Installation, Operation & Maintenance Instruction
(3 PC Body, Clamp / Butt Weld Ends, Sanitary Valve)

1. Scope: This instruction applies to 3-PC Body, Full Port Sanitary Valve, 400WOG (PN25); Clamp Ends and Butt weld Ends; KV-09C/I, KV-091/I, KV-L9C/I, KV-L91/I according to ISO 2852，and KV-09C/B, KV-091/B, KV-L9C/B, KV- L91/B according to BS 4825 & BPE. KV-L9C/I，KV-L91/I and KV-L9C/B，KV-L91/B designed according to ISO 5211 mounting pad can be fixed with actuator directly.

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－29^{0}C to 200^{0}C(if shell is WCB),or －40^{0}C to 200^{0}C(if shell is stainless steel) for PTFE or RTFE seat and sealing. Other seat and sealing operating temperature shall be checked with KI Industries.
- The nominal pressure (PN) rating describes maximum working pressure in cold operating temperature (e.g. PN25 describes maximum working pressure 25 bar at －39^{0}C～40^{0}C).

b. Fluid limited

Since this valve is with soft seat, it is not suitable to granules liquor fluid or solidification fluid, such as syrup.

c. No throttling operation

- Don’t leave the ball partly open where the pressure drop and/or flow rate damage to the valve seats and/or ball.

3. Installation

a. Remove the rubber protective cover on clamp or butt welding ends, and clean or flush the valve in fully open position(steam sterilization is allowed).

b. Prior to mounting, flush and clean the pipeline and valve to remove all accumulated extraneous maters.

c. Installation of Clamp ends Ball Valves

1）Before connecting pipes with valves, should seal the connecting position with seal rings according to standards ISO 2852

2) Should use quick clamps connect and fix the pipes and valves

d. Installation of Butt welding ball valves.

1) Keep valves in open position. lengthen butt welding ends can be welded directly: do intermittent welding in four points of both butt welding ends.

2) if the butt welding ends is not lengthen, dismount cap bolts, but keep one bolts whose nut should be loosen, and then the valve rotating freely.

. 3) Finish the welding of both sides of the cap.

4) After cooling, clean body and caps

5) Rotate the valve to the original position, insert bolts and screw down nuts lightly. During operation, it is very important to keep body and cap in a good parallel state to keep cap from distortion.

6) Screw down all the bolts and make sure to follow the max. value of bolt screwing torque(refer to attached list)

7) Do complete examination.

e. After installation, should make sure that pipes can bear the pressure.

4. Operation and Use

a. Flush the ball valve and pipeline thoroughly again before operation.

b. The operation of the valve consists of turning the stem(by manual or automated means)1/4 turn(900)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 pipe, the valve is open.

d. 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 C are based on PTFE seats with clean water as the media.

Table A: Torque of Stem

Size	IN-LB	N.M
DN6-DN10	40	4.5
DN15	44	5
DN20	53	6
DN25	89	10
DN32	115	13
DN40	168	19
DN50	221	25
DN65	354	40
DN80	575	65
DN100	885	100

Table B: Lock Torque of Stem Nut

Size	IN-LB	N.M
DN6-DN10	70～80	8.0～9.0
DN15	70～80	8.0～9.0
DN20	90～100	9.0～11.3
DN25	90～100	9.0～11.3
DN32	140～160	15.8～18.1
DN40	140～160	15.8～18.1
DN50	180～200	20.4～22.6
DN65	180～200	20.4～22.6
DN80	180～200	20.4～22.6
DN100	250～270	28.3～30.6

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 fluids in the Ball cavity when closed position.

✶ Prior to maintenance, relieve the line pressure and put ball in open position.

