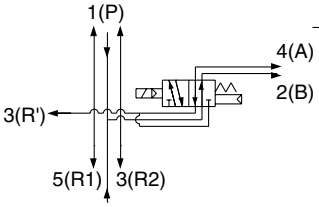
Individual EXH spacer

VVQ5000-R-1-$^{03}_{04}$ (Plug-in type)
VVQ5000-R-5-$^{03}_{04}$ (Plug lead type)

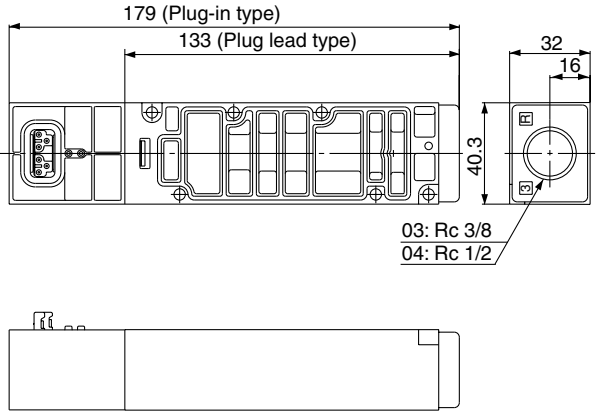
By mounting individual EXH spacers on a manifold block, exhaust ports can be provided individually for each valve. (Common EXH type)



Plug-in type　　Plug lead type



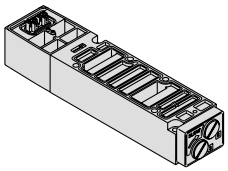
Circuit diagram



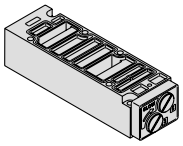
Throttle valve spacer

VVQ5000-20A-1 (Plug-in type)
VVQ5000-20A-5 (Plug lead type)

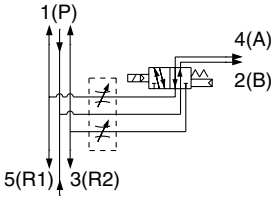
A throttle valve spacer is mounted on a manifold block to control cylinder speed by throttling exhaust air flow.



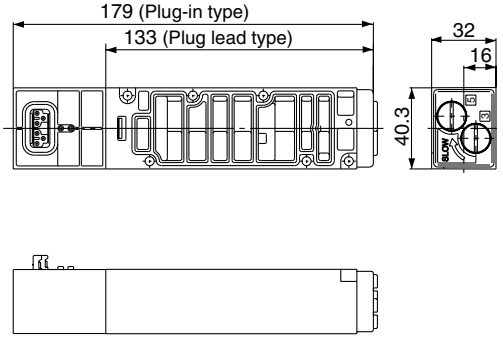
Plug-in type



Plug lead type



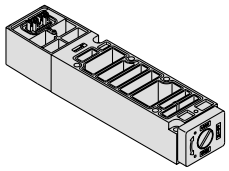
Circuit diagram



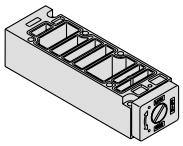
SUP stop valve spacer

VVQ5000-37A-1 (Plug-in type)
VVQ5000-37A-5 (Plug lead type)

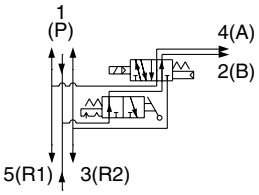
A SUP stop valve spacer is mounted on a manifold block, making it possible to individually shut off supply air to each valve.



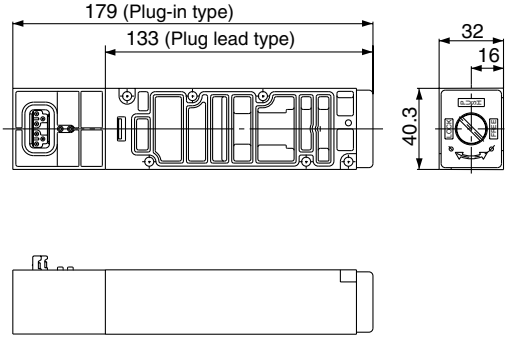
Plug-in type



Plug lead type



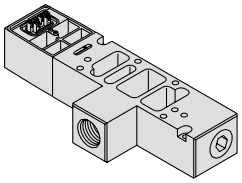
Circuit diagram



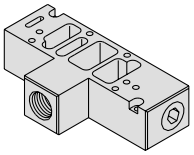
Release valve spacer: For D side mounting

VVQ5000-24A-1D (Plug-in type)
VVQ5000-24A-5D (Plug lead type)

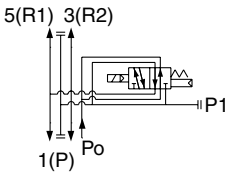
A VQ51□□ (single) valve can be used as an air release valve by combining it with a release valve spacer.
Note) 2 position double and 3 position cannot be mounted.



