



# APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:  
**AMMM000034**  
Revision No:  
**2**

This is to certify:

That

**Celsa Huta Ostrowiec Sp. z o.o.**  
**ul. Jana Samsonowicza 2, 27-400 Ostrowiec Świętokrzyski,**  
**Poland**

is an approved manufacturer of  
**Steel Forgings**

in accordance with  
**DNV rules for classification – Ships**  
**DNV-OS-B101 – Metallic materials**

and the following particulars:

<b>Application area</b>	<b>Forgings for hull structures and equipment</b> <b>Forgings for shafting and machinery</b> <b>Forgings for crankshafts</b>
<b>Steel type</b>	<b>Carbon and carbon-manganese,</b> <b>Alloy,</b> <b>See page 2</b>
<b>Forging method</b>	<b>Open die forging</b>
<b>Max. weight</b>	<b>125 000 kg</b>
<b>Heat treatment condition</b>	<b>See page 2</b>
<b>Additional approval conditions</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 **2022-09-26**

This Certificate is valid until **2025-06-30**.

DNV local station: **Katowice CMC**

Approval Engineer: **Christian Wildhagen**



for **DNV**

Digitally Signed By: Roehr, Stefan

Location: DNV Hamburg, Germany

Signing Date: 26.09.2022, on behalf of

**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 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 300,000 USD.



Form code: AM 311

Revision: 2021-03

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## Particulars of the approval

### Forgings for hull structures and equipment

Steel type	Grade <sup>3)</sup>	Forging method <sup>1)</sup>	Max. weight [kg]	Heat treatment condition <sup>2)</sup>
C and C-Mn	NV F400UW, NV F440UW, NV F480UW, NV F520UW, NV F560UW, NV F600UW	OD	125 000	N, NT, QT
Alloy	NV F550AW, NV F600AW, NV F650AW	OD	125 000	QT

### Forgings for shafting and machinery

#### Forgings for crankshafts

Steel type	Grade <sup>3)</sup>	Forging method <sup>1)</sup>	Max. weight [kg]	Heat treatment condition <sup>2)</sup>
C and C-Mn	NV F400U, NV F440U, NV F480U, NV F520U, NV F560U, NV F600U, NV F640U, NV F680U, NV F720U, NV F760U	OD	125 000	N, NT, QT
Alloy	NV F600A, NV F700A, NV F800A, NV F900A, NV F1000A, NV F1100A	OD	125 000	QT

Remarks:

- <sup>1)</sup> OD: Open die forging
- <sup>2)</sup> QT: Quenched and tempered  
 N: Normalized  
 NT: Normalized and tempered
- <sup>3)</sup> Incl. equivalent grades in acc. to other standards

Special conditions:

Including solid forged continuous grain flow crankshafts produced by the TR-method