

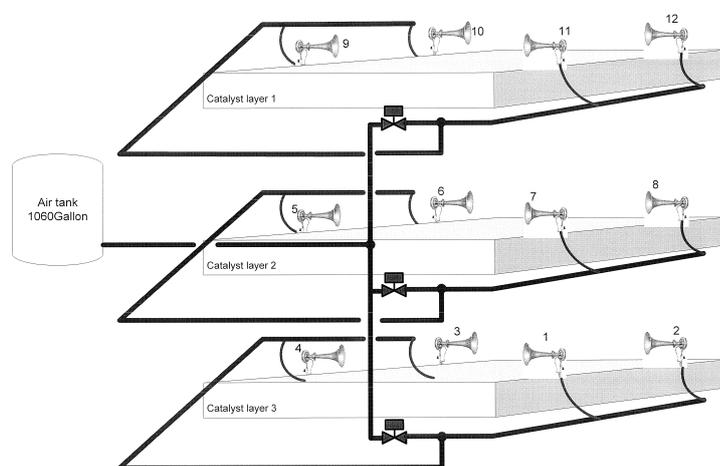
SONIC CLEANING OF SELECTIVE CATALYST REACTOR (SCR)

Installation of 12 pcs Sonoforce® IKT230/170

Background/Installation

Plant Wansley, belonging to Southern Company, USA has since 2001 equipped the economizers To keep SCR clean Sonic Cleaning has proven to be a very efficient solution of their both boilers with Kockum Sonics sound emitters type IKT230/170. Due to the excellent cleaning results of these installations the plant decided to install the same type of sonic horns for their Selective Catalyst Reactor (SCR). Cleaning by sound is a relatively cheap method for keeping clean and makes no damage to the structure like for instance steam soot blowing. Also sound reaches into every corner and is a method to continuously remove ash deposits. This keeps the differential pressure over the SCR at a steady level at all times and reduces wear on the catalyst elements, extending the lifetime up to 25%. The catalyst at Wanley has three layers. 4 horns were installed above the first layer and between the layers.

The size of each layer is 52'5" x 46'11" (16 x 14,3 m)

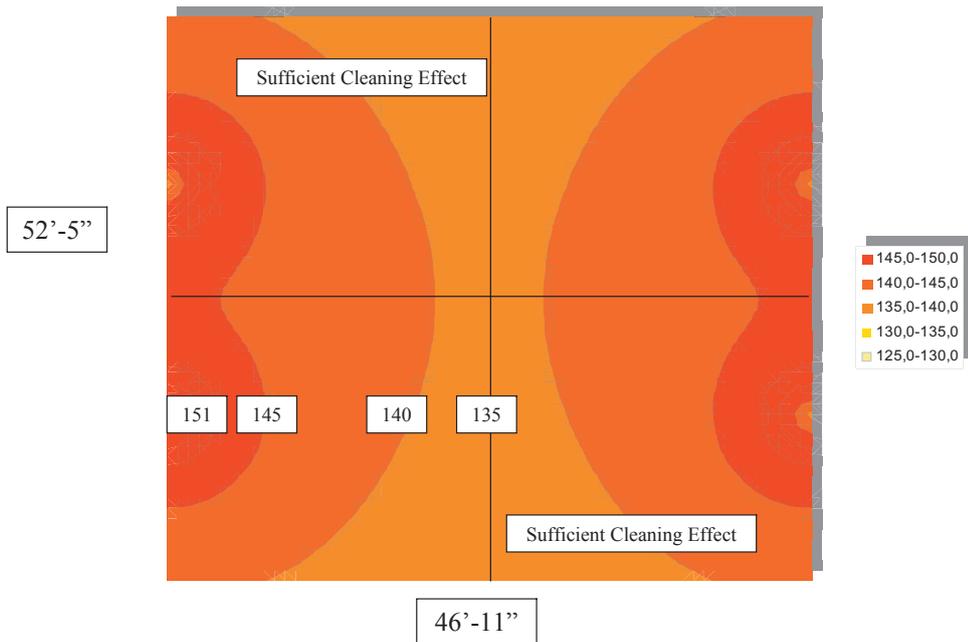


Model:	IKT230/170
SPL:	153 dB
Air consumption during signal:	70-108l/s (2,5-3,8 cfs)

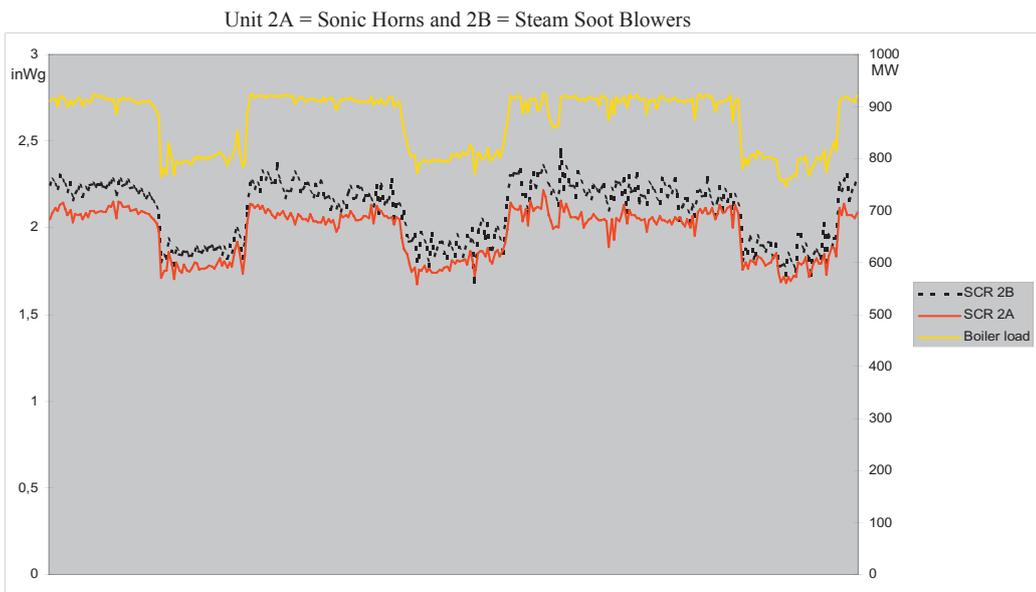
Cleaning range: 6-8m (20-26')

Sound propagation when sound emitter 1+2+3+4 are activated at the same time.

To make sure that the Sound Pressure Level (SPL) is sufficient in the entire volume we use a software model for the SPL calculations. For effective cleaning by sound the SPL shall be at least 135 dB. This is a very reliable and important tool for deciding on where to place the horns and what kind of horns to install.



At plant Wansley there are 2 separate SCRs, one equipped with traditional steam soot blowers and the other one equipped with sound emitters for the cleaning. The diagram from the plant clearly shows that the differential pressure over the 2 identical SCRs is significantly lower using Sonic Cleaning. In addition to this sound reaches into every corner and does no damage to the SCR elements.



The yellow line is the boiler load
The black line is the diff. press with steam soot blowers and the red line is the diff. press with sonic horns.

Sonic cleaning can be used for ash removal in Superheaters, Economizers, Air Heaters, Electrofilters, Baghouse filters and many more applications.