

Key Features

- Excellent corrosion resistance
- Moderate strength
- Good weldability

Common Applications

- Transportation
- Pressure vessels
- Cryogenics
- Towers and drilling rigs
- Gas/oil pipes
- Ordnance
- Armor plate

Material Description

Aluminum 5083 is a non-heat treatable alloy known for its exceptional corrosion resistance and high strength. Composed primarily of aluminum, it also contains small amounts of magnesium and manganese, which contribute to its strength and formability. Aluminum 5083 is commonly used in marine applications, including shipbuilding, boat hulls, and offshore structures, due to its excellent resistance to seawater corrosion. It is also utilized in cryogenic applications, such as LNG (liquefied natural gas) storage tanks, thanks to its good weldability and low-temperature properties. Additionally, Aluminum 5083 is employed in structural components for aerospace, transportation, and automotive industries where lightweight materials with high corrosion resistance are required.

Chemical Composition (%)

| | Al | Cr | Cu | Fe | Mg | Mn | Si | Ti | Zn | | |
|-------------|------|------|------|------|-----|------|------|------|------|--|--|
| Min. | 92.4 | 0.05 | | | 4.0 | 0.40 | | | | | |
| Max. | 95.6 | 0.25 | 0.10 | 0.40 | 4.9 | 1.0 | 0.40 | 0.15 | 0.25 | | |

Mechanical Properties

| | |
|---------------------------|------------|
| Ultimate Tensile Strength | 42,000 PSI |
| Tensile Yield Strength | 21,000 PSI |
| Hardness | Brinell 77 |
| Elongation at Break | 25% |

Physical Properties

| | |
|-----------------------|---|
| Density | 0.0961 lb/in ³ (2.66 g/cm ³) |
| Thermal Conductivity | 117W/m.K |
| Modulus of elasticity | 10,300 KSI (71.0 GPa) |
| Melting Point | 1095 - 1,180°F (590.6 - 639 °C) |

Technical Assistance

Our knowledgeable staff, supported by our in-house team of expert metallurgists and engineers, is ready to assist you with any technical inquiries.

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InstaVoxel's quality control system is ISO-9001 certified, and all our partners hold relevant certifications.



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