SONIC CLEANING

Installation of 2pc IKT230/175 sonic horns in PWT exhaust gas boiler.

Problems reported:

The **E**xhaust **G**as **B**oiler must be water washed by injecting water in the bottom of the boiler approximately 3 times per week to maintain steady thermal oil temperature required for ships heating systems.

When spraying water into the EGB soot flake buildups accumulated is loosened from the boiler internal spread upon deck where sometimes deck-cargo is situated.

The water injected is leaving blind spots unclean inside of the EGB

Mixing water with sulphur from the exhaust gases creates an aggressive environment for the boiler internal.

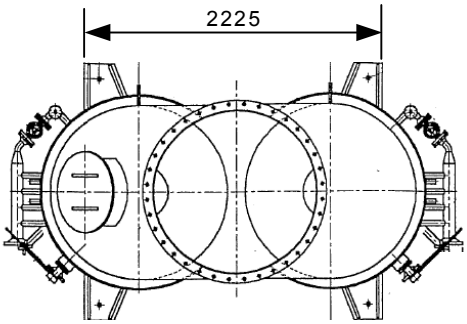
Chimney fire occurs when increasing engine power from 30-50% load up to MCR 90% load.

case study

m/v SEAGARD, BROR HUSELL CHARTERING AB LTD

Kockum Sonics

Sonic Cleaner
Modell IKT230/175

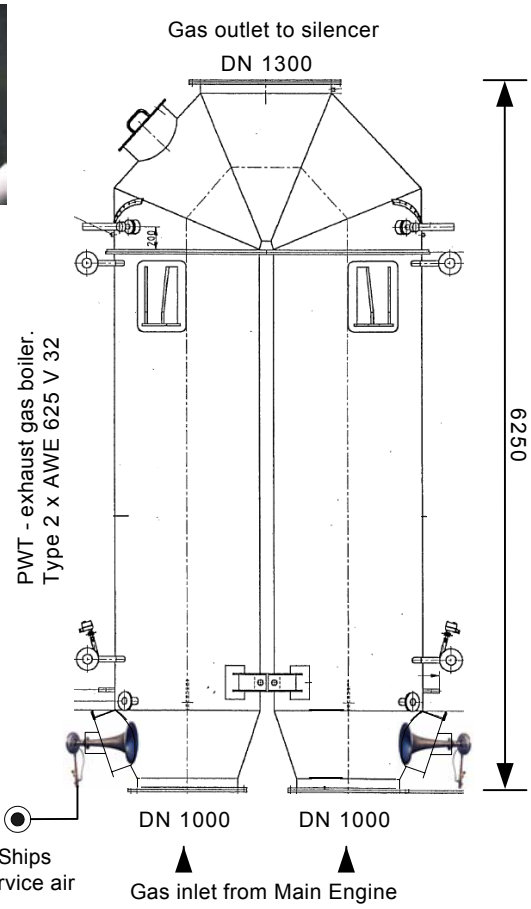


ENGINEERING
From the drawings and operation data gathered, the engineered proposal was to install 2pc IKT230/175 sonic cleaners into the existing manholes in the lower part of the EGB. (Gas inlet)

INSTALLATION (Made September 2003)
Ships crew made the installation of the two sonic cleaners. The air supply to the sonic cleaners is maintained directly from ships service air system; no additional compressor or air receiver is needed to ensure function.

RESULT
Reported from ships crew:

- Water injection needed 1 time per week.
- Visual inspection proof less soot accumulation on the EGB internals.
- Thermal oil temperature is kept steady after the installation.
- Since the sonic cleaners operates with short intervals preventing soot flakes from building up, soot on cargo deck is diminished, which also means lower maintenance required up on deck.
- No Chimney fires have occurred after installation of the Sonic Cleaners.



Contact onboard:
Duty Chief Engineer at seagard@bhc.aland.fi

Technical data main engine:
Medium speed 4 stroke engine WÄRTSILÄ type 16 V 46 B with water injection, 15600 kW MCR, 500rpm.
Operated with heavy fuel oil, IF-380 cST/50ºC.
Exhaust gas temperature after turbochargers approx 300ºC, at 85% load.

Technical data PWT:
Thermal oil exhaust gas boiler
Type: Coils 2 x AWE 625 V 32. (2 x 625kW)
Operating medium: thermal transfer oil, max 10 bar.
Inlet gas flow individual feed from each turbocharger, outlet gas flow from EGB combined.

Technical data sonic horn:
Frequency: 175Hz at 20 ºC
Sound Pressure Level (1m): 150-152dB
Feeding pressure during signal: 0.5 - 0.6 Mpa
Max temperature bell piece: 1000 °C

Kockum Sonics

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