Installation, Operation & Maintenance

Tri-Pro 3-Piece Ball Valve

Tri-Pro Series
Model: Full Port HPF; Standard Port HPS

USE:

Maximum results and long valve life can be achieved under normal working conditions and in accordance with Stayflow's pressure/temperature and corrosion data.
During shipment, storage and in operation, the valve should be fully open or fully closed. Do not store or use in intermediate positions without knowledge of flow and pressure drop.

OPERATIONS:

The opening and closing of the valve is done by turning the handle a 1/4 turn (90 degree turn).
The valve in open position: the handle is in-line with valve or pipeline.
The valve in closed position: the handle is across or perpendicular to pipeline.
Automated valves should be checked for alignment of actuator shaft and valve stem. Severe stem seal damage will result if alignment is improper.
Stem seal adjustment: if slight leakage is noted at stem, straighten lock washer tab, tighten stem nut to flatten the Belleville Washers, back stem nut off 1/4 turn, secure lock washer tab.

DISASSEMBLY & CLEANING PROCEDURES:

(CAUTION: Ball valves can trap fluids in ball cavity when closed)

If the valve has been used to control hazardous media, it must be decontaminated before disassembly. It is recommended that the following steps be taken for safe removal and reassembly.
A. Relieve the line pressure
B. Place valve in half-open position and flush the line to remove any hazardous material from valve
C. All persons involved in the removal and disassembly of the valve should wear the proper protective clothing, such as face shield, glove, apron and etc.

Maintenance of parts is easy, even if the valve is installed in the line. By removing six cap screws and loosening the other two, the valve body will "swing-out" to allow removal of seats and seals. The Tri-Pro series valve may be disassembled as outlined in the disassembly section. The valve body center section can also be removed from the pipeline. It may be necessary to allow for some pipe flex or spread to remove the center section from the ends, once all bolts are removed.

General Information for On-Site Installation:

Weld-in-Place valves with extended ends can be welded into the pipeline without disassembly.
The valve may be installed in any position in the pipeline.
Before installing the valve, the pipe must be flushed clean of dirt, burrs and welding residues, or you will damage the seats and ball surface. **The pipe must be free of tension.**

Installation of Threaded Valves:

On threaded lines, the valve can be screwed on, without the use of any unions as our 3pc construction makes the valve ends free by removing all bolts.
Use conventional sealant, such as hemp core, Teflon, etc. Apply wrench only on the hexagon valve end being tightened. Tightening by using the valve body or handle or the opposite end connector can seriously damage the valve. In some applications, screwed valves are back-welded on site. Use care to ensure valve body remains below 350^{O} F throughout the seal welding process.

Installation of Extended Weld End Valve:

Weld end valves may be welded into the pipeline without disassembly provided certain procedures and precautions are taken. Standard industry welding practices should be followed. Valves should be in the full open position to avoid any spatter adhering to the ball surface which could then damage or destroy seating during valve cycling. Keeping the ball open will also help reduce temperature build up in the valve ball and seating and seal area which can damage or destroy seats and seals. Shop bench weld whenever possible. Stayflow encourages keeping field welding to a minimum.

Weld in small segments and allow sufficient cooling time between welding segments or passes. Temperature measuring strips or "heat sticks" or an infrared thermometer should be used to monitor the temperature at the midway point between the weld and the seat area. Cease welding once that area temperature reaches the numbers noted below. Welding can resume after that area temperature drops back to a minimum of 120 deg F.

1. Welder shall qualify Section IX of ASME Boiler and Pressure Vessel Code.

2. Align valve to pipe line, tack-weld the valve in four or more points on both ends. This is to ensure that the two pipe sections do not move or shift. It is critical to maintain proper alignment during final welding of the ends to the pipe

3. Before welding is started, keep in mind the temperature of valve body part (valve seating area) shall not be higher than that allowed for the type of sealing material in the specific valve being installed, 300^{O} F for PTFE; 350^{O} F for RPTFE; 350^{O} F for TFM; 425^{O} F for 50/50; 450^{O} F for PEEK, CTFM and 200^{O} F for UHMWPE.

4. Directing moving air across valve body and valve end pieces and /or wrapping a wet cloth around the valve body close to the welding end will help dissipate the heat and reduce valve and seating area temperatures.

5. After the completion of the welding, wait for the welding seam to cool completely. Check and re-tighten the body bolts as necessary to torques shown below.

