### Wire and Heating Technology A long and successful history





### **Two strong brands**

1862: Sandvik is founded by Göran Fredrik Göransson



1931: Kanthal is founded by Hans von Kantzow

#### 1997

Sandvik acquired Kanthal. 2010 - Kanthal merged into Sandvik Group and is now operating as Sandvik Wire and Heating Technology



### Wire and Heating Technology

- 1 500 employees worldwide
- Representation globally
- Headquarters in Hallstahammar, Sweden
- Strong tradition of innovation, extensive investments in R&D
- World leader in materials and heating technology
- Product development in close collaboration with customers





### **Product offer**

#### Wire and Heating Technology







**Heating Materials** 

**Specialty Wire** 



Welding



### **Technical Services**

#### Wire and Heating Technology

- Product selection
- Process optimization
- Service agreements
- Custom made solutions















# We are a global market leader

"With a history stretching back 150 years, we have the know-how and resources to create the next generation of material and help future-proof your business."



# We are an innovation provider

"Our expertise in metallurgy and wire production is unmatched. Our research - your future."

SANDVIK

### We are a preferred business partner

"Our focus is on being proactive and responsive to our clients' needs. Our culture is one of exellence, empowerment and team spirit."



### Heating systems KANTHAL A world leading brand

- Offers solutions for industrial heating needs in all industry segments
- Products and services for thermal processing
- Heating elements based on superior metallic and ceramic materials
- Tailor-made components, modules and systems for thermal processing
- Engineering partner and solutions provider



SANDVIK

### **Heating Systems**

**Broadest range of Heating Systems for industrial heating:** 

- Metallic elements
- Fibrothal
- Tubothal
- Extruded tubes
- Globar SiC

- Kanthal Super
- Superthal
- Diffusion cassettes
- Moduthal





### Heating Systems Products and Limits



Fibrothal 1300°C



Diffusion cassettes 1300°C



Tubothal 1250°C



APM extruded tubes 1250°C



Moduthal 1300°C



Metallic elements 1425°C



SiC Globar 1650°C



Kanthal Super -Superthal 1850°C – 1675°C SANDVIK

### Heating Systems Metallic Elements



coils



coils in grooves



#### meanders



coils on ceramic tubes



### Heating Systems <u>Fibrothal</u>



Fibrothal embedded elements 1100°C Tf



Fibrothal RAC 1300°C Tf



Fibrothal ROB 1300°C Tf



Fibrothal muffles 1100℃ Tf



Fibrothal Meander 2 1300°C Tf



Fibrothal insulation parts 1550℃ SANDVIK

### Heating Systems Fibrothal Applications



#### strain relieve annealing



#### laboratory furnaces



#### continously annealing





recrystallisation



#### hardening



### Heating Systems Moduthal



Moduthal embedded elements 1100°C Tf

Moduthal freely radiating 1300°C Tf





## Heating Systems



### Heating Systems Tubothal Applications



Aluminum holding furnace



#### continously strip annealing







### Heating Systems APM tubes (protection tubes)



Ø26,67mm...Ø260mm

- superior between 1100...1250℃ max
- carburisation resistant
- high creep strength
- weldable
- Iow spalling





### Heating Systems APM tubes





Gas heated – S.E.R.

1250℃ max



Electric - TUBOTHAL.

Electric - KANTHAL Super or GLOBAR.



### Heating Systems Kanthal Super

MoSi<sub>2</sub> Heating elements up to 1850°C for laboratory, dental and industrial furnaces



### Heating Systems Superthal

Electric heating modules with Kanthal Super elements up to 1725 °C



### Heating Systems SiC (Globar)

SD up to 1625°C element temperature



standard density (SD) appr. 25% porosity



#### HD up to 1650°C element temperature



medium density (AS) appr. 20% porosity high density (SG/SR) appr. 8% porosity



### Heating Systems SiC (Globar) applications















