	INSTALLATION, MAINTENANCE AND OPERATING INSTRUCTIONS	
38-52 Review Avenue Long Island City, NY 11101	BALL VALVES	
 1 800 221-1115 ❖ wew@williamsvalve.com	www.williamsvalve.com	IMO-I-BV 2012 Rev 0

1. INTRODUCTION

The purpose of this manual is to ensure that the valves supplied are properly stored, installed, operated and maintained. Proper installation and maintenance of the product will aid in standard trouble free performance.

2. SHIPPING RECEIVING

1. While unpacking the valve, confirm that the valve and any accessories were not damaged during transportation.
2. If the valve or any of its accessories were damaged or lost during transportation, inform WILLIAMS VALVE CORP. immediately.

Caution: Do not place the valve directly on the ground or concrete floor, place the valve on a wooden pallet for inspection.



Note: The valve's open/close position indicator is located on the handle sleeve for lever operated valves and on top of the gearbox for gear-operated valves.

3. Lever and gear-operated valves are delivered with the ball in the full open position. Valves are shipped with flange protectors which are designed to protect the flange face serrations and prevent the entry of foreign debris during transportation.

Note: For safety purposes, pneumatic actuated valves are shipped with ball in closed position with end caps protecting serrations and preventing the entry of foreign debris during transportation. Special care must be taken to avoid damage to the surface of the ball.

4. Do not remove the end caps or protective flange coverings from the valve until it is ready for installation. If the protective coverings are removed for examination, immediately reinstall all protective coverings after the inspection.

5. WILLIAMS VALVE CORP. recommends storing the valves indoors, in a dry, dust free atmosphere.

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3. PRODUCT STORAGE

If the valves are to be stored for an extended period of time, the following procedures and steps are to be followed.

1. Spray the inside of the valve with rust Inhibitor.
2. Inject Shell B-B Grease into the secondary seat ports.
3. Insert Shell VPI #300 tablet into the valve body cavity to aid in keeping moisture out of the valve.
4. Spray a rust inhibitor (WD40, or equal) on the flange facing of each end connection.
5. Install plastic or plywood flange protectors on each flange. Tape the edges of the protector with duct-tape to provide an air tight seal.
6. The product should be operated monthly to ensure lubricated areas have lubricant distributed accordingly. The valve stem should be left in a different position each month. When stroking the valve, use filtered dehydrated and lubricated air to operate the actuator.
7. All gear operators are to have EP type grease injected in all fittings monthly.
8. For valves with actuators, the actuator should have all fluid ports or connections plugged to prevent ingress of water or dust. Coupling parts must be protected with grease or protective oil.
9. Valve should be stored in a dry, weatherproof building (preferably climate controlled).


Caution: When handling the valve or valve package, valves are very heavy.

10. Place an approved lifting device securely around the valve body or use lifting hooks while handling the valve. Special care should be taken not to damage the lever/gearbox/actuator. Do not hoist the valve by the gear operator or handwheel as this might result in damage.

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4. ADDITIONAL NOTES

1. Use the valve for the specified application as agreed between WILLIAMS VALVE and the purchaser/end-user.
2. Read this manual before installing or operating any WILLIAMS valve.
3. Train employees on the safe handling and use (maintenance and operation) of the valve.
4. Ensure the nuts/bolts are tightened to the specified torques.
5. Ensure the electrical continuity of the valve.
6. Open or close the valve slowly to avoid a hammering effect on the valve and the pipeline.
7. Always replace the damaged parts with genuine and recommended WILLIAMS parts.
8. Be aware of the media type and environment (explosive, highly flammable, toxic, oxidizing, etc.) in which the valve is to be used. Protect people and the environment from any harmful or poisonous substances.
9. To avoid any major product/environmental damage, remove any residual hazard(s) (as applicable, or as informed by the WILLIAMS VALVE CORP.
10. The valve body may be very hot or cold during use. Take all precautions to protect against burn/freeze injuries.
11. Do not exceed maximum operating conditions (pressures, temperatures, etc.) as specified on the body and/or nameplate.
12. Do not allow the valve to remain open at any intermediate position.
13. Do not try to rectify any valve leakage by reworking the seats. Leaking seats have to be replaced with new genuine WILLIAMS VALVE CORP. seats.
14. The threaded connections in the valve body for the drain and vent lines are sealed with threaded plugs. Do not remove these plugs while the valve is under pressure.
15. Do not modify the valve at any time under any circumstances.

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5. INSTALLATION



1. Before installing a new valve, confirm that the specifications of the valve matches those of the intended installation area. The nameplate will provide the necessary information. If this information is missing, consult WILLIAMS VALVE.
2. When removing the valve from storage, inspect it for damage.
3. Before installing the valve, remove the protective covering and end-caps to ensure the serrations on flange face are not damaged and the bore is clean. Clean the valve with approved solutions if necessary.

Caution: Prior to installation, ensure the pipeline is clean. Pipeline debris, scaling, etc. will damage the soft seat inserts of the valve and cause seat leakage during commissioning.

4. During commissioning and pipeline flushing, the valve must remain in the full-open position to prevent damage to internal parts.

Note: To prevent damage to the valve, WILLIAMS VALVE recommends first installing a spool piece instead of the valve while flushing the pipeline. If a spool piece is not an option, install strainers at critical locations upstream from the location to remove foreign debris. It is pertinent that the valve remain in the full-open position during flushing.

