Xeric Type 3 (XT3) Case Study



Dry-Run Capable Progressive Cavity Pump Revolutionizes Waste Handling in Biofuels Plant



OVERVIEW

An ethanol production facility faced ongoing failures with traditional progressive cavity (PC) pumps when handling thick, abrasive spent corn mash. Roper Pump Company provided a metal-on-metal PC pump solution that significantly improved efficiency, reliability, and ease of maintenance.

THE CHALLENGE

The customer needed a pump that could reliably move spent corn mash—a highly viscous, corrosive, lowmoisture waste stream. The existing elastomer stator PC pumps failed regularly during dry-run conditions, a common occurrence during mash feed interruptions. Additionally, the plant required the same pump to flush the system with water during cleaning, a task where previous pumps underperformed due to their narrow efficiency range.

THE SOLUTION

Roper Pump developed a metal-on-metal progressive cavity pump specifically engineered to handle both thick pastes and thin flushing liquids. The stator was constructed from a corrosion-resistant stainless steel alloy, carefully selected to withstand the harsh chemical makeup of the spent mash. The smooth, clearance-fit rotor and modular stator design made the pump far easier to service and install.

THE RESULTS

- **True dry-run capability:** The metal-on-metal design eliminated elastomer failures during dry operation.
- **Dual-phase efficiency:** The same pump handled high-viscosity mash and low-viscosity flush water effectively.
- Maintenance time cut by 87%: Replacing the stator went from 8 hours with two technicians to just 2 hours with one.
- **Customer impact:** Increased uptime, reduced labor costs, and higher reliability in a critical waste handling application.

