

**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.*

Clean all components thoroughly and examine all seating/sealing surfaces. NO eroded or corroded leak paths are permissible. If any are found, the part must be replaced. The ball must have no scratches across its seating surface and any damage to the port lip will destroy the new seats, a damaged ball must not be re-used.

- 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. Relieve 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 back welded on site, these valves must be treated as per instructions for weld end valves before back welding.

**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 Take off PTFE gasket from body, embed new graphite gasket into gasket groove of body.
  - **Note:** Weld-End valves contain PTFE joint gaskets for temporary purposes only, the provided graphite joint gaskets shall be used in place of the PTFE joint gaskets for final installation.
- 6.4 Finish welding both end caps on the pipe.  
6.5 When cooled down, clean both end caps and body surface.  
6.6 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.  
6.7 With the valve in the closed position, tighten the body bolts in a uniform pattern as to evenly compress the new

graphite gaskets. (Reference the following table for proper body bolt torques)  
6.8 Check proper operation of the valve.

**BOLT TIGHTENING SPECIFICATIONS**

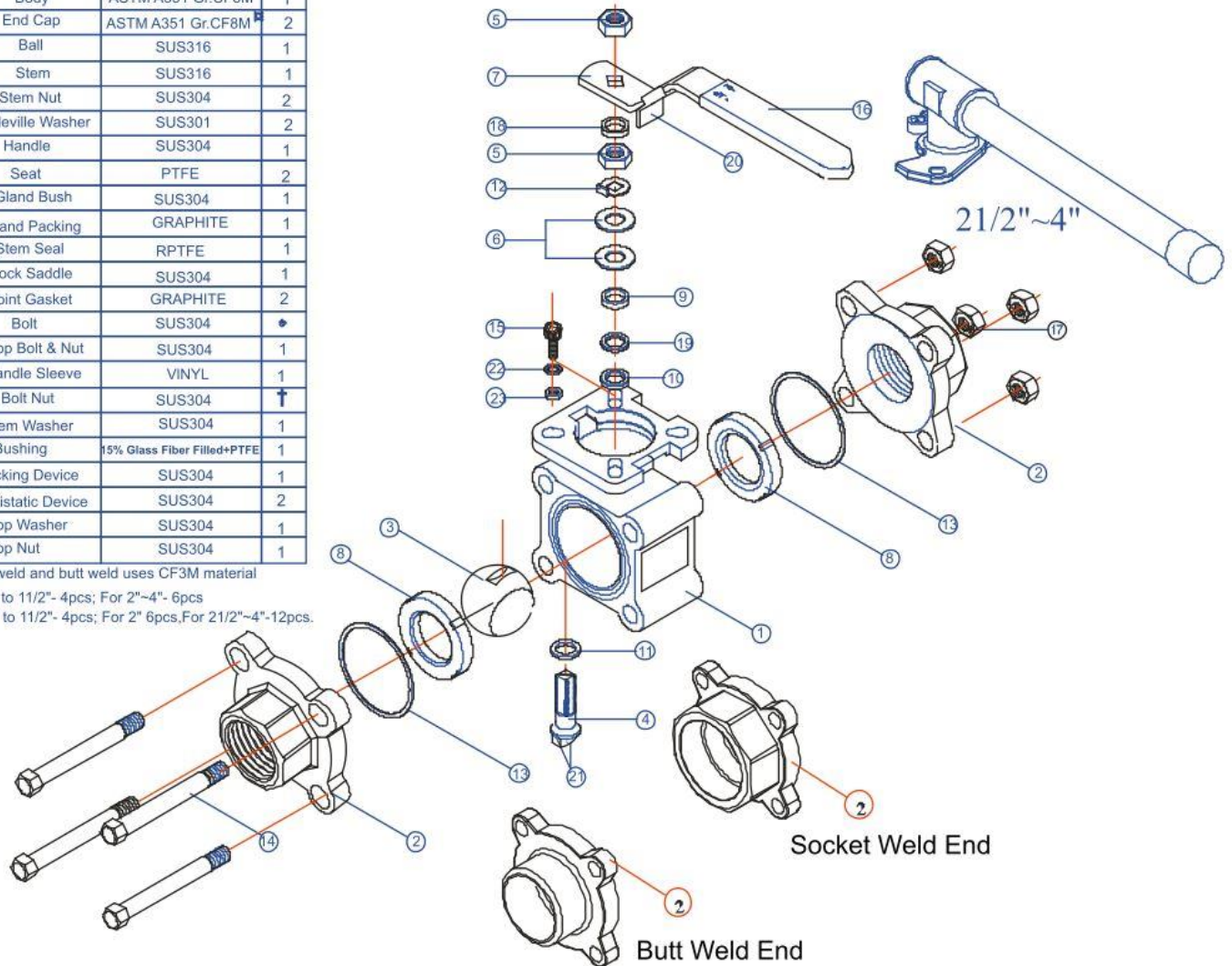
The body bolts of the valve should be tightened evenly.  
Tighten one-side snugly, then the one diagonal across.  
Repeat for the other bolts, bringing them all down tightly in sequence.

Valve Size	Break Away Torque (In-lbs.)	Torque of Body Bolts (In-lbs.)	Torque of Stem Nut (In-lbs.)
1/4"	75	70 ~ 80	78
3/8"	75	70 ~ 80	78
1/2"	80	70 ~ 80	87
3/4"	110	125 ~ 160	87
1"	150	170 ~ 200	130
1-1/4"	225	195 ~ 220	130
1-1/2"	320	335 ~ 375	174
2"	460	370 ~ 405	174
2-1/2"	610	415 ~ 440	208
3"	1000	435 ~ 485	208
4"	1600	485 ~ 515	226

MATERIALS LIST

NO	PART NAME	MATERIAL	Q'TY
1	Body	ASTM A351 Gr.CF8M	1
2	End Cap	ASTM A351 Gr.CF8M	2
3	Ball	SUS316	1
4	Stem	SUS316	1
5	Stem Nut	SUS304	2
6	Belleville Washer	SUS301	2
7	Handle	SUS304	1
8	Seat	PTFE	2
9	Gland Bush	SUS304	1
10	Gland Packing	GRAPHITE	1
11	Stem Seal	RPTFE	1
12	Lock Saddle	SUS304	1
13	Joint Gasket	GRAPHITE	2
14	Bolt	SUS304	♦
15	Stop Bolt & Nut	SUS304	1
16	Handle Sleeve	VINYL	1
17	Bolt Nut	SUS304	†
18	Stem Washer	SUS304	1
19	Bushing	15% Glass Fiber Filled+PTFE	1
20	Locking Device	SUS304	1
21	Antistatic Device	SUS304	2
22	Stop Washer	SUS304	1
23	Stop Nut	SUS304	1

♦ Socket weld and butt weld uses CF3M material  
 ♦ For 1/2" to 1 1/2"- 4pcs; For 2"-4"- 6pcs  
 † For 1/2" to 1 1/2"- 4pcs; For 2" 6pcs, For 2 1/2"-4"-12pcs.



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