

# What would a 37% fuel saving and lower NO<sub>x</sub> emissions do to your furnace productivity?

CASE STORY · INCREASED RELIABILITY AND SAFETY IN THE HEAT TREATMENT PROCESS · ECOTHAL™

**Volkswagen wanted to increase the performance of four of their furnaces and also to upgrade the burner control system to modern standards. An Ecothal SER burner system including Ecothal burners as well as tubes made from Kanthal APM™ FeCrAl alloy became the perfect solution.**

## THE CHALLENGE

As part of the effort to increase the productivity of Volkswagen's plant in Wolfsburg, Germany, a renovation of the heat treatment process was decided. The goal was to increase availability and reliability of the four hardening/carburizing furnaces, increase safety and lower the content of NO<sub>x</sub> in the exhaust gas. Each furnace was equipped with 12 gas burners, installed in the 1980's, each emitting typically 700–1000 ppm NO<sub>x</sub> (at 3% O<sub>2</sub>). When conversion of the furnaces started in 2000, German air pollution regulations (TA Luft) restricted emissions to 175–200 ppm NO<sub>x</sub>.

On the wish list was also an upgrade of the burner control system to meet modern safety standards EN746 and to eliminate the need for operator adjustments of air and gas flow.

Previous positive experience of tubes made from Kanthal APM used together with gas burners as well as Tubothal® electrical elements, opened the door for an Ecothal SER burner system solution including Ecothal burners as well as tubes in Kanthal APM material.

## THE SANDVIK SOLUTION

One of the furnaces was rebuilt in 2004, when ten individually controlled Ecothal 4-20 gas burners with higher power output replaced 12 Degussa burners. Ecothal burner has an efficiency of 75–80%, and emits less than 50 ppm NO<sub>x</sub> (ref: 3% O<sub>2</sub>) when using natural gas with a high calorific value at a furnace temperature of 925°C (1695°F).



*Ten Ecothal 4-20 burners serves the rebuilt oven.*

## THE RESULT

Evaluation of furnace performance following the burner change has shown a 37% reduction of fuel consumption and NO<sub>x</sub> emissions less than 50 ppm. Reduced burner maintenance has resulted in savings of €240 yearly for every burner.

Based on the positive results from the first installation, another three furnaces were equipped with Ecothal™ SER burner systems during 2006 and 2007.



*Each Ecothal 4-20 burner is individually controlled.*

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## CHALLENGE YOUR EXPECTATIONS

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