

CASE STUDY

Cavitation Problems Solved for 1950's Cooling Water Pumps

Cooling water pumps originally installed at a UK refinery in the 1950's were suffering from cavitation noise and flow surging. Before working on the pumps an analysis of system demand was required to establish the current duty requirements as these had changed over time. As original parts were no longer available a new impeller was designed and installed to suit the newly identified operating conditions.



The original cavitation damaged impeller

The challenge

The original pump was of an unconventional design with parts no longer available. Site conditions had changed over time such that the actual duty point was unclear. Cavitation noise, vibration and flow surging were above the refineries acceptable operating levels. The unusual design made accurate assembly and alignment difficult adding to the vibration problems.

The solution

Sulzer engineers identified the true duty point and designed a new impeller in up-graded cavitation resistant Duplex material to suit. Adaptations in the design made for more accurate assembly and an improved seal environment was established to extend mechanical seal life.

Customer benefit

The retrofitted pump now runs smoothly with no cavitation noise. Flow surge and rotor shunting (low frequency vibration) were also eliminated. The new impeller now matches the current and projected system demands making the pump 'future proof'. Modifications to the mechanical design provided an enhanced seal operating environment thus extending seal life.

The Sulzer difference

Our effective retrofit solution solved the cavitation, noise and vibration problems in a shorter time and at lower cost than installing new pumps.

Contact

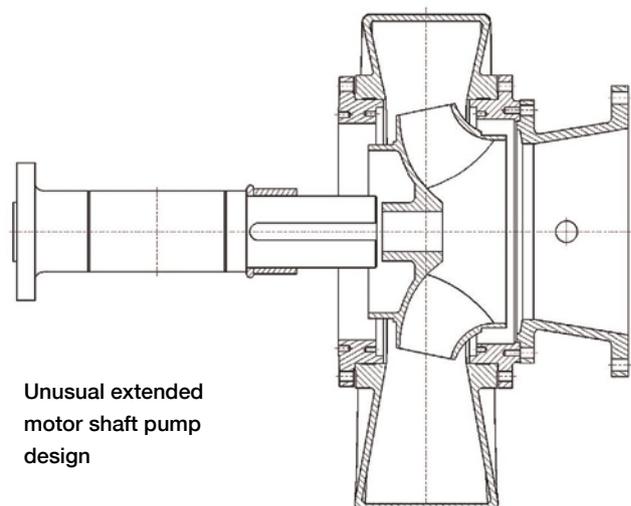
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Applicable markets

PRN, hydrocarbon processing industry

Applicable products

Retrofit



Unusual extended motor shaft pump design