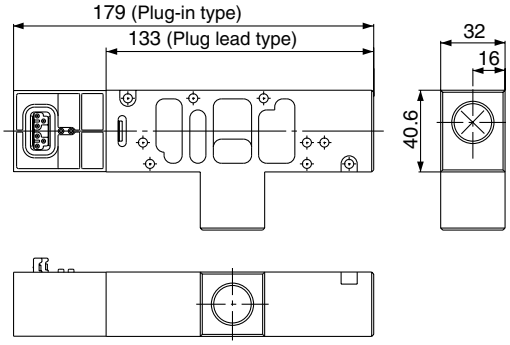
Plug-in type



Plug lead type



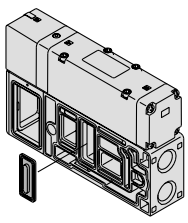
Circuit diagram



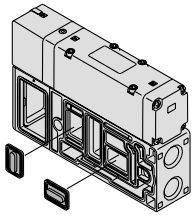
SUP block plate EXH block plate

VVQ5000-16A-1 VVQ5000-16A-2

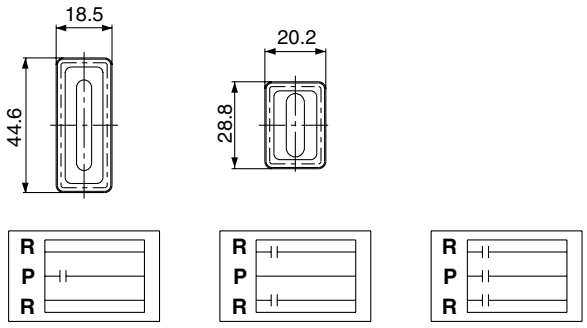
When different pressures, high and low, are supplied to manifold, a SUP block plate is inserted between the stations under different pressures.



< SUP blocking plate >



< EXH blocking plate >



SUP passage blocked EXH passage blocked SUP/EXH passage blocked

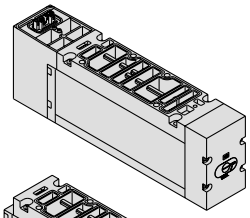
Manifold Option Parts

Double check spacer with residual pressure release valve

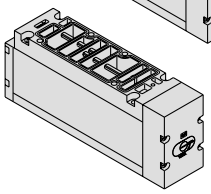
VVQ5000-25A-1 (Plug-in type)
VVQ5000-25A-5 (Plug lead type)

Can hold an intermediate cylinder position for an extended time.
When combined with a double check spacer with built-in double check valve, it is unaffected by air leakage between the spool valves, making it possible to hold a cylinder at an intermediate stopping position for an extended time.
Further, a combination of a 2 position type (VQ5$^{1}_{2}$□□) and a double check spacer can be used for drop prevention.

Plug-in type



Plug lead type



Specifications

Double check spacer part no.	VVQ5000-25A-$^{1}_{5}$	
	Intermediate stop	Drop prevention
Applicable solenoid valve	VQ54□□	VQ5$^{1}_{2}$□□

Leakage N cm^3/min	One solenoid energized	1(P)	5 (R1)	320 or less
			3 (R2)	
	Both solenoids unenergized	1(P)	5 (R1)	320 or less
			3 (R2)	
		4(A)	5 (R1)	0
		2(B)	3 (R2)	

∗ Supply pressure: 0.5 MPa

⚠ Caution

Handling Precautions

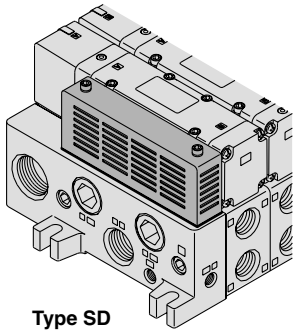
- In the case of 3 position double check (VZS65$^{00}_{51}$0), check the leakage from piping and fittings in between valve and cylinder by means of synthetic detergent solutions, and ensure that there is no such leakage found there. Also check the leakage from cylinder seal and piston seal. If there is any leakage, sometimes the cylinder, when valve is de-energized, can move without stopping at intermediate position.
- Use caution, as excessive throttling of the double check spacer exhaust can cause a loss of intermediate stopping accuracy and malfunction.
- Combination with a 3 position VQ5$^{3}_{5}$□□ is not possible.
- Set the cylinder load so that the cylinder pressure will be within two times that of the supply pressure.

