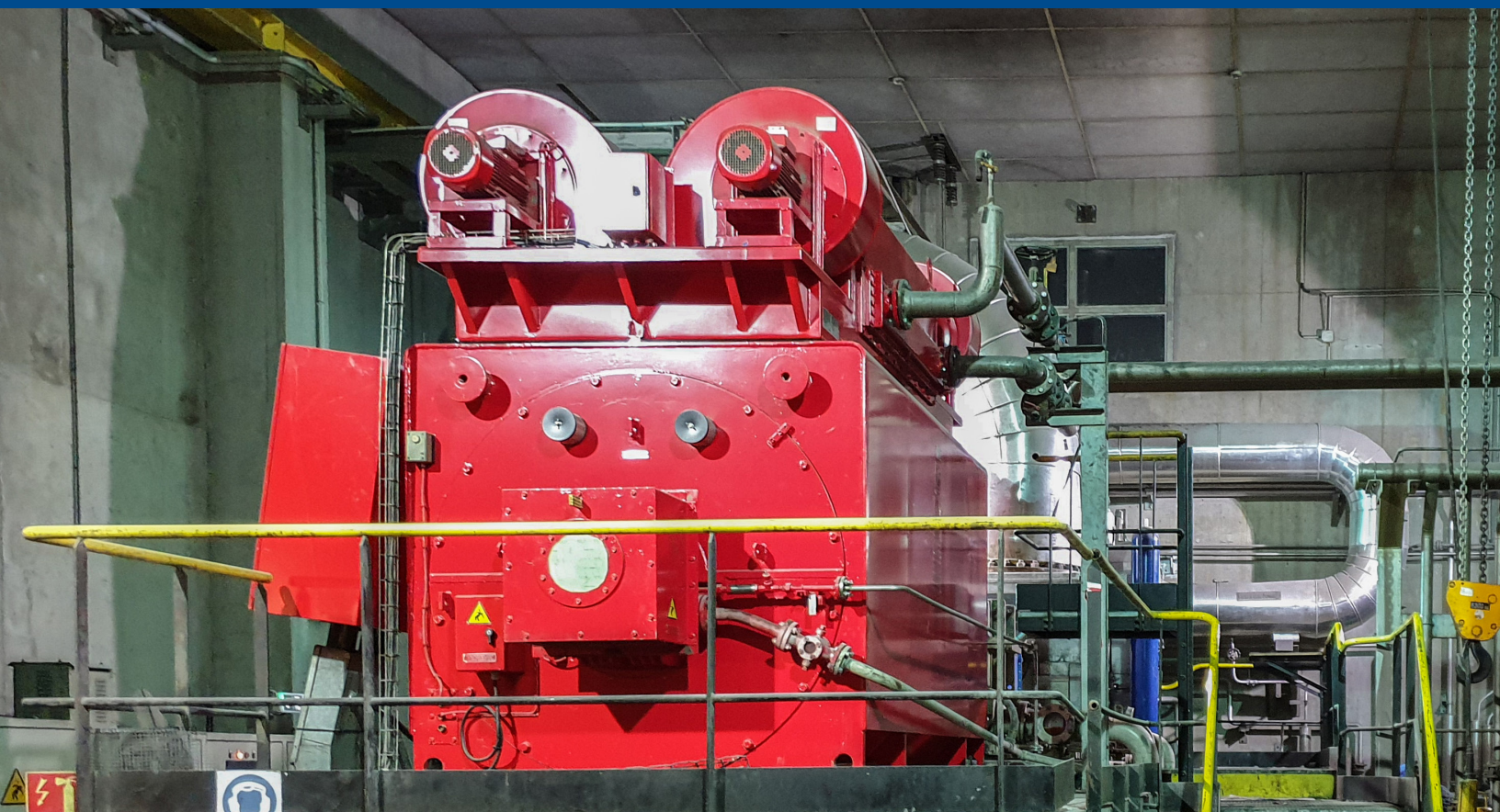




LUBRICATION FLOW CONTROL



Power Plants

"Thanks to its extraordinary low flow sensitivity, our FLUXUS® provides an efficient lubrication flow control on which the plant operators can rely."



