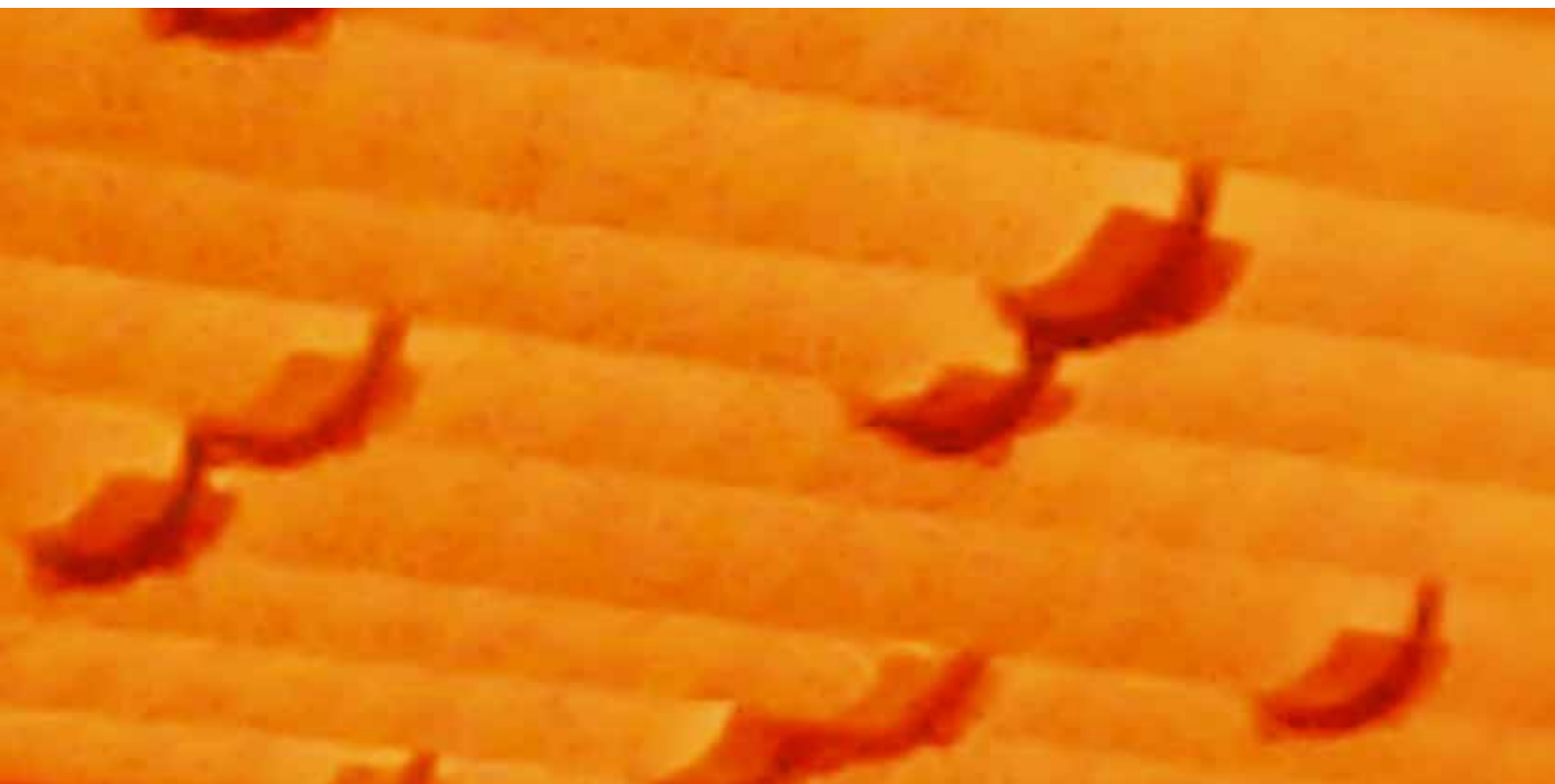


Aluminum holding furnaces with Kanthal® electric heating system



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.

