

Base Mounted Plug Lead Manifold Series VQ4000

Manifold Specifications

				Porting specifica	tions				
Series	Base No.	Connection	Port	Port	size ⁽¹⁾	Applicable	Applicable	Weights 5 station	
			location	P, R	A, B	olaliono	Taire	(19)	
VQ4000	VV5Q45-□□□	C kit-Grommet	Side	Rc1/2 Optional (Built-in	C8 (For ø8) C10 (For ø10) C12 (For ø12) Rc1/4 Rc3/8	2 to 16 stations	VQ4□50 VQ4□51	2.0 • Except solenoid valve weight	
			_	direct	D-4/4	-			SY
			Bottom	exhaust)	KC1/4				SYJ
	i) Refer to p.1.11-46	o for One-touch fittings for inch s	sizes and othe	er inread standards	δ.				SX

Number of Manifold Stations/Effective Area (mm² (Cv)) at Individual Operation

Model	Passage/Stations	1 station	5 stations	10 stations	15 stations	VZ
2 position metal seal	P→A or B	28.8 (1.6)	28.8 (1.6)	28.8 (1.6)	28.8 (1.6)	
VQ4150/VQ4250	$A \rightarrow R1, B \rightarrow R2$	32.4 (1.8)	32.4 (1.8)	32.4 (1.8)	32.4 (1.8)	VF
2 position rubber seal	P→A or B	36.0 (2.0)	36.0 (2.0)	36.0 (2.0)	36.0 (2.0)	
VQ4151/4251	A→R1, B→R2	37.8 (2.1)	37.8 (2.1)	37.8 (2.1)	37.8 (2.1)	VFR

Note) Port size: Rc3/8



1.11-31

VK

C Kit (Connector)



Bottom piping



Dimensions Equation L1=25n+63 L2=25n+76 n: Station (Max. 16 station												ations				
L	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	88	113	138	163	188	213	238	263	288	313	338	363	388	413	438	463
L2	101	126	151	176	201	226	251	276	301	326	351	376	401	426	451	476

Manifold Options

Blank plate assembly

VVQ4000–10A–1 (Plug-in) VVQ4000–10A–5 (Plug lead)

This is mounted on the manifold block when removing the valve for maintenance or reserving space for future use.







Individual SUP spacer



Individual EXH spacer



Base Mounted Series VQ4000









R





EXH passage block

R	
Р	
R	

SUP/EXH passage block

<SUP block plate>

<EXH block plate>

Manifold Options

Built-in silencer, Direct exhaust



Exhaust port is located on top side of end plate of manifold. Silencer is built-in, it is effective for fine noise reduction. (Noise reduction 35dB or more).

Note) If a lot of drainage is generated at air supply source, both of exhaust air and drainage are exhausted.









Note) Figure shows VV5Q41-

Double check spacer with residual pressure exhaust

VVQ4000-25A-1 (Plug-in) VVQ4000-25A-5 (Plug lead)

Keeping the cylinder in the middle position for a long time

Using the double check spacer with a built-in double check valve will enable the cylinder to stop and maintain its position in the middle for a long time, regardless of air leakage between spools. Combination with a two-position single/double solenoid valve will prevent the dropping at the cylinder stroke end.



Specifications

Double check	VVQ4000-25A-1								
spacer part no.	Stop in the midd	le	Drop prevention						
Applicable solenoid valve	VQ44□□		VQ4 ¹ ₂ □□						
	Solenoid on one side energized		Ρ	EA EB	230 or less				
Leakage *			_	EA	230				
Ncm ³ /min	Solenoids on		Р	EB	or less				
	de-eneraized		A	EA	0				
	J		в	FB	U				

* Supply pressure: 0.5MPa





∧ Caution

- Air leakage from the pipe between the valve and cylinder or from the fittings will prevent the cylinder from stopping in the middle for a long time. Check for the leakage using neutral household detergent, such as dish washing soap. Also, check the cylinder sealing and piston seal for leakage.
- Since One-touch fittings allow slight air leakage, screw piping is recommended when stopping the cylinder in the middle for a long time.
- If exhaust side of double check spacer is narrowed down, this causes a decrease in intermediate stop accuracy and may malfunction.
- Combining perfect interface with 3 position valves "VQ4 3/5□□" will not work. • Set the cylinder load so that the cylinder
- pressure will be within two times that of the supply pressure.
- Combining double check spacer with external pilot will not work.

