# FeCrAl: Heating Element & Resistance Alloys

## Wire • Strip • Ribbon

These are ferromagnetic alloys whose electrical resistance properties are similar to those of the Nickel-Chromium alloys, making them suitable for electrical heating applications. Although absence of nickel makes them cheaper than Nickel-Chromium alloys, it also makes them more prone to corrosion. Care should be taken to operate these heating elements in dry conditions to minimize corrosion. Exposure to high temperatures can also lead to creep and embrittlement, but with adequate support elements, these problems can be avoided.

JLC manufactures FeCrAl for special resistance and heating applications only.

**FeCrAl125** is used as a low cost heating element that can operate at temperatures up to 1150 °C. It is used for high temperature load resistors, braking and starting resistors, and domestic appliances.

**FeCrAl 135** can be used for heating elements up to 1200 °C. It offers better high temperature strength as compared to FeCrAl125. Typical applications include hot plates, irons, and electric furnaces. It is also used in resistors, lab furnaces, and heavy relay switches.

**Forms of Supply**
Bright Annealed
Oxidized (Blue & Golden)
As-Drawn

| Specifications | | | |
|---|---|---|---|
| **Alloy** | Werkstoff Nr | UNS designation | DIN |
| **FeCrAl 125** | 1.4725 | K91670 | 17470 |
| **FeCrAl 135** | (1.4767) | - | 17470 |

| Nominal Chemical Composition (%) | | | | |
|---|---|---|---|---|
| **Alloy** | Fe | Cr | C | Al |
| **FeCrAl 125** | Balance | 14-16 | Max 0.1 | 3.5-5.0 |
| **FeCrAl 135** | Balance | 18-24 | Max 0.1 | 4.0-6.0 |

| Physical & Mechanical Properties (at room temperature) | | | | | |
|---|---|---|---|---|---|
| **Alloy** | Density $g/cm^3$ | Thermal Conductivity W/m.K | Coeff of Linear Expansion between 20-1000°C $10^{-6}$/°C | Temp Coeff of Resistance between 20-1000°C x $10^{-6}$/°C | Maximum Operating Temp of Heating Element °C |
| **FeCrAl 125** | 7.30 | 14.5 | 14.00 | 1.10 | 1150 |
| **FeCrAl 135** | 7.25 | 13.5 | 15.00 | 1.00 | 1200 |

### Long Life & Design Help

All our alloys have gone through extensive life tests and are proven to last longer than other equivalent alloy grades available in the market. These wires are made with high quality raw materials from the melting/alloying stage. Our team of engineers can help you to select the appropriate grade/size and design coiled-wire heating elements for your specific applications.

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