



Approval No. ST5RO

Certificate No. TA191487E

**APPROVAL OF MANUFACTURING PROCESS**

*This is to certify that*

**Suqian Nanjing Iron & Steel Group  
Jinxin Steel Rolling Co., Ltd.  
Suqian, Jiangsu  
China**

*has been approved for the manufacturing process of undermentioned materials by the NIPPON KAIJI KYOKAI in accordance with the requirements of 1.2, Part K of the Society's "Rules for the Survey and Construction of Steel Ships" and Chapter 1, Part 1 of the Society's "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use".*

**MATERIALS : Rolled Steels for Hull**

The details of the relevant approval conditions are given in the PARTICULARS OF APPROVAL listed in the reverse of this certificate.

The products for the ships classed with the Society will be manufactured, tested and inspected complying with the Rules.

This certificate is valid from 1 December 2019 until 30 November 2024.  
Issued at Tokyo on 4 December 2019.

H. Kobayashi  
General Manager

Material and Equipment Department



No. : TA191510E

Date : 4 December 2019

## PARTICULARS OF APPROVAL

### Approval Conditions for Manufacturing Process of Rolled Steels for Hull

- |                            |  |
|----------------------------|--|
| 1. Manufacturer            | : Suqian Nanjing Iron & Steel Group<br>Jinxin Steel Rolling Co., Ltd.  |
| 2. Kind of Product         | : Shapes   |
| 3. Grade                   | : KA, KB, KD, KE, KA32, KD32, KE32, KA36,<br>KD36, KE36, KA40 and KD40   |
| 4. Deoxidation Practice    | : See Table  |
| 5. Grain Refining Elements | : See Table  |
| 6. Max. Thickness          | : 20mm   |
| 7. Condition of Supply     | : See Table  |
| 8. Steel Making Process    | : Basic Oxygen Furnace (BOF) and<br>Electric Arc Furnace (EAF)   |
| 9. Casting Process         | : Continuous Casting   |
| 10. Remarks                | : Steel billets manufactured by Nanjing Iron & Steel<br>Group Co., Ltd. approved by the Society are to be<br>used. |

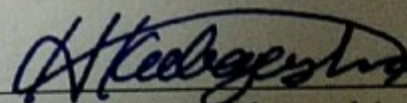
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No. : TA191510E

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Table Part of Approval Conditions

Grade	Deoxidation Practice	Grain Refining Elements	Condition of Supply	Steel Making Process
KA	Killed	Not Applicable	AR	BOF
	Fine-grained Killed	Al	AR	EAF
		Al-Nb	AR	EAF
		Al-Ti	CR	BOF
KB	Killed	Not Applicable	AR	BOF
	Fine-grained Killed	Al	AR	EAF
		Al-Nb	AR	EAF
		Al-Ti	CR	BOF
KD	Fine-grained Killed	Al-V	CR	EAF
		Al-Ti	CR	BOF
KE	Fine-grained Killed	Al-Ti	CR	BOF
KA32	Fine-grained Killed	Al-Nb	CR	EAF
		Al-V	CR	BOF
		Al-V-Ti	CR	BOF
KD32	Fine-grained Killed	Al-V	CR	EAF
		Al-V	CR	BOF
		Al-V-Ti	CR	BOF
KE32	Fine-grained Killed	Al-V-Ti	CR	BOF
KA36	Fine-grained Killed	Al-Nb	CR	EAF
		Al-V	CR	BOF
		Al-V-Ti	CR	BOF
KD36	Fine-grained Killed	Al-V	CR	EAF
		Al-V	CR	BOF
		Al-V-Ti	CR	BOF
KE36	Fine-grained Killed	Al-V-Ti	CR	BOF
KA40	Fine-grained Killed	Al-V	CR	EAF
		Al-V	CR	BOF
KD40	Fine-grained Killed	Al-V	CR	EAF
		Al-V	CR	BOF



H. Kobayashi

General Manager

Material and Equipment Department



No. : TA191512E

Date : 4 December 2019

## PARTICULARS OF APPROVAL

### Approval Conditions for Manufacturing Process of Rolled Steels for Hull

1. Manufacturer : Suqian Nanjing Iron & Steel Group  
Jinxin Steel Rolling Co., Ltd.
2. Kind of Product : Flat Bars
3. Grade : KA, KB, KD, KE, KA32, KD32, KE32, KA36,  
KD36, KE36, KA40 and KD40
4. Deoxidation Practice : See Table
5. Grain Refining Elements : See Table
6. Max. Thickness : 20mm
7. Condition of Supply : See Table
8. Steel Making Process : Basic Oxygen Furnace
9. Casting Process : Continuous Casting
10. Remarks : Steel billets manufactured by Nanjing Iron & Steel  
Group Co., Ltd. approved by the Society are to be  
used.

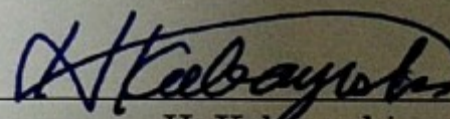
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No. : TA191512E

Date : 4 December 2019

Table Part of Approval Conditions

Grade	Deoxidation Practice	Grain Refining Elements	Condition of Supply
KA	Killed	Not Applicable	AR
	Fine-grained Killed	Al-Ti	CR
KB	Killed	Not Applicable	AR
	Fine-grained Killed	Al-Ti	CR
KD	Fine-grained Killed	Al-Ti	CR
KE	Fine-grained Killed	Al-Ti	CR
KA32	Fine-grained Killed	Al-V	CR
		Al-V-Ti	CR
KD32	Fine-grained Killed	Al-V	CR
		Al-V-Ti	CR
KE32	Fine-grained Killed	Al-V-Ti	CR
KA36	Fine-grained Killed	Al-V	CR
		Al-V-Ti	CR
KD36	Fine-grained Killed	Al-V	CR
		Al-V-Ti	CR
KE36	Fine-grained Killed	Al-V-Ti	CR
KA40	Fine-grained Killed	Al-V	CR
KD40	Fine-grained Killed	Al-V	CR



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