

Instruction Manual


Dual Microswitch PVPK Valves

Description	Item Number
Dual Microswitch PV25PKA Valve, 1/8 BSP	C413-17-000
Dual Microswitch PV25PKA Valve, 1/8 NPT	C413-18-000
Dual Microswitch PV40PKA Valve, 1/8 BSP	C414-17-000
Dual Microswitch PV40PKA Valve, 1/8 NPT	C414-18-000
Dual Microswitch PV50PKA Valve, 1/8 BSP	C415-10-100
Dual Microswitch PV50PKS Valve, 1/8 BSP	C415-15-100
Dual Microswitch IPV25PKA Valve, 1/8 BSP	C416-26-000
Dual Microswitch IPV40PKA Valve, 1/8 NPT	C416-46-000



Material Declaration

In accordance with the requirements of the Chinese regulatory requirement on the Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products Order No. 32 (also known as 'China RoHS2') and SJ/T 11364 Marking for the Restricted Use of Hazardous Substances in Electronic and Electrical Products:

Product	Product Label	Meaning
C41317000 Dual Microswitch PV25PKA Valve, 1/8 BSP C41318000 Dual Microswitch PV25PKA Valve, 1/8 NPT C41417000 Dual Microswitch PV40PKA Valve, 1/8 BSP C41418000 Dual Microswitch PV40PKA Valve, 1/8 NPT C41510100 Dual Microswitch PV50PKA Valve, 1/8 BSP C41515100 Dual Microswitch PV50PKS Valve, 1/8 BSP C41626000 Dual Microswitch IPV25PKA Valve, 1/8 BSP C41646000 Dual Microswitch IPV40PKA Valve, 1/8 NPT		This product contains hazardous substances in at least one of the homogeneous materials used which are above the limit requirement in GB/T 26572 as detailed in the declaration table below. These parts can safely be used for the environmental protection use period as indicated.

材料成分声明 Materials Content Declaration

部件名称 Part name	有害物质 Hazardous Substances					
	铅 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Hexavalent Chromium (Cr VI)	多溴联苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
电缆/电线/连接器 Cable/wire/connector	X	O	O	O	O	O
机械部件 Mechanical Components	X	O	O	O	O	O
<p>O: 表示该有害物质在该部件的所有均质材料中的含量低于 GB/T 26572 标准规定的限量要求。 O: Indicates that the hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in GB/T 26572.</p> <p>X: 表示该有害物质在该部件的至少一种均质材料中的含量超出 GB/T26572 标准规定的限量要求。 X: Indicates that the hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T26572.</p>						

NOTE: These products are EU RoHS compliant, the following Exemptions apply:

6(b) **Lead** as an alloying element in aluminium containing up to 0.4% by weight

6(c) Copper alloy containing up to 4% **lead** by weight

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For return of equipment, complete the HS Forms at the end of this manual.

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Associated publications

Publication title

Publication number

PVPK Valves

C411-11-885

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1 INTRODUCTION

1.1 Scope

This manual provides installation and maintenance instructions for the Edwards Dual Microswitch PVPK valves. The Dual Microswitch PVPK Valves are similar in construction to the standard Edwards PVPK valves and the information in this manual therefore adds to and amends the information in the instruction manual for the standard PVPK valves.

You must therefore read this manual and the standard PVPK valves instruction manual (supplied as an associated publication with the valve) before you install and operate the Dual Microswitch PVPK Valve.

The units used throughout this manual conform to SI international system of measurement.

1.2 Description

The construction of the top-cap assembly of the Dual Microswitch PVPK Valves is different from the standard PVPK valves (see the illustrations in the PVPK valves instruction manual). The top-cap assembly of the Dual Microswitch PVPK valves has two microswitches, as shown in Figures 1 and 2.

The Dual Microswitch PVPK valves are available with either NW25, NW40 or NW50 vacuum connections and with either 1/8 BSP or 1/8 NPT pneumatic air supply connections.

