Data Sheet:

EN AW 5083
Rolled products for Marine applications

Alumeco A/S

Internal alloy name: **5083**

International alloy name: **EN AW 5083**
Chemical Symbol: **EN AW – AlMg4,5Mn0,7**

DIN-Werkstoff no.: **3.3547**
Alloy type: **Non treatable alloy**

Main usage:

- Marine and offshore applications

Main properties:

- Very good atmospheric corrosion resistance
- Very good workability
- Good machinability

Extra Comment:

Product made of 5xxx alloys with nominal magnesium content equal to or higher than 3 % in the H116 and H321 tempers shall be capable of exhibiting no evidence of exfoliation corrosion when subjected to ASTM G66 accelerated exfoliation corrosion susceptibility test and/or Intergranular corrosion susceptibility according to ASTM G67

Typical Alumeco products with this alloy:

- Sheet can be classified according DNV, ABS, LR as standard
- BV classification can be additional added to the products.

Important norms and literature:

Rolled products:
EN485-1: Technical conditions for inspection and delivery
EN485-2: Mechanical properties
EN485-3: Tolerances on dimensions and form hot rolled products
EN485-4: Tolerances on dimensions and form cold rolled products

Usages:
EN 13195: Specifications for wrought products for marine applications

Chemical composition:
EN573-3: Chemical composition

Corrosion test:
ASTM G66: Standard test method for Visual assessment of Exfoliation Corrosion Susceptibility of 5xxx Series Aluminium Alloys
ASTM G67: Standard test method for Determining the Susceptibility to Intergranular Corrosion of 5xxx Series Aluminium Alloys by Mass Loss After Exposure to Nitric Acid

3rd party classification:
DNVGL – RU – Ship Pt.2 Ch.2
Lloyd's Register Rules for the manufacture, testing and certification of materials, Chapter 8

Chemical composition. EN573-3:2013

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Remarks	Other elements Each	Other elements together
0,4	0,4	0,10	0,40-1,0	4,0-4,9	0,05-0,25	0,25	0,15	N/A	0,05	0,15

Mechanical properties. EN485 - 2

Thickness range (mm)	Temper	Rm MPa	$Rp_{0,2}$ Min. MPa	$A_{50\ mm}$ / A Min. %	Hardness* HB	Bend radius* 180º	Bend radius* 90º
3,0 up to 6,3	H111	275 - 350	125	15	75		1,5t
6,3 up to 12,5	H111	270 - 345	115	16	75		2,5t
12,5 up to 50,0	H111	270 - 345	115	15	75		
3,0 up to 6,3	H321	Min. 305	215	10	89		2,5t
6,3 up to 12,5	H321	Min. 305	215	12	89		4,0t
12,5 up to 40,0	H321	Min. 305	215	10	89		
40,0 up to 80,0	H321	Min. 285	200	10	83		

According Mill specification (Not specified in EN485-2)

80 up to 100	H321	Min. 285	200	10			
100 up to 150	H321	Min. 270	200	12			
150 up to 200	H321	Min. 256	159	12			

*** Information values only;**

Physical properties:

Density g/cm³	Solidification range °C	Electrical conductivity %IACS	Thermal conductivity W/m K	Thermal expansion (µm m^{-1} K^{-1})	Annealing temperature	E - modulus (N / mm^2)
2,66	580 - 640	28,5	117	23,8	330 – 400 ºc	71.000

Properties and information's (3 high/good; 2 Middle; 1 Poor/bad)

Resistance:
Corrosion index, general: 3
Marine Atm. Corr index: 3

Hot workability:
Extrusion: 2
Forging: 2

Cold formability:
Cold formability general: 2
Deep drawing: 2
Bending: 2 – 3 (Depending on the temper)

Weldability
TIG welding: 3
MIG welding: 3

Solderability
Brazability index: 2
Solderability index: 2

Machinability
Machinability index: 3

Tips on machinability:

Cast material can be received without internal tensions.

Anodizing:
Decorative anodizing surface treatment: 1
Protective anodizing index: 3
Hard anodizing: 3
Color anodizing: 2

General Information:
Decorative Anodizing can be a challenge due to the composition of the alloy.