

# Cu Mn10 Ni4

Brand Name	<b>NICLAL 38</b>	
Abbreviation	<b>Cu - Mn - Ni</b>	
Nominal analysis		
Cu %	Mn %	Ni %
Remain	10	4

## DESCRIPTION

Nical 38 is a precision resistance alloy, with moderate Resistivity, low Temperature coefficient of resistance and low thermal EMF versus Copper.

With high stability of electrical resistance, good working properties and very good weldability, Nical 38 is specially dedicated to precision resistors, electrical shunts which control and measure the current through devices such electricity meters or DC ammeters.

## Electrical Properties in annealed temper

Electrical Resistivity at 20 °C	<b>38 <math>\mu\text{ohm} \times \text{cm}</math></b>
Temperature Coefficient of Electrical Resistance between -20 and +150 °C	<b>+/- 20 ppm/°C</b>
Thermo EMF against Copper at 20 °C	<b>- 1.02 <math>\mu\text{V}/^\circ\text{C}</math></b>

## Physical Properties

Density at 20 °C	<b>8.77 <math>\text{g}/\text{cm}^3</math></b>
Thermal conductivity at 20 °C	<b>22 <math>\text{W}/\text{m} \times \text{K}</math></b>
Coefficient of thermal expansion at 20 °C	<b>18 <math>\times 10^{-6} / ^\circ\text{C}</math></b>

## Forms manufactured

Wire (annealed temper)	<b>diameter : 0.8 mm to 14 mm</b>
Rods (1/4 hard temper)	<b>diameter : 1 mm to 19 mm</b>
Strip	<b>thickness : 0.08 mm to 3.5 mm</b> <b>width : 3 mm to 380 mm</b>
Cut to length	<b>thickness : 0.25 mm to 3.5 mm</b> <b>width : 20 mm to 380 mm</b> <b>length : 500 mm to 3500 mm</b>

Resistance Change vs. Temperature - NICLAL 38

