

CENTEX SUCCESS STORY

RETROFIT FOR MIDDLE EAST PUMP STATION



A municipality in the Middle East was facing several challenges at their main pump station, which is also one of the largest in the region. Competitor's pumps were installed at this site which not only were they incorrectly sized, but were also presenting a myriad of mechanical problems.

Among these problems were mechanical seal failures that occurred as often as every week. Seal replacement for pumps this size presents a difficult and expensive task, which was costing the municipality hundreds of thousands of dollars every month and a staggering amount of downtime.

We approached the municipality and performed a detailed hydraulic analysis of their pump station, and selected the proper Cornell pump model for them. When we presented our solution to the customer, they mentioned that they would like the pumps to be able to perform a sump cleaning cycle, where they could remove as much wastewater from the sump as possible, well below the pump's datum. For this requirement, we developed Cornell's first vacuum-assisted priming system for vertical pumps, the Verti-Prime. This system allows for automatic priming and re-priming of the pumps when operating under suction lift conditions. It includes a Run-Dry feature which prevents damage to the mechanical seal while the pump is operating under dry conditions.

The challenge we then faced was to match the existing piping preparations with our smaller pump, for which our Engineers designed custom one-of-a-kind complex fittings that matched the preparations without compromising hydraulics.

Special composite shafting was supplied along with these pumps, which provide better performance than steel shafting while their lighter weight allows for easier installation and maneuverability.

Our pumps have been in operation since 2013 and they are performing as designed.

APPLICATION DETAILS

| | |
|----------------------|--|
| PUMP MODEL | 18NHG34-VF30 |
| QUANTITY | 2 Sets |
| FLOW | 850 l/s |
| HEAD | 62 meters |
| HYDRAULIC EFFICIENCY | 84% |
| MOTOR POWER | 750 kW |
| MOTOR SPEED | 1000 RPM |
| SHAFTING LENGTH | 8 meters |
| SHAFTING MATERIAL | Composite |
| PUMP FEATURES | Verti-Prime vacuum-assisted priming with Run-Dry for mechanical seal |

CASE STUDY

18NHG34-VF30

