

Installation, Operation & Maintenance Instructions Wafer Type Flanged End Ball Valves (200955)

1. **Scope: This instruction applies to 1-PC Body Flanged End Ball Valves.**

Direct Mount: 200955

2. **Warning (Restrictions on Use)**

a. Temperature and Pressure Limit

- The normal maximum operating pressure at maximum or minimum operating temperature is shown on nameplate.
- The operating temperature is within -29°C to 200°C (if shell is WCB), or -37°C to 200°C (if shell is 304/316) for PTFE or RTFE seat and sealing. Other seat and sealing operating temperature shall be checked with TUNING.
- The nominal pressure (PN) rating describes maximum working pressure in cold operating temperature (e.g. PN40 describes maximum working pressure 40 bar at $-39^{\circ}\text{C} \sim 40^{\circ}\text{C}$).

b. No throttling operation

- Don't leave the ball partly open (throttling operation) where the pressure drop and/or flow rate damage to the valve seats and/or ball.

3. **Installation**

- Remove the protective cover on both flange end, and clean or flush the valve in fully open position.
- Prior to mounting, flush and clean the pipeline and valve to remove all accumulated extraneous matters.
- During the handing process, do not use the valve stem or handle (wheel) as a fulcrum for the lifting cable to avoid collapse and accidental injury.
- The valve may be fitted in any position and direction in the pipeline.
- Make sure the pipeline at the installation point is not bent down and/or tension, use a pipe hanger or supports for the purpose to eliminate any deviation of the piping.
- Tighten the flange bolt crosswise using the stipulated torque, to see bellow table A.

Warning:

★ When the valve is used at the very end of the pipelines, the end cap of the valve must be facing and connecting towards the pipeline. Be extremely careful that it should never be facing on the opposite direction (away from the pipeline). Please refers to the below picture for the correct valve direction when the valve is installed under such circumstances.

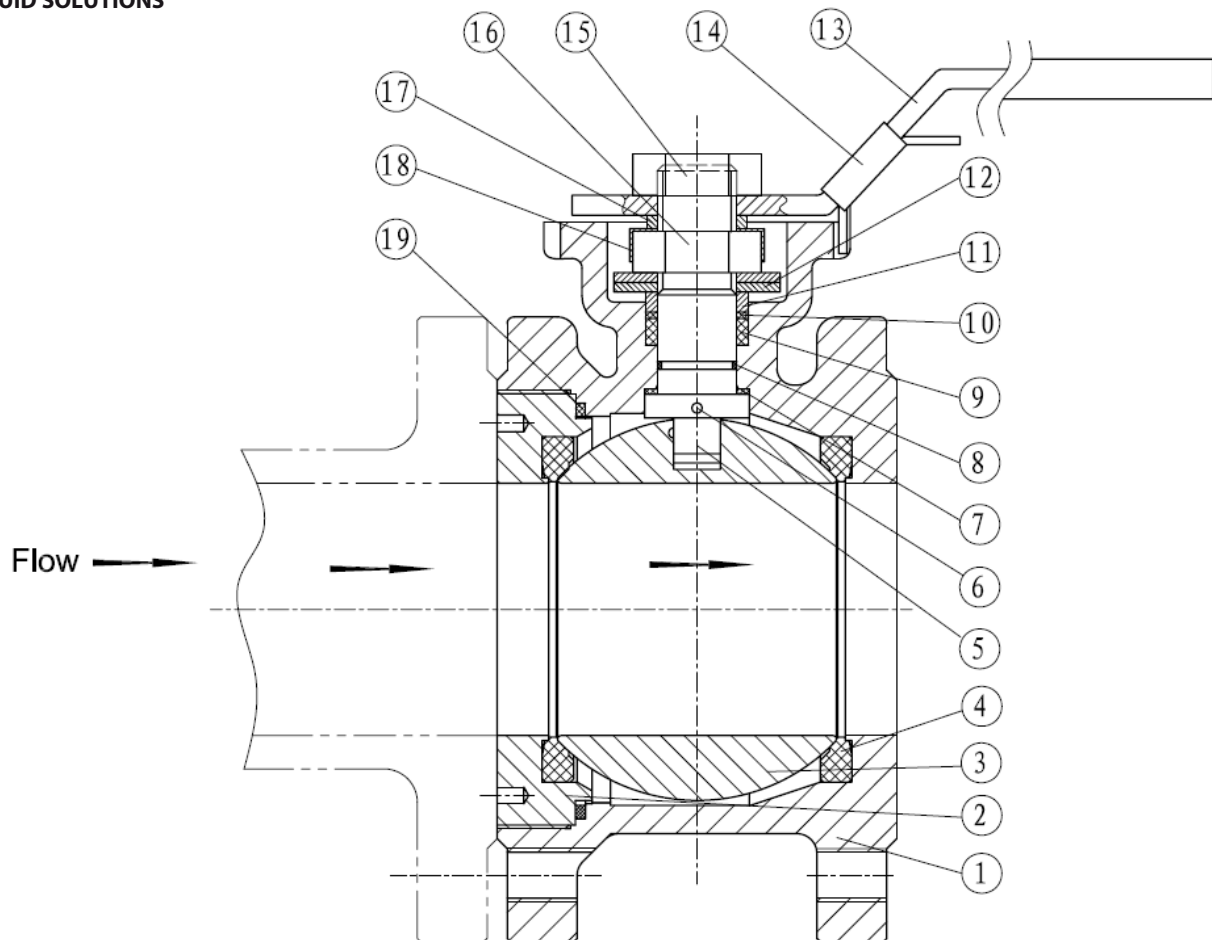


Figure--- Installation Instruction when the valve is used for pipeline ends.

