

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	70	%
Zn	Rest	%

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

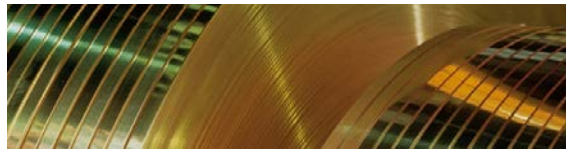
Preferred Applications

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		8.5	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		126	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

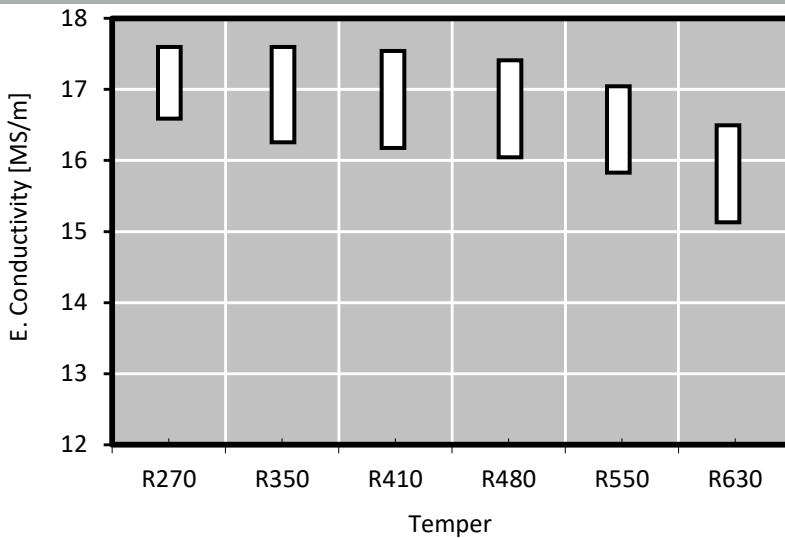


Mechanical Properties (EN 1652)

Temper		Tensile Strength	Yield Strength	Elongation Minimum	Grain Size	Hardness
		R _m	R _{p0.2} *	A _{50mm}		HV *
		MPa	MPa	%	µm	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:

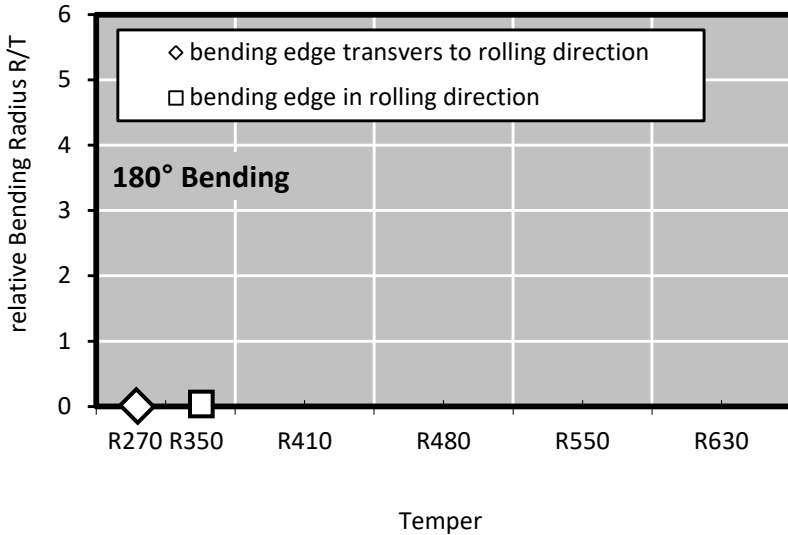
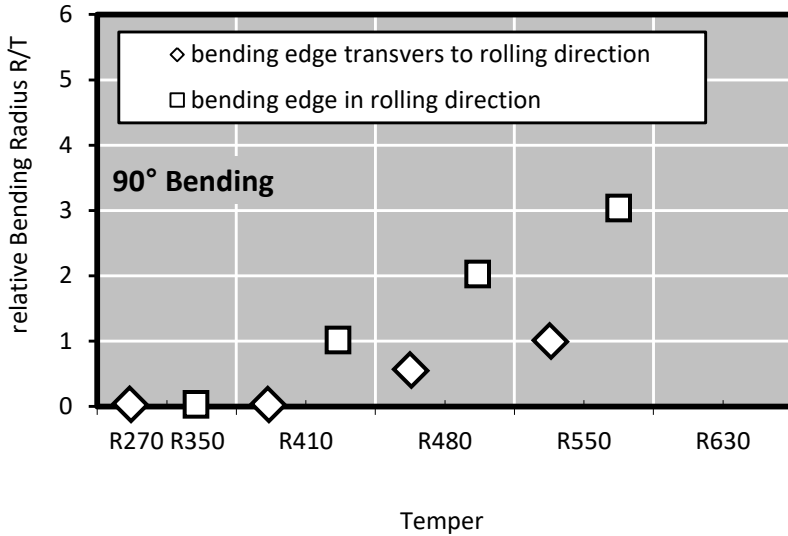
Acids, hydrous sulphur components.