Direct exhaust with silencer box

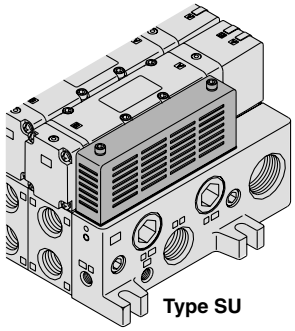
VV5Q5$^{1}_{5}$-□□□-SD (D side exhaust)
VV5Q5$^{1}_{5}$-□□□-SU (U side exhaust)
VV5Q5$^{1}_{5}$-□□□-SB (Double side exhaust)

The EXH outlet is placed on the top side of the manifold end plate. The built-in silencer provides highly effective noise reduction. (Noise reduction of 35 dB or more)

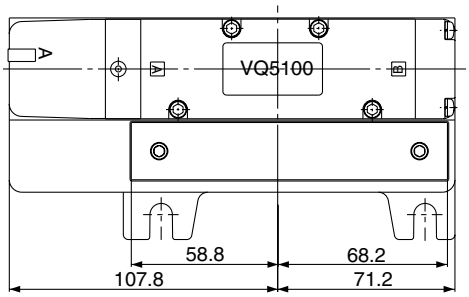
Note) Note that when excessive drainage occurs in the air supply, the drainage will be released along with the exhaust.

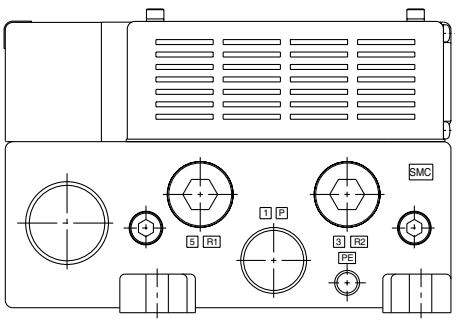


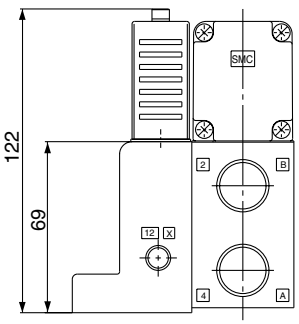
Type SD



Type SU





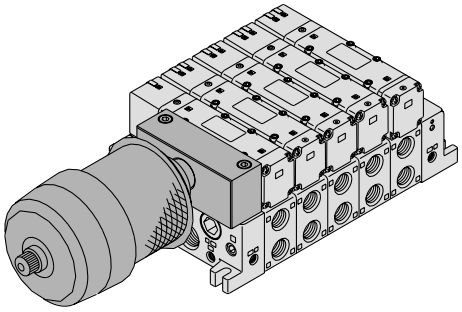


Note) The drawing shows a VV5Q51-□□□-SD.

Manifold mounted exhaust cleaner

VV5Q5$^{1}_{5}$-□□□-CD (D side mounting)
VV5Q5$^{1}_{5}$-□□□-CU (U side mounting)

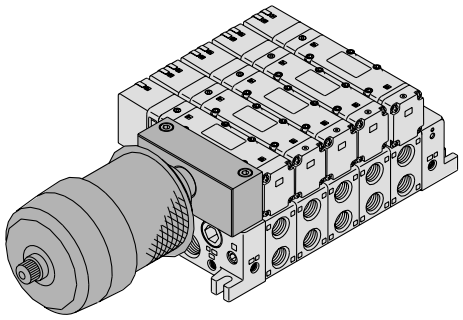
An adapter plate for exhaust cleaner mounting is provided on the top of the manifold end plate. The exhaust cleaner collects drainage and oil mist (99.9% or more) and is highly effective for noise reduction.
(Noise reduction of 35 dB or more)



