3-way ball valve L or T port

Installation, Operation & Maintenance



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1.0 BRIEF INTRODUCTION

Type 1612/1712 3-way ball valves have been designed and engineered to provide long lasting and trouble free service when used in accordance with the instructions and specifications mentioned in this manual.

1.1 Life time

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

2. MANUAL OPERATION

2.1 Flow pattern

- Type 1612/1712 3-way Ball Valves are allowed for 0 - 90 - 180 - 360 degree by turning the handle based on different flow paths.
- Both "T" port and "L" port are available.

3. AUTOMATED OPERATION

Direct mounting of Pneumatic or Electric Actuator on Valves, No Bracket and Coupling is required.

4. GENERAL INFORMATION FOR ON-SITE INSTALLATION

4.1 Mounting instructions

- The valve may be fitted in any position on the pipe line
- To prevent damage to the seats and ball surface, the pipeline must be flushed, free of dirt, burrs, and welding residues before installing the valve.
- For threaded end valves use conventional sealant, such as hemp core, teflon tape, etc. on the threads. Apply pipe wrench on the end cap of the ball valve only, tightening by using the valve body or handle can seriously damage the valve.
- Check properly operation of the valve.

5. DISASSEMBLING AND CLEANING THE VALVE:

CAUTION: BALL VALVE CAN TRAP FLUIDS IN THE BALL CAVITY WHEN CLOSED.

5.1 Hazardous media and silicone-based lubricant.

- If the valve has been used in hazardous media, it must be decontaminated before disassembly.
- As shipped from the factory, valves contain silicone-based lubricant. If silicone is unacceptable for your particular application, you may disassemble the valve and wash the parts in solvent.
- Before disassembly, be sure to discharge any hazardous media that might be entrapped in any valve cavity.

It is recommended that the following steps are taken for safe removal and reassembly.

A. Relief the line pressure.

B. All persons involved in the removal and disassembly of the valve should wear the proper protective clothing, such as face shield, glovers, etc.

6. REPLACING THE THRUST WASHER, PACKING, & SEATS:

CAUTION: BALL VALVE CAN TRAP FLUIDS IN THE BALL CAVITY WHEN CLOSED.

6.1 Dismantling

Before disassembly, be sure to discharge any hazardous media that might be entrapped in any valve cavity. It is recommended that the following steps are taken for safe removal and reassembly.

- Relief the line pressure.
- All persons involved in the removal and disassembly of the valve should wear the proper protective clothing, such as face shield, glovers, etc.

Before replacing the thrust washer and packing, the pipeline must be de-pressurized. Stem leakage may be corrected without replacing the stem packing. Tighten the stem gland nut until leakage stops, if leakage continues or valve's operating torque becomes excessive, the stem seal is worn and must be replaced.

- Remove valve from pipeline.
- Remove end caps, body seal, seats, and ball.
- Remove stem nut, gland, stop, etc. and push stem into valve cavity. Remove stem seats and thrust washer.

6.2 Assembly

All Components have been cleaned, inspected, and replaced as necessary, the valve can be rebuilt using the factory repair kit recommended. Put new Stem Seal and O-ring on stem, insert the stem through body cavity into stem hole, install ball in the position. Assemble new stem packing, gland, Belleville washer, and stem nut. Tighten stem nut so that stem will feel snug and firm. **DO NOT OVERTIGHTEN**. Assemble the back seat into body, insert body gasket on seal surface. Assemble second, third, and fourth seats into cavity of end caps and insert the same into body. Apply wrench on the hexagonal ends of the valve only. Tightening using the valve body or handle can seriously damage the valve.

BREAK AWAY TORQUE IN IN-LB. AND NM (BREAK TORQUE AT 0 PSI)
30% SAFETY FACTOR INCLUDED.

