

1050A (S1B)

Technical Datasheet

Aluminium Alloy Sheet Service. Quality. Value.

Typical Applications

- General sheet metal work
- Packaging
- Boiler making
- Heat transfer devices
- Kitchenware
- Chemical industry
- Pharmaceutical industry
- Automotive industry
- Architecture
- Cabinets
- Appliances
- Vessels
- Panelling

Product Description

An unalloyed ('pure') non-heat treatable rolled aluminium sheet engineered for general sheet metal work where high mechanical properties are not required.

Technical Description

Internationally recognised grade EN AW 1050A H14 – 99.50% pure aluminium (Al 99.5) sheet strain hardened to the half-hard temper. The previous BS specification was known as S1B and the half-hard temper was known as H4, giving S1B H4. Smiths range of 1050A will meet all appropriate national/international standards.

Product Attributes	Customer Benefits
Good surface finish Very good anodising qualities Very good corrosion resistance	Excellent aesthetics
Capable of cold forming	Ideal for sheet metal work applications which do not need high strength
Very good welding qualities	Ideal for welding fabrication
Close tolerance sheet	Components are easier to manufacture/assemble and have closer tolerances
Close tolerance cut to size service for both cut blanks and circles/rings	Uneconomic cutting to size and stockholding costs are removed – your highly skilled operators and resources are used more efficiently
Immediate or just-in-time delivery	

Corrosion Resistance

Unalloyed aluminium sheet has very good corrosion resistance and can be used in normal, industrial and marine environments without problems. Where the sheet is being specifically used in marine environments it may be worthwhile reviewing alloyed aluminium grades, such as 5251 (NS4), which may be generally more suitable to marine environment applications.

Welding

1050A is easily welded by MIG or TIG processes, with a recommended filler metal of 1050A (S-AI99.5) or 4043A (S-AISi5) for welding to 1050A structures. A good weld is likely to have a strength of up to 65Mpa, although this will be dependent on the type and quality of welding.

Cold Formability

1050A H14 has good formability and is the ideal specification when bending or spinning is required with fair strength.

Cut to Size Guillotined Blanks

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

Cut to Size Sawn Blanks

Edge deviation over cut length/width +1.5,-0mm (minimum thickness 3mm)

Cut to Size Capability

Smiths Metal Centres carry a full range of 1050A in both imperial and metric sizes. Our close tolerance high capacity guillotines can cut accurately to exact customer requirements, whether that be 1 blank or 10,000 blanks. The cut blanks will be delivered immediately when cut or just in time to meet your schedules. We can also stamp or turn circles or rings to your specifications as part of our first stage engineering capability.

Machining

Pure aluminium has only fair machinability due to the softness of the alloy. The half-hard temper increases the hardness over the annealed/soft base alloy but could not be described as free chipping compared to the harder, alloyed aluminium's. We recommend aluminium geometry cutting tools running at a reasonable speed to avoid the edge build-up which can occur at lower cutting speeds. High speed steel tools may be more economical than carbide, particularly with the possibility of a large rake angle on machines which cannot reach carbide cutting speeds.

Surface Treatment

Grade 1050A has very good anodising properties for both decorative and technical requirements. It is also well-suited to chemical and electrolytic brightening.

Vinyl Coating

Smiths can supply aluminium sheet vinyl-coated for surface protection during machining, bending and fabrication. Our CNC vinyl coating line can apply a variety of coatings and colours dependent on your exact requirements

Chemical Composition (weight %)

	Al	Si	Fe	Cu	Mn	Mg	Zn	Ti	Others (ea)
Min	99.50								
Max		0.25	0.40	0.05	0.05	0.05	0.07	0.05	0.03

Typical Mechanical Properties

Tensile strength	N/mm ²	100-135
Yield strength	N/mm ²	Min 75 (approx. only)
Shear strength	N/mm ²	70
Elongation	% (A50)	4-8
Brinell Hardness	HB	35
Thermal conductivity	W/m.K	229
Melting range	°C	645-657
Electrical conductivity	% IACS	58.4
Coefficient of thermal expansion	1/K	23.5x10 ⁻⁶
Elastic modulus	MPa	69000

The mechanical properties of (unalloyed) 1050A are low. The corollary of this is the good forming properties of this grade. If both forming and higher mechanical properties are required then we recommend the potential selection of grades 3103 (NS3) or 5251 (NS4). In general, the better mechanical properties the lower the formability.

Technical Assistance

Our knowledgeable staff backed up by our resident team of qualified metallurgists and engineers, will be pleased to assist further on any technical topic.

UK Service Centres:

Smiths Belfast **02895 908 897**
 Smiths Biggleswade **01767 604 704**
 Smiths Birmingham **0121 728 4940**
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 Smiths Nottingham **0115 925 4801**
 Smiths Redruth **01209 315 512**
 Smiths Verwood **01202 824 347**
 Main Office **0845 527 3331**

Quality & Testing:



www.smithmetal.com info@smithmetal.com