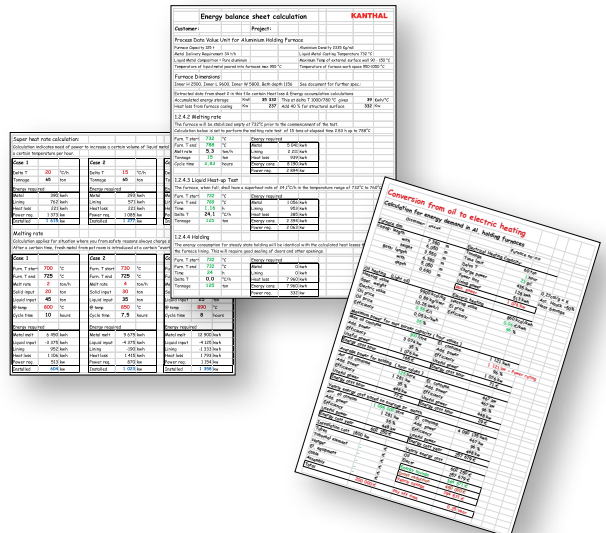
The energy balance model helps to optimize the thermal input requirements in line with the required process capacity, with additional reserve power installed to provide maximum flexibility for increased productivity and for safe and reliable operation.

Pay back calculation

Sandvik'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.





Tubothermal heater equipped with bumper protection system.



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.

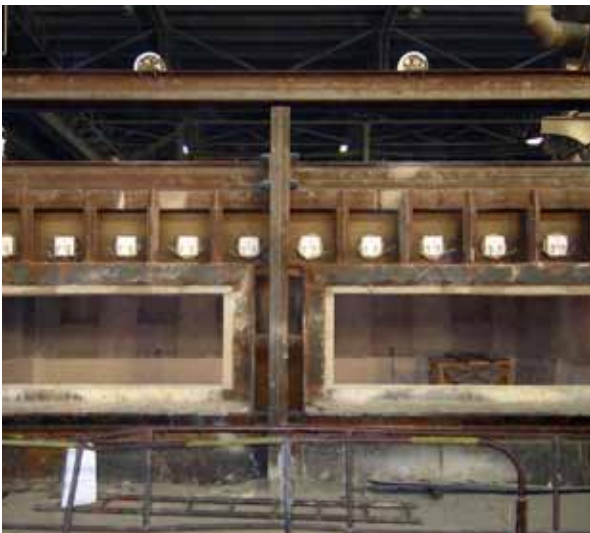




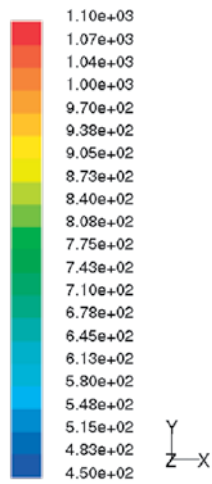
Complete installation

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

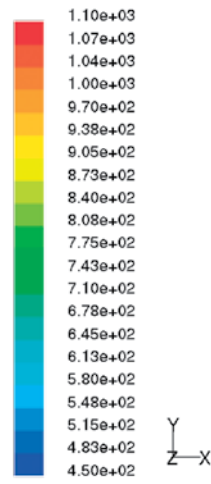
We also provide specifications for the electrical power control equipment, or can supply a ready to install SCR (thyristor) based control system in cabinets for stand alone use, or ready to receive instructions from your existing PLC control system.



