

Installation, Operation and Maintenance Guide for Apollo Refrigeration Ball Valves

**** CAUTION ****

BEFORE INSTALLATION: Insure that the component materials of the Valve are compatible with the media, with regard to corrosiveness, pressure, and temperature. Valves must be installed in piping systems that comply with the applicable ANSI B31.5 Standard. Special considerations must be taken with respect to pipeline expansions and contractions and the media expansions and contractions within the piping system.

STORAGE AND PROTECTION

Valve should be stored in its original shipping container until just prior to installation with any protection means in place and protected from the environment or any other potential damaging affects.

LIMITATIONS

- Conditions supporting no greater than Category I valves. Valves are not to be used in safety functions such as safety loops or separating incompatible fluids.
- Only to be used with Group 2 fluids. Excluded refrigerants falling in Group 1 include; R-290, R-600, R-600A, R-717, and R-1270.
- In-line service only, not recommended for end of line service.
- Service to be compatible with the materials of construction. Prior to selection it is the users responsibility to determine that the valve is appropriate for the intended application. Application not to allow corrosion $>.002$ " / year (.05mm/year).
- The possibility of material deterioration in service and need for periodic inspections is the responsibility of the user.
- Mechanical supports are not to be welded directly to the valve, however may be fitted to the associated piping.
- It is the piping system designer's responsibility to implement appropriate protection measures to minimize reaction forces and moments, which result from supports, attachments, piping, etc.
- Laws of the state must be observed as they apply.
- In service inspections may be required by the national authorities of the country where the valve is installed.
- Some National/Local authorities may require periodic hydrostatic testing.
- Use only Conbraco replacement parts.
- On-off service only (not to be used for throttling).
- Valves are primarily intended for industrial use.
- Level of training, experience or ability of users should be at least that of trained and skilled maintenance personnel

INSTALLATION DIRECTIONS

FAILURE TO FOLLOW THESE GUIDELINES WILL VOID WARRANTY!

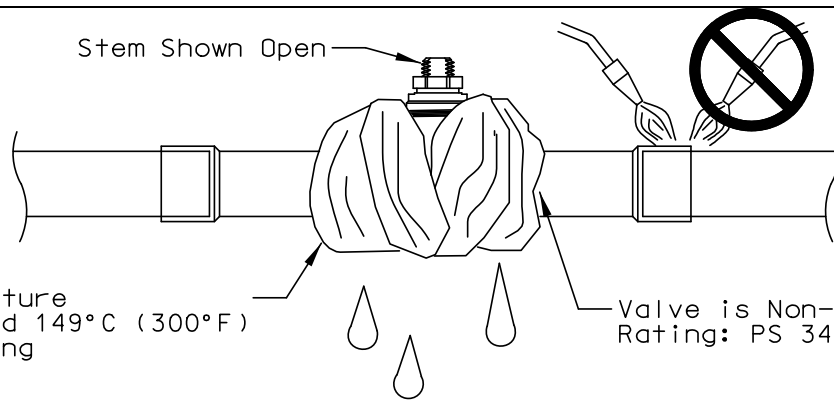
Proper valve selection is the first step in any successful installation. Refer to an "Apollo Ball Valve Binder", where applicable for application guidance or contact your distributor or the factory for more detailed assistance.

WARNING All installations shall be provided with pressure relief devices in accordance with the requirements of the Pressure Equipment Directive 97/23/EC. Proper installation prior to initial operation is the users responsibility. Furthermore where an additional hazard can occur due to valve exposure to fire or other unexpected external heat source, a supplemental pressure relief device shall be installed to protect against excessive pressure. This device shall prevent the pressure from rising more than 21% above the maximum allowable working pressure.

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.

1. Just prior to installation, remove valve from its packaging. Remove & discard both cap plugs and examine the flow bore for debris.
2. All Apollo ball valves are shipped in the open position to prevent damage to the ball surface. Any grit or foreign matter must be removed. Do not install a damaged valve.
3. Remove Stem Cover and Seal. Reinstall after brazing.
4. Verify valve is in the full open position.
5. It is also important to check for valve operation clearances. If necessary, valves can be installed at angles other than upright or vertical.
6. Piping connections should be cut square and then cleaned with an appropriate cleaner or flux.
7. Wrap valve body with a water saturated cloth.
8. Use a silver brazing alloy with a flow temperature of 593.3°C (1100°F) to 704.4°C (1300°F). An oxygen-acetylene torch is recommended to reduce heating time.
9. A dry nitrogen or CO₂ purge is recommended to reduce deposits inside the valve.
10. Direct flame *AWAY* from the center of the valve body. Excessive heat can harm the TFE seats. Install valves only in fully open position.
11. After brazing, quench joint until cool to the touch. Do not braze opposite end until first end is cool.
12. Braze other joint.

