

Alloy Designation	
EN	CuZn30 (2.0265)
DIN CEN/TS 13388	CW505LA
JIS	C 2600
BS	CZ 106
UNS	C26000 (Cartridge brass, 70%)

Chemical Composition		
Weight percentage		
Cu	69-71	%
Zn	Rest	%
Ni	≤ 0.05	%
Sn	≤ 0.05	%
Fe	≤ 0.05	%

This alloy is in accordance with RoHS 2002/96/CE for electric & electronic equipments and 2002/53/CE for automotive industry

Brass Rolled Products

KME offers a wide range of brass rolled products in the form of strips, sheets and discs in order to meet our customer's needs for industrial manufacturing or for the production of gift articles and decorative objects.

Characteristics

CuZn30, as well as CuZn28 and CuZn33 is combining excellent cold forming properties with good mechanical strength. CuZn30 has good hot forming properties and excellent soldering and brazing properties. Due to the outstanding deep drawing properties CuZn30 and the other two mentioned alloys are called "deep-draw" or "cartridge" brass. We produce qualities with grain sizes below 5 µm if needed.

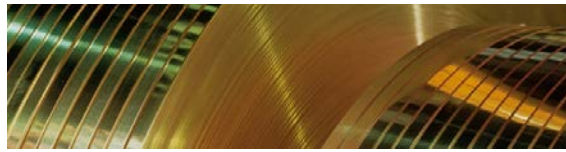
Main Applications

Architecture Grillwork **Automotive** Odometer Contacts, Heater Cores, Thermostats, Electrical Connectors, Radiator Cores, Radiator Tube, Radiator Tanks, Tanks **Builders Hardware** Locks, Push Plates, Finish Hardware, Kick Plates, Decorative Hardware, Door Knobs, Hinges **Consumer** Snaps, Planters, Fireplace Screens, Etched Articles, Bird Cages, Coinage, Chain Links, Pen/Pencil Inserts and Clips, Syringe Parts, Watch Parts, Costume Jewelry, Buttons, Shells - Electrical Sockets, Lamps **Electrical** Terminal Connectors, Flashlight Shells, Lamp Fixtures, Reflectors, Screw Shells **Fasteners** Pins, Rivets, Fasteners, Grommets, Eyelets, Screws **Industrial** Air Pressure Conveyer Systems, Sound Proofing Equipment, Springs, Chain, Bead Chain, Tubing for Instruments and Machines, Heat Exchangers, Pump Cylinders, Wire Screens, Pumps, Liners, Power Cylinders **Ordinance** Ammunition Cartridge Cases, Mechanical Housings for Lighters, Shells - Mechanical Housings for Ammunition, Ammunition **Other** Stencils, Washers **Plumbing** Fittings, Bathroom Fixtures, Plumbing Accessories, Faucet Escutcheons, Traps, Plumbing Brass Goods

Preferred Applications				
Jewellery and Metall Goods	Deep Drawn Parts	Components for the Electrical Industry	Stamped Parts	Connectors
xx	xx	xx	xx	xx

x = well suited xx = particularly well suited

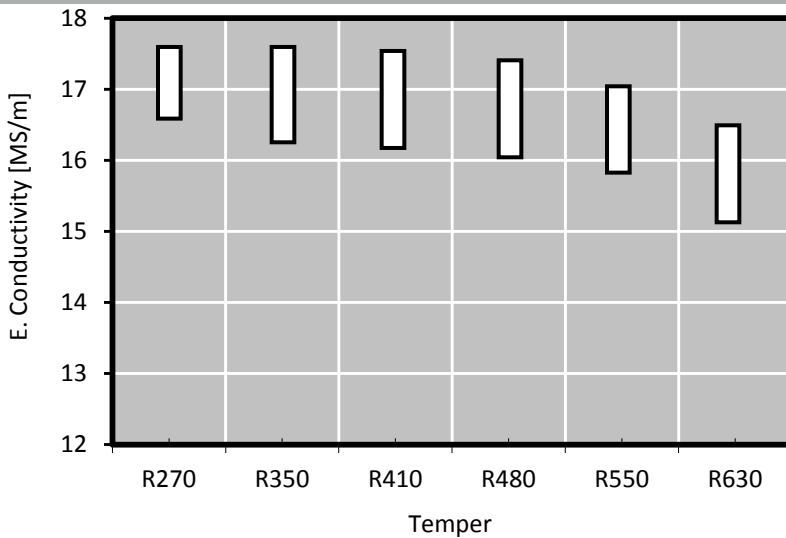
Physical Properties		
Typical values in annealed temper at 20 °C		
Density		8.55 g/cm ³
Thermal expansion coefficient	-128 .. 20 °C	9.0 10 ⁻⁶ /K
	20 .. 300 °C	20.0 10 ⁻⁶ /K
Specific heat capacity		0.377 J/(g·K)
Thermal conductivity		121 W/(m·K)
Electrical conductivity (1 MS/m = 1 m/(Ω mm ²))		≥ 16 MS/m
Electrical conductivity (IACS)		27.6 %
Thermal coefficient of electrical resistance (0 .. 100 °C)		1.5 10 ⁻³ /K
Modulus of elasticity (1 GPa = 1 kN/mm ²) cold formed		99 .. 115 GPa
	annealed	115 GPa



