A Case study from Heat Management

Iisveden Metsä Oy Iisvesi, Finland

Application: Smoke Tube Boiler
Product: Infrasound cleaning

Iisveden Metsä Oy

General info

Plant: Sawmill
Boiler: URBAS
Boiler type: Smoke Tube Boiler
Manufacturing year: 2018
Fuel: Bark and Dry Wood Chips

System installed

Infrasound Cleaner APS150 was installed in the smoke tube boiler, effectively cleaning the parts of the boiler where the soot is dry.

Situation description

Iisveden Metsä Oy, is a sawmill in Finland, producing sawn timber, mainly used for grade panelling, flooring and furniture applications.

The mill has an 8 MWth URBAS hot-water boiler. The fuel is bark and dry wood chips, with a moisture content around 50 %. The boiler was not equipped with any automatic sootcleaning system. The flue gas outlet temperature was rising from around 140°C to around 200°C, requiring manual cleaning after 6-8 weeks.

The purpose of the project is to maintain cleanliness of the vertical smoke tube passes on a biomass fired boiler. That way, differential pressure will remain stable and operational and maintenance costs will be kept low.

Results

The Infrasound Cleaning installation helped stabilize the downstream flue gas temperature to 145°C, compared to the earlier rise to 200°C.

The stabilization results in fewer stops for cleaning.

The lower outlet temperature corresponds to about 1.5 % higher efficiency of the boiler, meaning 1,5 % reduced fuel consumption for the same energy output.



Figure 1 – Infrasound installation



Figure 2 – Pre-heating



Figure 3 – Complete combustion

The outgoing flue gas temperature usually lands between 150-155°C right after start-up. This time, when starting with Infrasound Cleaning, the flue gas temperature stabilized at 145°C.

During pre-heating (Figure 2) the combustion is less efficient and results in more unburnt material, fouling the in the flue gas system significantly in a matter of hours before complete combustion is achieved (Figure 3). Therefore, a preventive cleaning system must be started up before pre-heating, to keep the clean boiler clean.

Heat Management

Heat Management was founded in 2016 following a merger between Infrafone AB and Soottech AB. The purpose of the merger was to create a world-leading cleantech company with a superior product portfolio in energy conversion adapted for industrial boilers and incinerators.

Heat Management's primary customers include power and heat plants as well as pulp mills and marine companies. Today, Heat Management has patented solutions installed in a large number of applications around the world.

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