

# Ni80Cr20

Nickel-Chromium Alloy

RESISTANCE ALLOYS

W.N: 2.4869  
DIN: NiCr8020  
UNS: N06003

## Ni80Cr20

Ni80Cr20 is an austenitic nickel-chromium alloy suitable for temperature applications up to 1200°C.

This alloy provides extraordinary performances at temperatures up to 1200°C and offers superior operation life compared to other nickel-chromium alloys. Ni80Cr20 is characterized by high resistivity, good oxidation resistance (especially under conditions of frequent switching or wide temperature fluctuations), very good

form stability, good ductility after use and excellent weldability.

Ni80Cr20 is used for electric heating elements in home appliances and industrial furnaces. Typical applications are: irons, water heaters, heavy duty resistors, tubular elements, electric cooking equipment, heating batteries, electric furnaces, etc.

### 1. Chemical composition

Nom. composition, %	C	Si	Mn	Ni	Cr	Al	Fe	Cu
min	-	1.00	-	Bal.	19.00	-	-	-
max	0.08	1.50	1.00		21.00	0.20	1.00	0.50

### 2. Mechanical properties

Wire size, mm	Yield Strength, $R_{p0.2}$ (MPa)	Tensile Strength, $R_m$ (MPa)	Hardness, HV	Elongation, A (%)
1.00	420	710	170	≥ 18

### 3. Physical properties

Density, g/cm <sup>3</sup>	8.30
Electrical resistivity at 20°C, $\Omega$ mm <sup>2</sup> /m	1.12
Thermal conductivity at 20°C, W/mk	14.60
Melting point, °C	1400
Max operating temperature, °C	1200

Creep strength, MPa $R_p$ 1.0/10 <sup>3</sup> h	600°C	80.00
	800°C	15.00
	1000°C	4.00
Magnetic properties		nonmagnetic

### 4. Temperature factor of resistivity

Temperature, °C	20	100	200	300	400	500	600	700	800	900	1000	1100	1200
Kt	1.00	1.006	1.012	1.018	1.025	1.026	1.018	1.010	1.008	1.010	1.014	1.021	1.025

### 5. Coefficient of liner thermal expansion

Temperature, °C	20	200	400	500	600	800	1000
$\alpha \times 10^{-6}/K$	-	14.00	15.00	15.40	15.50	16.00	17.00

Note: All information enclosed in this datasheet is based on our best knowledge and is given as indicative. Other special requirements are subject to prior discussion and approval of Vojay. Please contact us for any additional information or request.