Setra Färila

Application: 10 MW biomass furnace
Efficiency solution: Infrasound Cleaning
Cleaning area: Smoke tube boiler (flue gas section)

General info

Mill: Färila Sawmill
Boiler: Hot water boiler, VEÅ (2023)
Fuel: Wood-based biomass
Capacity: ~10 MW

Installation

Type: APS350
Year of installation: 2025

Situation description

Setra Group operates a biomass-fired furnace with a 10 MW biomass hot water boiler at its Färila sawmill. The boiler supplies heat mainly to the sawmill's wood drying kilns, making reliable operation important for production.

The existing compressed air sootblowing system had become worn out and was leaking expensive compressed air. It was also no longer able to keep the boiler surfaces clean enough, which can reduce efficiency over time. Manual cleaning was sometimes needed, which is both time-consuming and undesirable from a work environment and safety perspective.



Figure 1. *APS350 installation.*

Setra therefore looked for a modern cleaning solution that could keep the boiler cleaner during operation while reducing compressed air use and manual maintenance.

A key factor in the decision was the successful installation at Setra's Heby sawmill, where an Infrasound Cleaner has been operating with good results since 2023.

Wave Impact Heat Management AB
E-mail: info@heatmanage.com
Phone: +46 8-661 33 10



Figure 2. *(Left) The top of the boiler before the Infrasound installation. The old compressed air sootblowing system was removed (Right), allowing easier access to service hatches.*

Results

The Infrasound Cleaning System was commissioned on August 4, 2025, and operational data has been compared with historical operation without Infrasound Cleaning.

• The boiler has been able to operate at approximately **2 MW higher load** while maintaining stable outlet temperature.

• Average boiler efficiency increased from **87.8% to 88.7%**.

• Since installation (to date seven months), the boiler has not required a shutdown for manual cleaning, compared with roughly every three months previously.

• The system uses significantly less compressed air than the previous sootblowing system.

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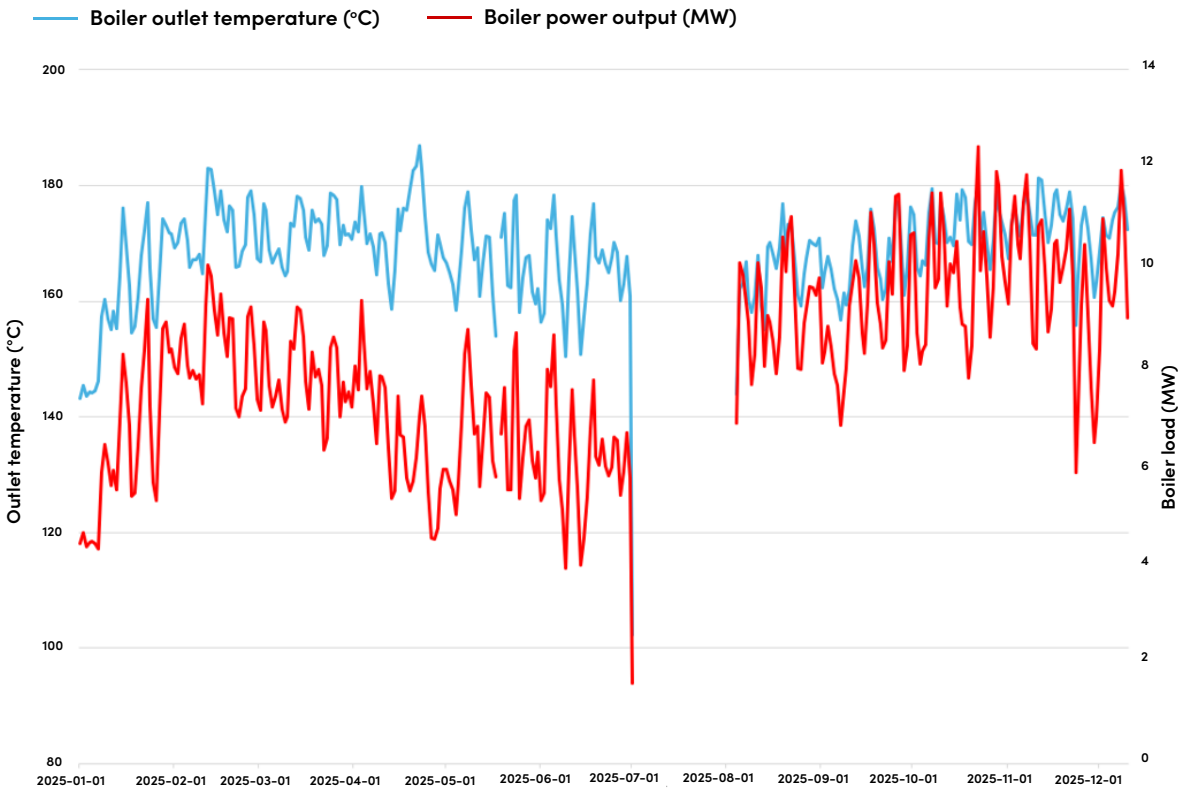


