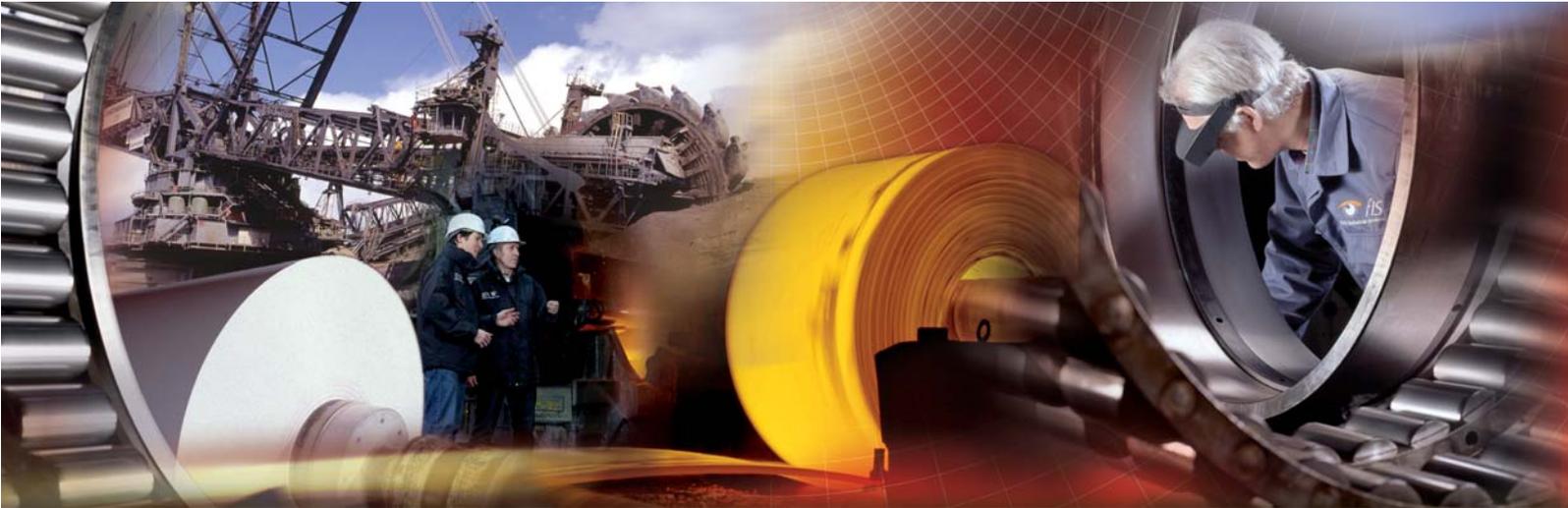


Smart Performance Program



Monitoring Process-Critical Systems in a Garbage Incineration Plant

Industry: Waste Disposal Industry

Customer: Kreis Weseler Abfallgesellschaft mbH & Co. KG – waste disposal centre (AEZ) Asdonkshof (Germany)

The waste disposal centre is one of the most advanced incineration plants in the world and has currently approximately 170 employees. The steam produced by the incineration of garbage is passed through a turbine. The excess power generated by the plant (about 80,000 MWh/a) is fed into the grid. Moreover, part of the steam is used to provide district heating for more than 11,000 homes.

Challenge for Schaeffler

In future, the customer wants to rely less on reactive and time-based maintenance. Process-critical systems in particular are to be included in a condition-based maintenance scheme. After some internal research work, the company decided to introduce vibration diagnosis at its maintenance department. With its FAG Detector III solution, Schaeffler subsidiary FAG Industrial Services (FIS) prevailed over two renowned competitors as it is not only technologically comparable to theirs but also the most cost-efficient one.



Technical Information about the Plant

Incineration plant:

Capacity
(for 7,500 operating hours): 249,000 t/a

Furnace:

| | |
|---------------------------------|----------------|
| Incineration capacity per line: | 16.6 t/h |
| Calorific value: | 7.8 - 12 MJ/kg |
| Thermal output per line: | 43 MW |
| Combustion type: | Parallel flow |
| Combustion chamber length: | 12 m |
| Grate system: | Roller grate |
| Roller diameter /width: | 1.5 m / 4.5 m |
| Number of rollers: | 6 |

Schaeffler Solution

First, three AEZ employees were trained in Herzogenrath (Germany). The training included both a basic knowledge of vibration theory and the correct use of the measuring device FAG Detector III. This was followed by a customer-specific briefing at the customer's and a viewing of the systems to be monitored. Afterwards, configurations for different measuring points were generated on a PC, various measuring routes were defined, and the AEZ employees performed some first measurements and analyses.

In future, the customer will perform vibration measurements on pumps, motors and blowers with FAG Detector III every three months. Some of the measurements will be performed on non-redundant process-critical systems.

If the customer needs assistance in analysing measurement results, they will be sent to the FIS diagnosis centre. Based on the analysis results, FIS will provide written recommendations regarding suitable measures.

Customer Benefit

An early detection of emerging damage enables the customer to perform necessary repairs during scheduled maintenance windows or during low-utilisation periods. Moreover, replacement parts can be procured much sooner and possibly at lower prices.

Cost savings potential:

| | |
|--|---------------------------------------|
| Production disruption (cost) after an unscheduled shutdown of a process-critical system: | approx. 5 hours up to € 20,000 |
| Cost of replacing a defective system in the course of the annual general inspection: | € 1,000 |
| Project cost (FAG Detector III, training, briefing and e-service): | € 8,500 |
| Cost savings (1st failure) (minus the non-recurrent project cost): | € 10,500 |

Cost savings (2nd failure and all subsequent failures): € 19,000

What's special

The solution can be applied without problems to other garbage incineration plants and recycling plants. The main argument for using it is the fact that incineration plants are operated at nearly 100% utilisation and therefore costly disruptions must be avoided by all means.

Technical Information about the Solution

FAG Detector III functions used by the customer:

- Monitoring functions:
 - ISO 10816
 - Frequency selective monitoring of the rolling bearings' condition
 - Gear condition
 - Rolling bearing condition
- Measuring routes
- In-depth diagnosis based on time signals and frequency spectra
- Automatic measuring point identification by means of RFID technology
- E-mail service
- Free PC software



Contact details for worldwide contact persons as well as further

Smart Performance Solutions can be found on our homepage

www.smartperformanceprogram.com