



Marine & Offshore

Certificate number: 10124/E0 BV

File number: MAT 2108/02

Product code: 9006I

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

Ilsenburger Grobblech GmbH
Ilsenburg - GERMANY

for the type of product

NORMAL STRENGTH HULL STEEL ROLLED PRODUCTS

Hot rolled plates in steel grade A, B, D, E

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 Dec 2025

For Bureau Veritas Marine & Offshore,

At BV HAMBURG, on 21 Dec 2020,

Jens Bauermeister



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	Deoxydation practice & Refining	Delivery conditions
A	Killed and Al or Al+Nb fine grain treated	Normalized (N) with maximum thickness 100mm Controlled Rolled (CR) with maximum thickness 40mm
B	Killed and Al or Al+Nb fine grain treated	Normalized (N) with maximum thickness 85mm Controlled Rolled (CR) with maximum thickness 32mm
D	Killed and Al or Al+Nb fine grain treated	Normalized (N) with maximum thickness 85mm Controlled Rolled (CR) with maximum thickness 32mm
E	Killed and Al or Al+Nb fine grain treated	Normalized (N) with maximum thickness 85mm

No steelmaking.

2.DOCUMENTS AND DRAWINGS :

2.1 As per following documents issued by Ilsenburger Grobblech GmbH:

- General information dated January 2016.
- Technological parameters "TP_A,B,D,E Rev.0" dated 09 September 2020.
- Manufacturing procedure for plates "MP_A,B,D,E Rev.0" and "Annex1" dated 09 September 2020.

3.TEST REPORTS :

3.1 - As per following documents issued by Ilsenburger Grobblech GmbH:

- Test reports issued for approvals AC/D-07-05-258 and AC/D-12-01-219.
- "Test report of the salzgitter AG, Werk Ilsenburg, for the approval of high strength steel EH36 Normalized" dated 16 March 2000.
- "Test report for the approval of the alloying composition Al-Nb-V NV E36-Normalised-100mm" dated 18 April 2006.
- Statistic data "SD_A - E Rev.0" dated 30 November 2020.

4.APPLICATION / LIMITATION :

As per Bureau Veritas Rules for Classification.

Plates rolled from slabs supplied by Salzgitter Flachstahl GmbH or other steel manufacturer approved by BV for the type of steel to be rolled.

5.PRODUCTION SURVEY REQUIREMENTS :

5.1 - The rolled plates are to be supplied by Ilsenburger Grobblech GmbH 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 :

This certificate replaces certificates of approval n°AC/D-07-05-258, AC/D-12-01-219, and from No.10124/A0 BV to No.10124/D0 BV.

*** END OF CERTIFICATE ***



Marine & Offshore

Certificate number: 10125/E0 BV

File number: MAT 2108-2006

Product code: 9007I

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

Ilsenburger Grobblech GmbH
Ilsenburg - GERMANY

for the type of product

HIGHER STRENGTH HULL STEEL ROLLED PRODUCTS

Hot rolled plates in steel grade AH32, DH32, EH32, AH36, DH36, EH36

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 Dec 2025

For Bureau Veritas Marine & Offshore,

At BV HAMBURG, on 21 Dec 2020,

Jens Bauermeister



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	Deoxydation practice & Refining	Delivery conditions
AH32 / DH32 AH36 / DH36	Killed and Al or Al+Nb fine grain treated	Normalized (N) with maximum thickness 100mm Controlled Rolled (CR) maximum thickness 30mm
EH32 / EH36	Killed and Al or Al+Nb fine grain treated	Normalized (N) with maximum thickness 100mm

No steelmaking.

2.DOCUMENTS AND DRAWINGS :

2.1 As per following documents issued by Ilsenburger Grobblech GmbH:

- General information dated January 2016.
- Technological parameters "TP_AH32 - EH36 Rev.0" dated 09 september 2020.
- Manufacturing procedure for plates "MP_AH32 - EH36 Rev.0" and "Annex1" dated 09 september 2020.

3.TEST REPORTS :

3.1 As per following documents issued by Ilsenburger Grobblech GmbH:

- Test reports issued for approvals AR/D-11-01-140 and AR/D-11-02-125.
- "Test report of the salzgitter AG, Werk Ilsenburg, for the approval of high strength steel EH36 Normalized" dated 16 March 2000
- "Test report for the approval of the alloying composition Al-Nb-V NV E36-Normalised-100mm" dated 18 April 2006.
- Statistic data "SD_AH32 - EH36 Rev.0" dated 30 November 2020.

