Alloy 25

Smiths Advanced Metals

Beryllium-Copper Alloy

Highest strength of all copper-beryllium alloys

Alloy 25 is a versatile alloy with a broad range of attractive performance characteristics, finding use in oil & gas, petrochemical and aerospace.

The alloy is suitable for commercial applications with high strength, thermal and electrical conductivity, fatigue resistance, and corrosion resistance. Alloy 25 offers similar corrosion resistance to commercially pure copper and benefits from excellent wear and galling resistance. The material is non-magnetic, which is unaffected under machining or surface abrasion.

Alloy 25 is not susceptible to hydrogen embrittlement, resisting stress corrosion cracking (SSC) in sulfide and chloride solutions. The alloy meets the requirements of NACE MRO175. We stock Alloy 25 beryllium copper bars in various sizes.

Grades / Specifications

- AMS4533
- AMS4534
- AMS4650
- AMS4651
- ASTM B196
- EN12163
- 98Cu-1.9Be
- CW101C
- UNS C17200

Key Applications

- Bearings and bushings
- Switch parts
- Oil and gas components
- Electrical connectors
- Electromagnetic shielding

Chemical Composition (weight %)

	Cu	Be	Ni + Co	Ni + Co + Fe	Al	Si
min.	Bal	1.80				
max.	Bal	2.00	0.20	0.60	0.20	0.20

As per ASTM B196

*Physical Properties

Elastic Modulus	131 GPa	**Thermal Expansion Coefficient** (20 °C to 200 °C)	17.5 x 10-6 m/m °C
Melting Point	870 °C		
Electrical Conductivity	5.8 - 6.9 µΩ - cm	**Thermal Conductivity** (25 °C)	105 W/m K
** **Density**	8.36 g/cm^3		

* Properties above are for the precipitation age hardened condition (heat treated).
** The value for density listed is after heat treatment. Before heat treatment, the density is 8.30 g/cm^3.

Technical Sales Assistance

To find out more about the Alloy 25 beryllium copper bars and for other technical advice, contact Smiths Advanced Metals today. Our team of qualified metallurgists and engineers will be pleased to assist further on any technical topic.

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