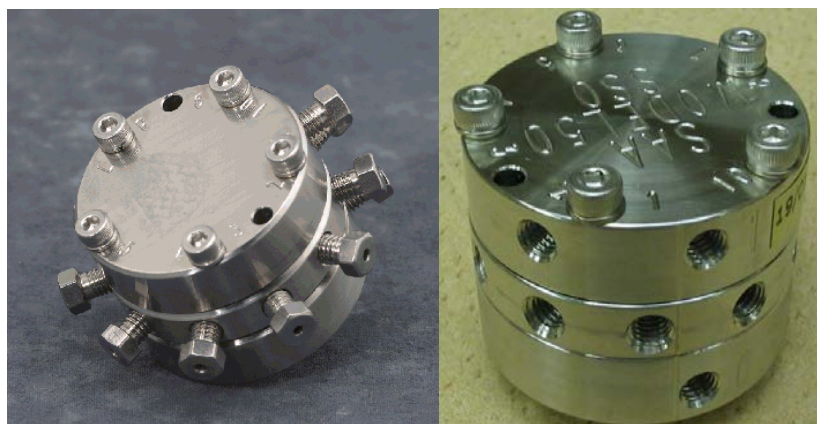


## Model 50 Valve

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### Description

This section provides maintenance instructions for the Model 50 Valve. The Model 50 is a pneumatically operated diaphragm valve specifically designed for process gas chromatography. It uses pressure-on-diaphragm activation with no other moving parts. The valve can inject vapor samples and switches columns simultaneously. It is capable of switching gasses up to 75 psig (515 kPa).



**Figure 4-28: Model 50 Valve**

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### Repair Kits & Fixtures

The following equipment is required to repair the Model 50 Valve:

Model 50 Repair Kit: Siemens PN 2020164-001 (includes 10 diaphragms, 10 screws with washers, and 12 Valco fittings).

Valve Assembly Fixture: Siemens PN 2020281-001

Torque screwdriver with Allen head bit: Siemens PN 1631005-003

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### Preventing Port to Port Leaks

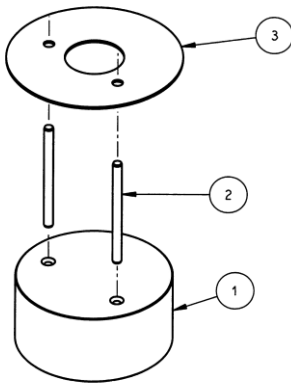
Particulates introduced to the valve either from the sample or from the columns can prevent the diaphragms from sealing against the center plate of the valve. Also, to insure proper sealing of the diaphragms, the actuation pressure should be 25 psig higher than the carrier gas or sample gas pressure.

To help prevent leaks always turn the Sample and Carrier Gas off before the Actuation Gas is turned off. Without Actuation Gas the Model 50 Valve is in an undefined state and the flow path of the carrier or sample cannot be controlled. Leaks in the Actuation Gas lines could result in a lower Actuation Gas pressure which could result in port to port leaks. The symptoms can include small peaks, repeatability problems, contaminated columns and noise on the detector.

## Model 50 Valve, Continued

Step	Procedure
5.	Turn the nut ¼ turn (90 degrees) past the point where the ferrule first starts to grab the tubing.
6.	Remove the fitting and inspect it. The ferrule may be free to spin axially on the tubing but should have no lateral movement along the tubing. If it does, reinstall the fitting and tighten it another 1/8 turn past finger tight. Remove, re-inspect and repeat if necessary.

### Replacing Diaphragms



Valve Assembly Fixture 2020281-001

Use the Valve Assembly Fixture, Siemens PN 2020281-001, properly align the Diaphragms when rebuilding the Model 50 Valve. The fixture consists of a base (1), 2 guide pins (2) and a diaphragm placement disc (3). This fixture will allow the user to place the diaphragm in the center of the valve. If the diaphragm is not in the center it may leak.

Step	Procedure
1.	Remove the old diaphragms from the plates. DO NOT attempt to reuse the old diaphragms.
2.	With the pins installed in the fixture base, place the bottom plate of the valve on the base. The pins should fit in the mounting holes on the bottom plate and hold it in place.
3.	Position the placement disc on the bottom plate and set the diaphragm in place .
4.	Carefully remove the placement disc without moving the diaphragm. Inspect the diaphragm for proper alignment.. If the diaphragm is not in the center of the plate, repeat the placement procedure using the placement disc.
5.	Place the middle plate on the valve taking care to use the correct holes. Check the alignment mark on the side of the plate. It should align with the mark on the bottom plate. If not, the middle plate is upside down and must be removed, turned over, and reinstalled correctly.