Aluminum Alloy 5083 DATA SHEET

EN-AW 5083（AlMg4.5Mn）

Alternative Designations

EN AW-5083 | Al-Mg4,5Mn (ISO) | AA5083 (ANSI/AA) | N8 (BS) | A-G4,5MC (AFNOR) | L-3321 (UNE) | A95083 (UNS) | A5083 (JIS)

Key Features

Moderate strength • Good machinability • Corrosion resistant • Excellent weldability

Description

Aluminium 5083 is a medium-strength alloy with excellent corrosion resistance. It has the highest strength of the non-heat treatable alloys but is not recommended for use in temperatures above 65°C. It is also commonly used in sheet metal fabrications such as HVAC ductwork, kitchen equipment, and light fttings. It has good resistance to corrosion with good machinability. It can be welded using all standard methods but is not recommended for welding in the heat-afected zone of high-strength alloys.

Mechanical Properties

Yield strength	115 200 MPa
Tensile strength	270 345 MPa
Elongation at break	16%
Hardness	81.5
Module of elasticity	71 GPa

Physical Properties

Density	2.66 g/cm³
Electrical conductivity	16 19 m/Ω mm²
Coefcient of thermal expansion	23.8 K-1 10-6
Thermal conductivity	117 W/m K
Specifc heat capacity	900 J/kg K

Chemical Composition

Al	Rest is Al	N	
Bi		Nb	
C		Ni	
Cd		O	-
Co		P	
Cr	0.05 0.25%	Pb	
Cu	0.1%	S	
Fe	0.4%	Si	0.4%
H		Sn	
Mg	4 4.9%	Ti	0.15%
Mn	0.4 1%	V	
Mo		Zn	0.25%

Applications

• Pressure vessels • Rail cars • Shipbuilding • Vehicle bodies • Tipper truck bodies • Mine skips & cages

5083 is an aluminum alloy with magnesium and traces of manganese and chromium. It is known for exceptional performance in extreme environments. Aluminum 5083 is highly resistant to attack by both seawater and industrial chemical environments. It has the highest strength of the non-heat treatable alloys with an Ultimate Tensile Strength of 317 MPa and a Tensile Yield Strength of 228 MPa. It is not recommended for use in temperatures in excess of 65 °C. Alloy 5083 is best known as a plate for ship building. The alloy is also produced as extruded seamless tube and other extrusions and as forgings.