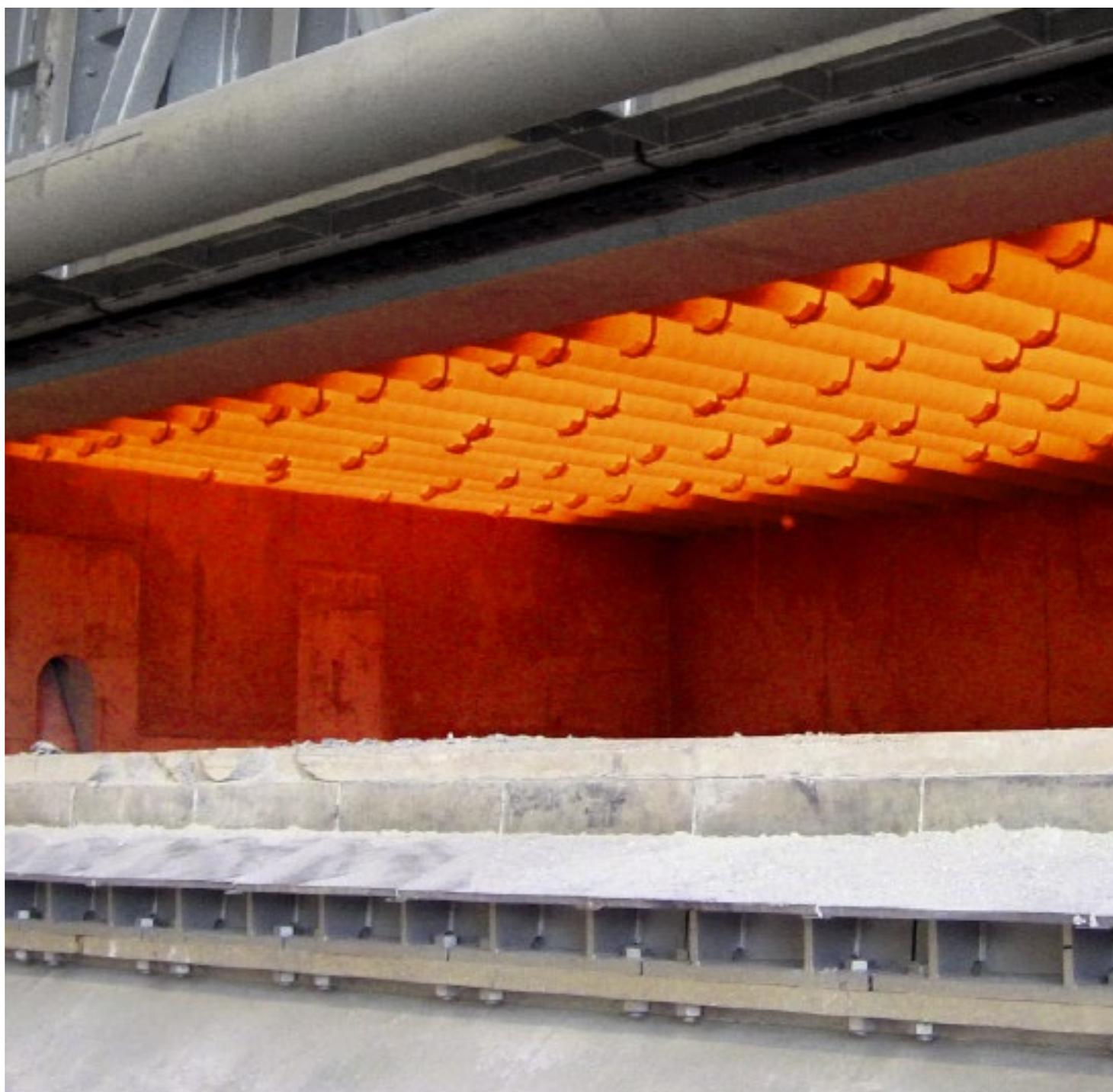


KANTHAL®

ALUMINUM HOLDING FURNACES WITH KANTHAL® ELECTRIC HEATING SYSTEM

KANTHAL® ELECTRIC HEATING SYSTEM



WHEN EFFICIENCY AND ENVIRONMENT ARE IN MIND

Kanthal® electric heating systems are being used today in more than 70 holding furnaces within primary aluminum smelters world-wide.

