

Aluminium 5083 H321 Sheet Plate

Range

Plates can be cut according to customer specifications. Please contact GNEE for more details.
The plate sizes **4000 x 2000 mm** and **6000 x 2000 mm** are **3.2 certified** by:

LRS

DNV

BV

ABS

Sheet Size	Thickness Range
4000 x 2000 mm	3.0 mm – 25.0 mm
6000 x 2000 mm	3.0 mm – 40.0 mm

5083 aluminum plate is the **highest-strength non-heat-treatable marine-grade aluminum alloy**, providing **excellent resistance to seawater corrosion**. It is well known for **outstanding performance in harsh environments**, being highly resistant to both seawater and industrial chemical attack.

Mechanical properties listed below correspond to the **H321 temper**.

Related Specifications

Alloy **5083** corresponds to the following standard designations and specifications (though not necessarily direct equivalents):

GM41

A95083

AlMg4.5Mn

Al Mg4.5 Mn0.7

Temper Types

The most common temper for 5083 aluminum is **H321**.

Chemical Composition

Alloy 5083 – BS EN 573-3

Element	% Present
Manganese (Mn)	0.40 – 1.00
Iron (Fe)	0.00 – 0.40
Copper (Cu)	0.00 – 0.10
Magnesium (Mg)	4.00–4.90
Silicon (Si)	0.00 – 0.40
Zinc (Zn)	0.00 – 0.25
Chromium (Cr)	0.05 – 0.25
Titanium (Ti)	0.00 – 0.15
Aluminum (Al)	Balance

Mechanical Properties

Sheet thickness: **0.2 mm – 6.0 mm (BS EN 485-2)**

Property	Value
Proof Stress	240 MPa (min)
Tensile Strength	330 MPa
Elongation (A50 mm)	17%
Shear Strength	185 MPa
Hardness (Vickers)	95 HV

General Physical Properties

Property	Value
Density	2.65 g/cm ³
Melting Point	570°C
Thermal Expansion	25×10^{-6} /K
Modulus of Elasticity	72 GPa
Thermal Conductivity	121 W/m·K
Electrical Resistivity	$0.058 \times 10^{-6} \Omega \cdot m$

Applications

Shipbuilding
Railcars
Vehicle bodies
Tipper truck bodies
Mine skips and cages
Pressure vessels

Characteristics

Excellent strength retention after welding
Outstanding performance under extreme environmental conditions
Not suitable for continuous service above 65°C
Classified as a **marine-grade aluminum alloy**

Fabrication

Process	Rating
Workability – Cold	Average
Machinability	Poor

Weldability

When welding **5083 aluminum** to itself or to another alloy in the same series, the **recommended filler metal** is **5183**. Other suitable alternatives include **5356** and **5556**.

Process	Rating
Weldability – Gas	Average
Weldability – Arc	Excellent

Process	Rating
Weldability – Resistance	Excellent
Brazability	Poor
Solderability	Poor

GNEE Aluminum provides high-quality **5083 marine-grade aluminum plates** certified to major classification societies, offering custom cutting and reliable technical support for marine, transport, and industrial applications.