



**CERTIFICATE OF APPROVAL OF MANUFACTURERS OF
MATERIALS**
No. FAB253214WS

This is to certify that the manufacture of the product identified below is in compliance with the applicable requirements of the RINA Rules for the Approval of Manufacturers of Materials.

<i>Description</i>	Hull steel plates YP47
<i>Type</i>	AH40/DH40/EH40/EH47
<i>Manufacturer</i>	JIANGSU SHAGANG GROUP CO., LTD.
<i>Place of manufacture</i>	JINFENG TOWN, ZHANGJIAGANG CITY 215625 JIANGSU CHINA
<i>Reference standards</i>	RINA Rules for the approval of manufacturers of materials

Issued in **SHANGHAI** *on* **December 29, 2016.** *This Certificate is valid until* **August 3, 2021**



RINA
RINA Services S.p.A.
Hong Gu

This certificate consists of this page and 1 enclosure

CERTIFICATE OF APPROVAL OF MANUFACTURERS OF MATERIALS

No. **FAB253214WS**
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EH47

APPROVAL FOR 5500MM STEEL LINE

- **Type:** YP47 steel plate, Brittle Crack Arrest characteristic;

- **Steel making:** BOC+LF+RH, CC;

- **Particulars:**

Grade	Deoxidation	Fine grain elements	Delivery condition	Max. Thickness (mm)	Z-quality
AH36/DH36/EH36	Killed	Al+Nb+V+Ti	TMCP	85	Z35
AH40/DH40/EH40	Killed	Al+Nb+V+Ti	TMCP	85	Z35
EH47	Killed	Al+Nb+V+Ti	TMCP	80	Z35

Remarks:

- 1) BOC: Basic Oxygen Converter; LF: Ladle Furnace; RH: Remove Hydrogen; CC: Continuous Casting
2) TMCP: Thermo-Mechanical rolling

General conditions for the approval

- The approval is granted on condition that the RINA Rules for the approval, manufacture, testing and certification of materials are complied with in all respects.
-RINA is to be notified of any change of materials, manufacturing process, quality control routines that may affect the validity of this certificate.


SHANGHAI December 29, 2016



**CERTIFICATE OF APPROVAL OF MANUFACTURERS OF
MATERIALS**
No. FAB168515WS

This is to certify that the manufacture of the product identified below is in compliance with the applicable requirements of the RINA Rules for the Approval of Manufacturers of Materials.

<i>Description</i>	Hull steel plates
<i>Type</i>	A/B/D/E/AH32/AH36/AH40/DH32/DH36/DH40/EH32/EH36/ EH40/FH32/FH36/FH40/A420/A460/A500/A550/A620/A690/ D420/D460/D500/D550/D620/D690/E420/E460/E500/E550/ E620/E690/F420/F460/F500/F550/F620/F690
<i>Manufacturer</i>	JIANGSU SHAGANG GROUP CO., LTD.
<i>Place of manufacture</i>	JINFENG TOWN, ZHANGJIAGANG CITY 215625 JIANGSU CHINA
<i>Reference standards</i>	RINA Rules for the approval of manufacturers of materials

Issued in **SHANGHAI** on **February 16, 2016**. *This Certificate is valid until* **August 31, 2019**



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CERTIFICATE OF APPROVAL OF MANUFACTURERS OF MATERIALS

No. **FAB168515WS**

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A/B/D/E/AH32/AH36/AH40/DH32/DH36/DH40/EH32/EH36/
EH40/FH32/FH36/FH40/A420/A460/A500/A550/A620/A690/

D420/D460/D500/D550/D620/D690/E420/E460/E500/E550/ E620/E690/F420/F460/F500/F550/F620/F690

APPROVAL CONDITIONS

Approval particulars:

