

INSTALLATION & MAINTENANCE MANUAL

SERIES 77SN-10

3-PIECE TRUE PORT BALL VALVES

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.

Series 77SN-10 Torque

Valve Size	Break Away Torque(Nm) F. Bore	Break Away Torque(IN-LBS) F. Bore	Cv U.S.GPM F. Bore
1/2"	9	80	14
3/4"	10	95	45
1"	16	140	81
1 1/2"	40	360	215
2"	48	430	410
2 1/2"	98	870	618
3"	111	1000	980
4"	117	1100	1840

In-Lbs		Nm	
1/2"	95 ~ 113	1/2"	10.8 ~ 12.7
3/4"	104 ~ 122	3/4"	11.8 ~ 13.7
1"	113 ~ 139	1"	12.7 ~ 15.7
1.1/2"	286 ~ 312	1.1/2"	32.3 ~ 35.3
2"	304 ~ 347	2"	34.3 ~ 39.2
2.1/2"	365 ~ 417	2.1/2"	41.2 ~ 47
3"	434 ~ 477	3"	49 ~ 53.9
4"	451 ~ 495	4"	51 ~ 55.9

Torque of Body Bolts

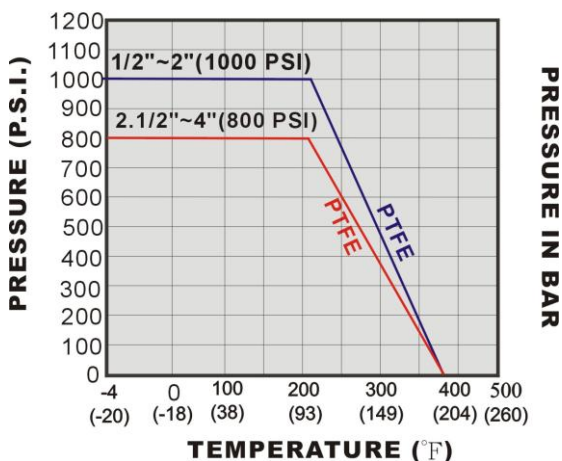
Threads

- M8
- M8
- M8
- M10
- M12
- M14
- M16
- M16

SIZE	In-lbs	Nm	Kg/cm
1/2"	78	9.2	90
3/4"	78	9.2	90
1"	122	14.3	140
1.1/2"	165	19.4	190
2"	165	19.4	190
2.1/2"	191	22.4	220
3"	191	22.4	220
4"	217	25.5	250

Torque of Stem Nut

Pressure Vs. Temperature Chart



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MATERIALS LIST

NO.	PART NAME	QTY	MATERIAL
1	BODY	1	CF3M
2	END CAP	2	CF3M
3	BALL	1	SS316L
4	SEAT	2	PTFE
5	JOINT GASKET	2	PTFE
6	STEM SEAL	1	RTFE
7	STEM	1	SS316L
8	STEM PACKING	#	PTFE
9	STEM PACKING	1	25% GLASS FIBER FILLED+ PTFE
10	GLAND	1	SS304
11	BELLEVILLE WASHER	2	SS301
12	LOCK SADDLE	1	SS304
13	STEM NUT	2	SS304
14	STEM WASHER	1	SS304
15	HANDLE	1	SS304
16	LOCKING DEVICE	1	SS304
17	HANDLE SLEEVE	1	VINYL
18	BOLT	*	SS304
19	BOLT NUT	&	SS304
20	BOLT WASHER	&	SS304
21	STOP PIN	1	SS304
22	WASHER	1	SS304
23	PIN NUT	1	SS304
24	Antistatic Device	2	SS316

1/2"~2" - 2pcs, 2 1/2"~4" - 3pcs.

* For 1/2"~3" - 4pcs, For 4"~6pcs.

& For 1/2"~3" - 8pcs, For 4"~12pcs.

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