CAM-TITE®
Equipped with Bellows Stem Seal
Ownership Manual

DO NOT REMOVE FROM VALVE

CAM-TITE® BALL VALVE INSTALLATION INSTRUCTIONS

I The valve may be installed in any position consistent with good piping practice -

2. If this valve has been furnished with a means for relieving body cavity pressure. an arrow on the exterior of the valve will indicate direction of pressure tighness.

3. if this valve is weld end, it may be welded into the pipeline without disassembly provided certain procedures and precautions are taken. The salve should be in the open' position during welding and should remain open until it cools to ambient temperature. Welding procedures in accordance with Section IX of the ASME Boiler and Pressure Vessel Code should be used. In addition, a 350 degree F. tempilstik for PTFE and Reinforced PTFE seats and seals) or a 200 degree F. Tempilstik (For UHMW Polyethylene seats and seals) must be used to monitor the temperature at the seat/gasket area. A drawing showing tie iscaloit of the Tempiistik marks appears on the last page of these instructions. This is the area in-line with body/cover flange. Welding shoud be controlled to maintain this area at or below 350 degrees F. (for PTFE and reinforced PTFE seats and seals) or 200 degrees F. (for UHMW Polyethylene seats and seals). If valves are furnished with other than PTFE. Reinforced PTFE or UHMW Polyethylene seats. consult factory for recommended welding procedure. (See drawing #1)

4. Prior to pressurization, evenly tighten all cover bolts using crisscross method in accordance with the torques listed in Chart #1. DO NOT LOOSEN COVER BOLTS WHILE VALVE IS PRESSURIZED.
5. If necessary, repeat item #4 approximately 24 hours after system reaches operating temperature and pressure.
6. Refer to drawing #2 of this procedure for proper parts identification.
7. If the valve is equipped with a power operator. adjust the travel stops on the operator to stop the valve in the desired position

Good Operating Procedure Requires Periodic Inspection Of Valves To Ensure Proper Function.

MAINTENANCE INSTRUCTIONS

1 Periodically inspect condition of external valve parts Replace all parts showing excessive wear or corrosion.

2. If cover gasket leaks, immediately tighten cover bolting as described under INSTALLATION INSTRUCTIONS. ITEM #4, If tightening the cover bolting does not stop leak, remove pressure from the valve, place valve in the open position. and replace cover gasket.

CAUTION: VALVES THAT SHOW THROUGH LEAKAGE OR HIGH OPERATING TORQUE MAY BE DAMAGED. DO NOT USE EXCESSIVE FORCE OR CHEATER BARS TO OPERATE VALVES. DISASSEMBLE VALVES FOR INSPECTION AND REPLACEMENT OF DAMAGED PARTS.

SEAT INSTALLATION INSTRUCTIONS

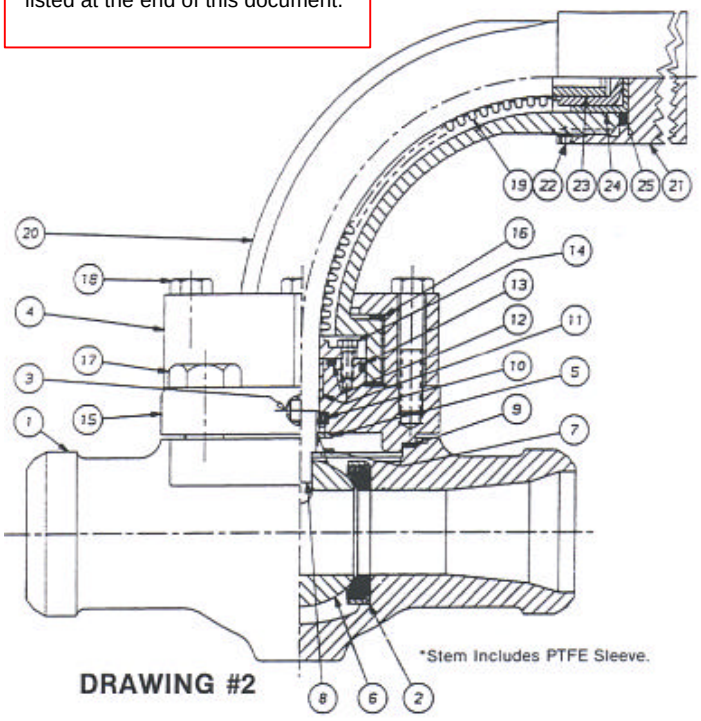
1 **IMPORTANT!** Relieve pressure from valve and place valve in the open position. Remove the cap screws holding tile cover assembly to the body, lift off cover assembly.

