

3 Port Solenoid Valve

VQZ100/200/300 Valve Single Unit

How to Order Valve VQZ100

VQZ 1 1 5 — **5 M** — **01**

Series

1	VQZ100 Body width 10mm
---	------------------------

Configuration

1	N.C.
---	------

Body style

5	Base mounted
---	--------------

Function

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

Note 1) Option
 Note 2) Refer to p.2.10-38 for details about external pilot specification.
 Note 3) Refer to p.2.10-26 for power consumption of AC type.
 Note 4) When specifying more than one option, indicate them alphabetically.

Port size {2(A)port}

CP	Without sub-plate
01	Rc(PT)1/8

Manual override

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

Electrical entry

G: Grommet (DC specification)	L: L plug connector with lead wire	LO: L plug terminal without connector	M: M plug connector with lead wire	MO: M plug terminal without connector

Note) Standard lead wire length: 300mm
 *With light and surge voltage suppressor.

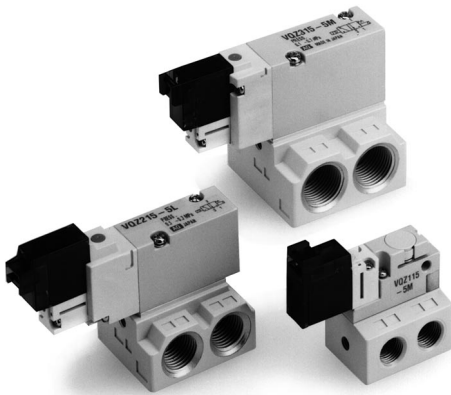
Coil voltage

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

Note) Refer to p.2.10-39 for sub-plate part No.

* When requiring AC specification of grommet and/or special voltage, consult SMC.

VQZ100/200/300 Base Mounted



Standard Specifications

Valve	Seal	Metal seal	Rubber seal
	Fluid	Air, Inert gas	Air, Inert gas
	Max.operating pressure	0.7MPa (High pressure style: 1.0MPa)	0.7MPa
	Min.operating pressure	0.1MPa	0.15MPa
	Ambient and fluid temp.	-10 to 50°C ⁽¹⁾	-10 to 50°C ⁽¹⁾
	Max.operating frequency	20Hz	5Hz
	Pilot valve EXH	Individual EXH	
	Lubrication	Not required	
	Manual override	Non-locking push style/Locking slotted style	
	Shock/Vibration resistance ⁽²⁾	150/30 m/s ²	
	Enclosure	Dust proof	
	Coil rated voltage	12V, 24V DC 100V, 110V, 200V, 220V AC	
	Allowable voltage	±10% of rated voltage	
Solenoid	Coil insurance	Class B	
	Power consumption (Current value)	24V DC	1W DC (42mA), 0.5W DC (21mA)
		12V DC	1W DC (83mA), 0.5W DC (42mA)
		100V AC	Inrush 0.5VA (5mA), Holding 0.5VA (5mA)
		110V AC	Inrush 0.55VA (5mA), Holding 0.55VA (5mA)
		200V AC	Inrush 1.0VA (5mA), Holding 1.0VA (5mA)
		220V AC	Inrush 1.1VA (5mA), Holding 1.1VA (5mA)

- Note 1) Use dry air to prevent condensation when operating at low temperatures.
- Note 2) Shock resistance: No malfunctions resulted from the impact test using a drop impact tester. The tests were performed on the axis and right angle direction of the main valve and armature, for both energized and de-energized states. (Value in the initial stage.)
- Vibration resistance: No malfunctions occurred in a one-sweep test between 8.3 and 2,000 Hz. Tests were performed at both energized and de-energized states to the axis and right angle direction of the main valve and armature. (Value in the initial stage.)