Mechanical Properties (EN 1652)						
Temper		Tensile Strength	Yield Strength	Elongation Minimum	Grain Size	Hardness
		R _m	R _{p0.2} *	A _{50mm}	µm	HV *
		MPa	MPa	%		HV
R270	G010 Annealed	270 .. 350	≥ 160	40	≤15	≤120
	G020 Annealed				15 .. 30	≤ 95
	G030 Annealed				20 .. 40	≤ 90
	G050 Annealed				35 .. 70	≤ 80
R350		350 .. 430	170	21		95 .. 155
R410		410 .. 490	260	9		125 .. 155
R480		480 .. 570	430	4		150 .. 190
R550		550 .. 640	480	2		170 .. 210
R630		≥ 630	560	-		≥ 190

* only for information

Electrical Conductivity



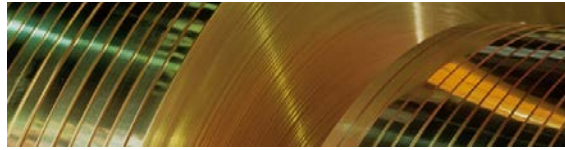
Electrical conductivity is strongly influenced by chemical composition. A high level of cold deformation and small grain size decrease the electrical conductivity moderately. Minimum conductivity level can be specified.

Fabrication Properties*	
Cold Forming Properties Max. 90% between annealings	Excellent
Hot Forming Properties at 750 .. 870°C	Good
Machinability (Rating 30)	Less suitable
Electroplating Properties	Excellent
Hot Tinning Properties	Excellent
Soft Soldering, Brazing	Excellent
Resistance Welding	Good
Gas Shielded Arc Welding	Fair
Laser Welding	Less Suitable
Soft Annealing	450 .. 680°C
Stress Relieving Annealing	200 .. 300°C