Right-angled and in-line versions of the Dual Microswitch PVPK valves are available, as shown in Figures 3 and 4.

All Dual Microswitch PVPK valves have bellows sealed shafts. The PVPKA valves have aluminium bodies, and the PVPKS valves have stainless steel bodies.

1.3 Position Indication Microswitches

Note: The microswitch positions are preset and must not be adjusted.

Refer to Figures 1 and 2 in the following description.

The Dual Microswitch PVPK Valve has two microswitches (2, 3) in the top-cap (1); these microswitches are actuated by the valve-shaft (4). Both microswitches have both normally-open and normally-closed outputs.

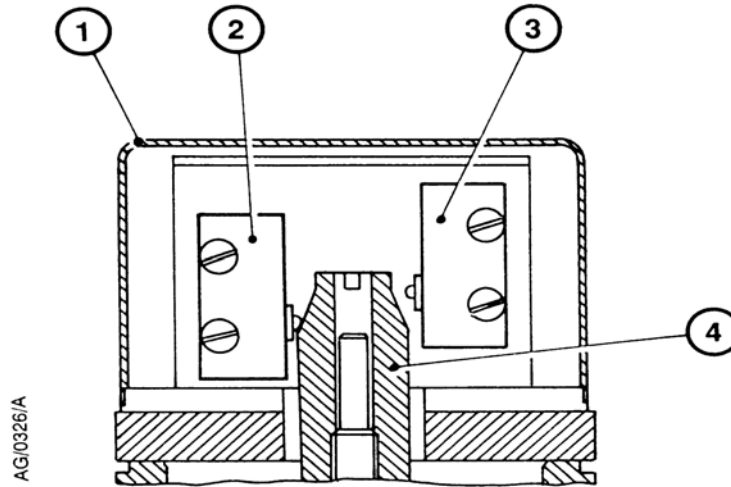
The valve-closed microswitch (2) is actuated as soon as the valve starts to open. The microswitch will remain actuated until the valve is fully closed again. The valve-opened microswitch (3) is actuated when the valve is fully opened. As soon as the valve starts to close, the microswitch is de-actuated.

You can use the outputs of the two microswitches to identify the position of the valve, as shown in Table 1.

Table 1 - Position Indications

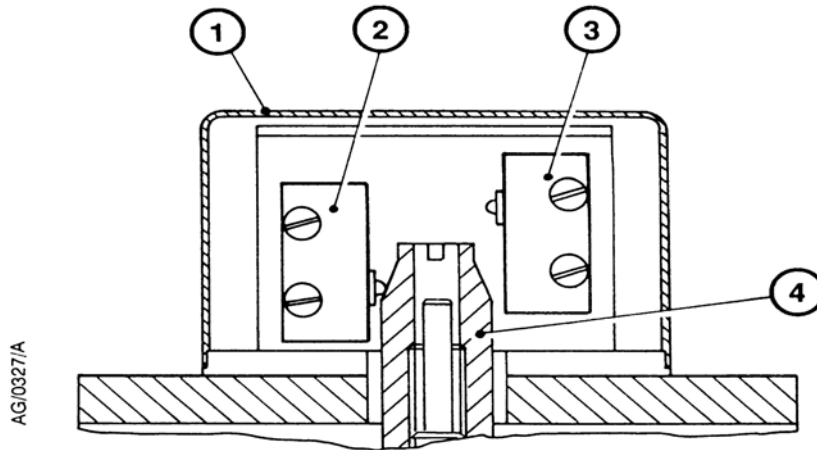
Valve-closed Microswitch	Valve-opened Microswitch	Valve Position
Actuated	Actuated	Valve fully open
Actuated	De-actuated	Valve partly open
De-actuated	De-actuated	Valve fully closed
De-actuated	Actuated	Error condition: one or both of the microswitches has failed, or the connections are faulty.

