

Certificate number: SMS.W.I./58347/A.0



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# RECOGNITION FOR BV MODE I SCHEME

# Jiangsu Shagang Group Co. Ltd.

Zhangjiagang - CHINA

Summary of the range of the recognition which is detailed in the subsequent page(s):

PLATE, SECTION AND BAR - G0493

Hull structural steel plate: Normal, high strength & super high steel plate

See detail on type approval certificate

This certificate is issued to attest that BUREAU VERITAS has performed, at the above company's request and in compliance with the requirements of NR320, a satisfactory assessment of the quality management system related to the range of the recognition.

This certificate will expire on: 06 Jun 2018

For BUREAU VERITAS, At BV SHANGHAI, on 09 Jun 2014, Jennifer Zhang





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. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine Division 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 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.

Certificate number: SMS.W.I./58347/A.0

# **THE SCHEDULE OF RECOGNITION**

## 1. RANGE OF THE RECOGNITION

App. number	Validity date	Item designation	Trade name
19935/B0 BV	08 Jan 2018	NORMAL STRENGTH HULL STEEL ROLLED PRODUCTS - 9006I	Slabs and hot rolled plates in steel grades A, B, D and E.
19936/B1 BV	08 Jan 2018	HIGHER STRENGTH HULL STEEL ROLLED PRODUCTS - 9007I	Slabs and hot rolled plates in steel grades AH32/36/40, DH32/36/40, EH32/36/40, FH32/40.
29867/A0 BV	15 Jan 2018	EXTRA HIGH STRENGTH STEEL ROLLED PRODUCTS - 9009I	Hot rolled plates in steel grades A420 to F690 including Z15-Z35 properties.

Generic product	Description	
PLATE, SECTION AND BAR	Hull structure steel plate	

# 2. LIMITATIONS

The certificates listed in the range of recognition are to be valid.

Bureau Veritas is to be informed immediately of any modification to quality management system in order to agree on appropriate actions.

Jiangsu Shagang Group Co. Ltd. has to manufacture, examine and test the products as per the quality plan agreed with Bureau Veritas.

Jiangsu Shagang Group Co. Ltd. has to submit the product certificates of conformity for endorsement by Bureau Veritas as agreed with Bureau Veritas.

Jiangsu Shagang Group Co. Ltd. has to mark the products as agreed with Bureau Veritas.

Jiangsu Shagang Group Co. Ltd. has to apply for the periodical audits as agreed with Bureau Veritas.

## 3. REMARKS

Address: Jinfeng Town, Zhangjiagang City, Jiangsu Province (China) Annual Audit: 1~3 time/ every year.



Certificate number: 19935/B0 BV File number: MAT 58347-2010

Product code: 90061

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

# Jiangsu Shagang Group Co. Ltd.

Zhangjiagang - CHINA

for the type of product

## NORMAL STRENGTH HULL STEEL ROLLED PRODUCTS

Slabs and hot rolled plates in steel grades A, B, D and E.

Requirements:

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

This certificate is issued to attest that BUREAU VERITAS 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: 08 Jan 2018

For BUREAU VERITAS, At BV SHANGHAI, on 08 Jan 2013, Jennifer Zhang





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. 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 Division 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 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.

Certificate number: 19935/B0 BV

# **THE SCHEDULE OF APPROVAL**

## 1. PRODUCT DESCRIPTION:

# 1.1 - Products manufactured at production line No.1 of Shagang

Product	Deoxydation practice & Refining	Delivery conditions
Slabs to be rolled in steel grades A, B, D and E	Killed and Al fine grain treated	As cast up to 320 mm

Steel grade	Product	Deoxydation practice & Refining	Delivery conditions
A, B	Plates	Killed and Al fine grain treated	As Rolled (AR) up to 40mm Controlled Rolled (CR) with maximum thickness 60 mm
A, B (Z25/Z35)	Plates	Killed and fine grain treated with Al+Ti	Normalised (N) with maximum thickness 100 mm
D	Plates	Killed and Al fine grain treated	As Rolled (AR) up to 35mm Thermomechanically Rolled (TMCP) up to 60 mm
E	Plates	Killed and Al fine grain treated Thermomechanically Rolled (TMCP) up to 60	
D, E (Z25/Z35)	Plates	Killed and fine grain treated with Al+Ti+Nb	Normalised (N) with maximum thickness 100 mm

