

## INSTALLATION & MAINTENANCE MANUAL

### TRIAD - SERIES 920D

### 2 PIECE FULL PORT BALL VALVES

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#### 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 date 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: non cavity filled 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 TRI-CLAMP VALVES

- 5.1 Use the proper clamp and oring for pressure range of application.
- 5.2 Place oring into oring groove on the tri-clamp valve.
- 5.3 Slide valve between the clamp fittings making sure oring stays in place.
- 5.4 Install clamp over both valve ends and clamp fitting insuring alignment.
- 5.5 Tighten both clamps on each valve end.
- 5.6 Check proper operation of the valve.

#### 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.

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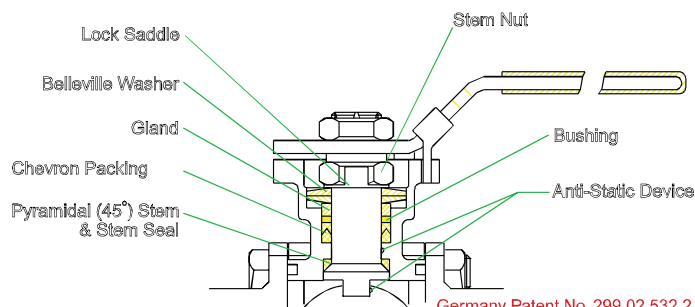
#### BOLT TIGHTENING SPECIFICATIONS

The body bolts of the valve should be tightened evenly.

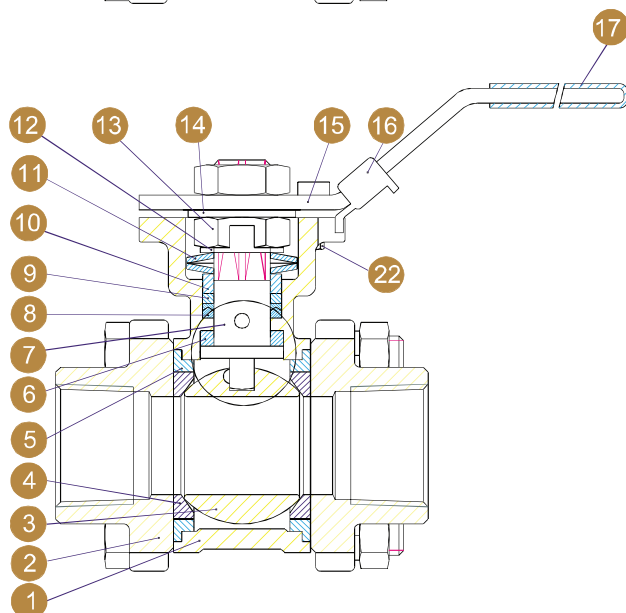
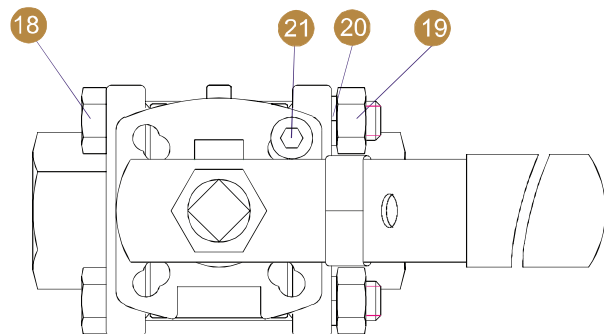
Tighten one-side snugly, then the one diagonal across.

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

Valve Size	Body Bolt Torque (in-lbs)
1/4"	27
3/8"	27
1/2"	27
3/4"	62
1"	106
1-1/4"	133
1-1/2"	177
2"	204
2-1/2"	275
3"	320
4"	530



Germany Patent No. 299 02 532.2  
 United States Patent No. 5,954,088  
 China Patent No. ZL 98 2 09161.3



#### MATERIALS LIST

NO.	PART NAME	MATERIAL		Q'TY
1	Body	CF8M	WCB	1
2	End Cap	CF8M	WCB	2
3	Ball	SUS316		1
4	Seat	RPTFE		2
5	Joint Gasket	PTFE		2
6	Stem Seal	RPTFE		1
7	Stem	SUS 316		1
8	Gland Packing	MG1241		2
9	Bushing	*		1
10	Gland Bush	SUS 304		1
11	Belleville Washer	SUS 301		2
12	Stop Washer	SUS 304		1
13	Stem Nut	SUS 304		2
14	Stem Washer	SUS 304		1
15	Handle	SUS 304		1
16	Locking Device	SUS 304		1
17	Handle Sleeve	Vinyl		1
18	Bolt	SUS 304		*
19	Bolt Nut	SUS 304		f
20	Bolt Washer	SUS 304		f
21	Stop Pin	SUS 304		1
22	Pin Nut	SUS 304		1

\* 25% Glass Fiber Filled + PTFE

\* For 1/4" to 2"-4pcs of bolts(single ended external thread)

\* For 2 1/2" to 3"-4pcs of bolts(double ended external thread)

\* For 4"-6pcs of bolts(double ended external thread)

f For 1/4" to 2"-4pcs

For 2 1/2" to 3"-8pcs

For 4" -12pcs