

5083 O aluminum plate for electric vehicle battery case

The **5083-O aluminum plate**, an Al-Mg series alloy with 4.0–4.9% magnesium content, is specifically designed to meet the stringent demands of electric vehicle (EV) battery enclosures. Its combination of lightweight characteristics, excellent corrosion resistance, and superior weldability makes it a top choice for EV manufacturers. With a density of 2.66 g/cm³ and tensile strength above 275 MPa, this alloy offers an optimal balance between strength and weight reduction, directly enhancing vehicle range and efficiency.

Key Advantages of 5083-O Aluminum Plate in EV Applications

Lightweight Design: Weighing roughly one-third of steel, it can reduce battery pack weight by up to 30%, enabling longer driving ranges.

Excellent Corrosion Resistance: Performs exceptionally well in humid, saline, or chemical environments, extending battery system lifespan.

Superior Weldability: Compatible with TIG, MIG, and laser welding processes, maintaining ≥90% joint strength after welding.

High Formability: Supports deep-drawing processes for complex enclosure shapes, with elongation rates of ≥10%.

New energy vehicles rely on battery modules as their primary power source, and lightweight design is a key development direction. Aluminum alloys are increasingly being adopted for battery casings due to their distinct advantages. Components such as the battery shell, battery cover, battery box cover, and side plates can all be manufactured from different grades of aluminum alloys.

The **side panel of a new energy vehicle battery** is crucial for protecting the battery. GNEE uses **5083 aluminum plate** for this application. This aluminum-magnesium series alloy offers medium strength, excellent corrosion resistance, good processing and forming capabilities, and low density, making it lightweight and ideal for automotive manufacturing.

Performance Advantages of 5083 Aluminum Alloy Plate

Corrosion Resistance: As an Al-Mg alloy, 5083 exhibits excellent resistance to corrosion, ensuring durability in harsh environments.

Outstanding Weldability: The alloy provides excellent formability and weldability, facilitating easy fabrication of complex structures.

Anti-Fatigue Strength: High resistance to fatigue extends the lifespan of the component under repeated stress.

Recyclable: Fully recyclable, supporting sustainable manufacturing practices.

GNEE's 5083 aluminum plate is a reliable, lightweight, and corrosion-resistant solution for side panels in new energy vehicle battery systems.

Technical Specifications of GNEE 5083-O Plate

Parameter	Details
Alloy State	O (Annealed)
Thickness Range	0.15 mm – 500 mm
Width Range	200 mm – 2650 mm
Certifications	CCS/LR Ship Class, GB/T 3190-2020
Typical Uses	Battery enclosures, vehicle body panels, energy storage casings

Why Choose GNEE as Your Supplier

18 Years of Expertise: ISO-certified manufacturer with extensive experience in producing high-quality 5083 aluminum.

Global Reach: Supplies leading EV brands with a portfolio of 400+ global patents.

Advanced Production Capabilities: Equipped with China's first "1+4" hot rolling line and 3300 mm ultra-wide rolling mills.

Sustainable Operations: Integrates 700,000-ton green aluminum recycling capabilities.

Application Cases in the EV Industry

Case 1: Reduced battery enclosure weight by 30% for a major EV brand, resulting in a 15% increase in driving range.

Case 2: Successfully passed 5,000-hour salt spray tests for energy storage casings used in coastal installations. GNEE's 5083-O aluminum plates provide EV manufacturers with a reliable, lightweight, and corrosion-resistant solution for high-performance battery enclosures.