Refer to diagram below:



Body Temperature
Not to exceed 149°C (300°F)
During Brazing

Valve is Non-Directional
Rating: PS 34 (500 PSIG) Max.

(Insert translation here)

(Insert translation here)

OPERATION

Apollo Refrigeration valves are shipped with a hang tag and warning tag, information included on each is documented below. Although each valve is thoroughly tested and inspected before it leaves the factory, tags could be lost or destroyed during shipment or while in storage and/or the marking could be damaged by mishandling. If either is missing or not legible, contact your distributor or the factory for assistance before operating valve.

WARNING Provide means to monitor filling valve to prevent over pressurization and instability.

Ball valves are intended to be on-off devices operating through 90° rotation of the stem. Operation is clockwise to close. Use only sufficient force to operate valve to prevent damage to Stop Plate.

MAINTENANCE

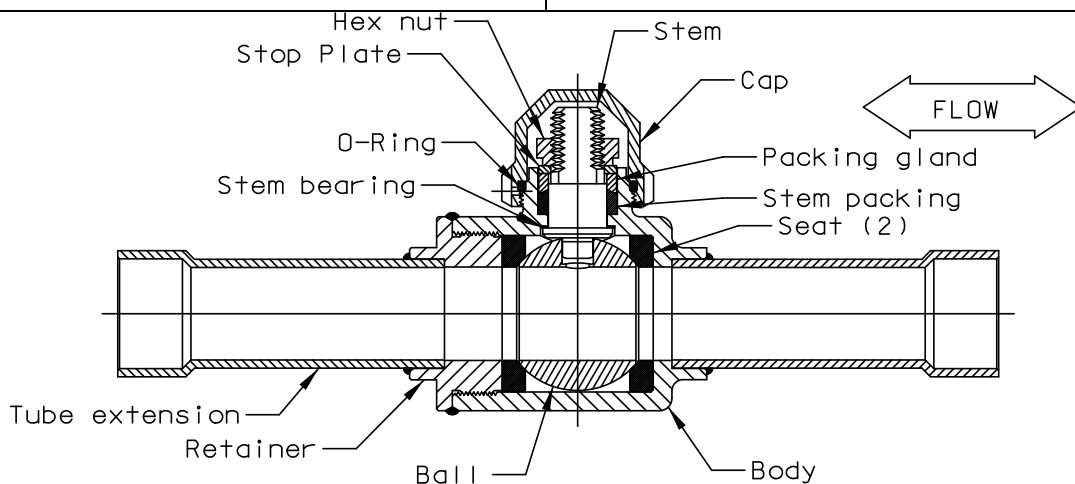
Refrigeration valves are normally infrequently operated and require little maintenance. To compensate for normal stem packing wear, remove cap and o-ring seal and tighten the hex nut clockwise. If all the adjustment to the hex nut has been made, remove the hex nut and add one or two replacement bearings on top of the existing stem packing. Reassemble the hex nut, cap and o-ring seal.

WARNING do not loosen hex nut while under pressure, and depending on the service, use proper protective gear to handle valve. Also provide safe means for uncontrolled release of hazardous fluid.

Internal valve components are not serviceable. If valve will not seal, replace with similar device.

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

HANG TAG
CE MARKING
MODEL
DN-SIZE
PS – MAXIMUM ALLOWABLE PRESSURE
GROUP: 2
BALL / STEM
SEAT / PACKING
MANUFACTURING DATE
MADE IN USA
WARNING TAG
Carefully read the applicable Installation, Operation & Maintenance Manual in its entirety before removing valve from shipping container. To obtain manual, download from http://www.conbraco.com/iom . DO NOT REMOVE TAG.



Drawing 2: Glossary (from left to right)

Hex nut
Stop plate
O-Ring
Stem bearing
Tube extension
Retainer
Ball

Stem
Cap
Packing gland
Stem packing
Seat (2)

Flow