

Resistant Alloys

Nickel Chromium Alloys



1. Chemical composition

	Ni	Cr	Fe	Cu	Others
%	80	20	-	-	Si +

Major specification: Resistohm 80 alloy is in conformity with ASTM B 344 and Werkstoff Nr. 2.4869.

2. Physical properties

- Resistivity ($\Omega \text{ mm}^2/\text{m}$)	: 1.08
- Temperature coefficient ($\text{K} \times 10^{-6}/^\circ\text{C}$) from 20 to 1000 °C	: 60
- Thermal conductivity at 120 °C ($\text{Wm}^{-1} \text{ } ^\circ\text{C}^{-1}$)	: 15.0
- Coefficient of linear expansion (coeff. $10^{-6}/^\circ\text{C}$) from 20 to 1000 °C	: 17.50
- Density (g/cm^3)	: 8.35
- Creeping point in	
- at 800 °C	: 15
- at 1 000°C	: 4
- Melting point (°C)	: 1 400
- Maximal operating temperature (°C)	: 1 200

Standard mechanical properties

- Tensile Strength (daN/mm^2)	: 76.0
- Yield Strength (daN/mm^2)	: 33.0
- Elongation (A% on 100 mm)	: ≥ 30
- Hardness (HV)	: 220

3. Typical Applications

Chemical composition of 80% Nickel and 20% Chromium makes of him the most well-known resistive alloy. It contains rare-earth additions for increased oxidation resistance, especially under conditions of frequent switching or wide temperature fluctuations.

Resistohm 80 gives extraordinary performances at temperatures up to 1200°C and will be operational at those high temperatures under the most exacting conditions.

It is the first choice for all heating elements operating at high temperatures or for each element subject to important heating and cooling cycles, as well in the domestic as in the industrial applications.

Electric furnaces, high temperature elements, heating batteries are among others typical applications of this alloy.

This nuance presents an excellent resistance to hot flow and a very good dimensional stability of the spirals with successive heating cycles.

In an alternated oxidising/reducing atmosphere, Resistohm 80 can be subject to the "green rot".

April 2012 - The data enclosed in this document are only given as indicative values and correspond to our standard products. Different specific requirements are subject to discussion and formal approval by Aperam Alloys Rescal. For further information or special request, please contact us.