

Body Ported

Plug Lead Unit

5 Port Solenoid Valve

VQZ1000/2000/3000

Manifold Connector Kit

How to Order Manifold

VV5QZ 1 2 — 08 **C** —

Series

1	VQZ1000
2	VQZ2000
3	VQZ3000

Manifold

2	Body ported
---	-------------

Stations

02	2 stations
⋮	⋮
20	20 stations

Kit

C	Connector
---	-----------

DIN rail mounting

—	None
D	DIN rail mounting (DIN rail standard length)
DO ⁽¹⁾	DIN rail mounting (Without DIN rail)

Note 1) Order DIN rail separately. Refer to p.1.12-23 for DIN rail model number.

How to Order Valve

VQZ 1 1 2 1 — 5 **M** — C6

Series

1	VQZ1000 Body width 10mm
2	VQZ2000 Body width 15mm
3	VQZ3000 Body width 18mm

Configuration

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5*	3 position pressure center
8	3 port for mixture mounting N.C.
9	3 port for mixture mounting N.O.

* Except for VQZ1000 and metal seal style

Body

2	Body ported
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Seal

0	Metal seal
1	Rubber seal

Port size {4(A), 2(B) port}

Symbol	Port size	VQZ1000	VQZ2000	VQZ3000
C3	One-touch fitting for ø3.2	○	—	—
C4	One-touch fitting for ø4	○	○	—
C6	One-touch fitting for ø6	○	○	○
C8	One-touch fitting for ø8	—	—	○
C10	One-touch fitting for ø10	—	—	○
M5	M5 thread	○	○	—
02	Rc(PT)1/4	—	—	○

Note 1) Refer to p.1.12-27 for inch-sizes and one-touch fittings.

Manual override

—	Non-locking push style (Flush)
B	Locking style (Slotted)

Electrical entry

Symbol	Electrical entry	Light and surge suppressor
G	Grommet (DC specification)	Without
L	L plug connector with lead wire	With
LO	L plug terminal without connector	
M	M plug connector with lead wire	
MO	M plug terminal without connector	
Y ⁽¹⁾	DIN connector	Without
YO ⁽¹⁾	DIN terminal without connector	
YZ ⁽¹⁾	DIN connector	
YOS ⁽¹⁾	DIN terminal without connector	With (w/o light)

Note 1) DIN style is applicable to VQ2000, 3000.
Note 2) Standard lead wire length: 300mm.

Coil voltage

1*	100V AC (50/60Hz)
2*	200V AC (50/60Hz)
3*	110V AC (50/60Hz)
4*	220V AC (50/60Hz)
5	24V DC
6	12V DC
9*	Others

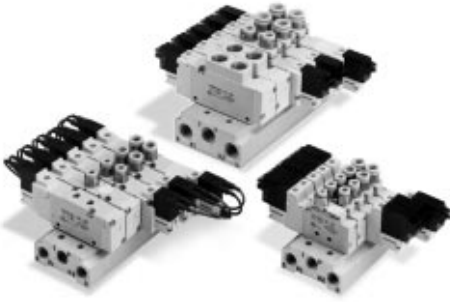
* Consult SMC when requiring grommet style, AC specification and others.

Function

Symbol	Specification	DC	AC
—	Standard	(1.0W) ○	○ ⁽³⁾
K ⁽¹⁾	High pressure (Metal seal)	(1.0W) ○	—
Y	Low wattage	(0.5W) ○	—
R ⁽²⁾	External pilot	○	○

Note 1) Option
Note 2) Refer to p.1.12-27 for details about external pilot specification.
Note 3) Refer to p.1.12-7 for power consumption for AC style.
Note 4) When specifying more than one option, indicate them alphabetically.

Manifold Specifications



Series	Base model	Piping specification		Applicable valve	Applicable stations	Manifold base weight (g)
		Piping	Port size			
			1(P), 3/5(R)	4(A), 2(B)		
VQZ1000	VV5QZ12-□□□	Top	Rc(PT) 1/8	C3(ø3.2) C4(ø4) C6(ø6) M5(M5 thread)	VQZ1□20 VQZ1□21	2 to 20 stations 2 stations: 64 addition per 1 station: 18
VQZ2000	VV5QZ22-□□□	Top	Rc(PT) 1/8	C4(ø4) C6(ø6) M5(M5 thread)	VQZ2□20 VQZ2□21	2 to 20 stations 2 stations: 86 addition per 1 station: 26
VQZ3000	VV5QZ32-□□□	Top	Rc(PT) 1/4	C6(ø6) C8(ø8) C10(ø10) Rc(PT)1/4	VQZ3□20 VQZ3□21	2 to 20 stations 2 stations: 181 addition per 1 station: 53

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VP4

How to Order Manifold Assembly (Example)

VV5QZ22-05C 1 set (C kit 5 stations manifold base)

- * **VVQZ2000-10A-2** 1 set (Blank plate assembly)
- * **VQZ2120-5M-C6** 1 set (Valve P/N-single solenoid)
- * **VQZ2220-5M-C6** 2 set (Valve P/N-double solenoid)
- * **VQZ2320-5M-C6** 1 set (Valve P/N-3 position)

→ Prefix "*" mark to valves etc. to be assembled on the manifold.

→ Write sequentially from the 1st station on the D side

Add valve suffix and option number to the manifold base number.
When part numbers written collectively are complicated, specify by using a manifold specification form.

