

# 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 <sub>a</sub> 0.4 µm, foiled on both sides

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

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

Processing Characteristics <sup>2</sup>	
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 termes)	
Formability	5
Anodising (technical/decorative/hard) <sup>2</sup>	2/6/2
Polishability	2-3
Etching	4-5
Contact with food (according to DIN EN 602)	Yes

Tolerances			
Thickness in [mm]	Flatness [mm] <sup>4</sup>	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