

Wieland-N29
CuNi18Zn20
Nickel silver (lead free)

**Extruded and
drawn products**



Material designation	
EN	CuNi18Zn20 CW409J
UNS	not standardized

Chemical composition*	
Cu	62%
Ni	18%
Pb	< 0,03%
Zn	balance

* Reference values in % by weight

Physical properties*		
Electrical conductivity	MS/m %IACS	3.6 6
Thermal conductivity	W/(m·K)	30
Thermal expansion coefficient (0–300 °C)	10 ⁻⁶ /K	16.5
Density	g/cm ³	8.73
Modulus of elasticity	GPa	132

* 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 12163
Wire	EN 12166
Section	EN 12167
Tube	EN 12449

Material properties and typical applications

Wieland-N29 is a lead-free nickel silver which has a silvery colour and good resistance to tarnishing due to its high nickel content. Being a single-phase material, it exhibits excellent cold working properties. Also very high mechanical strength can be achieved. Nickel silver is characterized by good temperature resistance necessary for welding and soldering. **Wieland-N29** is mainly used in the optical industry (spectacle arms, 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		Surface treatment	
Machinability (CuZn39Pb3 = 100 %)	25 %	Polishing	
Capacity for being cold worked	excellent	mechanical	excellent
Capacity for being hot worked	fair	electrolytic	excellent
		Electroplating	excellent
Joining		Heat treatment	
Resistance welding (butt weld)	excellent	Melting range	1050–1100 °C
Inert gas shielded arc welding	fair	Hot working	900–980 °C
Gas welding	fair	Soft annealing	600–750 °C 1–3 h
Hard soldering	excellent	Thermal stress relieving	300–400 °C 1–3 h
Soft soldering	excellent		

Trademarks



Further information is provided in our brochure SCRIPTOLINE.

Wieland-N29

CuNi18Zn20
Nickel silver (lead free)

Mechanical properties according to EN

Round rods / polygonal rods											acc. to EN 12163	
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. max.		A100 %	A11.3 %	A %	HB	
											min.	max.
M	all		all		as manufactured – without specified mechanical properties							
R400	2	50	2	50	400	–	290	25	30	35	–	–
H095	2	50	2	50	–	–	–	–	–	–	95	135
R480	2	40	2	40	480	250	–	7	9	11	–	–
H140	2	40	2	40	–	–	–	–	–	–	140	175
R580	2	10	2	10	580	400	–	–	–	–	–	–
H170	2	10	2	10	–	–	–	–	–	–	170	210
R660	2	4	2	4	660	550	–	–	–	–	–	–
H200	2	4	2	4	–	–	–	–	–	–	200	–

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. max.		A100 %	A11,3 %	A %	HB			
									min.	max.		
M	all		as manufactured – without specified mechanical properties									
R480	6	40	480	–	250	–	9	11	–	–		
H140	6	40	–	–	–	–	–	–	140	175		
R580	3	6	580	400	–	–	–	–	–	–		
H170	3	6	–	–	–	–	–	–	170	210		

Tubes											acc. to EN 12449	
Temper	Wallthickness	Tensile strength	Yield strength		Elongation at rupture		Hardness					
	mm max.	R _m MPa min.	R _{p0,2} MPa min. max.		A100 %	HV		HB				
						min.	min.	max.	min.	max.		
M	20	–	as manufactured – without specified mechanical properties									
R340	10	340	–	290	45	–	–	–	–	–		
H075	10	–	–	–	–	75	110	70	105	–		
R420	5	420	240	–	25	–	–	–	–	–		
H110	5	–	–	–	–	110	140	105	135	–		
R490	3	490	390	–	10	–	–	–	–	–		
H135	3	–	–	–	–	135	–	130	–	–		

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. max.		A100 %	A11.3 %	A %	HV			
									min.	max.		
M	all		as manufactured – without specified mechanical properties									
R400	1.5	20	400	–	290	25	30	35	–	–		
H105	1.5	20	–	–	–	–	–	–	105	145		
R480	0.1	12	480	250	–	7	9	11	–	–		
H145	1.5	12	–	–	–	–	–	–	145	185		
R580	0.1	10	580	400	–	2	3	5	–	–		
H180	1.5	10	–	–	–	–	–	–	180	220		
R660	0.1	4	660	550	–	–	–	–	–	–		
H210	1.5	4	–	–	–	–	–	–	210	–		
R800	0.1	1.5	800	750	–	–	–	–	–	–		
H230	–	1.5	–	–	–	–	–	–	230	–		

Wieland-Werke AG www.wieland.com

Graf-Arco-Str. 36, 89079 Ulm, Germany, Phone +49 (0)731 944-0, Fax +49 (0)731 944-2772, info@wieland.de

This leaflet is for your general information only and is not subject to revision. No claims can be derived from it unless there is evidence of intent or gross negligence. The data presented is not guaranteed and does not replace expert advice.