*Guido Jary,
Senior Instrumentation Expert,
Flexim .*



Measuring Task

Flow measurement on the lubrication oil supply and circulation lines for the electric generator bearings

Energy recovery is an important source of renewable, sustainable energy and a vital link in the waste management chain. In a French incineration plant, 385,000 tons of municipal solid waste is converted every year into electricity and hot water which supplies about 10,000 households with central heating.

Generating electricity from waste does not differ essentially from the production of electricity in other kinds of thermal power plants, be them fuelled by gas, coal, oil or the heat from nuclear fission: The thermal energy produced is used to vaporize demineralized water. The resulting steam spins a turbine which itself drives an electric generator. In any case, permanent lubrication of both the turbine's and generator's bearings is crucial for proper operation of the plant and therefore for the security of supply. Lack of lubrication leads to enormous wear and tear and subsequently to massive damage of the whole installation. Therefore, the constant flow of the lubrication oil must be permanently monitored.

In the French waste-to-energy plant in question, a clamp-on ultrasonic flow-meter was installed for this purpose on the lubrication oil line.

Unfortunately, this measuring system never performed correctly in terms of signal strength or accuracy and reliability of the measurement. Consequently, the plant operators were looking for a well working measuring solution.

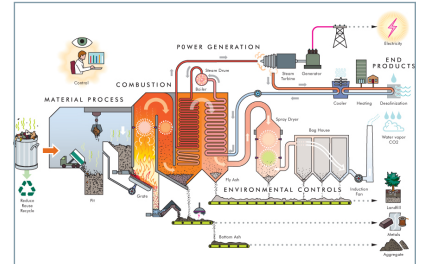


Solution

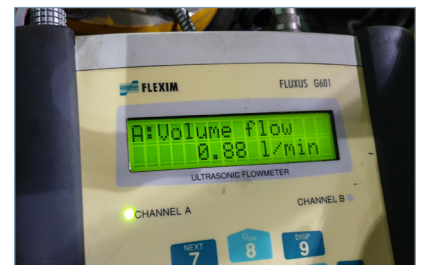
Clearly, the best solution for this kind of measuring problem is a well performing clamp-on ultrasonic flow measurement. No problem for Guido Jary, service engineer at Flexim. Where others failed, he and FLUXUS® excelled.

With his portable FLUXUS® F601, Guido easily demonstrated the perfect suitability of Flexim's non-intrusive ultrasonic measuring technology for the purpose. In order to check the performance of FLUXUS® at all process conditions, a test measurement was conducted during a complete operation cycle. A particular challenge lies in the very low flow velocities which can occur on the lubrication oil supply line. Here, FLUXUS® plays out its full potential. One of the characteristics of ultrasonic flow measurement with FLUXUS® is its extremely large dynamic range. In particular, FLUXUS® offers an excellent low flow sensitivity and accuracy. As a result, Guido's tested FLUXUS® F601 delivered plausible readings at any process step.

Impressed by the demo measurement, the plant engineers decided to fit the lubrication oil supply and circulation lines with a stationary clamp-on ultrasonic FLUXUS® F721 flowmeter. Thanks to the new instrumentation, the plant operators now have a reliable lubrication oil flow control system. The staff especially appreciates the smooth operation of the non-intrusive measuring system: As its ultrasonic transducers are simply mounted onto the outside of the pipe, it does not impair the availability of the plant in any way. Furthermore, it does not cause any pressure loss. As it does not suffer from wear and tear, it works virtually maintenance-free.



Schematic diagram of the processes in a Waste-to-Energy-Plant



FLUXUS® provides reliable and precise flow measurement data even under low flow conditions.

Measuring Points and Instrumentation

Pipelines	2", stainless steel
Medium	synthetic lubrication oil VG46, temperature ~ 120 °F, pressure < 90 psi
1 stationary clamp-on ultrasonic FLUXUS® F721 flowmeter 1 pair of CDQ2N52 clamp-on ultrasonic shear wave transducers	

Advantages

- Reliable flow measurement with excellent sensitivity also for low flows
- Effective increase in operational safety with minimal effort
- Not subject to wear and tear by the medium, therefore no need for regular maintenance

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