



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 (ksi) | 130 | 135 |
| Yield Strength $R_{p0.5}$ (ksi) | 105 | 105 |
| Elongation 2" (%) | 4 | 6 |
| Brinell Hardness (10/3000) | 269 | 293 |
| Rockwell Hardness (HRC) | 27 | 30 |
| Compressive Strength R_{mc} (ksi) | 175 | 180 |
| Compressive Yield Strength $R_{pc0.1}$ (ksi) | 105 | 110 |
| Shear Strength R_{cm} (ksi) | 80 | 80 |
| Modulus of Elasticity E (ksi) | 18000 | 18000 |
| Charpy a_k (ft·lbs) | 4 | 5 |
| Fatigue (100 million cycles) σ_N (ksi) | 37 | 37 |

Physical Properties:

| Density ρ (lbs/in ³) | Coefficient of Expansion α (in/in/°F) | Thermal Conductivity λ (W/m·K) | Electrical Conductivity (% I.A.C.S.) | Specific Heat c_p (BTU/lb·°F) |
|--|--|--|--|------------------------------------|
| 0.269 | $9 \cdot 10^{-6}$ | 42 | 8.2 | 0.107 |

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:



Contact us

