

## INSTALLATION & MAINTENANCE MANUAL

### TRIAD - SERIES 22

### 2 PIECE FULL PORT BALL VALVES

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#### 1. USE:

- 1.1 Life of valve can be maximized if the valve is used within the rated range, in accordance with pressure, temperature, and corrosion data.

#### 2. MANUAL OPERATION:

- 2.1 To open or close the valve, turn the handle ¼ turn (90 degrees).
- A. Valve in Open Position – the handle is in parallel (in-line) with the valve or pipeline.
  - B. Valve in Closed Position – the handle is perpendicular (crossed) with the valve or pipeline.

#### 3. DISASSEMBLING & CLEANING THE VALVE:

- 3.1 Ball valves can trap fluids in ball cavity when it is in closed position.
- 3.2 If the valve has been used in hazardous media ,
- A. Relieve the line pressure. Valve must be decontaminated before disassembly.
  - 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. REPLACING THE THRUST WASHER, PACKING, AND SEATS

- 4.1 Before replacing the thrust washer and the packing, the pipeline must be de-pressurized.
- 4.2 Take-off the valve from the pipeline.
- 4.3 Place valve in its' fully open position.
- 4.4 Take-off end cap with proper equipment (machine).
- 4.5 Close the valve and remove the seat, body seals and ball.
- 4.6 Remove the valve stem nut, handle, gland nut and remove the valve stem through the body cavity.
- 4.7 Remove the stem trust washer from the stem cavity.
- 4.8 Examine all metallic sealing surfaces such as ball, stem and end cap for damage, if the ball or stem is excessively damaged, ball and stem need to be replaced.

#### 5. RE-ASSEMBLING

Having assured that all critical surfaces and components have been inspected, cleaned and or replaced, re-assemble can be begin.

- 5.1 Place new trust washer on stem and install the stem.
- 5.2 Re-install gland nut and tighten to the torques listed on Table A.
- 5.3 Lightly lubricate seats and body seals using a lubricant.
- 5.4 Re-install end cap.
- 5.5 Re-install handle and secure with stem nut.

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Table A

Size	Series 22	
	In-lbs	Nm
1/4"	61	7.1
3/8"	61	7.1
1/2"	69	8.2
3/4"	69	8.2
1"	113	13.3
1 1/4"	113	13.3
1 1/2"	148	17.3
2"	148	17.3
2 1/2"	174	20.4
3"	174	20.4

(R-PTFE SEATS)

Valve Size		Break Away Torque		Cv	Kv
Inch	DN	In/Lb	Nm	G. P .M.	m <sup>3</sup> / h
1/4"	8	58	7	8	6.8
3/8"	10	58	7	8	6.8
1/2"	15	58	7	15	12.8
3/4"	20	69	8	34	29.1
1"	25	127	14	56	47.8
1 1/4"	32	161	18	85	72.6
1 1/2"	40	230	26	125	106.8
2"	50	323	36	250	213.7
2 1/2"	65	484	55	320	273.3
3"	80	772	87	580	495.3

30% safety factor included.

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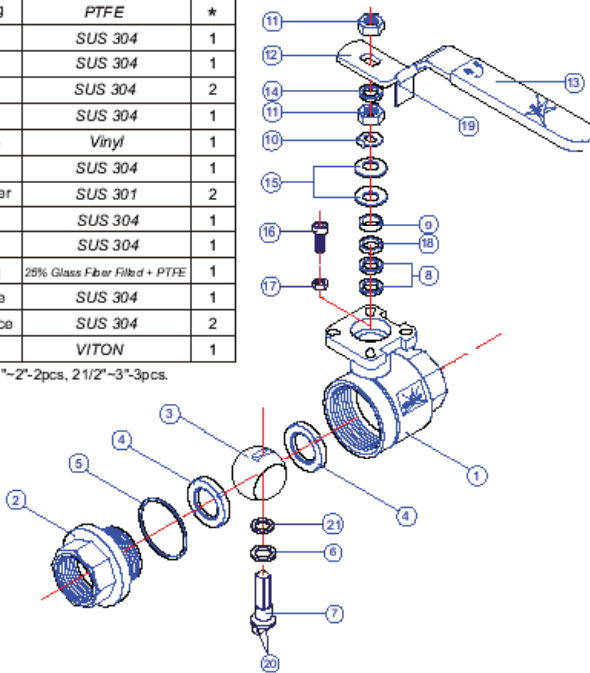
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#### MATERIALS LIST

NO.	PART NAME	MATERIAL	Q'TY
1	Body	ASTM A351 Gr. CF8M	1
2	End Cap	ASTM A351 Gr. CF8M	1
3	Ball	SUS 316	1
4	Seat	PTFE/RTFE	2
5	Joint Gasket	PTFE	1
6	Stem Seal	PTFE/RTFE	1
7	Stem	SUS 316	1
8	Gland Packing	PTFE	*
9	Gland Bush	SUS 304	1
10	Stop Washer	SUS 304	1
11	Stem Nut	SUS 304	2
12	Handle	SUS 304	1
13	Handle Sleeve	Vinyl	1
14	Stem Washer	SUS 304	1
15	Belleville Washer	SUS 301	2
16	Stop Pin	SUS 304	1
17	Pin Nut	SUS 304	1
18	Gland Packing	25% Glass Fiber Filled + PTFE	1
19	Locking Device	SUS 304	1
20	Antistatic - Device	SUS 304	2
21	O-Ring	VITON	1

\* 1/4"-1/2"-1pcs, 3/4"-2"-2pcs, 2 1/2"-3"-3pcs.



(RTFE Seats /Seals)  
 Pressure Vs. Temperature Chart  
 for Valve 1/4" (DN8) to 3" (DN80)

