



FOR ALL YOUR THERMAL PROCESS REQUIREMENTS

CASE STUDY

Supply of One Alloy Kettle Setting for the Coating of Wire on Two Continuous Wire Galvanizing Lines

Magma Combustion Engineering completed a project for a leading fencing manufacturer in Sheffield, UK which included the design, manufacture, installation and commissioning of an Alloy Kettle furnace.

AIM

Our customer was in the process of rationalising production that required a consolidation of old wire production lines into an adjacent building. In making this change the customer decided to update the furnace settings, controls and combustion systems with the aim of improving process control and working conditions and of reducing costs of energy and maintenance.

SCOPE OF THE WORK

Design, manufacture, installation and commissioning of an Alloy Kettle furnace for the coating of wire on one continuous wire galvanising line. This involved the design of the steel support and refractory structures plus the pulse fired combustion control systems. The manufacture, procurement and installation of these and the commissioning and setting to work of these systems.

Multiple strands of wire of various gauges are past through a molten bath of an alloy that is primarily Zinc. The temperature of the alloy is around 460°C and is contained in a kettle that is 2.9 metres long by 0.9m wide and 1.3m deep. The purpose of this is to galvanise the wire to increase the wires' in-service life. Our supply comprised one setting along with two cascade modulating burners one in each of two diagonally opposite corners of the setting. Controls panels were installed, one per setting to control alloy temperature with setting temperature safety overrides. The control panel has a human machine interface that allows operators to control that setting and all the other settings supplied by Magma Combustion Engineering, i.e. two pairs of Lead settings, two galvanising tank settings and one alloy bath setting.

BENEFITS

Although the principal aim of the project was to ensure that production continues at the site, it also generated significant additional benefits. The new kettle, with its matched furnace and control system has optimised fuel usage and reduced maintenance requirements, thereby lowering manufacturing costs. Additionally, product quality improvements have been gained, principally from improved consistency of kettle operation. Finally, there have been environmental quality improvements, both within the workspace and outside; the carbon footprint of the process has been reduced.

CONTACT US

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