

Elmedur Z

Technical Datasheet

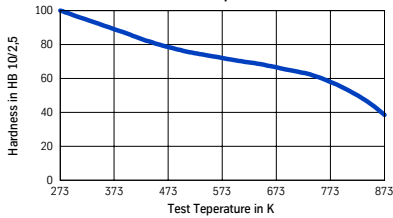
Short name	CW120C	Chemical Composition	Zr	others	Cu
Code	CuZr	(Weight %)	c. 0,15	max. 0,2	bal.
Material-No.(old)	2.1580				
Classification	as to DIN ISO 5782 R.W.M.A.	c. Class 2 c. Class 2			
Material Characteristics	Precipitation hardened copper alloy with sufficient hardness and strength, combined with an outstanding electrical conductivity.				
Applications	<ul style="list-style-type: none"> Spot welding electrodes and cap tips especially for coated sheets Components for electrical devices, e.g. semiconductors 				
Mechanical Values (Typical)	Condition		Solution annealed, cold drawn and precipitation hardened	Solution annealed and precipitation hardened	
	Diameter		<25 mm Ø	≥25 mm Ø	
	Hardness (ref. val.)	HB 10/2,5	125	105	
	Tensile strength	N/mm ²	350	300	
	Yield Strength	N/mm ²	310	250	
	Elongation L = 5 D	%	13	20	
	Modulus of elasticity	kN/mm ²	100	-	
Physical Properties	Electrical conductivity 293 K (20 °C)	MS/m	min. 50 (min. 90 % I.A.C.S.)		
	Electrical reststance 293 K (20 °C)	$\frac{\Omega \cdot \text{mm}^2}{\text{m}}$	0,02		
	Coefficient of electrical resistance 273-573 K (0-300°C)	$\frac{1}{\text{K}}$	0,00367		
	Coefficient of thermal expansion 273-593 K (0-320°C)	$\frac{1}{\text{K}}$	17,0 · 10 ⁻⁶		
	Heat capacity	$\frac{\text{J}}{\text{g} \cdot \text{K}}$	0,376		
	Thermal conductivity 293 K (20 °C)	$\frac{\text{W}}{\text{m} \cdot \text{K}}$	c. 320		
	Density	$\frac{\text{g}}{\text{cm}^3}$	8.9		
Available semi-products	Bar stock in round, square, hexagonal and flat, special profiles, discs, rings, sheets, strips, forgings, electrodes and cap tips for resistance welding.				

THYSSEN DURO METALL

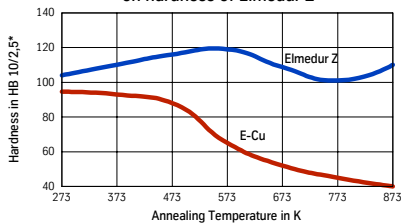
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Hardness of Elmedur Z at elevated temperatures



Effect of annealing temperature on hardness of Elmedur Z



Machining (Reference value) Condition: precipitation hardened

Turning

	Tungsten Carbide K 20	HSS THYRAPID 3207
Cutting speed m/min.	up to 250	up to 120
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 THYRAPID 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 manufactures.

Standards / Tolerances

DIN EN 12 163	Round bars for general purpose
DIN EN 12 167	Profiles and rectangular bars for general purpose.

*) Brinell hardness at r.t. after 5 hours anneal and air cooling.

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.