We pioneer motion

Preventative Condition Monitoring in a wastewater treatment plant

In order to avoid future breakdowns of the screw pumps, the operator of the wastewater treatment plant (Stadtwerke Rothenburg) decided on a condition-based maintenance solution. Since then, an online measuring system permanently monitors the gearbox condition. Shortly after the start of monitoring, there was a prealarm for an impending gear damage. Thanks to the system's specific alarm messages, failures can now be easily corrected.

Benefits

- Manageable investment costs of the modular system
- Reduced and planned maintenance cycles
- Lower energy consumption thanks to early wear failure detection
- Increased plant availability
- More operational safety

www.schaeffler.de/en/success-stories

Customer Success Story

Customer

Stadtwerke Rotenburg, Germany **Sector** Wastewater engineering **Application** Wastewater treatment plant **Solution** Condition Monitoring



What our customer drives ... What Schaeffler has to offer ...

Challenge

Within the space of one year, one of the three screw pumps failed due to a fault in its design. At that point in time, only one mechanical defect could be identified. Due to bearing damage, the gear block was literally torn apart and had to be entirely replaced – a costly and time-consuming process.

Solution

A condition monitoring system comprising a MELSEC System Q control unit from Mitsubishi Electric and three Schaeffler SmartCheck was used to help solve the problem in the return activated sludge pumping station. An SmartCheck was attached to each of the three drives for this purpose. Thanks to this system, the condition of the drive has been subject to constant monitoring ever since. In the event of a change in vibrations, the system provides data about the deviations at an early stage. Such deviations can be the initial signs of potential damage.

What's special

The microprocessor integrated into the SmartCheck ensures that all data are stored long-term. The data can be retrospectively examined and evaluated using the integrated web server. The control system can pass the data on to higher-level systems either directly or using telecontrol technology. The solution can be implemented in all applications in which wear occurs due to mechanical, rotating components, or where changes occur as a result of external influences. In addition to wastewater, thick matter, fluid, vacuum, or heat pumps, other tools can also prove useful, such as fans, ventilation units, compressors, CNC machines, and centrifuges.

The Schaeffler SmartCheck has received the IEN Europe Award for highly innovative product. The award was presented by "Industrie-Magazin". IEN Europe has been providing information about new products and solutions for the industry for more than 30 years.



Return activated sludge pumping station



SmartCheck measures gear vibrations



Switch cabinet : MELSEC System Q and eWon Router

Customer

The sewage treatment plant in Rotenburg an der Fulda has treatment capacity for 34,000 residents (size class 4) and supplies approximately 20,000 people. At the secondary sedimentation tank, three Archimedes pumps are connected to the return activated sludge pumping station. These pumps ensure that the biological sludge is consistently fed back into the aeration tanks where microorganisms break down loose and finely dissipated organic pollutants.

Technical Information about the plant

Treatment capacity

Max. 34,000 residents

Sewage pipe network

160 km

Inflow

- Average 70 80 l/s
- Maximum 280 l/s



New branding: FAG SmartCheck becomes Schaeffler SmartCheck

Technical Information about the Solution

Monitoring system

1 SmartCheck per pump gear

Monitored components

Gear teeth, rolling bearings, shaft

Signal transmission & control system

- Mitsubishi Electric MELSEC System Q
- eWon Router Typ 4005CD

Monitored operating parameters

Temperature, speed

Further options

- Several years of history data
- Information passed on via control systemat control station
- Remote monitoring

Success Story 0069, 2013/09, Contact: industrial-services@schaeffler.com, Phone +49 2407914966