

Wieland-S31

CuZn31Si1
Special brass

Extruded and drawn products



Material designation	
EN	CuZn31Si1 CW708R
UNS	–

Chemical composition*	
Cu	68%
Si	1%
Pb	0,8%
Zn	balance

* Reference values in % by weight

Physical properties*		
Electrical conductivity	MS/m %IACS	8.9 15
Thermal conductivity	W/(m·K)	71
Thermal expansion coefficient (0–300 °C)	10 ⁻⁶ /K	19.2
Density	g/cm ³	8.41
Modulus of elasticity	GPa	108

* Reference values at room temperature

Corrosion resistance

Special brasses generally have excellent corrosion resistance due to alloying additions. Wieland-S31 particularly exhibits excellent resistance to oil. By the addition of silicon tarnishing resistance is increased and susceptibility to stress corrosion cracking is reduced.

Product standards	
Rod	EN 12163
Tube	EN 12449

Material properties and typical applications

Wieland-S31 is a special brass exhibiting high resistance to load and wear due to embedded hard silicides and also good high-temperature strength. Wieland-S31 is primarily used in highload sliding applications (e.g. bearing bushings, sleeves and other sliding elements).

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 %)	40 %	
Capacity for being cold worked	good	
Capacity for being hot worked	fair	
	Polishing	
	mechanical	excellent
	electrolytic	poor
	Electroplating	fair

Joining

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

Heat treatment

Melting range	880–915 °C
Hot working	750–800 °C
Soft annealing	500–600 °C 1–3 h
Thermal stress relieving	250–350 °C 1–3 h

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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	
					R _m MPa min.	R _{p0,2} MPa min.	A100 %	A11,3 %	A %	HB		
								min.	min.	min.	min.	max.
M	all		all		as manufactured - without specified mechanical properties							
R460	5	40	5	40	460	240	–	–	18	22	–	–
H120	5	40	5	40	–	–	–	–	–	–	120	160
R530	5	14	5	14	530	350	–	–	10	12	–	–
H140	5	14	5	14	–	–	–	–	–	–	140	–

Tubes acc. to EN 12449

Temper	Wallthickness mm max.	Tensile strength	Yield strength	Elongation at rupture	Hardness		HB	
		R _m MPa min.	R _{p0,2} MPa min.	A %	HV min.	HV max.	min.	max.
M	20	as manufactured - without specified mechanical properties						
R440	8	440	200	20	–	–	–	–
H115	8	–	–	–	115	155	110	150
R490	8	490	250	15	–	–	–	–
H145	8	–	–	–	145	–	140	–