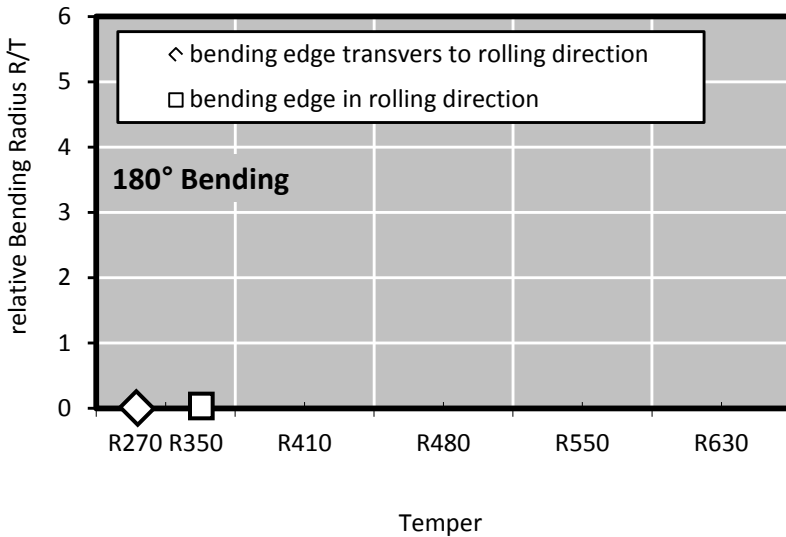
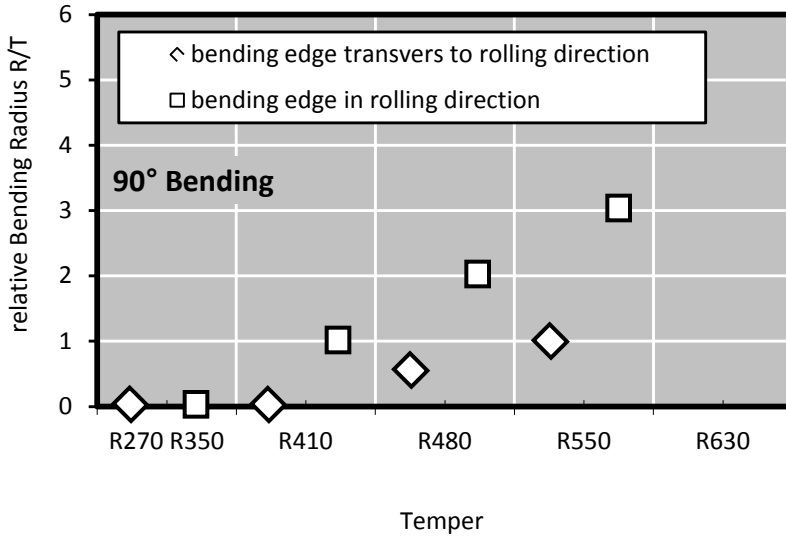
Corrosion Resistance*
Resistant to: CuZn30 has a good resistance to water, water vapour, different saline solutions, many organic liquids. Industrial-, maritime- and country air.
CuSn30 in cold formed temper, as well as under internal and external tension, tends to stress corrosion cracking, when in contact with e.g. hydrous ammonia, ammoniac salt or amine and others. Through a heat-treatment of semi-finished or finished products the risk of stress corrosion can be reduced.
Not resistant to: Acids, hydrous sulphur components.

* For more details call our technical service

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Bending Properties Thickness: ≤ 0.5 mm

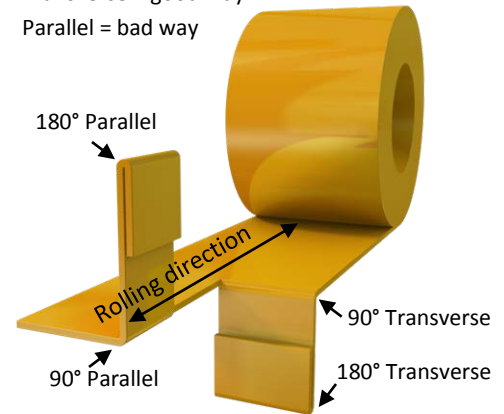


Bending test according to EN ISO 7438 is done with 10 mm wide samples. Smaller samples in general – as well as lower thickness – allow a lower bending radius without cracks. If needed we supply bending optimized temper classes that far exceed standard quality.

Please take care when comparing with ASTM E 290 results, there the bend definition direction is contradictory.

Bending Definition

Transverse = good way
Parallel = bad way



Minimum Bending Radius Calculation

To find out the minimum possible bending radius take the R/T value from the list.

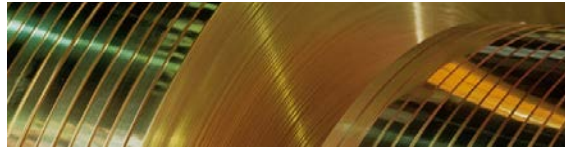
Example: R/T = 0.5 and thickness 0.3 mm
Minimum radius = (R/T) x thickness
= 0.5 x 0.3 mm = 0.15 mm

Bending Properties*

Temper	Thickness Range	Bending 90°		Bending 180°	
		Trans-vers	Parallel	Trans-vers	Parallel
	mm	R/T	R/T	R/T	R/T
R270	≤ 0.5	0	0	0	0
R350	≤ 0.5	0	0	0	0
R410	≤ 0.5	0	1	-	-
R480	≤ 0.5	0.5	2	-	-
R550	≤ 0.5	1	3	-	-
R630	≤ 0.5	-	-	-	-