* For more details call our technical service

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Bending Properties Thickness: ≤ 0.5 mm

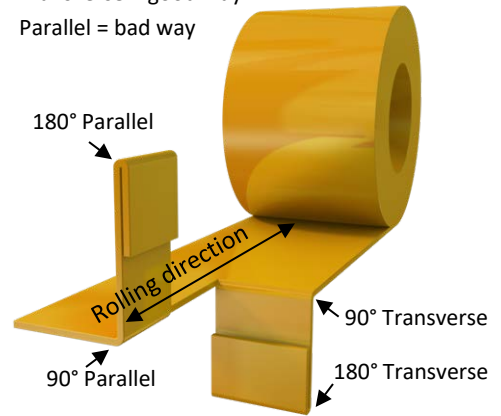


Bending test according to EN ISO 7438 is done with 10 mm wide samples. Smaller samples in general – as well as lower thickness – allow a lower bending radius without cracks. If needed we supply bending optimized temper classes that far exceed standard quality.

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



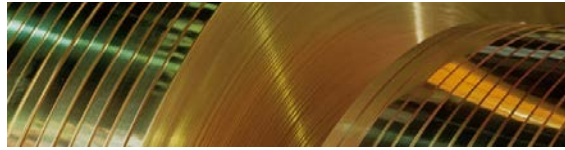
Minimum Bending Radius Calculation

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*

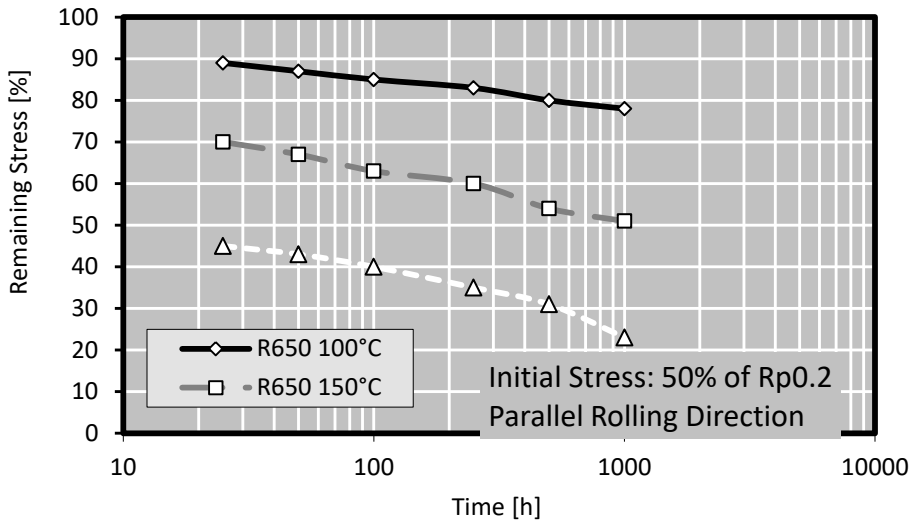
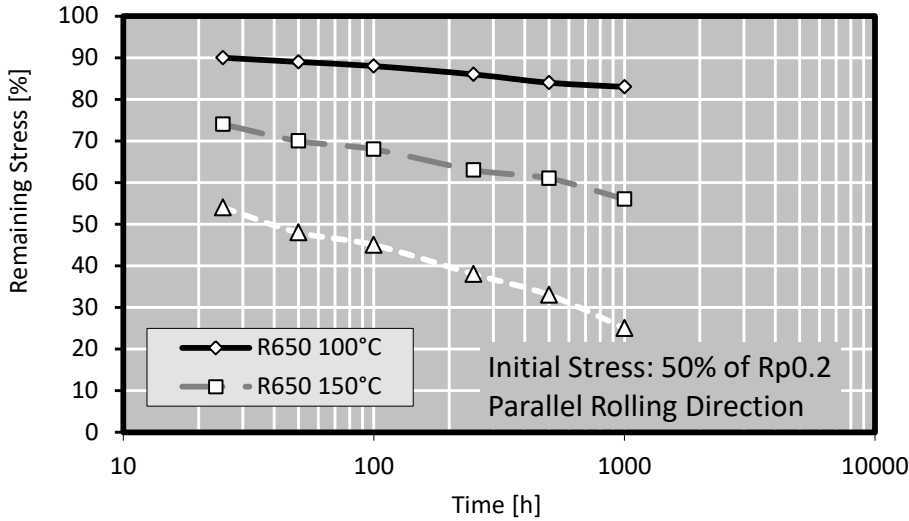
Temper	Thickness Range	Bending 90°		Bending 180°	
		Trans-vers	Parallel	Trans-vers	Parallel
	mm	R/T	R/T	R/T	R/T
R270	≤ 0.5	0	0	0	0
R350	≤ 0.5	0	0	0	0
R410	≤ 0.5	0	1	-	-
R480	≤ 0.5	0.5	2	-	-
R550	≤ 0.5	1	3	-	-
R630	≤ 0.5	-	-	-	-

