**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.