



Solutions for Coal Fired boilers

For coal fired boilers the solutions used by Heat Management are:

Infrasound cleaning

of Economizers, Rotating Air Preheaters (RAPH) and SCR catalysts.

Typical results are:

- Stable pressure drop over RAPHs and SCRs
- Heavily reduced or eliminated use of steam soot blowing
- Reduced wear of heat exchanging surfaces

Proven technology also for high dust SCR, ECO and APH.

Optimized steam soot blowing

of retractable soot blowers

By equipping the sootblowers with our actuators for regulating the steam flow locally we can obtain:

- Up to 50 % reduced steam consumption of the steam soot blowers
- Double the soot blowing frequency
- A combination of above

Either this is used to save steam/increase electricity production/save fuel or the increase availability. Another scenario is increasing the efficiency of superheaters with steam outlet temperature dropping between sootblowing.



Local actuator on sootblower poppet valve





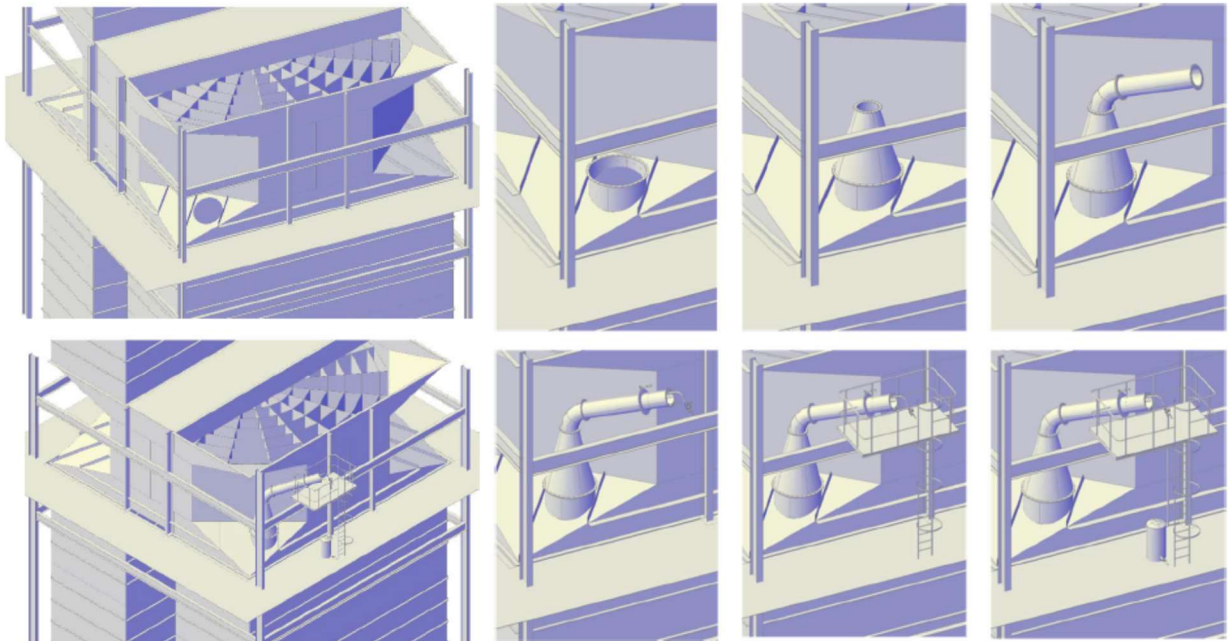
Heat Management cleaning system operation

Our infrasound cleaning (15-30 Hz sound) is typically operated for 2 seconds every 4 minutes, keeping the inner surfaces clean continuously during boiler operation.

Compressed air, 6-8 bar(g) (85-115 pis(g)) is used.

The powerful infrasound waves are transferred to the flue gas, increasing the turbulence temporarily and flushing ash from surfaces before it has accumulated/sintered into thick layers.

The infrasound has a cleaning range and cleaning effect far superior to other types of acoustic cleaning, typically using 75-300 Hz. 1-2 infrasound generator are enough to cover a large cleaning area, such as a whole ECO, SCR/RAPH on large coal fired boilers.

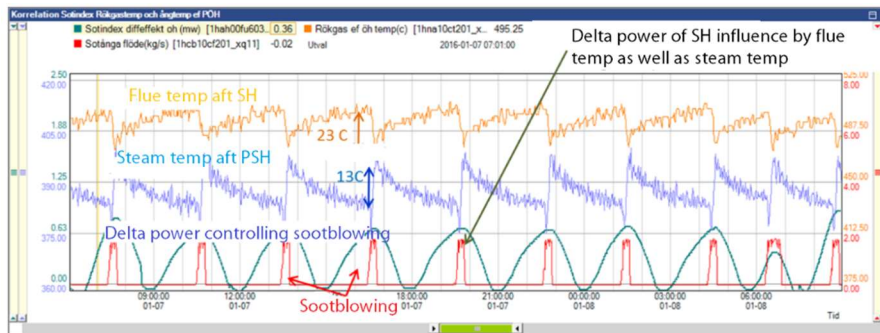


Step by step procedure for example installing of an infrasound generator on a Ljungstrom air preheater.

Optimized Steam Soot Blowing

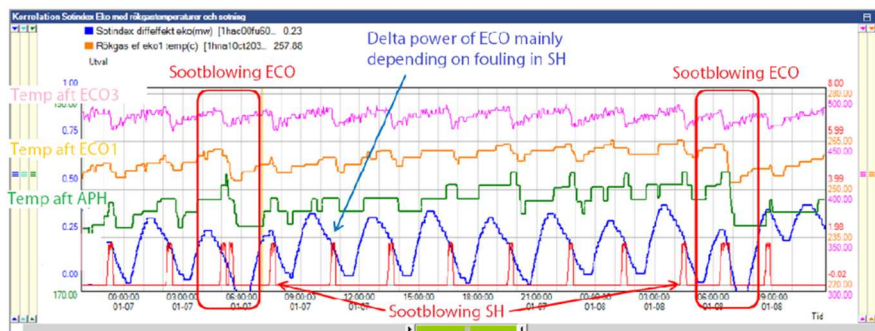


Sootblowers equipped with local actuators



Delta power of SH influence by flue temp as well as steam temp

Our optimization of soot blowers is often accompanied by a study using our big data analysis software. Studying operational data will reveal which heat exchangers need most cleaning and will quantify the benefits, e.g. how much the average steam temperature can be increased by soot blowing more frequently in the most problematic areas.



High Impact Soot System (HISS) is implemented through the following steps:

Step 1 – Install pneumatic actuator on the steam soot blowers

Step 2 – Install pneumatic control boxes for HISS

The actuators are operated with instrument air at ~6 bar and is distributed to the soot blowers, through pneumatic control boxes. Each control box can handle up to 12 soot blowers.

Step 3 – Install controllers for the actuators

The contactors for the soot blowers are replaced with new ones, with direction control. Furthermore, an ACABBM 800M controller is installed. This make up the controls for the HISS-function.

Step 4 – Implementation of operator control display

The soot blower control display in the DCS, is the most powerful tool for putting the power of HISS at the fingertips of the operators. The control display is custom made for each unique boiler and increases monitoring of individual soot blower operation and status.

Step 5 – Implement percentage soot blowing software (Soot Power Control)

