

M82 Aluminium Precision Plate (6082 - T651)



Product Datasheet

Revision: SMC/M82/01/08/2019

Service. Quality. Value.

Outstanding Machinability

M82 is a heat-treated precision plate product produced in 6082 T651 aluminium. This plate product offers a range of excellent performance characteristics when compared with standard 6082.

Combining excellent machinability and stability, M82 can be machined consistently from one batch to another without the need for changes in machine setup. As the product is manufactured to tighter tolerances (refer to page 2), wastage, when producing finished components, can be kept to a minimum. As a result of these qualities, M82 offers machine shops an accurate, consistent and cost-effective material solution.

Superior Flatness

The surface of the material is a bright finished finish on both sides, resulting in a product with an aesthetically appealing appearance. Resultant tests also confirm M82's suitability to anodising.

Superior flatness is achieved by levelling and controlled stretching operations. The alloy can be machined using standard machining equipment, including cutting and punch drilling.

Applications

M82 Precision Plate is suitable for a wide variety of high technology applications, including component manufacture and precision tooling.

Key Features

- Excellent machinability
- Produced to tighter dimensional tolerances
- Excellent surface finish - aesthetically pleasing
- Consistent and stable under machining
- Minimal wastage
- Cost-effective
- Good corrosion resistance
- Ideal for accurate machining operations



Available Sizes

Thickness	5.0 mm to 60.0 mm
Width	1270 mm to 1520 mm
Length	2520 mm to 3020 mm

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Chemical Composition (in weight, %)

%	Cu	Mg	Si	Fe	Mn	Zn	Ti	Cr
Min		0.6	0.7		0.4			
Max	0.10	1.2	1.3	0.50	1.0	0.20	0.10	0.25

Mechanical & Physical Properties

Properties	5mm - 12.5mm	Over 12.5mm	Unit
Ultimate Tensile Strength (min)	300	295	MPa
0.2% Yield Strength (min)	255	240	MPa
Elongation (min)	9	8	%
Typical Fatigue Strength		110	MPa
Typical Hardness Brinell		95	HB
Density		2.70	g/cm ³
Thermal Conductivity at 100oC		180-189	W/m°C
Electrical Resistivity at 20°C		0.038 x 10 ⁻⁶	Ωm
Modulus of Elasticity		70	GPa
Coefficient of thermal expansion		24 x 10 ⁻⁶	°C
Melting Range		555-650	°C

Thickness

Metric	Imperial	Tolerance	Metric	Imperial	Tolerance
5.0mm		+/- 0.21	30mm		+/- 0.53
6.0mm		+/- 0.22	31.75mm	1¼"	+/- 0.55
8.0mm		+/- 0.28	35.0mm		+/- 0.60
10.0mm		+/- 0.32	38.1mm	1½"	+/- 0.60
12.7mm	½"	+/- 0.42	40.0mm		+/- 0.60
16.0mm		+/- 0.42	45.0mm		+/- 0.70
19.05mm	¾"	+/- 0.49	50.0mm		+/- 0.75
20.0mm		+/- 0.49	50.8mm	2"	+/- 0.80
25.0mm		+/- 0.53	55.0mm		+/- 0.82
25.4mm	1"	+/- 0.53	60.0mm		+/- 0.90

All tolerances guaranteed before and after sawing
 All plates finished on top and bottom surfaces
 Plates comply with BS EN 573-3, BS EN 485-2, BSEN 485-3.

Thickness tolerances are produced to 0.7 x EN specification for thicknesses up to and including 25.4mm thick. Thicknesses above 25.4mm are produced at EN tolerances. (EN485-3)

UK Service Centres:

Smiths Belfast	02895 908 897	Smiths Leeds	0113 307 5167
Smiths Biggleswade	01767 604 704	Smiths Manchester	0161 794 8650
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Smiths Gateshead	0191 469 5428	Smiths Verwood	01202 824 347
Smiths Horsham	01403 261 981	Main Office	0845 527 3331

Quality & Testing:



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