Technical Datasheet

EN AW-5083 / AlMg4.5Mn0.7

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Euralco Europe BV
www.euralco.com

BRIEF DESCRIPTION

Alloy 5083 is used for shipbuilding, and machine parts which are subjected to moderate stress.

Examples include, fast moving boats , superstructures of mega yachts as well as welded machines and assemblies, pressure vessels and cryogenic apparatus.

PROCESSING METHODS

Weldability

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

Anodizing

• technical	excellent
• decorative	moderate

Machinability good

Corrosion Behaviour

- excellent in inland atmosphere
- excellent in marine atmosphere

AVAILABILITY

5083 sheets and plates are available in tempers 0/H111 all thicknesses and for a limited thickness range also in tempers H12/22/32, H14/24/34, and H16/26/36.

Thickness	Max. width
0.5 - 3 mm	2000 mm
3 - 20 mm	2400 mm
20 – 100 mm	2200 mm

For thicknesses above 100 mm, casted plates in alloy 5083 are 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	2.66 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 STRENGTH

Min. tensile properties (EN Standard 485-2)

Thickness (over ... to)	Rm [MPa]	Rp0.2 [MPa]	A50 [%]
Tempers 0 / H111			
1.0 - 50 mm	275	125	15
50 - 80 mm	270	115	14
80 - 100 mm	260	110	12
Temper H22/321/H116			
3.0 - 10 mm	305	215	8
Temper H24/34			
3.0 – 8.0 mm	340	250	7
Temper H26/36			
1.0 – 3.0 mm	360	280	3
Temper H16			
0.5 – 4.0 mm	360	300	2