Model

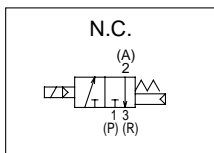
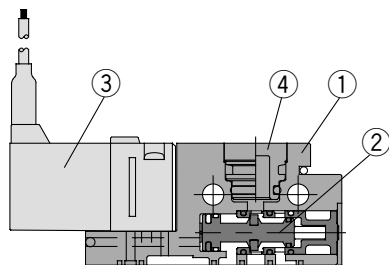
Series	Valve configuration	Model		Effective area(mm ²)(Cv) ⁽¹⁾	Response time (ms) ⁽²⁾		Weight (g) ⁽³⁾
					Standard: 1W	High pressure: 1W Low wattage and AC	
VQZ100	N.C.	Poppet	VQZ115	5.4 (0.3)	10 or less	13 or less	25
		Metal	VQZ215	10.8 (0.6)	14 or less	18 or less	
VQZ200	N.C.	Rubber	VQZ235	12.6 (0.7)	15 or less	20 or less	53
		Metal	VQZ225	10.0 (0.55)	14 or less	18 or less	
	N.O.	Rubber	VQZ245	12.6 (0.7)	15 or less	20 or less	
		Metal	VQZ315	16.2 (0.9)	17 or less	22 or less	
VQZ300	N.C.	Rubber	VQZ335	21.6 (1.2)	25 or less	33 or less	77
		Metal	VQZ325	15.3 (0.85)	17 or less	22 or less	
	N.O.	Rubber	VQZ345	21.6 (1.2)	25 or less	33 or less	

- Note 1) Valve of sub-plate and maximum diameter.
- Note 2) As per JIS8375-1981 (Supply pressure: 1.5MPa; with indicator light and surge voltage suppressor; clean air) The response time is subject to the pressure and the air quality. The values at the time of ON are given for the double styles.
- Note 3) Weight without sub-plate.

Construction

VQZ100

Poppet

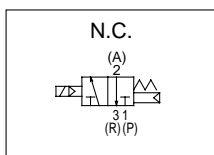
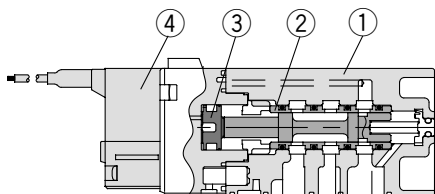


Component Parts

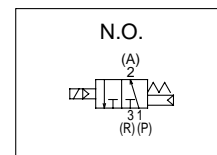
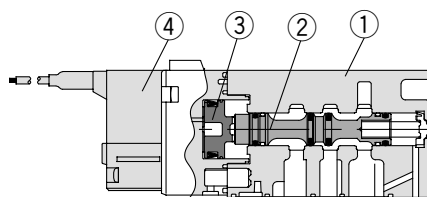
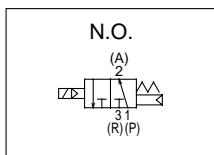
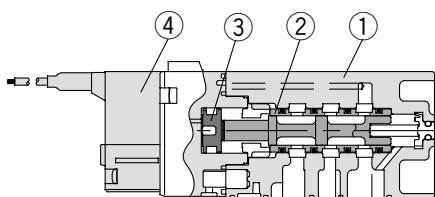
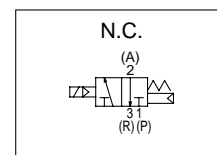
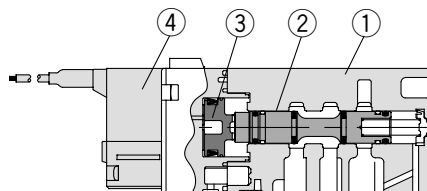
No.	Description	Material	Notes
①	Body	Resin	
②	Spool valve	Aluminum/NBR	
③	Pilot valve	—	
④	Port plug	Resin/NBR	VVQZ100-CP

VQZ200/300

Metal seal



Rubber seal



Component Parts

No.	Description	Material	Note
①	Body	Aluminum die cast	
②	Spool/Sleeve	Stainless steel	Metal seal
	Spool valve	Aluminum/NBR	Rubber seal
③	Piston	Resin	
④	Pilot valve	—	

