

Installation, Operation & Maintenance Instruction (3-Way Screwed End Ball Valve)

1. **Scope:** This instruction applies to 3-way, 1000 WOG (PN63), screwed end, directly mounted ISO 5211 flange ball valve (KV-L50).
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 - 500°C to 1800°C for PTFE (pure-teflon) or RTFE seat and sealing. Others seat and sealing operating temperature shall be checked with KI Industrial.
 - The nominal pressure (PN) rating describes maximum working pressure in cold working temperature (e.g. PN63 (B 63) describe maximum working pressure 63 bar at - 390°C ~400°C).
 - b) Don't 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**
 - a) Remove the protective plastic cap on 3-threaded end, and clean or flush the valves.
 - b) 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.
 - c) Make sure the flow direction, which direction mark is shown in handle. The valve may be fitted in any position on the pipeline.
 - d) Use conventional sealant (e.g. Teflon) on the threads.
 - e) 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.
 - f) Unions to be installed before each end for easy installation and disassembly of the valve.
 - g) The pipeline shall be free of tension after installation.
4. **Operation and Use**
 - a) Make sure the pipeline must be flushed clean prior to operation.
 - b) The KV-L50 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 900 turn.
 - c) Mounting of actuators
 - d) 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).
 - e) 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 is based on RTFE seats with clean cold water as the media.

Table A: Max Break-away torque value

size	In-lb	n.m
1/4", 3/8"	40	4.5
1/2"	40	4.5
3/4"	80	9.0
1"	110	12.4
1-1/4"	130	14.7
1-1/2"	180	20.3
2"	250	28.3

Table B: Torque figure for stem nut tighten

size	In-lb	n.m
1/4", 3/8"		
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

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.

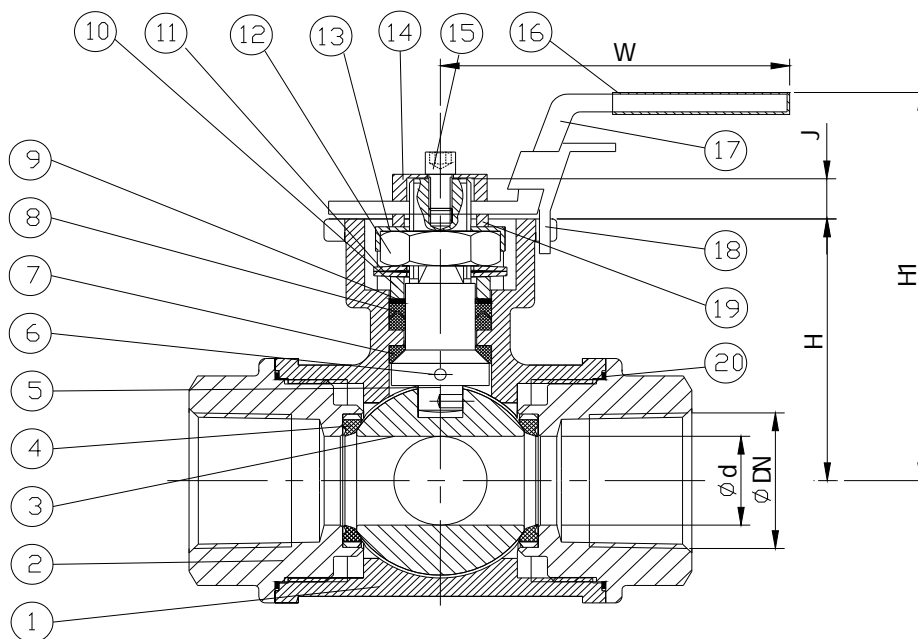
a) Re-tighten Packing

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° .

b) Replacement of seats and seals

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



Disassembly

- Before disassembly, make sure to discharge any hazardous media from the valve inside body cavity.
- Remove valves from pipeline.
- Remove handle nut (15), Washer (14), Handle (17), Stop-lock-cap (13), Stem nut (12), Belleville washer (11), Gland (10), Bushing (9).
- Remove all end cap (2), Body gasket (20), Ball seat (4), Ball (3).
- Push stem (5) down into body cavity and remove, then remove stem seal ring (7), V-ring packing (8) from the body (1).

Reassembly

- Reassembly processes is reverse sequence of disassembly.
- Clean and inspect all parts, full replacement of all soft parts (seats and seals) is 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.