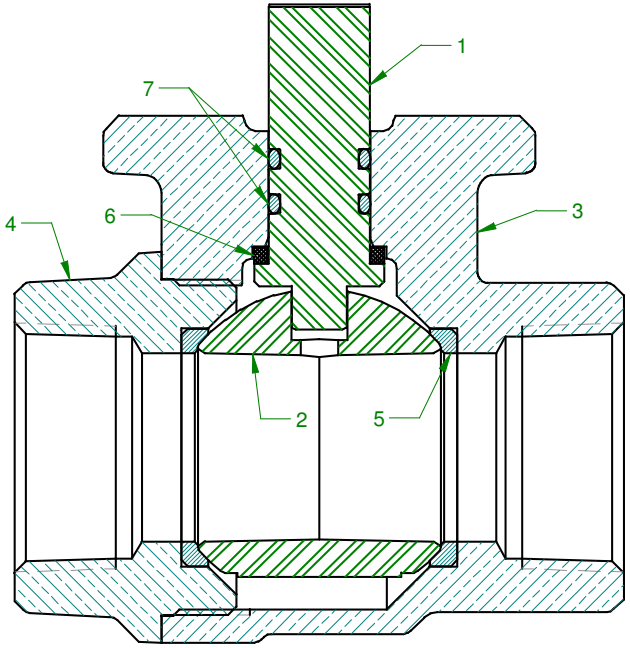
PARTS ILLUSTRATION

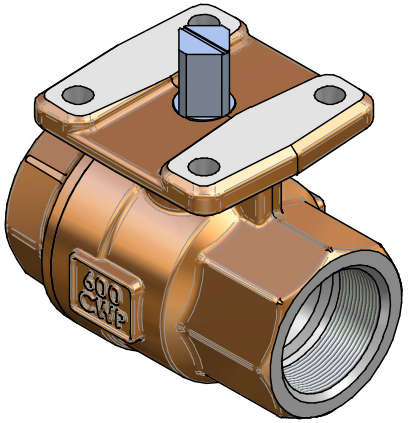


NO.	DESCRIPTION
1	Stem
2	Ball
3	Body
4	Retainer
5	Seat
6	Bearing
7	O-rings

"Apollo" Valves

Made In The USA

77D SERIES
INSTALLATION, OPERATION & MAINTENANCE MANUAL



INSTALLATION

The Apollo 77D Series 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 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.

Mating pipe connections should be accurately threaded, clean and free of foreign material or metal shavings. Two to four wraps of PTFE pipe tape (or pipe dope, but not both) should be applied to the male threads. Two wrenches must be used when mating up pipe joints to these valves. Apply one flat-faced wrench on the valve hex closest to the pipe joint being tightened and use a pipe wrench on the pipe to prevent transmitting torque through the valve body joint. Typical wrench make-up is 1-1/2 turns after installing the pipe hand-tight. Do not overtighten the valve onto the pipe, as this can damage or distort the valve. Do not reverse-rotate after tightening as this can damage the body/retainer seal.

OPERATION

Ball valves are intended to be on-off devices operating through 90° rotation of the stem. This is easily accomplished by using "Apollo" actuators and accessories.

MAINTENANCE

A maintenance history log should be maintained for each valve in the piping system. If leakage is detected, it should be noted and stopped as soon as possible. Stem seal and/or seat leakage may be the result of damaged sealing surfaces. Damage may be the result of changes in service conditions or normal wear. If leakage is noted, the valve should be de-pressurized, disassembled, and inspected for damage.

Major Overhaul

This type of valve is not normally re-built, but rather replaced. However, where execution of a major repair is preferred, the following guidelines should be adhered to:

Repair Kits

Before work begins, contact your distributor to acquire appropriate seal repair kit(s). These kits typically contain a complete set of seats and seals.

Valve Size	Kit Number (EPDM)	Kit Number (FKM)	Kit Number (Nitrile)
½"	77D00301E	77D00301V	77D00301B
¾"	77D00401E	77D00401V	77D00401B
1"	77D00501E	77D00501V	77D00501B
1-1/4"	77D00601E	77D00601V	77D00601B
1-1/2"	77D00701E	77D00701V	77D00701B
2"	77D00801E	77D00801V	77D00801B

Disassembly

1) After de-pressurizing the system, operate the valve fully open 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 actuating mechanism per the manufacture's instructions. Set aside for reuse.
3) Remove the valve from the piping system and install pipe plugs in the body and retainer ports of NPT valves. This will prevent collapsing those areas during disassembly.
4) Secure the valve body to a heavy work table in preparation for retainer removal. It may be necessary to heat the body and retainer joint above 450°F to breakdown the sealant used to secure the valve halves. Remove the retainer by turning counter-clockwise using a large pipe wrench.
5) Remove the ball from the body cavity and inspect. If it is scarred, it is recommended that the whole valve be replaced. Replacement balls are available. Used seats should be discarded.
6) After removal of the ball and seats, press the stem downward into the body to facilitate removal of the stem bearing and o-rings. Do not damage o-ring sealing surfaces when removing o-rings and bearing.
7) Inspect the body and retainer for damage. If heavy scratches or pitting are found on sealing surfaces, scrap the valve. Replacements for these components are not offered.

Re-Assembly

1) Begin the re-assembly process by cleaning each of the component parts with a clean towel or cloth. If the application permits apply a suitable light lubricant to the o-rings and seats.
2) Place the new bearing and o-rings on the stem. Take care not to damage the o-rings or sealing surfaces during installation.
3) Carefully insert the stem into the valve body stem bore. Place the flow indicating mark on top of the stem perpendicular to the centerline of the body in preparation for ball and seat installation.
4) Insert the body end seat and ball.
5) Apply an adequate amount of thread locking compound (Loctite 609, 648 or 680) to the retainer threads. Thread locking compound should cover the first two leading threads of the retainer.
6) With the ball in the closed position, thread the retainer into the body and apply the torque value shown in the table below.

Valve Size	Retainer Torque (ft-lbs)
½"	25
¾"	50
1"	100
1-1/4"	200
1-1/2"	300
2"	600

7) After allowing appropriate set-up time for the thread locking compound, cycle the valve from open to closed several times to verify free operation.
8) Re-install the actuator using the manufacture's instructions.

In accordance with the U.S. Safe Drinking Water Act (SDWA), it is illegal to use this product in the United States for potable water services (water intended for human consumption).