

APPROVAL OF MANUFACTURER CERTIFICATE

This is to certify:

That

Jiangsu Shagang Group Huaigang Special Steel Co., Ltd.
Huai'an, JIANGSU, China

is an approved manufacturer of
Steelmaking and Rolled Steel Products

in accordance with
DNV GL rules for classification – Ships

and the following particulars:

Application area	Steelmaking
Products	Bars for chain cables Semi-finished products for rolling or forging stock (billets and blooms)
Steel type	Round bars for chain cable Carbon and carbon-manganese, Alloy,
Manufacturing method	Electric Arc Furnace / Basic Oxygen Converter, Continuous Casting
Deoxidation	Killed
Max. thickness / diameter	See page 2
Heat treatment condition	See page 2

Manufacturer(s) approved by this certificate is/are accepted to deliver according to DNV GL, DNV and GL rules. Materials to be applied to DNV GL classed object shall fulfill the material requirements in the applicable DNV GL class rules.

Issued at **Hamburg** on **2018-12-20**

for **DNV GL**

This Certificate is valid until **2021-12-31**.

DNV GL local station: **Nanjing**

Approval Engineer: **Enno Brück**

Thorsten Lohmann
Head of Section



Job Id: **263.11-003169-4**
Certificate No: **AMMM000003H**
Revision No: **2**

Particulars of the approval

Semi-finished products

Steel type ³⁾	Product	Steel making ¹⁾	Max. Diameter [mm]	Delivery condition ²⁾
C and C-Mn Alloy	Billet, Bloom	EAF, CC or BOC, CC	800	AC

Bars for chain cables

Steel type ³⁾	Product	Steel making ^{1) 4)}	Max. Diameter [mm]	Delivery condition ²⁾
VL K2	Bars for chain cable	EAF, CC or BOC, CC	140	AR
VL K3			190	

Remarks:

- 1) BOC: Basic Oxygen Converter
EAF: Electric Arc Furnace
CC: Continuous Casting
- 2) AR: as rolled
AC: as cast
- 3) Certification of any material applied to classed object shall fulfill the applicable material requirements in the DNV GL class rules
- 4) Fine grain elements: Al for VL K2 and Al+Ti for VL K3