SY

SYJ

VK

VZ

VT

VT

VP

VG

VP

VQ

VQZ

VZ

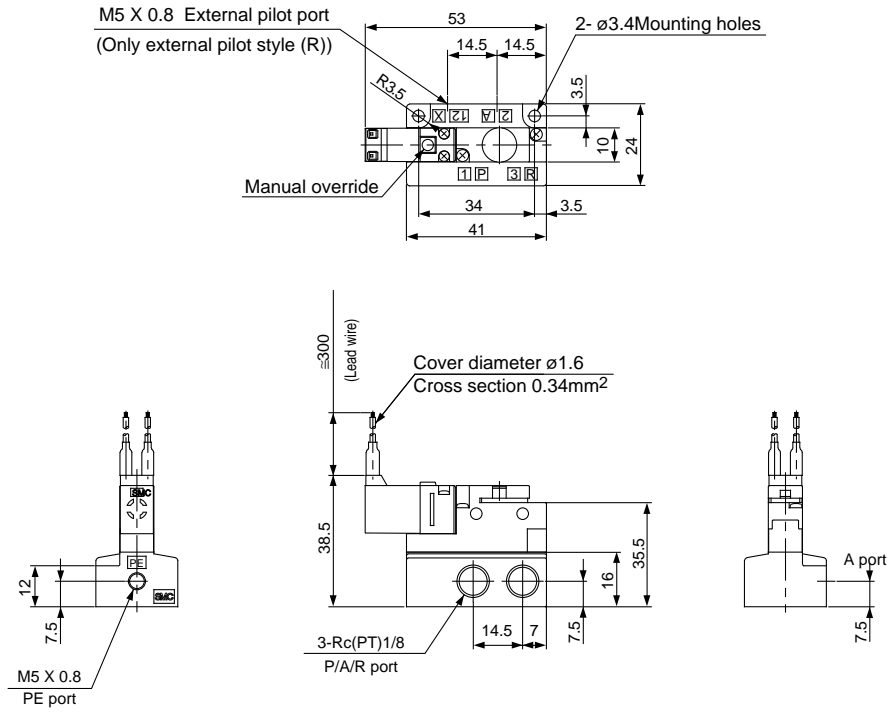
VS

VQZ100/200/300 Base Mounted

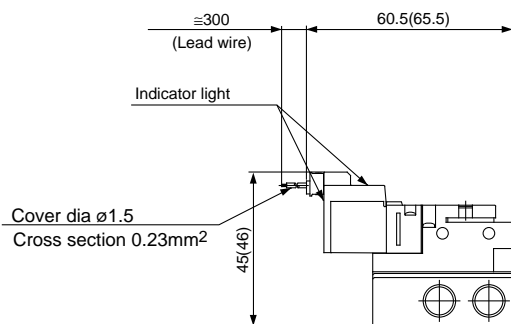
Dimensions: VQZ100

Valve single unit

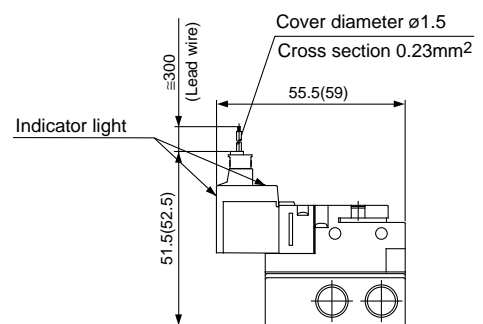
Grommet (G): VQZ115(R)-□G□-01



L plug connector (L): VQZ115(R)-□L□-01



M plug connector (M): VQZ115(R)-□M□-01



3 Port Solenoid Valve

VQZ100/200/300

Manifold Connector Kit

How to Order Manifold VQZ100

VV3QZ 1 5 — 08 C6 C — D

Series

1	VQZ100
---	--------

Manifold style

5	Base mounted
---	--------------

Stations

02	2 stations
⋮	⋮
20	20 stations

Port size{2(A)Port}

C3	One-touch fitting for ø3.2	
C4	One-touch fitting for ø4	For lateral piping
C6	One-touch fitting for ø6	
M5	M5 thread (Changeable style)	
CP ⁽¹⁾	With port plug	For top piping
CM ⁽²⁾	Mixture port	—

Option

—	None
D	DIN rail mounting (DIN rail standard length)
DO*	DIN rail mounting (Without DIN rail)
R	External pilot

Kit

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

* Order DIN rail separately. Refer to p.2.10-37 for DIN rail model number.

