

# Elmedur X

## Technical Datasheet

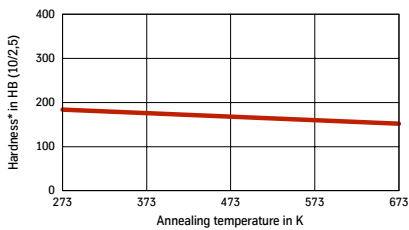
<b>Short-Name</b>	CW106C	<b>Chemical Composition</b>	Cr	Zr	Cu
<b>Code</b>	CuCr1Zr		0,8	0,08	bal.
<b>Material-No.(old)</b>	2.1293	(Reference values in %)			
<b>Material-Properties</b>	Precipitation hardened copper alloy with excellent thermal conductivity combined with sufficient hardness and good resistance to tempering. Cannot be case-hardened or nitrided.				
<b>Applications</b>	<ul style="list-style-type: none"> <li>• Sealing tools, ingot, moulds or cooling inserts for them</li> <li>• Shaping and cooling tools for plastic extrusion</li> <li>• Ingot-moulds for gravity die casting of brass and copper</li> <li>• Top crusts for centrifugal casting moulds for grey cast iron</li> <li>• Application predominantly at low mechanical load if simultaneously very high heat elimination is desired</li> </ul>				
<b>HOT-Forming</b>	1.173 – 973 K	(900-700 °C)	Cooling	water	
<b>Heat-Treatment</b>	Solution annealing	1.223 – 1.293 K	(950 – 1.020 °C)	Time	Cooling
	Precipitation hardening	733 – 773 K	(460 – 500 °C)	½-1 h	water
				3-5 h	Hardness HB
					max. 100
					min. 120
<b>Mechanical Properties</b> (Reference values)	Conditions		Solution annealed and precipitation hardened	Solution annealed, cold drawn and precipitation hardened	
	Cross-section		below 10.000 mm <sup>2</sup>	below 2.000 mm <sup>2</sup>	below 500 mm <sup>2</sup>
	Hardness	HB 10/2,5	130	150	155
	Tensile strength	N/mm <sup>2</sup>	min. 370	min. 440	min. 470
	Yield strength	N/mm <sup>2</sup>	min. 270	min. 350	min. 440
	Elongation L = 5 D	%	min. 18	min. 10	min. 8
	Modulus of elasticity	kN/mm <sup>2</sup>	108	108	108
	Modulus of torsion	kN/mm <sup>2</sup>	45	45	45
<b>Physical Properties</b> (precipitation hardened)	Coefficient of thermal conductivity	$\frac{1}{K}$		approx. ± 0,0	
	Coefficient of thermal expansion (0-300 °C) 273-573 K	$\frac{1}{K}$		17,0 · 10 <sup>-6</sup>	
	Specific heat	$\frac{J}{g \cdot K}$		0,376	
	Thermal conductivity 293 K ( 20 °C)	$\frac{W}{m \cdot K}$		approx. 320	
	Density	$\frac{g}{cm^3}$		8.9	
<b>Available sizes:</b>	Round-, square-, hexagonal- and flat-bars, discs, rings, sheets (available sizes can be found in our current stock list).				

# THYSSEN DURO METALL

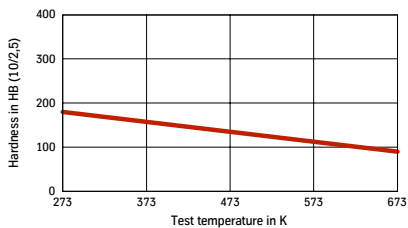
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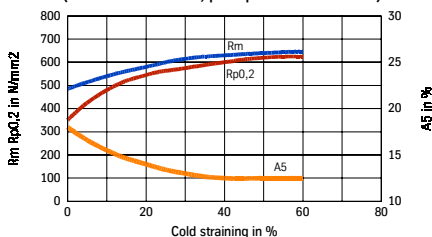
Resistance to tempering of Elmedur X



Hardness of Elmedur X at elevated temperatures



Strain hardening behaviour of Elmedur X (solution annealed, precipitation hardened)



### Machining (Reference values)

#### Turning

	Tungsten Carbide K 20	HSS THYRAPID 3207
Cutting speed m/min.	up to 300	up to 100
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 300	up to 100
Rake angle	positive	positive
Feed mm/min.	200 - 300	80 - 150

#### Drilling

	Twist drill acc. to 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 manufacturers.

#### Spark eroding

Polishability	EDM and wire cutting is possible good
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#### Normen / 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.

#### Hot rolled sheets and plates

Thickness	<50 mm -0/+2 mm
	>50 mm -0/+3 mm

#### Width

Width	+8/-0 mm
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#### Forged sheets and flat sizes

Additions and tolerances on request

#### Discs

Tolerances for Discs on request

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.

\*) Brinell hardness at R.T. after 5 hrs. annealing; cooling in air