

Short Name	CW106C	Chemical Composition (Reference values, %)	Cr	Zr	Cu
Code	CuCr1Zr		0,8	0,08	balance
Material-N°. (old)	2.1293				

Classification	ISO 5182	Class A 2/2
	R.W.M.A.	Class 2
	UNS	C18150

Material-Properties Precipitation hardened copper alloy with excellent hardness and high electrical and thermal conductivity.

- Applications**
- Electrodes and cap tips for spot welding as well as for spark erosion
 - Electrode adapters and gun arms for RP welding machines
 - Contact tips for MIG/MAG welding
 - High stressed parts in electrical equipments if also high electrical conductivity is required
 - Low stressed molds with high thermal conductivity

	Conditions		a g e d		
	Cross section *)		Ø 21-50 mm	Ø 51-120 mm	Other products-**)
Mechanical Properties (Reference values)	Hardness	HB 62,5/2,5	150	130	130
	Tensile strength	N/mm ²	min. 440	min. 370	min. 370
	Yield strength	N/mm ²	min. 350	min. 270	min. 270
	Elongation L = 5 D	%	min. 10	min. 18	min. 18
	Modulus of elasticity	kN/mm ²	108	108	108
	Modulus of torsion	kN/mm ²	45	45	45
	Squeeze strength	%	95 – 100 % of yield strength		

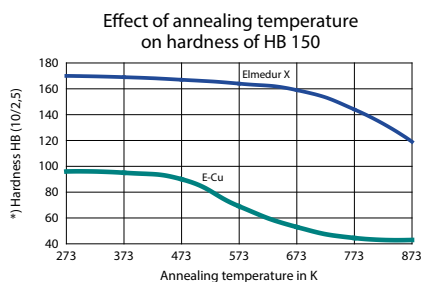
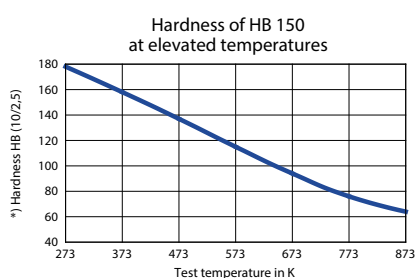
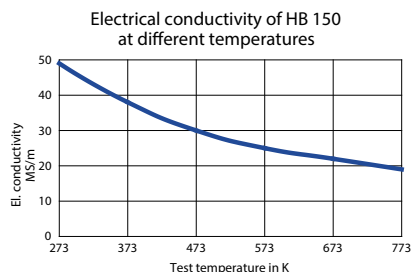
*) respectively coextensive cross sections

**) forged discs and rings up to 400mm, forged or rolled plates as to our stock list.

Physical Properties (Reference values)	Electrical conductivity 293 K (20 °C)	MS/m	43 – 50 (min. 75 % IACS)
	Electrical resistance 293 K (20 °C)	Ω.mm ² /m	0,021 (Reference value)
	Coefficient of electrical resistance 273-373 K (0-100°C)	1/K	0,00367
	Coefficient of thermal expansion. 273-593 K (0-320°C)	1/K	17,0 × 10 ⁻⁶
	Specific heat	J/g.K	0,376
	Thermal conductivity 293 K (20 °C)	W/m.K	approx. 320
	Density	g/cm ³	8,9

Available Forms Bars in round, square, rectangular and flat, profiles, discs and rings, forgings, Sheets, plates (dimensions acc. to stock list), tubes, electrodes for spot-, seam-, projection- and butt welding, electrode caps, castings on request (available sizes can be found in our current stock list).

Machining (Reference values) Condition: hardened



*) Brinell hardness at R.T. after 5-hrs heating, cooling on air

Turning	Tungsten Carbide K 20	HSS* 1.3207
Cutting speed (m/min)	up to 300	up to 100
Rake angle	6 – 18	15 –25
Feed and depth of cut	as to required surface finish	as to required surface finish
Chip breaker	recommended	recommended

Milling	Tungsten Carbide K20	HSS* 1.3207
Cutting speed (m/min)	up to 300	up to 100
Rake angle	positive	positive
Feed (mm/min)	200 – 300	80 – 150

Drilling	Twist drills acc. to DIN 338
Cutting speed (m/min)	max. 20
Chip flow	For a better chip flow, drills with an enlarged twist angle should advantageously be used. We recommend contacting the respective manufacturers.

Strength properties The strength properties depends on the cross section size and profile

Standards / Tolerances			
Round bars for generals purposes	DIN EN 12 163		
Ingots for forgings	DIN EN 12 165		
Profiles and rectangular bars for general purpose.	DIN EN 12 167		
Hot rolled sheets and plates	Thickness	<50 mm	-0/+2 mm
		>50 mm	-0/+3 mm
	Width	+8/-0 mm	
Forged sheets and flat sizes	Additions and tolerances on request		
Tubes	Tolerances for tubes on request		

All statements as to the properties or utilization of the materials and products mentioned in this datasheet are only for the purpose of description. Guarantees in respect of the existence of certain properties or utilization at the material mentioned are only valid if agreed upon in writing.

*(HSS) High Speed Steel