Note 1) In case of CP port plug is attached on all 2(A) port. Valve on manifold is top piping.
 Note 2) Specify the mixture port(including top and side piping) on the manifold specification form.
 Note 3) Refer to p.2.10-38 for inch size One-touch fittings.

- SY
- SYJ
- VK
- VZ
- VT
- VT
- VP
- VG
- VP
- VQ
- VQZ**
- VZ
- VS

How to Order Valve VQZ100

VQZ 1 1 5 — 5 M —

Series

1	VQZ100 Body width 10mm
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Configuration

1	N.C.
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Body style

5	Base mounted
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Function

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

Port size

CP	With port plug	Lateral piping
C3	One-touch fitting for ø3.2	
C4	One-touch fitting for ø4	Top piping
C6	One-touch fitting for ø6	
M5	M5 thread	

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	

Coil voltage

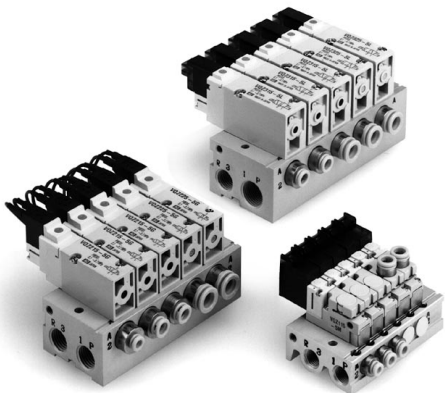
1*	100V AC (50/60Hz)
2*	200V AC (50/60Hz)
3*	110V AC (50/60Hz)
4*	220V AC (50/60Hz)
5	24V DC
6	12V DC
9*	Others

Note) Standard lead wire length: 300mm.

* When requiring AC specification of grommet and/or special voltage, consult SMC.

Note 1) Option
 Note 2) Refer p.2.10-38 for details about external pilot specification.
 Note 3) Refer p.2.10-26 for power consumption of AC type.
 Note 4) When specifying more than one option, indicate them alphabetically.

Specification



Series	Base model	Piping specification			Applicable valve	Applicable station	Manifold base weight (g) ⁽¹⁾
		Piping	Port size				
			1(P), 3(R)	2(A)			
VQZ100	VV3QZ15-□□□	Side Top	Rc(PT) 1/8	C3 (for ø3.2) C4 (for ø4) C6 (for ø6) M5 (M5 thread)	VQZ1□5	2 to 20	2 stations:83 Additional station:19
VQZ200	VV3QZ25-□□□	Side	Rc(PT) 1/4	C4 (for ø4) C6 (for ø6) C8 (for ø8) Rc(PT)1/8	VQZ2□5	2 to 20	2 stations:126 Additional station:38
VQZ300	VV3QZ35-□□□	Side	1(P)port Rc(PT)3/8 3(R)port Rc(PT)1/4	C6 (for ø6) C8 (for ø8) C10 (for ø10) Rc(PT)1/4	VQZ3□5	2 to 20	2 stations:209 Additional station:60

Note 1) Threaded port style.

How to Order Manifold Assembly (Example)

VV3QZ25-05C6C 1 set (C kit 5 stations manifold base)

- * VVQZ200-10A-5 ... 1 set (Blank plate assembly)
- * VQZ215-5L 4 sets (Single solenoid)

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

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

Add the suffix valve and option part numbers to the manifold base number. Part numbers written collectively can be complicated, thus specify by using a manifold specification form.

