Case Study

A K International bids goodbye to mechanical seals, saves costs – thanks to A.T.E.

Background

Based in Panchkula, Haryana, A K International is a well-known manufacturer and exporter of a range of fence and gate solutions. Coating metal components is key to high quality fences and gates. A K International has thus developed extensive expertise in Cathode Electro Deposition (CED), a process that is an advanced, environment-friendly and water-based solution for coating metal components.

Challenges

A K International's CED process makes use of a combination dip and spray mechanism which ensures the paint coats every surface of a component, even those that have complicated shapes. They had used a mechanical seal centrifugal pump for this application. The frequent failure of this pump caused severe disruptions in its operation, besides entailing high maintenance costs.

Many of these failures were caused by the failure of the mechanical seal – a common cause of worry in centrifugal pumps. Such failures in turn also affect different parts of a pump, including the pump shaft. Further, such failures can also lead to catastrophic consequences if toxic or highly flammable material is accidentally released. In short, mechanical seal failures lead to downtime, increased maintenance expenses and operating costs, and can also cause fire hazards.

Solution

A.T.E. studied and analysed A K International's process and replaced the process pump A K International used with an Iwaki seal-less magnetic drive pump. Iwaki's magnetic drive pumps are known for their design, which ensures improved mechanical strength, and enables operation even under abnormal conditions. Further, these pumps are very efficient. For the CED application, A.T.E. replaced a 1.5 kW mechanical seal centrifugal pump with an Iwaki MX401CV magnetic drive pump of 0.75 kW.

Iwaki's magnetic drive pump is leak free due to its seal-less construction; it does not require a mechanical seal. This improves its reliability and reduces maintenance costs as there are no mechanical seals that need to be replaced periodically. Additionally, its corrosion-resistant design makes it suitable for transferring strong acids and other chemicals.

Iwaki MX401CV

Result

- Energy saving: Energy consumption reduced from 8,907.66 kWh to 4688.2 kWh per year – saving 4,219.4 kWh of energy per year
- Calculation: (1.9-1) Ampere x 412 Volt x 1.732 x 0.75 x 24 working hours x 365 days = 4219.4 kWh
- Cost saving: At an average cost of Rs 7/unit, 4,219.42 kWh translates into a reduction of Rs 29,536/year in the operational cost!
- Mechanical seal replacement eliminated; no spare usage in the last year
- Very low maintenance cost

Naturally, A K International is delighted with the incredible results achieved with the replacement of its earlier centrifugal pump with Iwaki's magnetic drive MX401CV pump.

Rajesh Pinia, Plant Manager, AK International

"A.T.E. made replacing our old, high maintenance pumps simple by recommending Iwaki sealless pumps. These pumps are helping us save electricity and consume lesser spares. We are happy with the product quality and performance of the pumps and consider it to be the best solution so far. Moreover, A.T.E. has been providing prompt after-sales services to us. We also look forward to replicating this solution in our other units."

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