VQ

VQ4

VQZ

VQD

VZS

VFS

VS

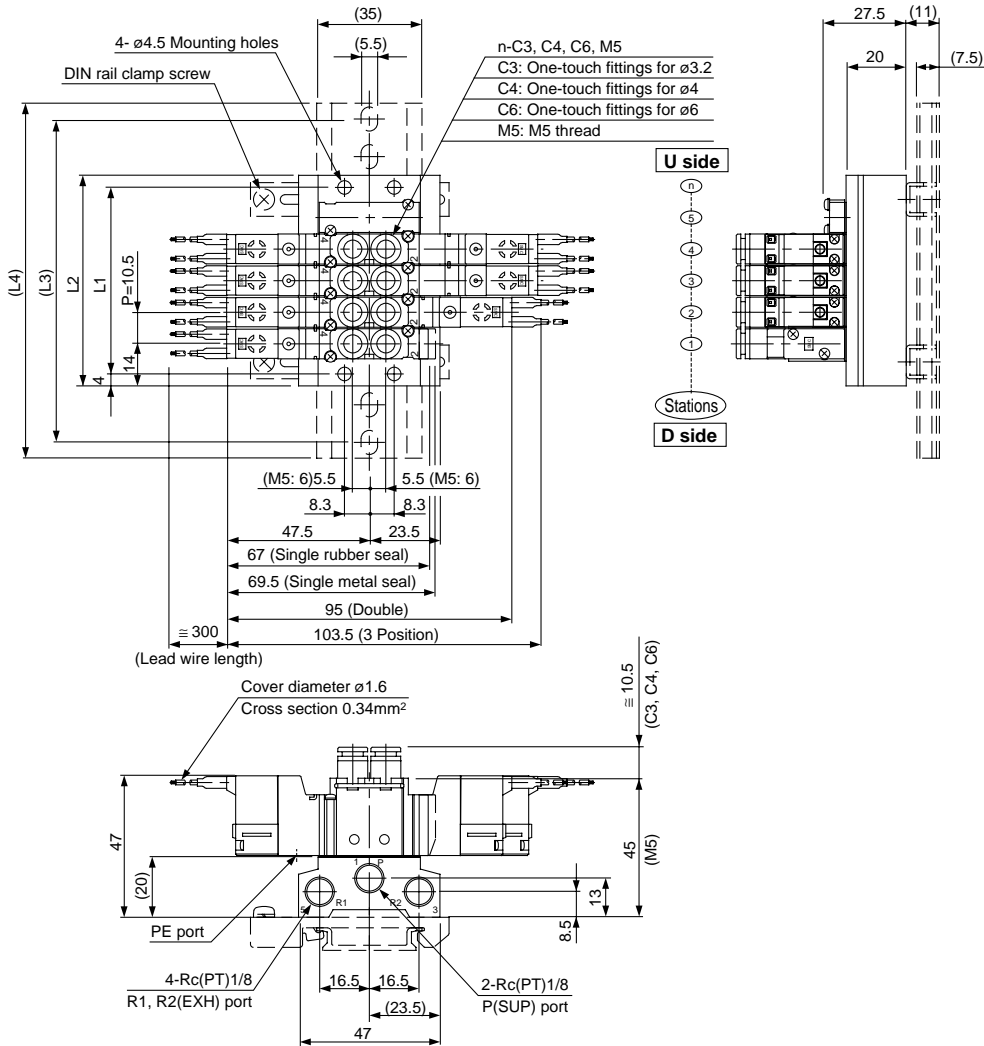
VS7

VQZ1000/2000/3000 Body Ported

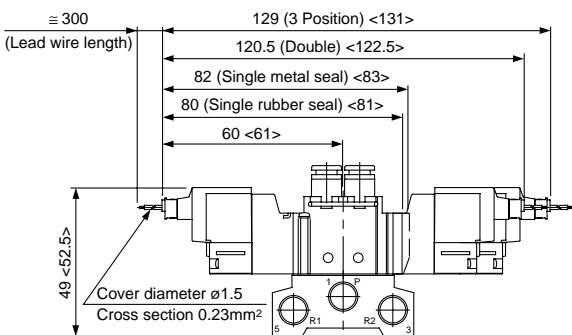
Dimensions: VQZ1000

VV5QZ12-Station C

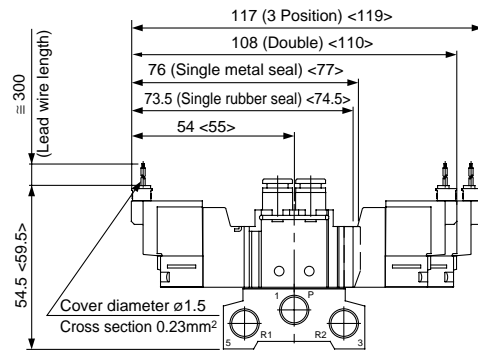
Grommet (G)



L plug connector (L)



M plug connector (M)



