

Heat Treatment

INDUSTRY

Corus is a leading international metals company of world renowned expertise that manufactures, processes and distributes metal products. Corus has manufacturing operations in many countries with major plants located in the UK, Netherlands, Germany, France, Norway and Belgium, employing a total of more than 45,000 people worldwide, with an annual turnover in of £9 billion.

Stein Heurtey have built a reputation of delivering advanced design thermal equipment of high quality to the steel and glass industries throughout the world.



Furnace Rebuild Improves Productivity

Case Study

A Walking Beam furnace rebuild, incorporating a Stein Heurtey designed and patented Digit@l Furnace® solution with a control system implemented by Eurotherm, increases throughput, delivers improved energy efficiency and reduces emissions for Corus in their Port Talbot plant.

Customer Challenge:

A requirement to replace an existing Walking Beam furnace installation with one that will provide an increased throughput capability and availability, improved energy efficiency and be able to burn dual fuels, with a reduction in NOx and CO₂ emissions.

How these improvements were realised:

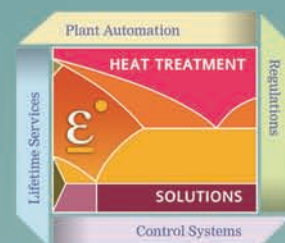
Working together with the furnace manufacturer Stein Heurtey, using their knowledge of the process and furnace design together with Eurotherm® expertise in control system design and implementation, to deliver a furnace and control solution that would achieve the requirements Corus had identified.

How cost savings were achieved:

The improvements were achieved following the installation of the new Stein Heurtey patented Digit@l Furnace configuration of burners with the Eurotherm supplied control system, using the innovative Digit@l Firing technique patented by Stein Heurtey. The Digit@l Firing technique allows the profile within the furnace to be tailored to match the optimum heating curve and furnace profile for each product. This ensures that the minimum energy for the heating phases (preheating, heating and soaking) is consumed and the product cycle is consequently reduced to its minimum.

Summary of benefits

- Reduced Product Cycle Time
- Reduced Energy consumption
- Reduced Maintenance
- Reduced NOx Emissions
- Reduced CO₂ Emissions



How Digital Firing functions:

The traditional method of control for air and fuel heating systems is by the modulation of the air and fuel flows – creating a variable mixture to provide the different levels of heat that are normally in fixed zones within the furnace.

With Digit@l Firing heat demand is controlled by the firing duration of burners (ON and OFF). The burners are sequentially pulse fired and each burner is individually controlled. This allows the decoupling of the flame profile and atmosphere control from the furnace production rate.

The benefits include:

- The burners always fire at their maximum rate, regardless of fuel used
- Air/gas ratio is constant therefore combustion efficiency is constant and optimised
- Reduced NOx emissions
- CO₂ emissions are minimised
- Average fuel consumption is minimised
- Reduced complexity resulting in less maintenance and providing greater availability

These combined savings serve to reduce overheads and directly increase OPBIT.

The benefits from this type of control become most evident during delays in production and production rates away from the nominal.

Eurotherm – Committed to increasing efficiency

Eurotherm: International sales and service

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