Wieland-F14

CuMn14Ni2 | Resistance alloy

Material designation

EN	not standardized
UNS	not standardized

Chemical composition*

Cu	balance
Mn	14 %
Ni	2 %

Reference values in % by weight

Physical properties*

Electrical conductivity	MS/m	2.1
	%IACS	3.7
Resistivity	Ωmm²/m	0.47 ± 5 %
Thermal conductivity	W/(m·K)	22.0
Thermal expansion coefficient (0–300 °C)	10⁻⁶/K	20.0
Density	g/cm³	8.36
Modulus of elasticity	GPa	130

Reference values at room temperature

Corrosion resistance

The corrosion resistance of Cu-Mn alloys is largely identical to that of pure copper. However, manganese-containing copper alloys tend to heal damaged protective layers more easily.

Compared to brass, F14 is insensitive to stress corrosion cracking.

Product standards

not standardized

Material properties and typical applications

Wieland-F14 is a resistance alloy characterised by its low temperature coefficient of the electric resistance and its low thermal electromotive force versus copper. The alloy also exhibits long-term stability of its electric resistance. The alloy is suitable for the production of precision, normal and shunt resistors.

Wieland-F14 is merchandised under the family brand RESISTAN which includes all Wieland products for resistors.

Types of delivery

The BU Extruded Products supplies bars, wire, sections and tubes. Please get in touch with your contact person regarding the available delivery forms, dimensions and tempers.

Fabrication properties

Forming*

Machinability (CuZn39Pb3 = 100 %)	20 %
Capacity for being cold worked	good
Capacity for being hot worked	good

Surface treatment

Polishing mechanical	good
elektrolytic	good
Electroplating	good

Joining

Resistance welding (butt weld)	good
Inert gas shielded arc welding	good
Gas welding	good
Hard soldering	good
Soft soldering	good

Heat treatment

Melting range	930–970 °C
Hot working	750–850 °C
Soft annealing	500–700 °C 1–3 h

Trademarks

RESISTAN®

Further information is provided in the brochures on Resistan.