SY

SYJ

VK

VZ

VT

VT

VP

VG

VP

VQ

VQZ

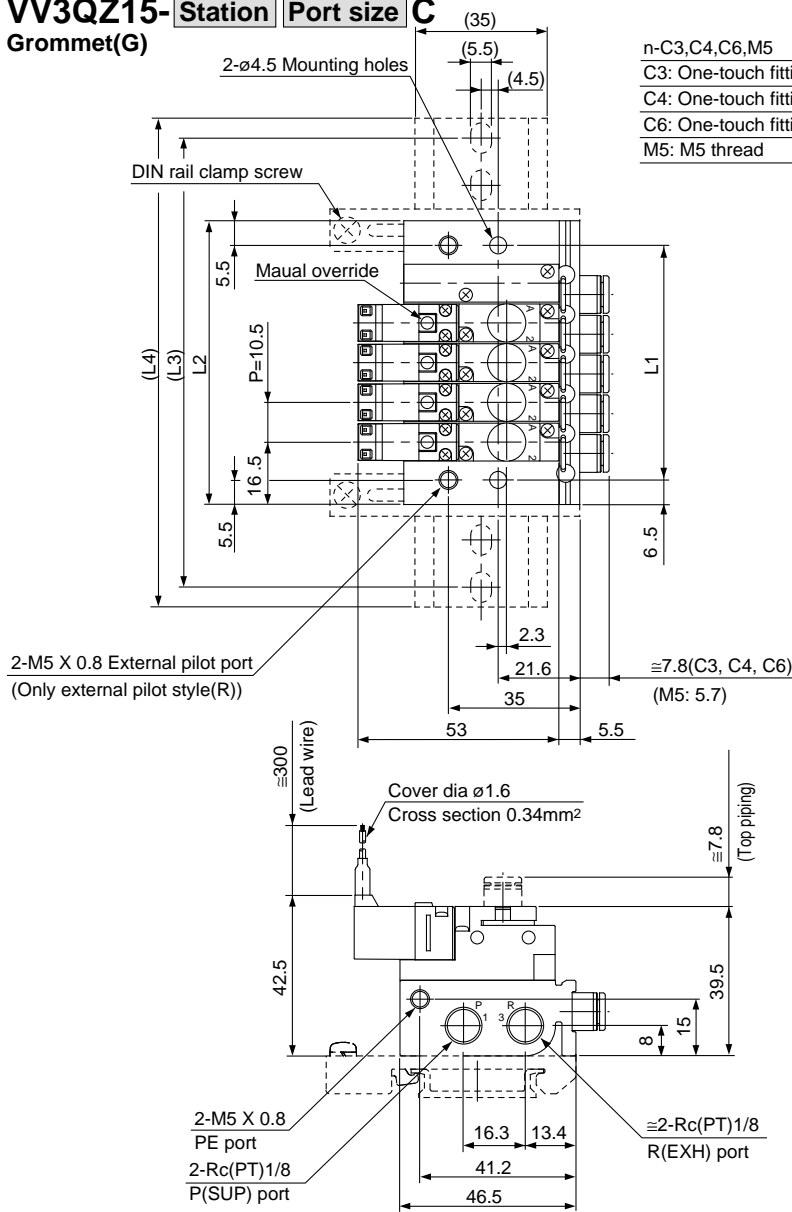
VZ

VS

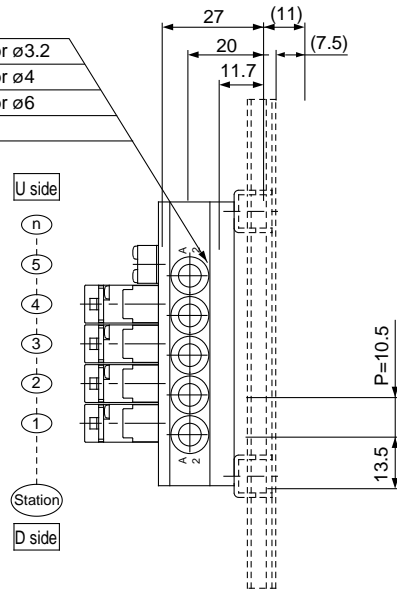
VQZ100/200/300 Base Mounted

Dimensions: VQZ100

VV3QZ15- Station Port size C
Grommet(G)

