

CASE STUDY

Modernization of Nuclear Auxiliary Condensate Pumps to Simplify Maintenance

Sulzer has been chosen to modernize over 20 years old auxiliary condensate pumps for a nuclear plant. The products were originally manufactured by a third party manufacturer. Now, maintenance and protection of the plant had to be improved.



New compact and maintenance-friendly cartridge design

The Sulzer difference

Through its extensive years of experience and dedicated teams of specialists, Sulzer was able to develop a new pumping solution satisfying all of the customer's requirements.

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Applicable markets

Power generation

Applicable products

Auxiliary condensate pumps

The challenge

Due to new regulations regarding seismic and flooding conditions, an upgrade of the existing auxiliary condensate pumps located in the conventional part of the nuclear plant was needed. In addition, the customer wanted to take this opportunity to simplify the maintenance which needs to be performed regularly on the pumps. To meet both requirements, Sulzer had to develop a new design of the pumps in question.

The solution

Using the proven hydraulics from its GSG pump, Sulzer developed a new seal-less pump. The old pump was of no cartridge design. So, a maintenance-friendly cartridge design was developed using a magnetic coupling and a water cooled motor for flooding protection as well as a magnetic lifting device to compensate for the axial thrust and rotor weight. To engineer the new solution, the finite element analysis (FEA) was applied. In total, four pump units, one spare pump cartridge, and one spare motor were delivered. The pump units were installed and commissioned in 2011 and 2013 in close collaboration with the customer.

Customer benefit

The seal-less pump design and new cartridge arrangement improved the operation which resulted in easier maintenance and thus optimized reliability. As the pump has been tested before the installation, the customer can expect smooth operation.

Further benefits:

- Flooding protection with magnetic coupling
- Magnetic lifting device to compensate for the axial thrust balance and rotor weight
- Medium-lubricated bearings
- Water-cooled motor