

Resistant Alloys

Iron-Chromium-Aluminium Alloys



1. Chemical composition

	Ni	Cr	Fe	Cu	Others
%	-	23	Bal.	-	Al: 6, ++

2. Physical properties

- Resistivity ($\Omega \text{ mm}^2/\text{m}$)	: 1.45
- Temperature coefficient ($\text{K} \times 10^{-6}/^\circ\text{C}$) from 20 to 1000 °C	: 33
- Thermal conductivity at 120 °C ($\text{Wm}^{-1} \text{ } ^\circ\text{C}^{-1}$)	: 16
- Coefficient of linear expansion (coeff. $10^{-6}/^\circ\text{C}$) from 20 to 1000 °C	: 15
- Density (g/cm^3)	: 7.10
- Creeping point in	
- at 800 °C	: 8
- at 1 000°C	: 1.5
- Melting point (°C)	: 1 500
- Maximal operating temperature (°C)	: 1 300

Standard mechanical properties

- Tensile Strength (daN/mm^2)	: 75.0
- Yield Strength (daN/mm^2)	: 55.0
- Elongation (A% on 100 mm)	: ≥ 18
- Hardness (HV)	: 230

3. Typical Applications

Resistohm 145 is a ferritic alloy of the FeCrAl family, which can be used up to 1300°C in case of big diameters.

To maintain Resistohm 145 under 1000°C during 7 to 8 hours in an oxidizing atmosphere with an insufficient quantity of oxygen or air induces formation of a white-grey aluminium coat of oxide which protects the wire of a possible chemical attack. It is recommended to oxidize the wire of this way when the element must operate in reducing conditions. This is why Resistohm 145 is generally supplied preoxidized.

Resistohm 145 can be used for resistances in electric furnaces for ceramic, chemical and metallurgic industries, and for all applications where it is necessary to apply very high temperature of use. Life time of Resistohm 145 is better than those of NiCr in case of atmospheres containing sulfur and particularly if they are oxidizing.

Life time of Resistohm 145 is particularly influenced by the formation of oxide coat. If the atmosphere does not permit it, life time in high temperatures is considerably reduced. Prejudicial atmospheres are nitrogen, ammonia, and hydrocarbons.

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.