



APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM000031X

This is to certify:

That

Anker Schroeder ASDO GmbH
Hannöversche Str. 48, 44143 Dortmund, Nordrhein-Westfalen,
Germany

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
Grades	R3, R3S, R4, R4S, R5
Heat treatment condition	See page 2
Max. diameter/thickness	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 **2023-05-25**

This Certificate is valid until **2026-05-24**.

DNV local unit: **Essen**

for **DNV**

Approval Engineer: **Dechun Lou**

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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 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 chain cable accessories

Grade ¹⁾	Heat treatment conditions ²⁾	Max. thickness or dia. of accessory [mm]	Material manufacturer
R3, R3S, R4,	NQT	152	Deutsche Edelstahlwerke GmbH, Witten plant ^{a)}
R3S, R4, R4S, R5	NQT	105	Deutsche Edelstahlwerke GmbH, Witten plant ^{b)}

Remarks:

- ¹⁾ For approved material specification see table S1
- ²⁾ NQT: Normalizing, Quenched and Tempered.
- ³⁾ The approval is limited to the listed raw material manufacturer
- a), b). Linking reference for each specification for chemical composition from the table S1.

Approval for forged chain cable accessories				
Grade ¹⁾	Heat treatment conditions ²⁾	Max. thickness or dia. of accessory [mm]	Max. dia. of chain [mm] ³⁾	Material manufacturer ^{4), 5)}
R3, R3S, R4, R4S	NQT	210	157	SIDENOR ACEROS ESPECIALES, S.L.
R5	NQT	210	152	SIDENOR ACEROS ESPECIALES, S.L.
R3, R3S, R4, R4S	NQT	260	168	ASCOMETAL FOS-SUR-MER SASU
R5	NQT	240	152	ASCOMETAL FOS-SUR-MER SASU

Remarks:

- ¹⁾ For approved material specification see table S2.
- ²⁾ NQT: Normalizing, Quenched and Tempered.
- ³⁾ Chain accessories intended for the maximum nominal diameter of chain cables.
- ⁴⁾ The approval is limited to the listed valid raw material manufacturer and valid approval of forging supplier.
- ⁵⁾ Forgings is carried out by Anker Schroeder ASDO.

Miscellaneous:

- 1) Approval of procedures detailed in the approval letter, M-SA-MW/DELOU/P261.1H-J-6761.