Steelmaking by Basic Oxygen Converter, LF furnace. Continuous Casting

## 1.2 - Products manufactured at production line No.2 of Shagang

İ	Product	Deoxydation practice & Refining	Delivery conditions
	Slabs to be rolled in steel grades A, B, D and E	Killed and Al fine grain treated	As cast up to 320 mm

Steel grade	Product	Deoxydation practice & Refining	Delivery conditions
A Z25/Z35	Plates	Killed and Al fine grain treated	As Rolled (AR) up to 40 mm Controlled Rolled (CR) with maximum thickness 60 mm
B Z25/Z35	Plates	Killed and Al fine grain treated	As Rolled (AR) up to 40 mm Controlled Rolled (CR) with maximum thickness 60 mm
D Z25/Z35	Plates	Killed and Al fine grain treated	As Rolled (AR) up to 40 mm Thermomechanically Rolled (TMCP) up to 60 mm
E Z25/Z35	Plates	Killed and Al fine grain treated	Thermomechanically Rolled (TMCP) up to 60 mm

Steelmaking by Basic Oxygen Converter, LF furnace Continuous Casting

Certificate number: 19935/B0 BV

#### 2. DOCUMENTS AND DRAWINGS:

- "Test reports of hull structural steel plate trial for classification approval Part I" issued by Jiangsu Shagang Group and dated September 2007.
- "Manufacture information for extension approval of No.1 production line" issued by Jiangsu Shagang Group Co. Ltd. and dated December 2009.
- "Manufacture information for extension approval of No.2 production line" issued by Jiangsu Shagang Group Co. Ltd. and dated May 2010.
- "The extension approval test report of BV heat treatment steel plates" issued by Jiangsu Shagang Group Co. Ltd. and dated 28 April 2012.

#### 3. TEST REPORTS:

- "Test reports of hull structural steel plate trial for classification approval Part II to XI" issued by Jiangsu Shagang Group and dated September 2007.
- "Test reports of hull structural steel plates for the extension approval of ship classification society Test report of slabs" issued by Jiangsu Shagang Group Co. Ltd.
- "Test reports of hull structural steel plates for the extension approval of ship classification society Parts Two and Three" issued by Jiangsu Shagang Group Co. Ltd. and dated December 2009.
- "Test reports of hull structural steel plates for approval of classification societies Part II to IV" issued by Jiangsu Shagang Group.
- "The test results of Normalized grade B steel plates" issued by Jiangsu Shagang Group Co. Ltd. and dated 28 April 2012.
- "The test results of Normalized grade E steel plates" issued by Jiangsu Shagang Group Co. Ltd. and dated 28 April 2012.
- "The appendix of extension approval test report of BV heat treatment steel plates" issued by Jiangsu Shagang Group Co. Ltd. and dated 14 March 2012.

#### 4. APPLICATION / LIMITATION:

As per Bureau Veritas Rules for Classification.

#### 5. PRODUCTION SURVEY REQUIREMENTS:

The steel slabs and plates are to be supplied by Jiangsu Shagang Group Co. Ltd. in compliance with the type and the requirements described in this certificate.

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

BV product certificate is required.

#### **6. MARKING OF PRODUCT:**

As per Bureau Veritas Rules for Classification.

In addition to the material grade designation, products are to be marked with the symbol Z25, Z35 as appropriate.

#### 7. OTHERS:

This certificate cancels and replaces approvals No. 19935/A0 BV issued on 20 December 2007, No. 19935/A1BV issued on 24 september 2010 and No. 19935/A2 BV issued on 18 September 2012.