1) Re-tighten packing

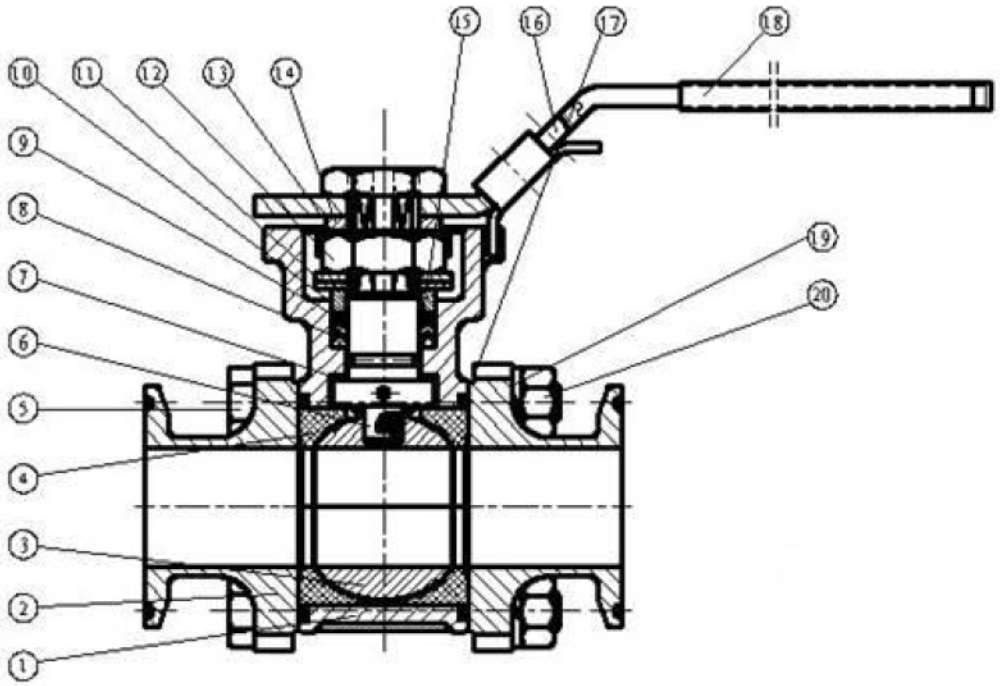
- Should a leakage occur at the gland packing, retighten the stem (gland) nut (12).
- Take care that the stem nut (13) are not tighten too much. Normally the leakage can be stopped by simply turning the stem nut (13) by 300 to 600.

2) Replacement of seats and seals.

Disassembly

- Place the valve in half-open position and flush the line to remove any hazardous material from the valve body.
- Make sue ball valve (3) is in close position. Dismantle body-cap bolts, but keep one whose nut is loosen, the valve will rotate freely.
- Take out body gasket (17) and seat (4). Examine the ball carefully and any scratch, should exchange.
- When stem packing need exchange, please dismantle according the following order: handle nut, handle (16) or driving device, stop-lock-cap (13), stem nut (12), belleville washer(11), gland(10), bush (9), stem packing (8).
- Push stem (6) down into the body cavity and remove, then remove seal-ring (15), stem packing (9) from the body.

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



Reassembly

- Reassembly process is reverse sequence of disassembly.

- Clean and inspect all parts, full replacement of all soft parts (seats and seals) are strongly recommended.
- Tighten the body bolt (5) crosswise using the stipulated torque figure (see table C)
- Tighten the stem nut (12) using the table B stipulated torque figure.
- If possible, do pressure test before placing it back to line for service.

Table C: Lock Torque of Flange Connecting Bolts

MALT'S. Size / Unit	SS（B8）	
	IN-LB	N．M
1/4-20UNC/M6	70	7.9
5/16-18UNC/M	100	11.3
3/8-16UNC	160	18.1
7/16-14UNC/M	280	31.7
1/2-13UNC/M1	400	45.3

MALT'S. Unit / Size	SS （B8）	
	IN-LB	N.M
5/8-11UNC /	800	90.5
3/4-10UNC /	1400	158.4
7/8-9UNC / M22	2250	254.6
1-8UNC / M24	3250	367.7
1,1/8-8UNC	4000	452.6