

Elmedur HA

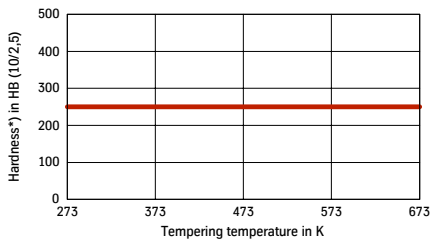
Technical Datasheet

Short Name	CW103C	Chemical Composition	Co	Ni	Be	Cu
Code	CuCoNiBe		1,0	1,0	0,5	bal.
Material-No.(old)	~2.1285	(Reference values in %)				
Material-Properties	High thermal conductivity combined with good hardness and high-temperature strength. Good resistance to tempering. Not suitable for case hardening and nitriding.					
Applications	<ul style="list-style-type: none"> • Plastic blow and injection moulds as well as inserts in steel tools if material accumulation requiring higher cooling rates • Nozzles and needles for hot runner systems • Sealing tools • Plunger tips for horizontal die casting machines • Moulds for NF-metal castings 					
HOT-Forming	1.173 – 973 K	(900-700 °C)		Cooling	air	
Heat-Treatment			Time	Cooling	Hardness HB	
	Solution annealing	1.173 – 1.193 K	(900 – 920 °C)	½ h	water	max. 150
	Precipitation hardening	733 – 753 K	(460 – 480 °C)	~5 h		min. 230
Mechanical Properties (Reference values)	Hardness	HB 10/2,5		220 – 260		
	Tensile strength	N/mm ²		690 – 890		
	Yield strength	N/mm ²		640 – 830		
	Elongation L = 5 D	%		min. 10		
	Modulus of elasticity	kN/mm ²		118		
	Modulus of torsion	kN/mm ²		46		
Physical Properties (Precipitation hardened)	Coefficient of thermal conductivity	$\frac{1}{K}$		approx. + 0,4		
	Coefficient of thermal expansion (0 – 300 °C) 273-573 K	$\frac{1}{K}$		17,0 · 10 ⁻⁶		
	Specific heat	$\frac{J}{g \cdot K}$		0,42		
	Thermal conductivity at 293 K (20 °C) at 473 K (200 °C) at 573 K (300 °C)	$\frac{W}{m \cdot K}$		approx. 209 approx. 280 approx. 320		
	Density	$\frac{g}{cm^3}$		8.8		
Available sizes:	Rods cold drawn, extruded or forged and machined ex stock (available sizes can be found in our current stock list). Flat-, squares or profiles as well as forgings or parts to drawings on request.					

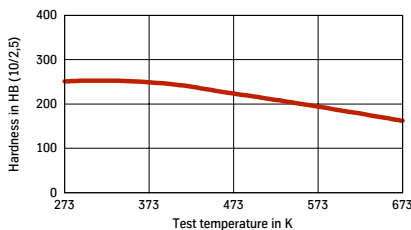
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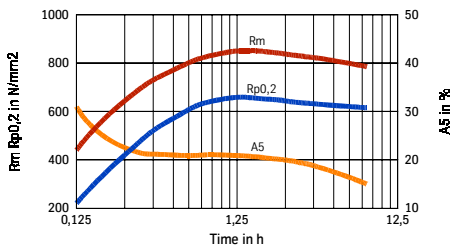
Retention to tempering of Elmedur HA



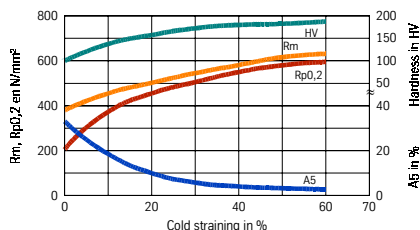
Red hardness of Elmedur HA



Precipitation hardening behaviour at 753 K (480 °C) of Elmedur HA from the homogenized condition



Precipitation hardening behaviour at 753 K (480 °C) of Elmedur HA from the homogenized condition



*) Brinell hardness at R.T. after 5 hrs annealing; cooled in air

Machining (Reference values)

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
Chips 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 drill 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.

Spark eroding

Polishability	EDM and wire cutting is possible good
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Standards / Tolerances

DIN EN 12 163	Round bars for general purpose
DIN EN 12 165	Ingots for forgings
DIN EN 12 167	Profiles and rectangular bars for general purpose.

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.