

A
Bray
High
Performance
Company

Flow-Tek

A Subsidiary of BRAY INTERNATIONAL, Inc.

INSTALLATION - MAINTENANCE MANUAL (FP2000/FP3000 SP2000/SP3000)

3 PIECE TRIAD SERIES BALL VALVES

1. USE:

- 1.1 Maximum results and long valve life can be maintained under normal working conditions and in accordance with Flow-Tek's pressure/temperature and corrosion data. During shipment, storage, and in operation, the valve should be fully open or fully closed ("open" is preferred for shipping and storage). Do not use in intermediate positions without knowledge of flow and pressure drop.

2. OPERATION:

- 2.1 The opening and closing of the valve is done by turning the handle a 1/4 turn (90 deg. turn).
A. VALVE IN OPEN POSITION: The handle is in line with the valve or pipeline
B. VALVE IN CLOSED POSITION: The handle is across the pipeline.
- 2.2 Automated valves should be checked for alignment of actuator shaft and valve stem. Severe stem seal damage will result if alignment is improper.
- 2.3 **Stem Seal Adjustment:** If slight leakage is noted at stem, straighten lock washer tab, tighten stem nut to flatten Bellville Washers, back stem nut off 1/4 turn, secure lock washer tab.

3. DISASSEMBLY & CLEANING PROCEDURES:

Caution : Ball Valves can trap pressurized 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 are 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, etc.

4. GENERAL INFORMATION FOR ON-SITE INSTALLATION:

- 4.1 The valve may be fitted in any position on the pipeline;
- 4.2 Before installing the valves, the pipes must be flushed clean of dirt, burrs and welding residues, or you will damage the seats and ball surface;
- 4.3 The pipe must be free of tension.

5. INSTALLATION OF THREADED VALVES:

On threaded lines, valve can be screwed on, without the use of union, as the three-piece construction makes valve ends free, by removing all bolts.

- 5.1 Use conventional sealant, such as hemp core, Teflon, etc;
- 5.2 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;
- 5.3 In some applications, screwed valves are back-welded on site. Use care to ensure valve body remains below 140F (able to be touched) throughout seal welding process, or, disassemble as per instructions for weld end valves.

6. INSTALLATION OF EXTENDED WELD END VALVE

Butt weld valves with at least 3 inch extended weld ends do not require disassembly for installation welding. Simply open the valve, ensure that ball is in the full open position, and perform normal welding procedures, using care to ensure that the valve body does not reach a temperature above 200 °F.

7. INSTALLATION OF WELD-END VALVES (FP/SP2000, FP/SP3000 Series)

- 7.1 Tack-weld the valve on the pipe in four points on both end caps.
- 7.2 With the valve in open position, (the valve is in the open position when the handle is parallel to the axis of the valve and pipe), loosen all body bolts, take the body out.
- 7.3 Turn the handle in the half open position to assist in the removal of the seats and body gaskets.
- 7.4 Turn handle in closed position and remove ball.
- 7.5 Place all removed parts in a clean and secure place.
- 7.6 Replace the body and all bolts and tighten them slightly. This operation is very important, so that the body and end caps remain perfectly parallel, thus preventing any leakage at the body joint after welding.
- 7.7 Finish welding both end caps onto the pipe.
- 7.8 When cool, clean end caps, turn valve to closed position and replace ball. Turn valve in open position and replace seats and body gaskets.
- 7.9 Place body between the two end connections; then replace all bolts and tighten firmly(See Bolt Tightening Specification chart).

