



APPROVAL OF MANUFACTURER CERTIFICATE

Certificate no.:
AMMM00000Y6
Revision No:
3

This is to certify:

that

De Haan Special Equipment B.V.
Transistorweg 3, 9503 GT Stadskanaal, Groningen,
Netherlands

is an approved manufacturer of
Chain Cables

in accordance with

DNV-OS-E302 – Offshore mooring chain, Edition July 2022
DNV class programme – DNV-CP-0237 Offshore mooring chain and accessories

and the following particulars:

Product	Forged chain cable accessories
Grade	R3, R4, R5
Max. diameter / thickness	See page 2
Heat treatment condition	See page 2
Remarks	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 **2026-01-22**

This Certificate is valid until **2028-12-31**.
DNV local unit: **Netherlands CMC**

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 USD 300 000.

Particulars of the approval

Particular of approvals for Offshore mooring chain cable accessories			
Grade ¹⁾	Heat treatment conditions ^{2), 3)}	Max. diameter or thickness [mm]	Material manufacturers ⁴⁾
R3, R4, R5	NQT	89	Buderus Edelstahl GmbH

Remarks:

- ¹⁾ For approved material specification see table S1.
²⁾ NQT: Normalized, Quenched and Tempered.
³⁾ Heat treatment is carried out by K. & H. Fischer GmbH.
⁴⁾ The approval is limited to the listed raw material manufacturer.
⁵⁾ Forging without final heat treatment carried out by Stahlhammer Bommern GmbH.

Table S1 - Specification for chemical composition ¹⁾													
Grade,	Max. thickness [mm]		C	Si	Mn	P	S	Cr	Ni	Mo	Cu	Al	N
R3, R4, R5	89	Min	.30	-	.50	-	-	1.30	1.30	.20	-	.020	-
		Max	.38	.40	.80	.025	.015	1.70	1.70	.30	.25	.050	.012

Remarks:

- ¹⁾ The content of Sn, Sb, As and B may be required. In such cases, the maximum content shall be 0.020 % for Sn, 0.020 % for Sb, 0.030% for As and 0.0007% for B.

Miscellaneous:

- 1) Approval of procedures detailed in the approval letter: M-WW-NCC/RVNO/P261.1H-J-6616.