5. Ball valves are designed for bidirectional flow unless the ball is prepared for cavity relief. For a ball with a cavity relief hole, ensure that the installation of the valve is correct with respect to the flow direction arrow marked on valve.
6. Valves can be mounted in a horizontal (with stem upwards only) or vertical position depending on pipeline routing. WILLIAMS VALVE does not recommend installing the valve with the actuator on the underneath side because dirt in the pipeline may enter the body cavity and damage the gland packing.
7. It may be necessary to firmly support the pipeline in order to protect the valve from excess stress and to reduce the pipeline vibrations. To facilitate servicing, it is recommended that the valve be supported by the body, using approved support devices. Do not fasten supports to flange bolting or actuator.
8. Do not use flange bolts to correct misalignments.
9. During tightening operation, ensure that piping stresses are not transferred to the valve.
10. Over-tightening flange studs can cause damage and/or leakage at the flanges or body-to-body end joints.

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Butt Weld End Valves

Note: Welding operation must be performed by a qualified welder. The welding procedure should be performed according to ASME Boiler and Pressure Vessel Code Section IX.

Caution: To prevent seat/seal damage during welding installation, do not allow the temperature of the valve body seat area to exceed 200° F (94° C). Use thermal chinks to monitor temperatures.

Note: Any damage to the seats due to temperatures greater than 200° F (94° C) can cause leakage. WILLIAMS VALVE CORP. recommends keeping spares readily available.

Caution: To prevent damage to sealing surfaces and seals, ensure that weld spatter does not fall on ball and/or body seals.

6. VALVE OPERATION


1. For lever operated valves, the hand lever is either assembled with the valve or shipped by fastener, depending on the size of the valve or hand lever.
2. For gear operated valves, the gearbox open/close adjustment has been made prior to dispatch and must not be disturbed. Rotation of hand wheel in the clockwise direction closes the valve. Counter clockwise rotation opens the valve (looking from the hand wheel end.) The internal details/construction of gearbox may vary as per manufacturer's standard.

Caution: Ensure that the force applied on the hand wheel of the gearbox or lever does not exceed 265 ft. lbs.

Note: Do not apply extra leverage (using pipe/bar), when the end stops or the gearbox reaches it's final setting point.

WILLIAMS VALVE CORP. ball valves always close in a clockwise direction. The ball should always be rotated through 90° to the fully opened or fully closed position.

Caution: Keeping the valve at any intermediate position should always be avoided, as high velocity through the narrow opening will produce erosion of seats, ball and the body.

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7. MAINTENANCE


Caution: Observe the Caution/Safety precautions before carrying out maintenance.

Guidelines for routine user maintenance are as follows.

1. Check the tightness of nuts/bolts between the body/body adapter, the bracket/stem housing, and the body/trunnion.
2. Ensure that the performance of the valve is satisfactory.
3. Ensure the electrical continuity of the valve.
4. Ensure that no leakage is being observed from the valve.
5. Frequent observation is recommended under extreme application/condition.
6. To remove debris from the sealant system, periodically flush the sealant ports with an approved valve cleaning solution.
7. Mounting studs/nuts of the worm gearbox may be checked for tightness and retightened if necessary.

8. PREVENTIVE MAINTENANCE

1. In order to avoid failure during operation, all valves in a process plant should be periodically inspected thoroughly for wear on the ball, seats, seals, or body. If wear is discovered, WILLIAMS VALVE recommends replacing seats, seals, gaskets, and packing with genuine WILLIAMS VALVE parts. Check the electrical continuity of the valve and pipeline.
2. The type of process, fluids involved, working conditions, and location of the valve in the process plant, will determine the frequency of the inspection/maintenance.
3. Preventive maintenance is essential as the failure due to lack of maintenance may cause an emergency shutdown of the plant.
4. Before removing the valve from the pipe, it is important to mark the relative position of the valve flange with respect to pipeline flange and the flow of direction of the valve.
5. Once a valve is repaired, it should undergo a complete set of tests to make sure that the valve is adequate for the original working conditions. Hydrostatic/pneumatic shell/seat tests should be carried out as per the specifications relevant to the valve.

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6. Secondary sealant/lubrication injection systems are used only when a temporary tight shut off is required due to seat ring or stem seal damage caused by foreign debris in the process media. Flush the sealant/lubrication port with suitable valve cleaner. Use only standard grade valve sealants/lubricants suitable for the media in the valve. Using a hand pump, inject sealant/lubrication into the seat surface through the injection port located on the valve body and stem housing. This will purge old sealant debris from the valve seats.

7. Trunnion mounted pipeline valves of sizes 6" NB and above are provided with two sealant/lubrication injection ports on the body/body adapter for individual seats and one sealant/lubrication injection port on the stem housing. Each port provided on the body provides sealant entry to the stem sealing area. The ports are fitted with an inline check fitting. Sealant is injected by connecting the outlet fitting of the handgun to the sealant injection port.

Note: Sealant injection is to be carried out only if the valve seats or stem packing are leaking.

8. Sealant should be injected only when the valve is in the closed position to ensure effective sealing of the damaged seat.

9. Worm gear boxes are supplied with grease. Normally the grease is suitable for -20°C (-4°F) to 80°C (176°F.) For other applications, consult the Factory/Branch office.

10. Grease as necessary.

11. Grease should be changed if operated frequently, after approximately three years.

11.2. If operated rarely, after approximately five years.

11.3. The primary reducing spur gear unit attached to main worm gearbox should be re-greased at least annually.

Caution: Disassembly of the gear box should be done only by experienced, trained operators.

10. DISASSEMBLE AND REASSEMBLE

Important: Please contact WILLIAMS VALVE CORP. regarding disassembly/assembly matters.

11. COLD WEATHER TIME OPERATION

Allowing freezable fluids to be trapped inside the valve will result in damage to the valve when the fluid freezes. Eliminate trapped water in your system to avoid system damage.