

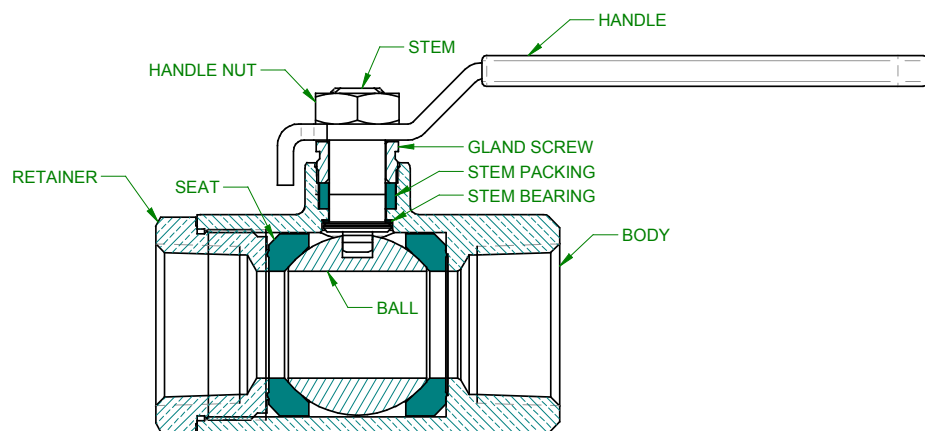
- 11) With the ball in the closed position, thread the retainer into the body and torque to manufacturing specification to secure the body joint. *Tighten to the torque values shown in the table below.*
- 12) Cycle the valve to the open position and verify proper operation and alignment of handle and/or mechanism.

Note: Always test valve and system before putting the system into service.

Table 1: Torque Requirements

Valve Size	Gland Nut Torque (+ or - 10%) (ft-lb)	Retainer Torque (+ or - 10%) (ft-lb)
1/4" - 3/8"	12 - 18	13
1/2"	12 - 18	16
3/4"	20 - 25	42
1"	20 - 25	63
1-1/4"	61-100	130
1-1/2"	61-100	199
2"	61-100	282
2-1/2"	61-100	681
3"	61-100	905
4"	-	-

PARTS ILLUSTRATION



A Division of Conbraco Industries, Inc. Matthews, NC Pageland, SC Conway, SC

2 PIECE THREADED STEEL BALL VALVES INSTALLATION, OPERATION, & MAINTENANCE GUIDE



INSTALLATION

Two piece threaded end Apollo Ball valves are bi-directional. They may be installed in vertical or horizontal pipe runs without regard to flow direction and without regard to stem orientation.

Note: Valves must be installed in piping systems that comply with the applicable portions of the ASME B31 standards. Special considerations must be taken with respect to pipe line expansions and contractions and the media expansion and contractions within the piping system.

Threaded End Valves

Pipe connections to be threaded into these valves should be accurately threaded, clean and free of foreign material or metal shavings. PTFE pipe tape is recommended for use as the pipe joint sealant. Two wrenches must be used when making up pipe joints to these valves. Apply one wrench on the valve end closest to the pipe joint being tightened and the other wrench to the pipe to prevent transmitting torque through the valve body joint. Typical pipe make-up is 1-1/2 turns after installing the pipe hand-tight.

OPERATION

The valve handle is marked showing proper rotation direction for "ON" and "OFF" positions. Rotation is clockwise for "OFF" (closed) and counterclockwise for "ON" (open).

MAINTENANCE

Regular Maintenance

Normal stem packing wear can be compensated for by tightening the packing gland screw. (Wrench part number H371400 is available to ease this operation.) Tighten the packing gland screw clockwise in 1/8 turn increments until observed leakage stops. Do not exceed the values shown in Table 1. If all of the adjustments to the packing gland screw have been made, remove the handle nut, handle and packing gland screw and add one or two replacements bearings on top of the old packing. Reinstall the handle and handle nut.

Caution: Do not disassemble valve while under pressure nor with entrapped hazardous fluids therein.

Valve Repair

Disassembly

- 1) Operate the valve fully opened to fully closed to assure there are no trapped fluids or pressure in the body cavity. Leave the valve in the closed position.
- 2) Remove the handle nut, handle and packing nut. Set aside for reuse.
- 3) Install pipe plugs in the body and retainer ports of NPT valves to prevent collapsing those areas.
- 4) Remove the retainer from the body. It may be necessary to heat the body joint above 450°F to breakdown the sealant used to secure the valve halves.
- 5) Remove the ball from the body cavity. Inspect the ball. If it is scarred, it is recommended that the whole valve be replaced, but replacement balls are available. Clean and set aside good balls for reuse.
- 6) Push the stem from the outside into the body cavity. Inspect the stem. If it is scarred or has damaged threads, replacements are available. Clean and set aside good stems for reuse.
- 7) Remove all seals and seats from the body and retainer then discard. Inspect the body and retainer for damage. If damaged, scrap the valve as replacements of these components are not offered.