Figure 3. Comparison of boiler performance before and after implementation of Infrasound Cleaning. The generated power output increases by approximately 2 MW during the period with Infrasound Cleaning, while maintaining comparable outlet temperature levels.

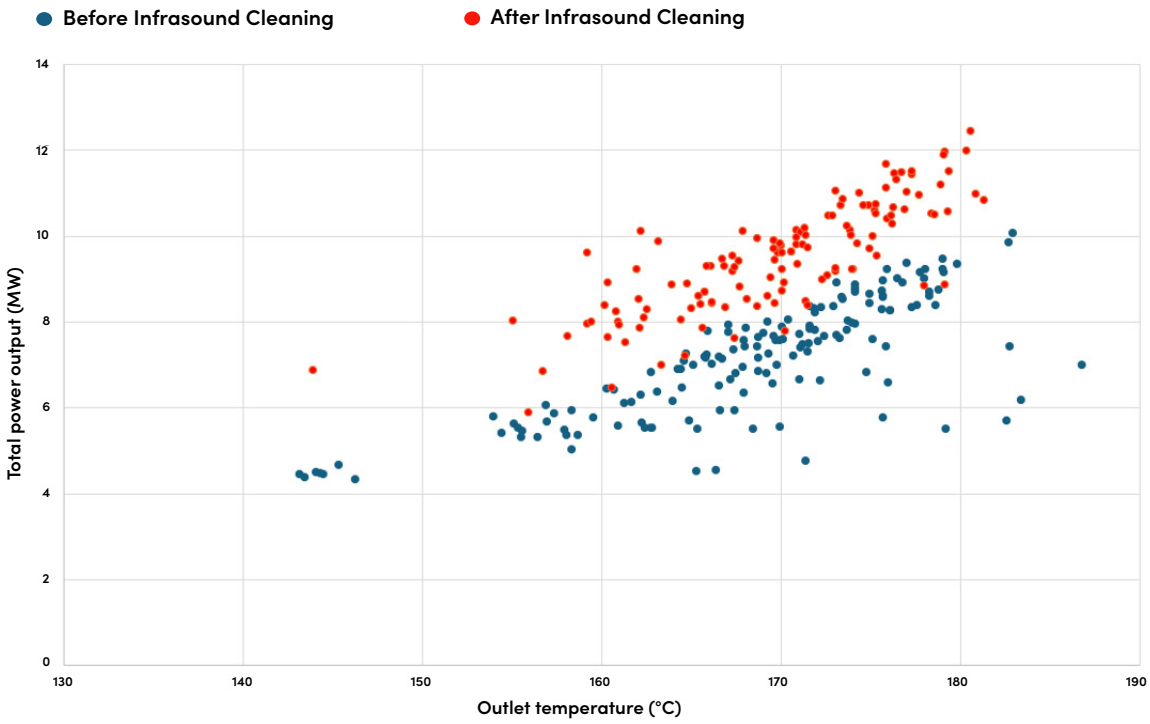


Figure 4. Total power output as a function of boiler outlet temperature for the periods before and after the implementation of Infrasound Cleaning. The results show a consistent shift toward higher power output at similar outlet temperatures during the period with Infrasound Cleaning.

