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CASE STUDY

Large Product Heat Treatment Furnace (Clam Furnace)

Magma Combustion Engineering completed a project for a leading metal component manufacturer in the UK which included the turnkey supply of a large clam type heat treatment furnace for extruded pipe.

AIM

After extrusion, large pipes destined for use in the power generation industry require heat treating to relieve stresses created during forming, and to produce the required metallurgical properties. To ensure the high quality required for this application, the temperature distribution within any furnace used for this process has to be extremely uniform.

Using the concept of a working envelope within the furnace, the required temperature uniformity for this unit was required to be $\pm 10^{\circ}\text{C}$ at operating temperatures between 600°C and 1150°C .

Given that the life of the furnace is expected to be long, fuel efficiency was also considered important, in order to minimise operation costs. Consequently, heat recuperation technology and low thermal mass principles were incorporated into the design of the unit.

SCOPE OF THE WORK

A full turnkey furnace supply package was provided, namely:

- Mechanical, electrical and control design
- Manufacture and procurement of system elements
- Project management
- Site installation
- Commissioning and temperature uniformity trials

BENEFITS

A reliable, energy efficient and temperature uniformity compliant heat treatment facility for forged aerospace components was provided, helping the company to maintain cost effective and competitive operations in this market sector.

The energy consumption of this furnace in production was some 70% lower than that of the furnace it replaced, which far exceeded expectations.

CONTACT US

Want to know more about how Magma can help you?

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PHOTOS

A selection of photos from this case study.

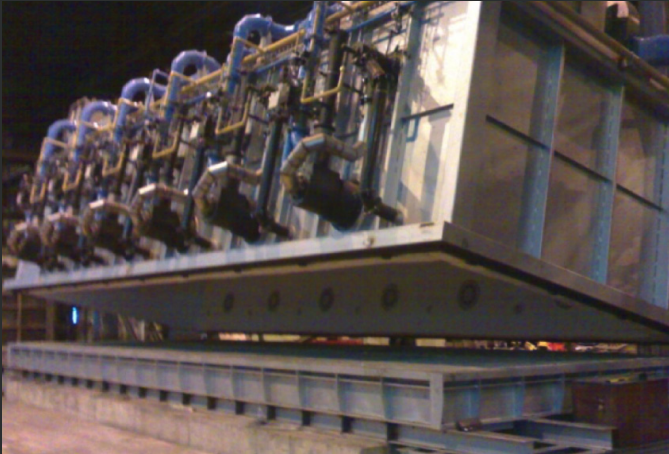


Fig. 1 Clam furnace opening (15°).



Fig. 2 Clam furnace opening (60°).



Fig. 3 Clam furnace opening showing product.

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