

# *Instruction Manual*

## Ball Valves

Description	Item Number	Description	Item Number
IBV16MKS Ball Valve	C360-00-100	IBV40MKS Ball Valve	C360-00-300
IBV16MS Ball Valve ½" BSP	C360-00-110	IBV40MS Ball Valve 1½" BSP	C360-00-310
IBV25MKS Ball Valve	C360-00-200	IBV50MKS Ball Valve	C360-00-400
IBV25MS Ball Valve 1" BSP	C360-00-210	IBV50MS Ball Valve 2" BSP	C360-00-410



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# 1 Introduction

## 1.1 Scope and definitions

This manual provides installation, operation and maintenance instructions for the following equipment:

- IBV16MKS Ball Valve
- IBV16MS Ball Valve ½" BSP
- IBV25MKS Ball Valve
- IBV25MS Ball Valve 1" BSP
- IBV40MKS Ball Valve
- IBV40MS Ball Valve 1½" BSP
- IBV50MKS Ball Valve
- IBV50MS Ball Valve 2" BSP

You must use the valves as specified in this manual.

Read this manual before you install and operate this valve. Important safety information is highlighted as WARNING and CAUTION instructions; you must obey these instructions. The use of WARNINGS and CAUTIONS is defined as below.



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### **WARNING**

Warnings are given where failure to observe the instruction could result in injury or death to people.

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### **CAUTION**

Cautions are given where failure to observe the instruction could result in damage to the equipment, associated equipment and process

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

## 1.2 Description

The IBVMKS and IBVMS Ball Valves are lever operated vacuum valves designed for long and trouble free operation.

The valves are only available with a stainless steel body in an inline configuration.

## 1.3 Construction

This range of valves is constructed of a lever attached to a stainless steel ball which is surrounded by Teflon cups which are held in compression against the ball by the screwed end flange. This flange is thread locked to prevent the valve from being dismantled as the compression on the ball is factory set.

## 2 Technical data

### 2.1 Performance

Performance data	See Table 1
------------------	-------------

### 2.2 Materials

Exposed to vacuum: Valve body Valve seats	AISI316L Stainless Steel Teflon
External only: Lever cover	PVC

### 2.3 Mechanical data

Dimensions	See Figure 1 and Figure 2
Flange size	See Table 1
Mass	See Table 1

Table 1 - Technical data

NW/BSP	Size 16	Size 25	Size 40	Size 50	
Molecular conductance	5.5 ls <sup>-1</sup>	16 ls <sup>-1</sup>	47 ls <sup>-1</sup>	86 ls <sup>-1</sup>	
Leak tightness mbar/ltrs sec	1 x 10 <sup>-6</sup>	1 x 10 <sup>-6</sup>	1 x 10 <sup>-6</sup>	1 x 10 <sup>-6</sup>	
Maximum pressure	105 PSI (7 bar)	105 PSI (7 bar)	105 PSI (7 bar)	105 PSI (7 bar)	
Ambient operating temperature range	5 to 65°C	5 to 65°C	5 to 65°C	5 to 65°C	
Mean time to failure (MTTF)	30,000 cycles	30,000 cycles	30,000 cycles	30,000 cycles	
Maximum baking temperature *	70°C	70°C	70°C	70°C	
Mass	BSP NW	0.75 kg 1.20 kg	1.50 kg 1.75 kg	2.60 kg 3.10 kg	3.60 kg 4.3 kg

\* During baking precautions must be taken to avoid physical contact with the valve.

## 3 Installation



### **WARNING**

Take appropriate safety precautions when you install this valve in a system in which dangerous process substances have been pumped.



### **WARNING**

Do not open or close this valve until it is attached by both ends to a system as the rotary ball mechanism can cause injury to any appendage inserted into the mechanism.



### **WARNING**

The handle cover is manufactured from PVC. Do not store or use near an ignition source.

### 3.1 Unpack and inspect

Remove all the packing materials and check the IBV Ball valve.

