



FOR ALL YOUR THERMAL PROCESS REQUIREMENTS

CASE STUDY

Supply of Four Lead Bath Annealing Furnaces for the Heat Treatment 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 four Lead Bath annealing furnaces.

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 improving process control and working conditions and of reducing costs of energy and maintenance.

SCOPE OF THE WORK

Design, manufacture, installation and commissioning of four Lead Bath annealing furnaces for the heat treatment of wire on two continuous wire galvanising lines. 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 passed through two inline baths of molten Lead. The temperature of the Lead is between 500°C and 750°C and is contained on shallow pans sat in the settings with internal support piers fashioned in the refractory structure. The pans are 7 metres long by 2.3m wide and 0.25m deep. The purpose of this is to anneal and clean the wire prior to subsequent pickling and galvanising. Our supply comprised a total of four settings along with eight pulse fired burners in staggered opposed orientation in each setting. Controls panels were installed, one per pair of settings to control Lead temperature with setting temperature safety overrides. Each panel has a human machine interface that allows operators to control that pair of 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, other benefits of significance have been generated. The new furnaces, with their associated furnace and control systems have allowed production costs to be optimised; fuel and maintenance cost reductions are now contributing to the improved economic performance of the plant. To add to this, product quality improvements have been gained from improved consistency of furnace operation, and there have been environmental quality improvements, both within the workspace and outside.

CONTACT US

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