Figure 1 - Cross-section of Top Cap of Dual Microswitch PV25PK Valves



- 1. Top Cap
- 2. Valve-closed Microswitch
- 3. Valve-opened Microswitch
- 4. Valve Shaft

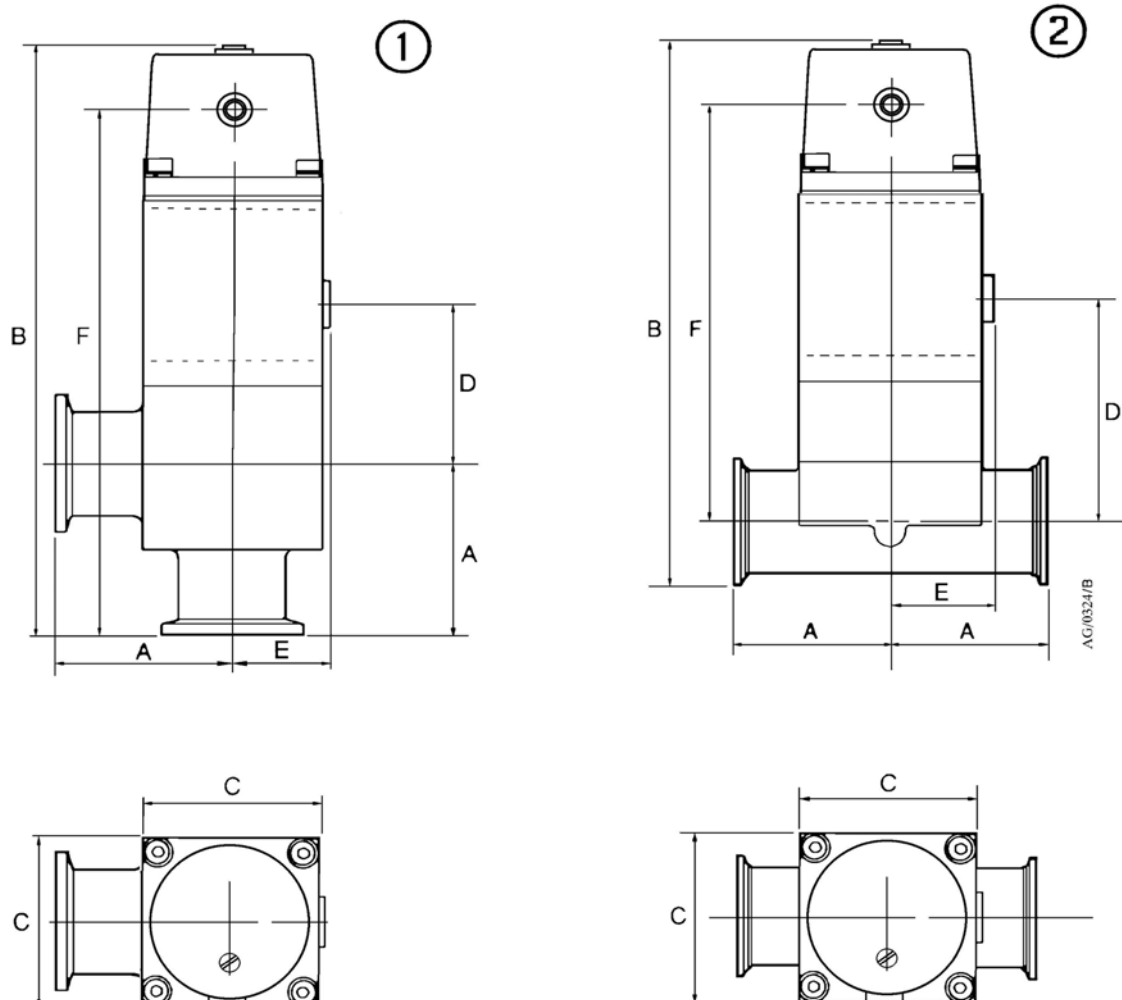
Figure 2 - Cross-section of Top Cap of Dual Microswitch PV40/50PK Valves



