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	– Shanks for resistance welding electrodes – Nozzles for submerged-arc welding devices – Pistons in cold chamber machines – Cooling inserts in moulds – ejector pin

Hot forming	900–700 °C (1.173–973 K)		cooling	air

Heat Treatment	Heat Treatment		Time	Cooling	Hardness HB
	Solution annealing	920–940 °C (1.193–1.213 K)	1 h	Water	
	Prec. hardening	480 °C (753 K)	~ 4 h	in furnace	min. 190

Mechanical Properties (Reference values)	Conditions		aged
	Hardness	HB 62,5/2,5	190–240
	Tensile strength	N/mm^2	min. 650
	Yield strength	N/mm^2	min. 500
	Elongation L = 5 D	%	10–15
	Modulus of elasticity	kN/mm^2	140

Physical Properties	Electrical conductivity 20 °C (293 K)	MS/m	ca. 26
	Coeff. of therm. exp. 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 20 °C (293 K)	$\frac{W}{m \cdot K}$	160
	Density	g/cm^3	8.78

Products	Rods drawn, extruded or forged and turned ex stock, flat-, square or profile bars, furthermore forgings or machined parts against drawing on request.

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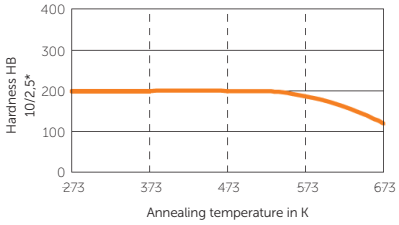
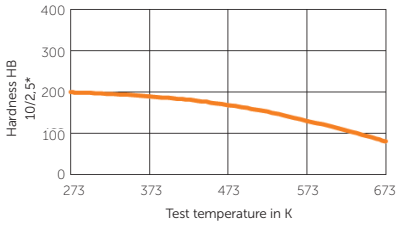
Effect of annealing temperatureon hardness of ELMEDUR NCS



Hardness of Elmedur NCS at elevated temperatures



Machining Directions (Reference values)		
Turning	**Tungsten Carbide K 20**	**HSS THYRAPID 1.3207**
Cutting speed m/min.	up to 150	up to 60
Rake angle	6–18	15–25
Feed and depth of cut of	as to required surface finish	as to required surface finish
Chip breaker	recommended	recommended

Milling	**Tungsten Carbide K20**	**HSS THYRAPID 1.3207**
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	EDM and wire cutting is possible
Polish ability	good

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.

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