

Zero flush technology saves water flushing costs

A sewage treatment plant retrofitted with new zero flush/zero leakage pump technology experiences zero problems. New plans to retrofit the second sewage pump follow Patterson's successful test project.

Tremendous amounts of money are spent on pump flushing water and seal maintenance - an often surprisingly high expense for wastewater operation management. Patterson Pump Company addresses this costly drain on operating budgets by offering zero flush/zero leakage in its Type "F" sewage and The Forceline® NCS non-clogging series pumps. Each offers a sealing arrangement requiring no flush water, which saves substantially on maintenance and seal flush water.

The new zero flush technology features EnviroSeal's SpiralTrac® throatbushing and the Chesterton® Model 442 split mechanical seal. This design arrangement requires no flush water, which saves on the initial installation cost in addition to long-term costs associated with having to flush the stuffing box. Ultimately, pump users benefit by having extended seal life, and maintenance can be performed to the seal and stuffing box without taking the pump out of service.

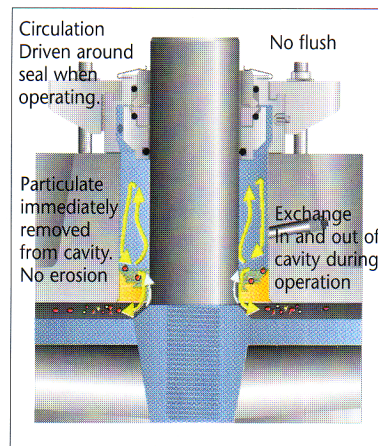
Zero flush technology is available for new installations and for retrofitting sewage, secondary sludge, effluent and other wastewater pumps, offering the

same savings in maintenance and seal flush water. For example, the Oconee County Sewer Commission in northwestern South Carolina, USA, retrofitted its sewage treatment plant after experiencing difficulties with traditional mechanical seals on its two 8 x 8 x17 NCS V14 pumps that had been installed and put into operation in early 1996. The station pumps all flows from across the rural 625-square-mile county and recycles all materials on-site.

Patterson recommended retrofitting one pump with the SpiralTrac throat bushing and Chesterton 442 split mechanical seal for a test period of several months. General Superintendent Robert Winchester agreed to the test period. One pump was retrofitted and installed more than 20 months ago. Absolutely no trouble during the test period convinced Winchester to leave the new retrofit in place. "We've had no problems at all since the retrofit," he said, "and we are now having the new technology installed in the second pump."

The SpiralTrac is a throat bushing that takes advantage of the natural circulation of process fluid inside a stuffing box. It is placed in the bottom of the stuffing box and used with a mechanical seal. Since the fluid in the stuffing box spins with shaft rotation, the SpiralTrac takes advantage of this action to expel solids and particles from the stuffing box during equipment operation. This increases seal life by leaving a cleaner fluid in the stuffing box for the mechanical seal.

Entrained air can collect in a stuffing box either from start-up as the pump is flooded or over time from the liquid being pumped. This air will surround the mechanical seal during equipment operation as the heavier liquid centrifuges to the stuffing box wall, resulting in higher seal heat and wear. The SpiralTrac releases this entrained air out of the stuffing box through a unique air vent in its top surface.



Under flooded suction all four critical conditions are met with SpiralTrac™ technology.

Zero flush technology is available in Type F sewage and The Forceline NCS non-clogging pumps from Patterson Pump Company.

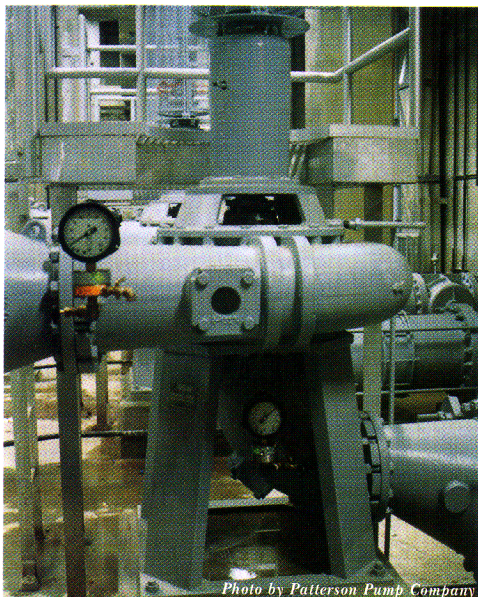


Photo by Patterson Pump Company

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Robert Winchester, Oconee Country Sewer Commission

The Chesterton 442 Split Mechanical Seal construction enables the seal to handle pressures three and one-half times higher than conventional split seals. In addition, the 442 split seal is specifically designed to be able to withstand vacuum to 250 psi in the stuffing box. This makes it a highly effective seal for non-clogging solids handling pumps, such as The Forceline. **W&WI**

Author's note

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