Dimensions Equation $L1=10.5n+9.5$ $L2=10.5n+17.5$

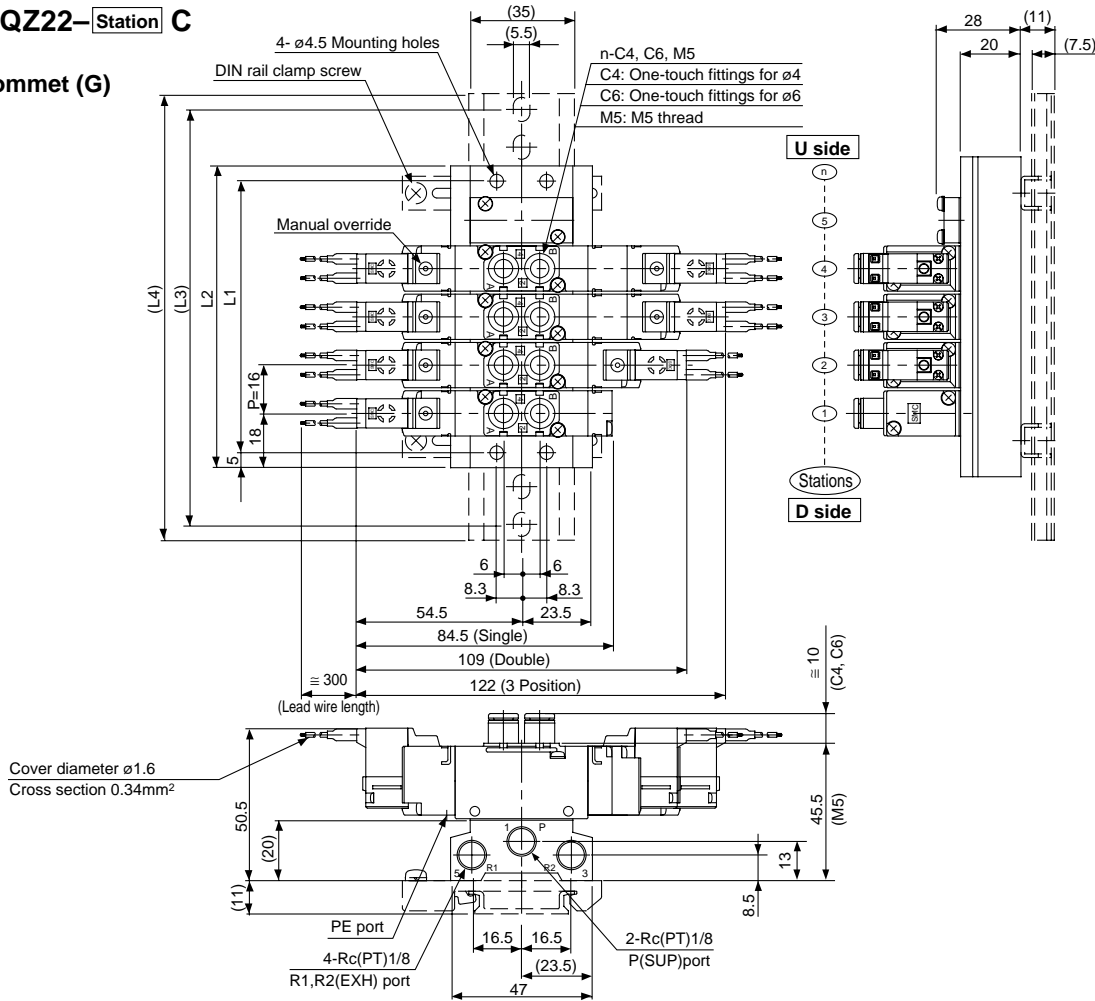
n: Station (Max. 20 stations)

L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	30.5	41	51.5	62	72.5	83	93.5	104	114.5	125	135.5	146	156.5	167	177.5	188	198.5	209	219.5
L2	38.5	49	59.5	70	80.5	91	101.5	112	122.5	133	143.5	154	164.5	175	185.5	196	206.5	217	227.5
L3	62.5	75	87.5	100	100	112.5	125	137.5	150	162.5	175	175	187.5	200	212.5	225	237.5	237.5	250
L4	73	85.5	98	110.5	110.5	123	135.5	148	160.5	173	185.5	185.5	198	210.5	223	235.5	248	248	260.5

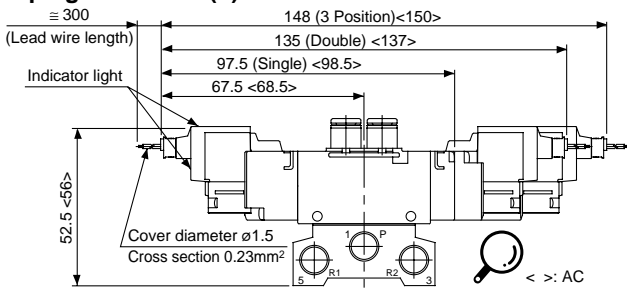
VQZ2000

VV5QZ22—Station C

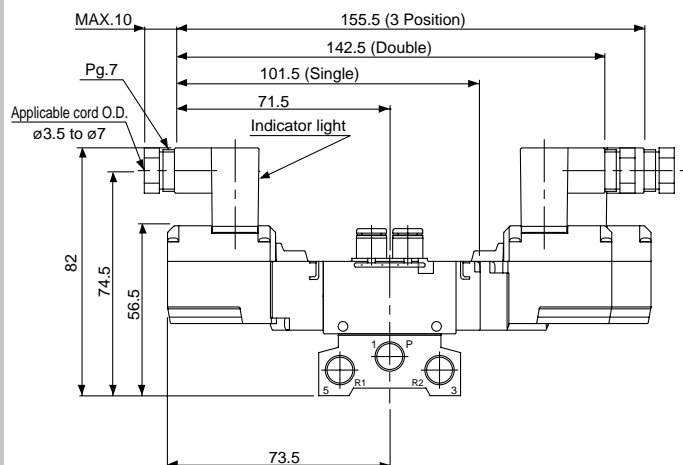
Grommet (G)



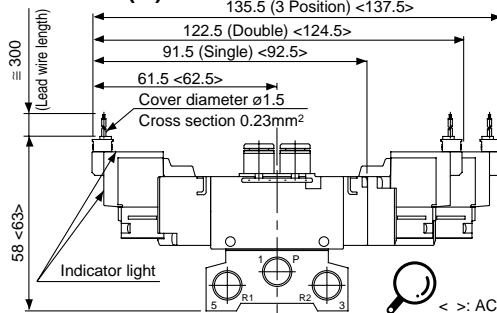
L plug connector (L)



DIN connector (Y)



M plug connector (M)



Dimensions

Equation L1=16n+10 L2=16n+20

n: Station (Max. 20 stations)