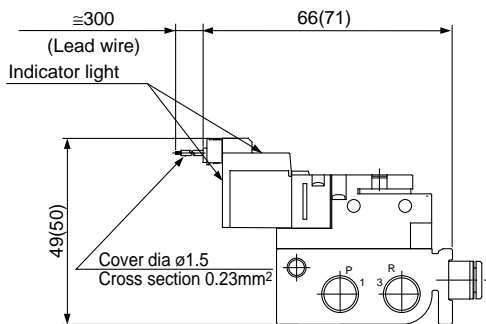


n-C3,C4,C6,M5
C3: One-touch fitting for ø3.2
C4: One-touch fitting for ø4
C6: One-touch fitting for ø6
M5: M5 thread



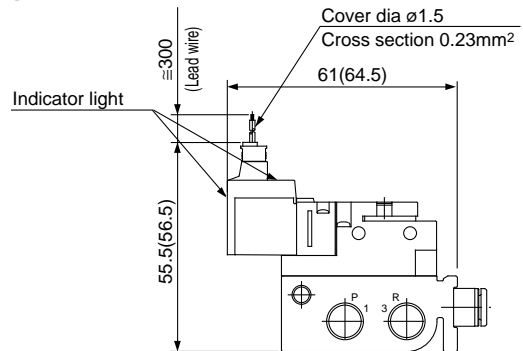
The broken line indicates DIN rail mounted style [-D].

L plug connector (L)



< > : AC

M plug connector (M)



< > : AC

Dimensions Equation $L1=10.5n+9.5$ $L2=10.5n+22.5$

n: Station (Max.20)

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		43.5	54	64.5	75	85.5	96	106.5	117	127.5	138	148.5	159	169.5	180	190.5	201	211.5	222	232.5
L3		75	75	87.5	100	112.5	125	137.5	137.5	150	162.5	175	187.5	200	200	212.5	225	237.5	250	262.5
L4		85.5	85.5	98	110.5	123	135.5	148	148	160.5	173	185.5	198	210.5	210.5	223	235.5	248	260.5	273

Manifold Options

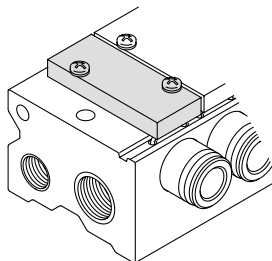
Blank plate

VVQZ100-10A-5

VVQZ200-10A-5

VVQZ300-10A-5

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



Blank plug

KQP-23-X19

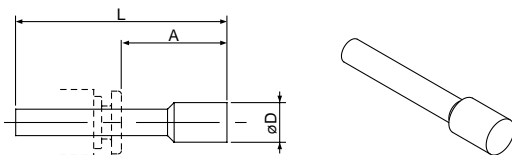
KQP-04-X19

KQP-06-X19

KQP-08-X19

KQP-10-X19

● Color: White



Dimensions

(mm)

One-touch 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

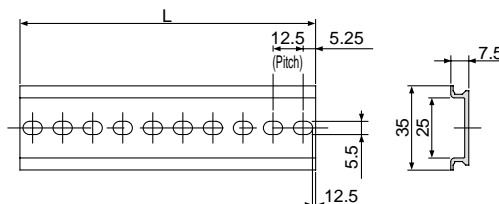
DIN rail

AXT100-DR-□

* Enter suffix the number from DIN rail dimensions table below. Refer to the manifold dimensions drawings for the 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.



