

Aluminium Plain Sheet Alloy 5083 H111 & H116

AA 5083, a high-magnesium alloy with traces of manganese and chromium, is noted for its remarkable performance in severe situations. AA 5083 is extremely resistant to assault from both marine and industrial chemical conditions. AA 5083 also maintains excellent strength after welding. It has the strongest strength among non-heat-treatable alloys; however, it is not recommended for usage at temperatures above 65° Celsius. Aluminium 5083 is noted for its outstanding performance in harsh situations. 5083 is extremely resistant to assault from both marine and industrial chemical conditions. Alloy 5083 also keeps its excellent strength after welding. It has the strongest strength among non-heat-treatable alloys; however, it is not recommended for usage at temperatures above 65°C.

Applications for Aluminum Alloy 5083

Because of its strength and corrosion resistance, AA 5083 is frequently employed in the shipbuilding sector. It is also well-suited to the following industries: Marine uses include pressure vessels, drilling rigs, transportation equipment, and television/communication towers, to mention a few.

What is Aluminium 5083 Sheet & Plate

The **Aluminium 5083 plates** are made from an aluminum-magnesium-chromium alloy, known for its outstanding performance and versatility. These plates exhibit excellent resistance to seawater, industrial chemicals, and other corrosive or harsh environments. The alloy also offers excellent weldability, even at low temperatures, without the need for preheating or post-weld heat treatment.

Aluminium 5083 has exceptional strength, which it can retain even after welding. It also becomes stronger through cold working while maintaining good heat resistance, making it suitable for use in high-temperature applications. The alloy has excellent thermal conductivity, and in tempered conditions, it demonstrates superior formability and ductility. Because of these properties, it can be easily shaped into various standard and customized forms. Moreover, 5083 aluminum maintains its performance across a wide temperature range without losing its mechanical or structural integrity.

The **Aluminium 5083 plates manufactured by GNEE Aluminum** are produced using advanced machinery and precise processing equipment, ensuring accurate dimensions in terms of size, thickness, and shape. These plates can withstand high pressure and temperature conditions, making them ideal for use in pressure vessel manufacturing and similar applications. Their rust-resistant surface finish and uniform stress distribution further enhance durability and reliability.

To ensure the highest quality, GNEE Aluminum subjects every batch of 5083 plates to a series of rigorous tests, including Positive Material Identification (PMI), Large-scale strength testing, Firmness and Pitting resistance tests, X-ray inspection, and other specialized analyses. The alloy's chemical and mechanical properties are also verified through tensile, elongation, impact, spectrographic, and hydrostatic tests.

Inspection reports are provided to customers along with third-party testing options for full quality assurance. GNEE Aluminum guarantees top-tier product quality, long-lasting performance, and competitive pricing, making our 5083 aluminum plates a reliable choice for demanding industrial and marine applications.

Applications for Aluminium Alloy 5083

Shipbuilding

Vehicle bodies

Pressure vessels

Marine Applications

Drilling Rigs

Transportation Equipment

TV/Communication Towers

Chemical Compositions of Aluminium Alloy 5083

Element	Composition %
Manganese (Mn)	0.40 - 1.0
Iron (Fe)	0.00 - 0.40

Element	Composition %
Copper (Cu)	0.0 - 0.10
Magnesium (Mg)	4.0 - 4.90
Silicon (Si)	0.0 - 0.40
Zinc (Zn)	0.0 - 0.25
Chromium (Cr)	0.05 - 0.25
Titanium (Ti)	0.0 - 0.15
Aluminium (Al)	Balance

Mechanical Properties of Aluminium Alloy 5083 - H111

Property	Value
Proof Stress	115 Min MPa
Tensile Strength	270 - 345 MPa
Elongation at 50 mm	15 Min %
Hardness Brinell	75 HB
Bend Radius 90°	2.5 x t

Please note that Mechanical Properties shown are for H111 temper

Mechanical Properties of Aluminium Alloy 5083 - H116

Property	Value
Proof Stress	215 Min MPa
Tensile Strength	305 MPa
Elongation at 50 mm	15 Min %
Hardness Brinell	85 HB
Bend Radius 90°	3.5 x t

Please note that Mechanical Properties shown are for H116 temper

Generic Physical Properties of Aluminium Alloy 5083

Property	Value
Density	2.65 g/cm ³
Melting Point	570°C
Thermal Expansion	25.0 10 ⁻⁶ / K
Modulus of Elasticity	72 GPa
Thermal Conductivity	121 W/m.K
Electrical Resistivity	0.058 × 10 ⁻⁶ Ω.m