If the valve is damaged, notify your supplier and the carrier in writing within three days; state the Item Number of the valve together with your order number and your suppliers invoice number. Retain the packing materials for inspection. Do not use the valve if it is damaged.

### 3.2 Install the valve

The valve is normally supported by the pipeline it is fitted to and can be mounted in any orientation. Connect the valve to your vacuum system with standard NW coupling components or BSP male threaded pipe or adapters coated with PTFE tape.

The operating handle cannot be re-orientated as the stop mechanism will not permit it to operate or operate fully in any other assembly mode.

## 4 Operation

Move the lever until it is inline or parallel to the valve’s axis and the valve is fully open. To fully close the valve, operate the lever until it is at 90 degrees to the valve axis.

## 5 Maintenance

### 5.1 General information

The IBV Ball valves are designed to require little user maintenance, only periodic cleaning is recommended and adjustment of the valve operating shaft gland nut after 30,000 cycles approximately. There are no parts available for spares as removal and refitting of the seals requires specialised factory tooling.

### 5.2 Safety information

Observe all appropriate safety precautions when you do maintenance on a valve from a system in which dangerous process substances have been pumped.

Ensure that you do maintenance in a well ventilated area.

Do not use abrasive or reactive chemical substances to clean the valve. Do not use solvents to clean the seals.

Dispose of all components which have been contaminated by dangerous process substances in a safe manner.

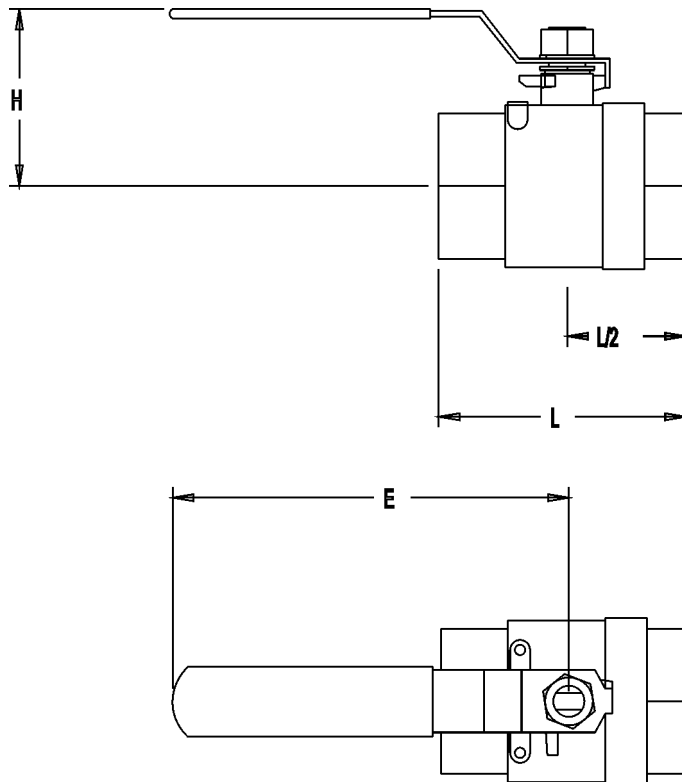
### 5.3 Fault finding

Table 2 - Fault finding

Symptoms	Check
Valve will not open	Is the valve blocked?
The valve leaks	Is the valve full of debris? Is the shaft seal nut loose?

