

1、 **Scope:** This instruction applies to 2-PCS body, flanged end. Ball Valves: Mounting Pad (KV-040&060), Direct Mount (KV-L40&L60)

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 -29°C to 200°C for PTFE or RTFE seat and sealing. Others seat and sealing operating temperature shall be checked with KI company.
- The nominal pressure (PN) rating describe maximum working pressure in cold operating temperature (e.g. PN40 describe maximum working pressure 40 bar at $-29^{\circ}\text{C} \sim 38^{\circ}\text{C}$).

2)、 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 cover on both flange end, and clean or flush the valve in fully open position.
- 2)、 Prior to mounting, flush and clean the pipeline and valve to remove all accumulated extraneous matters.
- 3)、 During the handling process, do not use the valve stem or handle (wheel) as a fulcrum for the lifting cable to avoid collapse and accidental injury.
- 4)、 The valve may be fitted in any position and direction in the pipeline.
- 5)、 Make sure the pipeline at the installation point is not bent down and/or tension, use a pipe hanger or supports for the purpose to eliminate any deviation of the piping.
- 6)、 Tighten the flange bolt crosswise using the stipulated torque, to see below table A

Table A: Torque figure for flange bolt tighten

| Bolt Size 螺栓规格 | Material | | Stainless Steel (B8) | |
|-------------------|------------------|--------|----------------------|-------|
| | Alloy Steel (B7) | | IN-LB | N.M |
| Unit | IN-LB | N.M | IN-LB | N.M |
| 5/16-18UNC/M8 | 240 | 27.2 | 100 | 11.3 |
| 3/8-16UNC | 420 | 47.5 | 160 | 18.1 |
| 7/16-14UNC/M10 | 660 | 74.7 | 280 | 31.7 |
| 1/2-13 UNC/M12 | 1000 | 113.2 | 400 | 45.3 |
| 9/16-12UNC/M14 | 1460 | 165.2 | 580 | 65.6 |
| 5/8-11UNC/M16 | 2010 | 227.4 | 800 | 90.5 |
| 3/4-10UNC-M20 | 3580 | 405.1 | 1400 | 158.4 |
| 7/8-9UNC/M22 | 5770 | 652.9 | 2250 | 254.6 |
| 1-8UNC/M24 | 8650 | 978.7 | 3250 | 367.7 |
| 1,1/8-8UNC/M28 | 12700 | 1437.0 | 4000 | 452.6 |

Table B: Torque figure for stem nut tighten

| Valve Size | IN-LB | N.M |
|------------|---------|-----------|
| 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 |
| 2-1/2 " | 180~200 | 20.4~22.6 |
| 3 " | 180~200 | 20.4~22.6 |
| 4 " | 250~270 | 28.3~30.6 |
| 5 " ~6 " | 300~350 | 34.0~39.6 |
| 8 " | 580~630 | 65.6~71.3 |

4、 Operation and Use

- 1)、 Flush the ball valve and pipeline thoroughly again before operation.
- 2)、 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.

- 3)、 When the handle(if used)and/or stem flats or groove are in line with the pipe,the valve is open.
- 4)、 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 C: Torque Value

| Size\ΔP | | Δ P difference-pressure | | | |
|---------|-------|-------------------------|------------|----------|----------|
| | | unit: inch-lb/nm | | | |
| | | 75Psi | 150Psi | 300Psi | 700Psi |
| | | 5Bar | 10Bar | 20Bar | 50Bar |
| 1/2 " | DN15 | 44/5 | 44/5 | 44/5 | 44/5 |
| 3/4 " | DN20 | 53/6 | 53/6 | 53/6 | 53/6 |
| 1 " | DN25 | 89/10 | 89/10 | 93/10.5 | 97/11 |
| 1-1/4 " | DN32 | 115/13 | 115/13 | 133/15 | 150/17 |
| 1-1/2 " | DN40 | 168/19 | 168/19 | 195/22 | 212/24 |
| 2 " | DN50 | 221/25 | 252/28.5 | 283/32 | 310/35 |
| 2-1/2 " | DN65 | 354/40 | 398/45 | 434/49 | 478/54 |
| 3 " | DN80 | 575/65 | 637/72 | 717/81 | 797/90 |
| 4 " | DN100 | 885/100 | 974/110 | 1089/122 | 1195/135 |
| 5 " | DN125 | 1682/190 | 1845/208.5 | 2168/245 | 2522/285 |
| 6 " | DN150 | 2478/280 | 2708/306 | 3009/340 | 3611/408 |
| 8 " | DN200 | 3275/370 | 3086/430 | 4310/560 | 4956/560 |

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(13).
- 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 30° to 60°.

2)、 Replacement of seats and seals.

A)、 Disassembly

- Place the valve in half-open position and flush the line to remove any hazardous material from the valve body.
- Place the valve in close position,remove both counter flange bolts&nuts and lift valve from line.
- Remove handle nut(15),handle(16)or actuator set,stop-lock-cap(14),stem nut(13),Belleville washer(12),gland(11),bush(10)
- Remove body bolt(5)or stud nut to allow end cap(2),separated from body(1),remove body gasket(19).
- Make sure ball in"Close"position,thus,the ball(3)can be taken out easily from body,then take out

body ball seat.(4)

- Push stem(6) down into the body cavity and remove, then remove stem Thruste washer (8), O-Ring (26), V-stem packing(9) from the body.

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

B)、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 A)
- Tighten the stem nut(13) using the table B stipulated torque figure.
- Cycle the valve slowly with gentle back and forth motion to build gradually to full quarter turn.
- If possible, test the valve before placing it back to line for service.