4.APPLICATION / LIMITATION :

As per Bureau Veritas Rules for Classification.

Plates rolled from slabs supplied by Salzgitter Flachstahl GmbH or other steel manufacturer approved by BV for the type of steel to be rolled.

5.PRODUCTION SURVEY REQUIREMENTS :

5.1 - The rolled plates are to be supplied by Ilsenburger Grobblech GmbH 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 :

This certificate replaces certificates of approval n°AR/D-11-01-140, AR/D-11-02-125, and from No.10125/A0 BV to No.10125/D0 BV.

*** END OF CERTIFICATE ***



Marine & Offshore

Certificate number: 16351/C0 BV

File number: MAT 2108 - 2009

Product code: 9012I

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

Ilsenburger Grobblech GmbH
Ilsenburg - GERMANY

for the type of product

FERRITIC STEEL ROLLED PRODUCTS FOR LOW TEMPERATURE APPLICATIONS

Plates made of steel grades 5,0Ni and 9,0Ni

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: 27 Nov 2024

For Bureau Veritas Marine & Offshore,
At BV HAMBURG, on 27 Nov 2019,
Jens Bauermeister



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 :

Plates in ferritic steel .

Steel grade	Deoxydation practice & Refining	Delivery conditions
5,0Ni	Killed and fine grain treated	Quenched and Tempered (QT) up to 50mm
9,0Ni	Killed and fine grain treated	Quenched and Tempered (QT) up to 50mm

Steel making by Basic Oxygen Converter, Ladle furnace and Vacuum degassing, cast by continuous casting at Salzgitter AG, Werk Salzgitter works.

Plates making by hot rolling followed by Quenching and Tempering treatment at Ilsenburg works.

2. DOCUMENTS AND DRAWINGS :

2.1 - Documents issued by Ilsenburger Grobblech GmbH:

- "Test report for the approval of Ni alloy steels for low temperature service" received on 27 November 2007.
- " Manufacturing procedure for plates for renewal 16351/B0 BV", Technological parameters - TP-5,0Ni_9,0Ni dated 23/10/2019.

3. TEST REPORTS :

3.1 - Documents issued by Ilsenburger Grobblech GmbH:

- Statistic data - SD-5,0Ni_9,0Ni dated 23/10/2019.
- "Test report for the approval of Ni alloy steels for low temperature service" received on 27 November 2007.

4. APPLICATION / LIMITATION :

As per Bureau Veritas Rules for Classification.

Raw materials are to be supplied by Bureau Veritas approved manufacturer.

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - The steel plates are to be supplied by Ilsenburger Grobblech GmbH 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 :

This certificate replaces approvals No.16351/A0 BV and No.16351/B0 BV.

*** END OF CERTIFICATE ***



Marine & Offshore

Certificate number: 11808/E0 BV

File number: MAT 2108/01

Product code: 9012I

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

Ilsenburger Grobblech GmbH
Ilsenburg - GERMANY

for the type of product

FERRITIC STEEL ROLLED PRODUCTS FOR LOW TEMPERATURE APPLICATIONS

Plates made of steel grade 510LF, grade 13MnNi6-3 according to standard EN10028-4

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: 12 Dec 2027

For Bureau Veritas Marine & Offshore,

At BV HAMBURG, on 12 Dec 2022,

Udo Storm

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 :

Plates made of BV steel grade 510LF for low temperature applications or comparable grade 13MnNi6-3 according to standard EN 10028-4.

Steel grade	Minimum T°C Design	Deoxydation practice & Refining	Delivery conditions
510LF	see note (1)	Killed and fine grain treated with Al+Nb+V	Normalised (N) up to 50mm

(1) Applications to which IMO/IGC apply; minimum T°C design of -55°C up to 25mm, -50°C up to 30mm, -45°C up to 35mm, -40°C up to 40mm and special consideration by Bureau Veritas above 40mm.

Steelmaking by Basic Oxygen process. Continuous casting. Slab manufacturing subcontracted to Salzgitter Flachstahl GmbH. Plates making by hot rolling followed by normalizing treatment. Normalizing heat treatment carried out by Ilsenburger Grobblech GmbH.

