



Aluminium Alloy - 6063 - T4 Extruded Rod and Bar

SPECIFICATIONS

| | |
|------------|------|
| Commercial | 6063 |
| EN | 6063 |

Aluminium Alloy 6063

Aluminium alloy 6063 is a medium strength alloy commonly referred to as an architectural alloy. It is normally used in intricate extrusions.

It has a good surface finish, high corrosion resistance, is readily suited to welding and can be easily anodised. Most commonly available as T6 temper, in the T4 condition it has good formability.

Applications

6063 is typically used in:

Architectural applications

Extrusions

Window frames

Doors

Shop fittings

Irrigation tubing

In balustrading the rails and posts are normally in the T6 temper and formed elbows and bends are T4. T4 temper 6063 aluminium is also finding applications in hydroformed tube for chassis.

Aluminium Alloy 6063A

Aluminium alloy 6063A is a variation of 6063 with greater strength but retains the same good surface finish qualities and affinity for anodising.

Applications

6063A is used in the same applications as 6063. It is also used in:

Road transport

Rail transport

Extreme sports equipment

CHEMICAL COMPOSITION

| BS EN 573-3:2009 Alloy 6063 | |
|--------------------------------|------------|
| Element | % Present |
| Magnesium (Mg) | 0.45 - 0.9 |
| Silicon (Si) | 0.2 - 0.6 |
| Iron (Fe) | 0.35 max |
| Others (Total) | 0.15 max |
| Manganese (Mn) | 0.1 max |
| Zinc (Zn) | 0.1 max |
| Titanium (Ti) | 0.1 max |
| Chromium (Cr) | 0.1 max |
| Copper (Cu) | 0.1 max |
| Other (Each) | 0.05 max |
| Aluminium (Al) | Balance |

ALLOY DESIGNATIONS

Aluminium alloy 6063/6063A also corresponds to the following standard designations and specifications **but may not be a direct equivalent:**

AA6063

Al Mg0.7Si

GS10

AlMgSi0.5

A-GS

3.32206

ASTM B210

ASTM B221

ASTM B241 (Pipe- Seamless)

ASTM B345 (Pipe- Seamless)

ASTM B361

ASTM B429

ASTM B483

ASTM B491

MIL G-18014

MIL G-18015

MIL P-25995

MIL W-85

QQ A-200/9

SAE J454

UNS A96063

HE19



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TEMPER TYPES

The most common temper for 6063 aluminium are:

- O - Soft
- T4 - Solution heat treated and naturally aged to a substantially stable condition
- T6 - Solution heat treated and artificially aged

SUPPLIED FORMS

Alloy 6063 is supplied as standard extrusions including tee, channel, angle and flat bar as well as box section and tube

- Extrusions
- Tube

GENERIC PHYSICAL PROPERTIES

| Property | Value |
|------------------------|------------------------------|
| Density | 2.70 g/cm ³ |
| Melting Point | 600 °C |
| Thermal Expansion | 23.5 x10 ⁻⁶ /K |
| Modulus of Elasticity | 69.5 GPa |
| Thermal Conductivity | 200 W/m.K |
| Electrical Resistivity | 0.035 x10 ⁻⁶ Ω .m |

MECHANICAL PROPERTIES

| <i>BS EN 755-2:2008 Extruded Rod and Bar Up to 150mm Dia or A/F</i> | |
|---|-------------|
| Property | Value |
| Proof Stress | 90 Min MPa |
| Tensile Strength | 150 Min MPa |
| Elongation A50 mm | 10 Min % |
| Hardness Brinell | 50 HB |
| Elongation A | 12 Min % |

Properties above are for material in the T4 condition

WELDABILITY

6063 is suitable for all conventional welding methods. Welding wire generally should be alloy 5183 or alloy 4043.

When maximum electrical conductivity is required use alloy 4043.

For strength and conductivity use alloy 5346 and increase the size of the weld to compensate for the lower conductivity.

Weldability – Gas: Excellent

Weldability – Arc: Excellent

Weldability – Resistance: Excellent

Brazability: Excellent

Solderability: Good

FABRICATION

Workability - Cold: Average

Machinability: Average



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CONTACT

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REVISION HISTORY

| | |
|-------------------|-----------------|
| Datasheet Updated | 11 January 2016 |
|-------------------|-----------------|

DISCLAIMER

This Data is indicative only and as such is not to be relied upon in place of the full specification. In particular, mechanical property requirements vary widely with temper, product and product dimensions. All information is based on our present knowledge and is given in good faith. No liability will be accepted by the Company in respect of any action taken by any third party in reliance thereon.

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