Certificate number: 19936/B0 BV File number: MAT 58347-2010

Product code: 90071

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

# Jiangsu Shagang Group Co. Ltd.

Zhangjiagang - CHINA

for the type of product

## HIGHER STRENGTH HULL STEEL ROLLED PRODUCTS

Slabs and hot rolled plates in steel grades AH32/36/40, DH32/36/40, EH32/36/40, FH32/40.

#### Requirements:

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

This certificate is issued to attest that BUREAU VERITAS 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: 08 Jan 2018

For BUREAU VERITAS, At BV SHANGHAI, on 08 Jan 2013, Jennifer Zhang





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. 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 Division 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 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.

Certificate number: 19936/B0 BV

# **THE SCHEDULE OF APPROVAL**

# 1. PRODUCT DESCRIPTION:

# 1.1 - Products manufactured at production line No.1 of Jiangsu Shagang

Product	Deoxydation practice & Refining	Delivery conditions
Slabs to be rolled in steel grades AH32/36, DH32/36 and FH32	Killed and Al+Nb fine grain treated	As cast up to 320 mm
Slabs to be rolled in steel grades AH40, DH40, EH40 and FH40	Killed and Al+Nb+V fine grain treated	As cast up to 320 mm

Steel grade	Product	Deoxydation practice & Refining	Delivery conditions
AH32-DH32-EH32-FH32 AH36-DH36-EH36	Plates	Killed and Al+Nb fine grain treated	Thermomechanically Rolled (TMCP) up to 60mm
AH40-DH40-EH40-FH40	Plates	Killed and Al+Nb+V fine grain treated	Thermomechanically Rolled (TMCP) up to 60mm
AH32-DH32-EH32-FH32 Z25/Z35	Plates	Killed and Al+Nb+Ti fine grain treated	Normalised (N) up to 100mm
AH36-DH36-EH36 Z25/Z35	Plates	Killed and Al+Nb+Ti+V fine grain treated	Normalised (N) up to 100mm
AH40-DH40-EH40-FH40	Plates	Killed and Al+Nb+Ti+V fine grain treated	Normalised (N) up to 100mm
AH32 - DH36 Z25/Z35	Plates	Killed and Al+Ti fine grain treated	Normalising Rolled (NR) up to 40mm.

Steelmaking by Basic Oxygen Converter, Refining in LF furnace. Continuous Casting.

# 1.2 - Products manufactured at production line No.2 of Jiangsu Shagang

Product	Deoxydation practice & Refining	Delivery conditions
Slabs to be rolled in steel grades AH32/36, DH32/36 and FH32	Killed and Al+Nb fine grain treated	As cast up to 320 mm
Slabs to be rolled in steel grades AH40, DH40, EH40 and FH40	Killed and Al+Nb+V fine grain treated	As cast up to 320 mm

Steel grade	Product	Deoxydation practice & Refining	Delivery conditions
AH32- AH36 Z25/Z35	Plates	Killed and Al+Nb fine grain treated	Thermomechanically Rolled (TMCP) up to 60mm
DH32 - DH36 Z25/Z35	Plates	Killed and Al+Nb fine grain treated	Thermomechanically Rolled (TMCP) up to 60mm
EH32 - EH36 Z25/Z35	Plates	Killed and Al+Nb fine grain treated	Thermomechanically Rolled (TMCP) up to 60mm
FH32 Z25/Z35	Plates	Killed and Al+Nb fine grain treated	Thermomechanically Rolled (TMCP) up to 60mm

Certificate number: 19936/B0 BV

AH40-DH40-EH40-FH40 Z25/Z35	Plates	Killed and Al+Nb+V fine grain treated	Thermomechanically Rolled (TMCP) up to 60mm
AH36 -DH36 Z25/Z35	Plates	Killed and Al+Nb+Ti fine grain treated	Normalising Rolled (NR) up to 40mm.

Steelmaking by Basic Oxygen Converter, Refining in LF furnace. Continuous Casting.

