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Beryllium Bronze

Description

Beryllium bronze is a copper alloy with copper as the base and beryllium as the primary alloying element. It is one of the highest-performance types of copper alloys.

Features

It is a precipitation-hardening copper alloy with the best elasticity among copper alloys, offering an elastic limit and fatigue life far exceeding those of phosphor bronze and brass. Common designations include QBe2, C17200, and C17300, featuring high elasticity, high electrical conductivity, high thermal conductivity, wear resistance, corrosion resistance, non-magnetic properties, and explosion-proof characteristics. It is ideal for high-end elastic components, conductive wear-resistant parts, mold inserts, and specialized explosion-proof tools.

Parameters

Chemical Composition (Using Common Grades QBe2 / C17200 as an Example)

Be: 1.8 ~ 2.0%

Ni+Co: 0.2 ~ 0.4%

Cu: Balance

Impurities: Trace amount

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Physical Properties

Density: 8.25 g/cm³

Melting point: 865 ~ 955℃

Thermal conductivity: 100 ~ 130 W/(m·K)

Electrical conductivity: 20 ~ 28 %IACS

Coefficient of linear expansion: 17×10^{-6} /℃

Non-magnetic

Designation	CuBe1.7
German W-Nr.	2.1245
Corresponding standard	DIN 17666-1983 Wrought copper alloys; low alloyed; chemical composition
Classification	Copper and copper alloys
Label	Beryllium Copper
Description	Medium electrical conductivity, very high tensile strength, increased temperature resistance. All kinds of springs, membranes, wear-resistant parts, non-radioing tools
Density	8.4 g/cm³

CuBe1.7's Chemical Composition (%)

Composition	Be	Other Total	More
Min.	1.6	-	Cu: Balance; Ni+Co≥0.2; Ni+Fe+Co≤0.6
Max.	1.8	0.5	

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Other Individual or Other Total refers to chemical compositions not specified in the table. Analysis should only be performed when the presence of a substance is assumed or routinely screened for, and there is evidence suggesting its concentration may exceed the specified limit.

Approximate Cross-Reference Table for Wrought High-Copper Alloys

China		Japan	USA		International Organization for Standardization		Germany		Russia	UK	
GB	ISC	JIS	ASTM	UNS	ISO	Numerical Designation	DIN EN/ DIN	W-Nr.	GOST	Commercial Designation	BS EN/ BS
TBe 1.7 QBe 1.7	T17700	C1700 C17000	98Cu-1.7Be-.3Co	C17000	CuBe1.7	C17000	CuBe1.7	C17000 2.1245	БрБНТ1.7	CB101	C17000