

## Aluminium Alloy - 5251 - H14/H24

Last Updated 18 July 2019

### 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 .

### CHEMICAL COMPOSITION

BS EN 573-3:2009 Alloy 5251	
Element	% Present
Magnesium (Mg)	1.70 - 2.40
Manganese (Mn)	0.10 - 0.50
Iron (Fe)	0.0 - 0.50
Silicon (Si)	0.0 - 0.40
Chromium (Cr)	0.0 - 0.15
Titanium (Ti)	0.0 - 0.15
Zinc (Zn)	0.0 - 0.15
Copper (Cu)	0.0 - 0.15
Others (Total)	0.0 - 0.15
Other (Each)	0.0 - 0.05
Aluminium (Al)	Balance

### ALLOY DESIGNATIONS

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

- Al Mg2
- Al 2.0Mg 0.3Mn

### TEMPER TYPES

The most common tempers for 5251 aluminium are:

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

### SUPPLIED FORMS

- Plate
- Sheet
- Coil

### 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

**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. Please note that the 'Datasheet Update' date shown above is no guarantee of accuracy or whether the datasheet is up to date. The information provided in this datasheet has been drawn from various recognised sources, including EN Standards, recognised industry references (printed & online) and manufacturers' data. No guarantee is given that the information is from the latest issue of those sources or about the accuracy of those sources. Material supplied by the Company may vary significantly from this data, but will conform to all relevant and applicable standards. As the products detailed may be used for a wide variety of purposes and as the Company has no control over their use; the Company specifically excludes all conditions or warranties expressed or implied by statute or otherwise as to dimensions, properties and/or fitness for any particular purpose, whether expressed or implied. Advice given by the Company to any third party is given for that party's assistance only and without liability on the part of the Company. All transactions are subject to the Company's current Conditions of Sale. The extent of the Company's liabilities to any customer is clearly set out in those Conditions; a copy of which is available on request.



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### MECHANICAL PROPERTIES

BS EN 485-2:2008 sheet and plate 0.2mm to 12.5mm	
Property	Value
<b>Proof Stress</b>	140 Min MPa
<b>Tensile Strength</b>	210 - 250 MPa
<b>Hardness Brinell</b>	62 HB

Properties above are for material in the H24 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

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