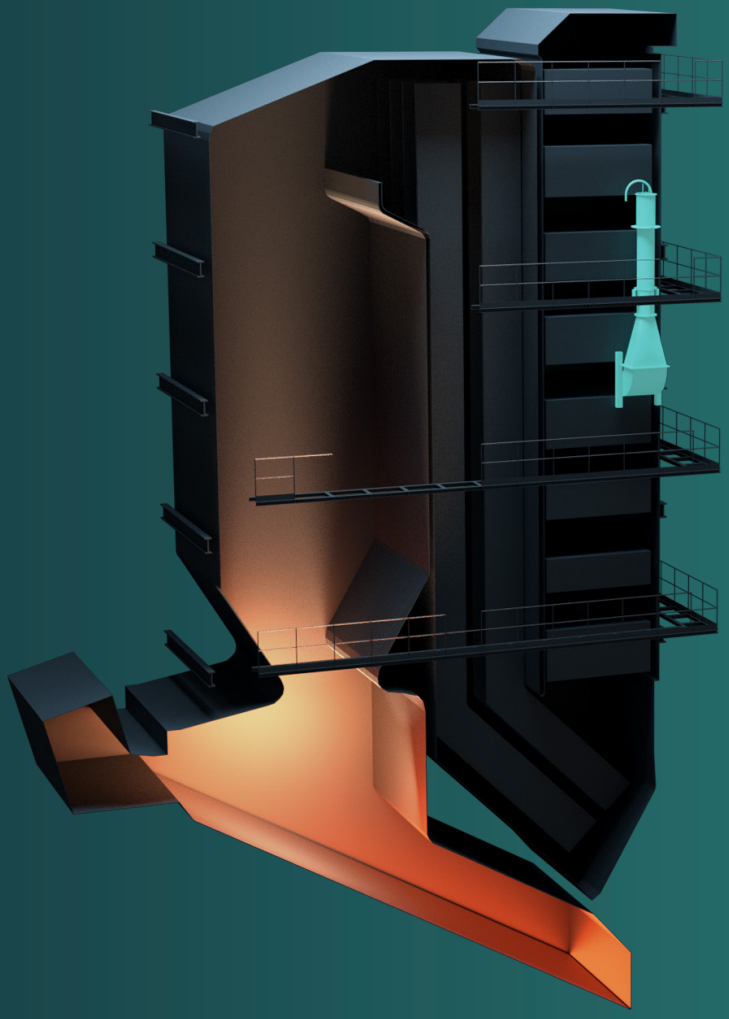


Heat Management

Infrasound Cleaning

Increasing availability, efficiency and lifetime for industrial boilers

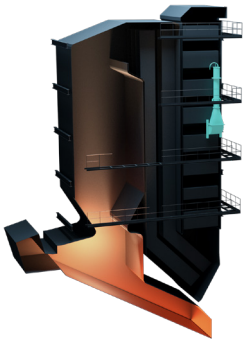
INFRASOUND CLEANING

By harnessing the power of infrasound, Heat Management offers sootcleaning solutions to prevent soot build-up on economizers, air pre-heaters, catalysts, precipitators, and ducts. Keeping your boiler clean throughout the season brings great environmental benefits and saves money at the same time.

APPLICATIONS

Infrasound Cleaners from Heat Management can increase the availability, lifetime and efficiency of industrial boilers. The Infrasound Cleaner is tailor-designed to meet every customer's specific needs and to maximize the cleaning effect for every boiler. Infrasound Cleaning has many applications: Economizers, Catalysts, Air-preheaters, ESP, Ducts, and Goose Necks. Many successful installations have been carried out on Smoke Tube Boilers, Waste-to-Energy/Biofuel boilers, Catalysts, CFB/BFB Boilers.

Infrasound Cleaner installed on a Smoke tube boiler



Infrasound Cleaner (turquoise) installed on a Power Boiler

Infrasound Cleaner (turquoise) installed on an SCR

COMMON RESULTS

Infrasound Cleaners are always tailored to each customer's specific needs, which means that the results are not always the same. But common results are:

- Reduced or eliminated manual cleaning.
- Increased availability of the boiler.
- Stabilized differential pressure.
- Increased boiler efficiency.
- Higher and stable production output.
- Increased boiler life expectancy.

Read more about customer benefits on the next page.

Infrasound Cleaner installed on a Waste-to-Energy Boiler

CUSTOMER BENEFITS

Infrasound is a non-abrasive, cost-effective way of preventing soot accumulation. Our expertise in this field has brought our customers' numerous benefits such as:

Increased boiler availability.
Cleaner economizers, air preheaters, catalysts, precipitators, and ducts, which mean fewer outages for manual cleaning. This leads to lower cleaning costs and reduced need of operating other boilers to compensate for the production loss due to cleaning outages.

