

CHEMINERT® MODELS C35Z, C45 CLEANING AND ROTOR REPLACEMENT

Technical Note 816

INITIAL PRECAUTIONS

After unpacking the valve, do not remove the protective tape from the valve ports until you are ready to install the valve. As supplied, all surfaces are clean and free of contaminants, and must be kept clean to prevent valve damage. Open ports and fittings cause unnecessary risk of particulate matter entering the valve and scratching the sealing surfaces, which is the most frequent cause of premature valve failure.



CAUTION: Fittings Installation on C35Z

The body material and proximity of the ports of the C35Z mean that special care must be taken when connecting tubing to its ports. Too much force on the 1/16" nuts can crack the valve body. We recommend that the Valco zero dead volume (ZDV) fittings be made up outside of the valve (in a ZC1 1/16" cap, for example) before installation into the valve.

DESCRIPTION

C35Z and C45 valves are unique in the Cheminert® valve line in that they are conical rather than flat-plate rotary valves. The conical rotors, with the rotor tensioning assembly loaded from the back (actuator side) of the valve, provide the much larger surface area required by the C35Z valve with its 21 to 27 tubing connections and the C45 valve with its large fittings. While this aspect facilitates operation, it makes maintenance quite different from that of other Cheminert valves.

C35Z valve bodies are typically made of polyphenylene sulfide (PPS), with rotors of Valcon E2. C45 valve bodies are also usually PPS, but Valcon TF is the most common rotor material. While these materials get highest marks for chemical resistance, neither valve can exceed 100 psi/50°C.

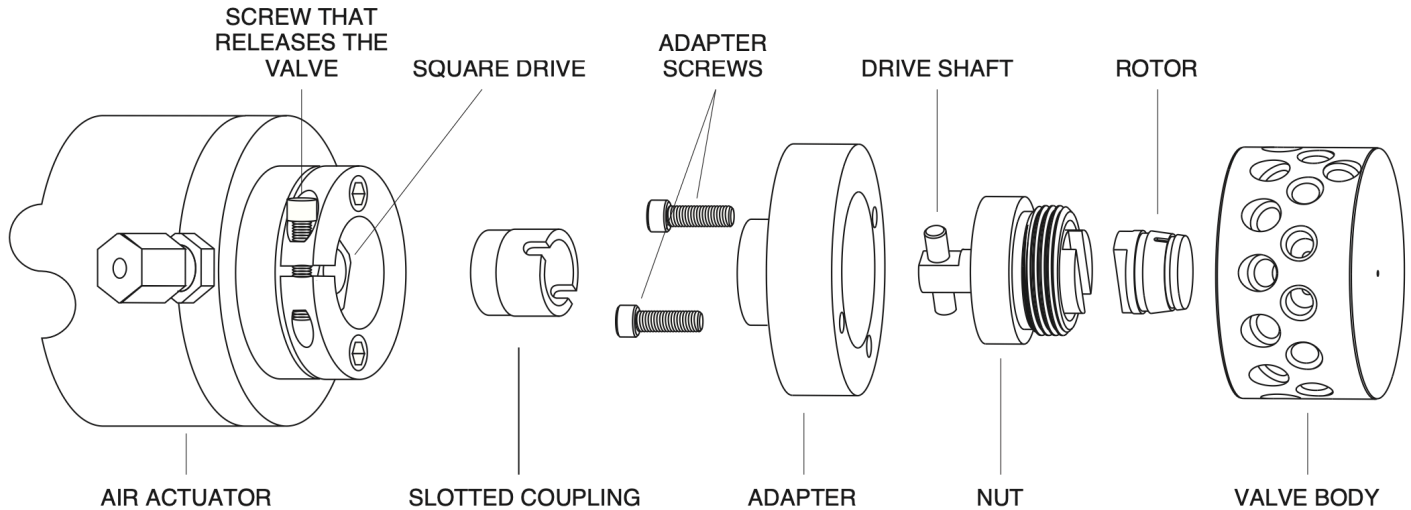
DISASSEMBLY (REFER TO FIGURE 1)

Cleaning a valve can often be accomplished by flushing all the lines with appropriate solvents. Do not disassemble the valve unless system malfunction is definitely isolated to the valve.

