

PLASTESTRIP

PROFILES

1-4 Enterprise Park, St Austell,
Cornwall, PL25 4EJ, UK
t: +44 (0)1726 74771
f: +44 (0)1726 69238
e: sales@plastestrip.com
w: www.plastestrip.com

General Manager
Patrick Hennelly: 07506 224144
Sales Manager
Mark Henderson: 07971 316106
Sales Office Manager
Claire Hemingway: 01726 74771

5251 - H22 Sheet and Plate

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.

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

Chemical Composition

Spec: BS EN573-3:2009

Alloy 5251

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

Properties

Physical Property	Value
Density	2.69 g/cm 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

Spec: BS EN 485-2:2008

Sheet and Plate - 0.2mm to 25mm

Mechanical Property	Value
Proof Stress	120 Min MPa
Tensile Strength	190 - 230 MPa
Hardness Brinell	56 HB

Alloy Designations

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

Al Mg2
Al 2.0Mg 0.3Mn

Supplied Forms

- Plate
- Sheet

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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