A Case study from Heat Management

Pulp Mill Sweden

Name: No permission to publish customer name yet
Application: Recovery Boiler
Efficiency solution: High Impact Sootblowing System (HISS™)
Cleaning area: Superheater (SH), boiler bank (BB), and economizer (ECO)

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General info

Plant: Pulp and paper mill
Boiler: Götaverken
Fuel: Black liquor
Capacity: 1 400 ton DS/day

Installation

Type: HISS™ Advanced
No of sootblowers: 60
Year of installation: 2019

Situation description

The main goal with the project was to decrease the amount of steam used by steam sootblowers and use it for energy generation instead.

The mill has 60 steam sootblowers (4 Clyde Bergemann, 16 Diamond IK600MX, 20 Diamond IKSD-E, 18 Diamond Superior EA88, 2 Forest).

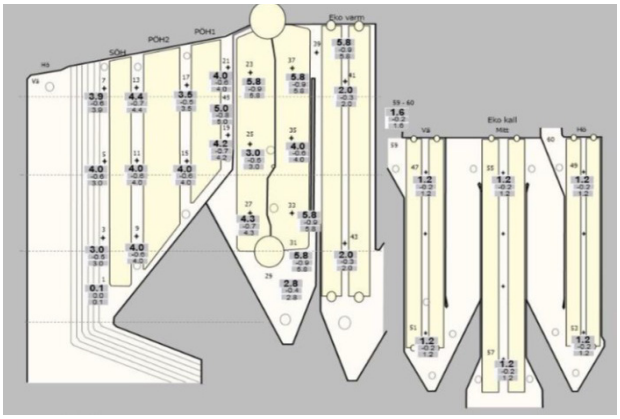


Figure 1. Boiler design

All 60 sootblowers were rebuilt in 2019 with Heat Management's patented solution HISS™ using local actuators controlling the steam poppet valves on the sootblowers, together with upgraded software for monitoring and controlling the sootblowers.

The initial purpose was to save steam but after a few months of operation, the customer discovered that increased sootblowing resulted in less problems with plugging in the smelt spouts. A boiler-load-based sootblowing control was implemented to combine steam savings and increased sootblowing.

Results

- The black liquor throughput increased from 1123.2 TDS/d to 1156.8 TDS/d (3% increase) between the reference period without HISS™ (2018-10-01 to 2019-04-30) and the period with HISS™ (2020-02-01 to 2020-07-31), see the blue diagram in Figure 2.

- The sootblowing steam consumption has decreased from 14.37t/h to 8.89t/h (38.1% decrease) between the reference period without HISS™ (2018-10-01 to 2019-04-30) and period with HISS™ (2020-02-01 to 2020-07-31), see the red diagram in Figure 2.

The combination of the results above is what makes HISS™ unique, over the same reference period, the system enabled the mill to increase the boiler load and save steam at the same time, which brings great economical and environmental benefits.

