

Aluminium Precision Machined Tooling Plate

ENAW - 5083



MG METALS

Product Information

Two sided precision machined plate was developed from aluminium alloy ENAW 5083 (AlMg4.5Mn0.7).

Rolling ingots are used for production which have a fine-grained, homogeneous structure with only low microporosity created in a modified casting process and specific heat treatments.

This process creates precision plates which boast very good flatness tolerances, high strength and comes with protective foil coating on both faces.

Typical Applications

- Tooling, Jigs and Fixtures
- CNC machining of components
- Mould making
- Precision engineering

Key Benefits

- Excellent flatness tolerances
- Very good corrosion resistance
- Extremely low residual stress
- Very good homogeneity
- Good technical anodising properties

Alloy's Characteristics

Alloy	EN/AA 5083
Type of Alloy	non heat treatable
Temper	homogenised and stress relieved
Surface	precision milled, roughness R _a 0.4 µm, foiled on both sides

Aluminium Precision Machined Tooling Plate

ENAW - 5083



MG METALS

Mechanical Properties		Typical Values
Yield strength	[MPa]	110 - 130
Ultimate tensile strength	[MPa]	230 - 290
Elongation strength A ₅	[%]	10 - 15
Hardness	[2.5/62.5]	68 - 75

Physical Properties		Typical Values
Density	[g/cm ³]	2.66
Modulus of elasticity	[GPa]	70
Electrical conductivity	[m/0mm ²]	16 - 18
Coefficient of thermal expansion	[K ⁻¹ • 10 ⁻⁶]	23.3
Thermal conductivity	[W/m • K]	110 - 130
Specific heat capacity	[J/kg • K]	900

Processing Characteristics ²	
Dimensional stability	1-2
Machinability	2
Erodability	1
Weldability (Gas/TIG/MIG/Resistance/EB)	4/2/2/2/1
Corrosion resistance (seawater/weather/stress cracking)	1/1/3
Use at temperature (max °C long/short terms)	
Formability	5
Anodising (technical/decorative/hard) ²	2/6/2
Polishability	2-3
Etching	4-5
Contact with food (according to DIN EN 602)	Yes

Tolerances			
Thickness in [mm]	Flatness [mm] ⁴	Thickness [mm]	Width & Length (mm)
5	0.80	± 0.1	-0/+10
6 - 12.7	0.40	± 0.1	-0/+10
>12.7	0.13	± 0.1	-0/+10

1) Typical values at room temperature 2) Comparing evaluation rating from 1 (very good) to 6 (inapplicable) 3) Only technical anodising - no warranty towards optical demands
4) Surface flatness for whole plates is measured with a special digital flatness ruler with a measuring length of 1 metre

Important Information: The information given on this data sheet is for guidance only and as such cannot be relied upon in place of the full specification. No liability will be accepted by the Company in respect of any action taken by any third party in reliance thereon. The information given above is drawn from various recognised sources. No guarantee is given that the data shown above is from the latest issue or about the accuracy of those sources.