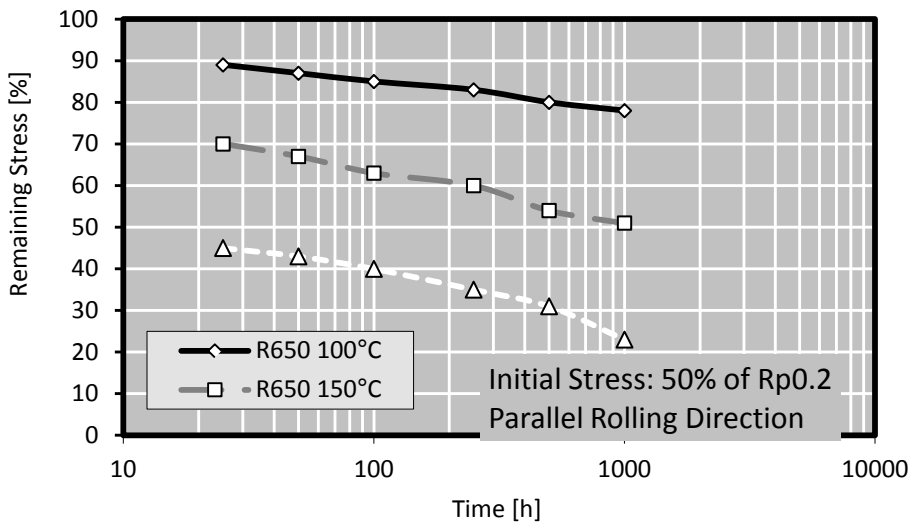
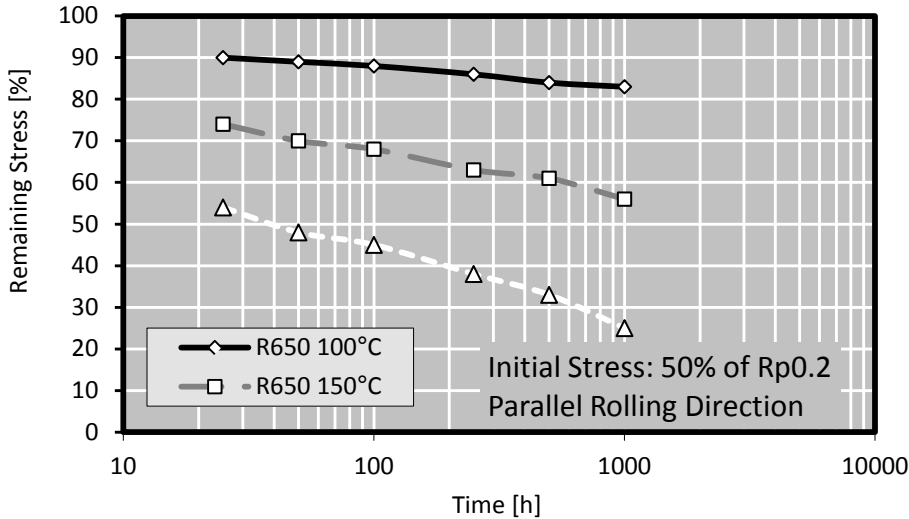
* Measured at sample width 10 mm according to EN 1654

Possible bending radius = (R/T) x thickness



Relaxation Properties

Thermal stress relieved



Stress relaxation is tested with cantilever bending test equipment. This method is taking short time relaxation into account. so that the values achieved are very realistic, while other test methods like tube test pretend better properties from the achieved values. Relaxation values give an indication about stress relieve of strip under tension for a certain time and temperature. As it is measured on plain strip. the behaviour of deformed parts may differ. nevertheless the ratio between the different tempers remains the same.

Typical test sample thickness is 0.3 – 0.6 mm.

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 10⁷ load cycles without crack is measured. Dependent on the temper class it is approximately 1/3 of the tensile strength R_m.

Standards for copper and copper alloys

EN 1652	Plate, sheet, strip and circles for general purposes
EN 1654	Strip for springs and connectors
EN 1758	Strip for lead frames
EN 13148	Hot-dip tinned strip
EN 13599	Copper plate, sheet and strip for electrical purposes
EN 14436	Electrolytically tinned strip