



CRYOGENIC VALVES  
VACUUM COMPONENTS

C2MANINST

**INSTALLATION, MAINTENANCE AND OPERATING INSTRUCTIONS  
C2000 and C3000 SERIES CRYOGENIC MANUAL VALVES  
ALL SIZES**

**INSTALLATION**

**For threaded port valves**, screw pipe ends into valve ports using a compatible joint seal compound. Disregard steps 1 through 5 below. **For weld in valves**, follow these instructions:

1. Remove stem assembly before welding into piping system. Back out stem to get seat seal off of valve seat. Unscrew bonnet junction nut and withdraw inner valve assembly from body. Take care of loose seals and sealing surfaces and keep all parts clean.
2. Install valve in system and **allow adequate time to cool after welding before re-installing inner valve.**
3. Re-install inner valve. Insert assembly into top of valve body taking care not to bump the seat seal. Be sure all bonnet seals are in place and set bonnet into cavity. **Make sure alignment flat drops over raised key** on top of bonnet rim. Larger valves with bolted flange top, align bolt holes, lube bolts with anti seize compound and install bolts.
4. Hand tighten bonnet nut. Be sure stem is backed out of valve so seat seal is not in contact with seat prior to tightening bonnet nut. Tighten bonnet nut to approximately 15 ft-lbs torque. If assembling larger valves, cross torque bonnet bolts keeping flange parallel to bonnet top.
5. With bonnet assembly in place, the inner line can be leak checked for vacuum integrity.

**MAINTENANCE**

**REPLACING THE PLUG ASSEMBLY**

1. With inner valve assembly out of valve, you can remove the plug assembly. It is not necessary to remove the plug from the stem if you are only changing the seat seal (advance to step 3). Grip the plug in a soft jaw vice or proper sized collet and unscrew the plug lock nut. (It is important to take care of the finish on the outside diameter of the plug. Do not use pliers or other serrated style holding devices.) This will release the plug from the stem assembly.
2. Clean the plug lock nut threads and put on a small amount of thread lock fluid. Screw the plug lock nut into the new plug and tighten. With the new plug gripped in the soft jaws, re-tighten the nut.



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### REPLACING THE SEAT SEAL

1. To replace the seat seal, remove the seat seal retainer screw while the plug is held stationery and lift off the retainer and old seat seal.
2. After cleaning the end of the plug and the threads, replace the seat seal and install the retainer and retainer screw. Place a small amount of thread locker on the screw prior to installation and torque in place .
3. Re-install the inner valve assembly into the valve body as instructed in Installation Step 3, above.

### REPLACING THE STEM AND BONNET SEALS

1. With the inner valve assembly removed as discussed above, remove the handle and withdraw the stem through the bottom of the bonnet. Remove the packing nut and push out the packing and packing follower. Take care not to scratch the bore of the packing journal.
2. Replace the packing and replace the o-rings on the packing follower. Re- insert the stem into the bonnet taking care not to injure the packing or o-ring seal faces and re-install the manual handle. After installation on the valve, tighten the packing nut to assure a tight seal.

### OPERATION

1. Looking down on the top of the valve, rotate the handle clockwise to close the valve and counter clockwise to open the valve.
2. Valve closing and sealing torque is typically very low (prox 12 inch- pounds max). If excessive torque is required for the valve to seal, the seat seal may be damaged or there is contamination on the seat area.

### SOFT GOODS KITS

Valve soft goods kits include all seals and packings and are available for all valve sizes. Consult the factory for pricing and availability.



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