Re-Assembly

- 1) Install stem bearing on to stem.
- 2) Fit stem into body from the retainer end and position the stem with the handle flats perpendicular to the flow axis.
- 3) Install stem packing over stem and fit into body recess.
- 4) Install packing gland screw into the threaded stem area.
- 5) Tighten the gland screw to manufacturing torque specifications: *Tightened to the torque values shown in Table 1.*
- 6) Install the handle and handle retaining hardware.
- 7) Apply suitable light lubricant to seat and fit into the seat pocket of the body.
- 8) Install the ball in the closed position.
- 9) Apply suitable light lubricant to seat and fit into the seat pocket of the retainer.
- 10) Apply an adequate amount of thread locking compound (Loctite® 609, 648 or 680) to the retainer threads so that it covers no less than two complete threads opposite of the retainer shoulder.

Note: Valves in oxygen service can only be sealed with oxygen compatible thread sealant.



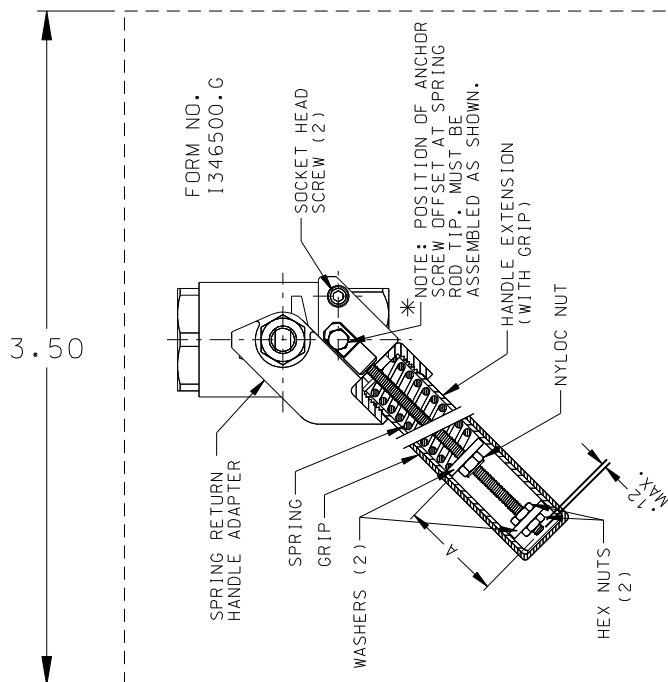
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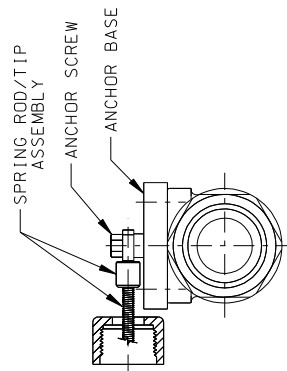
EXP. NO.	SCALE: NTS	DRN: JFM	DATE: 1-30-98	CHKD:	APP'D:	NO. I346500	REV. G
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REV.	CHANGE DESCRIPTION	ECN NO.	BY	DATE
D	SIZED INSTRUCTIONS TO FIT ON KIT BAGS	PECN 019859	JFM	1-30-98
E	NYLOC NUT WAS HEX NUT	N4770	JWS	3/1/01
F	ADDED LOCTITE 609 NOTE TO NOTES 2 & 3. NYLOC NUT WAS HEX NUT-NOTE 4	M6740	JFM	8-12-03
G	CHANGED LOCTITE 609 TO 294. REMOVED OLD NOTE FOR DIM. "A". ADDED ACTUAL DIM. FOR "A". UPDATED NOTES.	M7145	JWSj	3-18-04



VALVE SIZE	A - APPROX.
1/4", 3/8", 1/2"	1-5/8"
3/4", 1"	7/8"
1-1/4" - 2"	1-7/8"



INSTALLATION PROCEDURE FOR SPRING RETURN LEVER KIT

1. REMOVE STANDARD LEVER. APPLY LOCTITE 294 TO EACH SOCKET HEAD SCREW. ATTACH THE ANCHOR BASE USING THE TWO SOCKET HEAD SCREWS.
2. APPLY TWO DROPS OF LOCTITE 294 TO THE STEM NUT AND ATTACH SPRING RETURN HANDLE ADAPTER TO THE STEM.
3. INSERT SPRING ROD ASSEMBLY THRU THE HOLE IN THE SPRING RETURN HANDLE ADAPTER. VERIFY ROD TIP ORIENTATION AS NOTED * IN THE DRAWING. APPLY LOCTITE 294 TO THE ANCHOR SCREW AND ATTACH THE ROD ASSEMBLY AND INTO THE THREADED HOLE OF THE SPRING RETURN HANDLE ADAPTER.
4. PLACE SPRING OVER ROD ASSEMBLY AND SECURE WITH THE NYLOC HEX NUT. TIGHTEN THE NYLOC NUT TO ACHIEVE DIMENSION "A" SHOWN IN THE TABLE. ASSEMBLE THE OTHER WASHER AND TWO HEX JAM NUTS AT THE END OF THE ROD AS SHOWN AND APPLY TWO DROPS OF LOCTITE 294.
5. PLACE HANDLE EXTENSION OVER SPRING ASSEMBLY AND APPLY TWO DROPS OF LOCTITE 294 TO THE THREADS. TIGHTEN THE HANDLE EXTENSION INTO THE SPRING RETURN HANDLE ADAPTER.

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