

## Installation and Maintenance Manual VQ4000 Series Metal/Rubber Seal Solenoid Valve, Base Mounted Type

For future reference, please keep this manual in a safe place

his manual should be read in conjunction with the current product catalogue

#### Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by label of "Caution", "Warning" or "Danger" To ensure safety, be sure to observe ISO4414 (Note1), JIS B 8370 (Note2) and other safety practices.

Note 1: ISO 4414: Pneumatic fluid power - Recommendations for the application of equipment to transmission and control systems. Note 2: JIS B 8370: Pneumatic system axiom.

- ▲ CAUTION : Operator error could result in injury or equipment damage.
- WARNING: Operator error could result in serious injury or loss of life.
- **DANGER** : In extreme conditions, there is a possible result of serious injury or loss of life.

### 

1. The compatibility of pneumatic equipment is the responsibility of the person who designs the pneumatic system or decides its specifications.

Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or after analysis and/or tests to meet your specific requirements.

2. Only trained personnel should operate pneumatically operated machinery and equipment. Compressed air can be dangerous if an operator is unfamiliar with it. Assembly, handling or repair of pneumatic systems should

- be performed by trained and experienced operators. 3. Do not service machinery/equipment or attempt to
- remove component until safety is confirmed. Inspection and maintenance of machinery/equipment should only be performed after confirmation of safe locked-out
- control positions. 2) When equipment is to be removed, confirm the safety process as mentioned above. Switch off air and electrical supplies and
- exhaust all residual compressed air in the system. 3) Before machinery/equipment is re-started, ensure all safety measures to prevent sudden movement of cylinders etc. (Bleed air into the system gradually to create back-pressure, i.e. incorporate a soft-start valve).
- 4. Contact SMC if the product is to be used in any of the following conditions:
  - 1) Conditions and environments beyond the given specifications, or if product is used outdoors. 2) Installations in conjunction with atomic energy, railway, air
  - navigation, vehicles, medical equipment, food and beverage, recreation equipment, emergency stop circuits, press applications, or safety equipment.
- An application which has the possibility of having r 3) effects on people, property, or animals, requiring safety analysis.



#### Ensure that the air supply system is filtered to 5 micron.

stanuaru specifi	leations								
	Type of seal		Metal seal	Rubber seal					
	Fluid		Air, inert gas	Air, inert gas					
10	Max. operating pressure N	ote 3)	1.0MPa (	0.7MPa)					
Suo		Single	0.15MPa{1.5kgf/cm <sup>2</sup> }	0.20MPa{2.0kgf/cm <sup>2</sup> }					
Valve specificati	Min. operating pressure	Double	0.15MPa{1.5kgf/cm <sup>2</sup> }	0.15MPa{1.5kgf/cm <sup>2</sup> }					
		3 position	0.15MPa{1.5kgf/cm <sup>2</sup> }	0.20MPa{2.0kgf/cm <sup>2</sup> }					
	Proof pressure		1.5MPa{15kgf/cm <sup>2</sup> }						
	Ambient and fluid temperature		-10 to 50°C Note 1)	-5 to 50°C Note 1)					
	Lubrication		Not required						
	Manual override		Pushing type/slotted locking type (Tool type) Option						
	Shock/Vibration resistance		150/30 m/s <sup>2</sup> Note 2)						
	Enclosure		Dust proof (available to IP65 type)						
	Coil rated voltage		12, 24 VDC and 100, 110, 200, 220VAC (50/60Hz)						
suc	Allowable voltage		±10% of rated voltage						
ati	Coil insulation		Class B						
Sific		24VDC	1WDC (42mA), 0.5	WDC (21mA) Note 3)					
bec		12VDC	1WDC (83mA), 0.5	WDC (42mA) Note 3)					
19	Power consumption	100VAC	Inrush 1.2VA (12mA),	Holding 1.2VA (12mA)					
oue	(current value)	110VAC	Inrush 1.3VA (11.7mA),	Holding 1.3VA (11.7mA)					
SOLE		200VAC	Inrush 2.4VA (12mA), I	Holding 2.4VA (12mA)					
0,		220VAC	Inrush 2.6VA (11.7mA), I	Holding 2.6VA (11.7mA)					

Note 1: Use dry air to prevent dew condensation when operating at low temperature.

Note 2: Shock resistance: . No malfunction from test using drop impact tester, to exist and right angle direction of main valve and armature, each one time when energised and de-energised.

