



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

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



**RINA**  
RINA Services S.p.A.  
Hong Gu

This certificate consists of this page and 1 enclosure

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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

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

**APPROVAL CONDITIONS**

Approval particulars:

Grades	Steelmaking <sup>1)</sup>	Deoxidation	Fine grain elements	Delivery condition <sup>2)</sup>	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: Continous Casting;  
2) N: Normalising; AR:As Rolled; TMCP:Thermo-Mechanical rolling; QT: Quenching & Tempering

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**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



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