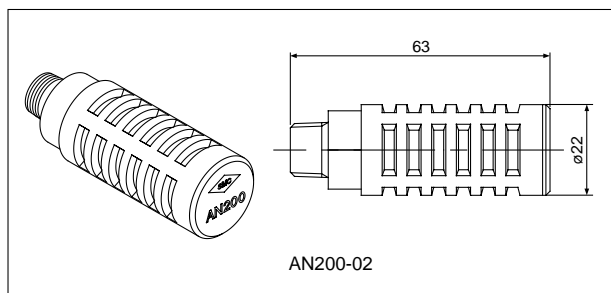
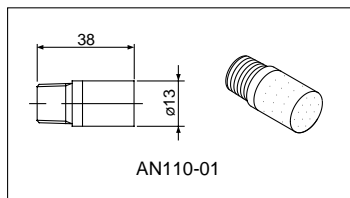
L dimensions

L=12.5n+10.5

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
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

EXH port silencer

Silencer is installed in the EXH port.



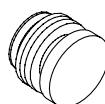
Dimensions

Model	Silencer P/N
VQZ100	AN110-01
VQZ200	AN200-02
VQZ300	AN200-02

Port plug

VVQZ100-CP

This is used when changing piping location.(Side or Top)



SY

SYJ

VK

VZ

VT

VT

VP

VG

VP

VQ

VQZ

VZ

VS

Option

External Pilot Specification

The external pilot specification must be used when the operating pressure is below the minimum operating pressure 0.1 to 0.2MPa or when valve is being used for a vacuum application. For the external pilot valve, an "R" should be attached to the valve and the manifold part number. (See the below.)

Example/Valve

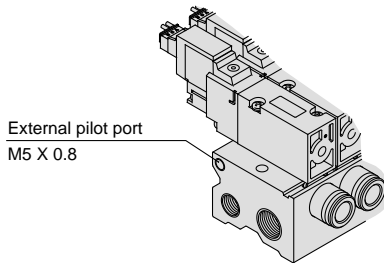
VQZ215R—5M—02

External pilot specification

Example/Manifold

VV3QZ25—06C6C—R

External pilot specification



Pressure specifications

Series		VQZ100 ⁽²⁾	VQZ200 VQZ300		
External pilot pressure range ⁽¹⁾	Metal seal	—	0.1 to 0.7MPa		
	Rubber seal (VQZ100: Poppet)	0.2 to 0.7MPa	0.15 to 0.7MPa	0.1 to 0.7MPa	0.2 to 0.7MPa
Operating press range ⁽¹⁾		Vacuum to 0.7MPa			



Note 1) In case of the high pressure style, the upper limit of max. operating pressure and external pressure range is 1MPa.

Note 2) If VQZ100 is applied in vacuum, vacuum from P port. When finishing the vacuum application, supply pressure from R port. Make sure that the supply pressure is less than half of the external pilot pressure.

Inch Size One-touch Fittings and Optional Thread

Manifolds are available with inch size One-touch fittings for the cylinder ports.

How to Order Manifold

VV3QZ15—08 N7 T C

Thread (Cylinder ports and P, R ports)

—	Rc(PT)
N	NPT
T	NPTF
F	G(PF)

Cylinder ports

Symbol	N1	N3	N7	N9	N11	NM ⁽¹⁾	M5	01	02
Tube O.D. (Inch)	ø1/8"	ø5/32"	ø1/4"	ø5/16"	ø3/8"	Mix	M5	1/8	1/4
Cylinder port	VQZ100	●	●	—	—	●	●	—	—
	VQZ200	—	●	●	—	●	—	●	—
	VQZ300	—	—	●	●	●	—	—	●



Note 1) Mixing One-touch fittings and thread types is impossible except for VQZ100.

Note 2) Millimeter size One-touch fittings (C□) are also available.

Optional Thread <Rc(PT) is standard. style>

Sub-bases and manifolds with NPT, NPTF or PF type threads are available.

How to Order Valve with Sub-base

VQZ215—5M—02 T

Thread (Cylinder ports and P/R ports)

—	Rc(PT)
N	NPT
T	NPTF
F	G(PF)

Dust Tight/Jet Proof (IP65)

Optional IP65 model is available on valves with DIN connector electrical entry.

