

# More Safety with ORC Power Stations

The new »Kontamaxx« detects the smallest amounts of foreign matter in thermal oil systems

**Leaks recently occurred in ORC systems that resulted in silicon oil entering the thermal oil circuit and in several cases, causing serious damage (see Germany's leading forestry trade journal "Holz-Zentralblatt" no. 35 from August 28, 2009). Maxxtec offers a system that detects silicon oil leaks early on.**

The contamination of the thermal oil system in several biomass-fired CHP stations was first detected very late, thus causing long downtimes. Even the smallest quantities of silicon oil in the thermal oil circuit can lead to the formation of vapour bubbles. These vapour bubbles cause the thermal oil circuit pumps to stall and thus interrupt the flow of the heat exchanger. In individual cases, the thermal oil or the system was damaged due to partial overheating. Silicon oil leaks have now been verified on several ORC systems.

To provide ORC system operators with a tool to detect silicon oil leaks early on, Maxxtec developed a new system called "Kontamaxx". It is especially designed for use in ORC power stations to precisely measure the concentration of foreign matter, such as silicon oil, in thermal oil systems. This new development is already installed in new systems in the main thermal stream and it can also be retrofitted into existing systems.

Adoratec GmbH, which is based in Mannheim and is a subsidiary of Maxxtec AG, strongly emphasizes that no silicon oil leaks have been detected on any of the ORC systems it produces. Furthermore, it must also be made clear that the structural design of the Adoratec ORC systems eliminate, as far as possible, any possibility of silicon oil leaks entering the thermal oil circuit. This has been confirmed by inspections on various ORC systems, according to the company.

In addition, Maxxtec has announced that the system currently under construction in Bielefeld is expected to be commissioned this year. The waste heat and ORC technology specialist has implemented a new wood-fired power station for the Bielefeld public utilities that produces electricity and district heating. Maxxtec provides and installs the complete system technology for the biomass CHP plant, which consists of an ORC module from its subsidiary Adoratec, a dual-pass heat recovery boiler called "Recomaxx", two downstream flue gas economizers, the firing plant, and the entire process technology equipment and sensors. The biomass CHP station generates a total electrical output of 1350 kW. In addition to the electricity generated, it produces 5780 kW of thermal heat. The plant is fueled with natural woods chips that are produced in a 100-km radius around Bielefeld.

The public utility company invests a total of 8.5 million Euros. The ORC technology is subsidized through the innovation bonus included in the German Renewable Energy Sources Act (EEG). The energy from the wood chips can be virtually fully exploited by utilizing the heat that is in feed into the district heating network of the Bielefeld public utilities. This is subsidized by the EEG with the German combined heat and power bonus (KWK bonus), which allows the system operator to enjoy the highest remuneration that is guaranteed within the framework of the EEG for generating electricity using solid biomass.

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