

# Elmedur Z

## Technical Datasheet

Short Name	CW120C	Chemical Composition (Weight %)	Zr	Others	Cu
Code	CuZr		c. 0,15	max. 0,2	balance
Material-No.(old)	2.1580				

Classification	DIN ISO 5182	A 2/4
	EN 12163	CW 120 C
	UNS	C 15000
	R.W.M.A.	c. Class 2

**Material Properties** Precipitation hardened copper alloy with sufficient hardness and strength, combined with an outstanding electrical conductivity.

**Applications**

- Spot welding electrodes and cap tips especially for coated sheets
- Components for electronic devices, e.g. semiconductors

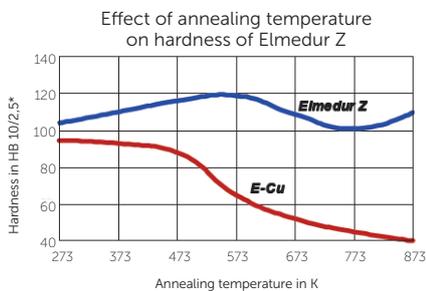
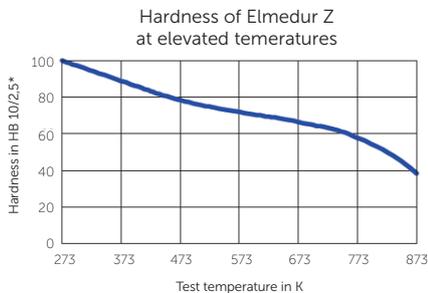
Mechanical Properties (Reference values)	Condition		Solution annealed and aged	
	Cross section		< 25 Ø	≥ 25 mm Ø
	Hardness (ref. val.)	HB 62,5/2,5	130	120
	Tensile strength	N/mm <sup>2</sup>	350	300
	Yield strength	N/mm <sup>2</sup>	310	250
	Elongation L = 5 D	%	13	20
	Modulus of elasticity	kN/mm <sup>2</sup>	100	–

Physical Properties	Electrical conductivity 20 °C (293 K)	MS/m	min. 50 (min. 90 % I.A.C.S.)
	Electrical resistance 20 °C (293 K)	$\frac{\Omega \cdot \text{mm}^2}{\text{m}}$	0,02
	Coeff. of electr. resist. 0–300 °C (273–573 K)	$\frac{1}{\text{K}}$	0,00367
	Coeff. of therm. exp. 0–320 °C (273–593 K)	$\frac{1}{\text{K}}$	17,0•10 <sup>-6</sup>
	Specific heat	$\frac{\text{J}}{\text{g} \cdot \text{K}}$	0,376
	Thermal conductivity 20 °C (293 K)	$\frac{\text{W}}{\text{m} \cdot \text{K}}$	ca. 320
	Density	g/cm <sup>3</sup>	8.9

**Products** Bars in round, square, rectangular and flat; electrodes and cap tips for resistance welding.

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### Machining (Reference values) Condition: precipitation hardened

Turning	Tungsten Carbide K20	HSS THYRAPID 1.3207
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 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 in acc. with 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.

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.