



## BU-3051

### Maintenance Instructions for K108 Ball Valves

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## 1.0 REFERENCE

- 1.1 BuTech Assembly Drawing Number C-1314, latest revision.

## 2.0 PURPOSE

- 2.1 To establish maintenance instructions for the K108 manual ball valves.

## 3.0 SCOPE

- 3.1 This maintenance instruction (BU-3051) is to be used for all K108 ball valves.

## 4.0 INSTRUCTIONS

**CAUTION: Vent all pressure before removing valve for maintenance.**

### 4.1 Disassembly

- 4.1.1 Remove the valve from system.
- 4.1.2 Secure valve assembly in a vise equipped with "soft jaws".
- 4.1.3 Loosen and remove the side adapters (items 2 and 3) and gaskets (item 14).

NOTE: Remove locking device from side adapters if ordered with the (-LD) option before attempting to remove the side adapters.

- 4.1.4 Remove the hex socket set screws (items 11) from the hub (item 4). Lift the hub and handle assembly from the stem (item 5). Remove the hex socket set screws (items 17).
- 4.1.5 Loosen and remove the packing gland (item 13) from the body and stem.
- 4.1.6 Reattach the handle and hub assembly (items 4 and 16) to the stem (item 5) with one of the set screws (item 11). Pull straight up to remove the stem (item 5), the bottom washer (item 8), the packing (item 12), and the packing support washers (item 9) from the valve body (item 1).
- 4.1.7 Use a wooden dowel to gently tap out the ball (item 6) and seat retainers and seals (items 7 and 15), and the o-rings (items 10) out through one of the side connections.
- 4.1.8 Inspect all components for damage. Replace any defective items.



## 4.2 Assembly

- 4.2.1 Examine the repair kit components for damage and cleanliness.
- 4.2.2 Lightly lubricate the stem (item 5) in the area where there is contact with the bottom washer (item 8) with "Christo-Lube" and/or "Dow Corning #33" type lubricant.
- 4.2.3 Assemble the bottom washer (item 8) onto the stem (item 5) with the ridge facing the packing as shown in the drawing. Next, install the first the piece of packing (item 12), packing support washer (item 9), second piece of packing (item 12) then second support washer (item 9).
- 4.2.4 Place a tapered dowel into the orifice of the ball (item 6) and insert into the valve side connection. Insert stem and packing sub-assembly into the valve body and align to engage the milled slot in the ball (item 6).
- 4.2.5 Lubricate the threads of the packing gland (item 13). Slide the packing gland (item 13) over the stem (item 5) and tighten just enough to hold the ball (item 6) in place. Remove the tapered dowel.
- 4.2.6 Lightly lubricate the seal (item 15).
- 4.2.7 Install the o-ring (item 10) onto the shoulder of the seat retainer (item 7) as shown in the drawing. Insert the seal and seat retainer sub-assembly into the side connection of valve body so the seal contacts the ball. Repeat this step for the other seal set.
- 4.2.8 Install a new gasket (item 14) on the side adapter (item 2). Lightly lubricate the exterior threads of the first side adapter (item 2). Engage the body threads and tighten until it contacts the seat retainer o-ring (item 10). Repeat for the other adapter.
- 4.2.9 Rotate stem (item 5) 90<sup>0</sup> degrees so that the ball (item 6) is in the closed position. This will prevent damage to the seals during the final steps of assembly.
- 4.2.10 Secure the valve vertically in the vise by holding one of the side adapters (item 2) in the jaws of the vise. Tighten the top adapter (both will tighten simultaneously) to 175 to 200 ft.-lbs.
- 4.2.11 Tighten the packing gland (item 13) and to approximately 50 to 55 ft.-lbs.
- 4.2.12 Replace the handle and hub assembly (items 4 and 16). Engage the flat on the stem and secure with one of the set screws (item 11). The refurbished ball valve is now ready to be pressure tested.



#### 4.3 Pressure Test

- 4.3.1 With the ball in the closed position, connect pressure source to one of the side adapters and pressurize to 10,000 PSI for ten seconds.
- 4.3.2 Release the pressure in the ball valve and turn the handle approximately 120<sup>o</sup> back and forth several times to assure free movement of the ball.
- 4.3.3 Remove the handle hub assembly and replace the two hex socket cap screws (items 17). Reattach the handle.
- 4.3.4 Loosen the vise and remove the valve assembly.
- 4.3.5 The refurbished valve is now ready to be returned to service.

