Alloy 25 (C17200)

Smiths High Performance

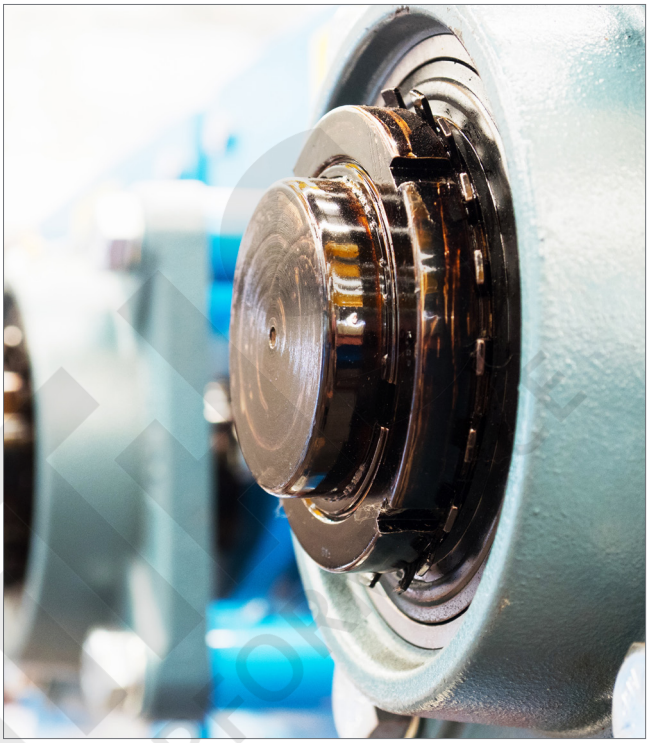
Strength & Fatigue Resistance

Alloy 25 (C17200) is a high-strength beryllium copper alloy.

Utilised in applications requiring good strength and fatigue resistance, Alloy 25 (C17200) is a beryllium-copper alloy which offers a broad range of attractive performance characteristics.

Benefits include good conductivity and corrosion resistance. This high-performance material is non-magnetic, and these qualities are unaffected by machining and surface abrasion.

Once fully heat-treated, no additional treatments are required.



Galling and Wear Resistance:

The galling resistance of the alloy under high load conditions is excellent. Galling resistance, high hardness and low friction performance result in excellent wear resistance in components such as bearings and bushes under conditions with marginal lubrication.

Corrosion Resistance:

The product's corrosion resistance is similar to pure copper; this includes resistance to saltwater environments, non-oxidising acids, dilute alkalis and most organic solutions. The material is stress corrosion resistant in chloride and sulphide solutions and is not subject to hydrogen embrittlement.

The product offers the highest strength of any copper alloy combined with electrical conductivity, which is considerably improved compared to other high-strength copper alloys.

Machinability, brazing and electro-discharge machining are all rated as good. The weldability of the alloy is good to fair.

About Smiths High Performance

Smiths High Performance is a leading stockholder and supplier of high-performance engineering materials. We are material supply chain partners supporting **high-technology market sectors**.

Availability:

Bar, plate, and wire

Benefits:

- Good strength
- Good fatigue resistance
- Excellent high load galling resistance
- Excellent wear resistance
- Non-magnetic

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Further technical data available on the reverse of this Datasheet

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*Chemical Composition (weight, %)

	Be	Co + Ni	Co + Ni + Fe	Al	Si	Cu
Min:	1.80	0.20				
Max:	2.00		0.60	0.20	0.20	Bal

* Properties as per AMS 4533

High Temperature Strength

Temperature, °C	150	200	250	300	350
UTS, MPa	1210	1210	1180	1030	650

Mechanical Properties

	Alloy 25 AT	Alloy 25 HT
UTS, MPa	1130 - 1380	1200 - 1520
0.2% PS, MPa	890 - 1210	1030 - 1380
Elongation, % in 4D	3 - 10	2 - 9
Hardness, HRC	36 - 41	37 - 45
Fatigue strength at 10^8 , MPa	340 - 450	340 - 450
Elastic modulus, GPa	131	131
Thermal conductivity, W/m °C	105	105
Thermal expansion, ppm/°C	17	17
Magnetic permeability	<1.001	<1.001
Density, g/cm³	8.36	8.36

Use in Intake Valves:

Alloy 25 finds use in producing seat inserts for titanium valves used in racing engines. The high copper content combines superior strength with impressive heat transfer qualities. The combination helps promote the intake valve's life expectancy while affording the strength to withstand forces during operation.

Applications:

- Springs
- Intake valves
- Ball bearings
- Combustion chambers

...where performance matters...

When you purchase high-performance materials from **Smiths High Performance**, you will join some of the biggest and best global engineering companies. We are a Tier 1 supply chain partner to the world's leading motorsport companies. Our unique business structure and ethos allow us to offer services otherwise unavailable in this market sector.

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