6063 Aluminum Alloy Overview

6063 aluminum alloy, part of the 6000 series, is a popular choice known for its excellent extrudability and versatile properties. This alloy is widely used in various applications due to its combination of strength, formability, and corrosion resistance.

Chemical Composition

- Aluminum (Al): 98.9%
- Silicon (Si): 0.20-0.60%
- Iron (Fe): 0.35%
- Copper (Cu): 0.10%
- Manganese (Mn): 0.10%
- Magnesium (Mg): 0.45-0.90%
- Chromium (Cr): 0.10%
- Zinc (Zn): 0.10%
- Other Elements: 0.15% total for other elements

Physical Properties

- Density: 2.7 g/cm³ (0.0975 lb/in³)
- Melting Point: 615-655°C (1139-1211°F)

Mechanical Properties

- Tensile Strength: 145-186 MPa (21,000-27,000 psi)
- Yield Strength: 65-145 MPa (9,400-21,000 psi)
- Elongation: 12-25%
- Modulus of Elasticity: 68.9 GPa (10,000 ksi)

Applications

1. Architectural Applications: Used for extruded profiles in window frames, doors, and architectural structures due to its excellent formability and aesthetics.
2. Transportation Industry: Utilized in automotive parts, such as trim and body components, thanks to its lightweight and corrosion resistance.
3. Furniture Manufacturing: Employed in the production of furniture frames and structures due to its design flexibility and durability.
4. Electronics and Appliances: Used for heat sinks and enclosure structures due to its thermal conductivity and corrosion resistance.
5. Pipes and Tubes: Used for various piping and tubing applications due to its corrosion resistance and ease of extrusion.

6063 aluminum alloy's exceptional combination of formability, strength, and corrosion resistance positions it

Email: sales@wdalu.com
Phone/Whatsapp/WeChat: +86 17719845538
Office Add: E6 Building, Zhima Street Park, Zhongyuan District, Zhengzhou City, Henan Province, China.

as a preferred material for a wide range of applications. From architectural designs to electronics and transportation, its adaptability continues to drive innovation and excellence in various industries.

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