

Elmedur NCS

Technical Datasheet

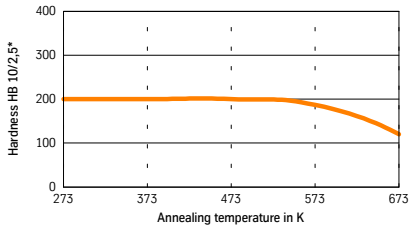
Short Name	~CW111C	Chemical	Ni	Si	Cr	Cu
Code	~CuNi2SiCr	Composition	2,4	0,7	0,5	balance
Material-No.(old)	~2.0855	(Reference values in %)				
Material Properties	High thermal conductivity combined with good hardness and high-temperature. Good retention to tempering. Not suitable for case hardening and nitriding.					
Applications	<ul style="list-style-type: none"> • Shanks for resistance welding electrodes • Nozzles for submerged-arc welding devices 					
	Hot forming	1.173 – 973 K	(900-700 °C)	Cooling	air	
Heat Treatment	Solution annealing	1.193 – 1.213 K	(920 – 940 °C)	Time	Cooling	Hardness HB
	Prec. hardening	753 K	(480 °C)	1 h	Water	
				~4 h	in furnace	min. 170
Mechanical Properties (Reference values)	Conditions					
	Hardness	HB 10/2,5			170 – 210	
	Tensile strength	N/mm ²			min. 590	
	Yield strength	N/mm ²			min. 490	
	Elongation L = 5 D	%			min. 5	
	Modulus of elasticity	kN/mm ²			114	
Physical Properties	Electrical conductivity 293 K (20 °C)	MS/m			c. 26	
	Coefficient of thermal expansion (20 – 100 °C) 293-373 K	$\frac{1}{K}$			$16,0 \cdot 10^{-6}$	
	Specific heat	$\frac{J}{g \cdot K}$			0,42	
	Thermal conductivity 293 K (20 °C)	$\frac{W}{m \cdot K}$			160	
	Density	$\frac{g}{cm^3}$			8.78	
Available sizes	Rods drawn, extruded or forged and turned ex stock, flat-, square or profile bars, furthermore forgings or machined parts against drawing on request.					

THYSSEN DURO METALL

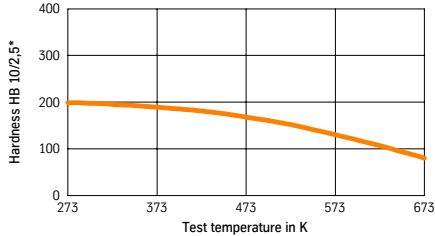
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Effect of annealing temperature on hardness of ELMEDUR NCS



Hardness of Elmedur NCS at elevated temperatures



Machining Directions (Reference values)

Turning

	Tungsten Carbide K 20	HSS THYRAPID 3207
Cutting speed m/min.	up to 150	up to 60
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 THYRAPID 3207
Cutting speed m/min.	up to 150	up to 60
Rake angle	positive	positive
Feed mm/min.	c. 200	c. 80

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 manufactures.

Spark eroding

Polish ability	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	Forging billets
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.