

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00001U5
Revision No:
1

This is to certify:

That

Kind & Co., Edelstahlwerk, GmbH & Co. KG
Bielsteiner Str. 124-130, 51674 Wiehl,
Germany

is an approved manufacturer of
Steel Forgings

in accordance with
DNV GL rules for classification – Ships
DNV GL rules for classification – Naval vessels

and the following particulars:

Application area	Forgings of liquid quenched and tempered structural steels, Forgings of non-magnetizable steels, Stainless steel forgings
Steel type	Alloy, Austenitic stainless, Ferritic-austenitic (duplex) stainless
Forging method	See page 2
Max. weight	Open die forging incl. forged bars, ring rolling
Max. diameter / section	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 GL classed object shall fulfill the material requirements in the applicable DNV GL class rules.

Issued at **Hamburg** on **2020-12-29**

for **DNV GL**

This Certificate is valid until **2023-11-29**.

DNV GL local station: **Essen**

Approval Engineer: **Christian Wildhagen**

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 GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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.



Job Id: **263.11-006455-2**
 Certificate No: **AMMM00001U5**
 Revision No: **1**

Particulars of the approval

Steel forgings

Steel type	Grade	Forging method ¹⁾	Max. weight [kg]	Max. thickness [mm]	Delivery condition ²⁾
Duplex	1.4462 acc. to EN 10222-5, acc. to EN 10250-4	OD	14 000	1 300	SHT
		SB, RR	14 000	700	
	1.4462 acc. to VdTÜV materials data sheet 418	OD & SB	14 000	1 300	
Alloy	VL-M550S	OD	14 000	1 300	QT
		SB, RR	14 000	700	
	HY-80 acc. to MIL-S-23009	OD	14 000	1 300	
		SB, RR	14 000	700	
	HY-80 acc. to T9074-BD-GIB- 010/0300 Annex E & G	OD	14 000	1 300	
		SB, RR	14 000	700	
	1.6780.5 acc. to BWB WL 1.6780-3	OD	14 000	1 300	SHT
	1.6780.5 acc. to BWB WL 1.6780-2	SB, RR	14 000	700	
	1.3964 acc. to SEW 390	OD	14 000	1 300	
		SB, RR	14 000	700	
	1.3964.9 acc. to BWB WL 1.3964-3	OD	14 000	1300	
	1.3964.9 acc. to BWB WL 1.3964-2	SB, RR	14 000	700	
	1.3974 acc. to SEW 390	OD	14 000	1300	
		SB, RR	14 000	700	
	1.3974.9 acc. to BWB WL 1.3974-3	OD	14 000	1300	
1.3974.9 acc. to BWB WL 1.3974-2	SB, RR	14 000	700		

Remarks:

- 1) OD: Open die forging
SB: Steel Bar
RR: Rolled ring
- 2) QT: Quenched and tempered
SHT: Solution Heat Treated (Solution Annealing)
- 3) Max. outer diameter 3000 mm for rolled rings