



# 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 maters, which maters 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 Dieak-away loique 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 A: Max Break-away torque value

Table B:	Torque	figure	for	stem	nut	tighten

	0	5		
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.