

1、 **Scope:** This instruction applies to 3-way, PN16/40, Flange end, directly mounted ISO 5211 flange, ball valve (200950/201950 - 200952/201952).

2、 Warning (Restrictions on use)

1)、 Temperature and Pressure limit

- The normal maximum operating pressure at maximum or minimum operating temperature is shown on nameplate.
- The operating temperature is within -39°C to 180°C for PTFE(pure-teflon) or RTFE seat and sealing. Others seat and sealing operating temperature shall be checked with TUNING.
- The nominal pressure (PN) rating describe maximum working pressure in cold working temperature (e.g. PN16/40 describe maximum working pressure 16 or 40 bar at $-39^{\circ}\text{C}\sim 40^{\circ}\text{C}$).

2)、 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

- 1)、 Remove the protective plastic cap on 3-Flange end, and clean or flush the valves.
- 2)、 Prior to mounting, flush and/or clean the pipeline to remove all accumulated extraneous matters, which matters shall damage to the seats and ball surface.
- 3)、 Make sure the flow direction, which direction mark is shown in handle. The valve may be fitted in any position on the pipeline.
- 4)、 Use conventional sealant(e.g. Teflon) on the threads.
- 5)、 Apply pipe wrench on the end cap of valve only while tightening. Tightening by using the valve body or handle can seriously damage the valve.
- 6)、 Unions to be installed before each end for easy installation and disassembly of the valve.
- 7)、 The pipeline shall be free of tension after installation.

4 、 Operation and Use

- 1)、 Make sure the pipeline must be flushed clean prior to operation.
- 2)、 The 20X950 - 20X952 series valves are allowed for 0° - 90° - 180° - 270° - 360° by turning the handle based on different flow paths. The valves are also allowed locking in every 90° turn.

3)、 Mounting of actuators

This valve can be operated by actuator. Before mounting the actuator the stem(gland) nut(12) has to be secured by the stop-lock-cap(13).Then the actuator can be directly mounted on ISO 5211 mounting pad without any adapter or bracket. Make sure the mounted actuator must not cause a thrust load on the valve stem(5).

4)、Operating torque requirements will vary depending on the length of time between cycle, media in the system line pressure and type of valve seat. The following table A are base on RTFE seats with clean cold water as the media.

Table A: Max Break-away torque value

size	ln-lb	n.m
1/2"	71	8
3/4"	106	12
1"	159	18
1-1/4"	204	23
1-1/2"	283	32
2"	389	44
2-1/2"	620	70
3"	974	110
4"	1682	190

Table B: Torque figure for stem nut tighten

size	ln-lb	n.m
1/2"	80~98	9~11
3/4"	80~98	9~11
1"	98~115	11~13
1-1/4"	98~115	11~13
1-1/2"	160~185	18~21
2"	160~185	18~21
2-1/2"	215~248	24~28
3"	215~248	24~28
4"	215~248	24~28

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 fluid in ball cavity when closed position.

● Prior to maintenance, relieve the line pressure.

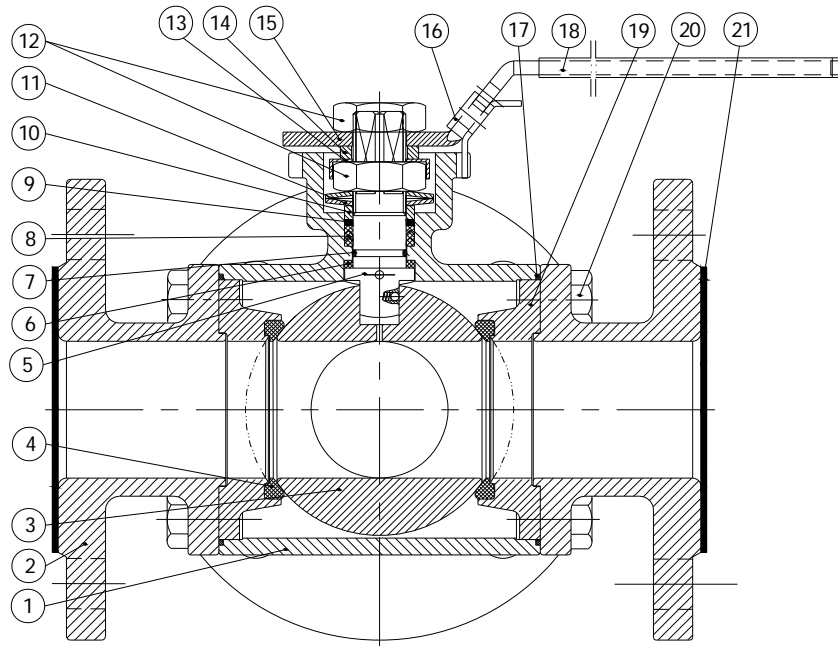
1)、Re-tighten Packing

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

- Should a leakage occur at the gland packing, retighten the stem(gland)nut(12).
- Take care that the stem nut (12)is not tighten too much. Normally the leakage can be stopped by simply turning the stem nut(12)by 30° to 60° .

2). Replacement of seats and seals

a). Disassembly



- Before disassembly, make sure to discharge any hazardous media from the valve inside body cavity.
- Remove valves from pipeline.
- Remove handle nut(12), Handle(15), Washer(14), Stop-lock-cap(13), Stem nut(12), Belleville washer(11), Gland(10), Bushing(9).
- Remove all end cap(2), Body gasket(17), Ball seat(4), Ball(3).
- Push stem(5) down into body cavity and remove, then remove stem seal ring(6), V-ring packing(8) from the body(1).

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

b). Reassembly

- Reassembly processes is reverse sequence of disassembly.
- Clean and inspect all parts, full replacement of all soft parts(seats and seals)are strongly recommended.
- Tighten the stem nut(12), using table B stipulated torque figure.
- If possible, test the valve, then cycle valve several times before resuming service.