. No malfunction from test with 8.3 to 2000Hz 1 sweep, to axis and right angle direction of main valve Vibration resistance: ..... and armature, each one time when energised and de-energised.

Fig 1

Note 3: Values in case of low power consumption model (0.5W).

## Installation

Ensure all air and power supplies are ISOLATED before commencing installation.

DO NOT use these valves in explosive atmospheres.

Protect these valves from oil and water splashes. If it is intended to energise a valve for an extended period of time

please consult SMC These valves are NOT intended to be used as emergency shut-off

valves.

Double solenoid valves must be energised for AT LEAST 0.1 second to ensure correct operation. DO NOT use these Valves down to -10°C.

Mount double solenoid, 3 position valves with the spool horizontal. Ensure valves are operated within the specification range. All valve series are NON-POLAR.





VQ4400 (A)

ST TIE

Note



# Construction parts

#### No. Description Material Note 0 Aluminum die-castin Body Aluminium, NBR 0 Spool/valve 0 Pistor

AN THE





Note

\*: Coil rated voltage

Example: 24VDC: 5

#### Replaceable parts

4	Pilot valve assembly	VQZ111P-D	*: Coil rated voltage
			Example: 24VDC: 5



#### Model Number of Series solenoids Single Double VQ4000 Closed centre Exhaust centre Pressure

Fig 4

Note 1: Note 2: Note 3: (): Weight of plug lead unit Table: Without sub-plate

centre

## Manifold specifications

Series	Base No.	Connection type	Port	rting specificat Port s	ions ize Note)	Max. applicable number of	Applicable valve	Weight 5 stations
			location	P, K	A, B	stations solenoid		(Kg)
VQ4000	VV5Q41-□ □ □	F kit D-sub connector	Side	Rc1/2 Option	C8(for ø8) C10(for ø10) C12(for ø12)	F, T kit 12 stations		2.24
		T kit-terminal box			Rc1/4	L kit	VQ4 🗆 00	• L kit
		L kit-lead wire		[Built-in silencer	Rc3/8	16 stations	VQ4 🗆 01	• Except
		S kit-serial transmission		(Direct exhaust)		S kit		solenoid
			Bottom		Rc1/4	10 stations		valve weight

#### Cable assembly for F kit (Fig 6) Wire colour table by terminal number of D-sub connector cable assembly:

Terminal No.	Lead wire colour	Dot making
1	Black	-
2	Brown	-
3	Red	-
4	Orange	-
5	Yellow	-
6	Pink	-
7	Blue	-
8	Violet	White
9	Grey	Black
10	White	Black
11	White	Red
12	Yellow	Red
13	Orange	Red
14	Yellow	Black
15	Pink	Black
16	Blue	White
17	Violet	-
18	Grey	-
19	Orange	Black
20	Red	White
21	Brown	White
22	Pink	Red
23	Grey	Red
24	Black	White
25	White	-

Fig 2

ogativo	No.	Descrip
special	0	Bod
special	0	Spool/S
	0	Pisto
	Replaceal	ble parts

<u>भगानगार</u>ू Construction parts ption Material Aluminum die-castin Stainless steel Sleeve

3	Piston	Resin				
Replaceal	Replaceable parts					
4	Pilot valve assembly	VQZ111P-				



Material

Stainless steel

Resin

VQZ111P-D

Aluminum die-castir

No.	Description	Material	Note
0	Body	Aluminum die-casting	
0	Spool/valve	Aluminium, NBR	
8	Piston	Resin	

Pilot valve assembly VQZ111P-□ *: Coil rated voltage	0	Pilot valve assembly	VQZ111P-D	*: Coil rated voltage Example: 24VDC: 5
				Example: 24VDC: 5