EXPERIENCE WITH FURNACES UP TO 100 TONS

We can help aluminum producers to reduce operating costs associated with their holding furnaces in several ways.

- Improved energy efficiency and lower energy costs.
- Reduced metal loss due to 0.5 – 1% less dross formation.
- Reduced airborne emissions and zero CO₂ emissions from the process supports improved environment quality and a reduced carbon footprint.

Typical furnace rating using Kanthal electric heating solutions based on Tubothal® radiant tube heating system is from 500 to 1500 kW.

All installations are designed in close cooperation with our customers.

INCREASE EFFICIENCY WITH ENERGY BALANCE CALCULATION

We work closely with our customers to build up an energy balance model to review proposed new furnace designs or conversions of existing furnace installations.

The energy balance model helps to optimize the thermal input requirements in line with the required process capacity, with additional reserve power installed to provide maximum flexibility for increased productivity and for safe and reliable operation.

PAY BACK CALCULATION

Kanthal's customer value calculation (CVC) tool forms the basis of a cost study analysis of existing holding furnace installations, and in developing a return on investment calculation for converting from gas or oil firing to Tubothal electric radiant tube heating system.

CONTACT US

To get in contact with you local representative visit www.kanthal.com or show this QR-code to your smartphone.



The image displays several technical documents related to furnace energy calculations. The top document is an 'Energy balance sheet calculation' for a Kanthal furnace, detailing process data, furnace dimensions, and energy requirements. Below it are three smaller tables showing energy requirements for different furnace temperatures (800°C, 850°C, and 900°C). The largest document in the foreground is a 'Conversion from oil to electric heating' calculation, which compares the energy efficiency and costs of oil and electric heating systems for a specific furnace. It includes detailed data on furnace dimensions, energy inputs, and a final payback period of 0.25 years.

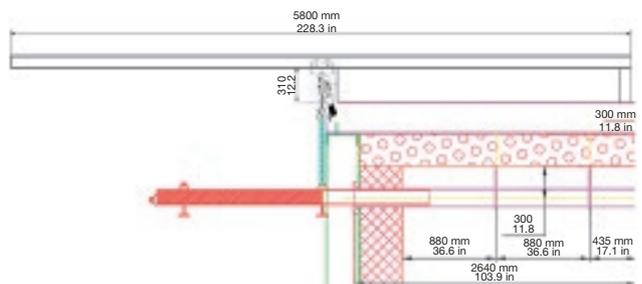




SIMPLE REPLACEMENT

Tubothal® electric radiant tube heating systems are designed for long life and trouble free service.

Along with engineering design service, a full instruction package is provided covering, storage and handling, and installation techniques for fast and simple heater installation and replacement.



KANTHAL® RADIANT TUBE AND TUBOTHAL INSTALLATION

Special tooling for installing and extracting the radiant tube and the Tubothal element is provided, together with step by step instructions.





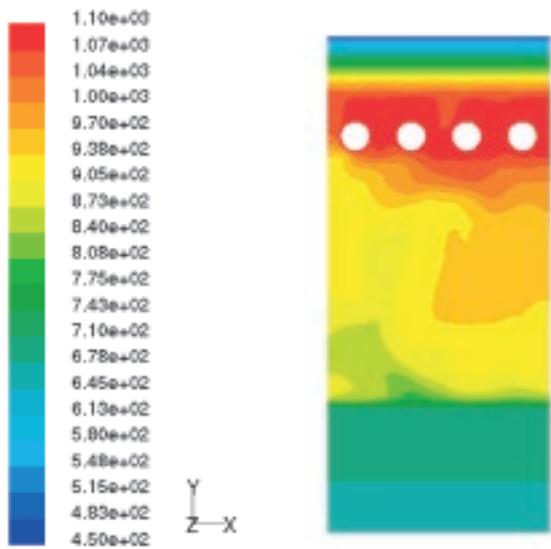
COMPLETE INSTALLATION

Kanthal supplies all mounting hardware and fixtures needed to make a complete installation, including: support brackets, fixed position and swing hangers, hanger installation tools, etc.

