

Elmedur NB

Technical Datasheet

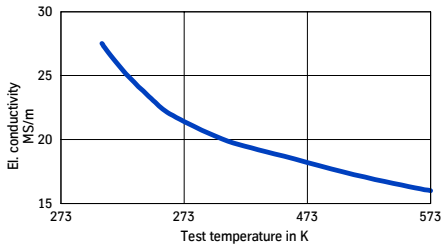
Short Name	CW110C	Chemical Composition	Co	Ni	Be	Cu
Code	CuNiBe	(Reference values in %)	0,2	1,8	0.5	balance
Material-Nr.(old)	2.0850					
Classification	-					
Material-Properties	Precipitation hardened copper alloy with very high hardness and good electrical and thermal conductivity.					
Applications	<ul style="list-style-type: none"> • Electrodes for spot welding, especially for stainless steel • Electrodes for projection welding • Butt welding jaws • Contact tips for submerged-arc-welding 					
Mechanical Properties (Reference values)	Conditions		solution annealed, cold drawn and aged		Extruded, sol. annealed and aged	Castings prec. hardened
	Cross section		<25 mm Ø	<35 mm Ø	<60 mm Ø	-
	Hardness	HB	220 – 260	210 – 260	195 – 235	min. 210
	Tensile strength	N/mm ²	800 – 950	750 – 900	680 – 800	min. 650
	Yield strength	N/mm ²	min. 730	min. 680	min. 500	min. 500
	Elongation L = 5 D	%	min. 5	min. 5	min. 6	-
	Modulus of elasticity	kN/mm ²	118	118	118	-
	Modulus of torsion	kN/mm ²	-			
	Compressive yield point	%	95 – 100 % of yield strength			
Physical Properties (Reference values)	Electrical conductivity 293 K (20 °C)	MS/m	min. 25 Castings ~28 (min. 40 % I.A.C.S.)			
	Electrical resistance 293 K (20 °C)	$\frac{\Omega \cdot \text{mm}^2}{\text{m}}$	0.033 – 0,05			
	Coefficient of electrical resistance 273-373 K (0-100°C)	$\frac{1}{\text{K}}$	0.0019			
	Coefficient of thermal expansion 273-593 K (0-320°C)	$\frac{1}{\text{K}}$	17,0 · 10 ⁻⁶			
	Specific heat	$\frac{\text{J}}{\text{g} \cdot \text{K}}$	0.42			
	Thermal conductivity 293 K (20 °C) 473 K (200 °C) 573 K (300 °C)	$\frac{\text{W}}{\text{m} \cdot \text{K}}$	c. 210 c. 280 c. 320			
	Density	$\frac{\text{g}}{\text{cm}^3}$	8.8			
Available sizes	Rods drawn or extruded in round, square and flat; discs and rings, forgings, electrodes for spot-, seam-, projection- and butt welding, castings on request (Available sizes can be found in our current stock list).					

THYSSEN DURO METALL

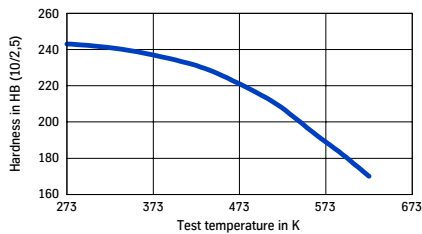
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Electrical Conductivity of Elmedur NB



Hardness of Elmedur NB at elevated temperatures



Machining (Reference values) Condition: precipitation hardened

Turning

	Tungsten Carbide K 20	HSS THYRAPID 3207
Cutting speed m/min.	up to 250	up to 80
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 250	up to 80
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-hrs heating, cooling with air

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.