

Kanthal® Super HT

High temperature element for cycling conditions

Kanthal® Super HT is a new electric heating element in the family of Kanthal Super molybdenum disilicide (MoSi_2) heating elements, with outstanding properties for use at high temperatures, in air or oxygen, in cycling conditions.



The maximum operating temperature is 1830°C (3330°F), and the element is suitable for furnace temperatures between 1500–1750°C (2730–3180°F) approximately.

The special feature of Kanthal Super HT is that the growth of the oxide layer – the glaze – is much reduced, compared to Kanthal Super 1800 and 1900. A thin ox-

ide layer results in a much-improved service life, because the tensions are reduced between the base material and the surrounding oxide, depending on the different thermal expansion coefficients.

This is of great importance, especially for elements of smaller dimensions used in cyclic conditions, where Kanthal Super 1800 and 1900 elements may be damaged by “banding”. The banding effect means that an element shatters into small pieces during thermal cycling. This is as a result of massive stresses between the oxide and the base material, once the oxide has grown to a sufficient thickness, and the strength of the oxide film exceeds that of the base material.

The new properties also include a better hot strength and form stability. Kanthal Super HT offers rapid thermal cycling, which improves furnace productivity.

Applications

Kanthal Super HT is used in laboratory and high-temperature process furnaces, and as “a problem solver” for productivity issues at high temperatures.

Typical applications:

- Sintering of zirconia implant

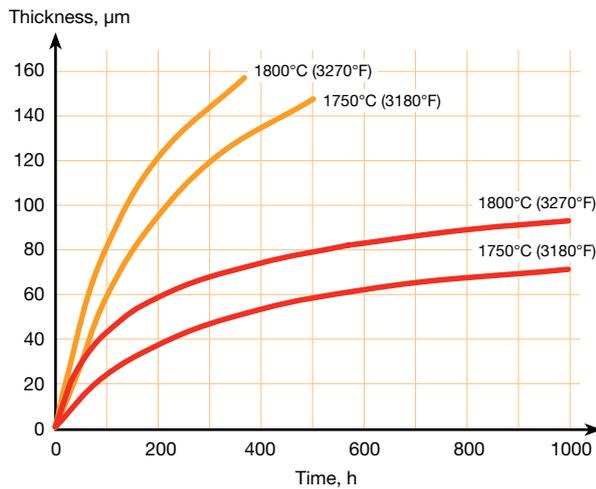
SPECIAL FEATURES

- Lower oxidation rate
- Thinner glaze layer
- Longer life at high temperatures and when cycling
- Less adhesion to fiber due to thinner glaze
- Improved form stability
- High purity – reduced iron
- Standard and specially designed elements



Technical information

Growth of oxide layer in air



■ Kanthal® Super HT ■ Kanthal Super 1900

Kanthal® Super HT	Heating zone diam. Le		Terminal diam. Lu	
	mm	in	mm	in
(Special)	2.5	0.10	6	0.24
	3	0.12	6	0.24
	4	0.16	9	0.35

Standard product range

Kanthal® Super HT is delivered as two- and four-shank elements with fixed terminals as standard for safe and reliable electrical connections. Special designs are available on request.

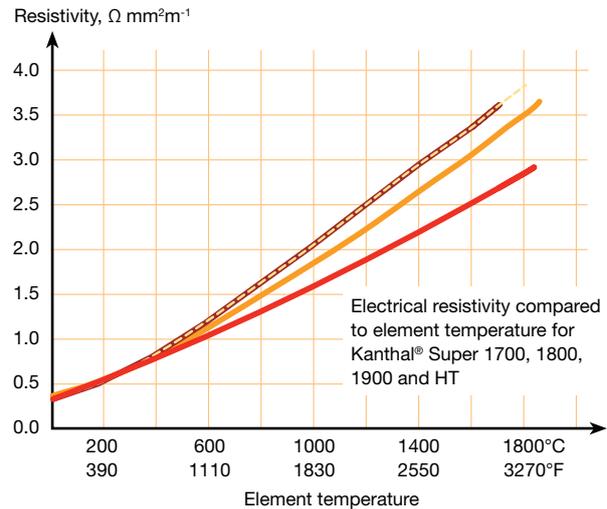
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Sandvik Materials Technology

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.

Resistivity



■ Kanthal Super HT ■ Kanthal Super 1700
■ Kanthal Super 1800 ■ Kanthal Super 1900

PROPERTIES

Thermal conductivity	
20–600°C (68–1110°F)	30 Wm ⁻¹ K ⁻¹
600–1200°C (1110–2190°F)	15 Wm ⁻¹ K ⁻¹
Coefficient of linear expansion	7–8 10 ⁻⁶ K ⁻¹
Specific heat capacity at 20°C (68°F)	0.42 kJ kg ⁻¹ K ⁻¹
Emissivity	0.70–0.80

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