

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00001ZU
Revision No:
2

This is to certify:

That

Hammerwerk Fridingen GmbH
Dr. Werner Esser Str.1, 78567 Fridingen,
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 Stainless steel forgings
Steel types	Carbon and carbon-manganese, Alloy, Martensitic stainless, Austenitic stainless, Austenitic-ferritic (duplex) stainless
Forging method	Open die forging / closed die forging
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 **2024-04-12**

This Certificate is valid until **2027-03-31**.

DNV local unit: **Augsburg**

Approval Engineer: **Dechun Lou**



for **DNV**

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

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 300,000 USD.



Particulars of the approval

Forgings for hull structures and equipment

Steel type	Grade ^{3) 4)}	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	80	N, NT, QT
Alloy	NV F550AW, NV F620AW, NV F650AW	OD, CD	80	NT, QT

Forgings for shafting and machinery / Forgings for gearing ⁶⁾

Steel type	Grade ^{3) 4)}	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	80	N, NT, QT
Alloy	NV F600A, NV F700A, NV F800A, NV F900A, NV F1000A, NV F1100A	OD, CD	80	NT, QT

Stainless steel forgings

Steel type / grade ^{3) 5)}	Forging method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
Martensitic stainless	OD, CD	80	QT
Austenitic stainless	OD, CD	80	SHT
22 Cr duplex stainless	OD, CD	80	SHT
25 Cr duplex stainless	OD, CD	80	SHT

Remarks:

- 1) OD: Open die forging; CD: Closed die forging
- 2) QT: Quenched and tempered; N: Normalised; NT: Normalised and tempered
SHT: Solution Heat Treated (Solution Annealing)
- 3) Certification of any material applied to classed object shall fulfill the applicable material requirements in the DNV class rules.
- 4) Incl. equivalent grades in acc. to other standards
- 5) Stainless steel forgings shall be in accordance with recognized standards, e.g. EN 10222, ASTM A473/A965/A1049 and JIS G 3214, provided that supplementary requirements contained herein are also met. Recognition of other standards is subject to submission to the Society for evaluation.
- 6) Chemical composition and heat treatment for forgings for gearing acc. to DNV-RU-Ship-Pt 2 Sec 6.5 (Forgings for gearing) or where applicable, the requirements of the approved specification.