#### 2. DOCUMENTS AND DRAWINGS:

- "Test reports of hull structural steel plate trial for classification approval Part I" issued by Jiangsu Shagang Group and dated September 2007.
- "Manufacture information for extension approval of No.1 production line" issued by Jiangsu Shagang Group Co. Ltd. and dated December 2009.
- "Manufacture information for extension approval of No.2 production line" issued by Jiangsu Shagang Group Co. Ltd. and dated May 2010.
- -"The extension production approval test report of high strength normalising rolling steel plates" issued by Jiangsu Shagang Group Co. Ltd. and dated 27 June 2011.
- -"The extension approval test report of BV heat treatment steel plates" issued by Jiangsu Shagang Group Co. Ltd. and dated 28 April 2012.

#### 3. TEST REPORTS:

- "Test reports of hull structural steel plate trial for classification approval Part II to XI" issued by Jiangsu Shagang Group and dated September 2007.
- "Test reports of hull structural steel plates for the extension approval of ship classification society Test report of slabs" issued by Jiangsu Shagang Group Co. Ltd.
- "Test reports of hull structural steel plates for the extension approval of ship classification society Parts Two and Three" issued by Jiangsu Shagang Group Co. Ltd. and dated December 2009.
- "Test reports of hull structural steel plates for approval of classification societies Part V to VI" issued by Jiangsu Shagang Group Co. Ltd.
- -"The extension production approval test report of high strength normalising rolling steel plates" issued by Jiangsu Shagang Group Co. Ltd. and dated 27 June 2011.
- -"Appendix of the extension production approval test report of high strength normalising rolling steel plates" issued by Jiangsu Shagang Group Co. Ltd. and dated 27 June 2011
- -"Appendix of the extension production approval test report of heat treatment steel plates" issued by Jiangsu Shagang Group Co. Ltd. and dated14 March 2012.
- -"The test results of Normalized grade FH40 steel plates" issued by Jiangsu Shagang Group Co. Ltd. and dated 28 April 2012.
- -"The test results of Normalized grade FH32 steel plates" issued by Jiangsu Shagang Group Co. Ltd. and dated 28 April 2012.
- -"The test results of Normalized grade EH36 steel plates" issued by Jiangsu Shagang Group Co. Ltd. and dated 28 April 2012.

#### 4. APPLICATION / LIMITATION:

As per Bureau Veritas Rules for Classification.

#### 5. PRODUCTION SURVEY REQUIREMENTS:

The steel slabs and plates are to be supplied by Jiangsu Shagang Group Co. Ltd. in compliance with the type and the requirements described in this certificate.

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

BV product certificate is required.

#### **6. MARKING OF PRODUCT:**

As per Bureau Veritas Rules for Classification.

In addition to the material grade designation, products are to be marked with the symbol Z25, Z35 as appropriate.

Certificate number: 19936/B0 BV

# 7. OTHERS:

This certificate cancels and replaces approvals No. 19936/A0 BV dated 20 December 2007, No. 19936/A1 BV dated 20 September 2010, No. 19936/A2 BV dated 29 September 2011 and No. 19936/A3 BV dated 18 September 2012.



Certificate number: 29867/A0 BV File number: MAT 58347-2012

Product code: 90091

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

# Jiangsu Shagang Group Co. Ltd.

Zhangjiagang - CHINA

for the type of product

## **EXTRA HIGH STRENGTH STEEL ROLLED PRODUCTS**

Hot rolled plates in steel grades A420 to F690 including Z15-Z35 properties.

#### Requirements:

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

This certificate is issued to attest that BUREAU VERITAS 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: 15 Jan 2018

For BUREAU VERITAS,

At BV SHANGHAI, on 15 Jan 2013, Jennifer Zhang





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. 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 Division 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 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
A420, D420, E420, F420 (Z15-Z35)	Killed and fine grain treated with Al+Ti+Nb	Quenched and Tempered (Q&T) with thickness up to 100mm.
A460, D460, E460, F460 (Z15-Z35)	Killed and fine grain treated with Al+Ti+Nb	Quenched and Tempered (Q&T) with thickness up to 100mm.
A500, D500, E500, F500 (Z15-Z35)	Killed and fine grain treated with Al+Ti+Nb	Quenched and Tempered (Q&T) with thickness up to 100mm.
A550, D550, E550, F550 (Z15-Z35)	Killed and fine grain treated with Al+Ti+Nb	Quenched and Tempered (Q&T) with thickness up to 100mm.
A620, D620, E620, F620 (Z15-Z35)	Killed and fine grain treated with Al+Ti+Nb	Quenched and Tempered (Q&T) with thickness up to 100mm.
A690, D690, E690, F690 (Z15-Z35)	Killed and fine grain treated with Al+Ti+Nb	Quenched and Tempered (Q&T) with thickness up to 100mm.

