

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No: **AMMM000016D** Revision No:

4

This is to certify:

That

Deutsche Edelstahlwerke Witten/Krefeld GmbH & Co. KG Auestraße 4, 58452 Witten, Germany

is an approved manufacturer of **Steel Forgings**

in accordance with

Steel type

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

and the following particulars:

Product Forged bars

Application area Forgings for hull structures and equipment

Forgings for shafting and machinery

Forgings for gearing Stainless steel forgings

Special materials for naval ships Carbon and carbon-manganese,

Alloy,

Austenitic stainless, Martensitic stainless, Ferritic stainless,

Austenitic-ferritic (Duplex) stainless

Forging method Open die forging

Max. weight

Max. diameter / section

Heat treatment condition

Additional approval conditions

See particulars of the approval See particulars of the approval See particulars of the approval 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 2025-03-06

This Certificate is valid until **2026-06-19**. DNV local unit: **Essen**

Approval Engineer: Christian Wildhagen

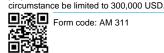
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for **DNV**

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



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Revision No: 4

Particulars of the approval

Forgings for hull structures and equipment

Steel type	Grade ²⁾	Max. Diameter [mm]	max. Length [mm]	Max. Weight [kg/m]	Heat treatment Condition 1)
C and C-Mn	NV F400UW, NV F440UW, NV F480UW, NV F520UW, NV F560UW, NV F600UW	250	11 000	1 500	N, NT, QT
Alloy	NV F550AW, NV F600AW, NV F650AW	250	11 000	1 500	QT

Forgings for shafting and machinery Forgings for gearing

Steel type	Grade ²⁾	Max. Diameter [mm]	max. Length [mm]	Max. Weight [kg/m]	Heat treatment Condition ¹⁾
C and C-Mn	NV F400U, NV F440U, NV F480U, NV F520U, NV F560U, NV F600U, NV F640U, NV F680U, NV F720U, NV F760U	250	11 000	1 500	N, NT, QT
Alloy	NV F600A, NV F700A, NV F800A, NV F900A, NV F1000A, NV F1100A	250	11 000	1 500	QT

Forgings of liquid quenched and tempered structural steels

Steel type	Grade ²⁾	Max. Diameter [mm]	max. Length [mm]	Max. Weight [kg/m]	Heat treatment Condition 1)
C and C-Mn	NV-M550S, NV-M700S	200	11 000	1 500	QT
	15NiCrMo10-6 acc. WL 1.6780-2 16NiCrMo12-6 acc. WL 1.6782-2				
	HY-80 acc. MIL-S-21952D HY-100 acc. MIL-S-21952D				

Forgings of non-magnetizable steels

Steel type	Grade ²⁾	Max. Diameter [mm]	max. Length [mm]		Heat treatment Condition 1)
Non- magnetizable	1.3964.9 acc. WL 19364-2	160	11 000	1 500	SHT
	1.3964 acc. SEW 390	250	11 000	1 500	SHT

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Steels acc. other standards

Steel type	Grade	Max. Diameter [mm]	max. Length [mm]	Max. Weight [kg/m]	Heat treatment Condition 1)
C and C-Mn	acc. EN 10083-2	250	11 000	1 500	NT, QT
	acc. EN 10250-2				
	acc. ISO 683-1				
	acc. ISO 683-3				
	acc. EN 10083-3	250	11 000	1 500	QT
Alloy	acc. EN 10250-3				
Alloy	acc. ISO 683-2				
	acc. ISO 683-3				
	acc. EN 10088-3	250	11 000	1 500	SHT
Austenitic stainless	acc. EN 10222-5				
	acc. EN 10272				
	acc. EN 10088-3	250	11 000	1 500	SHT
Duplex	acc. EN 10222-5				
	acc. EN 10272				
Fiti -	acc. EN 10088-3	250	11 000	1 500	А
Ferritic	acc. EN 10272				
	acc. EN 10088-3	250	11 000	1 500	QT
Martensitic	acc. EN 10222-5				
	acc. EN 10272				
	1.4542 acc. EN 10088-3	_	11 000	1 500	PH
	Type 630 (17-4PH) acc. ASTM A564	250			

Remarks:

QT: Quenched and tempered

N: Normalized

NT: Normalized and tempered

SHT: Solution Heat Treated (Solution Annealing)

PH: Precipitation hardened

A: Annealed

2) Incl. equivalent grades in acc. to other standards

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