

Resistant Alloys

Nickel Chromium Alloys



1. Chemical composition

	Ni	Cr	Fe	Cu	Others
%	57 min.	15	Bal.	-	Si +

2. Physical properties

- Resistivity ($\Omega \text{ mm}^2/\text{m}$)	: 1.12
- Temperature coefficient ($\text{K} \times 10^{-6}/^\circ\text{C}$) from 20 to 1000 °C	: 170
- Thermal conductivity at 120 °C ($\text{Wm}^{-1} \text{ } ^\circ\text{C}^{-1}$)	: 13.30
- Coefficient of linear expansion (coeff. $10^{-6}/^\circ\text{C}$) from 20 to 1000 °C	: 17.50
- Density (g/cm^3)	: 8.20
- Creeping point in	
- at 800 °C	: 15
- at 1 000°C	: 4
- Melting point (°C)	: 1 350
- Maximal operating temperature (°C)	: 1 100

Standard mechanical properties

- Tensile Strength (daN/mm^2)	: 70.0
- Yield Strength (daN/mm^2)	: 35.0
- Elongation (A% on 100 mm)	: ≥ 30
- Hardness (HV)	: 220

3. Typical Applications

This alloy with a chemical composition of 60 % of nickel and 15 % chromium, the balance in iron, make practically the unanimity among the users of material of metallic resistances. It contains rare-earth additions for increased resistance, especially under conditions of frequent switching or wide temperature fluctuations.

This is an excellent choice for heating elements operating at a temperature up to 1100°C, which include the majority of household appliances and other heating elements operating in an average range of temperatures, and where the exceptional properties of Resistohm 80 are not necessary.

Its applications include all sorts of heating elements and resistances (toasters elements, potentiometer resistances and other household and industrial appliances).

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.