

# FIGURE 200A SERIES

## STAINLESS STEEL BALL VALVES



### 2 PC FULL PORT 1000 CWP

## 1. SCOPE

This instruction applies to FNW 200A series 2-pc body, full port, 1000 CWP (PN63), screwed end, ball valve and directly mounted ISO 5211 ball valve.

## 2. WARNING (OPERATION LIMITATION)



### 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–175°C for TFM1600 seat and sealing. Other seat and sealing operating temperatures should be checked with FNW.
- The nominal pressure (PN) rating describes body maximum working pressure in cold operating temperature (e.g. PN63/1000 CWP describes body maximum working pressure 63 bar at -29°C–38°C). The working temperature may differ when using different materials for seat, stem packing and body gasket.

### Fluids Limit

- With soft-seat, fluids containing particles or coagulates are not acceptable. Please refer to the anti-corrosion table and choose different anti-corrosive materials for body and sealing.

### Throttling Operation Damage

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

## 3. STORAGE PROCEDURE

- Valves should be kept in a clean, dry, fire-resistant area within a weather-tight, well-ventilated, storage facility that will not be subject to flooding and that utilizes flooring sealed against dust and dirt.
- Protective plastic cover on the valve ends should not be removed.
- Valve assemblies with electrical components, pneumatic tubing, positioners, actuators, and other accessories should be protected from impact.
- Never lift or move the valve assembly by using the actuator, positioner, extensions or other valve options. It is recommended to use adequate lifting equipment around the valve.
- Periodical checks of the storage area must be performed at least every six months. Valves must be operated for three full cycles for each periodical check.
- The transportation of all packed material must be carried out safely and following the local safety regulations.

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#### 4. INSTALLATION

- Before installation, please make sure the valve markings (such as pressure, flow direction, material, etc.) are aligned with the intended application.
- Remove the protective plastic cap on the 2-threaded end and clean the valves.
- Prior to installing, flush and/or clean the pipeline to remove all accumulated mineralization and potential debris that may damage the ball valve seats or surfaces.
- Use conventional sealant (e.g. PTFE tapes) to seal threaded ends on the pipeline.
- Use a pipe wrench on the hexagonal end of the valve only and tighten in place. Do not use on the valve body or handle to adjust the fit. Improper installation can cause serious damage to the valve.
- After installation, make sure there is no stress left on the pipeline.

#### 5. OPERATION

- Prior to operation, make sure to clean and flush the whole pipeline completely.
- To use, turn the stem (by manual or automated means) by 1/4 turn or 90-degrees clockwise to close the valve and 1/4 turn counter-clockwise to open.
- When the handle (if used) and/or stem flats or groove are in line with the pipeline, the valve is open.
- This FNW 200A series ball valve can also operate with a mounted actuator on the ISO5211 flange/plate. Refer to the catalog to check the appropriate flange number.
- 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 B are based on TFM1600/PTFE seats with clean water as the media.

TABLE A: TORQUE FIGURE FOR STEM NUT TIGHTEN & BODY-CAP TIGHTEN

Valve Size		Stem Nut Tighten		Body-Cap Tighten	
NPS	DN	in•lb	N•m	in•lb	N•m
1/4	8	80–106	9–12	974–1150	110–130
3/8	10	80–106	9–12	974–1150	110–130
1/2	15	80–106	9–12	974–1150	110–130
3/4	20	80–106	9–12	1328–1593	150–180
1	25	106–142	12–16	1682–1947	190–220
1-1/4	32	106–142	12–16	2920–3186	330–360
1-1/2	40	151–195	17–22	3805–4160	430–470
2	50	151–195	17–22	4780–5310	540–600
2-1/2	65	221–283	25–32	6903–7346	780–830
3	80	221–283	25–32	9293–9824	1050–1100

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TABLE B: TORQUE VALUE ( $\Delta P$ = difference-pressure and unit: in-lb/N·m)

Size/ $\Delta P$		75 psig		150 psig		300 psig		700 psig		1000 psig	
		5 bar		10 bar		20 bar		50 bar		63 bar	
NPS	DN	N·m	in·lb	N·m	in·lb	N·m	in·lb	N·m	in·lb	N·m	in·lb
1/4 & 3/8	8 & 10	5	44	5	44	5	44	5	44	5	44
1/2	15	5	44	5	44	5	44	5	44	5	44
3/4	20	6	53	6	53	6	53	6	53	6	53
1	25	10	88	10	88	11	97	11	97	11	97
1-1/4	32	13	115	13	115	15	133	17	150	19	168
1-1/2	40	19	168	19	168	22	194	24	212	26	230
2	50	25	221	29	256	32	283	35	310	38	336
2-1/2	65	40	354	45	398	49	434	54	478	59	522
3	80	65	575	72	637	81	717	90	796	101	894

## 6. MAINTENANCE

To guarantee safe and effective operation over time, maintain the ball valve regularly. Ensure the valve is operated under normal working conditions and in accordance with the pressure/temperature and corrosion data chart.

