Wieland-S35

CuZn35Ni3Mn2AlPb | Special brass

Material designation

EN	CuZn35Ni3Mn2AlPb CW710R
UNS	–

Material properties and typical applications

Wieland-S35 exhibits high resistance to weathering. It has good ductility and medium to high strength.

Wieland-S35 is used, e.g. in machine, plant and apparatus construction as well as in shipbuilding and marine technology.

Chemical composition*

Cu	59 %
Mn	2 %
Ni	2.5 %
Al	0.7 %
Pb	0.6 %
Zn	balance

**Reference values in % by weight*

Physical properties*

Electrical conductivity	MS/m %IACS	5.9 10
Thermal conductivity	W/(m·K)	50
Thermal expansion coefficient (0–300 °C)	10^{-6}/K	20.7
Density	g/cm³	8.28
Moduls of elasticity	GPa	93

**Reference values at room temperature*

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 tempers.

Fabrication properties

Forming

Machinability (CuZn39Pb3 = 100 %)	50 %
Capacity for being cold worked	poor
Capacity for being hot worked	good

Surface treatment

Polishing mechanical electrolytic	 excellent poor
Electroplating	fair

Corrosion resistance

Special brass generally has excellent corrosion resistance due to alloying additions. Stress corrosion cracking should be taken into account, especially in an ammoniacal atmosphere and whilst under mechanical stress.

Joining

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

Heat treatment

Melting range	870–900 °C
Hot working	600–700 °C
Soft annealing	500–650 °C 1–3 h
Thermal stress relieving	350–450 °C 1–3 h

Product standards

Rod	EN 12163 EN 12165
Section	EN 12167
Tube	EN 12449

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Mechanical properties according to EN

Round rods/polygonal rods acc. to EN 12163

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							
R490	5	40	5	40	490	290	–	–	15	18	–	–
H120	5	40	5	40	–	–	–	–	–	–	120	160

Round wires acc. to EN 12167

Temper	Diameter		Tensile strength R_m	Yield strength $R_{p0.2}$		Elongation %			Hardness	
	mm		MPa	MPa		A100	A11.3	A	HB	
	from	to	min.	min.	max.	min.	min.	min.	min.	max.
M	all		as manufactured – without specified mechanical properties							
R490	3	6	490	290	–	10	15	18	–	–
H120	3	6	–	–	–	–	–	–	120	160

Tubes acc. to EN 12449

Temper	Wall thickness	Tensile strength R_m	Yield strength $R_{p0.2}$	Elongation %	Hardness			
	mm	MPa	MPa	A100	HV		HB	
	max.	min.	min.	min.	min.	max.	min.	max.
M	20	as manufactured – without specified mechanical properties						
R490	8	490	290	15	–	–	–	–
H125	8	–	–	–	125	165	120	160
R540	8	540	390	10	–	–	–	–
H145	8	–	–	–	145	–	140	–

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