* Measured at sample width 10 mm according to EN 1654
Possible bending radius = (R/T) x thickness



Relaxation Properties

Thermal stress relieved

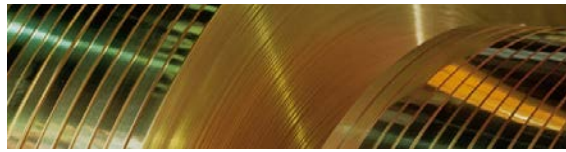


Stress relaxation is tested with cantilever bending test equipment. This method is taking short time relaxation into account, so that the values achieved are very realistic, while other test methods like tube test pretend better properties from the achieved values. Relaxation values give an indication 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.

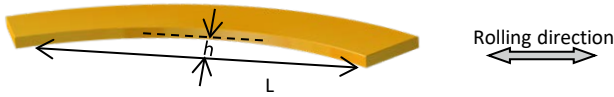
Typical test sample thickness is 0.3 – 0.6 mm.

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 10^7 load cycles without crack is measured. Dependent on the temper class it is approximately 1/3 of the tensile strength R_m .



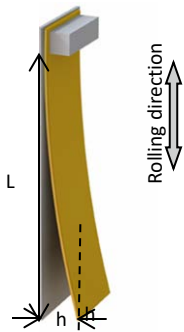
Camber



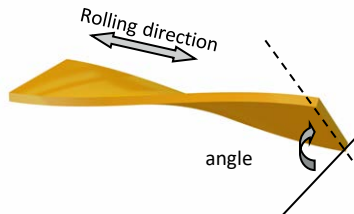
Evenness



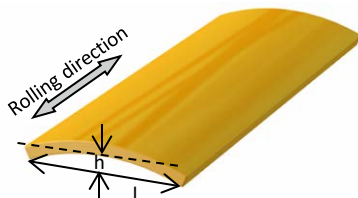
Coil set



Twist



Transverse Flatness



Evenness Tolerance

Thickness Range [mm]	Width Range [mm]		
	7 .. 20	21 .. 50	51 .. 100
0.10 .. 0.50	+0.10	+0.20	+0.30
0.50 .. 1.00	+0.15	+0.25	+0.35

Width Tolerance Standard / Precision

Thickness Range [mm]	Width Range [mm]				
	10 .. 50	51 .. 100	101 .. 200	201 .. 350	351 .. 700
0.10 .. 1.00	+0.2 / +0.1	+0.3 / +0.2	+0.4 / +0.3	+0.6 / +0.4	+1.0 / +0.5
0.20 .. 1.00	+0.2 / +0.1	+0.3 / +0.2	+0.4 / +0.3	+0.6 / +0.4	+1.0 / +0.5
1.01 .. 2.00	+0.3 / +0.2	+0.4 / +0.2	+0.5 / +0.4	+1.0 / +0.6	+1.5 / +0.7
2.01 .. 3.00	+0.5 / +0.3	+0.6 / +0.3	+0.7 / +0.5	+1.2 / +0.7	+2.0 / +0.9
3.01 .. 6.00	+2.0 / -	+2.3 / -	+2.5 / -	+3.0 / -	+4.0 / -

Customized Tolerances

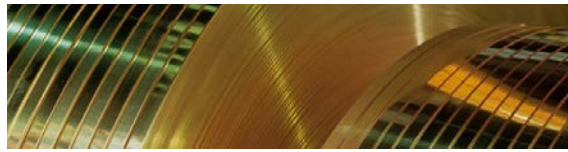
Our products are produced in accordance with relevant norms EN 1652 / EN 1654. Customer specific tolerances for Thickness, Width, Camber, Transverse Flatness, Evenness, Twist and Coil set can be defined. We will be happy to meet your demands. EN 1652 defines only camber.