Table A: Torque figure for Flange Bolt tighten

Material & Unit Bolt Size	Alloy Steel (B7)		Stainless Steel	
	IN-LB	N.M	IN-LB	N.M
5/16-18UNC/M8	240	27.2	100	11.3
3/8-16UNC	420	47.5	160	18.1
7/16-14UNC/M10	660	74.7	280	31.7
1/2-13UNC/M12	1000	113.2	400	45.3
9/16-12UNC/M14	1460	165.2	580	65.6
5/8-11UNC/M16	2010	227.4	800	90.5
3/4-10UNC/M20	3580	405.1	1400	158.4
7/8-9UNC/M22	5770	652.9	2250	254.6
1-8UNC/M24	8650	978.7	3250	367.7
1,1/8-8UNC/M28	12700	1437.0	4000	452.6

Table B: Torque figure for Stem Nut tighten

Valve Size	IN-LB	N.M
1/2 "	70~80	8.0~9.0
3/4 "	70~80	8.0~9.0
1 "	90~100	9.0~11.3
1-1/4 "	90~100	9.0~11.3
1-1/2 "	140~160	15.8~18.1
2 "	140~160	15.8~18.1
2-1/2 "	180~200	20.4~22.6
3 "	180~200	20.4~22.6
4 "	250~270	28.3~30.6
5 " ~6 "	300~350	34.0~39.6
8 "	580~630	65.6~71.3
10 "	800~850	90.5~96.2

4. Operation and Use

- Flush the ball valve and pipeline thoroughly again before operation.
- The operation of the valve consists of turning the stem (by manual or automated means) 1/4 turn

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(90°) clockwise to close, and 1/4 turn (90°) counter-clockwise to open.

- c. When the handle (if used) and/or stem flats or groove are in line with the pipe, the valve is open.
- d. Operating torque requirements will vary depending on the length of time between cycles, media in the system, line pressure and type of valve seat. The figures in the following table C are based on PTFE seats with clean water as the media.

Table C: Torque Value

△ P difference-pressure

unit: inch-lb/nm

Size/△P		75psi		150psi		300psi		700psi		1000psi		1500psi	
		5Bar		10Bar		20Bar		50Bar		63Bar		100Bar	
		Nm	In-lb	Nm	In-lb	Nm	In-lb	Nm	In-lb	Nm	In-lb	Nm	In-lb
1/4	DN8	4.5	40	4.5	40	4.5	40	4.5	40	4.5	40	4.5	40
3/8	DN10	4.5	40	4.5	40	4.5	40	4.5	40	4.5	40	4.5	40
1/2	DN15	5	44	5	44	5	44	5	44	5	44	5	44
3/4	DN20	6	53	6	53	6	53	6	53	6	53	6	53
1"	DN25	10	89	10	89	10.5	93	11	97	11	97	11	97
1-1/4	DN32	13	115	13	115	15	133	17	150	19	168	20	177
1-1/2	DN40	19	168	19	168	22	195	24	212	26	230	28	248
2"	DN50	25	221	28.5	252	32	283	35	310	38	336	42	372
2-1/2	DN65	40	354	45	398	49	434	54	478	59	522	65	575
3"	DN80	65	575	72	637	81	717	90	797	101	894	112	991
4"	DN100	100	885	110	974	122	1089	135	1195	148	1310	162	1435
5"	DN125	190	1682	208.5	1845	245	2168	285	2522				
6"	DN150	280	2478	306	2708	340	3009	408	3611				
8"	DN200	370	3275	430	3086	487	4310	560	4956				

5. Maintenance

Long life and maintenance-free of valves can be maintained under normal working conditions and in accordance with pressure/temperature and corrosion data chart.

Warning:

- ★ Ball Valves can trap pressurized fluids in the Ball cavity when closed position.
- ★ Prior to maintenance, relieve the line pressure and put ball in open position.

a. Re-tighten packing

- Should a leakage occur at the gland packing, retighten the stem (gland) nut (16).
- Take care that the stem nut (16) are not tighten too much. Normally the leakage can be stopped by simply turning the stem nut (16) by 30° to 60°.

b. Replacement of seats and seals.

Disassembly

- Place the valve in half-open position and flush the line to remove any hazardous material from the valve body.
- Place the valve in close position, remove both counter flange bolts & nuts and lift valve from line.
- Remove handle nut (15), handle (13) or actuator set, stop-lock-cap (14), stem nut (16), Belleville washer (12), gland (11), bush(10),stem packing (9)
- Remove cap (2), separated from body (1), remove body gasket (19).
- Make sure ball in "Close" position, thus the ball (3) can be taken out easily from body, then take out body ball seat.

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- Push stem (5) down into the body cavity and remove, then remove stem seal-ring (8), V-stem packing (9) from the body.

Caution: Use care to avoid scratching the surface of stem and packing chamber.

Reassembly

- Reassembly process is reverse sequence of disassembly.
- Clean and inspect all parts, full replacement of all soft parts (seats and seals) are strongly recommended.
- Tighten the cap (2) crosswise using the stipulated torque figure .
- Tighten the stem nut (16) using the table B stipulated torque figure.
- Cycle the valve slowly with gentle back and forth motion to build gradually to full quarter turn.
- If possible, test the valve before placing it back to line for service.

Please note that the instruction is only for reference, any discrepancy please contact with the factory for understanding.