



Marine & Offshore

Certificate number: 70071/A0 BV

File number: MAT 1391-2022

Product code: 9009I

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

INDUSTEEL BELGIUM SA - GROUPE ARCELORMITTAL
CHARLEROI - BELGIUM

for the type of product

EXTRA HIGH STRENGTH STEEL ROLLED PRODUCTS

Steel plates in BV grade E550

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: 21 Sep 2027

For Bureau Veritas Marine & Offshore,

At BV ANTWERP, on 21 Sep 2022,

Nele Appels

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. 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 :

Hot rolled plates.

Steel grade	Deoxidation practice and Refining	Delivery condition
E550	Killed and fine grain treated with Al	Quenched and Tempered (Q&T) with thickness up to 40mm.

Steelmaking by EAF, Ladle Furnace and Decarburization (VOD). Continuous Casting. Minimum reduction ratio 3:1.

2. DOCUMENTS AND DRAWINGS :

2.1 - As per following document issued by Industeel Belgium SA - Groupe Arcelormittal.:

- "Technical documentation for initial BV approval" dated August 2022.

2.2 - Chemical composition specification on ladle (wt%) of steel grades E550 (Continuous casting) issued by Industeel Belgium SA - Groupe Arcelormittal is in line with NR216 requirement.

2.3 - CTOD tests according to ISO 12135:2021 have been carried out on base metal (E550 - QT - plate No.456451001 - 40mm) and, on butt weld assemblies with same plates. Results are summarized hereafter:

Grade	Temperature	Notch position	CTOD values (mm)
E550	-10°C	Base metal	0.100 / 0.150 / 0.040

Grade	Max Heat input (kJ/cm)	Temperature	Notch position	CTOD values (mm)
E550	26	-10°C	CGHAZ	0.050 / 0.080 / 0.060

3. TEST REPORTS :

As per following documents issued by Industeel Belgium SA - Groupe Arcelormittal:

- "Test report for E550 - QT - 40mm" dated 31/August/2022

- "Weldability test report for E550 - QT - 40mm", Ref N° 22/125 and 22/126 dated 06/07/2022.

- "CTOD test reports for E550 - QT - 40mm", Ref N° 22/126 and 22/124 dated 06/07/2022.

4. APPLICATION / LIMITATION :

As per Bureau Veritas Rules for Classification.

5. PRODUCTION SURVEY REQUIREMENTS :

5.1-The rolled products are to be supplied by Industeel Belgium SA - Groupe Arcelormittal 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.

6. MARKING OF PRODUCT :

As per Bureau Veritas Rules for Classification.

7. OTHERS :

Nil.

*** END OF CERTIFICATE ***