



CRYOGENIC VALVES  
VACUUM COMPONENTS

C5000INST.A

**OPERATION AND INSTALLATION INSTRUCTIONS  
C5000 and OBSOLETE C1000 SERIES CRYOGENIC VALVES  
(MANUAL AND ACTUATED)**

## OPERATION

### MANUAL VALVE

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 is probably worn out or there is contamination on the seat area.

### ACTUATED VALVE

1. The actuator is either normally closed (NC) or normally open (NO). NC is also sometimes referred to as air to open (ATO) and NO is air to close (ATC).
2. All NC (or ATO) actuators require air pressure under the diaphragm to open the valve. Upon removal of the air pressure, a spring will close the valve. Installation and operation of an actuated valve will require air pressure at the actuator. Frequently the air pressure is provided through a 3 way solenoid or a remote pressure source.
3. If a positioner or other instrumentation is used, consult the suppliers instructions for information on actuating the valve.
4. Actuated valve adjustment. The actuator will stroke from closed to open in a preset pressure range of 3 to 15 psig or 6 to 30 psig. See the label on the actuator for the range setting. With the valve assembled, apply pressure to the diaphragm. The valve should begin to lift at either 3 psig or 6 psig and will reach maximum lift at either 15 psig or 30 psig. Adjust the spring tension screw on the top of the actuator if the settings are not correct.
5. To adjust the stroke and seat pre load, loosen the stem adjustment lock nut and extend or retract the actuator stem length until a stroke 3/8" is attained.

## INSTALLATION

1. Disassemble valve before welding into piping system.

### MANUAL VALVE

To open manual valve: turn handle counter- clockwise. Remove manual handle, remove packing retainer (snap ring which holds packing in place) and withdraw stem assembly from valve. Take care of seals and sealing surfaces and keep all parts clean.

### ACTUATED VALVE

To disassemble the actuated valve, you must first remove the actuator. Put air under actuator diaphragm to lift the stem. Remove yoke lock nut and disconnect stem adapter nut, remove actuator. Remove actuator adapter and stem adapter. Disassemble packing and stem same as manual valve above.



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2. Install valve in system and allow adequate time to cool off after welding before re-installing inner valve.
3. Re-install inner valve. Insert stem assembly into top of valve body taking care not to bump the seat seal. Be sure all seals are in place, compress upper washer and re-install packing retainer (spiral snap ring). The packing can be compressed using a short piece of tubing, 3/8" OD x .028 wall. Compress the assembly with the tube using a light arbor press or drill press (power off). For the actuated valve, put pressure under the diaphragm and re-install in the reverse order as disassembly.
4. Hand tighten the manual valve handle or depressurize the actuator to close the valve.
5. As an option, the valve assembly can be welded into the piping assembly without disassembly. Fully open the valve and weld the tube ends into the system with the internal purge flowing across the seat and then across the weld area. This carries the heat away from the valve. Keep the purge flowing as long as possible and be sure the body has cooled to less than 100 deg F before closing off the valve.

### **REPLACING THE SEAT AND BONNET SEALS**

1. **MANUAL VALVE:** With the inner valve assembly removed as discussed above, slide the seal pack off the end of the stem and replace with new seals and spacers. The seat can be removed and replaced by backing out the seat seal retainer screw, remove and replace the seat seal and replace the seat retainer screw. Insert the stem assembly with the seal package in place, compress the seal pack as instructed above and re-install the spiral snap ring. Re-install the manual handle putting the metal washers back in the same order. Install the stem retainer snap ring and the valve is ready to use.
2. **ACTUATED VALVE** To disassemble the actuated valve, you must first remove the actuator. Disassembly and assembly instructions same as **INSTALLATION** instructions above. Disassemble and assemble packing and stem same as manual valve above.

### **SOFT GOODS KITS**

Valve soft goods kits include all seals and packings and are available for all valve sizes.

Soft goods for pneumatic cylinders or diaphragm actuators are available. Consult the factory for pricing and availability.



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