THAMES STOCKHOLDERS
A Division of SMITHS

5251 Aluminium

ALUMINIUM ALLOY SHEET

Product Overview

Designed for general sheet metalwork, **5251 (NS4)** is an alloyed non-heat treatable aluminium sheet product which is ideal for applications where a greater degree of formability is required combined with higher mechanical property characteristics.

The alloy is internationally recognised as EN AW 5251 H22 and is AlMg2 hardened to the quarter-hard temper. 5251 aluminium supplied by Thames will meet all appropriate domestic and international standards.

Corrosion Resistance

This aluminium sheet alloy offers superior corrosion resistance in typical, industrial and marine environments.

Surface Treatment

5251 provides good anodising properties from both a decorative and technical perspective and finds use in industrial applications and architectural work.

Machining & Welding

Compared to pure aluminium, 5251 offers higher strength and extra hardness, resulting in improved machinability. Whilst not quite as good as heat-treated alloys, 5251 has reasonable machinability for its intended application. Heat-treated alloys may have greater hardness but reduced formability. Aluminium geometry cutting tools are recommended, which should be run at a moderate speed to avoid edge build-up.

5251 aluminium may be welded by MIG or TIG processes. A good weld should have a strength of up to 160MPa - this is based on the quality of the welding and weld type. Recommended filler metals include 5056A or 5154A for welding to 5251 structures.

Cut to Size Guillotined Blanks

Edge deviation over cut length/width ± 0.2mm per m (maximum thickness 6.35mm)

Typical Applications

- Boiler making, pressure vessels
- Architectural fascias and panelling
- Welded structures
- Offshore applications
- Heat transfer devices
- Cabinets and appliances
- Chemical and pharmaceutical

Key Benefits

- Superior corrosion resistance
- Good surface finish with very good anodising qualities
- Very good marine corrosion resistance
- Great combination of formability and strength
- Very good welding characteristics
- Can be processed to close tolerances
- Improved machinability properties

Customer Benefits

- Ideal for offshore applications
- A good all-rounder for sheet metal work
- Economic supply to close tolerances
- Ideal for welding fabrication
- Supplied with vinyl-protected coating if required

Cold Formability

Reasonable cold formability - 5251 is an ideal specification when a combination of moderate bending with good strength is needed.

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* Chemical Composition (weight, %)

	Al	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others (ea)	Others (total)
Min.	Bal				0.10	1.70					
Max.	Bal	0.40	0.50	0.15	0.50	2.40	0.15	0.15	0.15	0.03	0.15

* Properties as per BS EN 573-3

* Mechanical Properties (typical)

Tensile Strength	N/mm^2 (Rm)	190 - 230
Yield Strength	N/mm^2 (Rp0.2)	120 min
Elongation	% (A50)	8 min
Brinell Hardness	HB	56 (typical)
Thermal Conductivity	W/m.K	149
Electrical Conductivity	% IACS	39.4
Coefficient of Thermal Expansion	1/K	23.5x10
Elastic Modulus	MPa	70000

* Properties as per BS EN 485-2, H22 (1.5-3.0mm thickness range)

The mechanical properties of 5251 provide the best combination of good strength and reasonable formability. If you require substantially higher mechanical properties with minimal forming, we recommend Grade 6082 T6(51). Grades 3103 (NS3) and 1050A (S1B) offer improved formability with reduced mechanical properties.

Get in Touch

Our team of dedicated technical representatives offer a wealth of experience. We also offer you access to our Group's **UKAS Accredited Testing Laboratory** where we can provide you with full metallurgical support and a broad range of material testing and analysis.

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