ATLANTIC PUMPS

Case Study

British Steel Decarbonise - and Gain Safety Enhancements and Maintenance Savings

Overview

Replacing hired diesel pumps was made possible with the latest version of the Audex Pontoon. This has helped British Steel towards its net-zero goal, while reducing the lifetime cost of ownership and simplifying maintenance. The Audex submersed pump is suspended in the lagoon at the optimum position for efficient extraction. Balanced lifting points aid pump inspection and maintenance, while the modular design makes it extendable.

Challenge

Diesel pumps were abstracting water from the reservoir at British Steel, which were costly to run, complex to maintain, and holding back the next level of sustainability.

Atlantic Pumps were briefed to reduce running costs, ensure long-term economic and sustainability gains, and increase safety for maintenance engineers. The incumbent land-based pumps had to draw water up, which meant they lost their prime between pumping duties, and expended more energy in the process. This often led to delays and manual interventions on startup.

Solution

A new Audex submersible pump was proposed, which saves energy (and the need to prime) by sitting directly in the water. Once connected to the power supply, there is little need to visit the pump: no fuel refills, no spill risks, no manual startup and shutdown. Despite that, British Steel wanted a safe, easy way to inspect the pump and carry out cleaning and maintenance duties.

> Diesel-powered dewatering pump replaced with electric submersible, pontoon mounted pumpset

Electrifying the pumping process was clearly a benefit to using engine-driven pumps; no site emissions, cutting carbon footprint to zero by using renewable energy, an efficiency ratio improvement, and no need to buy, transport, store, and dispense diesel oil - with all the headache and risk that presents.

Electric centrifugal pumps are available for dry-siting, but Audex submersible pumps were chosen for their self-priming ability and high efficiency operation. Being suspended in the water body means they don't need to overcome negative suction head pressure, and there's a lower risk of overheating.

Audex have long made floating pontoons for suspending their pumps from, and the discussions with the client led to an updated version that was lighter in weight and easier to retrieve and move if needed. By reducing complexity, the new pontoon design is more cost-effective to build, and further increases safety thanks to the addition of a high-level lifting frame.

Atlantic Pumps' product designers saw the advantage of making the new pontoon system modular, as each platform is built to meet the SWL required. Greater standardisation reduces the lead time and cost, saving the client an estimated 25% on the purchase price and providing clarity around safe loading and lifting.

In the revised design, bolted components replace some welded ones, easing the replacement of parts if they suffer damage. The increase in common parts from model to model enables bigger batch production, making the pontoon even more competitively priced and shortening lead times. Standard sizes of components such as pump suspending chain sets, legs, floats, and beams are made for stock to enable faster turnaround.

Results

Financial:

Moving away from hired diesel pumps has reduced their expenditure on fuel, and slashed the admin and maintenance time. Audex pumps are proven to last longer and have a lower lifetime cost of ownership than the pumps they replaced.

The new pontoon design reduced the purchase cost, helping the client mitigate inflation and material price increases by an estimated 25% - 30%.

The modular design makes the pontoon easily extendable, up to 1,000kg SWL. This ‘future-proofs’ the investment made to date and allows for growth.

The modular, bolt-fixed design helps maintain residual value and resale/repair/reuse options.

Environmental Gains:

Cutting emissions and leading the global steel industry towards net-zero is a fundamental goal for British Steel. Replacing diesel-powered pumps with clean, high-efficiency electric Audex pumps supports this in a long-term and cost-effective way.

The reduction of welded joints aids repair, reuse, and recycling options, extending the product’s lifetime and reducing waste.

Reduced downtime for maintenance and pump priming enables better environmental control of surplus water and the sustainable use of this key natural resource.

Operational

The Audex pump has reduced daily and weekly maintenance, with longer time between inspections and no fuel refilling.

The pontoon’s ‘A-frame’ lifting points aid safe lifting and retrieval of the pontoon and suspended pump. This simplifies the safe system of work (SSoW), especially when a telehandler is used and there is reduced need for persons to access/work over water.

Pontoon legs provide ‘dry-dock’ support for faster pump cleaning and servicing.

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