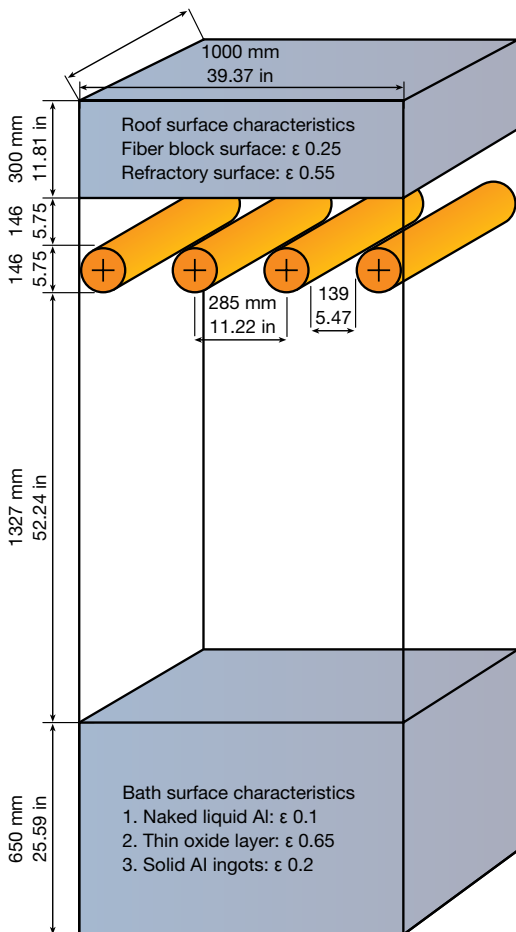
Heat absorption rate by radiation into low emissivity surface



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

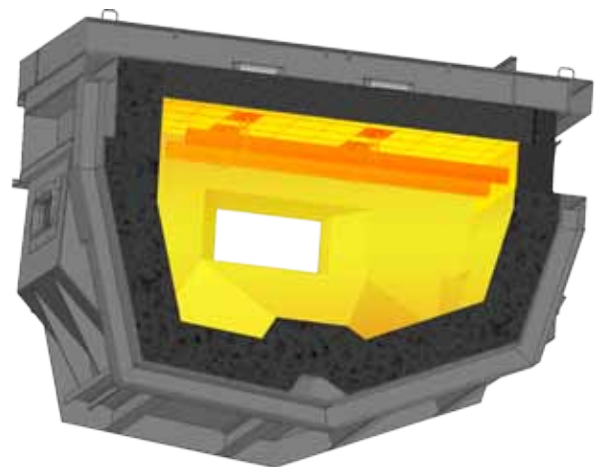


Temperature distribution (in °C) inside the furnace.
Roof surface emissivity = 0.55, aluminum bath emissivity = 0.1.



Heat transfer rate by radiation

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



Tube surface characteristics
Fully oxidized: ϵ 0.7
Power density: 4 W/cm^2 (26 W/in^2)

Sandvik Group

The Sandvik Group is a global high technology enterprise with 47,000 employees in 130 countries. Sandvik's operations are concentrated on three core businesses: Sandvik Tooling, Sandvik Mining and Construction and Sandvik Materials Technology – areas in which the group holds leading global positions in selected niches.

Sandvik Materials Technology

Sandvik Materials Technology is a world-leading manufacturer of high value-added products in advanced stainless steels and special alloys, and of medical implants, steel belt-based systems and industrial heating solutions.

Kanthal is a Sandvik owned brand, under which world class heating technology products and solutions are offered. Sandvik, Kanthal and Tubothal are trademarks owned by Sandvik Intellectual Property AB.

Quality management

Sandvik Materials Technology has quality management systems approved by internationally recognized organizations. We hold, for example, the ASME Quality Systems Certificate as a materials organization, approval to ISO 9001, ISO/TS 16949, ISO 17025, and PED 97/23/EC, as well as product approvals from TÜV, JIS and Lloyd's Register.

Environment, health and safety

Environmental awareness, health and safety are integral parts of our business and are at the forefront of all activities within our operation. We hold ISO 14001 and OHSAS 18001 approvals.

Recommendations are for guidance only, and the suitability of a material for a specific application can be confirmed only when we know the actual service conditions. Continuous development may necessitate changes in technical data without notice.

This printed matter is only valid for Sandvik material. Other material, covering the same international specifications, does not necessarily comply with the mechanical and corrosion properties presented in this printed matter.



Sandvik Materials Technology
Sandvik Heating Technology AB, Box 502, 734 27 Hallstahammar, Sweden, Phone +46 220 210 00, Fax +46 220 211 66
www.kanthal.com, www.smt.sandvik.com