Construct	non (Flug lead drift) (i
	Metal seal type

No. Description

Pilot valve assembly

Body

Spool/Sleeve

Piston

0

Replaceable parts

0



-		Note 1)	Response	e time ms Note 2)	Note 3)
I I I I	be	Effective area	Standard:	Low wattage	Weight
		mm <sup>2</sup> (Cv)	1W	and AC	kg
Metal seal	VQ41 5 0	36.0 (2.0)	20 or less	22 or less	0.23
Rubber seal	VQ41 g 1	39.6 (2.2)	25 or less	27 or less	(0.29)
Metal seal	VQ42 <sup>0</sup> <sub>5</sub> 0	36.0 (2.0)	12 or less	12 or less	0.26
Rubber seal	VQ42 <sup>0</sup> <sub>5</sub> 1	39.6 (2.2)	15 or less	15 or less	(0.32)
Metal seal	VQ43 5 0	32.4 (1.8)	45 or less	47 or less	(0.28)
Rubber seal	VQ43 5 1	36.0 (2.0)	50 or less	52 or less	(0.34)
Metal seal	VQ44 <sup>0</sup> <sub>5</sub> 0	36.0 (2.0)	45 or less	47 or less	0.28
Rubber seal	VQ44 <sup>0</sup> <sub>5</sub> 1	39.6 (2.2)	50 or less	52 or less	(0.34)
Metal seal	VQ45 <sup>0</sup> / <sub>5</sub> 0	36.0 (2.0)	45 or less	47 or less	0.28
Rubber seal	VQ45 <sup>0</sup> <sub>5</sub> 1	39.6 (2.2)	50 or less	52 or less	(0.34)

Value for valve on sub-plate and cylinder port Rc3/8

As per JISB8375-1981 (Supply pressure: 0.5MPa (5.1 kgf/cm²); with indicator light and surge voltage suppresser; clean air).

With sub-plate: Add 0.41 kgf for plug-in type, 0.30 kgf for plug lead type.

#### Wiring specification (Fig 8)

When the A side solenoid of the 1st station as No. 1 (meaning, to be connected to No. 1 terminal), wires are connected in the order indicated by the arrow in the DWG without making any terminal vacant. Max. station No. is 16 stations.



### Fig 8

T kit (Terminal box) (Fig 9)





Fig 7



SI Unit output and coil numbering (Fig 13)





SA type Applicable to series EX300	SB type Mitsubishi Electrics Applicable to data link MELSECNET/MINI-S3	
LED name Details TRD Lit during data reception RUN/ERR Flashing when received data is normal; Lights when data is abnormal	LED name         Details           POWER         Lights when power is turned ON           RUN         Lights when data transmission with the master station is normal           RD         Lit during data transmission           SD         Lit during data transmission           ERR.         Light turns off when the error is corrected	
T unit Connection with I/O card of PLC maker permits serial trans- mission. EX300-TIMB1 For Mitsubishi Electric EX300-TTA1 For OMRON EX300-TFU1 For Fuji Electric EX300-TO1 For general purpose * Control point of T unit is 32 points per 1 unit. 16 output points	Master station Sequencer made by Mitsubishi Electric MELSEC-A series AJ71PT32-S3, AJ71T32-S3 A15J71PT32-S3 * 64 stations max. connected to remote I/O station (512 points max.) 16 output points. 2 occupation stations	

\* Refer to Operation Manual for further details of specifications and handling.

SC type OMRON models	SD type Sharp models		
Applicable to SYSBUS wire system	Applicable to Satellite I/O link system		
	LED name Details		
LED name Details	POWER It lights when power is turned ON.		
RUN It lights when transmission is normal	RUN It lights when power is turned ON and		
and PLC is in the operation mode	slave stations are in normal operation		
T/R It blinks when transmission is normal	ERROR It lights when slave station switch setting is		
ERR It lights when transmission is abnormal	abnormal, communication is abnormal,		
	master station's PLC is at rest, and slave		
	Station unit is out of order		
	K.SET II IIGHTS WHEN CONTON INPUT IS MADE TO HOLD the master station		
Master station unit OMRON models: PLC, SYSMAC C (CV) series C500-RM201, C200H-RM201 * 32 units max, transmission terminal connection (512 points max.) 16 output points	Master station unit Sharp model: PLC New Satellite W Series ZW-31LM New Satellite JW Series JW-23LM, JW-31LM * 31 units max., connection of I/O slave station (504 points max.) 16 output points		

Mixed wiring is optional. Use the manifold specification form to specify. <Wiring example 2> Single/Double mixed wiring (Option) U side D side U side 1 0 0 8 4 0 N Station 5 4 3 ŝ unit Single ġ S 0-N0 4



		12 SG
Note	MELSECNET-MINI-S3 data link system Master unit: AJ71PT32-S3 AJ71T32-S3 A1SJ71PT32-S3	SI unit Output points 16 points, Input points 16, 4 occupation stations * If signal from external input equipment should be needed, I unit is necessary. I unit Interface unit for transmission of the signal from external input equipment to SI unit. Connecting points is 8.2 I units. Can connect to SI unit.

