

MOULD HEATER PROJECT PROVES SUCCESSFUL AT KAISER KALAMAZOO

An established customer of Pyrotek, Kaiser Aluminum Fabricated Products, LLC with headquarters in California, is a leading producer of fabricated aluminium products serving customers worldwide with highly-engineered solutions for aerospace and high strength, general engineering, automotive, and custom industrial applications. The company prides itself on its traditions of quality, innovation, cost attributes and service that have been key components in its culture since the company was founded in 1946.



Kaiser produces extruded profiles for a wide range of industrial engineering applications

Kaiser operates an aluminium rod and billet casting plant with an in-house extrusion facility—first established in 2008 at Midlink Business Park in Kalamazoo Michigan. This represents a critical, strategic project in Kaiser Aluminum’s organic-growth program, as the company says, “...designed to take on overseas competition... and with superior products.”

Kalamazoo’s location between Chicago and Detroit helped land the new plant. It’s close to its Midwest customer base, including appliance manufacturers, automotive suppliers, machinery-equipment manufacturers, electrical markets and other industries that require light weights, good machinability and good electrical conductivity. Rod and billet at the factory are produced from 90% recycled aluminium, melted and refabricated in the plant. Customers then cut and tool them to make parts.

The 460,000 ft² Kaiser operation, built on the former General Motors Corp. site, went operational in January 2010 and the new plant is fitted with the most-advanced technology in the Kaiser system aimed at being the lowest-cost fabricator in the group. Equipment includes a melting furnace, two presses, testing stations, storage and depot facilities. The new plant anticipates production capacity will reach 200 million pounds per year after full ramp-up of casthouse operations.

Pyrotek was awarded the bulk of the casting equipment including an EMP installation, a SNIF® SHEER P-180 degassing unit, casting and transfer launders, Ceramic Foam Filters (CFF), and all associated production consumables.

ZEN PROJECT

Outlining a recent project at Kaiser Kalamazoo, Pyrotek’s Midwest Region Sales Engineer, Ed Jackson explains the good relationship we have with the customer and that he and Kaiser’s Steve Williams had previously worked together at Hydro Aluminum. Steve had been a key player in the start-up of Kaiser Kalamazoo, making decisions on equipment and suppliers. Steve contacted Ed to see if Pyrotek could build a “ZEN” type mould heater to remove graphite rings from a Wagstaff mould, similar to a unit that had been previously used on Hydro’s “Hycast” moulds. Steve was looking for a basic ZEN design to include a simple control panel with an on/off switch for the heater and blower, without temperature sensors or controls—just a heater and blower mounted on a stand that would move up and down.



Pyrotek ZEN mould heater as installed at Kaiser Kalamazoo

DESIGN AND BUILD

After a great deal of communication with Pyrotek personnel and also a trip to Hydro Aluminum, Henderson took some photographs, Pyrotek Salisbury Design & Project Engineer, Andy Head came up with the conceptual design and Steve Williams approved and submitted the Kaiser purchase order. Andy instructed a local shop to

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build and assemble the control panel and he ordered the heater and blower units from Leister. Pyrotek Carlisle built the N17 heat shield for the unit named ZEN Billet Mould Heater.

On completion, the assembled unit was shipped to Kaiser Kalamazoo in early February 2010. One of the goals on Ed Jackson's recent follow-up visit to the customer's plant was to check the performance of the unit, especially as this was a new project for Pyrotek, although similar to the "ZEN" table preheater. Wagstaff had specifically stated that the moulds should not be allowed to get above 650°F (343°C), and as Ed says "there was some concern over this as there are no controls on the unit and Kaiser personnel were instructed to monitor the temperature output with a hand-held thermocouple." The mould shop personnel report that they are very pleased with the mould heater's initial operating performance. The graphite ring takes approximately 10 minutes to drop from the Wagstaff mould. The setting on the Leister heater is at the 8th position which should deliver an approximate output temperature of 800°F (426°C). Subsequent monitoring of the temperature performance will be carried out on follow-up customer visits.

Explaining the success of this project installation, Ed says "although the design of the unit was modified slightly and is essentially a stripped down version of the original ZEN concept, it could be improved by, for example, adding temperature controls and sensors, function / metrics displays and a more elaborate lifting device."

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