TEXSA
TECNOLOGIE PER SALDATURA

HB 400
Technical Datasheet

Short-Name	CW101C
Code	CuBe2
Material-N°. (old)	2.1247

Chemical Composition Reference values (%)	Be	Ni + Co	Cu
	2,0	0,4	balance

Material-Properties	Precipitation hardened alloy with good thermal conductivity and high hardness. Not suitable for case hardening or nitriding.

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

HOT-Forming		1.073 – 923 K	(800-650 °C)	Cooling	water or air

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. 2h	air or water	c. 400

Mechanical Properties (precipitation hardened)	Conditions		hardened	hardened	
	Cross-section		below 3.000 mm²	below 500 mm²	500-1.000 mm²
	Hardness	HV 30	360 – 390	390 – 430	380 – 420
	Tensile strength	N/mm²	1150 – 1350	1350 – 1500	1200 – 1450
	Yield strength	N/mm²	1000 – 1250	1150 – 1400	1050 – 1350
	Elongation L = 5 D	%	min. 3	min. 1	min. 1
	Modulus of elasticity	kN/mm²	135	135	135
	Modulus of torsion	kN/mm²	47	47	47

Physical Properties (precipitation hardened)	Coefficient of thermal conductivity	1/K	approx. + 0,4
	Coefficient of thermal expansion (0–300 °C) 273-573 K	1/K	$17{,}0 \times 10^{-6}$
	Specific heat	J/g.K	0,42
	Thermal conductivity 293 K (20 °C) 473 K (200 °C) 573 K (300 °C)	W/m.K	 approx. 120 approx. 190 approx. 230
	Density	g/cm³	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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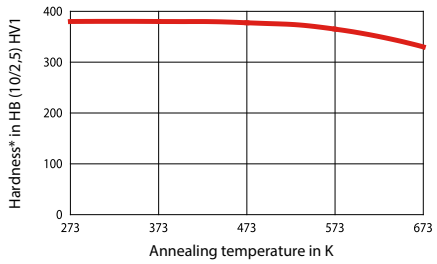
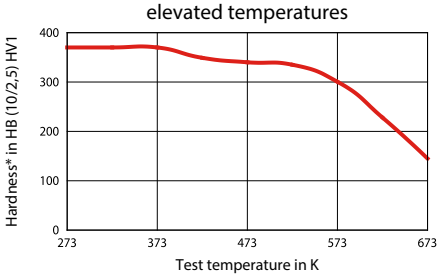
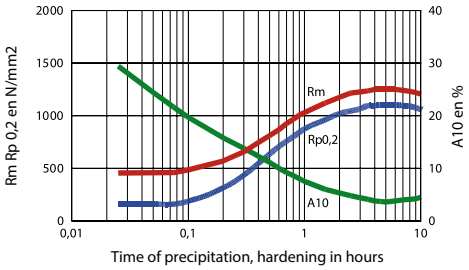
Restance to tempering of HB 400



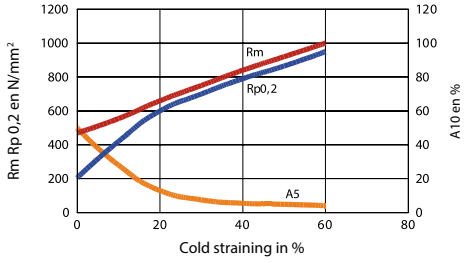
Hardness of HB 400 at elevated temperatures



Precipitation hardening behaviour at 598 K (325 °C) of HB 400 from the solution annealed condition



Strain hardening behaviour of HB 400 (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 ship flow, drills with an enlarged twist angle should advantageously be used. We recommend contacting the respective manufactures.

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.

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.

*(HSS) High Speed Steel

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