## ∢ 12 11321109876 Power supply for external input equipment input 1 None 2 Power supply for external External 3 0V input equipment 4 Input signal External input equipment signal 3 wire 2 wire ing Yellow Blac e Brow ed) (Black)(WI nput l unit circuit I unit circuit a Example Example 24V 24V lg of Niri 24VDC 24VDC 1. Pass electrical wire into insertion hole of plug wire. 3. Cut the rest of electric wire by nipper. When cutting the wire, hold up the rest such as figure and cut into bnic V form groove. Cut it at slant position. Cut Č--== 2. Do pressure welding by pliers etc. When pressure welding, press the cover until it is locked. \* External connection specification Connector applicable wire Conductor ø0.4mm, ø0.5mm, ø0.65mm. Each cover Pressure welding How ø2.0mm or less



Fig 16

U side

Manifold sp	pecifications								
Series	Base No.	Type of electrical connector	A, B port location	Porting specifications Port size ™ P, R	A, B	opplicable stations	Applicable solenoid valve	5 station weight (kg)	
VQ4000	VV5Q45-□ □ □	C kit-Grommet	Side	Rc1/2 C8 C10 Option C12 Built-in silencer F (Direct exhaust)]	(for ø8) (for ø10) (for ø12) Rc1/4 Rc3/8	2 to 16 stations	VQ4 □ 50 VQ4 □ 51	2.0 Except solenoid valve weigh	
Manifold o	otions (Fig 17)								
Blank plate	assembly			SUP stop valve interfa	ace				
VVQ4000-10 VVQ4000-10	) DA-1 (Plug-in type) DA-5 (Plug lead type			VVQ4000-37A-1 (Plug VVQ4000-37A-5 (Plug	j-in type) j lead type)				
It is mounted removed for r	on a specific position on a specific position on a specific position of the specific position of	of a manifold block from which h a spare valve is planned to be	a valve is e mounted.	Supply air to each valve i	is blocked indiv	vidually by SU	P stop valve inte	rface.	
$\begin{array}{c} (\lambda) (B) \\ 4 & 2 \\ \hline \\$									
Individual S	LIP spacer			Release valve interfac	ce: For D side	mountina			
VVQ4000-P- VVQ4000-P-	VVQ4000-P-1-03 (Plug-in type) VVQ4000-P-5-03 (Plug-in type)				VVQ4000-24A-1D (Plug-in type) VVQ4000-24A-5D (Plug lead type)				
Mount individual SUP spacer on manifold block, this permits to have individual supply port on each valve. $1(P) \longrightarrow 2(R)$ $1(P) \longrightarrow 3(R2)$ Pluo in type Pluo lead type Citruit			e individual	Combination of VQ41  Given Combination of VQ41  Solution (single) and release value interface can be used as air release value interface can be used as air release value. Note: Mounting on 2 position double and 3 position is not possible.					
Individual E	XH spacer			SUP/EXH block station	n				
VVQ4000-R VVQ4000-R Mount individ exhaust port	1-03 (Plug-in type) 5-03 (Plug lead typ dual EXH spacer on ma on each valve. (Commo	e) nifold block, this permits to hav n EXH. type)	e individual	VVQ4000-16A When high and low press block plate is inserted be	ssures are simul etween stations	Itaneously su s under differe	oplied to one ma ent pressures.	nifold, a	
Plug-in type Plug lead type			4 (A)	SUP block plate>       SUP block plate> <exh block="" plate=""></exh>					
Interface sp	eed controller			Built-in silencer, direc	t exhaust				
VVQ4000-20A-1 (Plug-in type) VVQ4000-20A-5 (Plug lead type)				VV5Q4 <sup>1</sup> / <sub>5</sub> - □□□-SD (D side exhaust) VV5Q4 <sup>1</sup> / <sub>5</sub> - □□□-SU (U side exhaust)					
Actuator speed is controlled by throttling exhaust air flow.			4 (A)	Exhaust port is located on the top side of end plate of manifold. Silencer is built-in, it is effective to fine noise reduction. (Noise reduction 35dB or more). Note: If a lot of drain is generated at air supply source, both of exhaust air and drain are exhausted. SD type SU type SU type				ncer is or more). Ist air and	









#### Manifold mounted plug lead unit (Fig 16)

#### Manifold complete with control unit (Fig 18)



Plug-in type

### Fig 18

## **A**CAUTION

When installing an air filter with auto drain/manual drain, the air filter MUST be mounted below.

