

CuNi2Si (CW111C)

Smiths Advanced Metals

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Copper Nickel Silicon Alloy

Unique chemistry & mechanical properties

CuNi2Si (CW111C) is a copper-nickel silicon alloy that offers unique chemical and mechanical characteristics.

CuNi2Si is a superior product compared to other copper alloy grades; the material promotes many beneficial performance qualities that virtually any engineering or fabrication company can benefit from. The material's corrosion resistance is excellent and surpasses the performance of the majority of copper alloys while also being free from the effects of stress corrosion and hydrogen embrittlement.

Wear and bearing characteristics are also superior, and the material benefits from high strength and hardness. When compared to non-ferrous alloys, the thermal and electrical conductivity of CuNi2Si is excellent. This alloy provides exceptionally low magnetic permeability, outstanding performance in cryogenic environments and spark resistance.



Grades / Specifications

- 2.0855
- CW111C
- UNS SC64700
- ASTM B411
- DIN 17666
- EN 12163

Key Applications

- Engine valve guides and seats
- Cryogenic storage tanks
- Electrical components

Chemical Composition (weight %)

	Cu	Mn	Fe	Ni	Pb	Si	Others
min.	Bal			1.6		0.40	
max.	Bal	0.10	0.20	2.5	0.02	0.80	0.30

As per BS EN 12163

Physical & Mechanical Properties (Properties as per BS EN 12163, R550 condition)

Density	8.80 gm/cm ³ @ 20°C	Ultimate Tensile Strength	550 MPa
Melting point	1040 - 1060°C	Proof Stress	430 MPa
Electrical Resistivity	5.8 μΩ.m @ 15°C	Elongation	15%
Thermal Conductivity	20 W/mK	Hardness (HBW)	150-190 (H150 condition)

Benefits

- Excellent resistance to corrosion
- Superior wear and abrasion resistance
- Excellent thermal and electrical conductivity

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