

### Alloy Designation

EN	CuZn40 (2.0402)
DIN CEN/TS 13388	CW509L
JIS	C 3712
BS	CZ 122
UNS	C28000

### Chemical Composition (Balance)

Weight percentage

Cu	59 .. 61	%
Zn	Rest	%
Ni	≤ 0.3	%
Sn	≤ 0.3	%
Fe	≤ 0.05	%

### Characteristics

**CuZn40** is an economical brass alloy with high Zinc content, good forming properties and medium strength.

### Main Applications

**Architecture:** Decoration, Architectural Panels, Hardware, Door Frames, Large Architectural Trim, Structural, Heavy Plate, Sheet, Large Sheets.

**Builders Hardware:** Decorative Hardware.

**Fasteners:** Bolts.

**Industrial:** Condenser Tube, Valve Stems, Hot Forgings, Heat Exchanger Tube, Large Nuts and Bolts, Evaporator Tubes, Brazing Rod, Condenser Plates.

**Typical Application:** Locks and metal fittings, Keys, Architecture.

### Mechanical Properties (EN 1652)

Temper	Tensile Strength Rm	Yield Strength Minimum Rp0.2	Elongation Minimum A <sub>50mm</sub>	Hardness HV *
	MPa	MPa	%	HV
R340 (annealed)	340..420	≤ 240 *	33	85 .. 115
R400	400..480	≥ 200 *	15	110 .. 140
R470	≥ 470	≥ 390 *	6	≥ 140

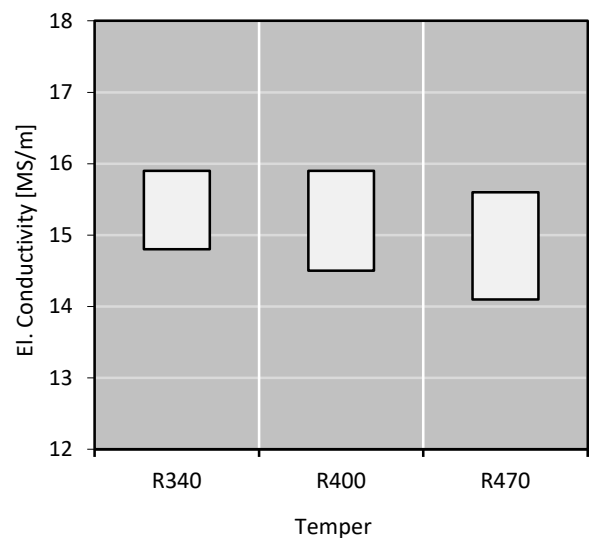
\* only for information

### Physical Properties

Typical values in annealed temper at 20 °C

Density		8.41	g/cm <sup>3</sup>
Thermal expansion coefficient	20 .. 300 °C	21.0	10 <sup>-6</sup> /K
Specific heat capacity		0.375	J/(g·K)
Thermal conductivity		117	W/(m·K)
Electrical conductivity	MS/m	15	MS/m
Electrical conductivity	IACS	25.9	%
Thermal coefficient of electrical resistance	(0 .. 100 °C)	1.7	10 <sup>-3</sup> /K
Modulus of elasticity	GPa	102	GPa

### Electrical Conductivity



### Fabrication Properties \*

Cold Forming Properties	Fair
Machinability (Rating 20)	Fair
Electroplating Properties	Excellent
Hot Tinning Properties	Excellent
Soft Soldering, Brazing	Excellent
Resistance Welding	Good
Gas Shielded Arc Welding	Fair
Laser Welding	Less Suitable

\* For more details call our technical service

### Corrosion Resistance \*

#### Resistant to:

CuZn40 has a good resistance to water, water vapour, different saline solutions, many organic liquids .  
Land, sea and industrial atmosphere.

#### Not resistant to:

Under certain conditions (water with high chlorine-content and low carbonate-hardness) a form of corrosion called "dezincification" can occur.

Furthermore this alloy tends in cold-formed temper under internal and/or external tensile stress when aggressive agents like ammoniac, amine ammonia-salts are present to "stress corrosion cracking". Tensile stress can be applied after fabrication during assembly or installation.

A heat treatment can help to avoid stress corrosion cracking. Semi-finished products can get a stress relieving annealing treatment or softening treatment.



### Bend Fatigue (at room temperature)

The fatigue strength gives an indication about the resistance to variations in applied tension. It is measured under symmetrical alternating load. The maximum bending load for  $10^7$  load cycles without crack is measured. Dependent on the temper class it is approximately 1/3 of the tensile strength  $R_m$ .

### Available delivery forms \*

- Strips in coils
- Traverse-wound coils with drum weights up to 1.5 t
- TECSTRIP®\_multicoil up to 2.5 t
- Hot-Dip-Tinned strips in thickness range 0.10 up to 1.20 mm

\* For more details call our sales service

Due to continued improvements within our production process, the details stated in our brochure can not be guaranteed. We reserve the right to update or amend our products, without prior notification. We suggest that you obtain confirmation of our product details / specifications prior to committing to specific alloys.