TECHNICAL DATA SHEET

5083 Aluminum

Marine-Grade Magnesium-Manganese Aluminum Alloy

VTECH MATERIALS LIBRARY

Document Control

Document No.	TDS-AL-5083-B209	**Revision**	A
Issue Date	2026-04-08	**Owner**	Engineering
Specification	ASTM B209 Alloy 5083 / JIS A5083	**Product Form / UNS**	Plate, sheet, and welded structural stock / AA5083

Engineering use note: Starter-library values are intended for engineering screening and template standardization. Verify against the latest governing specification, drawing, PO, and MTR before production release.

1. General Description

5083 is a marine-grade magnesium-manganese aluminum alloy included in the VTECH library for quick material screening and template standardization.

2. Chemical Composition (wt%)

Property	Value
Magnesium (Mg)	4.0-4.9
Manganese (Mn)	0.4-1.0
Chromium (Cr)	0.05-0.25
Silicon (Si)	<= 0.40
Iron (Fe)	<= 0.40
Copper (Cu)	<= 0.10
Zinc (Zn)	<= 0.25
Aluminum (Al)	Balance

3. Mechanical Properties

Property	Value
Condition	H116/H321 common marine tempers
Ultimate tensile strength	~290-350 MPa
Yield strength (0.2% offset)	~145-240 MPa
Elongation	~10-16%
Engineering note	Use product-form temper values for design allowables

4. Physical Properties

Property	Value
Density	2.66 g/cm3
Elastic modulus	70 GPa
Thermal conductivity	~121 W/m-K
Melting range	~570-640 C

5. Heat Treatment / Processing

Non-heat-treatable alloy. Marine tempers and welding practice are important to retain corrosion performance.

6. Corrosion / Environmental Performance

Excellent resistance to seawater and industrial marine atmospheres. Frequently chosen for welded marine structures.

7. Key Characteristics

- High magnesium marine alloy
- Excellent seawater corrosion resistance
- Good weldability

8. Typical Applications

- Shipbuilding
- Pressure vessels
- Cryogenic tanks
- Vehicle bodies

9. Standards / Cross-References

ASTM B209 Alloy 5083

JIS A5083

AA5083