



Marine &amp; Offshore

Certificate number: 19448/D1 BV

File number: MAT 62545-2007

Product code: 90111

*This certificate is not valid when presented without the full attached schedule composed of 7 sections*

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## APPROVAL CERTIFICATE for MATERIALS

*This certificate is issued to*

**ELVALHALCOR HELLENIC COPPER AND ALUMINIUM INDUSTRY S.A.**  
Oinofyta, Viotia - GREECE

*for the type of product*

### WROUGHT ALUMINIUM ALLOY PRODUCTS

Plates, sheets and strips in grades 5083, 5086 and 5383.

#### Requirements:

Bureau Veritas Rules on Materials and Welding for the Classification of Marine Units

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.*

**This certificate will expire on: 31 May 2027**

**For Bureau Veritas Marine & Offshore,**

At BV PIRAEUS, on 19 Oct 2023,

Spyros KONTOULIS

***This certificate was created electronically and is valid without signature***



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site [www.veristar.com](http://www.veristar.com). Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

## **THE SCHEDULE OF APPROVAL**

### **1. PRODUCT DESCRIPTION :**

Wrought aluminium alloy products: plates, sheets and strips.

<b>Aluminium Alloy</b>	<b>Temper condition</b>	<b>Maximum thickness</b>
5083	O/H111/H321	Up to 50mm
	H116	Up to 50mm
5086	O/H111/H321	Up to 12.7mm
	H116	Up to 50mm
5383	H116	Up to 40mm

Alloys and slabs are made at casting sections. Rolled products made by hot rolling followed or not by cold rolling as applicable.

### **2. DOCUMENTS AND DRAWINGS :**

2.1-As per following documents issued by ELVAL S.A.

- Documentation submitted on 29/03/2007.
- "Rolled products in aluminium alloys 5083&5086-Manufacturing process" Rev.01 dated 18/05/2017.
- "Rolled products in aluminium alloys 5383-Manufacturing process" Rev.01 dated 02/02/2023.

2.2- Mechanical properties for products delivered in O/H111 temper condition are to be as per EN485-2:

<b>Aluminium Alloy</b>	<b>Rp0.2 (N/mm<sup>2</sup>)</b>	<b>Rm (N/mm<sup>2</sup>)</b>	<b>Elongation A %</b>
5083	115 min.	240 - 345	15 min.
5086	100 min.	240 - 310	16 min.

### **3. TEST REPORTS :**

3.1-As per following documents issued by ELVAL S.A.

- Documentation submitted on 29 March 2007.
- Photomicrographs submitted on 23 May 2007.
- Reports issued for coil No.163111701 dated 20/12/2016, issued for coils No.163038001, No.163514901, No.163111601, No.163444401 dated 23/02/2017, for coil No.171616901 dated 26/06/2017, reports "exfoliation corrosion test G66" & "Intergranular corrosion test G67" dated 25/01/2017.
- "Test report\_5383-H116" issued for coils No.223686401, 222336801, 223659901, 223974901 dated 16/12/2022.

3.2 - Report No.170510-8 dated 05/05/2017 issued by spectrullabs (Pireas).

### **4. APPLICATION / LIMITATION :**

As per Bureau Veritas Rules for Classification.

### **5. PRODUCTION SURVEY REQUIREMENTS :**

5.1 -The wrought aluminium alloy products are to be supplied by ELVALHALCOR HELLENIC COPPER AND ALUMINIUM INDUSTRY S.A. in compliance with the type and the requirements described in this certificate.

5.2 - This type of product is within the category IBV of Bureau Veritas Rule Note NR320.

5.3 - BV product certificate is required.

5.4 - For information, ELVALHALCOR HELLENIC COPPER AND ALUMINIUM INDUSTRY S.A. has declared to Bureau Veritas the following production site:

**ELVALHALCOR HELLENIC COPPER AND ALUMINIUM INDUSTRY S.A.**

Lamia National Road (57 km)

32011 Oinofyta, Viotia

GREECE

**6. MARKING OF PRODUCT :**

As per Bureau Veritas Rules for Classification.

**7. OTHERS :**

This certificate replaces approvals from No.19448/A0 BV to No.19448/D0 BV.

It is ELVALHALCOR HELLENIC COPPER AND ALUMINIUM INDUSTRY S.A.'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

**\*\*\* END OF CERTIFICATE \*\*\***