



“With the furnace’s new performance we can meet increasing demand for wire products”

REVAMPED FURNACE MEETS FAST-GROWING DEMAND FOR WELDING WIRE

With global demand for welding wire and rods at all-time high, Sandvik needed to ramp up production to keep pace with a rapidly growing customer base. Kanthal was engaged to refurbish a batch furnace and the result transformed output – unlocking a 50 percent increase in productivity and capacity for welding materials.

Within the Sandvik Group, the job of heating materials for welding wire products was previously focused on servicing internal customers. But recently, things have changed dramatically. A surge in demand for welding wire from external customers required new levels of productivity. To facilitate the transition, Kanthal’s heating technicians carried out a batch furnace refurbishment that paved the way for game-changing performance. A furnace temperature of 1150 °C could be achieved faster regardless of material load which increased productivity by 50 percent.

BUSINESS CHALLENGE

UPGRADE TO MEET WIRE DEMAND

Sandvik’s heat treatment equipment faced a series of challenges. The annealing process wasn’t reliable and downtime occurred several times per week. This was due to failing heating elements which, in turn, led to high costs for spare parts and regular repair work. Driving the furnace to maximum temperature on a routine basis was a major cause of failed elements. Another priority was to achieve better mechanical values, such as control time, to fulfil analysis requirements for wire grain size after annealing.



KANTHAL SOLUTION

BATCH FURNACE REFURBISHMENT

Kanthal technicians worked closely with Sandvik's local electricians on a major overhaul of the furnace. Before installing new panels and resistance elements, the first step was to decommission the existing furnace. All waste was handled as hazardous material according to strict regulations and best practices issued by Sandvik's local environmental coordinator.

Although the lack of design drawings was a challenge, Kanthal's design engineers managed to map the customer's requirements and create a new set of drawings based on a modern electrical system, equipped with display and controls. Fibrothal™ panels and resistances were welded and mounted onto the furnace walls and new insulation was placed around the furnace opening.

In addition, Kanthal technicians reinforced the heat treatment area with floor repairs as well as a new locking device, which secured the Fibrothal™ panels against the furnace walls.

"The furnace was modernized in a short period of time with excellent results. It was a smooth job and Kanthal's technicians adapted themselves to our requirements at every step. The entire heat treatment process has been fully optimized giving us valuable new capacity," says Malin, Process Engineer at Sandvik.

COMMISSIONING AND MONITORING

COMPLETE REINSTALLATION

Kanthal's commissioning engineer coordinated the furnace start-up together with Sandvik's local electricians. A new control system was put in place with a display that monitors temperature ramp-up, annealing time, control time and total heating time. The assignment was extended with 25 additional programs for monitoring the furnace's heat treatment process.

GETTING STARTED: QUALITY CONTROL

- Run-through of control cabinet
- Parameter settings for furnace controls, temperature levels etc.
- Slow drying of mounted Fibrothal™ panels
- Testing at maximum control program temperature of 1115 °C, according to customer requirements
- Emergency stop control/switch
- Training on how to operate the furnace

THE RESULT

PRODUCTIVITY INCREASE: 50 PERCENT

Sandvik's batch furnace refurbishment mean that heating times were significantly reduced and quality improved. Productivity and output of wire increased by 50 percent with stable performance at the new temperature of 1115 °C.

"With the furnace's new performance we can meet increasing demand for wire products and achieve an output of 15 tons per week," Malin explains. "Fast and reliable service from Kanthal was instrumental in achieving that goal."

Prior to the refurbishment the total heat treatment time was 6h 30 mins, which has now been reduced by half. The furnace currently takes 1 hour to reach the set temperature.

KANTHAL OPTIMIZED THE HEAT TREATMENT PROCESS

50% decrease of heat treatment times for welding wire
Productivity increased from 8 tons to 15 tons per week

Read more about Kanthal Services and our comprehensive offering. Visit [kanthal.com/services](https://www.kanthal.com/services)