



# APPROVAL OF MANUFACTURER CERTIFICATE

Certificate no.:  
**AMMM000011E**  
Revision No:  
**4**

## This is to certify:

that

**Hüttenwerke Krupp Mannesmann GmbH**  
Ehring Strasse 200, 47259 Duisburg,  
Germany

is an approved manufacturer of  
**Steelmaking**

in accordance with

**DNV rules for classification – Ships**  
**DNV-OS-B101 – Metallic materials**  
**DNV class programme – DNV-CP-0242 Semi-finished steel products**

and the following particulars:

<b>Application area</b>	<b>Steelmaking</b>
<b>Products</b>	<b>Semi-finished products</b> <b>Slabs and rounds for forging stock</b> <b>Slabs and rounds for rolling stock</b>
<b>Steel type</b>	<b>Carbon and carbon-manganese,</b> <b>Alloy,</b> <b>Nickel alloy, see page 2</b>
<b>Manufacturing method</b>	<b>Basic oxygen converter, continuous casting</b>
<b>Deoxidation</b>	<b>Killed</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 classed object shall fulfill the material requirements in the applicable DNV class rules.

Issued at **Hamburg** on **2026-02-10**

This Certificate is valid until **2029-02-28**.

DNV local unit: **Essen**

Approval Engineer: **Torben Schälicke**



for **DNV**

This document has been digitally signed and will  
therefore not have handwritten signature

Christian Wildhagen

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

## Particulars of the approval

### Semi-finished products (Slabs and rounds for forging stock)

Steel grade <sup>3)</sup>	Steelmaking <sup>1)</sup>	Fine grain treatment	Heat treatment condition <sup>2)</sup>	Max. thickness [mm]
Carbon and carbon-manganese	BOC, CC	Al or Al+Nb	AC	Not applicable
Alloy	BOC, CC	Al or Al+Nb	AC	Not applicable

### Semi-finished products (Slabs for rolling stock)

Steel grade <sup>3)</sup>	Steel making <sup>1)</sup>	Fine grain treatment	Heat treatment condition <sup>2)</sup>	Max. thickness [mm]
<b>Hull structural steel</b>				
Normal strength steels	BOC, CC	Al	AC	Not applicable
High Strength steels	BOC, CC	Al+Nb+Ti or Al+V+Nb+Ti or Al+Nb	AC	Not applicable
Extra high strength steels	BOC, CC	Al+Nb+Ti or Al+Nb	AC	Not applicable
<b>Boiler and pressure vessel steel</b>				
Carbon and carbon-manganese	BOC, CC	Al+Nb+Ti or Al+Nb	AC	Not applicable
Alloy	BOC, CC	Al+Ti	AC	Not applicable
<b>Steel for low temperature service</b>				
Carbon and carbon-manganese	BOC, CC	Al+V+Nb+Ti or Al+Nb	AC	Not applicable
Alloy	BOC, CC	Al+Nb+Ti or Al	AC	Not applicable
Nickel alloy	BOC, CC	Al+Nb+Ti or Al	AC	Not applicable

Remarks:

- 1) BOC: Basic Oxygen Converter  
CC: Continuous Casting
- 2) AC: As cast
- 3) Normal and high strength hull structural steel grades including equivalent structural steel grades to other standards