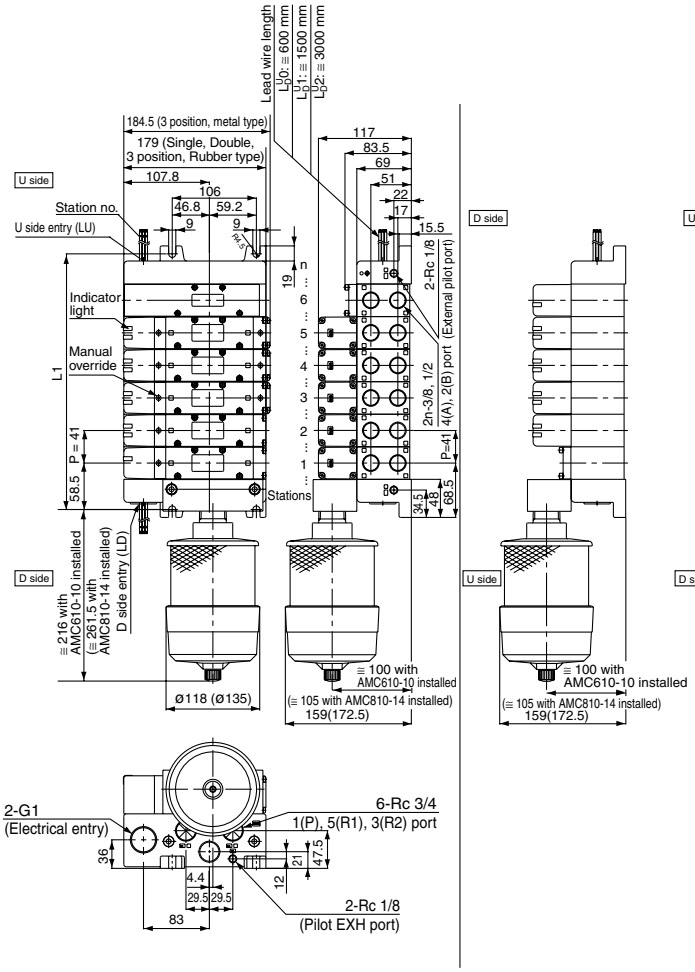
Applicable exhaust cleaners

AMC610-10 (Port size Rc 1), AMC810-14 (Port size Rc 1 1/2)

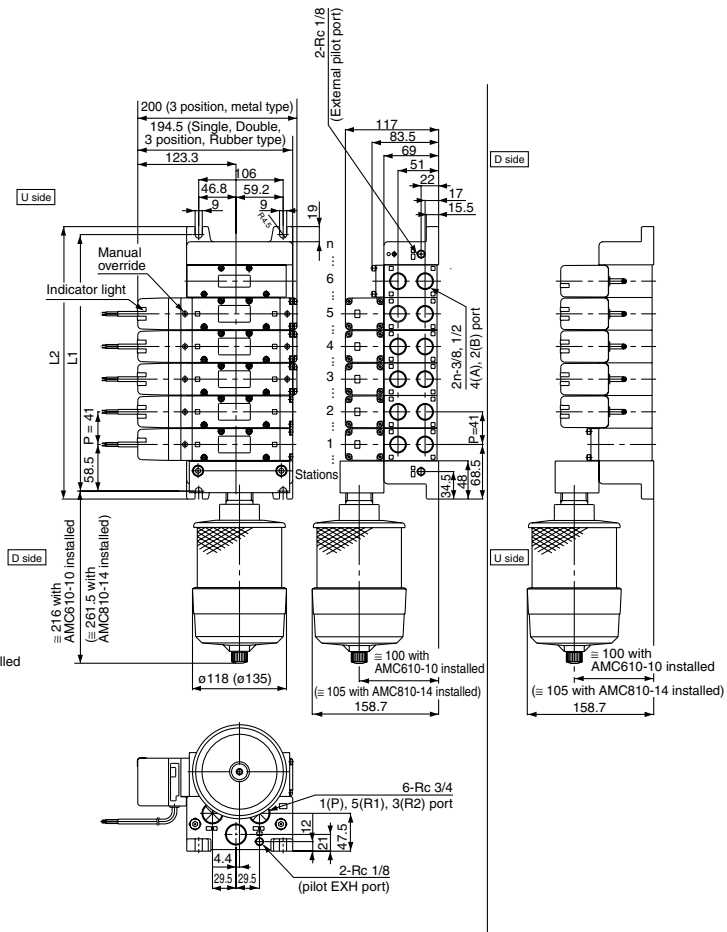
Note 1) Exhaust cleaner: AMC610-10 and MC810-14 are not included. (Order separately)
Note 2) Mount so that the exhaust cleaner is at the lower side.
Note 3) For details about the exhaust cleaner, refer to Best Pneumatics vol.5.



