C17000 Beryllium Copper

Smiths Advanced Metals

Wear & Galling Resistance

Non-sparking beryllium copper (Alloy 165).

C17000 beryllium copper (Alloy 165) offers good strength and conductivity, with inherently good wear resistance.

The material is non-magnetic and non-sparking, and retains good strength in cryogenic conditions. Threaded joints resist galling against themselves and against stainless steels. It machines easily, much like free-cutting copper alloys, and is weldable using established methods.

Extraction is required where grinding, welding or machining produces dust or fume.

We stock C17000 beryllium copper in a broad range of sizes and shapes, including the HT (TH04) temper.



Grades / Specifications

- UNS C17000 / CW100C
- ASTM B196
- ASTM B194
- AMS 4530

Benefits

- Non-magnetic & non-sparking
- Good wear & galling resistance
- Good strength at cryogenic temperatures

* Chemical Composition (weight %)

	Be	Ni + Co	Ni + Co + Fe	Al	Si	Cu
min.	1.60	0.20				Rem
max.	1.85		0.60	0.20	0.20	

* As per ASTM B196

* Mechanical Properties (HT (TH04), minimum)

Rod Diameter / Bar Thickness	Up to 10 mm	10–25.4 mm	25.4–76.2 mm
0.2% Yield Strength, MPa	1000	1000	930
Tensile Strength, MPa	1210–1450	1170–1450	1140–1380
Elongation, %	2	2	4

* Minimum values; properties vary by rod diameter or bar thickness

Why Specify C17000

Its combination of strength, wear resistance and freedom from galling makes C17000 a long-standing choice for bearings, bushes and threaded components. Because it is non-sparking and non-magnetic, it also suits parts where sparks or magnetism must be avoided.

Physical Properties

C17000 has a density of 8.36 g/cm^3, an elastic modulus of around 131 GPa and a thermal conductivity of around 104 W/m·K. Its electrical conductivity is around 22% IACS, and the melting range is 870–980 °C.

Unit 5 Percy Road,
Huntingdon,
Cambridgeshire PE29 6SZ
Tel: +44 (0) 1767 604710

bsi ISO 9001 Quality Management Systems CERTIFIED
AS/EN 9100 Aviation Space and Defence CERTIFIED
EN 9120 Aviation Space and Defence CERTIFIED
UKAS TESTING 1930

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