Steelmaking by Basic Oxygen Converter and Ladle furnace. Continuous Casting.

## 2. DOCUMENTS AND DRAWINGS:

- -"The extension approval test report of BV heat treatment steel plates" issued by Jiangsu Shagang Group Co., Ltd and dated 28 April 2012.
- -"The appendix of extension approval test report of BV heat treatment steel plates" issued by Jiangsu Shagang Group Co., Ltd and dated 14 March 2012.
- Chemical composition as per specification given in document "Appendix 1 The key of steelmaking practices " issued by Jiangsu Shagang Group Co., Ltd and summarized hereafter:

Steel grade	C (%)	Si (%)	Mn (%)	Al (%)	Nb (%)	Ti (%)	Cr (%)	Ni (%)	Cu (%)	Mo (%)	P (%)	S (%)	Ceq	Pcm
F420	0.09 max	0.30 max	1.15 max.	0.05 max.	0.05 max.	0.020 max.	0.45 max.	0.45 max.	0.30 max.	0.45 max	0.012 max.	0.005 max.		
F460	0.09 max.	0.30 max.	1.15 max.	0.05 max.	0.05 max.	0.020 max.	0.40 max.	0.45 max.	0.15 max.	0.45 max.	0.013 max.	0.003 max.	0.51 max.	0.24 max.
F500	0.15 max.	0.30 max.	1.35 max.	0.05 max.	0.05 max.	0.020 max.	0.55 max.	0.55 max.	0.45 max.	0.40 max.	0.012 max.	0.005 max		
F550	0.15 max.	0.30 max.	1.15 max.	0.05 max.	0.05 max.	0.020 max.	0.40 max.	0.50 max.	0.15 max.	0.40 max.	0.013 max.	0.003 max.	0.55 max.	0.29 max.
F620	0.16 max.	0.30 max.	1.15 max.	0.05 max.	0.05 max.	0.020 max.	0.85 max.	1.25 max.	0.10 max.	0.40 max.	0.012 max.	0.005 max.		
F690	0.16 max.	0.30 max.	1.10 max.	0.05 max.	0.05 max.	0.020 max.	0.85 max.	1.55 max.	0.15 max.	0.40 max.	0.013 max.	0.002 max.	0.71 max.	0.34 max.

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#### 3. TEST REPORTS:

- "The test results of Q+T grade F460 steel plates" issued by Jiangsu Shagang Group Co., Ltd and dated 28 April 2012.
- "The test results of Q+T grade F550 steel plates" issued by Jiangsu Shagang Group Co., Ltd and dated 28 April 2012.
- "The test results of Q+T grade F690 steel plates" issued by Jiangsu Shagang Group Co., Ltd and dated 28 April 2012.
- "The test results of Q+T grade F460 steel plates" issued by Jiangsu Shagang Group Co., Ltd and dated 23 November 2012.
- "The test results of Q+T grade F620 steel plates" issued by Jiangsu Shagang Group Co., Ltd and dated 23 November 2012.

#### 4. APPLICATION / LIMITATION:

As per Bureau Veritas Rules for Classification.

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

The rolled products are to be supplied by Jiangsu Shagang Group Co., Ltd in compliance with the type and the requirements described in this certificate.

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

BV product certificate is required.

#### **6. MARKING OF PRODUCT:**

As per Bureau Veritas Rules for Classification.

In addition to the material grade designation, products are to be marked with the symbol Z15-Z35 as appropriate.

#### 7. OTHERS:

Nil.