L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	42	58	74	90	106	122	138	154	170	186	202	218	234	250	266	282	298	314	330
L2	52	68	84	100	116	132	148	164	180	196	212	228	244	260	276	292	308	324	340
L3	75	87.5	112.5	125	137.5	162.5	175	187.5	200	225	237.5	250	275	287.5	300	312.5	337.5	350	362.5
L4	85.5	98	123	135.5	148	173	185.5	198	210.5	235.5	248	260.5	285.5	298	310.5	323	348	360.5	373

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VP4

VQ

VQ4

VQZ

VQD

VZS

VFS

VS

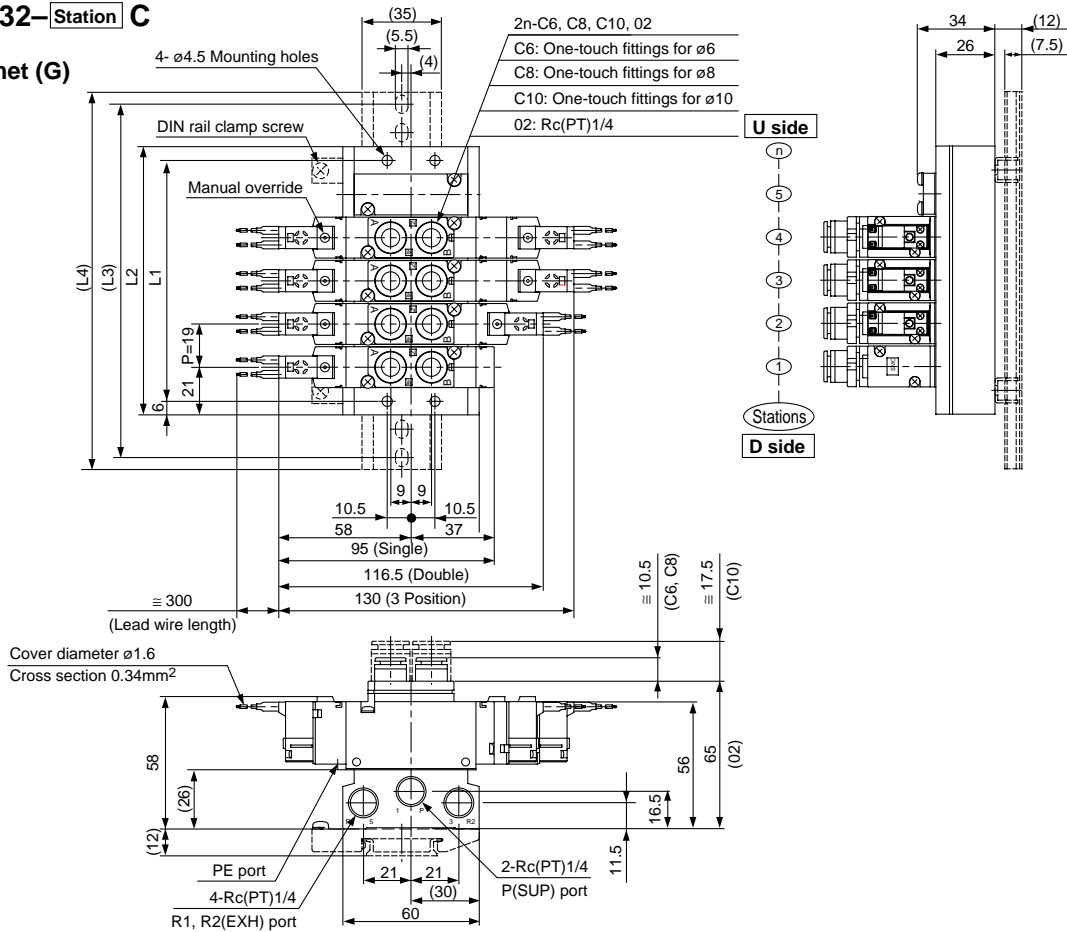
VS7

VQZ1000/2000/3000 Body Ported

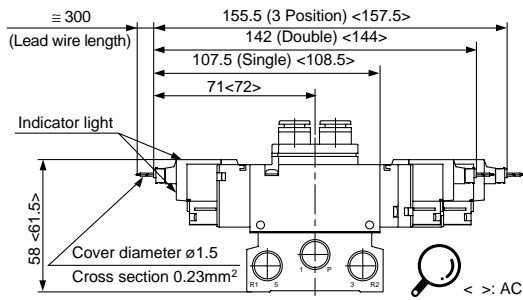
Dimensions: VQZ3000

VV5QZ32-Station C

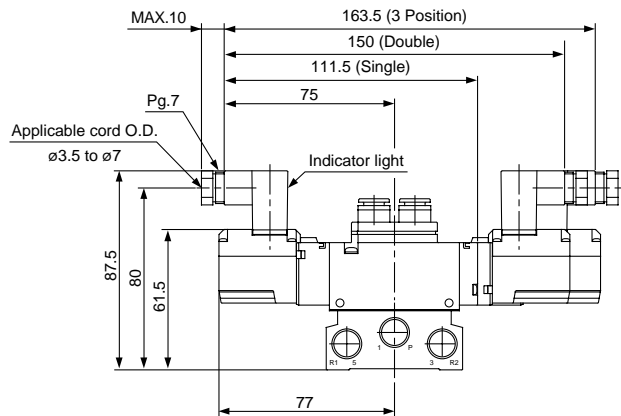
Grommet (G)



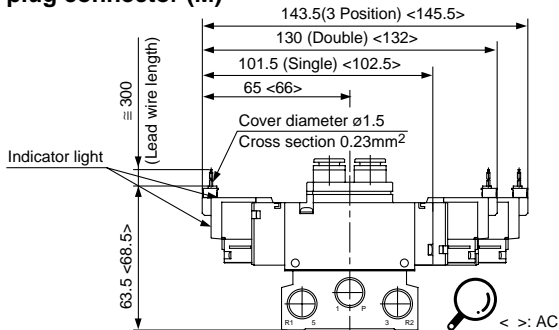
L plug connector (L)



