



Technical Data Sheet

AMS 4881

AMS 4881 is a high-performance alloy known for its exceptional properties and specifications. This nickel aluminum bronze undergoes a heat treatment process that results in mechanical properties that exceed those of commercial nickel aluminum bronzes. Its strength-to-weight ratio is comparable to beryllium copper but without the associated industrial hygiene requirements. Its specifications are similar to AMS-4881 for castings, making it a sought-after alloy for demanding applications.

Key Features:

- ▶ High mechanical strength & hardness
- ▶ Good sliding properties
- ▶ Withstands high loads
- ▶ Corrosion & wear resistant
- ▶ High ductility
- ▶ Stable in vacuum environments
- ▶ Competes with Beryllium Copper
- ▶ Heat-treated to achieve best physical properties
- ▶ Compliant with AMS 4881



Nominal Composition:

Copper (Cu)	Aluminum (Al)	Iron (Fe)	Nickel (Ni)	Manganese (Mn)	Others
Balance	10.5%	4.8%	5.0%	1.5%	max. 0.5%

Applications:

- ▶ Used for a variety of applications in the aerospace industry
- ▶ Developed for aircraft components
- ▶ Retractable landing gear gears & engine spacer bearings
- ▶ Aircraft landing gear bushings
- ▶ Gear wheels, wear & guide plates
- ▶ Suitable for high loads, abrasion & friction at high temperatures
- ▶ Applications in marine, steel & aerospace industries



AMS 4881 is used in a wide range of industries due to its exceptional properties. Originally developed for aircraft components such as retractable landing gear and engine spacer bearings, the alloy has expanded its utility. This versatile alloy is commonly used in aircraft landing gear bearings, tube bending dies, gear wheels, and wear/guide plates. Its unique combination of mechanical strength and corrosion resistance makes it a preferred choice in applications where durability and performance are paramount.



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Mechanical Properties (Nominal values)	Sand Casted	Centrifugally Casted
Tensile Strength R_m (MPa)	896	930
Yield Strength $R_{p0.5}$ (MPa)	724	724
Elongation A_5 (%)	4	6
Brinell Hardness (10/3000)	269	293
Compressive Strength R_{mc} (MPa)	1206	1241
Compressive Yield Strength $R_{pc0.1}$ (MPa)	724	758
Shear Strength R_{cm} (MPa)	552	552
Modulus of Elasticity E (GPa)	124	124
Charpy a_k (J)	5.4	6.8
Fatigue (100 million cycles) σ_N (MPa)	255	255

Physical Properties:

Density ρ (g/cm ³)	Coefficient of Expansion α (10 ⁻⁶ /K)	Thermal Conductivity λ (W/m·K)	Electrical Conductivity (% I.A.C.S.)	Specific Heat c_p (J/g·K)
7.45	16	42	8.2	0.45

Machining Parameters:

Operation	Cutting Speed v_c (m/min)	Feed f (mm/rev)	Depth a (mm)	Tool Specification
Milling – Roughing	100 - 150	0.1 - 0.4	up to 4	K10 - K20
Milling – Finishing	90 - 115	0.05 - 0.1	0.1 - 0.5	K10 - K20
Turning – Roughing	150 - 200	0.1 - 0.2	up to 2	K10 - K20
Turning – Finishing	180 - 250	0.05 - 0.1	0.1 - 0.2	K10 - K20

Scan the QR Code to view our machining recommendations:



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