BOLT TIGHTENING SPECIFICATION:

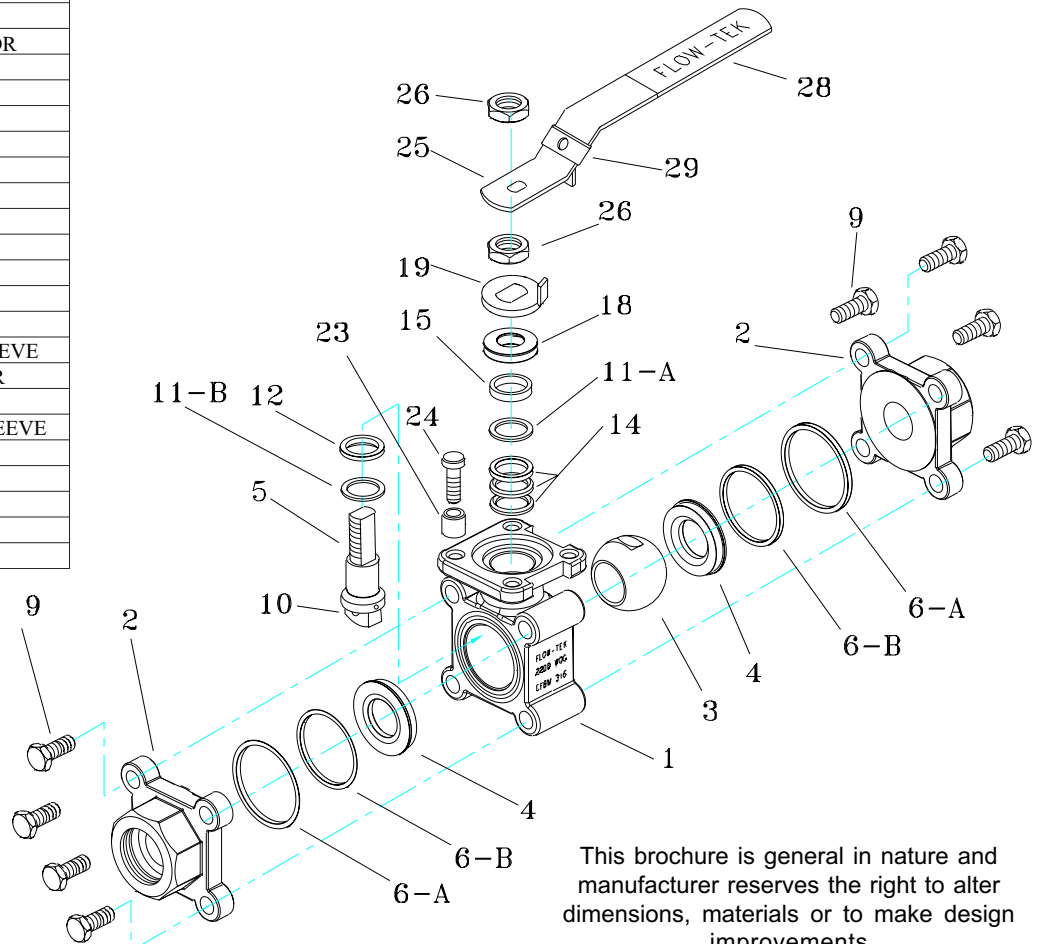
The body bolts of the valve should be tightened evenly. Tighten one bolt snugly, then the one diagonally across. Repeat for the other bolts, bringing them all down tightly in sequence to the figures given.

SIZE	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
Bolt Torque (in-lbs)	140	210	210	550	550	550

Part List:

ITEM	PART NAME
1	BODY
2	CAP END CONNECTOR
3	BALL
4*	SEAT
5	STEM
6-A*	BODY GASKET
6-B*	BODY GASKET
9	BODY BOLT
10	ANTI-STATIC
11-A*	THRUST BEARING
11-B*	THRUST BEARING
12*	THRUST WASHER
14*	STEM PACKING
15	PACKING GLAND SLEEVE
18	BELLEVILLE WASHER
19	LOCK WASHER
23	VALVE STOP - SETSLEEVE
24	VALVE STOP - BOLT
25	LEVER HANDLE
26	THIN NUT
28	PLASTIC COVER
29	LOCATING LOCK

Items with * are repair kits



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