



Maintenance Instructions for Air-Actuated Ball Valve Catalog Number K104/K204-RC**/RA**

1.0 Reference:

- 1.1 BuTech Assembly Drawing C-1566, latest revision. Typical for all K104 and K204 style ball valves and with any of the RC or RA style actuators.

2.0 Disassembly:

- 2.1 De-pressurize and remove the complete valve assembly from the system.

IMPORTANT NOTE: Vent all pressure before removing valve from system.
- 2.2 Fixture the valve assembly in vise equipped with "soft jaws".
- 2.3 Loosen and remove the set screw (item 16) holding the coupling (item 7) to the valve stem (item 23).
- 2.4 Loosen the two cap screws (items 15) holding the bottom plate (item 19) to the body (item 2). Lift the entire actuator and plate assembly from the valve body.
- 2.5 Loosen and remove the side adapter (items 3 or 4) and attached o-ring (item 11) from the valve body. Repeat for other side adapter.
- 2.6 Loosen and remove the packing gland (item 6) from the valve body. Pull up on stem (item 23) to disengage it and the attached packing components from the body.
- 2.7 Remove the o-rings (items 17), ball (item 8), seat retainers (items 9) and the seals (items 10) from the valve body by inserting a wooden dowel and tapping gently.
- 2.8 Inspect the valve body and components for unusual wear or damage.



3.0 Reassembly:

- 3.1 Lightly lubricate the stem (item 23) in the area where there is contact with the bottom washer (item 14), the packing support washers (items 12) and the packing (items 13). Assemble the components on the packing on to the stem in the order shown on the reference assembly print.
- 3.2 Lightly lubricate the threads of the packing gland (item 10) with anti-seize. Slide packing gland over the stem and while turning clockwise engage the threads in the valve body stuffing box. To hold ball in place, tighten packing gland finger tight.
- 3.3 Lightly lubricate all exterior surfaces of the replacement ball (item 8) with "Christo-Lube" and/or "Dow Corning #33" type lubricant. Insert the ball into the valve body. The slot in the ball must engage the tab on the stem.

Important: Rotate stem until the ball is in the fully-open position.

- 3.4 Lightly lubricate the seal (item 10) and seat retainer (item 9) sub-assembly on the exterior surface of the seal and insert into the valve body.
- 3.5 Lightly lubricate all surfaces of the "o" ring (item 17) and insert into the valve body. Repeat steps 3.4 and 3.5 for remaining seal.
- 3.6 Place new "o" ring (item 11) on the side adapter (items 2 or 3). Lightly lubricate the exterior threads of the side adapter with anti-seize, and while turning clockwise, engage the threads in the valve body. Tighten finger tight. Repeat for remaining side adapter.

Important: Rotate stem until the ball is in the fully-closed position.

- 3.7 Tighten side adapter to approximately 80-90 ft.-lbs. Repeat for remaining side adapter.
- 3.8 Tighten the packing gland (item 6) to approximately 35-40 ft.-lbs.

General Note: The ball valve, assembled with the replacement ball, packing, seats and seals is now ready to be pressure tested.



4.0 Pressure Test:

- 4.1 Re-attach the coupling (item 7) to the valve stem (item 23) and secure with set screw (item 16)
- 4.2 With the ball remaining in the close position from step 3.6, connect pressure source to side adapter and pressurize to the rated MAWP of the valve or 20,000 PSI (whichever is less). Dwell time is five (5) to ten (10) seconds

NOTE: A pressure drop may occur as seals form to the replacement ball.

- 4.3 Release pressure in the valve and turn the stem approximately 120° back and forth several times to assure free movement of the ball.
- 4.4 Orient the stem and coupling as depicted in the reference assembly drawing. Usually in the fully-open position.
- 4.5 Restore the entire actuator and plate assembly back to the body, engaging the top of the coupling. Secure the bottom plate (item 19) to the valve body with the two cap screws (items 15).
- 4.6 The refurbished valve is now ready to be returned to service.



RECORD OF REVISION

REV NO	DESCRIPTION OF CHANGES	DATE	BY	APPR
0	Original document	06-Aug-03	DTG	DTG