Abrasive Wastes Causing High Failure Rates & Costly Downtime

MEAT PRODUCTION FACILITY

Franklin Electric

VORTEX SERIES PUMP CASE STUDY

Together with our distributor, Hutcheson Engineering, Franklin Electric teamed up to provide an industry-leading solution to a multinational American-based food corporation that specializes in the production of chicken, beef, and pork.

CUSTOMER CHALLENGE

The rendering floor of a meat production facility generates extreme and harsh processing conditions for pumping applications. Our partner was looking for a pump that could maintain a consistent fluid level in the wastewater pit while processing solids and fluids waste that came from the kill floor and scalding area of the facility. These solids and fluids were extremely abrasive and aggressive, consisting of bones, nails, hair, and blood. The desired pump also needed to provide reliable operation and maintain consistent performance throughout its continuous use seven days a week. The pump previously used in this application had a flapper check valve that would regularly fail after passing tough solids such as large hog dewclaws. This would cause the pump to run dry and required replacement parts every month, costing the production facility valuable run time and inventory overhead to stock parts.

THE SOLUTION

After assessing the needs of this demanding application, our distributor recommended installing a Vortex Series™ from Pioneer Pump®, a Franklin Electric brand. The plant engineer at the production facility selected a 6" pump to be installed. This dual-purpose pump combines the efficiency characteristics of a self-priming pump with the solids handling capabilities of a chopper pump, making it ideal for applications that need to pass solids while also handling flows to meet the required total dynamic head (TDH) and gallons per minute (GPM). Using a recessed impeller, approximately 15% of the solids the Vortex Series pump passes meet the face of the impeller. This feature, combined with a vacuum-assisted priming chamber allows for the pump to move both solids and fluids efficiently.

The Vortex Series pump is designed for maximum reliability. Using a ball check valve, the pump avoids clogging from passed-through solids and handles abrasive debris more effectively than a flapper

0 ***DOWN TIME DUE TO PARTS MAINTENANCE***

15% ***SOLIDS COME IN CONTACT WITH THE RECESSED IMPELLER***

PUMP FEATURES

- *Bare shaft, frame-mounted vortex pump end with Pioneer Prime vac-assist dry priming system*
- *Size: 6" x 6" (150mm x 150mm)*

PERFORMANCE DETAILS

- *Max Flow: 1600 (363 m^3/hr)*
- *Max Head: 94 feet (29 meters)*
- *Flow at BEP: 850 GPM (193 m^3/hr)*
- *Efficiency at BEP: 45%*

RESULTS

- *Decreased Downtime*
- *Increased Efficiency*
- *Decreased Inventory Overhead*
- *Increased Life Expectancy*

check valve. The Pioneer Prime vacuum-tassisted priming chamber stops the pump from running dry - avoiding premature seal & rotating assembly failure. There are also no cutters in the pump to keep sharp or wear plates to maintain clearances. Together, the features and mechanics of the Vortex Series pump save time and money by eliminating internal wetted parts that typically require maintenance - ultimately extending the overall life expectancy of the pump.

THE RESULTS

The pump met the demands of the continuous run application by passing all of the viscous solids from the rendering plant floor successfully, and required zero down time due to parts maintenance. The facility was so satisfied with the performance of the pump that they invested in two additional Vortex Series pumps to replace two current self-priming pumps in their production facility.