

## Resistant Alloys

### Iron-Chromium-Aluminium Alloys



#### 1. Chemical composition

	Ni	Cr	Fe	Cu	Others
%	-	20	Bal.	-	Al: 4.5, ++

#### 2. Physical properties

- Resistivity ( $\Omega$ mm <sup>2</sup> /m)	: <b>1.35</b>
- Temperature coefficient (K x 10 <sup>-6</sup> /°C) from 20 to 1000 °C	: <b>70</b>
- Thermal conductivity at 120 °C (Wm <sup>-1</sup> C <sup>-1</sup> )	: <b>16.50</b>
- Coefficient of linear expansion (coeff. 10 <sup>-6</sup> /°C) from 20 to 1000 °C	: <b>14</b>
- Density (g/cm <sup>3</sup> )	: <b>7.25</b>
- Creeping point in	
- at 800 °C	: <b>6</b>
- at 1 000°C	: <b>1</b>
- Melting point (°C)	: <b>1 500</b>
- Maximal operating temperature (°C)	: <b>1 200</b>

#### Standard mechanical properties

- Tensile Strength (daN/mm <sup>2</sup> )	: <b>75</b>
- Yield Strength (daN/mm <sup>2</sup> )	: <b>55</b>
- Elongation (A% on 100 mm)	: <b>≥ 18</b>
- Hardness (HV)	: <b>230</b>

#### 3. Typical Applications

Resistohm 135 is a ferritic alloy of the FeCrAl family, which can be used as heating element of resistance up to 1200°C.

Resistohm 135 must be used in a dry environment in order to avoid rust because this is not a stainless alloy. Elements realised in Resistohm 135 have an excellent life time in a sulphurous environment, and particularly when atmosphere is also oxidizing.

A preoxidation (2 hours at more than 1000°C out in the open air) is necessary when Resistohm 135 must operate in a reducing atmosphere. The white-grey aluminium coat formed during the oxidation heat treatment preserves the wire or the ribbon of the future chemical attacks.

Resistohm 135 is normally used in top cookers with ceramics, pottery furnaces elements, and tubular elements.

Because of its resistance to carbonaceous atmospheres, Resistohm 135 is chosen for the production of cigarette lighters and fuel burners elements.

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.