Increased boiler efficiency.
Cleaner heat transfer surfaces and the reduction or elimination of steam soot blowing means that more heat is converted into useful energy.

Low operational and maintenance costs.
The system is operated by compressed air and the mechanical design allows high acoustic power with low air consumption.

Increased lifetime of the boiler and reduced maintenance costs.
The usage reduction or elimination of traditional soot cleaning methods such as steam soot blowing or shot cleaning, as well as a more even flue gas flow distribution across the area to keep clean prevents erosion and corrosion.

Higher and more stable production output as well as lower electricity usage costs of the ID fan. Cleaner heat transfer surfaces lead to lower and more stable differential pressure across the tube bundles, allowing high boiler output.

Improved working environment.
The automatic operation of the system means that unnecessary safety risks related to manual cleaning are avoided.

Visual results before (left) and after (right preventive cleaning with Infrasound Technology

VISUAL RESULTS

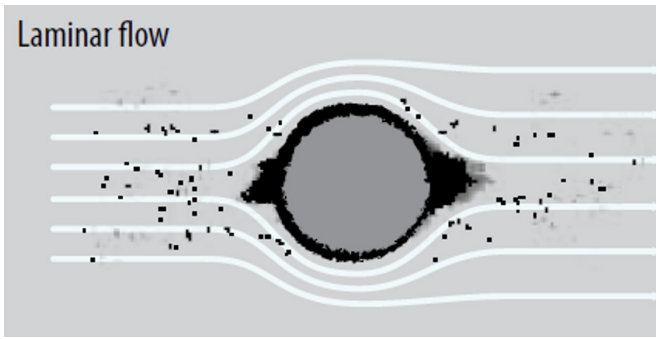
In the figures to the left, you can see the visual results after preventively cleaning a Waste-to-Energy boiler with Infrasound.

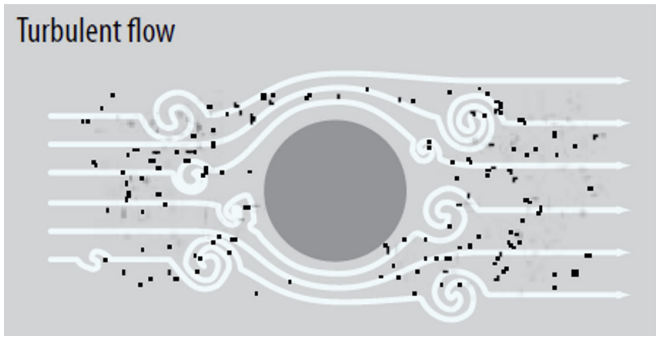
Before installing Infrasound Cleaning Technology, a manual cleaning must be performed, then the Infrasound Cleaner will keep the boiler clean throughout the season, reducing or eliminating the need for manual cleaning, and increasing efficiency and availability of the boiler.

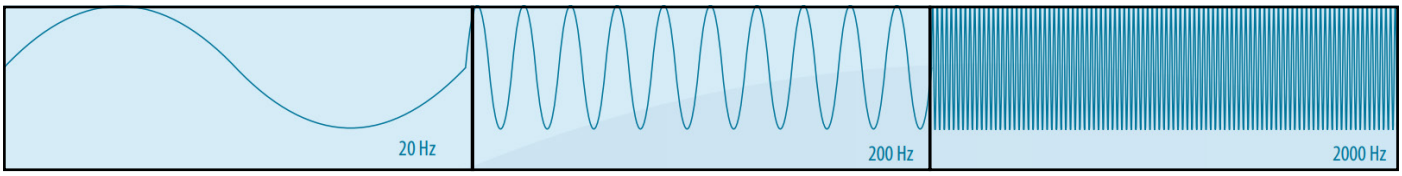
HOW DOES IT WORK?

The technology uses Infrasound waves (non-audible sound) with a frequency between 15 Hz to 30 Hz (see Figure below). in all directions, with low frequency to induce a high velocity of the particles in the flue gas (Turbulent flow). The particle movement prevents soot deposit accumulation on all heat exchanger surfaces (see Figure to the right).

The Infrasound Cleaner is operated by a 24V DC solenoid valve and runs on compressed air (6-8 bar), for 2 seconds every 4 minutes. The Infrasound Cleaner only consumes air during the 2 second operation time. The air consumption ranges from 6-30 NM^3/h, depending on the size of the boiler.







