Technical Datasheet

5083-C AlMg4.5Mn0.7

Cast sawn plates

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BRIEF DESCRIPTION

5083-C has been specifically developed for low–pressure processing (thermoforming, RTM) of plastics and their composites. The material can also be used for prototype injection moulds.
The material properties are enhanced by its stringent casting process which considerably reduces porosity throughout the thickness of the plate.

PROCESSING METHODS

Weldability

TIG/MIG	excellent
Filler alloy	AA 5183 AA 5356
by resistance	excellent

Anodizing

technical	good
decorative	not suitable

Machinability excellent

Corrosion behaviour
excellent in inland atmosphere
fair in marine atmosphere

AVAILABILITY

5083-C is available in temper O3 (homogenised) in thicknesses above 150 mm up to 600 mm with following dimensions :

Thickness (over… to…)	Dimensions
150 – 350 mm	1520 x 3020 mm
350 – 400 mm[1)]	1520 x 3020 mm
400 – 600 mm[2)]	1450 x 3020 mm

[1)] Plates are supplied in as-cast width of 1620 mm
[2)] Plates are supplied in as-cast width of 1520 mm

(other dimensions on request)

Plate dimensions 500 x 2020 x 4020 mm are available on request, with dimensional tolerances as indicated herewith.

For thicknesses up to and including 150 mm, alloy EN AW-5083 H111 is recommended.

CHEMICAL COMPOSITION (weight %)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti +Zr
max. 0.4	max. 0.4	max. 0.10	0.40 1.00	4.0 4.9	0.05 0.25	max. 0.25	max. 0.15

PHYSICAL PROPERTIES (nominal values)

Density	2.72 g/cm^3
Elastic modulus	71000 MPa
Lin. thermal expansion coefficient (20°-100°C)	23.8 10^{-6} K^{-1}
Thermal conductivity	105-120 W/mK
Electrical conductivity (20°C)	15-17 MS/m

MECHANICAL PROPERTIES

Guaranteed minimum tensile properties (Temper O3, at ¼-thickness)

Thickness (over ... to)	Rm [MPa]	Rp0.2 [MPa]	A50 [%]
150 - 400 mm	210	110	5
400 - 600 mm	210	110	5

Typical mechanical properties for various thicknesses (at ¼-thickness)

Thickness (over .. to)	Rm [MPa]	Rp0.2 [MPa]	A50 [%]	HB
150 - 400 mm	235	115	9.5	70
400 - 600 mm	235	115	9.5	70

TOLERANCES

Thickness (over … to …)	Tolerances Thickness	Width	Length
150 – 350 mm	+ 5 / - 0 mm	+ 8 / - 0 mm	+ 40 / - 0 mm
350 – 600 mm[1)]	+ 5 / - 0 mm	+ 20 / - 0 mm	+ 40 / - 0 mm

[1)]400 mm thick plates are obtained by scalping the ingot; thickness tolerance is +8/-0 mm. Other thicknesses are obtained by slicing.

Thickness (over … to …)	Longitudinal flatness (typical value)
150 – 350 mm	2 mm / 1000 mm
350 – 600 mm	2 mm / 1000 mm