

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 H22 condition - Mechanical properties for other tempers are shown on page 2.

CHEMICAL COMPOSITION

Element	% Present
Manganese (Mn)	0.10 - 0.50
Iron (Fe)	0.50 Typical
Copper (Cu)	0.15 Typical
Magnesium (Mg)	1.70 - 2.40
Silicon (Si)	0.40 Typical
Zinc (Zn)	0.15 Typical
Chromium (Cr)	0.15 Typical
Titanium (Ti)	0.15 Typical
Aluminium (Al)	Balance

ALLOY DESIGNATIONS

Alloy 5251 also conforms 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

PHYSICAL PROPERTIES

Property	Value
Density	2.69 Kg/m ³
Melting Point	625 °C
Thermal Expansion	25 x10 ⁻⁶ /K
Modulus of Elasticity	70 GPa
Thermal Conductivity	134 W/m.K
Electrical Resistivity	0.044 x10 ⁻⁶ Ω .m

MECHANICAL PROPERTIES

Property	Value
Proof Stress	165 MPa
Tensile Strength	210 MPa
Elongation	14 %
Shear Strength	125 MPa
Hardness Vickers	65 HV

Properties above are for material in the H22 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

DISCLAIMER

This Data is indicative only and must not be seen as a substitute for the full specification from which it is drawn. In particular, the mechanical property requirements vary widely with temper, product and product dimensions. The information is based on our present knowledge and is given in good faith. However, no liability will be accepted by the Company in respect of any action taken by any third party in reliance thereon.

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.

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