Plug-in type



Plug lead type



Dimensions

Formula: L1 = 41n + 76, L2 = 41n + 96
n: Stations (Maximum 12 stations)

L \ n	2	3	4	5	6	7	8	9	10	11	12
L1	158	199	240	281	322	363	404	445	486	527	568
L2	178	219	260	301	342	383	424	465	506	547	588

Dimensions

Formula: L1 = 41n + 76, L2 = 41n + 96
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L \ n	2	3	4	5	6	7	8	9	10	11	12
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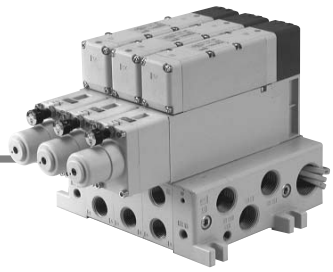


Manifold Option Parts

Interface regulator (P, A, B port regulation)

ARBQ5000-00-□-1 (Plug-in type)
ARBQ5000-00-□-5 (Plug lead type)

By mounting a spacer regulator on the manifold block, it enables to regulate pressure per every valve.

Specifications

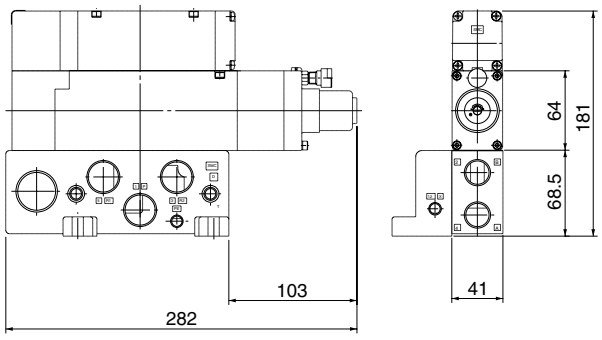
Interface regulator		ARBQ5000					
Regulating port		A		B		P	
Applicable solenoid valve		Plug-in	Plug lead	Plug-in	Plug lead	Plug-in	Plug lead
Maximum operating pressure		1.0 MPa					
Set pressure range		0.05 to 0.85 MPa					
Fluid		Air					
Ambient and fluid temperature		–5 to 60°C (No freezing)					
Port size for connection of pressure gauge		M5 x 0.8					
Weight (kg)		0.79	0.74	0.78	0.73	0.79	0.74
Effective area at supply side (mm^2) S at P1 = 0.7 MPa/P2 = 0.5 MPa	P → A	33		75		29	
	P → B	64		33		28	
Effective area at exhaust side (mm^2) S at P2 = 0.5 MPa	A → EA	36		75		78	
	B → EB	68		38		69	

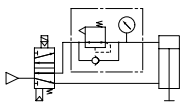
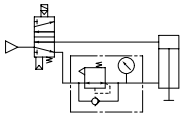
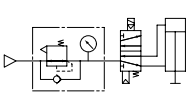
Note 1) Set the pressure within the operating pressure range of the solenoid valve.
Note 2) Use a spacer regulator by pressurizing from the P port on the base except the case of being used as a dual pressure valve. Besides, P port regulation is not allowed to use.
Note 3) When using a perfect spacer, assemble a valve, a spacer regulator and a perfect spacer in this order to use it.
Note 4) When using in A port regulation, B port regulation by closed center, since there is a problem in its operation, please contact SMC.
Note 5) Dusttight/splash proof enclosure (IP65) is not available with interface regulator.

How to Order

Solenoid valve	Interface regulator	Regulating port
VQ5□0□ (Plug-in type)	ARBQ5000-00-A-1	A
	ARBQ5000-00-B-1	B
	ARBQ5000-00-P-1	P
VQ5□5□ (Plug lead type)	ARBQ5000-00-A-5	A
	ARBQ5000-00-B-5	B
	ARBQ5000-00-P-5	P