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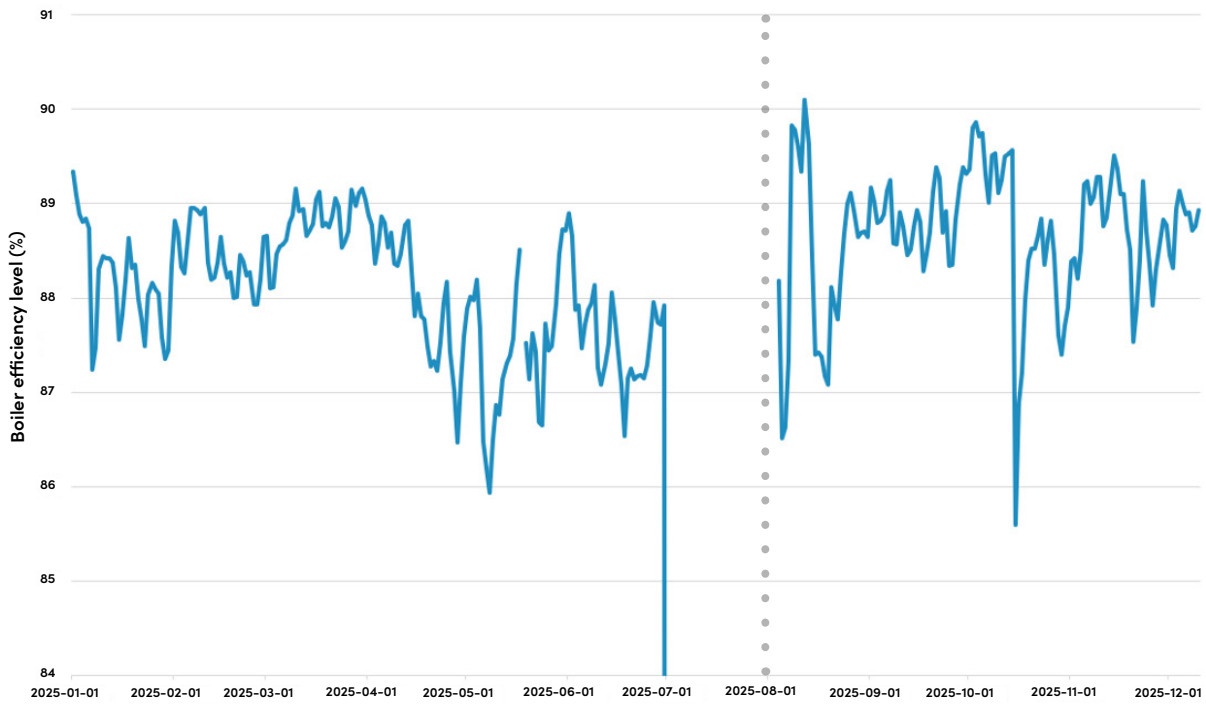


Figure 5. Boiler efficiency during the study period. The efficiency level is generally higher during the period with Infrasound Cleaning (Right of the dotted line) compared to the period without (Left of the dotted line).

Financial impact

Boiler efficiency increased from 87.8% to 88.7% during the period with Infrasound Cleaning, corresponding to an improvement of 0.9 percentage points. For a plant operating at an average load of 10 MW, 7000 operating hours per year, and a fuel cost of 400 SEK/MWh, this corresponds to an estimated annual fuel saving of approximately:

10 MW × 7000 h × 400 SEK/MWh × 0.9 % ≈ 252 000 SEK/year

Additional savings arise from reduced auxiliary energy consumption.

Compressed air. A conventional soot blowing system would consume roughly 36 Nm^3/h, compared to 10.5 Nm^3/h for the Infrasound Cleaning System. This reduces compressor power by about 2.5 kW, corresponding to approximately 17 500 kWh/year, or about 26 000 SEK/year at 1.5 SEK/kWh.

Flue gas fan. Cleaner heat transfer surfaces often reduce the pressure drop across the boiler, which lowers the load on the flue gas fan. Although this effect could not be verified in this case due to higher operating load during the infrasound period, typical reductions are 5–10 %. For a flue gas fan of approximately 55 kW, this corresponds to 2.75–5.5 kW lower power consumption. Over 7000 operating hours, this equals 19 250–38 500 kWh, corresponding to approximately 29 000–58 000 SEK/year at 1.5 SEK/kWh.

Overall, the combined economic impact from improved efficiency and reduced auxiliary energy consumption is estimated to be around 300 000–330 000 SEK per year under the stated assumptions.

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