- 1. Top Cap
- 2. Valve-closed Microswitch
- 3. Valve-opened Microswitch
- 4. Valve Shaft

2 TECHNICAL DATA

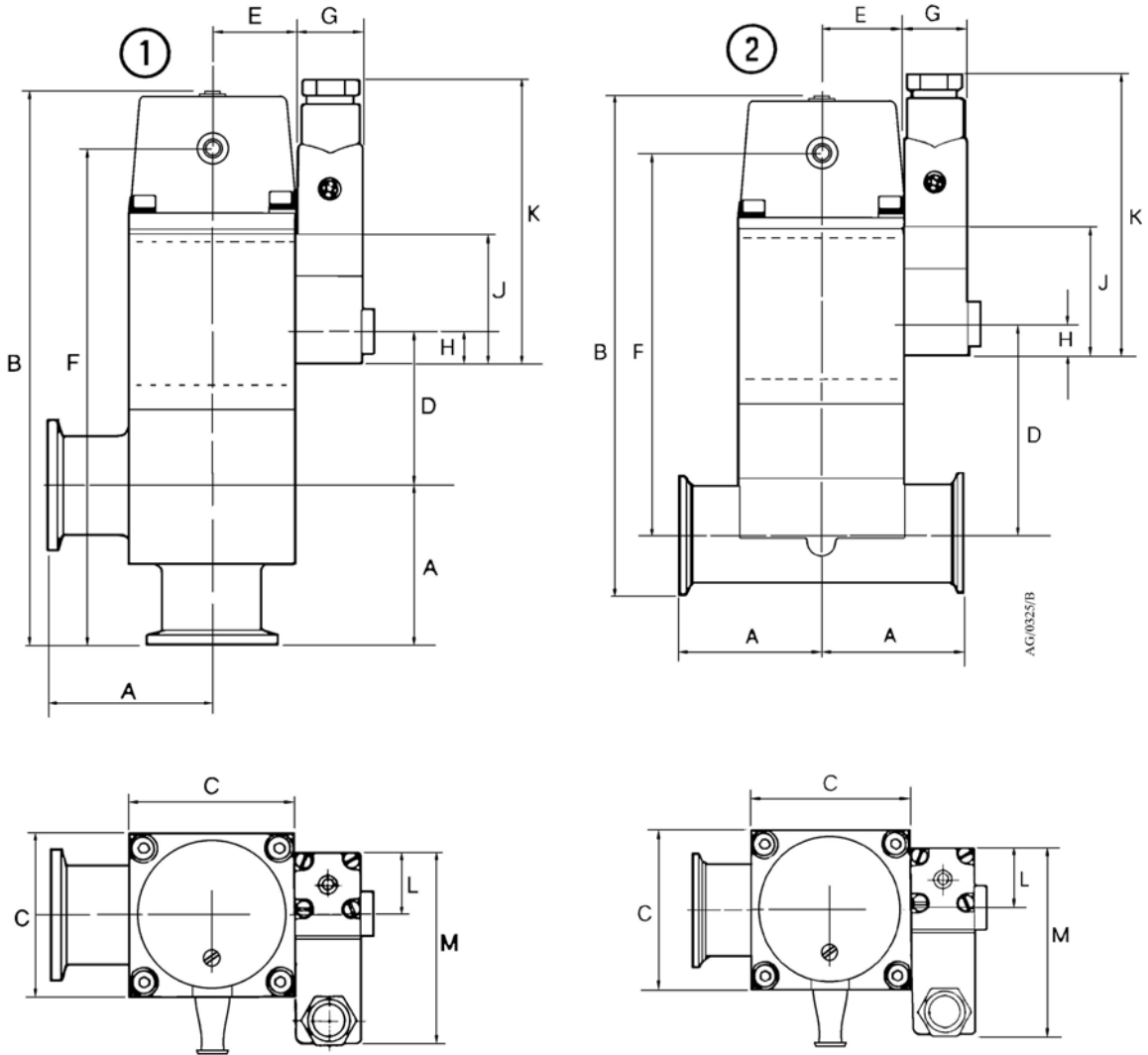
Figure 3 - Dimensions of Dual Microswitch PVPK Valve (mm)