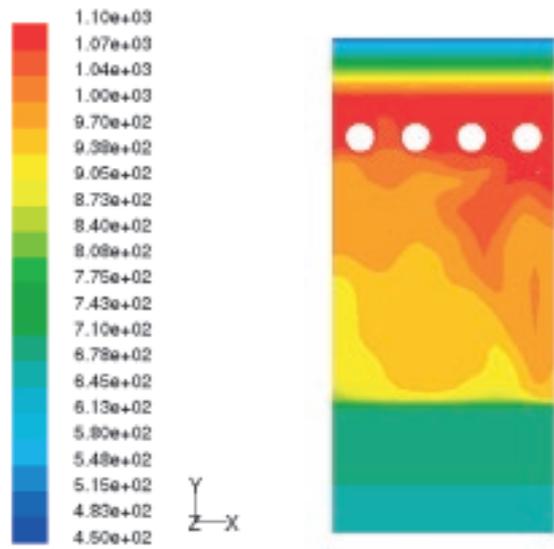
We also provide specifications for the electrical power control equipment, or can supply a ready to install SCR (thyristor) based control system in cabinets for stand alone use, or ready to receive instructions from your existing PLC control system.



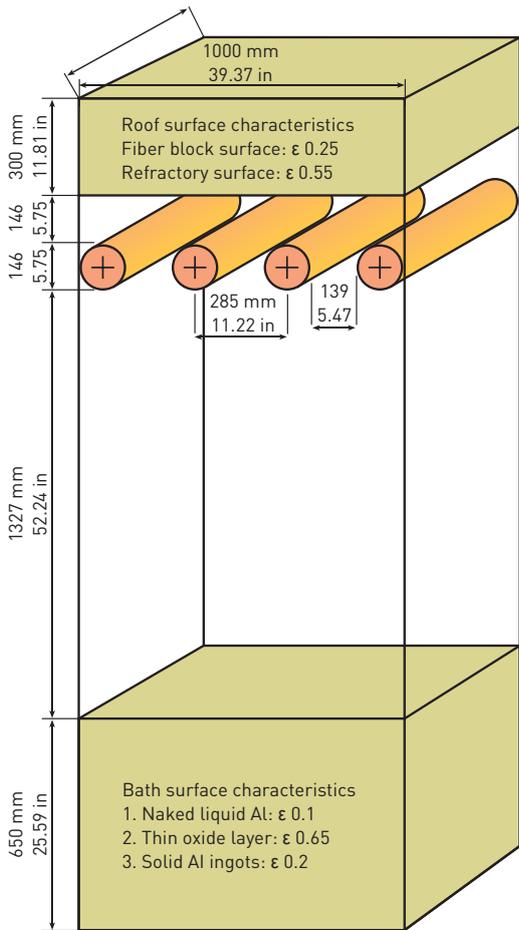
HEAT ABSORPTION RATE BY RADIATION INTO LOW EMISSIVITY SURFACE



Temperature distribution (in °C) inside the furnace.
Roof surface emissivity = 0.25, aluminum bath emissivity = 0.1.



Temperature distribution (in °C) inside the furnace.
Roof surface emissivity = 0.55, aluminum bath emissivity = 0.1.



Tube surface characteristics
Fully oxidized: ϵ 0.7
Power density: 4 W/cm² [26 W/in²]

HEAT TRANSFER RATE BY RADIATION

Heat flux calculation models and CFD thermal modelling programs assist us in developing the optimized heating system design for any specific holding furnace arrangement.

