

Elmedur B2

Technical Datasheet

Short-Name	CW101C	Chemical	Be	Ni + Co	Cu
Code	CuBe2	Composition	2,0	0,4	bal.
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	<ul style="list-style-type: none"> • 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	1.073 – 923 K (800-650 °C)	Cooling	water or air
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Heat-Treatment		Time	Cooling	Hardness HV
Solution annealing	1.023 – 1.073 K (750 – 800 °C)	½ h	water	max. 210
Precipitation hardening	598 K (325 °C)	min. 2 h	air or water	c. 400

Mechanical Properties (precipitation hardened)	Conditions		Solution annealed and precipitation hardened	solution annealed, cold drawn and precipitation hardened	
	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		1150 – 1350	1350 – 1500	1200 – 1450
Yield strength	N/mm ²		1000 – 1250	1150 – 1400	1050 – 1350
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

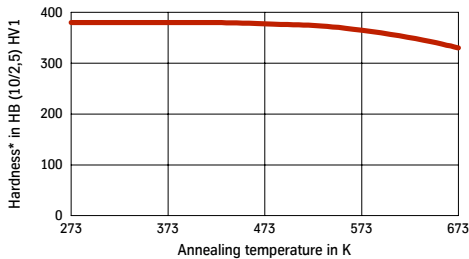
Physical Properties (precipitation hardened)	Coefficient of thermal conductivity	$\frac{1}{K}$	approx. + 0,4
	Coefficient of thermal expansion (0 – 300 °C) 273-573 K	$\frac{1}{K}$	17,0 · 10 ⁻⁶
	Specific heat	$\frac{J}{g \cdot K}$	0,42
	Thermal conductivity 293 K (20 °C) 473 K (200 °C) 573 K (300 °C)	$\frac{W}{m \cdot K}$	approx. 120 approx. 190 approx. 230
	Density	$\frac{g}{cm^3}$	8.3

Available sizes:	Round-, square- and flat-bars, discs, rings and forged pieces (available sizes can be found in our current stock list).
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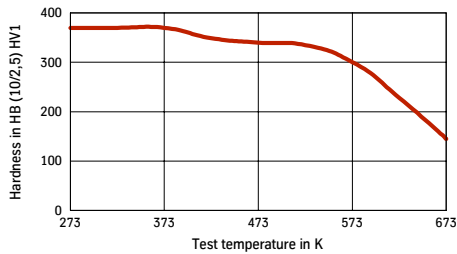
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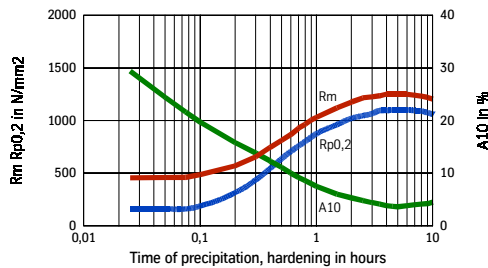
Resistance to tempering of Elmedur B2



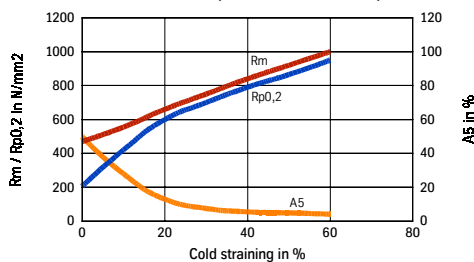
Hardness of Elmedur B2 at elevated temperatures



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 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 drills acc. to DIN 338
Cutting speed m/min.	max. 15
Chip flow	For a better chip flow, drills with an enlarged twist angle should advantageously be used. We recommend contacting the respective manufactures.

Spark eroding

Polishability	EDM and wire cutting is possible good
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Normen

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 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.