

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  $-29^{\circ}\text{C}$  to  $200^{\circ}\text{C}$  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 bellow table A

Table A: Torque figure for flange bolt tighten

Material Bolt Size Unit	Alloy Steel(B7)		Stainless Steel(B8)	
	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( $90^{\circ}$ ) 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.