DIN connector (Y)



M plug connector (M)



Dimensions Equation $L1=19n+11$ $L2=19n+23$

n: Station (Max. 20 stations)

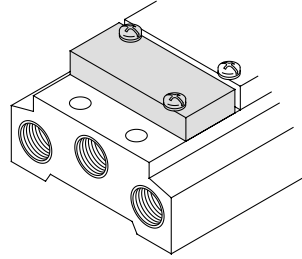
L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	49	68	87	106	125	144	163	182	201	220	237	258	277	296	315	334	353	372	391
L2	61	80	99	118	137	156	175	194	213	232	251	270	289	308	327	346	365	384	403
L3	87.5	100	125	137.5	162.5	187.5	200	225	237.5	262.5	275	300	312.5	337.5	350	375	387.5	412.5	425
L4	98	110.5	135.5	148	173	198	210.5	235.5	248	273	285.5	310.5	323	348	360.5	385.5	398	423	435.5

Manifold Option

Blank plate assembly

VVQZ1000-10A-2
VVQZ2000-10A-2
VVQZ3000-10A-2

This is used when removing the valve for maintenance, or reserving a valve mounting space on the manifold for future use.

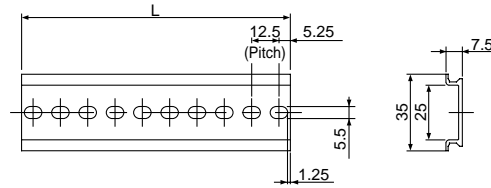


DIN rail

AXT100-DR-□

* Suffix number into □ from the dimension table below. Refer to each manifold dimensions for L dimension.

To order a manifold with DIN rail already attached, insert "D" at the end of the manifold part number. The DIN rail is approximately 30mm longer than the length of manifold.



L dimension

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5

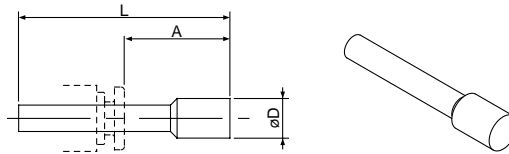
$L = 12.5n + 10.5$

No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
L	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498	510.5

Fitting blank plug

KQP-23-X19
KQP-04-X19
KQP-06-X19
KQP-08-X19
KQP-10-X19

● Color: White

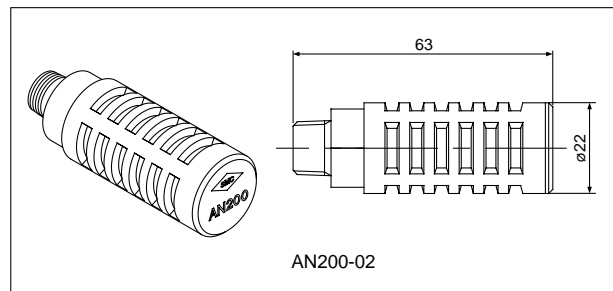
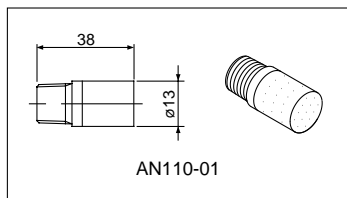


Dimensions

Applicable fitting ød	Part No.	A	L	D
3.2	KQP-23-X19	16	31.5	3.2
4	KQP-04-X19	16	32	6
6	KQP-06-X19	18	35	8
8	KQP-08-X19	20.5	39	10
10	KQP-10-X19	22	43	12

EXH port silencer

Silencer is installed in the EXH port.



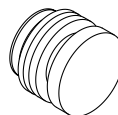
Dimensions

Model	Silencer P/N
VQZ1000	AN110-01
VQZ2000	AN110-01
VQZ3000	AN200-02

Port plug

VVQZ100-CP(For VQZ1000/VQZ2000)
VVQZ2000-CP(For VQZ3000)

Used to block an unused cylinder port when using a 4 way valve as a 3 way valve.



SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VP4

VQ

VQ4

VQZ

VQD

VZS

VFS

VS

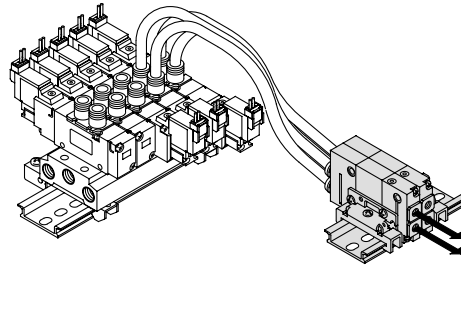
VS7

VQZ1000/2000/3000 Body Ported

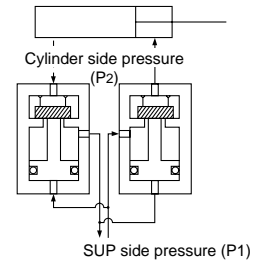
Manifold Option

Double check block (Externally placed downstream): For VQZ1000 only
VQ1000-FPG-□□

Using a 3 position exhaust center valve, this check block can stop and hold a cylinder in mid-stroke. The combination of a 2 position single or double solenoid with a double check will prevent the cylinder from "dropping" at stroke end when the residual supply pressure is released.