Infrasound (15-30Hz) *Audible sound* *Ultrasound*

INFRAFONE CONNECT

The solution includes a powerful software tool called Infrafone Connect, used to maximise the availability of both the boiler and the Infrasound Cleaner. Infrafone Connect measures critical operational parameters and collects data used for process follow-up and optimization. Heat Management's experts will analyze the data and keep a constant dialogue with the customer after the commissioning to maximize the benefits of the system and to make sure that the Infrasound cleaner stays operational throughout the season.

REFERENCES

Waste-to-Energy boiler - Västerås, Sweden
Boiler capacity: 155 MWth
Results:

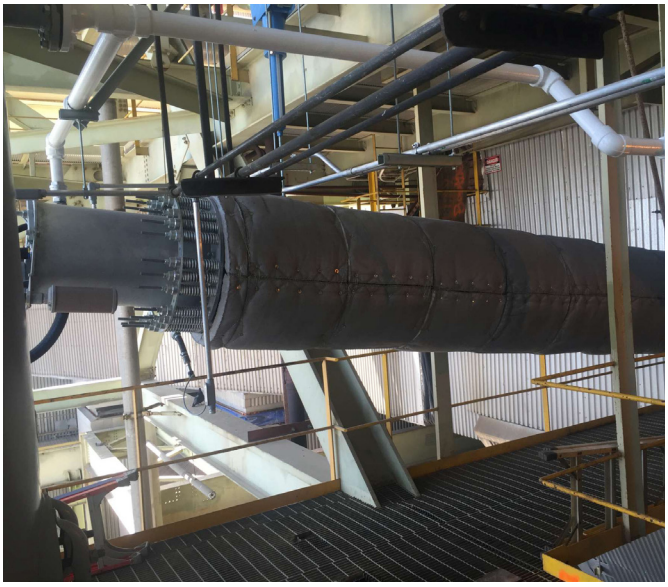
- Eliminated blocking problem in the ECO.
- Steam sootblowing reduced by 50%.
- Ash transportation operates smoother.

References: 40+ additional Waste-to-Energy references are available.

SCR (Waste-to-Energy) - Delfzijl, Netherlands
Boiler capacity: 3x60 MWth
Results:

- Eliminated need for explosion cleaning.
- Stable differential pressure.
- Longer heating element lifetime.

References: 25+ additional SCR references are available.



Pulverized Coal Boiler - Mississippi, USA
Boiler capacity: 2x 535 MW
Results:

- Steam sootblowing almost eliminated.
- Reduced wear on heating surfaces.
- Reduced ID-fan operation.

References: 22+ additional CFB references are available.

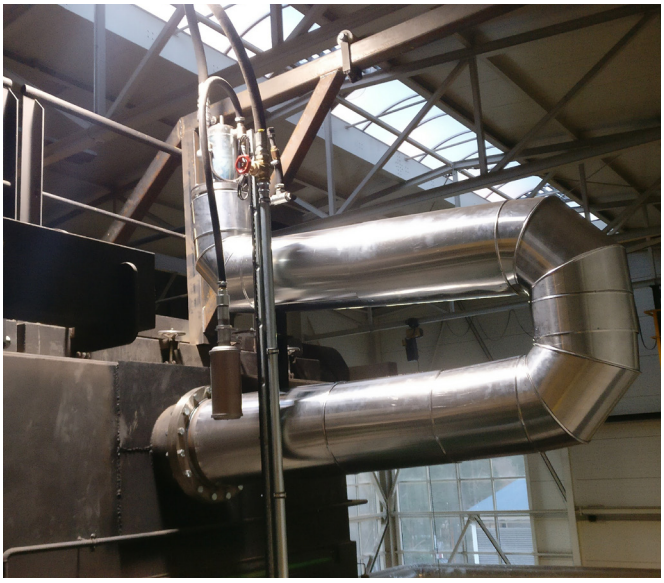
Smoke Tube Boiler - Edane, Sweden
Boiler capacity: 10 MWth
Results:

- Increased boiler efficiency.
- Removed need for air sootblowing.
- No need for manual cleaning for a year (previously 4 stops per year).

References: 52+ additional Smoke Tube Boiler references are available.

OTHER INSTALLATION PHOTOS (RESULTS TBA)

SCR - Rybnik, Poland



Smoke Tube Boiler - Äppelbo, Sweden

Biofuel Boiler - Växjö, Sweden

Biofuel Boiler - Västerås, Sweden

SUSTAINABILITY AND PROFIT

Heat Management's powerful Infrasound Cleaning System has helped many customers with industrial boilers to increase efficiency, availability, and lifetime of their boilers. Our ability to help customers become more sustainable and save money at the same time is what makes our solutions incredible investments. Join our journey to a more sustainable energy production worldwide.

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.

qValify ISO 9001 qValify ISO 14001 qValify ISO 45001

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