

## SPECIFICATIONS

|            |      |
|------------|------|
| Commercial | 5251 |
| EN         | 5251 |

Aluminium alloy 5251 is a medium strength alloy possessing good ductility and therefore good formability. Alloy 5251 is known for work hardening rapidly and is readily weldable. It also possesses high corrosion resistance particularly in marine environments.

### Applications

5251 is typically used in:

- ~ Boats
- ~ Panelling and pressings
- ~ Marine structures
- ~ Aircraft parts
- ~ Vehicle panels
- ~ Furniture tubing
- ~ Silos
- ~ Containers

Mechanical Properties shown are for H26 condition - Mechanical properties for other tempers are shown on page 2.

## CHEMICAL COMPOSITION

| BS EN 573-3:2009<br>Alloy 5251 |           |
|--------------------------------|-----------|
| Element                        | % Present |
| Magnesium (Mg)                 | 1.7 - 2.4 |
| Manganese (Mn)                 | 0.1 - 0.5 |
| Iron (Fe)                      | 0.5 max   |
| Silicon (Si)                   | 0.4 max   |
| Copper (Cu)                    | 0.15 max  |
| Zinc (Zn)                      | 0.15 max  |
| Chromium (Cr)                  | 0.15 max  |
| Titanium (Ti)                  | 0.15 max  |
| Others (Total)                 | 0.15 max  |
| Other (Each)                   | 0.05 max  |
| Aluminium (Al)                 | Balance   |

## ALLOY DESIGNATIONS

Alloy 5251 also corresponds to the following standard designations and specifications **but may not be a direct equivalent**:rms to:

Al Mg2

Al 2.0Mg 0.3Mn

## TEMPER TYPES

The most common tempers for 5252 aluminium are:

- H24 - Work hardened by rolling then annealed to half hard
- H26 - Work hardened by rolling then annealed to three-quarter hard
- O - Soft
- H22 - Work hardened by rolling then annealed to quarter hard

## SUPPLIED FORMS

- Plate
- Sheet

## GENERIC PHYSICAL PROPERTIES

| Property               | Value                        |
|------------------------|------------------------------|
| Density                | 2.69 g/cm <sup>3</sup>       |
| Melting Point          | 625 °C                       |
| Thermal Expansion      | 25 x10 <sup>-6</sup> /K      |
| Modulus of Elasticity  | 70 GPa                       |
| Thermal Conductivity   | 134 W/m.K                    |
| Electrical Resistivity | 0.044 x10 <sup>-6</sup> Ω .m |

## MECHANICAL PROPERTIES

| BS EN 485-2:2008<br>Sheet<br>0.2mm to 4mm |               |
|-------------------------------------------|---------------|
| Property                                  | Value         |
| Proof Stress                              | 170 Min MPa   |
| Tensile Strength                          | 230 - 270 MPa |
| Hardness Brinell                          | 69 HB         |

Properties above are for material in the H26 condition

## WELDABILITY

Aluminium alloy 5251 is a readily weldable alloy. The recommended filler wire is 5356 when welding alloy 5251 to itself, 6XXX series alloys, 7XXX series alloys and most other 5XXX alloys. When welding alloy 5251 to 5005, 5020, 1XXX series or 3XXX series alloys, the recommended filler wire is 4043.

Weldability – Gas: Very Good  
Weldability – Arc: Very Good  
Weldability – Resistance: Very Good  
Brazability: Poor

## FABRICATION

Workability – Cold: Very Good  
Machinability: Average

## CONTACT

**Address:** Please make contact directly with your local service centre, which can be found via the Locations page of our web site  
**Web:** [www.aalco.co.uk](http://www.aalco.co.uk)

## REVISION HISTORY

**Datasheet Updated** 18 July 2019

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