Check Valve Operational Principles

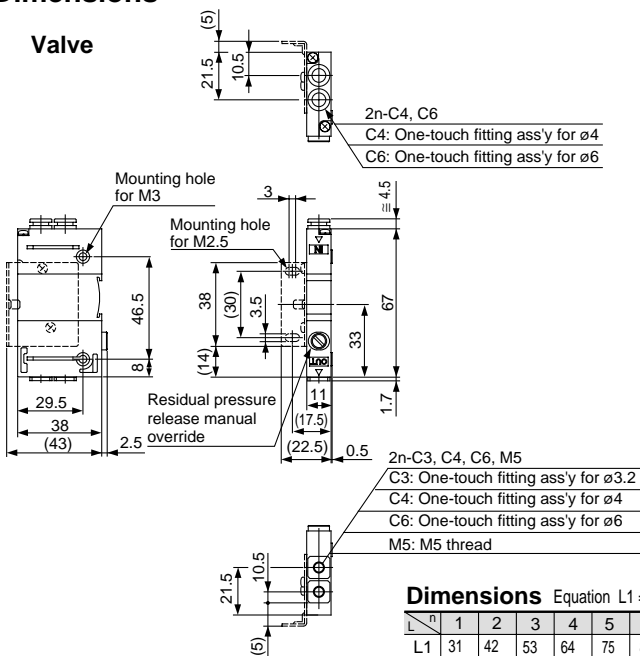


Specifications

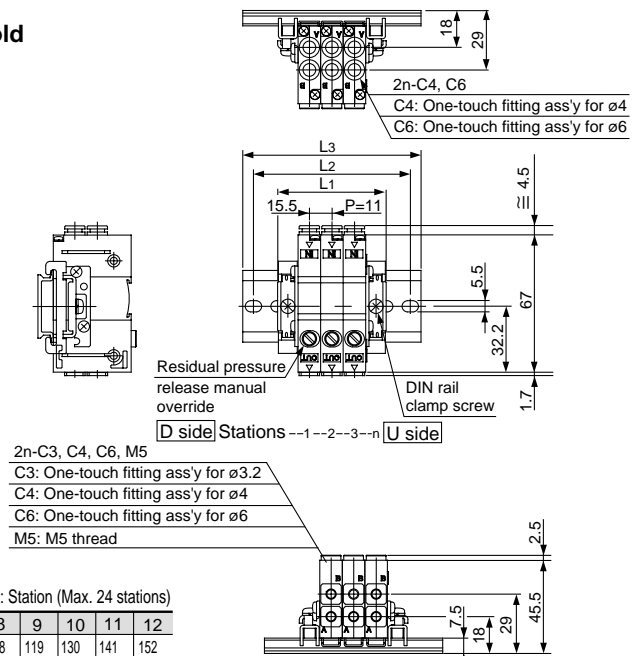
Max. operating pressure	0.8MPa
Min. operating pressure	0.15MPa
Ambient and fluid temp.	-5 to 50°C
Effective area (Cv) ⁽¹⁾	2.7mm ² (0.15)
Max. operating frequency	180 c.p.m

Note 1) As per JISB8375-1981
 (Supply pressure: 0.5MPa)

Dimensions



Manifold



Dimensions Equation $L1 = 11n + 20$ n: Station (Max. 24 stations)

n	1	2	3	4	5	6	7	8	9	10	11	12
L1	31	42	53	64	75	86	97	108	119	130	141	152
L2	50	62.5	75	87.5	100	112.5	125	137.5	150	162.5	175	187.5
L3	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198

n	13	14	15	16	17	18	19	20	21	22	23	24
L1	163	174	185	196	207	218	229	240	251	262	273	284
L2	187.5	187.5	200	212.5	225	237.5	250	262.5	275	287.5	300	310.5
L3	198	198	210.5	223	235.5	248	260.5	273	285.5	298	310.5	310.5

How to Order

Double check block

VQ1000-FPG-**C4 M5 F**

IN side port side		OUT side port side	
C4	One-touch fitting for ø4	M5	M5 thread
C6	One-touch fitting for ø6	C3	One-touch fitting for ø3.2
		C4	One-touch fitting for ø4
		C6	One-touch fitting for ø6

Option

—	None
D	DIN rail mounting (for manifold)
F	With bracket
N	With name plate

Manifold

VVQ1000-FPG-**06**

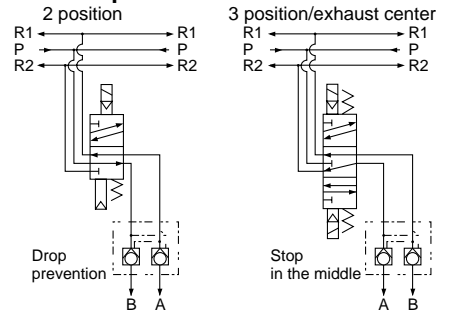
Stations

01	1 station
⋮	⋮
16	16 stations

<Example>

VVQ1000-FPG-06...6 stations of manifold
 * VQ1000-FPG-C4M5-D, 3 sets } Double check block
 * VQ1000-FPG-C6M5-D, 3 sets }

<Examples>



⚠ Cautions

- Since air leakage from the pipe between the valve and cylinder or the fittings will prevent the cylinder from stopping for a long time. Check for air leakage using neutral household detergent, such as dish washing soap. Also check the cylinder's tube gasket, piston seal and rod seal for leakage.
- Since slight air leakage from One-touch fittings is allowed, use of a piping screw (with M5 thread) is recommended when stopping the cylinder in the middle for a long time.
- Combining double check block with 3 position closed center or pressure center solenoid valve will not work.
- A M5 fitting assembly is attached, without being incorporated in the perfect block. After screwing in the fittings, mount the ass'y on the double check block. Tightening torque: 0.8 to 1.2Nm
- If exhaust side of double check block is narrowed down too much, this decreases the intermediate stop accuracy.

