

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate no.:
AMMM00000YT
Revision No:
3

This is to certify:

that

Großenhainer Gesenk- und Freiformschmiede GmbH
Öhringer Str. 24-26,
01558 Großenhain,
Germany

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 hull structures and equipment Forgings for shafting and machinery Forgings for gearing Forgings for boilers, pressure vessels and piping systems
Steel type	Carbon and carbon-manganese, Alloy, See page 2
Forging method	Open die forging / closed die forging
Max. weight	See page 2
Heat treatment condition	See page 2
Additional approval conditions	Including grades according to international standards for approved applications, see particulars of the approval

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 **2025-11-04**

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

DNV local unit: **Hamburg – CMC North/East**

Approval Engineer: **Christian Wildhagen**



for **DNV**

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

Martin Wenning

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 hull structures and equipment

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
C and C-Mn	NV F400UW, NV F440UW, NV F480UW, NV F520UW, NV F560UW, NV F600UW	OD, CD	300	N, NT, QT
Alloy	NV F550AW, NV F600AW, NV F650AW	OD, CD	300	QT

Forgings for shafting and machinery

Forgings for gearing

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
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, CD	300	N, NT, QT
Alloy	NV F600A, NV F700A, NV F800A, NV F900A, NV F1000A, NV F1100A	OD, CD	300	QT

Forgings for boilers, pressure vessels and piping systems

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
C and C-Mn	NV F450H, NV F490H	OD, CD	300	N, NT, QT
Alloy	NV F0.5Mo, NV F1Cr0.5Mo	OD, CD	300	N, NT, QT
	NV F2.25Cr1Mo	OD, CD	300	N, QT

Steels acc. other standards

Grade ³⁾⁴⁾	Forging method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
Steel acc. to EN 10250-2 and -3	OD, CD	300	acc. standard
Steel acc. to ISO 683-1 and ISO 683-2	OD, CD	300	acc. standard
Steel acc. to ISO 683-3	OD, CD	300	acc. standard

Remarks:

- 1) OD: Open die forging
CD: Closed die forging
- 2) QT: Quenched and tempered
N: Normalized
NT: Normalized and tempered
- 3) Incl. equivalent grades in acc. to other standards
- 4) Including pre-material acc. EN 10025