



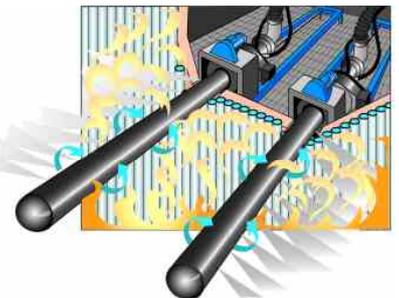
Installation of the Ecotube system at Flintrännans District Heating Plant, Sweden



Sydskraft Värme Malmö AB, which is a subsidiary owned by Sydskraft AB, ordered at the end of January 2001 an Ecotube system. Flintrännans's goals were to further reduce their emissions, foremost NO_x (nitrogen oxides). The grate fired boiler, which was commissioned in 1996, has a heat output of approximately 50 MW_{th} and an annual production of approximately 240 GWh (thermal). The boiler had a reputation of being difficult to "master", the non moving grate made it difficult to control the combustion process resulting in unnecessary high emissions of NO_x. The Ecotube system installation has been very successful and a NO_x-reduction of 25-35% has been achieved with corresponding CO-levels. This reduction is achieved at all boiler loads and even when firing fuels with high nitrogen levels thus resulting in higher emissions of nitrogen oxides.

Plant:	Flintrännans District Heating Plant
Plant owner:	EON
Boiler:	Unit 1
Purpose of installation:	NO _x -reduction
Year of installation:	2001
Fuel:	Bio fuels
Heat output of the boiler:	50 MW _{th}
Pre Ecotube Emissions	
NO _x	150
CO	< 100
Post Ecotube Emissions	
NO _x	110
CO	< 100
All values correspond in mg / Nm³@ 6% O₂	
Other advantages:	Increased regulation capacity Reduced CO-spikes

The Ecotube system optimises the combustion process in boilers. Ecotubes are retractable lances which penetrate the boiler furnace wall and are equipped with injection nozzles. The Ecotube system supplies a small proportion of the combustion air under high pressure through the high velocity nozzles. Injection of high velocity air streams create radically improved **mixing** of the partially burned combustion products, so enabling efficient completion of combustion and significantly reduced emissions of pollutants like NO_x and unburned components – CO, VOC (Volatile Organic Compounds), particles etc. Improved mixing enables the boiler to run at a lower air/fuel ratio, thus resulting in a higher thermal efficiency. Another important feature is the opportunity to increase thermal output of the boiler.



ECOMB AB
Box 2017
SE-151 02 Södertälje
Sweden

Tel. +46 8 550 12 550
Email. info@ecomb.se
Homepage: www.ecomb.se