Manifold Option

Double check block (Externally placed downstream): For VQ2000 only VQ2000-FPG-□□-□

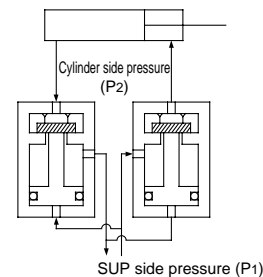
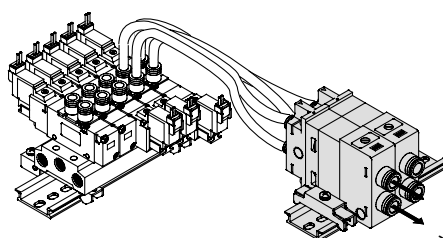
Using a 3 position exhaust center valve, this check block can stop and hold a cylinder in mid-stroke. The combination of a 2 position single or double solenoid with a double check block will prevent the cylinder from "dropping" at stroke end when residual supply pressure is released.

Specifications

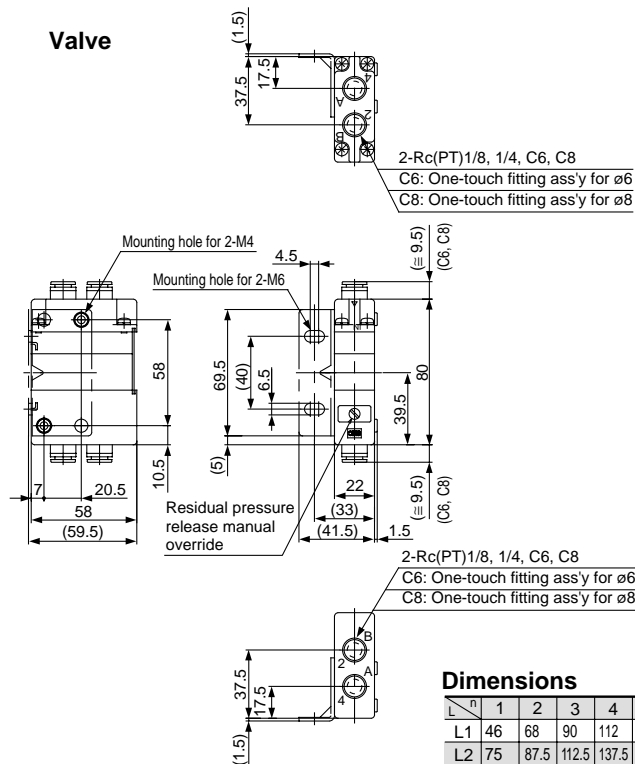
Max. operating Pressure	0.8MPa
Min. operating Pressure	0.15MPa
Ambient and fluid temp.	-5 to 50°C
Effective area (Cv) ⁽¹⁾	18mm ² (1.0)
Max. operating frequency	180 c.p.m

Note 1) As per JISB8375-1981
(Supply pressure: 0.5MPa)

Check Valve Operational Principles



Dimensions



Dimensions

Equation $L1=22n+24$ n: Station

L ⁿ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	46	68	90	112	134	156	178	200	222	244	266	288	310	332	354	376
L2	75	87.5	112.5	137.5	162.5	175	200	225	250	262.5	287.5	312.5	337.5	362.5	375	400
L3	85.5	98	123	148	173	185.5	210.5	235.5	260.5	273	298	323	348	373	385.5	410.5

How to Order

Double check block

VQ2000-FPG-01 01 F

IN side port size

01	Rc(PT)1/8
02	Rc(PT)1/4
C6	One-touch fitting for ø6
C8	One-touch fitting for ø8

OUT side port size

01	Rc(PT)1/8
02	Rc(PT)1/4
C6	One-touch fitting for ø6
C8	One-touch fitting for ø8

Option

—	None
D	DIN rail mounted (for manifold)
F	With bracket
N	With name plate

Manifold

VVQ2000-FPG-06

Stations

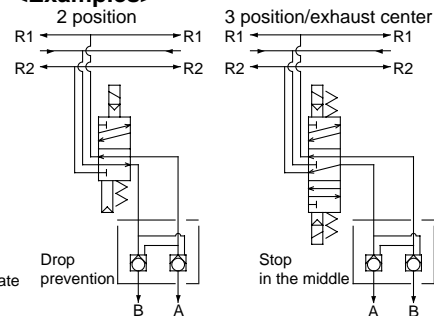
01	1 station
⋮	⋮
16	16 stations

<Example>

VVQ2000-FPG-06...6 stations of manifold

* VQ2000-FPG-C6C6-D, 3 sets } Double check block
* VQ2000-FPG-C8C8-D, 3 sets }

<Examples>



Caution

- Since air leakage from the pipe between the valve and cylinder or the fittings will prevent the cylinder from stopping for a long time. Check for air leakage using neutral household detergent, such as dish washing soap. Also check the cylinder's tube gasket, piston seal and rod seal for leakage.
- Since slight air leakage from One-touch fittings is allowed, use of a piping screw (with M5 thread) is recommended when stopping the cylinder in the middle for a long time.
- Combining double check block with 3 position closed center or pressure center solenoid valve will not work.
- When screwing the fittings in the double check block, applied torque is as shown below:

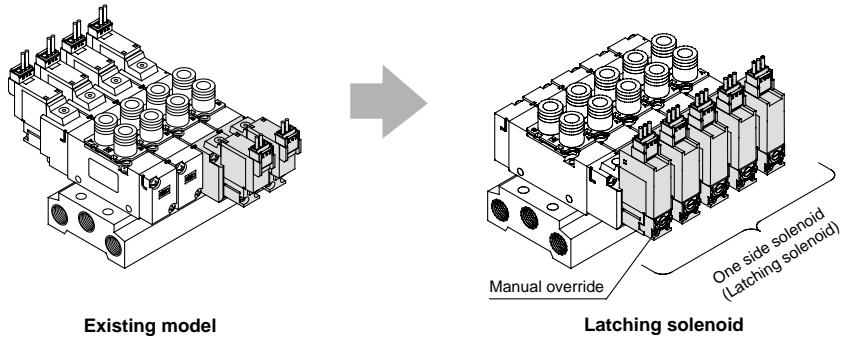
Thread	Torque Nm
Rc(PT)1/8	7 to 9
Rc(PT)1/4	12 to 14

- Set the cylinder load so that the cylinder pressure will be within two times that of the supply pressure.
- If exhaust side of double check block is narrowed down too much, this decreases the intermediate stop accuracy.

