



First digital efficiency assistant for steam boilers at the Bechtel private dairy

MEC Optimize from Bosch provides high transparency

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While increasing their production capacity, the Bechtel private dairy ("Privatmolkerei Bechtel") from Germany also modernised their process heat supply. The new boiler system, with nearly 30 tons of steam capacity per hour, is one of the first worldwide with MEC Optimize. Based on the operating mode of the system, this digital efficiency assistant from Bosch predicts the service life of individual components, suggests measures to increase efficiency, and instructs the user in implementing them. All electrical sensors and actuators of the boiler system are connected to an analysis tool like the ones used with a famous particle accelerator or for controlling the underground in a global metropolis.

The Bechtel dairy processes more than one million kilograms of milk per day. Complex production structures and energy-intensive processes require a comprehensive data analysis. This is the basis of competitive production costs – decisive factors include preventing system failures and minimising energy consumption. As far back as 2012, Bechtel had already introduced an energy management system. Since 2017, the company has also been using the digital efficiency assistant MEC Optimize from Bosch, which now enables predictive maintenance.

MEC Optimize is integrated in the boiler control cabinet and records all data from the steam boiler, water treatment, heat recovery facilities and other connected plant components. The operating data is stored locally for many years and evaluated via trend analyses. If the fuel consumption increases, for example, due to excessive desalting rates or soiling in the boiler, the efficiency assistant reports possible causes. At Bechtel, this is done through the company network of connected PCs or via a WiFi hotspot in the boiler room to the tablet of the boiler attendant. As an option, it is possible to send notifications for defined cases directly to the operator's mobile phone via the remote connection MEC Remote.

Another important optimisation aspect is the maximisation of the boiler lifetime. The most important influence factors here are the water characteristics and the operating mode – both are often neglected in practice. MEC Optimize not only serves as a digital boiler logbook but interprets the entered values and helps the operator to identify and correct conditions that promote corrosion or are even safety-critical. In addition, the operating mode is analysed for incorrect start-up, inefficient control of multi-boiler systems and too frequent burner cycles. MEC Optimize also helps to avoid production losses due to interrupted process heat: The permissible loads and switching cycles are stored for all important components. Based on the operating mode, the efficiency assistant determines the state of the component, predicts the probable remaining lifetime and supports in maintenance planning.

The other plant equipment from Bosch for feed water deaeration, heat recovery and automation rounds off the overall system and ensures low energy consumption. The steam boiler system was realised by Karl Lausser from Pilgramsberg, Germany – without interrupting the steam supply. In coordination with the dairy's operating processes, the boilers were put into operation by Bosch Industrial Service on a staggered basis.

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