

Grade 5083 aluminium is a non-heat treatable alloy which has additions of magnesium, manganese and chromium that contribute to the material's exceptional performance in extreme environments. Grade 5083 offers a high resistance to attack in both seawater and industrial chemical environments.

Commonly used in plate form Alloy 5083 also retains its good strength levels after welding, and offers the highest strength of the non-heat treatable alloys. This grade is ideal for lower temperature applications, however, 5083 is not recommended for use in temperatures exceeding of 65°C.

Chemical Composition

Aluminium	Rem	Silicon	0.4% max
Copper	0.1% max	Iron	0.4% max
Manganese	0.4 – 1.0%	Magnesium	4.0-4.9%
Zinc	0.25% max	Titanium	0.15% max
Chromium	0.05-0.25%	Total Others	0.15% max

Related Specifications

BS1470: 5083	N8 / NE8	A95083
GM41	Al Mg4.5 Mn0.7	AIMG4.5Mn

Key Features

- Good Mechanical Properties
- Very good corrosion resistance in marine and chemical environments
- Good weldability

Typical Physical Properties

Melting Range	580-645°C
Density	2.67 g/cm ³
Thermal conductivity	109 W/m ² K
Thermal expansion coefficient	24.5 x 10 ⁻⁶
Electrical Conductivity	28.3 IACS
Electrical resistivity	0.061 microhm m
Modulus of elasticity	71 GPa

Fabrication Properties

Cold Formability	Average
Machinability	Poor
Brazing	Poor
Soldering	Poor
Inert Gas Welding	Excellent
Resistance Welding	Excellent

Typical Applications

Alloy 5083 is typically used in many industries including components for shipbuilding, rail cars, vehicle bodies, tipper truck bodies, mine skips and cages and pressure vessels.

This technical information is given by Holme Dodsworth Metals without charge and the user shall employ such information at their own discretion and risk. For more detailed technical advice on temper selection, fabrication, joining, machining, physical and mechanical data please contact us as space does not permit the listing of every feature of the material.