

1. Scope

This instruction applies to 2-pcs body, full port, 1000 WOG (PN63), screwed end, ball valve(KV-020), and directly mounted ISO 5211 flange ball valve (KV-L20),

2. Warning (Operation Limitation)

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 -50°C to 180°C for PTFE(pure-teflon) or RTFE(reinforce-teflon) seat and sealing. Others seat and sealing operating temperature shall be checked with KI company.
- 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 $-39^{\circ}\text{C}\sim 40^{\circ}\text{C}$

2). Fluids limit:

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

3). 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

- 1). Remove the protective plastic cap on 2-threaded 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). Use conventional sealant (e.g. PTFE tapes) to seal threaded ends on the pipeline.
- 4). Apply pipe wrench on the hexagon end of valve only while tightening. Tightening by using the valve body or handle can seriously damage the valve.
- 5). After installation, make sure there is no stress left on the pipeline.

4. Operation

- a) Prior to operation, make sure to clean and flush the whole pipeline completely.
- b) The operation of the valve consists of turning the stem (by manual or automated means)1/4 turn (90°)clockwise to close, and 1/4 turn counter-clockwise to open.
- c) When the handle (if used) and/or stem flats or groove are in line with the pipeline, the valve is open.
- d) Besides operating by handle, this KV-L20 series also can operate by direct mounting with actuator on ISO5211 flange/plate. (Please refer our catalogue to check flange no.).
- e) 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 A are based on PTFE seats with clean water as the media.

Table A: Max Break-away torque value

size	In-lb	n.m
DN6~DN10	30	3.4
DN 15	35	4.0
DN 20	46	5.2
DN 25	77	8.7
DN 32	91	10.3
DN 40	126	14.3
DN 50	231	26.1
DN 65	364	41.2
DN 80	504	57.1

Table B: Torque figure for stem nut tighten

size	In-lb	n.m
DN6~DN10	70~80	8.0~9.0
DN 15	70~80	8.0~9.0
DN 20	70~80	8.0~9.0
DN 25	90~100	9.0~11.3
DN 32	90~100	9.0~11.3
DN 40	140~160	15.8~18.1
DN 50	140~160	15.8~18.1
DN 65	180~200	20.4~22.6
DN 80	180~200	20.4~22.6

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:

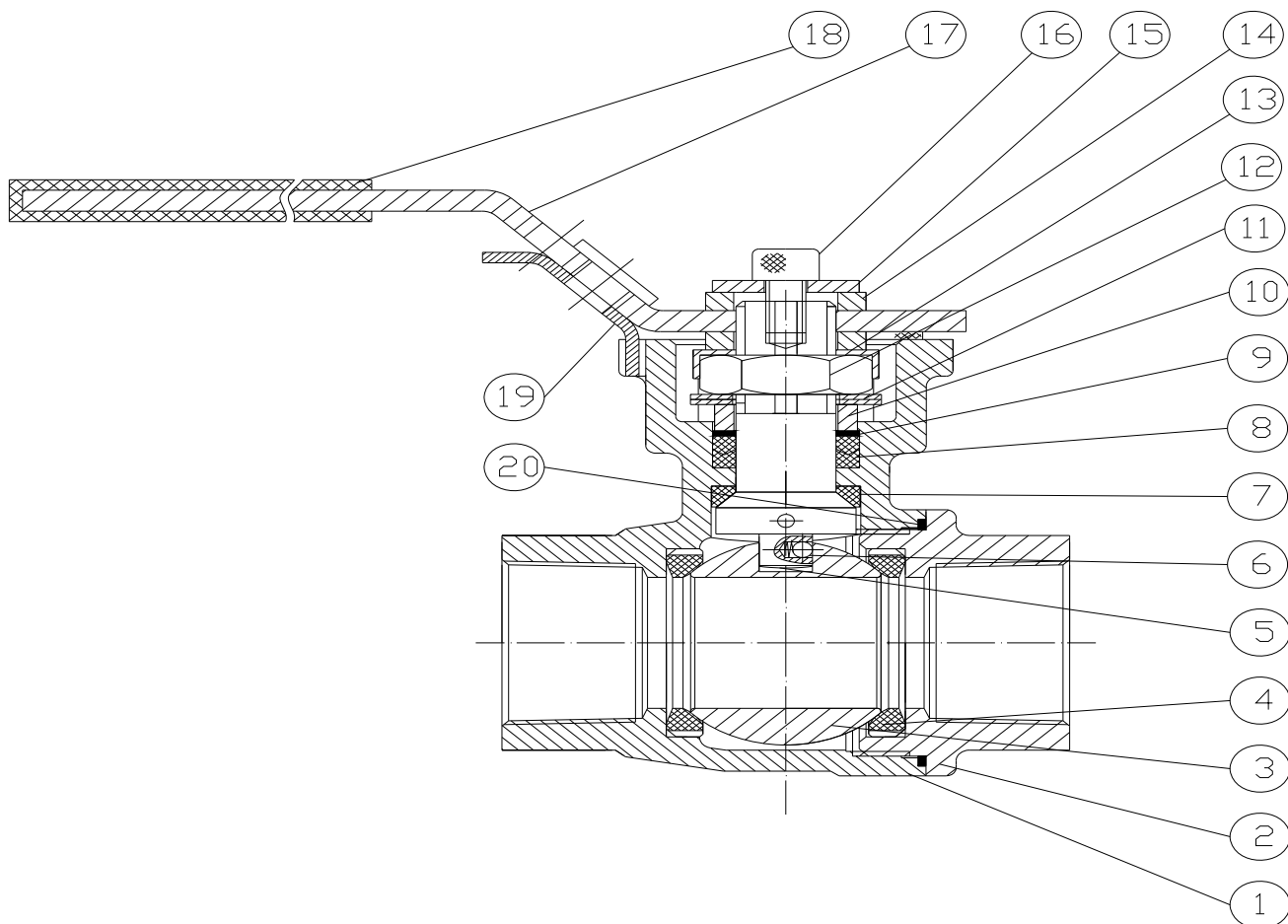
- Should a leakage occur at the gland packing, retighten the stem nut(12) for KV-L20,or gland(10) for KV-020.
- Take care that the stem nut (12) or gland (10) is not tighten too much. Normally the leakage can be stopped by simply turning the stem nut (12) or gland (10) by 30° to 60° .

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 parts of upper part as following order:
Handle bolt (16), Washer (15&14), Handle (17), Stop-lock-cap(13), Stem nut(12), Belleville washer(11), Gland(10),Bushing(9).



- Use pipe wrench to remove 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).

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.