Cumberland Vacuum Products Inc.

VACUUM PUMP FLUIDS

Pump designs such as, Piston, Rotary Vane, Rotary Lobe, Liquid Ring, Diffusion and Dry pumps all have specific requirements for ultimate pressure, lubrication and chemical stability. Process application also must be considered when choosing the proper fluid. Other factors that are often over looked are, oil temperature in the pump, filtration of the fluid, filters or the lack of on the inlet or exhaust port. How often the fluid is changed and the procedure for changing the fluid is also a major factor.

PISTON PUMP

This type of pump is typically used on large industrial chambers. This type of pump is normally but not always used to back a blower or diffusion pump. Piston pumps are rugged and are used to move large amounts of air over long periods of time. It is the last pump in the system and is exposed to and collects any vapor and/or particulate that pass from the chamber through the blower or diffusion pump, contaminating the oil. Recommended oil temperature for this type of pump is 150 Degrees F. This allows the oil to outgas vapors that are condensing it the pump oil during the process. A simple testing of the oil with our ATK-010 fluid test kit can tell you the condition of the oil and the potential oil change intervals needed for optimizing you fluid and pump life. Oxidation, acidity, thermal degradation and particulate can then be addressed by using the proper fluid and/or filtration *

ROTARY VANE PUMP

These pumps are used as standalone pumps, backing for smaller blowers and turbo pumps or holding pumps for diffusion pumps. This type of pump operates at high speed with minimal oil capacity. The smaller oil reservoir is beneficial when using PFPE type oils, but must be monitored closely when used in harsh applications as the oil can become contaminated and bread down quickly. A simple testing of the oil with our ATK-010 fluid test kit can tell you the condition of the oil and the potential oil change intervals needed for optimizing you fluid and pump life. Oxidation, acidity, thermal degradation and particulate can then be addressed by using the proper fluid and filtration *

LOBED BLOWERS/BOOSTERS

These pumps are a rotary lobe high speed pump type used to increase the pumping speed of a backing pump. The pumping area is dry and the oil is used to lubricate the gears and seals only. When choosing the correct fluid consider the RPM and CFM of machine, direct or belt drive and add1tive the package of fluid. *

LIQUID RING

These pumps are a rotary style vacuum pump. The vanes are an integral part of the rotating rotor and cannot be replaced. This type of pump uses water or oil as the sealing media. Sealing media is carried with the gas and is typically exhausted into an oil separator to recover the liquid. *

OIL & JET BOOSTER DIFFUSION PUMPS

This type of pump uses the oil vapor as a pumping media and there are no internal moving parts. As the oil boils it carries molecules of air at a rapid rate, this flow creates a vacuum in the pump. These types of pumps use a relatively high price fluid and extra care must be taken when choosing the proper hydrocarbon or synthetic oil. When choosing a fluid consider, operating pressure required, out gassing of process that will contaminate fluid and cost. *

DRY VACUUM PUMPS

The dry type vacuum pump has no lubricant in the vacuum cavity. In most cases there is an oil reservoir in the gear drive area. Typically used in semiconductor process the lubrication used is of a PFPE type. These fluids are higher in cost and specific to application and OEM specifications. Always consult the pump manufacturer for specific recommendations and specifications.*

Specific information and details for inlet and/or exhaust filters, oil filtration, testing and changing the fluid, comparing hydrocarbons to synthetics and other useful information can be reviewed under our technical information tab at www.cumberlandvacuum.com. If you prefer we can be reached at 856-691-9155 or info@cumberlandvacuum.com