

Elmedur B2

Technical Datasheet

Short-Name	CW101C	Chemical	Be	Ni+Co	Cu
Code	CuBe2	Composition	2,0	0,4	balance
Material-No.(old)	2.1247	(Reference values in %)			

Material-Properties	Precipitation hardened alloy with good thermal conductivity and high hardness. Not suitable for case hardening or nitriding.
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Applications	– Plastic blow and injection moulds – Inserts in steel tools on spots requiring higher cooling rates. Due to a high tensile strength also suitable for inserts with a high ratio of length/cross section – Nozzles and needles for hot runner systems – Cooling inserts in moulds and ingot moulds
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HOT-Forming	800–650 °C (1.073–923 K)	Cooling	water or air
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Heat-Treatment			Time	Cooling	Hardness HV
	Solution annealing	750–800 °C (1.023–1.073 K)	½ h	water	max. 210
	Precipitation hardening	325 °C (598 K)	min. 2 h	water or air	c. 400

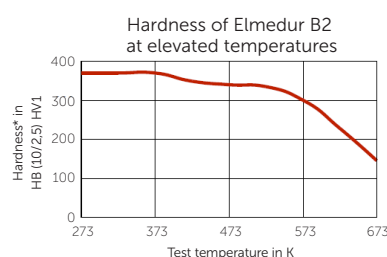
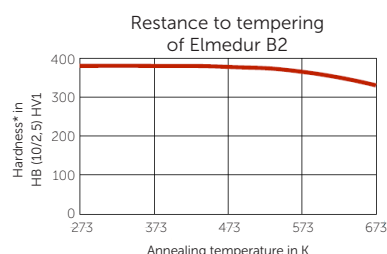
Mechanical Properties (precipitation hardened)	Conditions		Solution annealed and aged	solution annealed, cold drawn and aged	
	Cross-section		below 3.000 mm ²	below 500 mm ²	500–1.000 mm ²
	Hardness	HV 30	360–390	390–430	380–420
	Tensile strength	N/mm ²	1.150–1.350	1.350–1.500	1.200–1.450
	Yield strength	N/mm ²	1.000–1.250	1.150–1.400	1.050–1.350
	Elongation L = 5 D	%	min. 3	min. 1	min. 1
	Modulus of elasticity	kN/mm ²	135	135	135
	Modulus of torsion	kN/mm ²	47	47	47

Physical Properties (precipitation hardened)	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 20 °C (293 K)	$\frac{W}{m \cdot K}$	approx. 120
	200 °C (473 K)		approx. 190
	300 °C (573 K)		approx. 230
	Density	g/cm ³	8.3

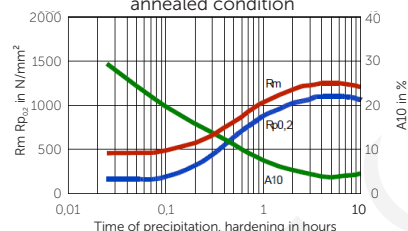
Products	Round-, square- and flat -bars, discs, rings and forged pieces (available sizes can be found in our current stock list)
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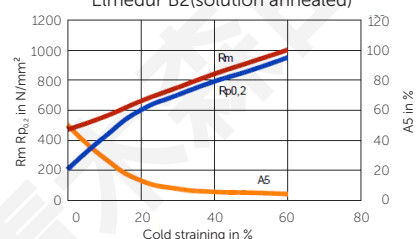
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Precipitation hardening behaviour at 598 K (325 °C) of Elmedur B2 from the solution annealed condition



Strain hardening behaviour of Elmedur B2(solution annealed)



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

Machining (Reference values) Conditions: solution annealed

Turning	Tungsten Carbide K 20	HSS THYRAPID 1.3207
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 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 acc. to DIN 338
Cutting speed (m/min)	max. 15
For a better chip flow, drills with an enlarged twist angle should advantageously be used. We recommend contacting the respective manufacturers.	

Spark eroding	EDM and wire cutting is possible
Polishability	good

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.

Health note

The material contains small amounts of beryllium, cobalt and nickel. Inhalation of fine dust and steam is to be avoided. During machining, the H-phrases (H301; H302; H332i; H350i; H334; H372) and the P-phrases (P201; P202; P260; P308; P313) must be observed.

All statements as to the properties or utilization of the material 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.