RECOVERY BOILERS

Valmet leak detector with advanced analytics

Valmet has introduced a predictive tool for detecting recovery boiler leaks. The Recovery Boiler Leak Detector is a diagnostics application with advanced analytics that enables boiler owners to detect even the smallest tube leaks, resulting in significantly improved boiler safety and reduced damage risks.

According to Valmet, typical distributed control systems (DCS) have only relatively primitive tools for recovery boiler leak detection such as simple differentials between the feedwater and the steam, or alarms for low drum level and high furnace pressure that are activated only in the case of very large and sudden leaks. With these traditional tools, it is virtually impossible to notice a minor leak in the boiler furnace. A small undetected leak may grow, rupture a tube and lead to severe damage or even to a major smelt-water explosion.

"Valmet Recovery Boiler Leak Detector now takes leak detection a major step forward by combining advanced mass and chemical balance calculations. This makes it an invaluable diagnostics tool for detecting leaks at their early stages," says Timo Laurila, business manager, Recovery Analysers and Advanced Process Controls.

The new detector typically recognises a 0.25-0.50% difference between the feedwater and the steam in the feedwater flow. Additionally, the application features an advanced chemical balance calculation, which enables higher accuracy and identification of critical leaks and separation from non-critical leaks. The balance is typically calculated using phosphate as a tracer.

Alarm levels can be set low enough so that a leak can be diagnosed before a tube is ruptured. As boiler load swings are taken into account, there are no unnecessary alarms due to changes in load.

Leak rate monitoring and alarms can be tested safely during normal operation by using a blowout line for leak simulation. Operator instructions and training for boiler leak detection and management are included in the delivery scope.

Currently, the leak detection solution is used by several pulp mills, and the results gained with it have been very positive. The Recovery Boiler Leak Detector is part of the Valmet Recovery Boiler Optimiser product portfolio and can be implemented on any DCS. ■