1/4"-3/4" - 250 in-lbs
1"- 1 1/4"- 450 in-lbs
1 1/2" - 620 in-lbs
2" - 970 in lbs
3" - 1800 in-lbs
4" - 2500 in-lbs

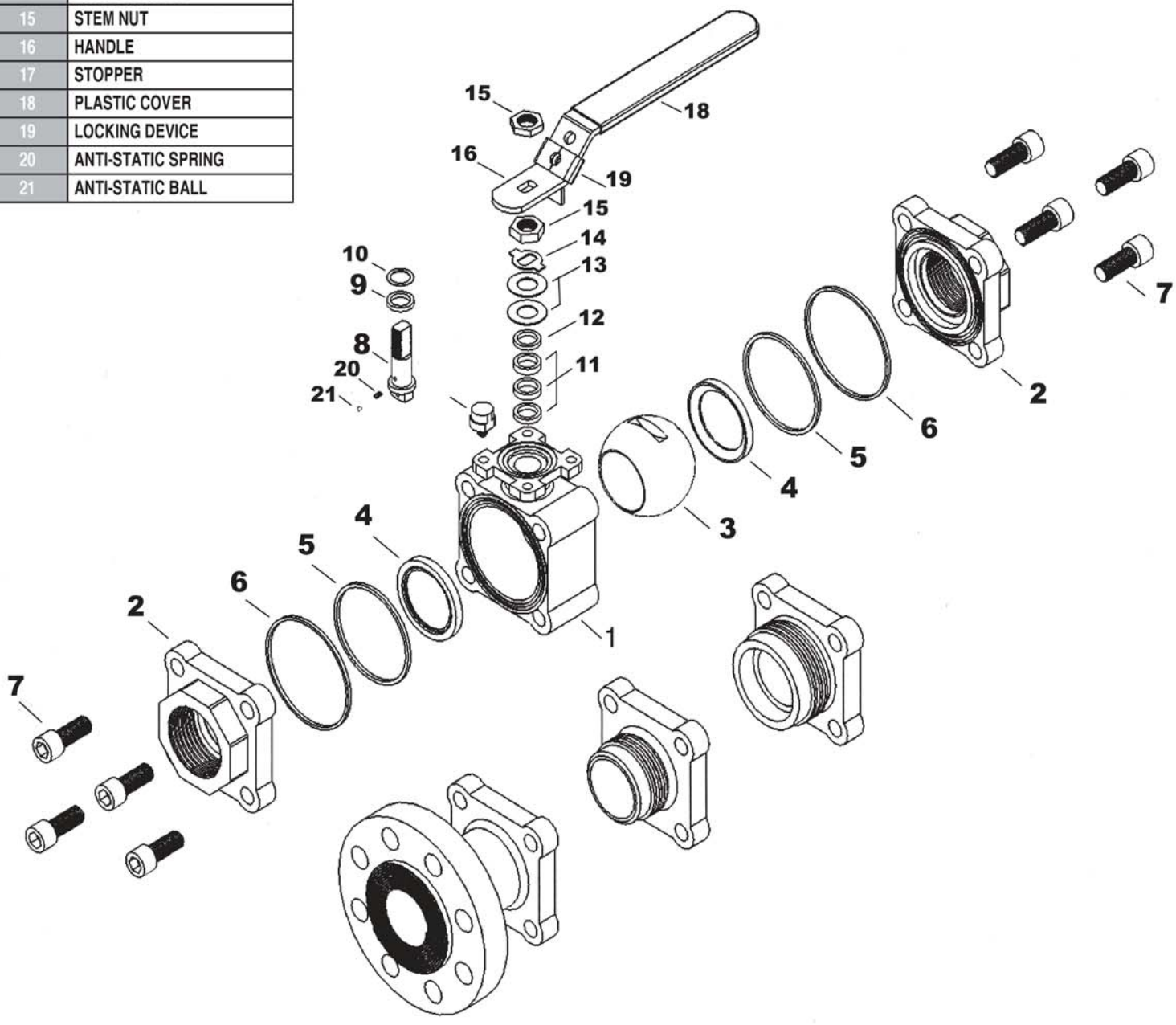
6. Welding shall comply with provisions of American Welding Society and ASME Code for Pressure Piping. ANSI/ASME B31.3 - Chemical Plant and Petroleum Refinery Piping.

Bolt Tightening Specification:

The body bolts of the valve should be tightened evenly. Tighten one bolt snugly, then the one diagonally across. Repeat for the other bolts, bring them all down tightly in sequence.