1. Right-angled Valve
2. In-line Valve

	A	B	C	D	E	F
PV25PKA	50	172	50.8	47.6	28	151
PV40PKA	65	200	76.2	57.8	40	179
PV50PKA	70	221	90	73.3	40	199.5
PV50PKS	70	221	90	73.3	40	199.5
IPV25PKA	50	162.6	50.8	68.2	28	101
IPV40PKA	65	191.6	76.2	86.9	40	114

Figure 4 - Dimensions of Dual Microswitch PVPK Valve With Optional Control Valve (mm)



- 1. Right-angled Valve
- 2. In-line Valve

	A	B	C	D	E	F	G	H	J	K	L	M
PV25PKA	50	172	50.8	47.6	28	151	20	10	40	88	19	59
PV40PKA	65	200	76.2	57.8	40	179	20	10	40	88	19	59
PV50PKA	70	221	90	73.3	40	199.5	20	10	40	88	19	59
PV50PKS	70	221	90	73.3	40	199.5	20	10	40	88	19	59
IPV25PKA	50	162.6	50.8	68.2	28	101	20	10	40	88	19	59
IPV40PKA	65	191.6	76.2	86.9	40	114	20	10	40	88	19	59

3 INSTALLATION

3.1 Introduction

Installation of the Dual Microswitch PVPK Valves is as described in the 'Installation' section of the PVPK valves instruction manual, except for the following:

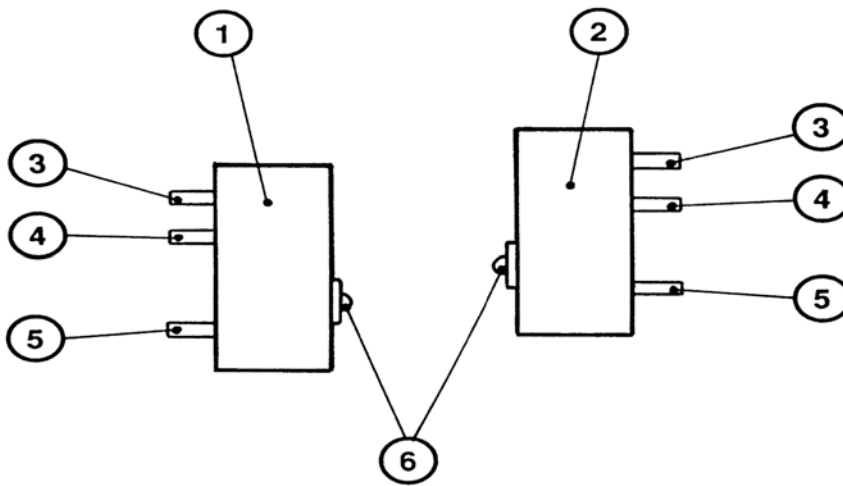
- Use suitable 1/8 BSP or 1/8 NPT couplings when you connect the pneumatic air supply.
- Connect the position indicator connections as described in Section 3.2 of this manual.

3.2 Position Indicator Connections

Connect the position indication microswitches to your control equipment as described below.

