

Wieland-Z20

CuZn40

Material designation

EN	CW509L
UNS*	no UNS standard

*Unified Numbering System (USA)

Chemical composition (Reference)

Cu	61 %
Pb	0.2 %
Zn	balance

Typical applications

- Locks and metal fittings
- Keys
- Architecture

Physical properties*

Electrical conductivity	MS/m	15
	%IACS	26
Thermal conductivity	W/(m·K)	117
Coefficient of electrical resistance**	10 ⁻³ /K	1.7
Coefficient of thermal expansion**	10 ⁻⁶ /K	20.3
Density	g/cm ³	8.41
Modulus of elasticity	GPa	102
Specific heat	J/(g·K)	0.375
Poisson's ratio		0.34

* Reference values at room temperature

** Between 0 and 300 °C

Fabrication properties

Capacity for being cold worked	fair
Machinability	fair
Capacity for being electroplated	excellent
Capacity for being hot-dip tinned	excellent
Soft soldering	excellent
Resistance welding	good
Gas shielded arc welding	fair
Laser welding	less suitable

Corrosion resistance

Good resistance to: fresh water, neutral or alkaline saline solutions, organic compounds as well as land, sea, and industrial atmosphere.

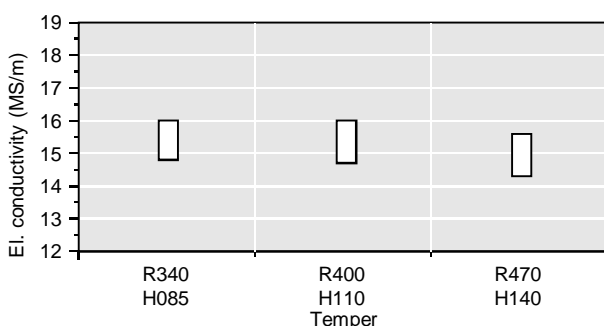
Not resistant to: acids, hydrous sulphur compounds, hydrous ammonia (stress corrosion cracking) in the non-stress-relieved condition.

Mechanical properties

Temper		R340	R400	R470
Tensile strength R _m	MPa	340-420	400-480	≥ 470
Yield strength R _{p0.2}	MPa	≤ 240	≥ 200	≥ 390
Elongation A _{50mm}	%	≥ 33	≥ 15	≥ 6

Temper	H085	H110	H140
Hardness HV	85-115	110-140	≥ 140

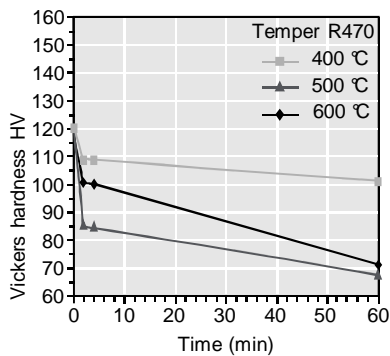
Electrical conductivity



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Softening resistance



Vickers hardness after heat treatment
(typical values)

Fatigue strength

The fatigue strength is defined as the maximum bending stress amplitude which a material withstands for 10^7 load cycles under symmetrical alternate load without breaking. It is dependent on the temper tested and is about 1/3 of the tensile strength R_m .

Types and formats available

- Standard coils with outside diameters up to 1,400 mm
- Contour-milled strip
- Sheet
- Strip and sheet with protective coating

Dimensions available

- Strip thickness from 0.20 mm
- Strip width from 3 mm, however min. 10 x strip thickness