Manual override for residual pressure exhaust Slotted locking style

26.5

20



	n: Station												
Dimensi	Dimensions Equation L1=25n+63 L2=25n+76 (Max. 16 stations)												
L	1	2	3	4	5	6	7	8					
L1	88	113	138	163	188	213	238	263					
L2	101	126	151	176	201	226	251	276					
L	9	10	11	12	13	14	15	16					
L1	288	313	338	363	388	413	463	463					
L2	301	326	351	376	401	426	476	476					

Dimensi	n: Station Dimensions Equation L1=25n+63 L2=25n+76 (Max. 16 stations)												
Ln	1	2	3	4	5	6	7	8					
L1	88	113	138	163	188	213	238	263					
L2	101	126	151	176	201	226	251	276					
L n	9	10	11	12	13	14	15	16					
L1	288	313	338	363	388	413	463	463					
L2	301	326	351	376	401	426	476	476					

Manifold with Control Unit

- Mounting air filter, regulator, pressure switch Manifold specifications
- for air release valve on manifold as unit is possible and permits piping labor savings.Maximum number of stations depends on each
- kit. Refer to manifold specifications.
- 2 stations are used for control unit mounting. (1 station is used for E type.)



Plug lead

When installing air filter with auto drain /manual override drain, air filter should be mounted underneath.

Manifold		P	orting specifi	Applicable (1)	Applicable		
base	Connection	Port	Port	size	max.	valve	
type		location	P, R	A, B	stations		
VV5Q41 -□□□	F kit - D-sub connector T kit - Terminal block box L kit - Lead wire	Side	Rc1/2 Option	C8 (For ø8) C10 (For ø10) C12 (For ø12) Rc1/4,Rc3/8	F, T kit 14 stations (13 stations)	VQ4⊟00 VQ4⊡01	
VV5Q45 -□□□	C kit - Connector	Bottom	Built-in silencer (Direct eject)	Rc1/4	L, C kit 18 stations (17 stations)	VQ4⊡50 VQ4⊡51	

Note 1) Manifold for mounting is included. (): E type

Control unit specification

Air filter (With auto drain/With manual override drain)									
Filtration	5μm								
Regulator									
Set pressure (Secondary pressure)	0.05 to 0.85MPa								
Pressure switch (1)									
Set press range (OFF)	0.1 to 0.6MPa								
Hysteresis	0.08MPa or less								
Contact	1a								
Light	LED light red								
Max. contact capacity	2VA AC, 2W DC								
Max. operating current	50mA at 24V AC, DC or less 20mA at 100V AC, DC								
Air release valve (S	ingle only)								
Operating pressure range	0.15 to 1MPa (0.15 to 0.7MPa)								
Note 1) (): Low wattage									

Control unit option

Spacer for ⁽²⁾	<plug-in> VVQ4000-24A-1D</plug-in>						
releace valve		<plug VVQ4000</plug 	lead> -24A-5D				
Pressure switch		IS100	0P-2-1				
	Regulat	or with filter	MP2-3				
(3) Blank plate	Pressu	ure switch	MP3-2				
Dialitik plate	Releace	Plug-in	VVQ4000-24A-10				
	valve	Plug lead	VVQ4000-24A-15				
Filter element	er 11104-5B						
Note 1) Rated Interna	voltage: 24 I voltage dr	V DC to 100V AC rop: 4V				
Note 2) Combination of VQ41 (Single) and release valve spacer can be used as							
Note 3) Plug le later.	ad type car	n not be mounted				

How to 0	Order	
VV5	Q 4 1 - 08	C8 F U1
		Options
	Series	Symbol Option
4	VQ4000	• Kit (5) – None
	Manifold	K ⁽²⁾ Special wiring specification (Except double wiring)
1	Plug-in	N Name plate (Applicable to T kit)
5	Plug lead	SU ⁽³⁾ Built-in silencer (Direct exhaust from U side)
		W ⁽⁴⁾ Enclosure IP65
Ga	02 2 stations 	- Without air release valve (only F.G type) 1 100V AC 50/60Hz 5 24V DC 9 Others Others Note 3) Mounting on S and T kits is not possible. Note 4) Combination with pressure switch (AP and MP type) is not possible. Note 5) The release valve and the pressure switch on S kit are connected to another power supply. Cable length is 0.6m.
C10	One-touch fitting for ø10	Symbol - A AP M MP F G C F
C12	One-touch fitting for ø12	Control equipment
02	Rc1/4	Air filter with auto drain
03	Rc3/8	Air filter with manual drain
В	Bottom piping Rc1/4	Regulator
СМ	Mixed size	Air release valve
		Pressure switch
		Blank plate (Air release valve)
		Diality plate (Filler, Regulator) Image: Comparison of the second seco

