

Copper-Nickel Alloys: Grades with Low Resistance

Wire • Bar • Strip • Ribbon

JLC Alloy 30, JLC Alloy 15, JLC Alloy 12, JLC Alloy 10 and JLC Alloy 5

These alloys are characterized by low electrical resistivity and low temperature coefficient of resistance. They provide good resistance against oxidation and chemical corrosion. They are easily soldered. Typical applications of these alloys are for electrical resistors and general resistance wire for heating wires, cables, and mats. They are also used as resistance elements of heaters for electrical circuit breakers/fuses in heating cables with low temperatures. In ribbon form, they are used for heating bimetals.

Specifications & Nominal Chemical Composition (%)				
Alloy	Werkstoff Nr	DIN	Ni	Cu
JLC Alloy 30	2.0881	-	23	Balance
JLC Alloy 15	2.0811	17471	11	Balance
JLC Alloy 12	-	-	8	Balance
JLC Alloy 10	2.0807	17471	6	Balance
JLC Alloy 5	2.0802	17471	2	Balance

Physical properties (at room temperature)					
Alloy	Density g/cm ³	Specific Resistance (Electrical Resistivity) μΩ-cm	Thermal Linear Expansion Coeff. b/w 20-100°C 10 ⁻⁶ /°C	Temp Coeff of Resistance b/w 20-100°C ppm/°C	Maximum Operating temp of element °C
JLC Alloy 30	8.90	30	15.7	180	400
JLC Alloy 15	8.90	15	16.0	350-450	400
JLC Alloy 12	8.90	12	16.2	480	300
JLC Alloy 10	8.90	10	16.2	500-900	300
JLC Alloy 5	8.90	5	16.4	1000-1600	300

Mechanical Properties (for cold drawn & annealed wire)				
Alloy	Tensile strength N/mm ²		Elongation % at L ₀ = 100 mm	
	Min	Max	Min	Max
JLC Alloy 30	340	690	15	35
JLC Alloy 15	250	540	15	35
JLC Alloy 12	250	540	15	35
JLC Alloy 10	230	680	15	35
JLC Alloy 5	220	440	15	35

Separate data sheet for CuNi44 is available