Optimal conditioning of fire-resistant operating fluids with our innovative plug & play product solution

HYDAC – your partner for hydraulic solutions in power plants

Process reliability in the production of electrical energy, in conjunction with reliable system availability, is essential for competitive operation of your power plant. Downtime comes with high costs – and unanticipated repairs – and should therefore be avoided wherever possible. This calls for well-coordinated systems and service products that satisfy the requirements of your plant, along with predictive maintenance with the know-how of an experienced service partner.

For the operation of steam turbines and their electro-hydraulically controlled (EHC) turbine systems, this means paying special attention to the conditioning of the fluids used. Today's EHC systems mainly use fire-resistant fluids. For optimised process reliability, their service life needs to be extended. Fluids that have been damaged, for example by water ingress or acidification, cause damage to your valves and filters in the medium term. This results in hydraulic failures which are expensive to rectify.

Prevent hydraulic failures caused by damaged operating fluids

Our customer, an international operator of steam turbine power plants, wanted the existing EHC central hydraulic systems to be redesigned and supplemented with mobile service products. The ingress of condensate and water was putting continuous strain on the operating medium, and the customer wanted to pre-empt failure of the hydraulic system.
At the same time, acidification was causing agglomerates and varnish to form, which would severely impair the functionality of the fire-resistant fluids (FRFs), damage valve surfaces and block hydraulic filters if no preventive measures were taken.

Regenerative treatment of the fluid with bypass-flow service instruments and ion exchange resins was not a valid option. The chemical reaction would have also caused water to form, contaminating the conditioned FRF fluid.

It was with this problem that the customer approached HYDAC. The operating fluids needed to be changed to pre-empt failure of the hydraulic system. The aim was to maximise the service life of the operating fluid in order to increase the system availability and minimise the costs of servicing and production failure. In the long term, this should make it possible to scale down the costs of maintenance as well as repair.

Flexible, modular, compact: the HYDAC plug & play conditioning concept

As our customer had been making use of HYDAC's industry experience for the maintenance and servicing of turbine control systems, including the operating fluids, for years, our experts had extensive knowledge of both the fluid conditioning and the use of suitable service products in the customer's power plants.

To plan the approach that would be taken for this new task, our experts performed multiple site visits to obtain an accurate picture of the situation. We had discussions with our customer to identify the specific requests and requirements that would form the basis of developing a tailor-made solution. Thanks to our modular product concept, HYDAC is able to respond to individual requests flexibly.

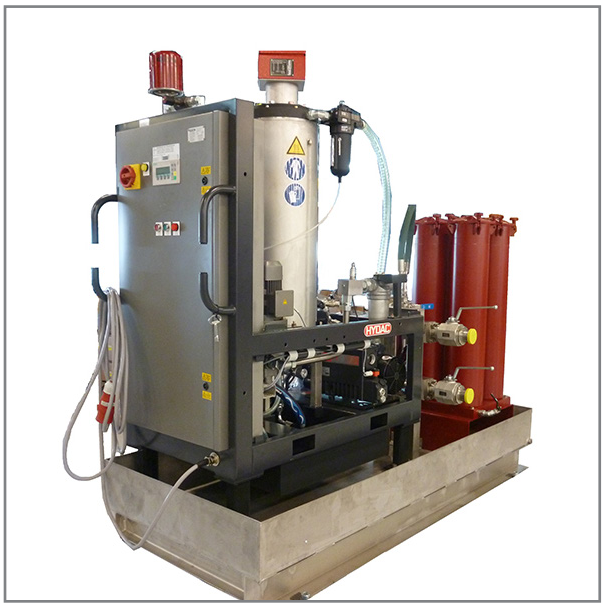
One particular challenge was that the production was to take place in various plants worldwide. It wasn't just faster production that was a priority, but also closeness to the customer in order to respond to the particular requirements of the market with customised solutions.

On this basis, the conditioning concept for fire-resistant fluids was fully modified and our HYDAC plug and play conditioning concept was implemented. For EHC hydraulic systems of various sizes (with tank sizes of up to several thousand litres), various service products were used on a modular basis. The operating fluid first underwent one treatment with conditioning systems on the basis of ion exchange resins and was then dried with our downstream dewatering system (FAM). We designed the two systems with a shared framework that would enable them to be combined with a controller in a compact application. As this procedure does not require the level of conditioning to be inspected separately, it is much easier for service personnel to use. This also made it possible to standardise service globally at our customer's various sites.

The result

Thanks to our modular, custom procedure, downtime costs were reduced by almost 50%, as were the costs for maintenance and repair. The plug and play service system enabled the hydraulic fluids to be used beyond the planned operating cycle and planned service life.

Our modular product solution was designed to be particularly user-friendly – from changing the ion exchanger resin cartridges and filter elements to drying the fluids and monitoring the moisture content via online sensors. The measures led to a significant increase in process reliability.



HYDAC IXU / FAM

The resulting advantages:

System availability

was able to be significantly increased thanks to our new product solution.

Downtime costs

were reduced by 50% in this case with the modular and custom HY-DAC solution.

Cost optimisation

by reducing the costs for downtime, repair and maintenance.

Flexible system solutions

Modular and customised expansions of the solutions are possible at any later date.

Get in touch with us today and contact our experts:

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