



APPROVAL CERTIFICATE FOR MANUFACTURING PROCESS

Certificate No. : NIB19433-SP001 **Initial Approval** : 22nd August, 2006
Product : Rolled Steels
Manufacturer : Hunan Valin Xiangtan Iron & Steel Co., Ltd.
Yuetang Road, Yuetang District, Xiangtan City, Hunan Province, 411101, P.R.
.China
Product Description: Rolled Steel Plates for Hull Structure
High Strength Quenched and Tempered Steels for Welded Structures
- Grade : A(Z), B(Z), D(Z), E(Z)
AH 32(Z), DH 32(Z), EH 32(Z), FH 32(Z)
AH 36(Z), DH 36(Z), EH 36(Z), FH 36(Z)
AH 40(Z), DH 40(Z), EH 40(Z), FH 40(Z)
AH 43(Z), DH 43(Z), EH 43(Z)
AH 47(Z), DH 47(Z), EH 47(Z)
- Steel making : Basic Oxygen Furnace
- Casting process : Continuous Casting
- Supply condition : See "Appendix 1 & 2"

Approval Condition: Individual Product Certification is required.

THIS IS TO CERTIFY that the manufacturing process for the above mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows and entered in the "List of Approved Manufacturer and Type Approved Equipment".

Pt. 2, Ch. 1, Art. 301 & 308. of the Rules for Classification of Steel Ships.

This Certificate is valid until 21st August, 2022

Issued at Shanghai, China on 8th June, 2017



KOREAN REGISTER OF SHIPPING

*General Manager of
Technical Support Team
CHINA KR Co., Ltd.*

- Note :*
1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
 2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
 3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
 4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

Appendix 1

Product Description and/or Approval Condition

Certificate No : NIB19433-SP001

Date of Issue :8th June, 2017

© Condition of Supply

(1) 3.8M Wide and Heavy Steel Plates Rolling Line No.1

Grade (1)	Deoxidation	Grain refining Elements	Thickness Max. (mm)	Condition of Supply (2)
A(Z), B(Z)	Killed, Fine grained	Al	40	CR
		Al+Nb	60	N
		Al	25	CR
D(Z)	Fine grained	Al	40	TM
		Al+Nb	60	N
E(Z)	Fine grained	Al+Nb	60	N
		Al	40	CR
AH32 (Z) DH32 (Z)	Fine grained	Al	40	TM
		Al+Nb+Ti	40	TM
		Al+Nb+Ti	100	N
EH32 (Z) EH36 (Z)	Fine grained	Al+Nb+Ti	40	TM
		Al+Nb+Ti	100	N
		Al	40	CR
AH36 (Z) DH36 (Z)	Fine grained	Al+Nb+Ti Al+Nb	40	TM
		Al+Nb+Ti	100	N
FH32 (Z), FH36 (Z) AH40 (Z), DH40 (Z) EH40 (Z), FH40 (Z)	Fine grained	Al+Nb+Ti	40	TM

<Remarks>

- (1) "(Z)" with specified through thickness properties of Z25 and Z35.
- (2) CR : Controlled Rolling
- N : Normalized
- TM(TMCP) : Thermo-Mechanical Controlled Processing

< To be continued >

Appendix 2

Product Description and/or Approval Condition

Certificate No : NIB19433-SP001

Date of Issue :8th June, 2017

(2) Wide and Heavy Steel Plates Rolling Line No. 2

Grade (1)	Deoxidation	Grain refining Elements	Thickness Max. (mm)	Condition of Supply (2)
A, B	Killed	-	40	CR
A(Z), B(Z)	Fine grained	Al+Nb	40	CR, TM
D(Z)	Fine grained	Al	40	TM
E(Z), AH32(Z), DH32(Z) EH32(Z), AH36(Z) DH36(Z), EH36(Z)	Fine grained	Al+Nb	40	TM

(3) 5M Wide and Heavy Plate Production Line No. 3

<Rolled Steel Plates for Hull Structure>

Grade (1)	Deoxidation	Grain refining Elements	Thickness Max. (mm)	Condition of Supply (2)
A(Z), B(Z), D(Z)	Fine grained	Al	40	CR
A(Z), B(Z) D(Z), E(Z)	Fine grained	Al+Nb	40	TM
A, B	Fine grained	Al	60	N
A(Z), B(Z) D(Z), E(Z)	Fine grained	Al+Nb	60	N
AH32(Z), DH32(Z) AH36(Z), DH36(Z)	Fine grained	Al	40	CR
AH32(Z), DH32(Z) EH32(Z), AH36(Z) DH36(Z), EH36(Z) AH40(Z), DH40(Z) EH40(Z)	Fine grained	Al+Nb+Ti	80	TM
AH32(Z), DH32(Z), EH32(Z), AH36(Z) DH36(Z), EH36(Z)	Fine grained	Al+Nb+Ti+V	60	N

<High Strength Quenched and Tempered Steels for Welded Structures>

Grade (1)	Deoxidation	Grain refining Elements	Thickness Max. (mm)	Condition of Supply (2)
AH43(Z), DH43(Z), EH43(H), AH47(Z) DH47(Z), EH47(Z)	Fine grained	Al+Nb+Ti	80	TM

<Remarks>

- (1) "(Z)" with specified through thickness properties of Z25 and Z35.
 (2) CR : Controlled Rolling
 TM(TMCP) : Thermo-Mechanical Controlled Processing
 N : Normalized

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