Dimensions

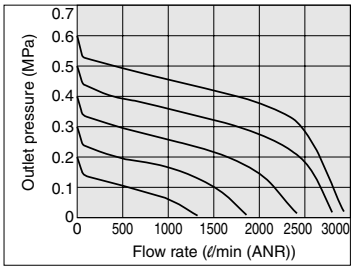


Regulating port: A	Regulating port: B	Regulating port: P
		

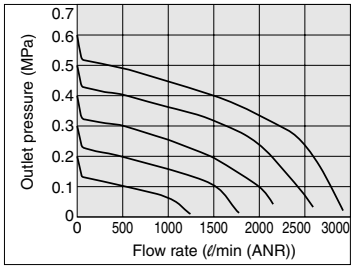
Flow Characteristics

Conditions Inlet pressure: 0.7 MPa

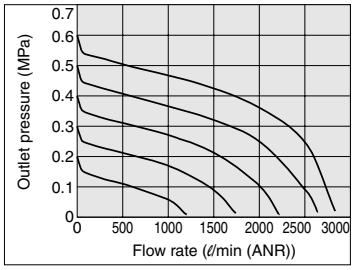
ARBQ5000-00-A (P → A)



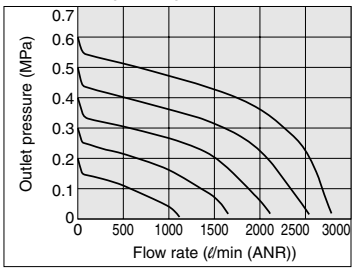
ARBQ5000-00-B (P → B)



ARBQ5000-00-P (P → A)

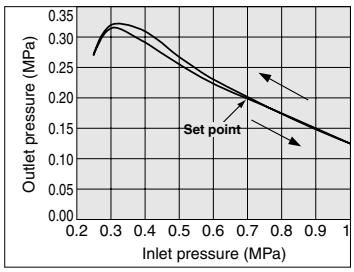


ARBQ5000-00-P (P → B)



Pressure Characteristics

Conditions
Inlet pressure: 0.7 MPa
Outlet pressure: 0.2 MPa
Flow rate: 20 ℓ/min(ANR)



Option

External Pilot Specifications

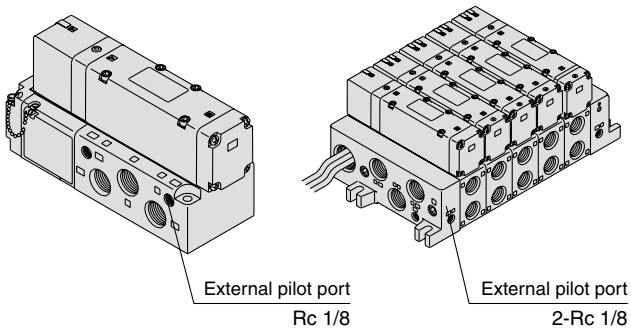
When the supply pressure is
- lower than the minimum solenoid valve operating pressure of 0.1 to 0.2 MPa, or when it drops below this level,
- used for reverse pressure (R port pressure) or cylinder pressure (A, B port pressure),
- used for vacuum specifications (please contact SMC), it can be used for external pilot specifications.

Order a valve by adding the external pilot specification [R] to the part number.
External pilot is available as standard for manifolds and options.

How to Order Manifold

VQ5100 R — 5 — 04

External pilot specifications



<Sub-plate> **<Manifold>**

Note) Mixed mounting of internal and external pilots is possible

Pressure Specifications

Valve construction		Metal seal	Rubber seal
Operating pressure range		Vacuum to 1.0 MPa	
External pilot [Note] pressure range	Single	0.1 to 1.0 MPa (0.1 to 0.7 MPa)	0.2 to 1.0 MPa (0.2 to 0.7 MPa)
	Double		0.15 to 1.0 MPa (0.15 to 0.7 MPa)
	3 position	0.15 to 1.0 MPa (0.15 to 0.7 MPa)	0.2 to 1.0 MPa (0.2 to 0.7 MPa)

Note) Values inside ( ) denote the low wattage (0.5 W) specifications.

International Thread Standards Other than Rc

Rc specifications are standard for all ports, however, NPT, NPTF and G are available for international markets.
Add the appropriate symbol following the port size in the standard part number.

How to Order Single Valves (Example)

VQ5100 — 5 — 04 □

Cylinder port Port size

Thread type 1(P), 5(R1), 3(R2) and 4(A), 2(B) port

Nil	Rc
N	NPT
T	NPTF
F	G

How to Order Manifold

VV5Q51 — 08 03 □ FU1

Cylinder port Port size

Thread type 1(P), 5(R1), 3(R2) and 4(A), 2(B) port

Nil	Rc
N	NPT
T	NPTF
F	G

How to Order Sub-plates and Options (Example)

VQ5000 — P — B 04 □ (Sub-plate)

VVQ5000 — P — 1 — 04 □ (Option)

Port size

Thread type

Nil	Rc
N	NPT
T	NPTF
F	G