### Warning



- Ball valves can trap pressurized fluid in the ball cavity when in the closed position. Before beginning any maintenance, relieve the line pressure and put the ball in the open position.
- If the fluid is toxic, harmful, high-pressure or otherwise dangerous, please follow all applicable safety procedures before performing any work.

### Re-Tighten Packing

For maximum stem packing life, proper packing adjustment procedure must be followed:

- Should a leakage occur at the gland packing, re-tighten the stem nut (14) or (11) or gland (9).
- Take care that the stem nut (14) or (11) or gland (9) is not tightened too much. Normally the leakage can be stopped by simply turning the stem nut (14) or (11) or gland (9) by 30°–60°.

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#### Replacement of Seats and Seals

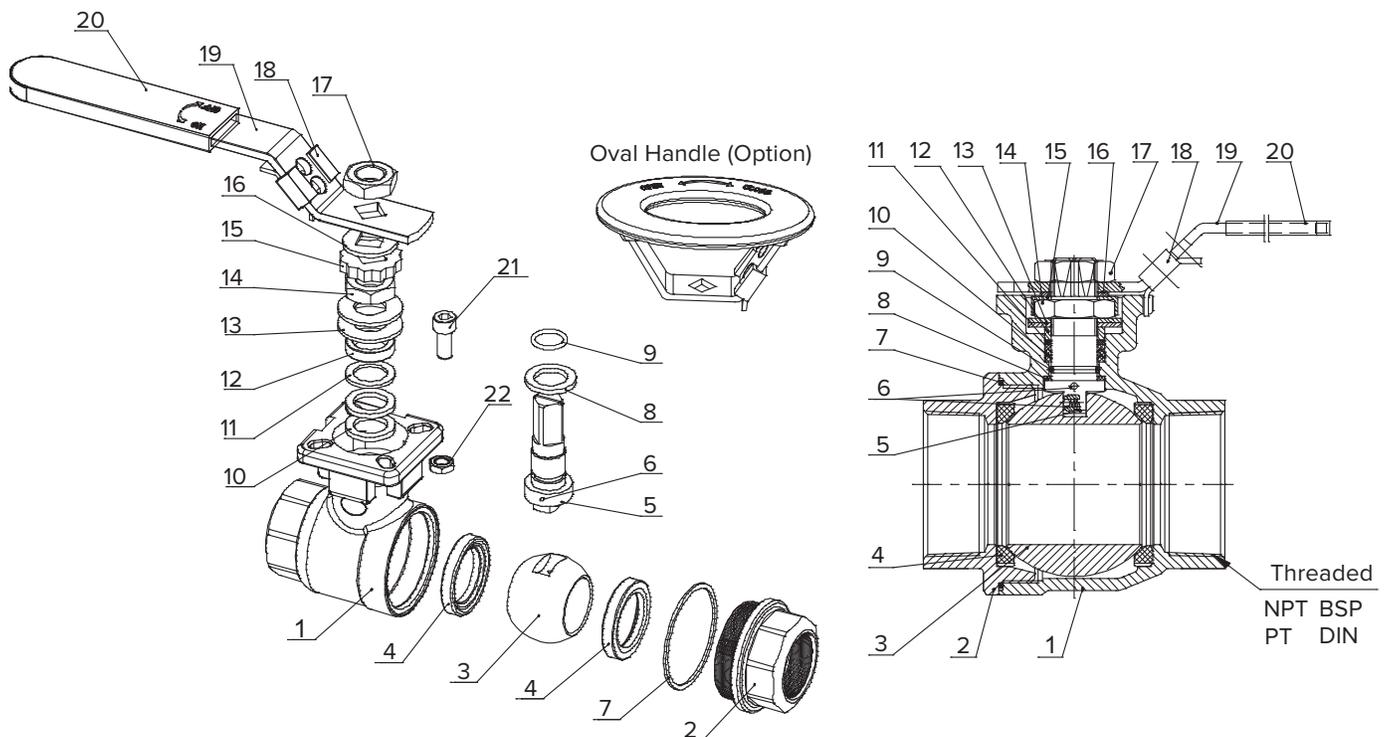
##### Disassembly

- Before disassembly, make sure to discharge any hazardous media from the valve inside the body cavity.
- Remove valves from pipeline.
- Remove parts in the following order:  
Handle nut (17 or 15 or 12), washer (16 or 14 or 11), handle (19 or 13 or 10), stop-lock-cap (15 or 12), stem nut (14 or 11), Belleville washer (13), gland (12 or 10 or 9), bushing (11)
- Use pipe wrench to remove end cap (2), body gasket (7), ball seat (4), ball (3).
- Push stem (5) down into body cavity and remove, then remove stem seal ring (8 or 6), packing (10 or 9 or 8) from the body (1).
- Torque for locking cap, see table A.



