

Wieland-FX9

CuMn15Zn15Al1 | Nickel-free alloy

Material designation

EN	–
UNS	C66950

Chemical composition*

Mn	15 %
Zn	15 %
Al	1 %
Cu	balance
Pb	≤ 90 ppm
Cd	< 50 ppm

* Reference values in % by weight

Physical properties*

electrical conductivity	MS/m	2.0
	%IACS	3.0
Thermal conductivity	W/(m·K)	15
Thermal expansion coefficient (0–300 °C)		
	10 ⁻⁶ /K	21.6
Temperature coefficient of resistivity	10 ⁻³ /K	–0.01
Density	g/cm ³	8.91
Modulus of elasticity	GPa	123
Thermoelectric voltage against copper	µV/K	1.28

* Reference values at room temperature

Corrosion resistance

Pure copper and high-copper alloys generally exhibit good corrosion resistance due to their inert character and are practically insensitive to stresscorrosion cracking.

Product standards

not standardized

Material properties and typical applications

Wieland-FX9 has been developed as nickel-free alternative to nickel-silver alloys. This silver-coloured alloy has excellent cold working properties making it possible to also manufacture complex sections. Wieland-FX9 does not contain nickel and is, therefore, anti-allergenic. It has met the human ecological requirements of the German certification authority FI (Research Institute) Hohenstein, and was therefore awarded the oeko-Text certificate. Due to its low electrical conductivity it is also highly suitable as resistance alloy in electrical engineering.

With its reduced contents of lead and cadmium our **Wieland-FX9** meets the requirements of the oeko-Text Standard 100 product class I and of the CPSIA.

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 tempsers.

Fabrication properties

Forming*

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

Surface treatment

Polishing mechanical	excellent
elektrolytic	excellent
Electroplating	excellent

Joining

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

Heat treatment

Melting range	839–894 °C
Hot working	700–800 °C
Soft annealing	500–700 °C
Thermal stress relieving	200–300 °C

Trademarks



Further information is provided in our brochures on Resistan and on rectangular wire for zip fasteners.

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Typical mechanical properties

Rectangular wire for zip fasteners

Temper	Tensile strength R_m	Yield strength $R_{p0.2}$	Elongation %	Hardness
	MPa	MPa	A10	HV 10
1/4 hard	approx. 500	approx. 450	approx. 15	approx. 150