1. Microelectric actuators are keyed to the valve so that the orientation will always be correct. If the valve is mounted on any other actuator (air or standard electric), use a marker to put a line across the actuator or standoff clamp ring and the valve body so that you can replace the valve on the actuator or standoff with the correct orientation.

- Loosen the allen screw in the actuator clamp ring, and remove the valve.
- Using a 9/64" allen wrench, remove the two nuts holding the adapter to the valve and remove the adapter.

FIGURE 1: Exploded view of a Model C35Z



- Unscrew and remove the white plastic nut from the valve body. Notice that the drive shaft and tensioning washers are built into this nut to make an assembly.
- Remove the rotor from the body. The rotor may be sealed in the body taper, which could make this a difficult task. If this is the case, first try to work it free by fitting the grooved drive shaft back on the tab of the rotor and turning it. Next, try blowing air into one of the ports. Avoid using pliers on the rotor to remove it because they may damage the soft material or scratch the polished sealing surfaces.
- Examine the rotor and body sealing surfaces for scratches. If scratches are visible to the naked eye, the part must be replaced or repaired. If no scratches are visible, clean all the parts thoroughly with an appropriate solvent, taking care that no surfaces get scratched. It is not necessary to dry the parts.

REASSEMBLY

- Carefully replace the rotor in the valve body taper. The flow passages in the C45 valve are large enough to allow visual alignment. You can actually look through a port in the valve body and line up its edges with the edges of the engraving on the rotor.
- Fit the slot in the drive shaft onto the tab of the rotor and screw the white plastic nut back into the body until it is finger tight. (Do not overtighten.)
- Place the aluminum adapter onto the valve, and attach it with the two allen screws. The adapter and valve are keyed to allow only one orientation.

ALIGNMENT INSTRUCTIONS – MODEL C35Z

The microelectric multiposition actuator is keyed to the C35Z so that no alignment is necessary – there is only one way the valve can be mounted to the actuator. Simply mate the valve to the actuator assembly, making sure that the pin from the clamp ring attached to the actuator or standoff lines up with the pinhole in the valve. Firmly tighten the screw in the clamp ring to mount the valve. Set the actuator for the number of valve positions and alignment is complete!

ALIGNMENT INSTRUCTIONS – MODEL C45

Microelectric Actuator

If the valve is on a microelectric actuator, use the procedure above.

Standard Electric Actuator

1. Flip the toggle switch on the manual controller to the HOME position to make sure the actuator is in Position 1.
2. Fit the slotted coupling onto the drive shaft of the valve, then place the valve in the actuator clamp ring. By convention, the factory alignment places the Position 1 at 12 o'clock. Reorienting the slotted coupling on the square drive of the actuator allows three other possibilities.
3. Tighten the clamp ring just enough so that the valve does not fall off, but loose enough to allow the valve to rotate. The actuator will hold the rotor and allow you to turn the valve body around the rotor.
4. Assuming the hole in the rotor is pointed to the 12 o'clock position, look down through the top port and turn the valve until the edges of the rotor hole align with the edges of the port.
5. Holding the valve steady, firmly tighten the screw in the clamp ring.

Air Actuator

1. Determine that the actuator is in Position 1, then override or disable the means of pulsing air to the actuator so that pressure is continuously applied to the actuator port nearest the valve. This allows the air actuator to hold the rotor in place while the valve body is turned around it. With the valve toward you and the actuator away from you, the valve body can be turned counterclockwise.
2. Fit the slotted coupling onto the drive shaft of the valve, then place the valve in the actuator clamp ring. By convention, the factory alignment places the Position 1 at 12 o'clock. Reorienting the slotted coupling on the square drive of the actuator allows three other possibilities.
3. Follow steps 4 and 5 above, turning the valve counterclockwise while aligning.

Further Reference

Our website contains a wealth of information about actuators, valves, fittings, and everything else that Valco makes. If you have questions not answered in this technical note, please refer to the support section of www.vici.com, which contains technical notes, instruction manuals, and application notes. The following are of particular interest to users of C35Z and C45 valves:

Operation Instructions concerning actuators:

- Technical Note 406: Implementation of the Valco Helical-Drive Air Actuator
- Technical Note 415: Microelectric Multiposition Valve Actuator
- Technical Note 417: Multiposition Standard Electric Actuator