How to Order Valve

(Applicable to VQZ200/300 rubber style)

VQZ335—5YZB W—03

IP65 rated

—	No (Standard)
W ⁽¹⁾	IP65 rated



Note 1) The pilot exhaust of the IP65 valves is common with main valve exhaust. (The standard valve has an individual exhaust for the pilot valve.)

Replacement Parts

One-touch Fitting Assembly (For cylinder port)

Fitting size	C3	C4	C6	C8	C10	M5 (VQZ100 only)
VQZ100	VVQ1000-50A-C3	VVQ1000-50A-C4	VVQ1000-50A-C6	—	—	VVQ1000-50A-M5
VQZ200	—	VVQ1000-51A-C4	VVQ1000-51A-C6	VVQ1000-51A-C8	—	—
VQZ300	—	—	VVQ2000-51A-C6	VVQ2000-51A-C8	VVQ2000-51A-C10	—

Note) Order is accepted from 10 pcs. unit.

<Plug connector assembly>

DC (+COM)

• Single

AXT661-14A- □

• Latching

AXT661-13A- □

DC (-COM)

• Latching

AXT661-13AN- □

100V, 110V AC

• Single

AXT661-31A- □

• Latching

AXT661-32A- □

200V, 220V AC

• Single

AXT661-34A- □

• Latching

AXT661-35A- □

Only connector and sockets (3 pcs.)

AXT661-12A

Lead wire length

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

Standard wire length of valve with plug connector is 300mm.

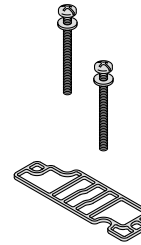
When requiring valve with a 600mm length lead wire specify the model number of the valve without plug connector and the plug connector assembly.

<Gasket and screw assembly>

	Part No.
VQZ100	VQZ100-GS-5
VQZ200	VQZ200-GS-5
VQZ300	VQZ300-GS-5



Note) Above part number consists of 10 units with one gasket and two screws. Orders are accepted in 10 pcs.units.



<Pilot valve assembly>

VQ11 □ **1** □ — □ **5** □ **G**

Series

0	VQZ100
1	VQZ1000/2000/3000

Function

Symbol	Specification	DC	AC
—	Standard	(1.0W) ○	○
K ⁽¹⁾	High pressure (Metal seal only)	(1.0W) ○	—
Y	Low wattage	(0.5W) ○	—
L ⁽³⁾	Latching	(1.0W) ○	○

Note 1) Option
 Note 2) When specifying more than one option, please indicate them alphabetically.
 Note 3) K (High pressure) and Y (Low wattage) are not available.
 Electrical entry: L/M plug connector only.

Electrical entry

G	Grommet (DC specification)
L ⁽¹⁾	L plug connector with lead wire
LO ⁽¹⁾	L plug terminal without connector
M ⁽¹⁾	M plug connector with lead wire
MO ⁽¹⁾	M plug terminal without connector
Y ⁽²⁾	DIN terminal
YO ⁽²⁾	DIN terminal without connector
YZ ⁽²⁾	DIN terminal
YOS ⁽²⁾	DIN terminal without connector

Note 1) L, LO, M and MO are attached light and surge voltage suppressors as standard.
 Note 2) DIN is applicable to VQZ 200 and 300.
 Note 3) Electrical entry of pilot valve for VQZ100(L and M) is opposite side of valve body part number.

<Sub-plate>

Model	Sub-plate part No.
VQZ100	VQZ100-S-01(R) ⁽¹⁾
VQZ200	VQZ200-S- ⁰¹ [Rc1/8] ⁰² [Rc1/4]
VQZ300	VQZ300-S- ⁰² [Rc1/4] ⁰³ [Rc3/8]

Note 1) Symbol "R" indicates an external pilot. The part No. is common to the external pilot and internal pilot style except for VQZ100.

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, AC specification and others.

Valve style	Pilot valve style
VQZ115 □-□L□	VQ110 □-□M□
VQZ115 □-□M□	VQ110 □-□L□

SY

SYJ

VK

VZ

VT

VT

VP

VG

VP

VQ

VQZ

VZ

VS