1. Remove the screw which secures the top-cap to the valve.
2. Pass your control cable through the cable gland on the top-cap.
3. Connect the wires in your control cable to the microswitches as shown in Figures 5 and 6; note that you can use either normally-open or normally-closed microswitch signals.
4. Refit the top-cap to the valve and secure with the screw removed in Step 1

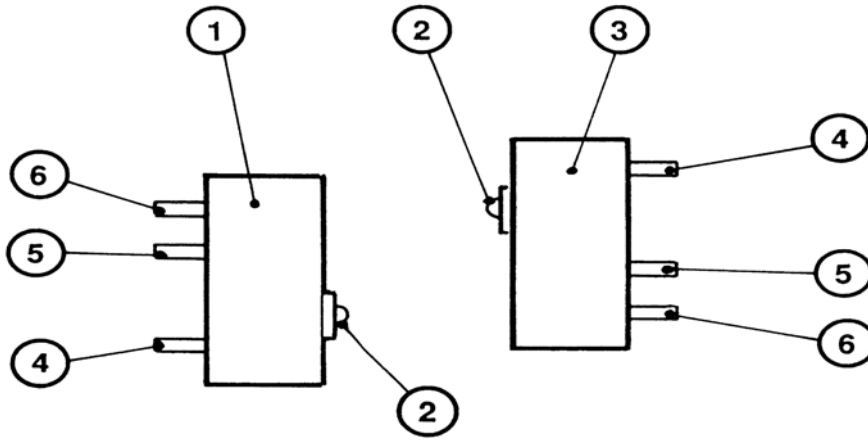
Figure 5 - Position Indicator Connections for Dual Microswitch PV25PK Valve



AG/0328/A

1. Valve-closed Microswitch
2. Valve-opened Microswitch
3. Terminal (normally closed)
4. Terminal (normally open)
5. Terminal (common)
6. Microswitch Activator

Figure 6 - Position Indicator Connections for Dual Microswitch PV40/50PK Valve



AG/0329/B

- 1. Valve-closed Microswitch
- 2. Microswitch Actuator
- 3. Valve-opened Microswitch
- 4. Terminal (common)
- 5. Terminal (normally open)
- 6. Terminal (normally closed)

4 MAINTENANCE

Maintain your Dual Microswitch PVPK Valve as described in the 'Maintenance' section of the PVPK valves instruction manual, with the following exceptions:

- The 'replace the top cap assembly' maintenance operation is not necessary; instead, replace the microswitches every 1×10^6 cycles.
- The probable causes and actions for the 'incorrect position is indicated' fault should be replaced with the information shown in Table 2.

Table 2 - Fault Finding

Fault	Probable cause	Action
No 'valve fully closed' indication when the valve is selected closed.	The valve is blocked.	Remove the valve from your system and remove the blockage.
	The microswitch connections are loose.	Remove the top-cap and check the connections.
	The microswitch has failed.	Remove the top-cap and replace the valve-closed microswitch.
No 'valve fully open' indication when the valve is selected open.	The microswitch connections are loose.	Remove the top-cap and check the connections.
	The microswitch has failed.	Remove the top-cap and replace the valve-opened microswitch.

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Return the equipment or components for service

Before you send your equipment to us for service or for any other reason, you must send us a completed Declaration of Contamination of Vacuum Equipment and Components - Form HS2. The HS2 form tells us if any substances found in the equipment are hazardous, which is important for the safety of our employees and all other people involved in the service of your equipment. The hazard information also lets us select the correct procedures to service your equipment.

We provide instructions for completing the form in the Declaration of Contamination of Vacuum equipment and Components - Procedure HS1.

If you are returning a vacuum pump, note the following:

- If a pump is configured to suit the application, make a record of the configuration before returning the pump. All replacement pumps will be supplied with default factory settings.
- Do not return a pump with accessories fitted. Remove all accessories and retain them for future use.
- The instruction in the returns procedure to drain all fluids does not apply to the lubricant in pump oil reservoirs.

Download the latest documents from www.edwardsvacuum.com/HSForms/, follow the procedure in HS1, fill in the electronic HS2 form, print it, sign it, and return the signed copy to Edwards.

Note: *If we do not receive a completed HS2 form, we will not accept the return of the equipment.*

