

# APPROVAL OF MANUFACTURER CERTIFICATE

**This is to certify:**

**That**

**Mannesmann Precision Tubes GmbH  
Bielefeld, Germany**

is an approved manufacturer of  
**Steel Pipes and Fittings**

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

and the following particulars:

<b>Product</b>	<b>Pipes</b>
<b>Application area</b>	<b>Pipes for pressure systems, Boiler and superheater tubes</b>
<b>Steel type</b>	<b>Carbon and carbon-manganese, Alloy</b>
<b>Manufacturing method</b>	<b>Seamless</b>
<b>Max. outer diameter</b>	<b>See page 2</b>
<b>Max. wall thickness</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 **2020-02-24**

for **DNV GL**

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

DNV GL local station: **Magdeburg**

Approval Engineer: **Stefan Röhr**

**Thorsten Lohmann  
Head of Section**

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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 300,000 USD.



## Particulars of the approval

### Pipes for pressure systems

Steel type /grade <sup>2)</sup>	Manufacturing method <sup>1)</sup>	Max. outer diameter [mm]	Max. wall thickness [mm]	Heat treatment condition
C and C-Mn	HFS	406.4	30	acc. to standard
Alloy	HFS	406.4	30	acc. to standard

### Boiler and superheater tubes

Steel type /grade <sup>3)</sup>	Manufacturing method <sup>1)</sup>	Max. outer diameter [mm]	Max. wall thickness [mm]	Heat treatment condition
C and C-Mn	HFS	406.4	30	acc. to standard
Alloy	HFS	406.4	30	acc. to standard

#### Remarks:

- 1) HFS: hot finished seamless
- 2) Suitable pipe grades shall be selected from the following recognized standards:  
ISO 9329 Parts 1 and 2, ISO 9330 Parts 1 and 2, EN 10216 Parts 1 to 3, EN 10217 Parts 1 to 3, EN 10305 Part 1 and 2, ASTM A53, ASTM A106, ASTM A135, ASTM A335, JIS G3454, JIS G3455, JIS G3456 or JIS G3458
- 3) Suitable pipe grades shall be selected from the following recognized standards:  
ISO 9329 Part 2, ISO 9330 Part 2, EN 10216 Part 2, EN 10217 Part 2, ASTM A178, ASTM A209, ASTM A210, ASTM A213, JIS G3461, JIS G3462 or JIS G3463