



## C250 Aluminium Cast Machined Tooling Plate

## Material Data Sheet

C250 is manufactured from a 5083 type alloy and is machined to industry standard thickness and flatness tolerances and poly-coated both sides. Special casting and heat treatment techniques make this plate extremely stress free whilst retaining 85-90% of the strength of rolled plate. It will retain its flatness and dimensional tolerances after machining or even after repeated heating and cooling. Like rolled 5083, C250 has excellent machining, welding and anodising properties. However, we recommend that you do not etch prior to anodising as this adversely affects the grain structure on the surface of the plate.

### Mechanical Properties

|                                  |             |
|----------------------------------|-------------|
| Tensile Strength $R_m$ (Mpa)     | Typical 275 |
| Yield Strength $R_{p0.2}$ (Mpa)  | $\geq 125$  |
| Modulus of Elasticity (Mpa)      | $\sim 7000$ |
| Elongation $A_5$ (%)             | $\geq 15$   |
| Brinell Hardness HBS 2.5/62.5/30 | $\geq 75$   |

### Physical Properties

|  |           |
|--|-----------|
| Coefficient of Thermal Expansion ( $10^{-6}/K$ ) | 23.3      |
| Thermal Conductivity (W/mk)                      | 110 - 130 |
| Electrical Conductivity (MS/m)                   | 16.2      |
| Specific Heat Capacity (25 - 100 °C) (J/kgK)     | 900       |
| Density (g/cm <sup>3</sup> )                     | 2.66      |

### Chemical Composition

|           |           |        |           |
|-----------|-----------|--------|-----------|
| Magnesium | Manganese | Others | Aluminium |
| 4 - 5%    | < 1%      | 1.5%   | Balance   |

### Tolerances

|                   |                       |                              |                           |
|-------------------|-----------------------|------------------------------|---------------------------|
| Flatness          | 5mm thick (+/- 0.8mm) | 6mm - 1/2" thick (+/- 0.4mm) | > 1/2" thick (+/- 0.13mm) |
| Thickness         |                       | +/- 0.1mm                    |                           |
| Surface Roughness |                       | Better than 0.40 $\mu$ m     |                           |