

**1. USE:**

- 1.1 Maximum results and long life of the valves can be maintained under normal working conditions and according with pressure/temperature rating and corrosion data chart.

**2. MANUAL OPERATION:**

- 2.1 The opening and closing of the valve is done by turning the lever a ¼" turn (90 degrees).
- A. Valve in Open Position – the lever is in line with the valve or pipeline.
  - B. Valve in Closed Position – the lever is at right angle with the valve or pipeline.

**3. DISASSEMBLY & CLEANING PROCEDURE:**

Caution: ball valve can trap fluids in the ball cavity when closed.

- 3.1 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. Relief the line pressure.
  - B. Place valve in half-open position and flush the line to remove any hazardous material from the valve.
  - C. All persons involved in the removal and disassembly of the valve should wear the proper Protective clothing, such as face shield, gloves, etc.

Maintenance of parts is easy, even if the valve is installed in the line:

By removing all the body bolts except one and loosening the remain one, valve body can be swung out.

Seats, gaskets and ball can be replaced without disturbing pipe alignment.

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

**4. GENERAL INFORMATION FOR INSTALLATION:**

- 4.1 The valve can be installed in any position on the pipeline.
- 4.2 Before installation of the valves, the pipe must be flushed clean of dirt, burrs and welding residues, or the seats and ball surface will be damaged.
- 4.3 The pipe must be free from tension.

**5. INSTALLATION OF THREADED VALVES**

- 5.1 Use conventional sealant, such as hemp core, Teflon, etc. on the threads.
- 5.2 Apply wrench only on the hexagon of the valve ends. Tightening by using the valve body or lever can seriously damage the valve.
- 5.3 In some applications, screwed valves are backwelded on site; these valves must be treated as per instructions for weld end valves before backwelding.

**6. INSTALLATION OF WELD-END VALVES**

- 6.1 Tack weld the valve on the pipe in four points on both end caps.
- 6.2 With the valve in the open position, (lever to be parallel to the axis of the pipe), remove all the body bolts except one.  
Loosen the nut on the remaining bolt.  
Swing the body outside the pipe.
- 6.3 Finish welding both end caps on the pipe.
- 6.4 When cooled down, clean both end caps and body surface.

6.5 Swing the body back in position and replace the bolts. Tighten all nuts slightly. This operation is very important; to keep body and end caps perfectly parallel, thus preventing distortion of the end caps.

6.6 Tighten body bolts evenly. Make sure that maximum tightening torque is observed.

6.7 Check proper operation of the valve.

### BOLT TIGHTENING SPECIFICATIONS

The body bolts of the valve should be tightened evenly.

Tighten one-side snugly, then the one diagonal across.