Thickness Tolerance

Thickness Range [mm]	EN 1652 ≤350 mm [mm]	KME Standard [mm]	KME Precision [mm]
0.10 .. 0.20	± 0.018	± 0.005	± 0.004
0.21 .. 0.30	± 0.022	± 0.007	± 0.005
0.31 .. 0.40	± 0.025	± 0.015	± 0.006
0.41 .. 0.50	± 0.030	± 0.015	± 0.008
0.51 .. 0.60	± 0.040	± 0.017	± 0.010
0.61 .. 0.70	± 0.040	± 0.020	± 0.010
0.71 .. 0.85	± 0.040	± 0.022	± 0.012
0.86 .. 1.30	± 0.050	± 0.025	± 0.015
1.31 .. 2.00	± 0.060	± 0.030	± 0.020
2.01 .. 3.00	± 0.070	± 0.045	± 0.025
3.00 .. 4.00	± 0.100	± 0.050	± 0.025
4.00 .. 6.00	± 0.120	± 0.060	± 0.030

Roughness

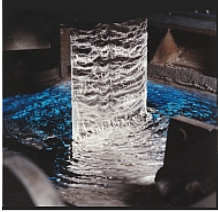




Ra [µm]	Thickness [mm]
0.13 .. 0.18	0.1 .. 2.0
0.20 .. 0.30	0.1 .. 2.0
0.35 .. 0.46	0.1 .. 2.0
On request	> 2.0



Formats	Dimension*			
	Coil	Strip thickness (other thicknesses on request)	≥ 0.05 .. 6.00	mm
		Strip width	≥ 3 .. 1,000	mm
		Outside diameter	≤ 1,400	mm
		Weight (Standard)	≤ 8,400	kg
		Weight (Deep-Drawing Quality)	≤ 8,000	kg
		Weight per mm	≤ 12.0	kg
	Traverse wound strip	Thickness	≥ 0.2 .. ≤ 1.50	mm
		Width	≥ 8 .. ≤ 60.0	mm
		Weight	300 .. 1,500	kg
		Drums: wood, plastic, metal, flangeless		
	TECSTRIP® _multicoil	Thickness	0.18 .. 0.80	mm
		Width	15 .. 50	mm
		Inner diameter 300 mm for thickness	0.15 .. 0.80	mm
		Inner diameter 400 mm for thickness	0.41 .. 0.80	mm
		Maximum weight	5,000	kg
		Outer diameter maximum	1,600	mm
	Sheet ≤ 6.35 mm	Thickness	0.3 .. 6.35	mm
		Width	50 .. 1,000	mm
		Length	200 .. 6,500	mm
		Weight	2,800 .. 8,000	kg
		Sheets in standard dimensions e.g. 1,000 x 2,000 mm on stock		
	Sheet > 6.35 mm	Thickness	6.35 .. 9.50	mm
		Width	50 .. 1,000	mm
		Length	200 .. 7,500	mm
		Weight	≤ 10,000	kg
		Sheets in standard dimensions e.g. 1,000 x 2,000 mm		
	Plate	Thickness	9.5 .. 150	mm
		Width	≤ 1,000	mm
		Length	≤ 15,000	mm
		Weight	≤ 8,000	kg
	Disc	Thickness	0.3 .. 150	mm
		Diameter	20 .. 1,000	mm
		Weight	≤ 10,000	kg

* Some combinations might not be possible



Surface coatings & Special Treatments *		Dimension	
	Hot-Dip tinned and STOL®28M Tin-Silver	Width	≤ 330 mm
	STOL®13 Thermic Sn	Thickness	≤ 1.5 mm
		Tin Layer Thickness	0.4 .. 20 μm
	Different thickness per side possible	R360 on request	
	Electroplating	Width	≤ 400 mm
		Thickness	≤ 2.5 mm
	Tin, Silver, Gold, Cu-Flash, Ni-Flash, Selective plating	Other coatings on request	
	Profiled strips STOL®Multigauge	Width	15 .. 90 mm
		Thickness	0.23 .. 1 mm
		Other width on request	
	Bright and polished appearance	Width	≤ 1,000 mm
		Thickness	≤ 1.5 mm
	GS1 Surface Quality	Skin passed material, meaning it has been	
	Surface with extra low residual carbon content possible.		
	Protection with oil or adhesive foil on request		

* Further details you find at www.kme.com

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