

# Wieland-S35

CuZn35Ni3Mn2AlPb  
Special brass

## Extruded and drawn products



Material designation	
EN	CuZn35Ni3Mn2AlPb CW710R
UNS	–

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 <sup>-6</sup> /K	20.7
Density	g/cm <sup>3</sup>	8.28
Modulus of elasticity	GPa	93

\* Reference values at room temperature

### 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.

Product standards	
Rod	EN 12163 EN 12165
Section	EN 12167
Tube	EN 12449

### 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.

### 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 %)	50 %	<b>Polishing</b>	
Capacity for being cold worked	poor	mechanical	excellent
Capacity for being hot worked	good	electrolytic	poor
		Electroplating	fair
Joining		Heat treatment	
Resistance welding (butt weld)	good	Melting range	870–900 °C
Inert gas shielded arc welding	fair	Hot working	600–700 °C
Gas welding	fair	Soft annealing	500–650 °C 1–3 h
Hard soldering	fair	Thermal stress relieving	350–450 °C 1–3 h
Soft soldering	fair		

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## Mechanical properties according to EN

### Round rods/ polygonal rods acc. to EN 12163

Temper	Diameter		Width across flats		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	
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

### 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		
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	Wallthickness mm max.	Tensile strength	Yield strength	Elongation at rupture		Hardness				
		$R_m$ MPa min.	$R_{p0,2}$ MPa min.	A %		HV		HB		
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	–	