



Apollo Union End Steel Ball Valves Installation, Operation, & Maintenance Guide

WARNING: BEFORE INSTALLATION

Union 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. Ensure that the component materials of the valve are compatible with the media, with regard to corrosiveness, pressure, and temperature.

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.

INSTALLATION

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. Remove tailpieces and union nuts from valves and align in the piping system. Slip union nuts over the pipe to be installed. Thread tailpiece onto the end of the pipe being installed. Tighten using two wrenches; one applied to the tail piece, and one applied to the pipe. Reinstall the valve and tighten the union nuts to complete installation. Typical pipe make-up is 1-1/2 turns after installing the pipe hand-tight.



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Socket Weld Valves:

Only personnel qualified per ASME BPVC Section IX should weld pressure containing components. Remove tailpieces and union nuts from valves and align in the piping system. Slip union nuts over the pipe to be welded. Align tailpieces into the piping system retracting the pipe approximately 1/16" from the bottom of the socket weld connection. Utilize qualified weld procedures to complete the weld. Reinstall the valve and tighten the union nuts to complete installation.

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) **WARNING:** Do not attempt to work on any valve under pressure. Depending on the service, valve surface temperature may be hot. Use proper protective gear to protect against burns and any possible uncontrolled release of fluid.
- 2) 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 open position.
- 3) Remove the handle nut, handle and packing nut. Set aside for reuse.
- 4) Remove union nuts, tailpieces, and tailpiece seals from valve. Using a special tool remove the retainer from the body. The tool can be made from a flat piece of steel (see Figure 1 shown below) of the dimensions in Table 1. It may be necessary to heat the body joint above 450°F to breakdown the sealant.
- 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.

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Figure 1

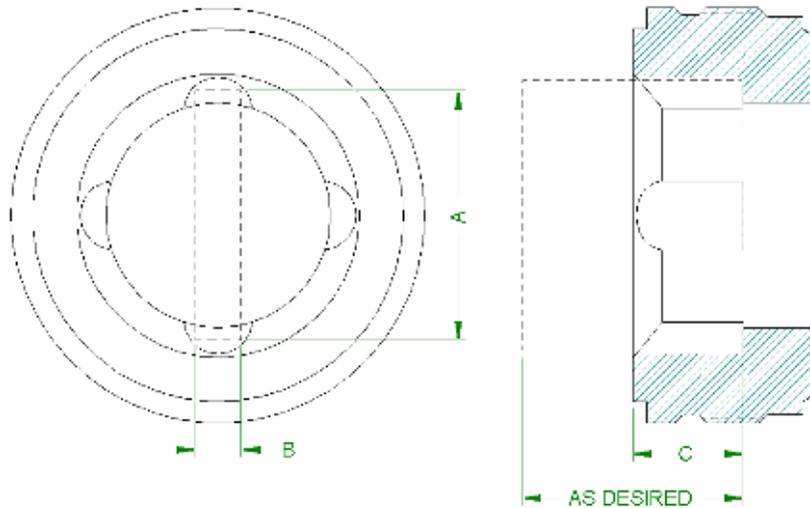


Table 1: Tool Dimensions

| VALVE SIZE | | | | | | |
|------------|------|------|------|--------|--------|------|
| DIM. | 1/2" | 3/4" | 1" | 1-1/4" | 1-1/2" | 2" |
| A | 0.71 | 0.87 | 1.15 | 1.37 | 1.67 | 1.9 |
| B | 0.12 | 0.18 | 0.18 | 0.18 | 0.18 | 0.25 |
| C | 0.25 | 0.37 | 0.37 | 0.37 | 0.37 | 0.5 |

Re-Assembly

- 1) Install stem bearing onto 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 the manufacturing torque specification in the gland screw torque column of Table 2.
- 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.
- 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 the retainer to the torque value shown in the retainer torque column of Table 2.
- 12) Cycle the valve to the open position and verify proper operation and alignment of handle and/or mechanism.
- 13) Reinstall tailpiece seals, tailpieces, and union nuts. Tighten the union nuts to the union nut torque value shown in the union nut torque column in Table 2.

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

Table 2: Minimum Torque Requirements

| VALVE SIZE | GLAND SCREW TORQUE (ft-lb) | RETAINER TORQUE (ft-lb) | UNION NUT TORQUE (ft-lb) |
|------------|----------------------------|-------------------------|--------------------------|
| 1/2" | 12-18 | 16 | 45 |
| 3/4" | 20-25 | 42 | 76 |
| 1" | 20-25 | 63 | 96 |
| 1-1/4" | 61-100 | 130 | 163 |
| 1-1/2" | 61-100 | 199 | 285 |
| 2" | 61-100 | 282 | 362 |

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PARTS ILLUSTRATION

