

Wieland-N37
CuNi18Zn19Pb1
Nickel silver (lead)

**Extruded and
drawn products**



Material designation	
EN	CuNi18Zn19Pb1 CW408J
UNS	not standardized

Chemical composition*	
Cu	60 %
Ni	17,5 %
Pb	1 %
Zn	balance

* Reference values in % by weight

Physical properties*		
Electrical conductivity	MS/m %IACS	3.2 5
Thermal conductivity	W/(m·K)	33
Thermal expansion coefficient (0–300 °C)	10 ⁻⁶ /K	17.1
Density	g/cm ³	8.74
Modulus of elasticity	GPa	130

* Reference values at room temperature

Corrosion resistance

Nickel silver generally exhibits good corrosion resistance to atmospheric influences, organic substances (perspiration, environmental influences) as well as alkaline and neutral saline solutions.

Product standards	
Rod	EN 12164
Wire	EN 12166
Section	EN 12167

Material properties and typical applications

Wieland-N37 is a nickel silver for machining purposes with a silvery colour and good resistance to tarnishing. It is particularly suitable for the combination of machining and cold working. High mechanical strength can be achieved with this alloy. Nickel silver is characterized by good temperature stability, as required for welding and soldering. Wieland-N37 is mainly used in the optical industry (spectacle hinges).

Types of delivery

The Extruded and Drawn Products Division 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 %)	60 %
Capacity for being cold worked	fair
Capacity for being hot worked	poor

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

Surface treatment		
Polishing	mechanical	good
	electrolytic	fair
Electroplating		good

Heat treatment	
Melting range	1050–1100 °C
Hot working	900–975 °C
Soft annealing	600–700 °C 1–3 h
Thermal stress relieving	300–400 °C 1–3 h

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Mechanical properties according to EN

Round rods / polygonal rods acc. to EN 12164

Temper	Diameter		Width across flat		Tensile strength	Yield strength	Elongation at rupture			Hardness	
	mm from	mm to	mm from	mm to	R _m MPa min.	R _{p0,2} MPa min.	A100 %	A11.3 %	A %	HB	
M	all		all		as manufactured – without specified mechanical properties						
R420	2	50	2	50	420	260	12	16	20	–	–
H110	2	50	2	50	–	–	–	–	–	110	145
R520	2	10	2	10	520	420	3	5	6	–	–
H130	2	10	2	10	–	–	–	–	–	130	155
R650	2	8	2	8	650	580	–	–	–	–	–
H150	2	8	2	8	–	–	–	–	–	150	180

Rectangular rods acc. to EN 12167

Temper	Thickness		Tensile strength	Yield strength	Elongation at rupture			Hardness	
	mm from	mm to	R _m MPa min.	R _{p0,2} MPa min.	A100 %	A11.3 %	A %	HB	
M	all		as manufactured – without specified mechanical properties						
R420	6	50	420	260	–	16	20	–	–
H110	6	50	–	–	–	–	–	110	145
R520	3	6	520	420	–	3	–	–	–
H130	3	6	–	–	–	–	–	130	155

Round wires acc. to EN 12166

Temper	Diameter		Tensile strength	Yield strength	Elongation at rupture			Hardness		
	mm from	mm to	R _m MPa min.	R _{p0,2} MPa min.	A100 %	A11.3 %	A %	HV		
M	all		as manufactured – without specified mechanical properties							
R420	1.5	12	420	260	–	12	16	20	–	–
H115	1.5	12	–	–	–	–	–	115	155	
R520	1.5	10	520	420	–	3	5	6	–	–
H135	1.5	10	–	–	–	–	–	135	165	
R650	1.5	8	650	580	–	–	–	–	–	
H160	1.5	8	–	–	–	–	–	160	190	