Base Mounted Series VQ4000

How to Use Control Unit

<Construction, Piping>

- 1) Supply pressure (Po) is adjusted through regulator with filter, it is supplied to manifold base side through release valve 2 (Normally ON, this is for release secondary side residual pressure).
- 2) Supply pressure from Po port is blocked when release valve 2 is OFF. Air supplied to manifold side P port is exhausted to R1 port through release valve 2.
- 3) Pressure switch is pipied at secondary side of release valve 2. (Release valve 2 is operated at energizing.) Since there are 4V internal voltage drop, confirmation of ON, OFF by tester, etc. may not be done.

<Wiring>

1) Electrical entry of manifold (Except L and C kit) is individual wiring. Refer to internal wiring figure of each kit for details.

<Change of pressure switch piping>

- 1) Pressure switch 3 is changed to piping on primary side of release valve 2, remove the pressure switch, reverse the gasket up and down, and fix B mark.
- 2) When pressure switch is mouted, tightening torque of bolt is 0.8 to 1.2Nm.





Gasket

В





Circuit of control unit manifold

Base Mounted Series VQ4000



Dimens	sions Ed	quation L	.1=25n+6	3 L2=25r	n+76 L3=	25n+269	.5 (262.5))		1	 Station
							_				

L n	1	2	3	4	5	6	7	8	9	10	11	12
L1	88	113	138	163	188	213	238	263	288	313	338	363
L2	101	126	151	176	201	226	251	276	301	326	351	376
1.2	307	332	357	382	407	432	457	482	507	532	557	582
Lo	(285.5)	(310.5)	(335.5)	(360.5)	(385.5)	(410.5)	(435.5)	(460.5)	(485.5)	(510.5)	(535.5)	(560.5)

* L3(): MP type

Series VQ4000 Construction

Plug Lead Unit

Component Parts

Spool/Sleeve

Replacement Parts

Pilot valve ass'y

Body

Piston

Description

Material

Aluminum die-cast

Stainless steel

Resin

VQZ111P-D

Note

*: Coil rated voltage

Example) 24V DC: 5

No.

1

(2)

3

(4)



Component Parts

No.	Description	Material	Note
1	Body	Aluminum die-cast	
2	Spool valve	Aluminum, NBR	
3	Piston	Resin	

Replacement Parts

Example) 24V DC: 5

Exploded View of Manifold



5 stations	(Odd number)	2 stations	2 stations	1 station

6 stations (Even number) 2 stations 2 stations 1 station 1 station

<D side end plate ass'y>

1)D side end plate ass'y No. (For F, L, S, T kit)

VVQ4000 — 3A — 1 -Electrical entry F, L, T, S kit L **F**⁽¹⁾ F kit (Connector side) C kit (Plug lead) С Option of Standard W⁽²⁾ Enclosure IP65 For exhaust cleaner mounting CD SD Built-in silencer, Direct exhaust Note 1) D-sub connector is not attached. Note 2) Drip proof specification of F kit is not available.

<Manifold block ass'v>





SI unit model

FX323-S001

EX123-SMB1

EX124-SMB1

EX123-STA1

EX123-SSH1

EX123-SUW1

EX123-SUH1

EX123-SSL1

EX123-SSL2

EX123-SFU1

EX124-SDN1

EX124-SCS1

EX124-SCS2

EX124-SMJ1

EX220-SMB1

EX220-IE1

Withc

With

SI un

SI uni

SI un

SI un

SI un

SI un

SI un

SI un

SI unit for T-LINK Mini System (Fuji Electric)

SI unit for 16 point Compo Bus/S (OMRON) SI unit for 8 point Compo Bus/S (OMRON)

Input unit (\Box : 0 to 2 stations)

SI unit for Device Net and Compo Bus/D (OMRON)

SI unit for CC-LINK(2 power supply systems) (Mitsubishi Electric)

SI unit for MELSECNET/MINI-S3 Data Link System (Mitsubishi Electric)

Note 1) Attached tie-rod for additional stations (2 pcs.) and lead wire ass'y

Note 2) Drip proof F kit is not available.