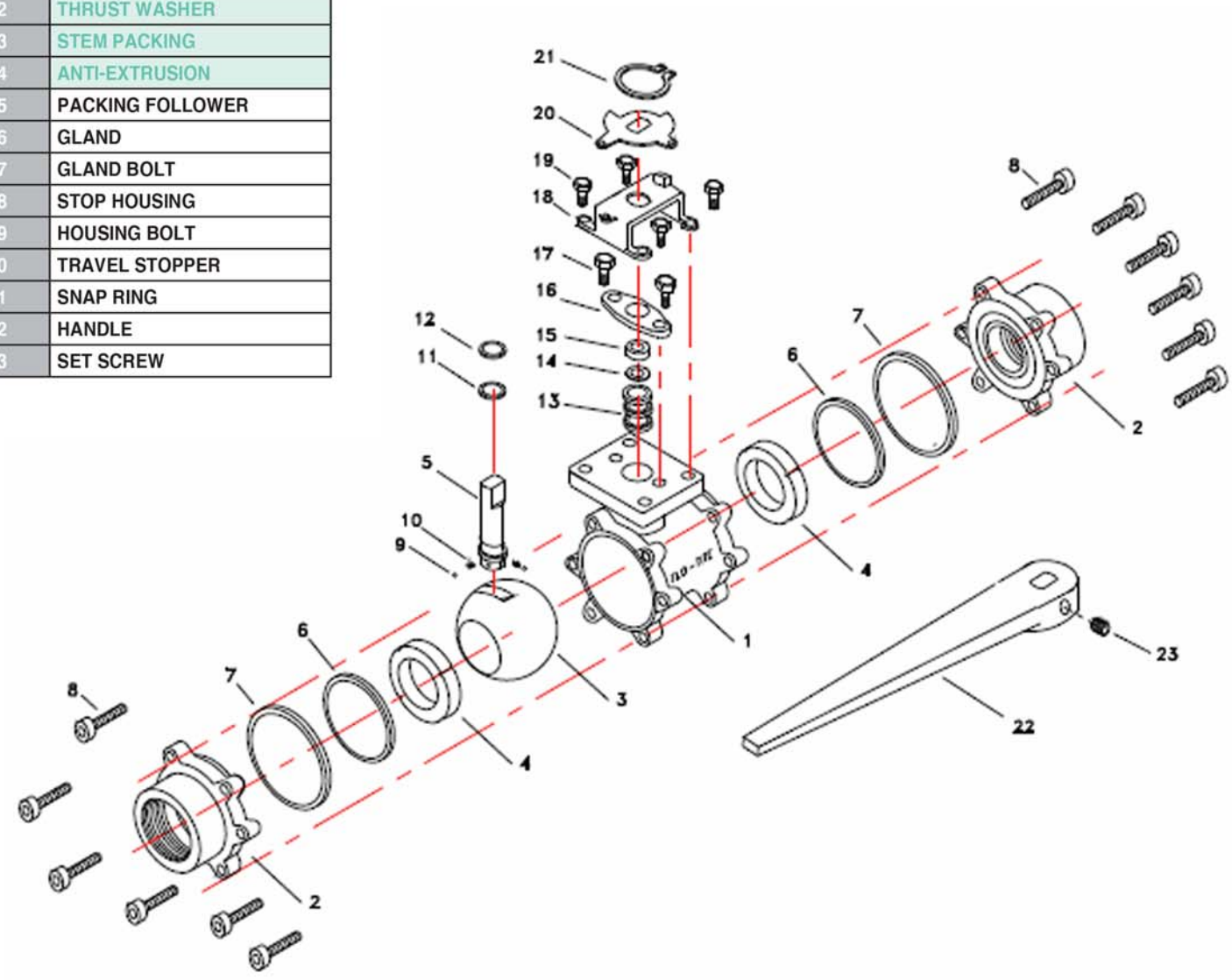
Tri-Pro Exploded View for 1/4" - 2"

ITEM	NAME
1	BODY
2	CAP
3	BALL
4	SEAT
5	GASKET
6	GASKET
7	BOLT
8	STEM
9	THRUST BEARING
10	THRUST WASHER
11	STEM PACKING
12	PACKING FOLLOWER
13	BELLEVILLE WASHER
14	LOCK WASHER
15	STEM NUT
16	HANDLE
17	STOPPER
18	PLASTIC COVER
19	LOCKING DEVICE
20	ANTI-STATIC SPRING
21	ANTI-STATIC BALL



Tri-Pro Exploded View for 3” - 4”

ITEM	NAME
1	BODY
2	CAP
3	BALL
4	SEAT
5	STEM
6	GASKET
7	GASKET
8	BOLT
9	ANTI-STATIC BALL
10	ANTI-STATIC SPRING
11	THRUST BEARING
12	THRUST WASHER
13	STEM PACKING
14	ANTI-EXTRUSION
15	PACKING FOLLOWER
16	GLAND
17	GLAND BOLT
18	STOP HOUSING
19	HOUSING BOLT
20	TRAVEL STOPPER
21	SNAP RING
22	HANDLE
23	SET SCREW



Please carefully review all important procedures in this manual. If anything is not clear, please feel free to contact Flo-Tite directly