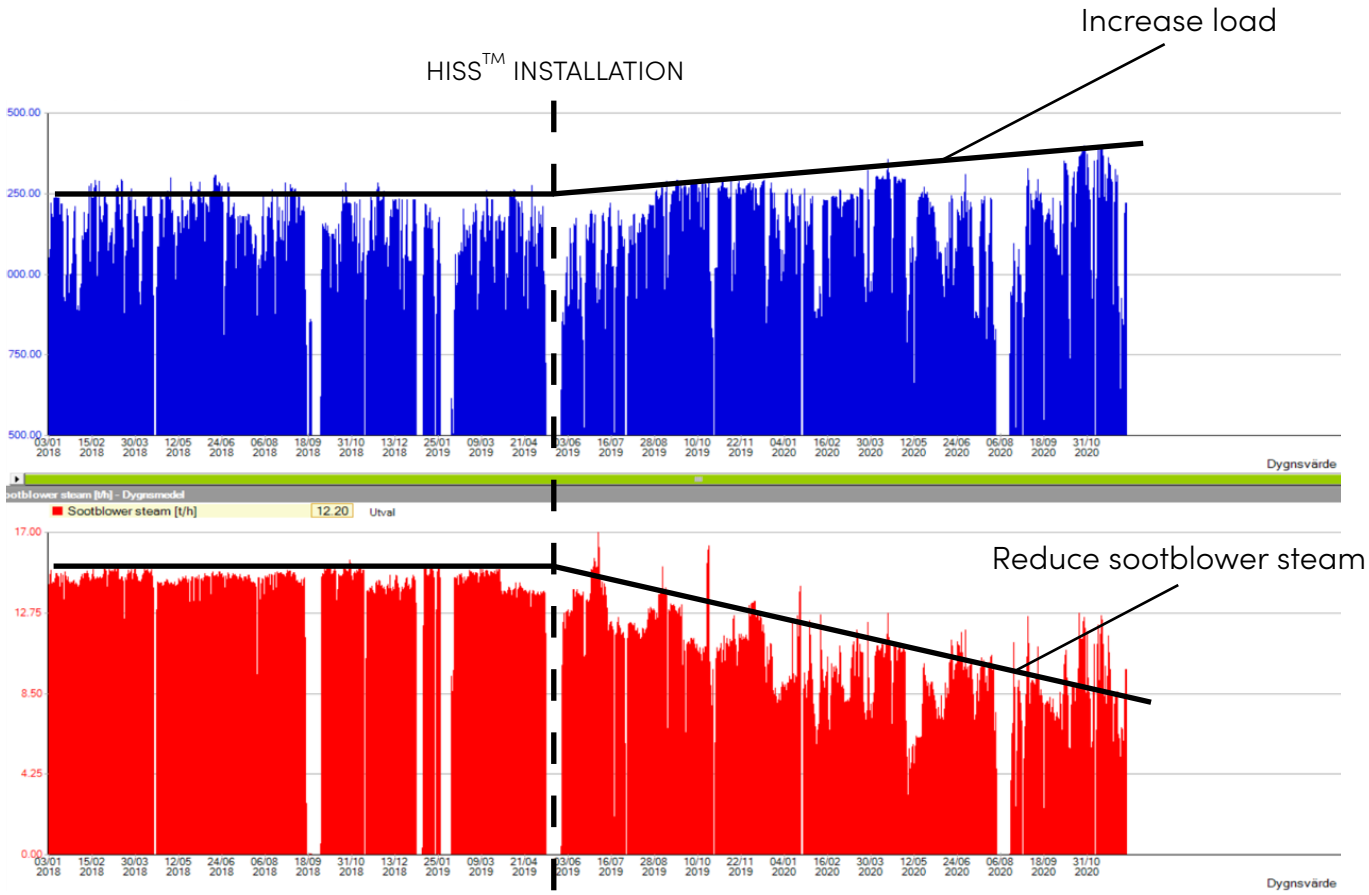


Figure 2. HISS™ reference, showing the system's ability to increase the load and save steam at the same time.

Other results

- +8% increased sootblowing in superheater area.
- Customer experience improved smelt stability, fewer problems with smelt spouts.
- Possibility to further increase steam savings if extra sootblowing in superheater area is removed (potentially10-15%) or increase black liquor throughput (potentially >15%).
- During the inspection 2020-05-05, it was found that the boiler was clean, see Figure 3.

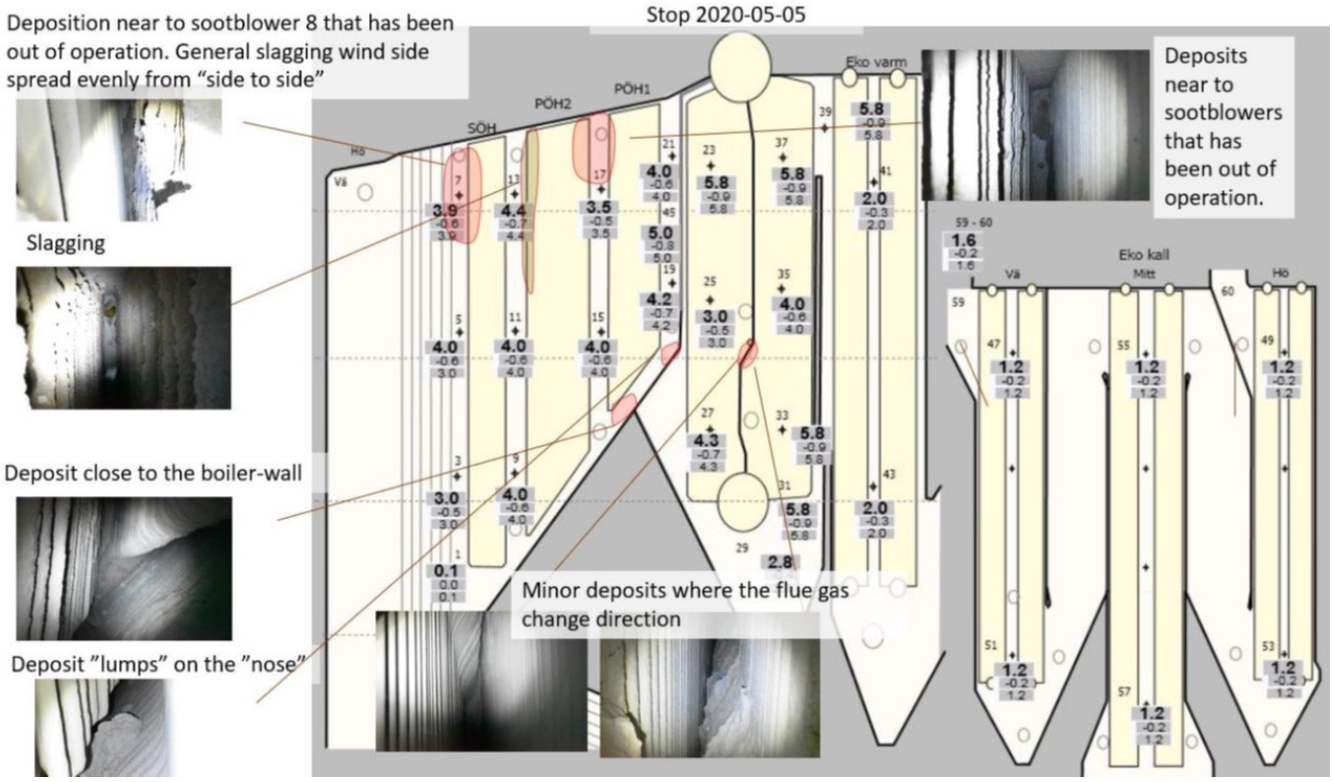


Figure 3. Boiler inspection 2020-05-05.

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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