

Alloy AERIS 1330

Technical Datasheet



Short name	CW106C	Chemical	Cr	Zr	Cu
Code	CuCr1Zr	composition	0.8	0.08	balance
Material №	2.1293	(Weight %)			

Classification	ISO 5182 R.W.M.A.	Class A 2/2 Class 2
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Material characteristics	Precipitation hardened copper alloy with excellent hardness and high electrical and thermal conductivity.
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Application	<ul style="list-style-type: none"> - Electrodes and cap tips for spot welding as well as for spark erosion - Contact tips for MIG/MAG welding - Parts in electrical equipments under high stress conditions if high electrical conductivity is required
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Mechanical Values (Typical)	Condition		solution annealed, aged, cold drawn			Castings aged
	Cross section		<25 mm Ø	25-50mmØ	50-120mm Ø	-
	Hardness	HB	160	150	130	100-115
	Tensile strength	N/mm ²	min. 470	min. 440	min. 370	min. 320
	Yield strength	N/mm ²	min. 440	min. 350	min. 270	min. 195
	Elongation L = 5 D	%	min. 8	min. 10	min. 18	min. 18
	Modulus of elasticity	kN/mm ²	108	108	108	103
	Modulus of torsion	kN/mm ²	45	45	45	-
Squeeze strength	%	95 – 100 % of yield strength				

Physical properties (Typical)	Electrical conductivity 293 K (20 °C)	MS/m	43 - 50 Castings 45 – 53 (min. 75 % I.A.C.S.)
	Electrical resistance 293 K (20 °C)	Ω·mm ² /m	0.021
	Coefficient of electrical resistance 273-573 K (0-300°C)	1/K	0.00367
	Coefficient of thermal expansion 273-593 K (0-320°C)	1/K	17.0·10 ⁻⁶
	Heat capacity	J/g·K	0.376
	Thermal conductivity 293 K (20 °C)	W/m·k	c. 320
	Density	g/cm ³	8.9

Available semi-finished products and finished parts	Bars in round, square rectangular and flat, discs and rings, forgings, electrodes for spot-, seam-, projection- and butt welding, castings on request
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Machining (Reference value)
Condition: precipitation hardened

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
Chip breaker	recommended	recommended

Milling	Tungsten Carbide K 20	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 drills 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 manufactures.

Standards / Tolerances	
EN 12 163	Round bars for general purpose
EN 12 165	Ingots for forgings
EN 12 167	Profiles and rectangular bars for general purpose.

Hot rolled sheets and plates	Tolerances
Thickness	<50 mm -0/+2 mm >50 mm -0/+3 mm
Width	+8/-0 mm
Forged sheets and flat sizes	Additions and tolerances on request
Tubes	Tolerances for tubes 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.