

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate no.:
AMMM000009J
Revision No:
3

This is to certify:

that

Ellwood National Crankshaft Co.
1 Front St Irvine PA 16329-1801,
USA

is an approved manufacturer of
Steel forgings

in accordance with

DNV rules for classification – Ships
DNV class programme – DNV-CP-0247 Steel forgings

and the following particulars:

Application area	Forgings for crankshafts
Steel type	Carbon and carbon-manganese, Alloy
Forging method	See page 2
Max. weight	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 classed object shall fulfill the material requirements in the applicable DNV class rules.

Issued at **Hamburg** on **2025-12-30**

for **DNV**

This Certificate is valid until **2028-12-31**.

DNV local unit: **New York**

Approval Engineer: **Stefan Röhr**

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

Forgings for crankshafts

Steel type / grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
Carbon and carbon-manganese	CD, CGF	6 000	NT, QT
Alloy	CD, CGF	6 000	QT

Remarks:

- 1) CD: Multi-Direction Closed Die Forging Press
CGF: Continuous grain flow forging
- 2) QT: Quenched and tempered
NT: Normalized and tempered
- 3) Material grades according to DNV approved drawings