

## Alloy Specification Sheet – 5083



Alloy 5083 is highly resistant to attack by both seawater and industrial chemical environments. It has the highest strength of the non-treatable alloys.

Element	% Present
Silicon	0.4
Iron	0.4
Copper	0.1
Manganese	0.4 to 1.0
Magnesium	4.0 to 4.9
Zinc	0.25
Titanium	0.15
Chromium	0.05 to 0.25
Aluminium	Balance

Alloy 5083 is known for exceptional performance in extreme environments and retaining exceptional strength after welding.

Mechanical Property	H32	O/H111
Proof Stress 0.2% (Mpa)	240	145
Tensile Strength (Mpa)	330	300
Shear Strength (Mpa)	185	175
Elongation A5 (%)	17	23
Hardness Vickers (HV)	95	75

Physical Property	Value
Density	2.65 g/cm <sup>3</sup>
Melting Point	570°C
Modulus of Elasticity	72 GPa
Electrical Resistivity	0.058 x 10 <sup>-6</sup> Ωm
Thermal Conductivity	121 W/mK
Thermal Expansion	25 x 10 <sup>-6</sup> / K

Fabrication Process	Rating
Workability – Cold	Average
Machinability	Poor
Weldability – Gas	Average
Weldability –Arc	Excellent
Weldability –Resistance	Excellent
Brazability	Poor
Solderability	Poor

Alloy 5083 is not recommended for use in temperatures in excess of 65°C.

### Applications:-

- Shipbuilding
- Pressure Vessels
- Mine skips and cages
  - Rail Cars
- Tip Truck Bodies