Used model symbol

0

A В

BB

С

D

F1

н

J1

J2

κ

Q

R1

R2

V

BM□

<SI unit>

Style

For output

For in/output

SI unit part number

<U side end plate ass'y>

2 U side end plate ass'y No. (For F, L, S, T kit)

′VQ4	4000 — 2A — 1 — Electrical entry						
L		F, L, T, S kit					
F (1)	F	F kit (Connector side)					
С		C kit (Plug lead)					
	Option						
	—	Standard					
	W (2)	Enclosure: IP65					
	CU	For mounting exhaust cleaner					
	SU	SU Built-in silencer box (Direct exhaust)					
	Note 1) D-sub connector is not attached. Note 2) Drip proof specification of F kit is not abailable.						

<Replacement parts for manifold block>

Replacement parts

V

No.	Part No.	Description	Material	Qty.	VFR	
4	VVQ4000-80A-1	Gasket	NBR	10		
(5)	VVQ4000-80A-2	Gasket	NBR	10	VF /	
6	VVQ4000-80A-4	Clip	Stainless steel	10	VP4	
Note) A set of parts containing 10 pcs, each are enclosed						

Port size

Applicable tube ø8

Applicable tube ø10

Applicable tube ø12

C8

C10

C12

لكر

<Fitting ass'y>

7 Fitting ass'y No. (For cylinder port)



VQ
VQ4
VQZ
VQD
VZS
VFS
VS

SY

SYJ

SX

VK

VZ

VF

	N7	Applica	ble tube ø1/4	
	N9	Applica	ble tube ø5/16	VFS
	N11	Applica	ble tube ø3/8	
	\mathcal{O}	Note) 10 po	cs. per set.	VS
	-			VS7
Description			Note	
but SI unit				_
general type SI unit				
it for MELSECNET/MINI-S3 Data Link System (Mitsubishi Electric)				
t for MELSECNET/MINI-S3 Data Link System (2 power supply systems)(I	Vitsubisł	ni Electric)		
it for SYSBUS Wire System (OMRON)				_
it for Satellite I/O Link System (Sharp)				_
it for 16 point Uni-wire System (NKE)				_
it for 16 point Uni-wire H System (NKE)				_
it for 16 point S-LINK System (Sunx)				_
it for 8 point S-LINK System (Sunx)				_

For input/output

Optional Specifications

External Pilot Specifications

When the supply air pressure is:

- \cdot lower than the required minimum operating pressure 0.15 to 0.2MPa
- Opposite air supply (R port supply), cylinder supply (A and B port supply)
 Vacuum specification (In this case, contact SMC.) for the solenoid valve, specify an external pilot model. Order a manifold or valve by suffixing the external pilot specification, "R". For manifold and option, external pilot specification is standard.

Inch-size One-touch Fittings

The valve with inch-size One-touch fittings is shown below.

How to Order Manifold



Thread other than Rc

NPT, NPTF, G threads are available. Suffix each symbol after model No.

How to Order Valve



How to Order Manifold



How to Order Sub-plate and Option



How to Order Valve



Pressure Specifications

valve constru	JCtion	Metal seal	Rubber seal	
Operating pressu	ure range	Vacuum to 1.0MPa		
(4)	Single		0.2 to 1.0MPa (0.2 to 0.7MPa)	
External pilot pressure range	Double	0.15 to 1.0MPa (0.15 to 0.7MPa)	0.15 to 1.0MPa (0.15 to 0.7MPa)	
	3 position		0.2 to 1.0MPa (0.2 to 0.7MPa)	

and external pilot

Note 1) (): Value for low wattage style (0.5W)

Combination of manifold options shown below and external pilot specification is not possible.

Release valve spacer	VVQ4000-24A-□D
Built-in silencer, direct exhaust	VV5Q4□-□□-S ^U _D
For exhaust cleaner mounting	VV5Q4□-□□□-CD
Manifold with control unit	VV5Q4□-□□□ Control unit model No.
Double check spacer with residual pressure exhaust	VVQ4000-25A- ¹ ₅