#### CAUTION:

Do not scratch the surface of ball, stem or packing and sealing parts during disassembly.

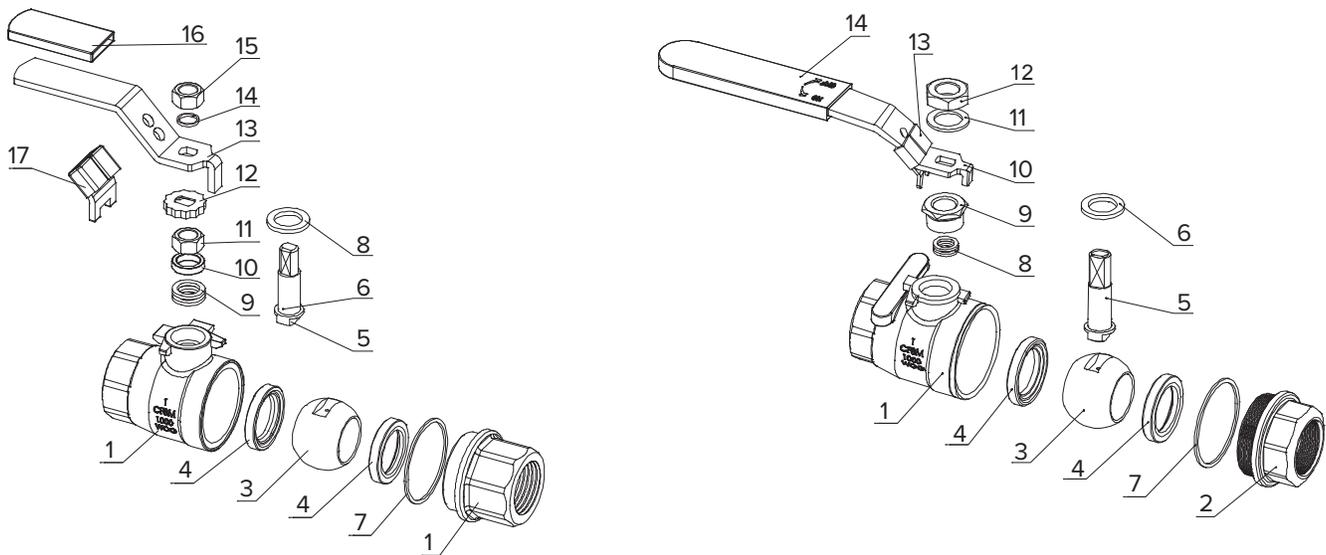


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#### Reassembly

- Clean and inspect all parts before reassembling. It is recommended that all soft parts (seats and seals) be fully replaced due to potential damage from wear.
- To reassemble the ball valve, reverse the above steps used to take the valve apart.
- Tighten the stem nut (14) or (11) or gland (9), using the torque described in table B.
- If possible, test the valve, then cycle valve several times before resuming service.

#### Note:

- Before installation, confirm the material for the valve, bolt and nut to ensure the material is suitable for the working conditions on site. This will prevent cracking, corrosion and potential safety hazards.
- To prevent excessive wear and tear to the valve stem and seals, be very careful to lock in the gland bolts to ensure a proper seal and maximize the valve performance over time.
- The valve is packaged in environmentally friendly material. The packaging can be reused or recycled according to local regulations.
- The valve operates under pressure when in the closed position. Always release the pipeline pressure and keep the valve in the open position before and throughout any maintenance.
- Valve operates at 85 dB of noise <A> or less.
- Abide by local laws and regulations for proper valve disposal.

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