Installation, Operation and Maintenance Instructions for Conbraco's

IBV-125 Series

Cast Iron Ball Valves

Valve Size	IBV-125 (Standard)	IBV-E-125 (Epoxy Coated)	Repair Kit
2"	6P-208-01	6Q-208-01	6P-028-01
2-1/2"	6P-209-01	6Q-209-01	6P-029-01
3"	6P-200-01	6Q-200-01	6P-020-01
4"	6P-20A-01	6Q-20A-01	6P-02A-01
6"	6P-20C-01	6Q-20C-01	6P-02C-01
8"	6P-20E-01	6Q-20E-01	6P-02E-01
10"	6P-20G-01	6Q-20G-01	6P-02G-01

Introduction

This manual presents guidelines for the Installation, Operation and Maintenance of Conbraco's Full Port Cast Iron Ball Valve, the IBV-125 Series. Review the entire manual before beginning any work.

Installation

Proper valve selection is the first step in any successful installation. Refer to the "Conbraco's Cast Iron Ball Valve" catalog for application guidance or contact your distributor or the factory for more detailed assistance.

>Pre-Installation Inspection<

A leading cause of premature valve failure is poor house-keeping. Inspect the piping system prior to valve installation, whenever possible, to insure that it has been properly flushed and cleared of construction and fabrication debris. The seating surfaces in soft seated valves are particularly susceptible to weld slag and sand blasting grit. Pipe scale, metal chips and other foreign materials should be removed.

Prior to installation, remove the valve from its packing and remove any end covers. Examine the flow bore for debris. All of Conbraco's ball valves are shipped in the open position to prevent damage to the ball surface. Any foreign matter must be removed. Do not install a damaged valve.

>Flanged End Valve Installation<

After determining that the valve is in good condition, attention should be given to the flange face. Dents and heavy scratches should be repaired. Do not install damaged valves.

Conbraco's Cast Iron Ball valves may be installed in any position using standard pipe fitting practices. Special considerations are required when bolting cast iron valves to steel flanges. When Class 125 CI valves are to be bolted to Class 150 steel flanges, the steel flanges shall be flat faced. Due to the brittle nature of cast iron, consideration should also be given to proper piping alignment.

Operation

The IBV-125 series features quarter turn operation; full open to full closed. Standard operation is clockwise to close. Valves 2" through 6" are furnished standard with a lever operator. The 8" and 10" valves have gear operators and handwheels as standard. Gear Operators are available for all sizes.

Maintenance

Due to its simplicity, the only preventive maintenance is to periodically inspect the valve for leaks and ease of operation. **Do not disassemble or remove any part from a valve under pressure.** Before removing a valve from the line, place it in the half-open position to remove any line pressure or pressure trapped in the body cavity.

>Valve Adjustments<

The stem packing was adjusted at the factory to provide a leak-tight seal when the valve was new but, compaction can occur within these seals that makes re-adjustment necessary. Stem leakage should be stopped as soon as it is detected. Adjust the packing gland bolts per the following table:

Valve Size	Gland Bolt Size	Torque (max.)
2"	3/8"-16UNC	20 ft-lbs
2-1/2"	3/8"-16UNC	20 ft-lbs
3"	3/8"-16UNC	20 ft-lbs
4"	3/8"-16UNC	20 ft-lbs
6"	1/2"-13UNC	45 ft-lbs
8"	1/2"-13UNC	45 ft-lbs
10"	5/8"-11UNC	93 ft-lbs

Do not over tighten. Over-tightening will result in excessive operating torque. If stem leakage continues, or operating torque becomes excessive, de-pressurize the valve and replace the stem seals. Obtain repair kits from the factory.

Valves with high operating torque not resulting from stem seal over-tightening or valves which have leakage past the seats may have damaged seats or ball surfaces. These valves should be de-pressurized, removed from the piping system, disassembled and inspected for damage.

>Valve Overhaul<

The first step is to contact your distributor to acquire an appropriate rebuild kit. These kits contain a complete set of seats, seals and gaskets.

Disassembly Process

1. Assure appropriately sized wrenches and lifting devices are available.
2. Place the valve in the half-open position, assuring no pressure is trapped in the valve body.
3. Remove the handle or valve operator.
4. Remove the packing gland fasteners, gland plate and gland ring.
5. Remove the body bolts and remove the tail piece from the valve body.
6. Using an appropropriate lifting device, remove the ball from the body cavity.
7. Remove the stem from the valve body. Due to presence of corrosion products it may be necessary to drive the stem from the valve body using a soft face hammer, being careful not to damage the stem.

Inspection

Note: If replacement of the body or ball is required, we recommend replacement of the entire valve.

1. Thoroughly clean all the components in preparation for inspection.
2. Examine the sealing surfaces within the body. If these surfaces are pitted or deeply scratched the valve must be replaced. A scratch is anything you can feel with your fingernail. Machining marks may be present and will not interfere with sealing. Scratches that can be seen but not felt may be polished out using #120 grit emery cloth or finer.
3. Examine the stuffing box. Polish these surfaces with #120 (or finer) grit emery cloth and inspect for pits and scratches. Deep scratches running down the side of the stuffing box will necessitate the replacement of the valve.
4. Examine the stem. Machine marks may be present extending around the part. These will not interfere with effective sealing. If longitudinal scratches or pitting is present, the stem must be replaced.
5. If the ball has pits or scratches as described above, it should be replaced.
6. Inspect the spare parts provided to assure they are correct, in good condition and have not suffered damage in storage or shipment.

Re-assembly

1. Use a lubricant which is recommended for the intended service. Only small amounts of assembly lubricants are necessary.
2. Lubricate the new seats and install them in the body and tail piece.
3. Lubricate the stem. Install the thrust washer on the stem and install the stem in the body.
4. Lubricate the new stem packings and place them one at a time over the stem and push them to the bottom of the stuffing box.
5. Lubricate the gland ring and install with the original gland bolts provided they are in good condition. Tighten only finger tight at this time. Rotate the stem to the closed position.
6. Place the body with the cavity facing upward. Lower the ball into the body cavity making sure the stem slot in the ball aligns with the tang on the stem. The ball should come to rest on the body seat.
7. Set the new body gasket in place.
8. Set the tail piece onto the body. On larger tail pieces use appropriate lifting equipment to set the tailpiece. Lift the tail piece by opposite pipeline flange bolt holes and lower it onto the body. It may be necessary to use a heavier grease on the tail piece seat to hold it in its place during this step.
9. Align the pipeline flange bolt patterns (two-hole).
10. Install the body fasteners hand tight. Torque to the value indicated in the table below in three equal steps using a criss-cross pattern.
11. Torque the packing gland fasteners to the level indicated in the section >Valve Adjustments<.
12. Install the operating mechanism, lever or gear, in its original orientation. Cycle the valve three to five times to assure smooth operation.
13. Complete the re-assembly with a check of the body bolt torque by going around the bolt pattern clockwise at the specified level. Check the packing gland fasteners torque again at this time.
14. The valve is now ready for testing and use.

Valve Size	Body Bolt Size	Torque (max.)
2”	1/2”-13UNC	45 ft-lbs
2-1/2”	1/2”-13UNC	45 ft-lbs
3”	1/2”-13UNC	45 ft-lbs
4”	1/2”-13UNC	45 ft-lbs
6”	9/16”-12UNC	57 ft-lbs
8”	5/8”-11UNC	93 ft-lbs
10”	5/8”-11UNC	93 ft-lbs

Final Adjustments

Occasionally after testing or initial start-up, a minor stem or packing leak may occur. Adjust the packing plate bolts in accordance with the section entitled "Valve Adjustments".