Westinghouse

Automatic High Pressure Vacuum Valve

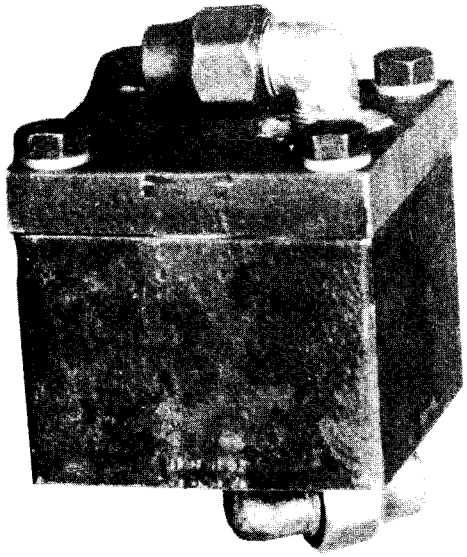

FIG. 1 – AUTOMATIC HIGH PRESSURE VACUUM VALVE

General

This valve was designed specifically for use with a rotary oil-sealed vacuum pump. It acts as a check valve to prevent oil from being forced back through the pump into the tube being evacuated, when the pump stops.

Principle of Operation

The valve consists of a square box, the inside being machined in the shape of a cylinder, with a cover bolted to the body. The gasket between the cover and body is an aluminum ring. "Kerotest" fittings are screwed into the cover and the bottom of the valve body. These fittings are soldered in the valve after the inlet and outlet directions have been determined. The inner part of the valve consists of a float and needle valve similar to those used in automobile carburetors but so mounted that the oil pump suction is at the bottom of the chamber. With this arrangement when the pump is operating the chamber is kept free from oil and the needle valve is open. Figure 2 shows the method of operation of the valve. When there is a vacuum on the low pressure side of the valve and the oil pump stops, atmospheric pressure forces oil from the pump into the valve chamber, thereby raising the float and seating the needle. If the seat is not perfect enough to hold gas, more oil is drawn in until it reaches and seals the needle.

Maintenance and Repair

In case the valve leaks sufficient oil to impair the vacuum to which it is connected, the cover of the valve should be removed and the needle valve assembly examined. It is probable that the leak is due to dirt or fine grit on the needle seat. If the seat has been injured, it should be ground in with lapping compound. All parts should be thoroughly cleaned with benzine and blown dry before assembling.

The float should be examined to see that it has not been punctured and that it retains its buoyancy and that the supporting arm allows sufficient travel to cause the needle to seat tight. If the oil in the pump has become dirty, it is well to clean the seat of the float valve.

In assembling the cover to the valve, care should be taken to tighten down the cover uniformly. Also the seat should be carefully examined to be sure that no foreign material is in the seal groove.

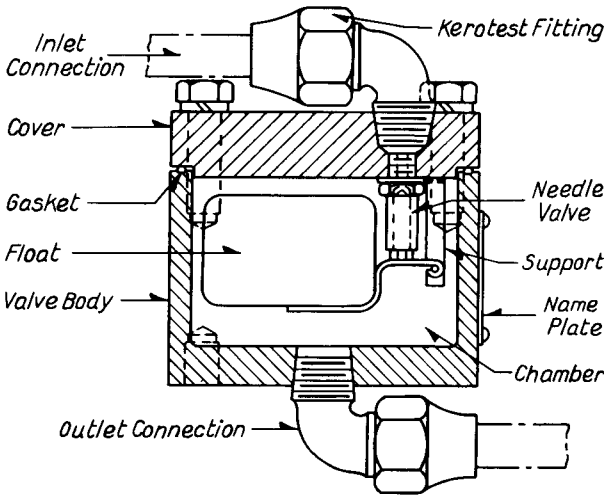

FIG. 2 – AUTOMATIC HIGH PRESSURE VACUUM VALVE – CROSS SECTION

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