



## Aluminium Alloy - 5251 - 'O' Sheet and Plate

### 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 0 condition - Mechanical properties for other tempers are shown on page 2.

### CHEMICAL COMPOSITION

BS EN 573-3:2009 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**:

- 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 Sheet and Plate 0.2mm to 50.00mm	
Property	Value
Proof Stress	60 Min MPa
Tensile Strength	160 - 200 MPa
Hardness Brinell	44 HB

Properties above are for material in the Soft O condition



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### 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: Wilsons Ltd  
Nordic House  
Old Great North Road  
Huntingdon  
PE28 5XN  
Tel: +44 (0)1480 456421  
Email: [sales@wilsonsmetals.com](mailto:sales@wilsonsmetals.com)  
Web: [www.wilsonsmetals.com](http://www.wilsonsmetals.com)

### REVISION HISTORY

Datasheet Updated 13 November 2018

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Temper	H22	H24	H26	0
Proof Stress 0.2% (MPa)	165	190	215	80
Tensile Strength (MPa)	210	230	255	180
Shear Strength (MPa)	125	135	145	115
Elongation A5 (%)	14	13	9	26
Hardness Vickers (HV)	65	70	75	46