

# Alloy AERIS 1335

## Technical Datasheet



<b>Short name</b>	CuCoNiBe	Chemical composition (Weight %)	Co	Ni	Be	Cu
			1.0	1.0	0.5	balance
<b>Classification</b>	DIN ISO 5782 R.W.M.A.	Class A 3/1 Class 3				
<b>Material characteristics</b>	Precipitation hardened copper alloy with very high hardness and good electrical and thermal conductivity.					
<b>Application</b>	<ul style="list-style-type: none"> <li>- Electrodes for spot welding, especially for stainless steel</li> <li>- Electrodes for projection welding</li> <li>- Butt welding jaws</li> <li>- Contact tips for submerged-arc-welding</li> </ul>					
<b>Mechanical Values (Typical)</b>	Condition		Solution annealed, cold drawn and aged		Extruded, sol. annealed and aged	Castings prec. hardened
	Cross section		<25 mm Ø	<35 mm Ø	<60 mm Ø	-
	Hardness	HB	220 – 260	210 – 260	195 – 235	min. 210
	Tensile strength	N/mm <sup>2</sup>	800 – 950	750 – 900	680 – 800	min. 650
	Yield strength	N/mm <sup>2</sup>	min. 730	min. 680	min. 500	min. 500
	Elongation L = 5 D	%	min. 5	min. 5	min. 6	-
	Modulus of elasticity	kN/mm <sup>2</sup>	118	118	118	-
	Modulus of torsion	kN/mm <sup>2</sup>	-			
	Compressive yield point	%	95 – 100 % of yield strength			
<b>Physical properties (Typical)</b>	Electrical conductivity 293 K (20 °C)	MS/m	min. 25 Castings ~28 (min. 40 % I.A.C.S.)			
	Electrical resistance 293 K (20 °C)	Ω·mm <sup>2</sup> /m	0.033 ÷ 0.05			
	Coefficient of electrical resistance 273-573 K (0-300°C)	1/K	0.0019			
	Coefficient of thermal expansion 273-593 K (0-320°C)	1/K	17.0·10 <sup>-6</sup>			
	Heat capacity	J/g·K	0.42			
	Thermal conductivity 293 K (20 °C) 473 K (200 °C) 573 K (300 °C)	W/m·k	~ 209 ~ 280 ~ 320			
	Softening temperature	°C	~480			
	Density	g/cm <sup>3</sup>	8.8			
<b>Available semi-finished products and finished parts</b>	Rods drawn or extruded in round, square and flat; discs and rings, forgings, electrodes for spot-, seam-, projection- and butt welding, castings on request					

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	<b>Turning</b>	Tungsten Carbide K 20	HSS THYRAPID 3207
	Cutting speed m/min.	up to 250	up to 80
	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
	<b>Milling</b>	Tungsten Carbide K 20	HSS THYRAPID 3207
	Cutting speed m/min.	up to 250	up to 80
	Rake angle	positive	positive
	Feed mm/min.	200 ÷ 300	80 ÷ 150
	<b>Drilling</b>	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.	
<b>Standards / Tolerances</b>			
EN 12 163	Round bars for general purpose		
EN 12 167	Profiles and rectangular bars for general purpose.		

\*) Brinell hardness at r. t. after  
5-hrs heating, cooling with air

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.