Specification for PFS Vacuum Priming System with Rotary Vane Vacuum Pump(s)

Furnish a factory assembled and tested Premier Fluid Systems Priming System, Simplex or Duplex (SELECT one) Model_____to automatically prime a quantity of _____ centrifugal pumps, as shown on the plan drawings. The priming system will include oil lubricated single stage rotary vane vacuum pump(s) with high volumetric efficiency and ultimate vacuum to 29.5”Hg. Pump material shall be cast iron casing with non-metallic vanes, air cooled with built in oil mist eliminator.

Rotary vane pumps are mounted on a horizontally mounted vacuum receiver tank. Each pump is directly coupled to a TEFC motor C-Flanged, 3/60/___ volt and driven through a flexible coupling with an adapter flange to guarantee perfect pump/motor alignment at all times. Vacuum pumps shall be model _____coupled to a motor ___HP ____ RPM, capable of handling ____CFM at ____"Hg vacuum, capable of 29.5”Hg ultimate vacuum.

The priming system receiver shall be in carbon steel suitable for full vacuum, approximate volume_____US Gallons, fitted with high water level switch to shut system off if excessive water is accumulated, manual water draining valve,

vacuum gauge and water level sight glass. Each pump inlet vacuum piping to include a vacuum type check valve, isolating valve and flexible connector.

Electrical control panel shall be system mounted and wired. Panel shall be NEMA 12 enclosure include:

- Door interlock circuit breaker disconnect
- Full voltage, across-the-line magnetic starter for each pump motor, each starter complete with three phase overload protection relay and manual reset button.
- Three position H-O-A selector switch for each pump.
- Fused control transformer with sufficient capacity to supply the maximum 120 volt single phase control power requirement
- Two adjustable vacuum switches to control system vacuum between start and stop pressures.
- An hour meter for each pump.
- An alarm pilot light with acknowledge push button for tank high water level

For a duplex case, one pump will act as the lead pump and the other will be the lag pump also pumps will alternate with each start.

The total assembly shall be factory piped, tested, primed and painted with industrial type quality enamel paint.

Available Options:

- Receiver in Stainless Steel or Coated, ASME/CRN registered
- Auto drain while under vacuum
- VFD
- Electrical panel for remote mounting, remote monitoring, NEMA 4X, etc.

Priming Valve Assembly (Typical)

The assembly shall consist of a float type Priming Valve normally open during initial start to establish prime of centrifugal pump(s). The PFS vacuum system shall remove air from the suction pipeline and pump casing through the priming valve orifice. After all entrained air has been evacuated through the priming valve orifice, the rising water floods the priming valve and causes the orifice to be closed. The priming valve shall then remain closed until air accumulates inside the valve and the opening cycle shall repeat automatically. The priming valve shall have 5/16" orifice, 1" NPT pipe inlet, ½" NPT pipe outlet and a plugged ½" NPT opening for level switch mechanism connection. The materials shall be cast iron body and cover, SS lever frame and float, Buna-N seat. Mounted in priming valve casing or in parallel with the priming valve there shall be a level switch having a single float mechanism with galvanized piping and fitting. The level switch shall be powered with 1/60/110 Volt electrical supply. Signal from water level switch can be used to start-stop the centrifugal pump motor or it can activate an alarm in case of loss of prime. The priming valve shall be installed in strict accordance to P.F.S specifications. An operating and maintenance manual will be submitted which includes maintenance schedule and recommended spare parts.

Available Options:

Internal coating for corrosion resistance

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