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

Declaration of Conformity

We, Edwards,
Innovation Drive,
Burgess Hill,
West Sussex,
RH15 9TW, UK

declare under our sole responsibility, as manufacturer and person within the EU authorised to assemble the technical file, that the product(s)

IBV Ball Valves:

IBV16MKS NW16 Ball Valve Stainless Steel	C36000100
IBV16MS 1/2" BSP Ball Valve S/S	C36000110
IBV25MKS Ball Valve Stainless Steel	C36000200
IBV25MS 1" BSP Ball Valve S/S	C36000210
IBV40MKS NW40 Ball Valve Stainless Steel	C36000300
IBV40Ms 11/2" BSP Ball Valve S/S	C36000310
IBV50MKS NW50 Ball Valve Stainless Steel	C36000400
IBV50MS 2" BSP Ball Valve S/S	C36000410

to which this declaration relates is in conformity with the following standard(s) or other normative document(s)

EN50581:2012 — Technical Documentation for the Assessment of Electrical and Electronic Products with respect to the Restriction of Hazardous Substances

and fulfils all the relevant provisions of

2011/65/EU — Restriction of Certain Hazardous Substances (RoHS) Directive

Note: This declaration covers all product serial numbers from the date this Declaration was signed onwards.

L G Marini

Larry Marini, Senior Technical Manager

26.04.2016, Eastbourne

Date and Place

This product has been manufactured under a quality management system certified to ISO 9001:2008

Contents

Section — Page

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

Illustrations

Figure — Page

gea/0046/05/14

Contents

Tables

Table

Page

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 0.5 inch BSP
- IBV25MKS ball valve
- IBV25MS ball valve 1.0 inch BSP
- IBV40MKS ball valve
- IBV40MS ball valve 1.5 inch BSP
- IBV50MKS ball valve
- IBV50MS ball valve 2.0 inch BSP

The pump must be used as specified in this manual. Read this manual before installing and operating the pump.

Important safety information is highlighted as WARNING and CAUTION instructions; these instructions must be obeyed. The use of WARNINGS and CAUTIONS is defined below.

WARNING

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

CAUTION

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

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	AISI316L Stainless Steel
Valve seats	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^{-1}	16 ls^{-1}	47 ls^{-1}	86 ls^{-1}
Leak tightness mbar/ltrs sec	1 x 10^{-6}	1 x 10^{-6}	1 x 10^{-6}	1 x 10^{-6}
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	0.75 kg	1.50 kg	2.60 kg	3.60 kg
Mass NW	1.20 kg	1.75 kg	3.10 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 installing the valve in a system which has pumped dangerous process substances.

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 the supplier and carrier in writing within three days; state the Item Number of the valve together with the order number and suppliers invoice number. Retain the packing materials for inspection. Do not use the valve if 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 the vacuum system with standard NW coupling components or BSP male threaded pipe or adaptors 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. Edwards recommends periodic cleaning and adjustment of the valve operating shaft gland nut after approximately 30,000 cycles. 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 performing maintenance on a valve from a system which has pumped dangerous process substances.

Ensure that maintenance is performed 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.

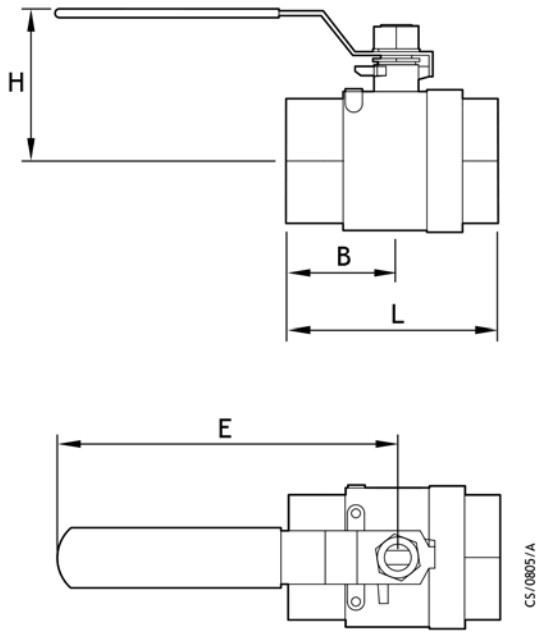
Dispose of all components which have been contaminated by dangerous process substances in a safe manner.

5.3 Fault finding

Table 2 - Fault finding

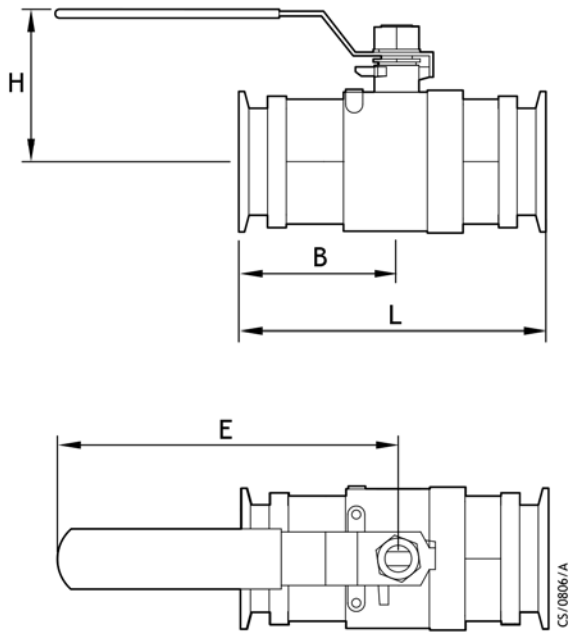
Symptoms	Check
Valve will not open	Is the valve blocked?
Valve leaks	Is the valve full of debris? Is the shaft seal nut loose?

Figure 1 - BSP Ball valve dimensions (mm)



Size (inches)	E	H	L	B	T (BSP) (inches)
0.5	123	56.5	65.3	30.9	0.5
1.0	145	69.3	88.7	44.3	1.0
1.5	189	84.5	109.0	54.5	1.5
2.0	189	95.0	125.3	62.2	2.0

Figure 2 - NW Ball valve dimensions (mm)



Size (inches)	E	H	L	B	KF
0.5	123	56.5	97.3	46.9	10/16
1.0	145	69.3	125.7	62.8	25
1.5	189	84.5	166.0	83.0	40
2.0	189	95.0	175.9	87.5	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.

This page has been intentionally left blank.

Index

This page has been intentionally left blank.

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.*

P800-80-000 Issue T