

# APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:  
**AMMM000017Z**  
Revision No:  
**1**

**This is to certify:**

**That**

**H.E.S. Hennigsdorfer Elektrostahlwerke GmbH**  
**Wolfgang-Künstscher-Str.18, 16761 Hennigsdorf,**  
**Germany**

is an approved manufacturer of  
**Steelmaking and Rolled Steel Products**

in accordance with  
**DNV GL rules for classification – Ships**

and the following particulars:

<b>Application area</b>	<b>Steelmaking</b>
<b>Products</b>	<b>Semi-finished products for rolling or forging stock (billets, bars)</b>
	<b>Bars for chain cables</b>
<b>Steel type</b>	<b>Carbon and carbon-manganese, Alloy</b>
<b>Manufacturing method</b>	<b>Electric arc furnace, Continuous casting</b>
<b>Deoxidation</b>	<b>Killed</b>
<b>Max. thickness / diameter</b>	<b>See page 2</b>
<b>Heat treatment condition</b>	<b>See page 2</b>

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 **2019-09-18**

for **DNV GL**

This Certificate is valid until **2022-06-30**.

DNV GL local station: **Magdeburg**

Approval Engineer: **Enno Brück**

**Thorsten Lohmann**  
**Head of Section**



Job Id: **263.11-006279-2**  
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## Particulars of the approval

### Semi-finished products

Steel type	Product	Steel making <sup>1)</sup>	Max. thickness [mm]	Heat treatment condition <sup>2)</sup>
C and C-Mn	Billets	EAF, CC	140	AR
C and C-Mn	Bars	EAF, CC	120	acc. standard
Alloy	Billets	EAF, CC	140	AR
Alloy	Bars	EAF, CC	120	acc. standard

### Bars for chain cables

Steel type	Product	Steel making <sup>1)</sup>	Max. Thickness [mm]	Heat treatment condition <sup>2)</sup>
VL K1, VL K2	Bars	EAF, CC	120	AR

Remarks:

- 1) EAF: electric arc furnace  
CC: continuous casting
- 2) AR: as rolled