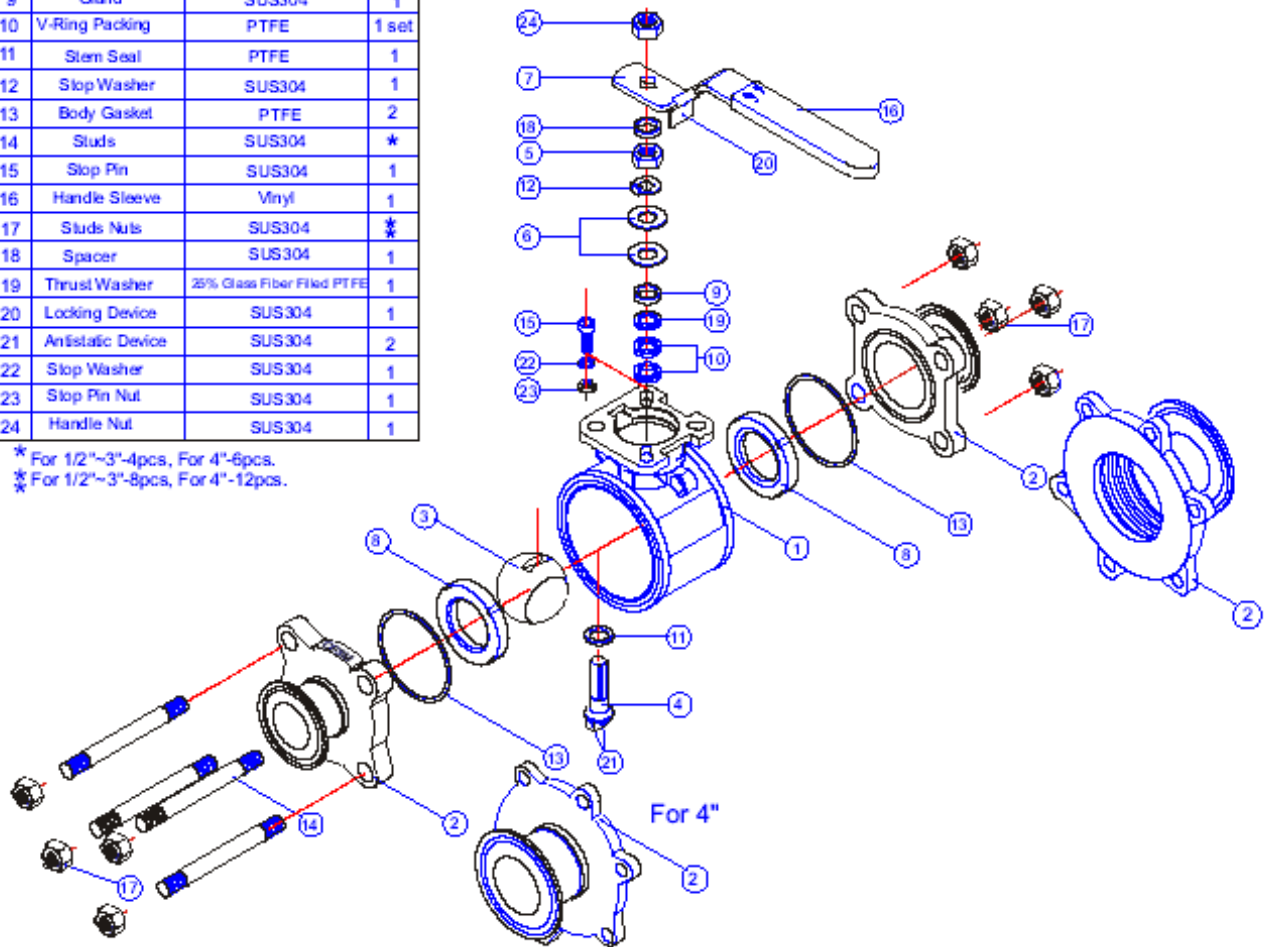
Repeat for the other bolts, bringing them all down tightly in sequence.

Valve Size	Break Away Torque (In-lbs.)		Torque of Body Bolts (In-lbs.)	Torque of Stem Nut (In-lbs.)
	Non-Cavity Filled	Cavity Filled		
1/2"	80	95	95 ~ 115	78
3/4"	90	100	105 ~ 125	78
1"	142	160	115 ~ 140	122
1-1/2"	319	410	290 ~ 320	165
2"	390	490	310 ~ 355	165
2-1/2"	806	1010	370 ~ 425	191
3"	921	1075	440 ~ 490	191
4"	1317	1400	460 ~ 505	217

MATERIALS LIST

NO.	PART NAME	MATERIAL	QTY
1	Body	CF3M	1
2	Clamp Ends	CF3M	2
3	Ball	SS316L	1
4	Stem	SS316L	1
5	Stem Nut	SUS304	1
6	Belleville Washer	SUS301	2
7	Handle	SUS304	1
8	Ball Seats	PTFE	2
9	Gland	SUS304	1
10	V-Ring Packing	PTFE	1 set
11	Stem Seal	PTFE	1
12	Stop Washer	SUS304	1
13	Body Gasket	PTFE	2
14	Studs	SUS304	*
15	Stop Pin	SUS304	1
16	Handle Sleeve	Vinyl	1
17	Studs Nuts	SUS304	*
18	Spacer	SUS304	1
19	Thrust Washer	25% Glass Fiber Filled PTFE	1
20	Locking Device	SUS304	1
21	Anti-static Device	SUS304	2
22	Stop Washer	SUS304	1
23	Stop Pin Nut	SUS304	1
24	Handle Nut	SUS304	1

77SN-10



\* For 1/2"-3"-4pcs, For 4"-6pcs.  
\* For 1/2"-3"-8pcs, For 4"-12pcs.



77 SERIES  
3-Piece Ball Valve Sanitary Ends  
Installation & Maintenance Manual

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