### Manifold specification

Manifold		Porting specification			Applicable max.	Applicable
lviariiruiu basa tupa	Type of connection	Port	Port size		stations	solenoid
base type		location	P, R	A, B	Note)	valve
VV5Q41 -	F kit - D sub connector T kit - Terminal block box L kit - Lead wire	Side	Rc1/2	C8 (for ø8) C10 (for ø10) C12 (for ø12) Rc1/4, Rc3/8	F, T kit 14 stations	VQ4 □ 00 VQ4 □ 01
VV5Q45 	C kit - Connector kit	Bottom	Option [Built-in silencer Direct eject]	Rc1/4	(13 stations) L, C kit 18 stations (17 stations)	VQ4 □ 50 VQ4 □ 51

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

### Control unit specification

#### Air filter (with auto drain/With manual override drain) Filtration Regulator Setting pressure 0.05 to 0.85MPa (Secondary pressure) {0.51 to 8.71 kgf/cm2 Pressure switch Setting pressure range (at OFF) 0.1 to 0.6MPa {1.0 to 6.1 kgf/cm2} Hysteresis .08MPa {0.82 kgf/cm<sup>2</sup>} or less Contact point construction Light Max. contact point capacity LED light red 2VAAC 2WD0 50mA at 24VAC. DC or less Max. operating 20mA at 100VAC, DC current Air release valve (single only) 0.15 to 1MPa Operating pressure range (0.15 to 0.7MPa)

Note: (): Low wattage

### How to use control unit (Fig 18)

#### <Construction, piping>

- Supply pressure (Po) is adjusted through regulator with filter, it is supplied to manifold base side through release valve 2 (normally ON. This is to 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 piped at secondary side of release valve 2. (Release valve 2 is operated at energising). Since there are 4V internal voltage drop, confirmation of ON, OFF by tester, etc. cannot be carried out.

#### <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 mounted, tightening torque of bolt is 0.8 to 1.2Nm (8 to 12 kgf/cm)

#### External pilot specifications (Fig 19)

When the supply air pressure is

- · Lower than the required minimum operating pressure 0.15 to 0.2MPa {1.5 to 2.0 kgf/cm2}.
- 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.



### Control unit option

		DI 1			
pacer for	<plug-in type=""></plug-in>				
elease valve	VVQ4000-24A-1D				
Note 2)		<plug lea<="" th=""><th colspan="2">ad type&gt;</th></plug>	ad type>		
		)-24A-5D			
ressure switch		IS1000	)P-2-1		
	Regulato	r with filter	MP2-3		
llank plate	Pressure	switch	MP3-2		
Note 3)	Release	Plug-in	VVQ4000-24A-10		
	valve	Plug lead	VVQ4000-24A-15		
ilter	11104 50				
lement	11104-5B				

Rated voltage: 24VDC to 100VAC. Internal voltage drop: 4V Note 1. Combination of VQ41 

(single) and release valve spacer Note 2: can be used as air release valve.

Note 3: Plug lead type can not be mounted later.



#### Secondary side piping Primary side piping





Circuit of control unit manifold

Fig 18

Pressure specifications

Valve construction

Operating pressure range		Vacuutti to 1.0 ivira {10.2 kgi/citi }			
Note:	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)		

Note: (): Value for energy saving type (0.5W)

## Exploded view of manifold (Fig 20)



Note 1: Electrical entry can not be changed. Note 2: Manifold block is used integrated 2 stations type. Odd number station is added 1 pc. manifold block at U side, even number station is used 2 pcs.

Non-locking

push type

(tool type)

### Fig 20

When installing fitting, etc., follow the given torque levels below

Tightening torque						
Thread	Appropriate tightening torque N-m (kgf-cm)					
Rc1/8	7 to 9 (70 to 90)					
Rc1/4	12 to 14 (120 to 140)					
Rc3/8	22 to 24 (220 to 240)					
Rc1/2	28 to 30 (280 to 300)					

### Solenoid valve manual override operation (Fig 21)

## 

Exercise extreme care when operating manual override buttons as connected equipment will commence operation.

#### Non-locking push type (tool type)

Tightening torque for fittings

Push down on the manual override button with a small screwdriver until it stops.

Release the screwdriver and the manual override will return.

### Slotted locking type (tool type)

Push down on the manual override button with a small screwdriver until it stops. While down, turn clockwise by  $90^\circ$  to lock it. Turn it counterclockwise to release it.

## ▲ CAUTION

Slotted locking type manual overrides will remain in the 'locked' position. Ensure the override is 'reset' to the OFF position after checks are completed



The combination of manifold specification shown below and external pilot specification IS NOT POSSIBLE.

