Ni70Cr30

Ni70Cr30 is an austenitic nickel-chromium alloy suitable for temperature applications up to 1250°C.

High chromium content (30% in average) provides very good life time, especially in the furnace applications. Ni70Cr30 is characterized by high resistivity, good oxidation resistance, good ductility after use and excellent weldability.

Alloy is not subject to "green rot" and is particularly well suited for reducing and oxidizing atmospheres.

Ni70Cr30 is used for electric heating elements in industrial furnaces. Typical applications are: electric and enamelling furnaces, storage heaters, furnaces and kilns with a changing atmospheres.

1. Chemical composition

Nom. composition, %	C	Si	Mn	Ni	Cr	Al	Fe	Cu
min	-	1.00	-	Bal.	29.00	-	-	-
max	0.07	1.50	1.00		31.00	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	450	870	185	≥ 18

3. Physical properties

Density, g/cm^3	8.10
Electrical resistivity at 20°C, Ω mm^2/m	1.19
Thermal conductivity at 20°C, W/mk	13.80
Melting point, °C	1400
Max operating temperature, °C	1250

Creep strength, MPa R_p 1.0/10^3 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	1.007	1.016	1.028	1.038	1.044	1.036	1.030	1.028	1.029	1.033	1.037	1.043

5. Coefficient of liner thermal expansion

Temperature, °C	20	200	400	500	600	800	1000
a x 10^{-6}/K	-	13.50	14.50	14.80	15.00	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.