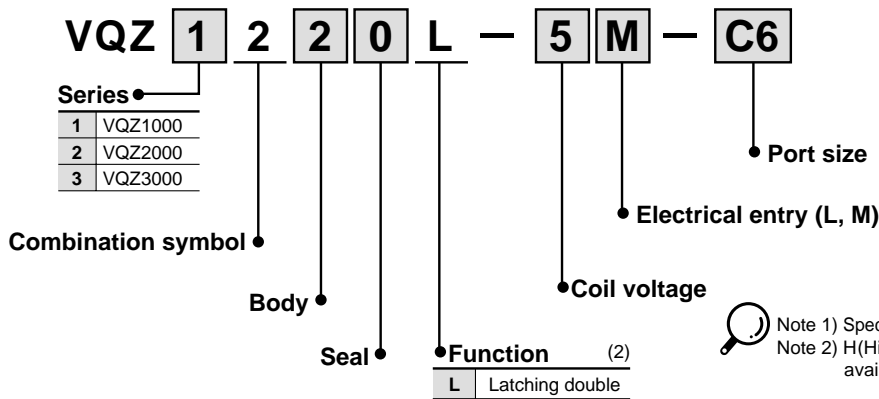
VQZ1000/2000/3000 Body Ported

One Side Solenoid (Latching Solenoid)

The standard 2 position double solenoid valve has two solenoids, one on each end of the valve body. The latching solenoid option (with self holding mechanism) functions in the same manner as a 2 position double solenoid but uses only one solenoid to do the job.



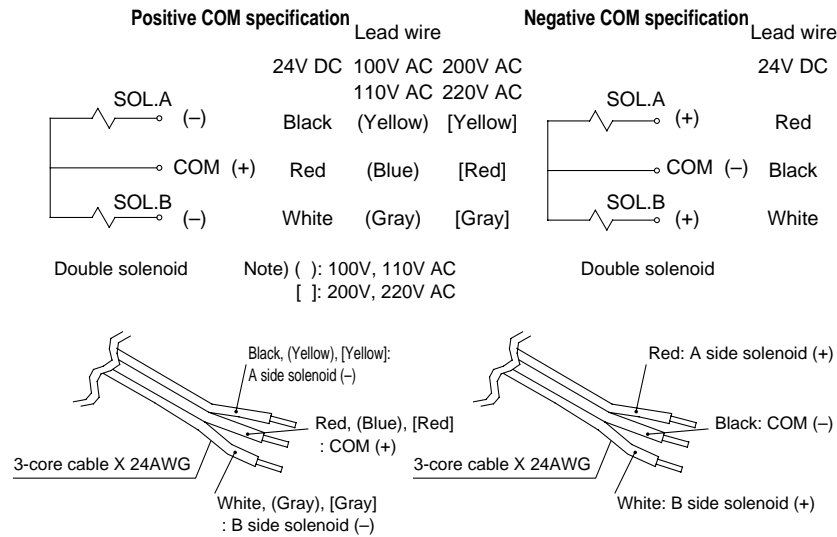
How to Order Latching Solenoid Valve



Note 1) Specifications are same as standard except for the function.
 Note 2) H(High pressure style) and Y(Low wattage style) are not available.

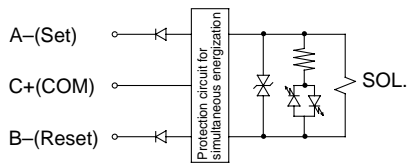
Wiring

Lead wires are connected to the valve as shown below. Connect them with the power supply.

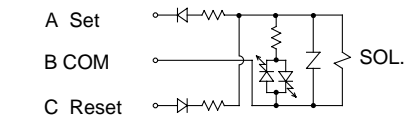


Electrical Circuit

Latching solenoid (DC)



Latching solenoid (AC)



Note 1) -Set side in energized state: Lighting (Orange)
 -Reset side in energized state: Lighting (Green)
 -With miss-wiring preventing function (Stop diode)
 -With surge absorption function (ZNR/Surge absorption diode)
 Note 2) Flow direction: P→A (A (set) side in energized state)
 Flow direction: P→R (B (reset) side in energized state)
 Note 3) Negative COM specification available.

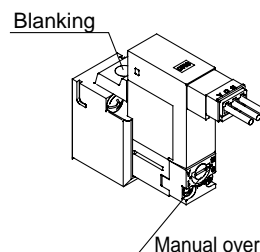
⚠ Caution

Cautions for Latching Use

1. Use a circuit in which the ON and OFF signals are not simultaneously energized.
2. Minimum energization time for self holding is 20ms.
3. Avoid using the latching solenoid valves in environments where impact or collisions with the valve might occur. Also, do not use in places where a strong magnetic fields are present.
4. The armature in the solenoid is set in the B side ON position (Reset) at the factory. However shifting of the armature might occur during shipping so please confirm the position by energizing the solenoid.
5. Please consult SMC for extended energization applications.

Manual Override

The manual override is on the pilot valve for latching solenoid valves.



-To lock in set position (Flow path: P→A): Turn the manual override clockwise by 180° to make A press down. Valve is now locked in the set condition. (Flow path: P→A)
 -To reset (Flow path: P→B): Turn manual override counterclockwise to mark B and press down. Valve will then be in the reset condition. (Flow path: P→B).