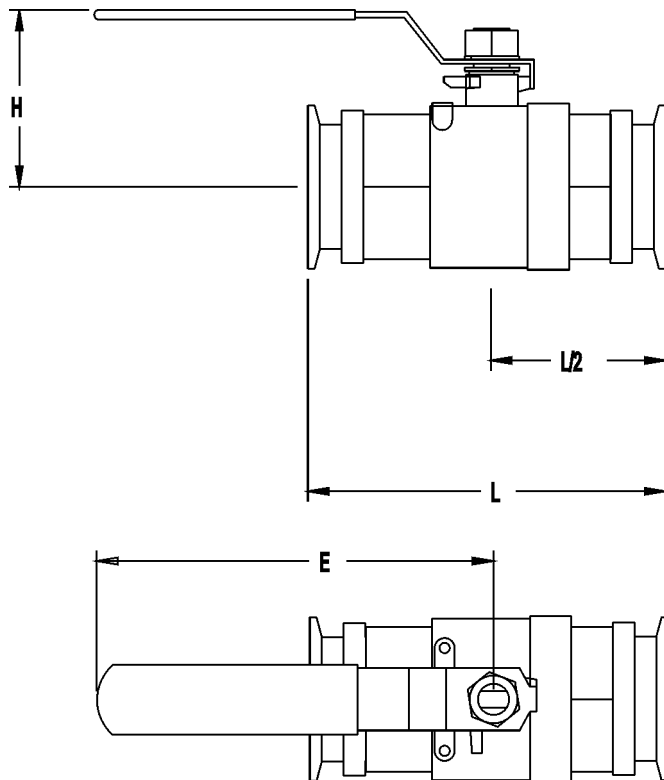


Figure 1 - BSP Ball valve dimensions (mm)



Size	E	H	L	T (BSP)
½"	120	56	59.7	½"
1"	148	70	82.8	1"
1½"	164	84	111	1½"
2"	164	94	125	2"

Figure 2 - NW Ball valve dimensions (mm)



Size	E	H	L	KF
½"	120	56	92.5	10/16
1"	148	70	118.5	25
1½"	164	84	166.5	40
2"	164	94	175.5	50

## 6 Storage and Disposal

### 6.1 Storage

Place protective covers over the valve ports and store the IBV Ball valve in cool, dry conditions until required for use.

### 6.2 Disposal

Dispose of the IBV Ball valve and any components removed from it safely in accordance with local and national safety and environmental requirements.

Particular care must be taken with components which have been contaminated with dangerous process substances.



#### **WARNING**

Do not incinerate the valve. Incineration may cause emission of noxious fumes.

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## Return of Edwards Equipment - Procedure

### INTRODUCTION

Before returning your equipment, you must warn Edwards if substances you used (and produced) in the equipment can be hazardous. This information is fundamental to the safety of our Service Centre employees and will determine the procedures employed to service your equipment.

**Complete the Declaration (HS2) and send it to Edwards before you dispatch the equipment.** It is important to note that this declaration is for Edwards internal use only, and has no relationship to local, national or international transportation safety or environmental requirements. As the person offering the equipment for shipment, it is your responsibility to ensure compliance with applicable laws.

### GUIDELINES

- Equipment is '**uncontaminated**' if it has not been used, or if it has only been used with substances that are not hazardous. Your equipment is '**contaminated**' if it has been used with any substances classified as hazardous under EU Directive 67/548/EEC (as amended) or OSHA Occupational Safety (29 CFR 1910).
- If your equipment has been used with radioactive substances, biological or infectious agents, mercury, polychlorinated biphenyls (PCB's), dioxins or sodium azide, you must decontaminate it before you return it to Edwards. You must send independent proof of decontamination (for example a certificate of analysis) to Edwards with the Declaration (HS2). Phone Edwards for advice.
- If your equipment is contaminated, you must either:
  - Remove all traces of contamination (to the satisfaction of laws governing the transportation of dangerous/hazardous substances).
  - Or, properly classify the hazard, mark, manifest and ship the equipment in accordance with applicable laws governing the shipment of hazardous materials.

