



REPLACING AN UNRELIABLE HIGH-TEMPERATURE PROCESS PUMP

Long-coupled pump arrangement improves reliability & serviceability in a critical chemical process

AVTPUMP was engaged by an existing customer following repeated failures of a close-coupled pump operating within a high-temperature chemical process.

The asset had failed four times within 12 months, with each breakdown requiring extensive repair. Poor availability and long lead times for OEM spare parts were also extending recovery times and increasing the risk of further disruption.



THE CHALLENGE

The pump is an essential part of the site's carbon collection process. If it cannot operate, process media cannot be removed from the heat exchanger and carbon dioxide production must stop.

Repeated failures had already interrupted production several times during the previous year. The criticality of the process, combined with the specialist end use of the finished product, meant that continued reliance on the existing arrangement was no longer acceptable.

OUR APPROACH

AVTPUMP's Technical Manager attended site to review the application, assess the likely causes of failure and determine the most appropriate long-term solution.

The review focused on reducing the effect of process temperature on the pump and motor, improving access to the sealing arrangement and creating a system that would be easier to maintain and support in the future.



“After four failures in 12 months, it was clear that another like-for-like repair would not address the underlying problem. The long-coupled arrangement gives the site a more suitable, serviceable solution for this high-temperature duty, while the AESSEAL® sealing system provides additional support for long-term reliability.” - AVTPUMP Engineer

OUR FINDINGS

The close-coupled pump arrangement allowed heat to transfer directly across the pump and motor assembly, contributing to the repeated failures experienced on site.

The compact design also restricted the range of mechanical sealing options that could be considered. In addition, the poor availability of OEM spare parts meant that each breakdown carried the risk of an extended repair period.

A long-coupled arrangement offered a more suitable solution by increasing separation between the pump and motor, reducing heat transfer and creating additional space for a more robust mechanical seal arrangement.

OUR SOLUTION

AVTPUMP specified a long-coupled pump set complete with a dedicated baseplate.

The new pump was fitted with an AESSEAL® dual cartridge seal and Plan 53A seal support system, selected to support reliable operation within the demanding high-temperature application.

Accommodating the longer pump set required significant modification to the installation area.

Following consultation with the customer, this was accepted as the most appropriate route to improve long-term reliability, maintainability and serviceability.

THE RESULT

The proposed upgrade replaces an unreliable close-coupled arrangement with a pump system designed around the demands of the application.

By reducing heat transfer between the pump and motor, improving access to the sealing arrangement and introducing a supported AESSEAL® cartridge seal system, the new configuration is expected to provide a more reliable and maintainable solution for this critical process.

The project demonstrates the value of reviewing the wider pump arrangement when repeated failures show that continued like-for-like repair is no longer the right approach.

AT A GLANCE

Industry: Chemical Processing

Application: Carbon collection process

Services Provided: Site assessment, technical support and pump supply

Products Used: Long-coupled pump set, AESSEAL® dual cartridge seal and Plan 53A seal support system

Key Issue: Four high-temperature pump failures within 12 months

Outcome: A more suitable pump arrangement designed to improve reliability, maintainability and future serviceability

Need help?
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