Size	Full Port		Reduced Port	
	In-Lb	Nm	In-Lb	Nm
1/4"	105	11	-	-
3/8"	105	11	105	11
1/2"	125	13	105	11
3/4"	150	16	125	13
1"	275	30	150	16
1 1/4"	495	53	275	30
1 1/2"	610	66	495	53
2"	690	74	610	66

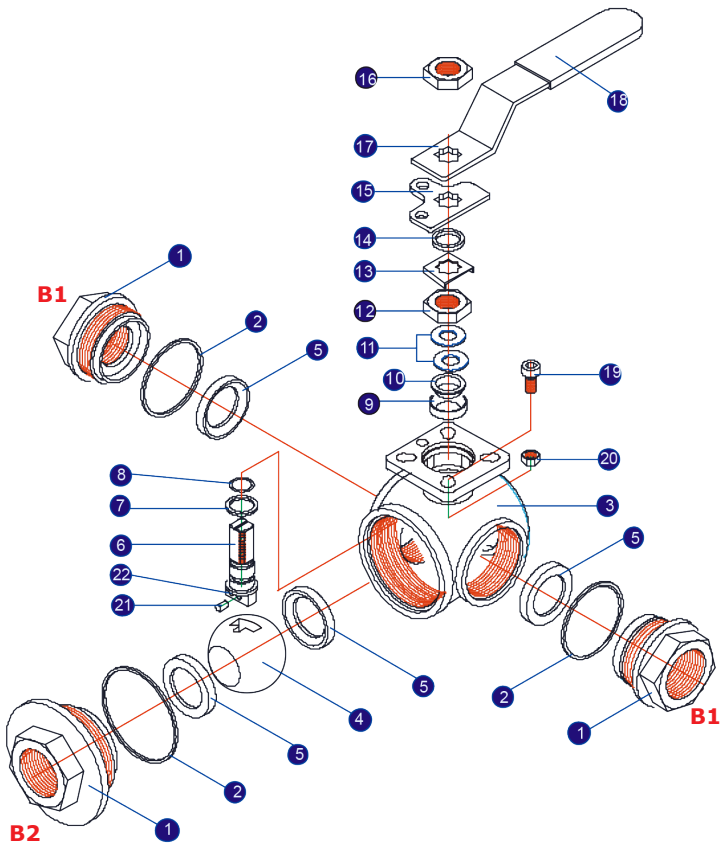
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Size	Torque of Stem nut Nm		Torque of thread ends Nm			
	Full Bore	Reduced Bore	B1 (smaller end)		B2 (large end)	
			Full bore	Reduced Bore	Full bore	Reduced Bore
1/4"	11	11	40	40	45	45
3/8"	11	11	40	40	45	45
1/2"	11	11	45	40	50	45
3/4"	18	11	50	45	55	50
1"	18	18	70	50	72	55
1 1/4"	30	18	83	70	90	72
1 1/2"	30	30	105	83	115	90
2"	36	30	122	105	127	115

MEDIA & SERVICEFACTORS	
Media Factors	**Multiplier**
Clean, particle free, non-lubricating (water, alcohol, etc)	1.00
Clean, particle free, non-lubricating (oils, hydraulic fluid, etc)	0.80
Slurries or heavily corroded and contaminated systems	2.00
Gas or saturated steam, clean and wet	1.00
Gas or superheated steam, clean and dry	1.30
Gas, dirty unfiltered e.g. natural gas, Chlorine	1.50
Service Factors	**Multiplier**
Simple On and Off Operations	1.00
Throttling	1.20
Positioner Control	1.50
Once per day Operations	1.20
Once every two days or a "Plant Critical" Operation	1.50

TORQUE DETERMINATION: BASIC TORQUE * MEDIA FACTOR * SERVICE FACTOR = SIZING TORQUE

NO.	PART NAME	MATERIAL	Q'TY
1	End Cap	*A351 Gr. CF8M*	3
2	Gasket	*PTFE*	3
3	Body	*A351 Gr. CF8M*	1
4	Ball	*SS 316*	1
5	Seat	*PTFE/RPTFE*	4
6	Stem	*SS 316*	1
7	Stem Seal	*RPTFE*	1
8	O-Ring	*VITON*	1
9	Stem Packing	*GRAPHITE*	1
10	Gland	*SS 304*	1
11	Belleville Washer	*SS 301*	2
12	Stem Nut	*SS 304*	1
13	Nut Stop	*SS 304*	1
14	Space Washer	*SS 304*	1
15	Plater Stopper	*SS 304*	1
16	Handle Nut	*SS 304*	1
17	Handle	*SS 304*	1
18	Handle Sleeve	*Vinyl*	1
19	Stop Pin	SS 304	1
20	Pin Nut	SS 304	1
21	Insert Pin	SS 316	1
22	Anti-static Device	SS316	1