**Note: Some contaminated equipment may not be suitable for airfreight.**

### PROCEDURE

1. Contact Edwards and obtain a Return Authorisation Number for your equipment.
2. Complete the Return of Edwards Equipment - Declaration (HS2).
3. If the equipment is contaminated, you must contact your transporter to ensure that you properly classify the hazard, mark, manifest and ship the equipment, in accordance with applicable laws governing the shipment of contaminated/hazardous materials. As the person offering the equipment for shipment, it is your responsibility to ensure compliance with applicable law. **Note: Equipment contaminated with some hazardous materials, such as semiconductor by-products, may not be suitable for airfreight - contact your transporter for advice.**
4. Remove all traces of hazardous gases: pass an inert gas through the equipment and any accessories that will be returned to Edwards. Where possible, drain all fluids and lubricants from the equipment and its accessories.
5. Seal up all of the equipment's inlets and outlets (including those where accessories were attached) with blanking flanges or, for uncontaminated product, with heavy gauge tape.
6. Seal equipment in a thick polythene/polyethylene bag or sheet.
7. If the equipment is large, strap the equipment and its accessories to a wooden pallet. If the equipment is too small to be strapped to a pallet, pack it in a suitable strong box.
8. E-mail via scan, fax or post a copy of the original with signature of the Declaration (HS2) to Edwards. The Declaration must arrive before the equipment.
9. Give a copy of the Declaration (HS2) to the transporter. You must tell your transporter if the equipment is contaminated.
10. Seal the original Declaration in a suitable envelope: attach the envelope securely to the outside of the equipment package, in a clear weatherproof bag.  
**WRITE YOUR RETURN AUTHORISATION NUMBER CLEARLY ON THE OUTSIDE OF THE ENVELOPE OR ON THE OUTSIDE OF THE EQUIPMENT PACKAGE.**

# Return of Edwards Equipment - Declaration

Return Authorisation Number: \_\_\_\_\_

You must:

- Know about all of the substances which have been used and produced in the equipment before you complete this Declaration
- Read the Return of Edwards Equipment - Procedure (HS1) before you complete this Declaration
- Contact Edwards to obtain a Return Authorisation Number and to obtain advice if you have any questions
- Send this form to Edwards before you return your equipment as per the procedure in HS1

## SECTION 1: EQUIPMENT

Manufacturer's Product Name \_\_\_\_\_

Manufacturer's Part Number \_\_\_\_\_

Manufacturer's Serial Number \_\_\_\_\_

Has the equipment been used, tested or operated?

YES  Go to Section 2      NO  Go to Section 4

**IF APPLICABLE:**

Tool Reference Number \_\_\_\_\_

Process \_\_\_\_\_

Failure Date \_\_\_\_\_

Serial Number of Replacement Equipment \_\_\_\_\_

## SECTION 2: SUBSTANCES IN CONTACT WITH THE EQUIPMENT

Are any substances used or produced in the equipment:

- Radioactive, biological or infectious agents, mercury, poly chlorinated biphenyls (PCBs), dioxins or sodium azide? (if YES, see Note 1)      YES  NO
- Hazardous to human health and safety?      YES  NO

**Note 1:** Edwards will not accept delivery of any equipment that is contaminated with radioactive substances, biological/infectious agents, mercury, PCB's, dioxins or sodium azide, unless you:

- Decontaminate the equipment
- Provide proof of decontamination

**YOU MUST CONTACT EDWARDS FOR ADVICE BEFORE YOU RETURN SUCH EQUIPMENT**

## SECTION 3: LIST OF SUBSTANCES IN CONTACT WITH THE EQUIPMENT

Substance name	Chemical Symbol	Precautions required (for example, use protective gloves, etc.)	Action required after a spill, leak or exposure

## SECTION 4: RETURN INFORMATION

Reason for return and symptoms of malfunction: \_\_\_\_\_

\_\_\_\_\_

If you have a warranty claim:      • who did you buy the equipment from? \_\_\_\_\_

• give the supplier's invoice number \_\_\_\_\_

## SECTION 5: DECLARATION

Print your name: \_\_\_\_\_ Print your job title: \_\_\_\_\_

Print your organisation: \_\_\_\_\_

Print your address: \_\_\_\_\_

Telephone number: \_\_\_\_\_ Date of equipment delivery: \_\_\_\_\_

I have made reasonable enquiry and I have supplied accurate information in this Declaration. I have not withheld any information, and I have followed the Return of Edwards Equipment - Procedure (HS1).

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**Note: Please print out this form, sign it and return the signed form as hard copy.**

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