

Elmedur HA

Technical Datasheet

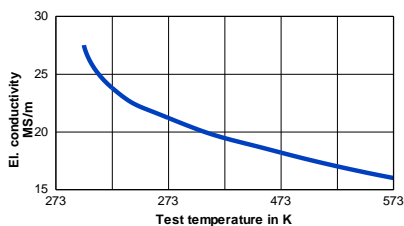
DURO METALL
A company of the Wieland Group

Short Name	CW103C	Chemical	Co	Ni	Be	Cu
Code	CuCoNi1Be	Composition	1.0	1.0	0.5	balance
Material-No.(old)	~2.1285	(Reference values in %)				
Classification	DIN ISO 5782 R.W.M.A. DIN EN 12163 / 12167	Class A 3/1 Class 3 CW 103C				
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, aged			
	Cross section		<Ø25 mm	>Ø25-60mm	>Ø60-200mm	>40mm fla/sqr
	Hardness	HB 187,5/2,5	> 260	> 250	> 240	> 230
	Tensile strength	N/mm ²	750 – 900	720 – 880	700 – 850	680-800
	Yield strength	N/mm ²	min. 700	min. 680	min. 600	min. 570
	Elongation L = 5 D	%	min. 5	min. 5	min. 6	min.10
	Modulus of elasticity	kN/mm ²	135	135	135	135
	Compressive yield point	%	95 – 100 % of yield strength			
	Softening temperature	°C (K)	480 (753)			
Physical Properties (Reference values)	Electrical conductivity 293 K (20 °C)	MS/m % IACS	min. 25 min. 43			
	Electrical resistance 293 K (20 °C)	Ω.mm ² /m	0.04			
	Coefficient of electrical resistance 273-373 K (0-100°C)	1/K	0.0019			
	Coefficient of thermal expansion 273-593 K (0-320°C)	1/K	17,0 · 10 ⁻⁶			
	Specific heat	J/g.K	0.42			
	Thermal conductivity 293 K (20 °C)	W/m.K	c. 210			
	Density	g/cm ³	8.8			
Products	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).					

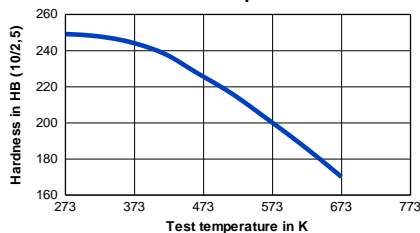
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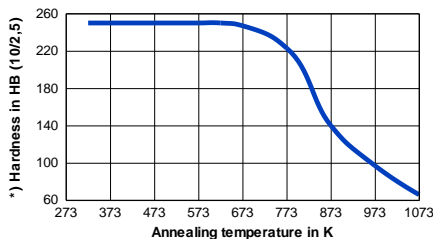
Electrical Conductivity of Elmedur HA



Hardness of Elmedur HA at elevated temperatures



Effect of annealing temperature on hardness of Elmedur HA



*) 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.

Machining (Reference values) Condition: precipitation hardened

Machining	Tungsten Carbide K 20	HSS 1.3207
Turning		
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 1,3207
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	Round bars for general purpose
DIN EN 12 163	Profiles and rectangular bars for general purpose.
DIN EN 12 167	