# 5083 Aluminium

Smiths High Performance



## Extreme Performance

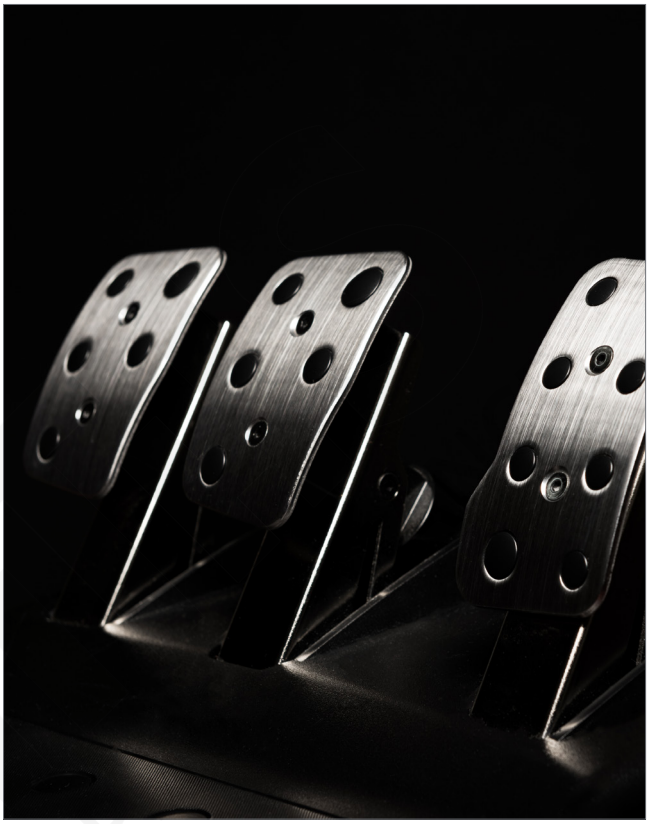
### 5083 aluminium offers high-performance characteristics in the harshest operating environments.

**5083 boasts the highest strength of all non-heat-treatable aluminium alloys.**

The aluminium manganese alloy is cold-worked to achieve its high strength (H temper) and provides excellent corrosion resistance in various operating environments. Traditional use of the alloy is in marine environments where the material finds use in plate form for shipbuilding. However, the product's versatility lends itself to numerous engineering applications.

The alloy achieves excellent strength after welding, although the material is unsuitable at temperatures exceeding 65°C due to susceptibility to stress corrosion cracking (SSC). Welding is excellent by typical methods except gas welding, which is not advisable. Machining 5083 is challenging due to the alloy's high strength and is poorly rated.

5083 aluminium alloy also performs well in cryogenic temperatures with increased strength while retaining good fracture toughness.



## Applications:

- Racing pedals
- Bodywork panels
- Engine blocks
- Welding applications requiring high corrosion resistance

## Benefits:

- Highest strength non-heat-treatable aluminium
- Outstanding corrosion resistance
- Excellent weldability
- Impressive cryogenic temperature performance
- Highly suitable for marine applications

## About Smiths High Performance

**Smiths High Performance** is a leading stockholder and supplier of high-performance engineering materials. We are material supply chain partners supporting **high-technology market sectors**.

SCAN ME

**Further technical data available on the reverse of this Datasheet**

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## * Chemical Composition (weight, %)

| | Mn | Fe | Cu | Mg | Si | Zn | Cr | Ti | Al |
|---|---|---|---|---|---|---|---|---|---|
| Min: | 0.40 | | | 4.00 | | | 0.05 | | Bal |
| Max: | 1.00 | 0.40 | 0.10 | 4.90 | 0.40 | 0.25 | 0.25 | 0.15 | Bal |

* Properties as per BS EN 573-3

## * Mechanical Properties

| | |
|---|---|
| Tensile Strength | 275 - 350 MPa |
| Elongation A50mm | 13% min |
| Hardness Brinell | 75 HBW (typical) |
| Proof Stress | 125 MPa min |

## Physical Properties

| | |
|---|---|
| Density | 2.65 g/cm$^3$ |
| Melting Point | 570°C |
| Thermal Expansion | 25 x10$^{-6}$ /K |
| Modulus of Elasticity | 72 GPa |
| Thermal Conductivity | 121 W/m.K |

* Properties as per BS EN 485-2, H111 (1.5-3.0mm thickness range)

## ...where performance matters...

When you purchase high-performance materials from **Smiths High Performance**, you will join some of the biggest and best global engineering companies. We are a Tier 1 supply chain partner to the world's leading motorsport companies. Our unique business structure and ethos allow us to offer services otherwise unavailable in this market sector.



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