

# IM Series 6, Welded 2-Way Instrument Ball Valves

## Installation, Operation, and Maintenance Instructions



### **WARNING:**

For your safety and protection it is important that the following precautions be taken prior to working on the valve.

1. Depressurize and drain the line.
2. Cycle the valve to relieve any pressure trapped in the valve.
3. Disconnect any air and electrical connections to the valve assembly.
4. Know what the media is in the line and wear appropriate protective clothing and equipment. Obtain appropriate MSDS sheets.
5. To ensure safe product selection and operation, it is the responsibility of the process system designer and end user to determine the appropriate compatible materials of construction and adequate product ratings for the process system. Process system designer, installer, and end user are responsible for proper installation, operation, and maintenance.
6. When disposing of Teflon parts, do not incinerate or subject to open flames.

### 1. General

This Installation, Operation, and Maintenance manual is for the safe use of PBM Instrument ball valves. Please read instructions carefully and save for future reference.

### 2. Installation

Instrument ball valves may be installed in either direction with the valve in the "open" position. Instrument ball valves do not need to be disassembled before installation. See IOM-WELD for welding of end connections.

### 3. Operation

For manual valves, operation consists of turning the handle 1/4 turn to close or open the valve. When handle is parallel with the pipeline, the valve is in the open position. These valves may also be automated with actuators and other valve automation equipment. Mechanical handle stops must be removed if manual valves are converted to automated valves. For automated valves, operation is controlled by the actuator placed on top of the valve. Valve stops are an integral part of the actuators. Good operating procedure requires periodic inspection of the valves and replacement of parts as required. Always use PBM factory authorized replacement parts.

### Locking Handle Device, manual valves only – (When Supplied)

1. Depress handle lock bar inward toward the valve stem until it clears the stop on the valve body.
2. While maintaining the handle lock bar in this position, turn handle to desired position.
3. Release the handle lock bar, ensuring that it returns to the proper position against the handle.

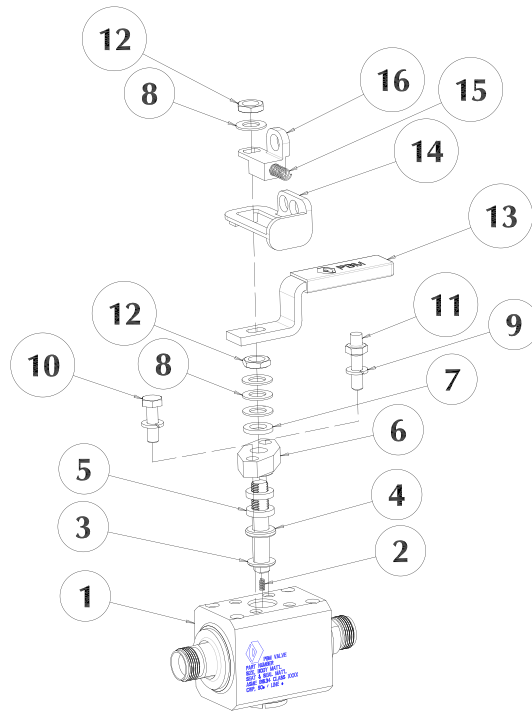
Follow instructions to ensure optimum performance:

### Adjusting for Normal Wear

1. Adjustment and/or replacement of serviceable components is limited to the upper stem packings. There are no in-service adjustments for seat or body joint leakage. In the event that seat leakage occurs at an unacceptable rate, please contact a PBM Valve representative to arrange for repair or replacement.

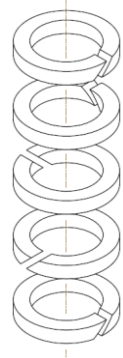
Should packing leakage occur, an adjustment of the gland plate may stop the leakage. The gland plate fasteners and stem nut should be tightened incrementally and equally until leakage stops. Should packing leakage continue, replacement of the stem packing should be performed as follows:

PARTS LIST	
ITEM	DESCRIPTION
1	IM Valve
2	Ground Spring
3	Stem Bearing
4	Stem
5	Graphite Stem Packings
6	Gland Plate
7	Follower
8	Belleville Washers
9	Lock Washer
10	Gland Plate Mtg. Bolts
11	Stop Pin
12	Stem Hex Nuts
13	Manual Handle
14	Locking Handle Bracket
15	Locking Bracket Spring
16	Locking Bracket Slider



### Stem Packing Replacement of Instrument Valve:

1. Depressurize the piping to the valve, then cycle the valve to ensure there is no trapped pressure or fluid in the valve cavity.
2. If desired, disconnect the piping connections from the end fittings and remove the valve from the piping.
3. Remove the upper jam nut and Belleville washer from the stem.
4. Remove the locking handle assembly, taking note of the arrangement of the locking handle components.
5. Remove the lower jam nut, Belleville washers, and follower from the stem.
6. Remove the hex head cap screw (HHCS), stop pin, and lock washers from the gland plate. Remove the gland plate.
7. Remove the old packing from the stuffing box, taking care not to nick or scratch the stem or bore. Clean the stuffing box and stem thoroughly.
8. Examine the stem for wear or scoring. If stem is scored or if wear is excessive, contact PBM for repair or replacement.
9. Examine the new replacement packing and ensure that there is no dirt or debris on any of the surfaces.
10. Install a new stem packing onto the stem and into the stuffing box, taking note of the location of the scarf cut on the ring.
11. Install the remaining packing(s). Each additional packing must be installed with the scarf cut indexed at 90° from the previous packing (see illustration at right). This will improve the effectiveness of the packing seal.
12. When enough rings have been installed so that the nose of the gland plate will contact the packing, the rings should be tamped by installing the gland plate and bolts, then tightening the bolts to compress the packings.
13. Remove the gland plate and bolts, install the remaining packing per Step #9, then reinstall the gland plate, lock washers, HHCS, and stop pin.
14. Tighten the HHCS and stop pin incrementally and equally so that the gap between the gland plate and body is uniform, and roughly equal to 1/2 the thickness of a new stem packing.
15. Install the follower, Belleville washers, and lower jam nut onto the stem. The Belleville washers should be installed in an *alternating* or *series* arrangement. No two adjacent Belleville washers should be *nested* or facing the same direction.
16. Tighten the lower jam nut to fully compress the Belleville washers, then back off 1/4 turn.
17. Install the locking handle assembly onto the stem, if used.
18. Install the remaining Belleville washer concave side down. Install the upper jam nut. Tighten the jam nut securely.
19. Reinstall the valve to the piping.
20. If practical, leak test the packing and operate the valve to confirm freedom of operation.



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