

SONIC CLEANING

SONIC CLEANING OF 12/15MW WOODEN FIRED BOILER

BACKGROUND / INSTALLATION

Falu Energy has two boilers; both delivered by HOTAB AB in the year of 2002, factory made with Kockum Sonics sonic cleaners at delivery.

One of the boilers, a 15MW Danstoker type with three convection zones is equipped with one sonic cleaner model IKT230/220 in each zone to enhance operation.

The other boiler, a 12MW Danstoker type with two convection zones and one economizer zone is similar equipped with sonic cleaners, one for each convection zone and one sonic cleaner for the ECO. The Sonic cleaner model is our IKT150/250.

The outcome by introducing compressed air into the sonic cleaner is a high intensity sound. This creates a sound wave carrying an energy level exceeding the forces that tend to make particles suspended in a gas flow to adhere to each other and surrounding surfaces, i. e. preventing build up by breaking up the particles before they can form a hard layer.

case study



OPERATION / ECONOMY

The exhaust gas temperature leaving the third convection zone in the 15MW boiler is approx 130°C; exhaust gases leaving the 12MW boiler after the ECO zone is approx 120°C.

The change in temperature between a dirty vs. clean boiler is approx 10 to 15°C.

Both the 12MW as well as the 15MW boiler is shut down for maintenance and manual soot cleaning two times a year. Sonic cleaning is the only soot cleaning system available apart from manual cleaning two times per year.

The purchase and maintenance cost for the sonic cleaning system is very low compared to other methods available giving the same result. It is also the fact that the sound waves will not leave blind spots unclean since the sound waves cannot be shadowed of by the internal construction. Further more, cleaning boilers with sound will not cause any wear on the tube packages.

FUEL / OPERATION

The fuel used in both boilers is wooden mass and is introduced automatic depending boiler load.

In the 12MW boiler the sonic cleaners are inhibited to start after every 20-fuel input. In the 15MW boiler the sonic cleaners are inhibited to start after every 50-fuel input. The sonic cleaning system is this way controlled via the boiler load.

