

Nickel Thin Film Temperature Sensor

Nickel thin film elements are characterized by a relatively high temperature coefficient. Typical applications include bearing temperature monitoring, HVAC temperature monitoring, and stator winding temperature monitoring

Nominal Resistance R_0	Accuracy	Part Number
500	DIN 43760	100 488-1

Specification	DIN 43760
Temperature Range	-60 °C to +250 °C
Temperature Coefficient	6180 ppm/K
Lead wire material	nickel
Protective coating	high-temperature epoxy
Self-heating	0,3K/mW in air
Response time	Water ($v = 0,2\text{m/sec.}$) $t_{0,9} = 0,3 \text{ sec.}$ Air ($v = 1\text{m/sec.}$) $t_{0,9} = 9 \text{ sec.}$
Operating Current, Maximum	5 mA

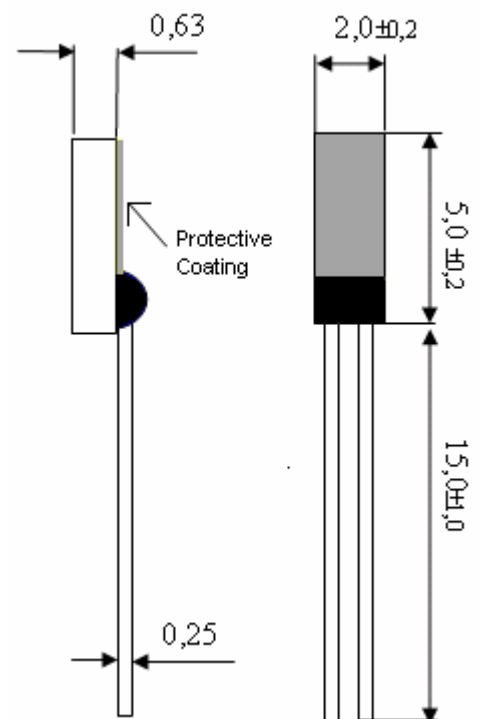
Polynomial of a nickel resistor in accordance with DIN 43760:

$$R(\vartheta) = R_0 \times (1 + 5,481 \times 10^{-3} \times \vartheta + 6,650 \times 10^{-6} \times \vartheta^2 + 2,805 \times 10^{-11} \times \vartheta^4 + 2,000 \times 10^{-17} \times \vartheta^6)$$

Maximum permissible tolerance as a function of temperature (DIN 43760):

$$\vartheta < 0^\circ\text{C}: F = \pm(0,4 + 0,028 \times \vartheta) \text{ } ^\circ\text{C}$$

$$\vartheta > 0^\circ\text{C}: F = \pm(0,4 + 0,007 \times \vartheta) \text{ } ^\circ\text{C}$$



All technical data serves as a guideline and does not guarantee any particular properties to the product.

Heraeus Sensor Technology USA

1901 Route 130
 North Brunswick, NJ 08902
 Phone 732-940-4400 Fax 732-940-4445
 Email info.hst-us@heraeus.com
 www.hst-us.com