

**CORNELL PUMP COMPANY****Refrigerant Emission Free™ Sealing Technology****Refrigerant Emission Free™ Sealing Technology**

Refrigerant Emission Free™ Sealing Technology is a system which consists of an evolutionary double mechanical seal with integral barrier fluid pump. This seal is cooled and lubricated via a self-contained barrier reservoir which is automatically pressurized to match system conditions. The inboard faces of the seal prevent escape of refrigerant from the pump case while the outboard faces retain the system compatible barrier fluid. The system includes a pressurized barrier fluid reservoir, fluid level indicator and a limit switch. This configuration allows unattended monitoring of fluid level, and a safety shut down feature.

Low viscosity refrigeration machinery oil is utilized as the seal barrier fluid and is automatically pressurized to 15 PSI above pump discharge. The oil is continuously circulated through the seal barrier system by the integral “pumping ring”. The positive pressure difference between the barrier and the refrigerant prevents the refrigerant from entering the barrier system and ensures that there will always be a minute oil film between the seal faces.

As the barrier oil is slowly depleted, the indicator constantly monitors the barrier oil consumption rate and level. At an user-determined set point, the indicator activates the limit switch. The reservoir indicator and limit switch will warn that the oil reservoir requires a routine refill, or that the process side seal is nearing it’s service life limit. The switch can be wired to trigger an audible or visual alarm, or to shut down the pump before the barrier oil level gets too low. In the event of process side seal failure, the barrier seal will contain the refrigerant until maintenance can be performed.

Due to the self-contained barrier system, the seal does not rely on the presence of pumpage for lubrication or cooling. It is common with many systems that severe pressure transients in the receiver can cause the pump to lose prime due to vapor locking. With the Refrigerant Emission Free™ Sealing Technology, the pump can continue to run until the system stabilizes and the pump reprimed itself. Q-max and Q-min control orifices, differential pressure stats, and pump controllers are eliminated.

According to the Federal Register/Volume 56 No. 44 dated Wednesday, March 6, 1991, the proposed regulations state: “Each pump equipped with dual mechanical sealing system that includes a barrier fluid system is exempt from the requirements of paragraph (b)” which dictates monitoring requirements and allowable leak levels. Pumps so equipped are classified the same as hermetic or magnetic drive pumps.

ISO9001:2000 CERTIFIED**Cornell Pump Company**

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