



## Aluminium Alloy - 5083 - H32 Sheet

### SPECIFICATIONS

Commercial	5083
EN	5083

Aluminium 5083 is known for exceptional performance in extreme environments. 5083 is highly resistant to attack by both seawater and industrial chemical environments.

Alloy 5083 also retains exceptional strength after welding. It has the highest strength of the non-heat treatable alloys but is not recommended for use in temperatures in excess of 65°C.

#### Applications

Alloy 5083 is typically used in:

- ~ Shipbuilding
- ~ Rail cars
- ~ Vehicle bodies
- ~ Tip truck bodies
- ~ Mine skips and cages
- ~ Pressure vessels

Mechanical Properties shown are for H32 temper

### CHEMICAL COMPOSITION

BS EN 573-3:2009 Alloy 5083	
Element	% Present
Magnesium (Mg)	4 - 4.9
Manganese (Mn)	0.4 - 1
Iron (Fe)	0.4 max
Silicon (Si)	0.4 max
Zinc (Zn)	0.25 max
Chromium (Cr)	0.05 - 0.25
Titanium (Ti)	0.15 max
Others (Total)	0.15 max
Copper (Cu)	0.1 max
Other (Each)	0.05 max
Aluminium (Al)	Balance

### ALLOY DESIGNATIONS

Alloy 5083 corresponds to the following standard designations and specifications **but may not be a direct equivalent**:

GM41  
A95083  
AIMG4.5Mn  
Al Mg4.5 Mn0.7

### TEMPER TYPES

The most common tempers for 5083 aluminium are:

- O - Soft
- H111 - Some work hardening imparted by shaping processes but less than required for H11 temper
- H32 - Work hardened by rolling then stabilised by low-temperature heat treatment to quarter hard

### SUPPLIED FORMS

- Plate
- Sheet

### GENERIC PHYSICAL PROPERTIES

Property	Value
Density	2.65 g/cm <sup>3</sup>
Melting Point	570 °C
Thermal Expansion	25 x10 <sup>-6</sup> /K
Modulus of Elasticity	72 GPa
Thermal Conductivity	121 W/m.K
Electrical Resistivity	0.058 x10 <sup>-6</sup> Ω .m

### MECHANICAL PROPERTIES

BS EN 485-2:2008 Sheet 0.2mm to 6.00mm	
Property	Value
Proof Stress	215 Min MPa
Tensile Strength	305 - 380 MPa
Hardness Brinell	89 HB

Properties above are for material in the H32 condition



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### WELDABILITY

When welding 5083 to itself or another alloy from the same sub-group, the recommended filler metal is 5183. Other suitable fillers are 5356 and 5556.

Weldability – Gas: Average  
Weldability – Arc: Excellent  
Weldability – Resistance: Excellent  
Brazability: Poor  
Solderability: Poor

### FABRICATION

Workability – Cold: Average  
Machinability: Poor

### CONTACT

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### REVISION HISTORY

Datasheet Updated	13 November 2018
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