KANTHAL®

Part of Sandvik Group

KANTHAL® SUPER HT
MOLYBDENUM DISILICIDE

DATASHEET

Kanthal® Super HT is a electric heating element 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 the growth of the oxide layer - the glaze - is much reduced, compared to Kanthal Super 1800 and 1900. A thin oxide layer results in a much improved lifetime, because the tensions are reduced between the base material and the surrounding oxide, depending on the different thermal expansion coefficient. 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 is when the element shatters into smaller pieces during thermal cycling. This is 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 better hot strength and forms stability. Kanthal® Super HT therefore, can be used in horizontal applications with less deformation although it still needs to be supported.

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 Fe
- Standard and specially designed elements

Typical applications for Kanthal® Super HT includes laboratory and high-temperature process furnaces and as a "problem solver" at high temperatures.

MECHANICAL PROPERTIES

Hardness	Bending strength	Compression strength	Fracture toughness
HV			K_{IC}
GPa	MPa	MPa	MPa√m
8	350-400 ±10%	1400-1500	4

TENSILE STRENGTH AT ELEVATED TEMPERATURES

Temperature °C (°F)	MPa
1500 (2820)	100±25%

PHYSICAL PROPERTIES

Density g/cm^3 (lbs/in^3)	7.0 (0.25)
Emissivity	0.70-0.80

Temperature °C (°F)	20-600 (68-1110)	600-1200 (1110-2190)
W m^{-1} K^{-1}	30	15

Coefficient of linear expansion 10^{-6}/K	7-8
Specific heat capacity at 20°C (68°F) kJ kg^{-1} K^{-1}	0.42

Maximum operating temperature in air °C (°F)	1800 (3270)