2. Use a screw driver or a similar tool to lift the ball and seats out of the body. If the ball and seats do not slide easily out of the body. check to make sure, that the ball is in the open position. The slot for stem engagement should be perpendicular to the pipeline during removal and insertion of the ball. Care should be taken not to damage the surface of the ball while it is removed from the valve.
3. Inspect and clean ball and body sealing surfaces. Replace ball if badly scratcned or gouged. Apply a light film of lubricant, DuPont Krytox® GPL206 or other compatible lubricant, to ball and both aides of each seat. Hold ball and seats such that the I.D.'s of the seats are aligned with the ID. of the ball port: that is, place the seats on either side of ball to simulate their position with the valve in the open position. Simultaneously slide the two seats and the ball into the body. Force is not necessary. If the ball and seats cannot slide easily into place, check to make sure that the ball is in the open position.

4. Check cover gasket recess and cover gasket. Make sure that the ground spring is in place over stem. Spring should bear directly on bottom of cover and top of ball. Insert the stem into the ball. Align cover holes with tapped body holes and replace cover bolts. Carefully tighten the cover bolts in accordance with the installation Instructions.

CAUTION! WHEN REPLACING COVER GASKETS. ALWAYS PLACE GASKET ON COVER AND CAREFULLY INSTALL COVER TO AVOID DAMAGE TO THE GASKET.

⚠ **CAUTION**! If any part of this document is not clearly legible, please call the nearest Engineered Valves office for a hard copy. Regional offices are listed at the end of this document.



DRAWING #2

PARTS REPLACEMENT

TO REPLACE WORN OR DAMAGED PARTS IN THE COVER ASSEMBLY, USE THE FOLLOWING DISASSEMBLY/ASSEMBLY PROCEDURES.

DISASSEMBLY

I. Unscrew set screw (item 22 and remove untighten handle (item 21). **DO NOT REMOVE!**
2 Untighten hex head screws (item 18) **DO NOT REMOVE!**
3 Unscrew handle (item 21) from the housing.
4. Remove bearing item 24) from housing and remove static seal (item 25) from the handle
3. Remove hex head screws (item 18)
6 Slip cover (item 4) over housing (item 20) arid remove.
7 Remove housing (item 20) from bellows (item 19). Remember that the I.D.of the housing mates with o-ring (item 13) of the bonnet to provide a seal.
S. Remove bearing (item 16) from cover (item 4).
9. Remove hex head machine screws (item 14) from bonnet (item 15) hoes.
10 Remove bellows (item 19) from stem assembly (item 8).
11 Remove spring (item 7). Remove spacer (item 5) if furnished.
12. Remove stem assembly (item 8) from bonnet bearing (item 11).
13. Remove bearing (item 23) from stem assembly (item 81
14. Remove second bearing (item 16) from top of bonnet.
15. Remove 0-ring (item 13) (larger) from bonnet 0-ring groove.
16. Remove 0-ring (item 12) (smaller) from bonnet u-ring groove.
17 Remove bearing (item 11) from bonnet bearing cavity.
18. Remove U-cup seal (item 10) if furnished, from underside of bonnet item 15).

ASSEMBLY

1 Press U-cup seal item 10) if furnished, into underside of bonnet (item 15).
2. Push hearing (item 11) into bonnet bearing cavity.

