

5251 (NS4) ALUMINIUM

ALUMINIUM ALLOY SHEET

PRODUCT DESCRIPTION

Designed for general sheet metal work **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.

TECHNICAL DESCRIPTION

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

CORROSION RESISTANCE

This sheet alloy offers very good corrosion resistance in normal, industrial and marine environments.

SURFACE TREATMENT

5251 has very good anodising properties from both a decorative and technical perspective.

MACHINING

When compared to pure aluminium, 5251 offers higher strength and extra hardness which results in improved machinability. Whilst not quite as good as heat-treated alloys, 5251 has quite 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 reasonable speed to avoid edge build-up.

WELDING

Easily 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.

COLD FORMABILITY

Reasonable cold formability - 5251 is an ideal specification when moderate bending is required with good strength.



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

- Very good 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
- Good all-rounder for sheet metal work
- Economic supply to close tolerances
- Ideal for welding fabrication
- Can be supplied with vinyl protected coating

CUT TO SIZE GUILLOTINED BLANKS

Edge deviation over cut length/width $\pm 0.2\text{mm}$ per m (maximum thickness 6.35mm)

CUT TO SIZE SAWN BLANKS

Edge deviation over cut length/width $+1.5,-0\text{mm}$ (minimum thickness 3mm)

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CHEMICAL COMPOSITION (weight %)

	Al	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others	
Min	REM				0.10	1.70				Each	Total
Max		0.40	0.50	0.15	0.50	2.40	0.15	0.15	0.15	0.03	0.15

MECHANICAL PROPERTIES (Typical)

Tensile strength	N/mm ² (Rm)	200-240
Yield strength	N/mm ² (Rp0.2)	Min 130 (approx. only)
Shear strength	N/mm ²	125
Elongation	% (A50)	4-8
Brinell Hardness	HB	60
Thermal conductivity	W/m.K	149
Electrical conductivity	% IACS	39.4
Coefficient of thermal expansion	1/K	23.5x10 ⁻⁶
Elastic modulus	MPa	70000

The mechanical properties of 5251 are the best combination of good strength and reasonable formability. If substantially higher mechanical properties are required with minimal forming we recommend the use of grade 6082 T6(51). Improved formability with reduced mechanical properties can be found with grades 3103 (NS3) and 1050A (S1B).

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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