2.DOCUMENTS AND DRAWINGS :

- 2.1 - As per documents issued by Ilsenburger Grobblech GmbH:
 - Documents under Ref.IL G-KGZ-M dated January 2016,
 -"General manufacturing procedure for plates Ref. PL-13MnNi6-3 Rev.0" dated 02/03/2017,
 -"Renewal TAC 11808/C0 BV- Technological parameters Ref.TP-13MnNi6-3 Rev.0" dated 11/05/2017.
 -"Procedure for measurement of plate thickness Rev.2" dated 04/11/2022.

3.TEST REPORTS :

- 3.1 - As per following documents:
 - Statistic data Ref.SD-13MnNi6-3 Rev.01 dated 11/08/2017 issued by Ilsenburger Grobblech GmbH.
 - Report "Zulassungsprüfung SKS 50 Strangguß (13 Mn Ni 63)" dated 12/03/1980 issued by Stahlwerke Peine-Salzgitter AG.

4.APPLICATION / LIMITATION :

As per Bureau Veritas Rules for Classification. Slabs are to be supplied by steel mills approved by Bureau Veritas for the steel grade to be produced.

5.PRODUCTION SURVEY REQUIREMENTS :

- 5.1 - The steel plates are to be supplied by Ilsenburger Grobblech GmbH 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 :

This certificate replaces approvals from No.11808/A0 BV to No.11808/D0 BV.

*** END OF CERTIFICATE ***



Marine & Offshore

Certificate number: 07888/F0 BV

File number: MAT 2108/01

Product code: 9007I

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

www.veristar.com

APPROVAL CERTIFICATE for MATERIALS

This certificate is issued to

Ilsenburger Grobblech GmbH
Ilsenburg - GERMANY

for the type of product

HIGHER STRENGTH HULL STEEL ROLLED PRODUCTS

Hot rolled plates made of steel grades AH32, DH32, EH32, FH32, AH36, DH36, EH36, FH36, AH40, DH40, EH40 and FH40

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 is a renewal of certificate N° 07888/E0 BV expiring on 08/11/2023

This certificate will expire on: 08 Nov 2028

For Bureau Veritas Marine & Offshore,

At BV HAMBURG, on 07 Nov 2023,

Udo Storm

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	Deoxydation practice & Refining	Delivery conditions
AH32 - DH32 EH32 - FH32	Killed and fine grain treated with Al+Nb+Ti	Thermomechanically Rolled (TMCP) up to 100mm
AH36 - DH36 EH36 - FH36	Killed and fine grain treated with Al+Nb+Ti	Thermomechanically Rolled (TMCP) up to 100mm
AH40 - DH40 EH40 - FH40	Killed and fine grain treated with Al+Nb+Ti	Thermomechanically Rolled (TMCP) up to 100mm

Steel making by Basic Oxygen Converter and cast by continuous casting at Salzgitter AG, Werk Salzgitter.

2. DOCUMENTS AND DRAWINGS :

2.1 Documents issued by Ilsenburger Grobblech GmbH:

- Document Ref.IL G-KGZ-M.K. Tigges dated January 2016.
- "Technological parameters" Ref.TP-AH32-FH40 TMCP dated 09/02/2018.
- "General - Manufacturing procedure for plates for renewal certificate 07888/D0 BV" Ref.PL-AH32-FH40 TMCP" dated 31/01/2018.
- "Procedure for measurement of plate thickness Rev.2" dated 04/11/2022.

3. TEST REPORTS :

3.1 - Reports issued by Ilsenburger Grobblech GmbH:

- "Test report for the approval extension of higher strength steels for hull and other structural applications".
- "Test report of the Preussag Stahl AG, Mill Ilsenburg, for the approval of higher strength steel FH36, thermomechanically controlled rolled" dated 1997.
- "Statistic data for renewal certificate 07888/D0 BV" Ref.SD6AH32-FH40 TMCP dated 09/02/2018.

4. APPLICATION / LIMITATION :

As per relevant Bureau Veritas Rules for Classification. Raw materials are to be supplied by Bureau Veritas approved manufacturer.

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - The steel plates are to be supplied by Ilsenburger Grobblech GmbH 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, Ilsenburger Grobblech GmbH has declared to Bureau Veritas the following production site:

Ilsenburger Grobblech GmbH
Veckenstedter Weg 10
D-38871 Ilsenburg
GERMANY

6. MARKING OF PRODUCT :

As per Bureau Veritas Rules for the Classification of Steel Ships.

7. OTHERS :

This certificate replaces approval number 90071/07888/A0 dated 02 November 1998, and, approvals from No.07888/B0 BV to No.07888/E0 BV.

It is Ilsenburger Grobblech GmbH'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 *****