3. Place small o-ring (item 12) into bonnet o-ring groove

4 Slip large o-ring (item 13) into bonnet o-ring groove. Use of an o-ring lubricant is permissible.

5. Place first bearing (item 161 over top of bonnet projection. Lubricant is permissable. (Lubriplate)

6. Place bearing (item 23) over stem assembly (item 8) reduced diameter.
7 Place stem assembly (item 8) into bearing (item 11)
S. Slip bellows assembly (item 19) over stem assembly (item 8)
9 Place screws (item 14) in bellows assembly (item 19) flange holes and tighten. Tighten screws to 2 in-lbs. of tongue.
10. Place second bearing (item 16) into cover (item 4) Lubricant is permissible. (Lubriplate).
11. Slip housing (item 20) over the bellows. Remember that the I.D. of the housing mates with 0-ring in bonnet (item 13) to provide a seal.
12 Slip cover (item 4) over housing (item 20).
13 Loosely join the coyer to the top of bonnet assembly with hex head screws (item 18). **DO NOT TIGHTEN!**
14. Slip bearing (item 24) over bellows assembly cap.
15. Bearing (item 24) should protrude about 1/8" from the housing; put static seal (item 25) over this bearing protrusion.
16 Screw handle (item 21) onto the housing (item 20) until it bottoms out. DO NOT TIGHTEN!
17. Tighten hex head screws (item 18) to bonnet assembly. Screw torque is 25 ft-lbs.
I8. Tighten handle (item 21) and screw in set screw (item 22). Tighten securely. Handle torque is 25 ft-lbs.
19. Install spacer (item 5) lf furnished. Install spring (item 7).

NOTE: WHEN ORDERING PARTS. ALWAYS IDENTIFY THE SIZE VALVE AND THE FIGURE NUMBER. THE FIGURE NUMBER APPEARS ON A TAG AFFIXED TO THE VALVE COVER FLANGE.

WARNING:

Engineered Valves and Valve Actuators are designed and manufactured using good workmanship and materials, and they meet all applicable industry standards. These valves are available with components of various materials, and they should be used only in services recommended in this product catalog or by a company valve engineer

Engineered Valves is anxious to avoid injuries and property damage which could result from misapplication of the product. Selection of a valve 01 the proper material consistent with the particular performance requirements. is important for safe use.

Examples of the misapplication or misuse of a CAM-TITE® valve include use in an application in which the pressure/temperature rating is exceeded and failure to maintain valves as recommended. If a valve appears to be leaking, do not operate. Remove from service, repair, or replace.

CHART #1

COVER BOLT TORQUES:

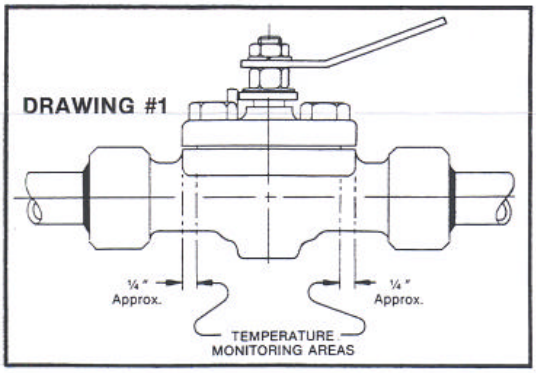
CAUTION: THESE TORQUES APPLY ONLY TO BOLTS WHICHHAVE HAD LUBRICANT APPLIED TO THE THREADS AND UNDER THE HEAD.

UHMW-P, PTFE/REINFORCED PTFE GASKET

VALVE SIZE	TORQUE BY PRESSURE CLASS (FT.-LBS.) 150	300	600
½-1"	10	10	20
1-½"	15	15	30
2"	25	25	50
3"	25	25	50
4"	33	33	78
6"	50	75	—

GRAPHITE GASKET TORQUE BY PRESSURE CLASS (FT.-LBS.)

VALVE SIZE	150	300	600
½-1"	23	23	23
1-½"	29	29	29
2"	46	46	46
3"	58	58	58
4"	60	60	60
6"	145	200	—



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