TEXSA
TECNOLOGIE PER SALDATURA

HB 190
Technical Datasheet

Short Name	~CW111C
Code	~CuNi2SiCr
Material-N°. (old)	~2.0855

Chemical Composition (Reference values in %)	Ni	Si	Cr	Cu
	2,4	0,7	0,5	balance

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

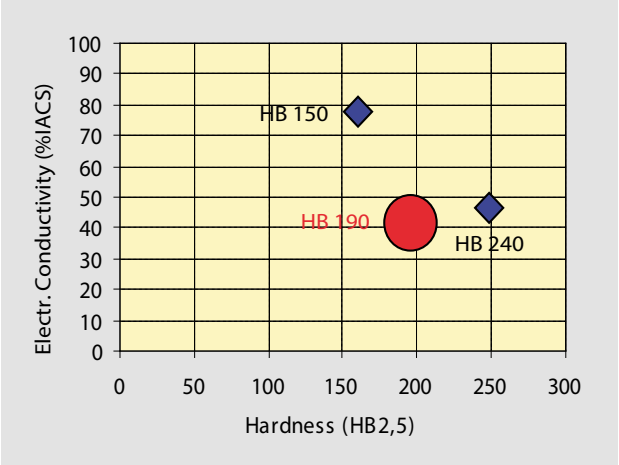
Hot forming	1.173 – 973 K	(900-700 °C)	Cooling	air

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

Mechanical Properties (Reference values)			
	Conditions		a g e d
	Hardness	HB 10/2,5	190 – 210
	Tensile strength	N/mm²	min. 590
	Yield strength	N/mm²	min. 490
	Elongation L = 5 D	%	min. 5
	Modulus of elasticity	kN/mm²	114

Physical Properties			
	Electrical conductivity 293 K (20 °C)	MS/m	approx. 26 (45% IACS)
	Coeff. of therm. exp. 293-373 K (20–100 °C)	1/K	$16{,}0 \times 10^{-6}$
	Specific heat	J/g.K	0,42
	Thermal conductivity 293 K (20 °C)	W/m.K	160
	Density	g/cm3	8,78

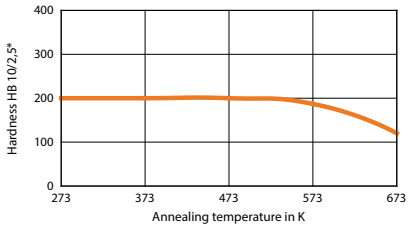
Available sizes	Rods drawn, extruded or forged and turned ex stock, flat-, square or profile bars, forgings or machined parts against drawing on request.



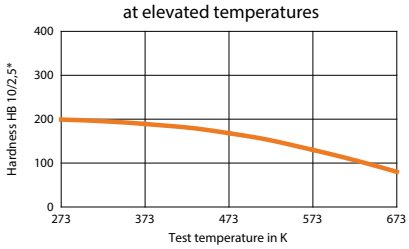
TE.XSA. S.R.L. Via del Lavoro, 53 • 20084 Lacchiarella • Milano | Tel. +39 02 90 03 49 49 • +39 02 94 08 01 88 • Fax +39 02 90 03 39 36 | www.texsasrl.it • info@texsasrl.it

HB 190
Technical Datasheet

Effect of annealing temperature on hardness of HB 190



Hardness of HB 190 at elevated temperatures



Machining Directions (Reference values)

Turning		Tungsten Carbide K 20	HSS* 1.3207
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* 1.3207
Cutting speed (m/min)	up to 150	up to 60
Rake angle	positive	positive
Feed (mm/min).	approx. 200	approx. 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 erosion	EDM and wire cutting is possible

Polishability	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.

*(HSS) High Speed Steel

TE.XSA. S.R.L. Via del Lavoro, 53 • 20084 Lacchiarella • Milano | Tel. +39 02 90 03 49 49 • +39 02 94 08 01 88 • Fax +39 02 90 03 39 36 | www.texsasrl.it • info@texsasrl.it