TRONAMETAL

TECHNICAL DATA SHEET

Doc Ref: TDS-TRBNS2-01

TRBNS2 (CuNi2Si) / C-18000 (CW111C)

Beryllium-free high-performance copper alloy containing approximately 2.4% Nickel, 0.6% Silicon, and 0.4% Chromium. Delivers reliable hardness, electrical conductivity, and thermal conductivity after hot forging and heat treatment as a practical alternative to CuCoNiBe and CuBe2 alloys.

MATERIAL STANDARDS & DESIGNATIONS

DIN	2.0855
ASTM	C18000
RWMA	CLASS III
EN/ISO	CW111C

CHEMICAL COMPOSITION

NICKEL (Ni)	SILICON (Si)	CHROMIUM (Cr)	COPPER (Cu)
2.2% - 2.6%	0.5% - 0.7%	0.3% - 0.5%	Balance (Rest)

MECHANICAL PROPERTIES

Tensile Strength (Rm)	500 - 700	N/mm^2
Yield Strength (Rp 0.2)	450 - 600	N/mm^2
Elongation (A5)	Min. 5	%
Hardness (HB 30)	180 - 210	HB 30
Elastic Modulus	131×10^3	N/mm^2

PHYSICAL PROPERTIES

Electrical Conductivity	26 - 28 MS/m	% IACS (45 - 48%)
Thermal Conductivity	160	W/(m·K)
Density	8.70	g/cm^3
Specific Heat	0.38	J/(g·K)
Thermal Expansion (20-100 °C)	17.5×10^{-6}	/K
Max Working Temperature	480	°C

KEY APPLICATIONS

Aluminum Die-Casting	Plunger tips (piston heads) as a beryllium-free alternative to CuCoNiBe.
Plastic Injection Molding	Cooling pins and mold inserts as an alternative to CuBe2 and CuCoNiBe.
Non-Ferrous Casting	Molds for non-ferrous casting and chill molds for brass and bronze casting.