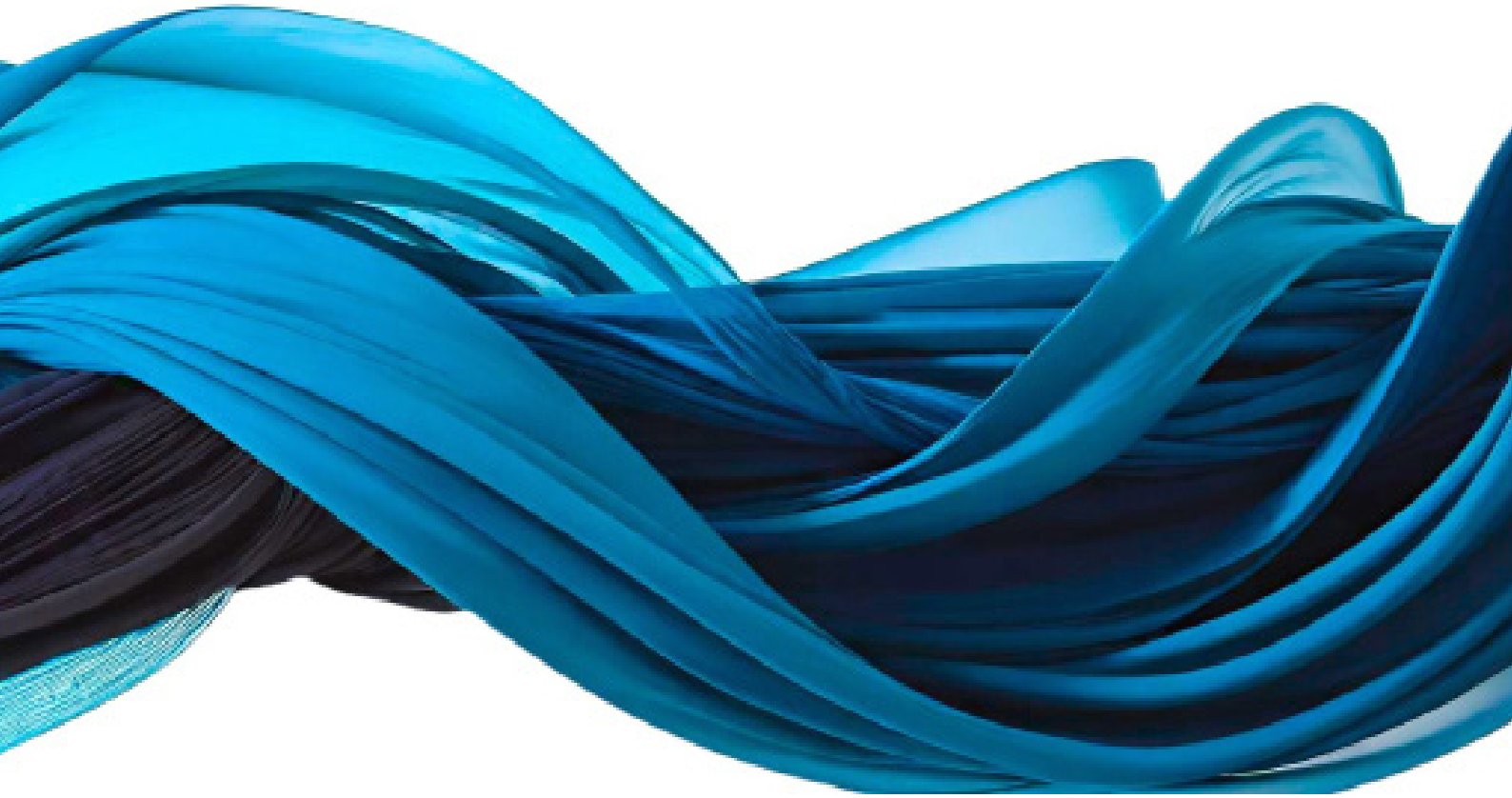
The Expert Leader

Concepts for flow technology

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