Grades	Steelmaking ¹⁾	Deoxidation	Fine grain elements	Delivery condition ²⁾	Max. thickness (mm)	Z-quality
A,B	BOC,CC	Killed	Al	AR	40	Z25/Z35
			Al	N	60	
			Al+Ti	N	100	
D	BOC,CC	Killed	Al	N	40	Z25/Z35
			Al	TMCP	60	
			Al+Ti+Nb	N	100	
E	BOC,CC	Killed	Al+Nb	TMCP	60	Z25/Z35
			Al+Ti+Nb	N	100	
AH32	BOC,CC	Killed	Al+Ti	AR	30	Z25/Z35
			Al+Ti	N	40	
			Al+Nb	TMCP	60	
			Al+Nb+Ti	N	100	
AH36	BOC,CC	Killed	Al+Ti	AR	30	Z25/Z35
			Al+Nb+Ti	N	40	
			Al+Nb	TMCP	60	
			Al+Nb+V+Ti	N	100	
DH32	BOC,CC	Killed	Al+Ti	N	40	Z25/Z35
			Al+Nb	TMCP	60	
			Al+Nb+Ti	N	100	
DH36	BOC,CC	Killed	Al+Nb+Ti	N	40	Z25/Z35
			Al+Nb	TMCP	60	
			Al+Nb+V+Ti	N	100	
EH32,FH32	BOC,CC	Killed	Al+Nb	TMCP	60	Z25/Z35
			Al+Nb+Ti	N	100	
EH36,FH36	BOC,CC	Killed	Al+Nb	TMCP	60	Z25/Z35
			Al+Nb+V+Ti	N	100	
AH40,DH40 EH40,FH40	BOC,CC	Killed	Al+Nb+V+Ti	TMCP	60	Z25/Z35
			Al+Nb+V+Ti	N	100	
A420,D420,E420,F420, A460,D460,E460,F460	BOC,CC	Killed	Al+Nb+Ti	QT	100	Z25/Z35
A500,D500,E500,F500, A550,D550,E550,F550	BOC,CC	Killed	Al+Nb+Ti	QT	100	Z25/Z35
A620,D620,E620,F620, A690,D690,E690,F690	BOC,CC	Killed	Al+Nb+Ti	QT	100	Z25/Z35

Remarks:

- 1) BOC: Basic Oxygen Converter; CC: Continuous Casting;
- 2) N: Normalising; AR: As Rolled; TMCP: Thermo-Mechanical rolling; QT: Quenching & Tempering

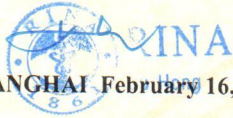
RINA Services S.p.A.
Via Corsica, 12 - 16128 Genova
Tel +39 010 53851
Fax +39 010 5351000

Survey condition:

The plates are to be in compliance in all respects with the relevant RINA rules and are to be tested accordingly.

General conditions for the approval

- The approval is granted on condition that the RINA Rules for the approval, manufacture, testing and certification of materials are complied with in all respects.
- RINA is to be notified of any change of materials, manufacturing process, quality control routines that may affect the validity of this certificate.



SHANGHAI February 16, 2016



**CERTIFICATE OF APPROVAL OF MANUFACTURERS OF
MATERIALS**
No. FAB104113WS

This is to certify that the manufacture of the product identified below is in compliance with the applicable requirements of the RINA Rules for the Approval of Manufacturers of Materials.

<i>Description</i>	Higher strength hull steel plates
<i>Type</i>	AH32/AH36
<i>Manufacturer</i>	JIANGSU SHAGANG GROUP CO., LTD.
<i>Place of manufacture</i>	JINFENG TOWN, ZHANGJIAGANG CITY 215625 JIANGSU CHINA
<i>Reference standards</i>	RINA Rules for the approval of manufacturers of materials

Issued in **SHANGHAI** on **November 9, 2013**. *This Certificate is valid until* **September 27, 2018**



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No. **FAB104113WS**

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AH32/AH36

APPROVAL CONDITIONS

Grade	Thickness	Steel making process	Deoxidation	Fine grain treatment	Delivery condition
AH32	5-30 mm	BOF, LF, CC	Full killed	Al+Ti	As rolled
AH36	5-30 mm	BOF, LF, CC	Full killed	Al+Ti	As rolled

Remarks:

BOC: Basic Oxygen Converter; LF: Ladle Furnace; CC: Continuous Casting

General conditions for the approval

- The approval is granted on condition that the RINA Rules for the approval, manufacture, testing and certification of materials are complied with in all respects.
- RINA is to be notified of any change of materials, manufacturing process, quality control routines that may affect the validity of this certificate.



SHANGHAI November 9, 2013