



Improvement of Heat Treatment Furnace Combustion Systems - Upgrade

E2SL completed a project for a world leader in the forging industry in the UK which included the upgrading of the existing heat treatment furnace combustion and control systems.

→ Aim

The heat treatment furnaces in question were equipped with high velocity burners, to provide the required degree of temperature uniformity within the unit during heat treatment operations. Whilst this technique was found to be effective, it was necessary to use an increasing quantity of excess combustion air as furnace temperature approached the requisite soak-out level. This in turn resulted in high fuel consumption, because this excess air required heating to furnace temperature, and then passed out of the unit without contributing to stock heating, whilst significantly increasing energy losses from it.

The aim of the works was to minimise heat losses from the heat treatment furnace, by minimising the hot waste gas flow from it, and thereby save some 20% of the fuel input. This was to be achieved by changing for excess air to pulse mode burner control.

→ Scope of Work

Design, supply, install and commission an upgraded combustion and control system to comply with the specified requirements with regards to achieving substantial fuel savings.

The existing burners and combustion system were found to be suitable for the proposed control mode change; all necessary control valves were present and operating correctly. However, additional electronic control and burner supervision equipment was required, and this was installed both in the existing furnace control panels and local to the furnace burners. The furnaces were then re-commissioned.

→ Benefits

Furnace temperatures, with the required degree of uniformity, were readily achieved and maintained at soak level without any of the previous issues of temperature overshoot. This was accompanied by the predicted reduction in fuel consumption, and hence operating costs were also significantly reduced.

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