Aluminium Alloy
5083 - H32 Sheet

Dalsteel Metals Pty Limited

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)	4.00 - 4.90
Manganese (Mn)	0.40 - 1.00
Silicon (Si)	0.0 - 0.40
Iron (Fe)	0.0 - 0.40
Chromium (Cr)	0.05 - 0.25
Zinc (Zn)	0.0 - 0.25
Titanium (Ti)	0.0 - 0.15
Others (Total)	0.0 - 0.15
Copper (Cu)	0.0 - 0.10
Other (Each)	0.0 - 0.05
Aluminium (Al)	Balance

ALLOY DESIGNATIONS

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

GM41
A95083
AlMG4.5Mn
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/cm³
Melting Point	570 °C
Thermal Expansion	25 $x10^{-6}$ /K
Modulus of Elasticity	72 GPa
Thermal Conductivity	121 W/m.K
Electrical Resistivity	0.058 $x10^{-6}$ 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

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 18 July 2019

DISCLAIMER