

Wieland-N32

CuNi12Zn30Pb1 | Nickel silver

Material designation

EN CuNi12Zn30Pb1
CW406J

UNS not standardized

Chemical composition*

Cu 57 %

Ni 12 %

Pb 1 %

Zn balance

*Reference values in % by weight

Physical properties*

Electrical conductivity MS/m 4.2
%IACS 7

Thermal conductivity W/(m·K) 42

Thermal expansion coefficient (0–300 °C) 10⁻⁶/K 18.2

Density g/cm³ 8.62

Modulus of elasticity GPa 120

*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

Material properties and typical applications

Wieland-N32 is a silver-coloured alloy for machining purposes that provides good resistance to tarnishing. It is particularly suitable for the combination of machining and cold working. Nickel silver is characterized by good temperature resistance, as required for welding and soldering.

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 70 %
(CuZn39Pb3 = 100 %)

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 electrolytic good fair

Electroplating good

Heat treatment

Melting range 998–1,040 °C

Hot working 850–925 °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 flats		Tensile strength R_m	Yield strength $R_{p0.2}$		Elongation %			Hardness		
	mm		mm		MPa	MPa		A100	A11.3	A	HB		
	from	to	from	to	min.	min.	max.	min.	min.	min.	min.	max.	
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	

Round wires												acc. to EN 12166	
Temper	Diameter				Tensile strength R_m	Yield strength $R_{p0.2}$		Elongation %			Hardness		
	mm				MPa	MPa		A100	A11.3	A	HB		
	from	to	from	to	min.	min.	max.	min.	min.	min.	min.	max.	
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	