Release valve spacer VVQ4000-24A-D Manifold with control unit 

## Fig 22

Plug lead type Installing/Removing plug connector with lead wires

- lever hook into the groove and lock into place. 2. To remove the connector, push down on the lever and remove the
- hook from the groove.

### Connection of lead wire

#### Plug-in sub plate (with terminal block) (Fig 23)

mounted



### Fig 23

vlaguz

Terminal block marking Model No.	A	COM	В	<del>_</del> T
VQ410 1	A side	COM	-	-
VQ420 1	A side	COM	B side	-
VQ4 <sup>3</sup> / <sub>6</sub> 0 <sup>0</sup> <sub>1</sub>	A side	СОМ	B side	-

Note 1: No polarity. Possible to use as -COM. Note 2: Double wiring is done for sub-plate VQ410 1

### Plug lead: Grommet type (Fig 24)

Connect each corresponding wire.





Fig 24



Bore ø5











# Metal seal Rubber seal 1Pa)

#### Installing/Removing plug lead type (Fig 22)

1. To install the connector simply insert it onto the pins, push the

Note: Do not use excessive force to remove connector as this might cause loosening of the wire connections inside the connector.

Remove junction cover 1 of sub-plate, terminal block box 2 is

#### Markings shown below are on terminal block box, connect each power





### Installation/Removal of LED cover (Fig 25)

#### Removal

Open the cover by inserting a small flat head screwdriver into the slot on the side of the pilot assembly (see drawing below), lift the cover out about 1mm and then pull off. (If the cover is pulled off at an angle damage may occur to the O-ring and/or the pilot valve).

#### Installing

Insert the cover straight onto the pilot assembly making sure not to contact the pilot valve and lock into place.



#### Fig 25

#### Internal wire specification (Fig 26)



#### Fig 26

#### Changing the pilot valve (Fig 27)



#### Removal of pilot valve

#### 1. Remove the LED cover (see Fig. 25). Then remove the mounting screws that attach the valve to the pilot assembly.

2. Remove the light circuit board by pulling it straight off the connector pins.

- Installing pilot valve 1. Insert LED circuit board onto the connector pins on the pilot valve. 2. Confirm gasket is on the pilot valve and tighten the mounting screws to the torque listed below.
- Note: In case of double solenoid the light circuit board must be mounted on the correct pilot valve: A side is orange, B side is green. (LED circuit boards are marked with an "A" or "B". See Fig 28



### Fig 28

Light circuit No. VQZ100-47-A VQZ100-47-B SOL.A SOL.B

#### Valve Removal/Refitting (Fig 29)



## Fig 29

Removal Disconnect electrical connector from valve. Loosen and remove valve

mounting screws 1. Lift valve 3 off the manifold 2, ensure gasket 4 is located on the manifold.

# **Refitting** Refitting is the reverse of the above procedure.

## $\triangle$ caution

Ensure that the valve mounting screws are tightened to the torque figures shown below.

Suitable tightening torque N-m (kgf-cm) 0.8 to 1.2 (8 to 12)

### Voltage leakage (Fig 30)

## $\triangle$ caution

When a C-R device (surge voltage suppresser) is incorporated for the protection of a switching device, note that the voltage leakage will increase if the leakage is passed through the C-R device.



DC coil 2% or less of rated voltage AC coil 12.5% or less of rated voltage

## Replacing Push-in Fittings (fig 31)

Remove the corresponding valve (Fig 29) Remove the retaining clip (Fig 31) Remove the fitting (Fig 31) Replace the fitting (Fig 31) Replace the retaining clip (Fig 31) Replace the valve (fig 29)



## Fig 31

Should you require additional information please contact your local SMC office, see below:

When you enquire about the product, please contact the following

SMC Corporation:						
ENGLAND	Phone 01908-563888	TURKEY	Phone 212-2211512			
ITALY	Phone 02-92711	GERMANY	Phone 6103-402-0			
HOLLAND	Phone 020-5318888	FRANCE	Phone 01-64-76-10-00			
SWITZERLAND	Phone 052-34-0022	SWEDEN	Phone 08-603 07 00			
SPAIN	Phone 945-184100	AUSTRIA	Phone 02262-62-280			
	Phone 902-255255	IRELAND	Phone 01-4501822			
GREECE	Phone 01-3426076	DENMARK	Phone 8738-0800			
FINLAND	Phone 09-68 10 21	NORWAY	Phone 67-12 90 20			
BELGIUM	Phone 03-3551464	POLAND	Phone 48-22-6131847			