



# APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:  
**AMMM00001KG**  
Revision No:  
**4**

This is to certify:

That

**GN Rope Fittings - Grofsmederij Nieuwkoop B.V.**  
**Transportweg 47, 2421 LT Nieuwkoop, Netherlands**

is an approved manufacturer of  
**Chain Cables**

in accordance with  
**DNVGL-OS-E302 – Offshore mooring chain, Edition July 2018**

and the following particulars:

<b>Product</b>	<b>Forged chain cable accessories</b>
<b>Grades</b>	<b>R3, R3S, R4</b>
<b>Delivery condition</b>	<b>See page 2</b>
<b>Max. diameter</b>	<b>230 mm</b>
<b>Remarks</b>	<b>See particulars of the approval</b>

Manufacturer approved by this certificate is 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 **Høvik** on **2022-06-13**

for **DNV**

This Certificate is valid until **2023-06-30**.

DNV local station: **Netherlands FIS**

Approval Engineer: **Dechun Lou**

**Sondre Løken**  
**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**

Forged chain cable accessories			
Grade <sup>1)</sup>	Delivery conditions <sup>2)</sup>	Max. diameter or thickness (mm)	Material manufacturer <sup>3), 4)</sup>
R3, R3S R4	QT	120	Sidenor Aceros especiales, S.L, Reinos plant
			LIBERTY SPECIALITY STEELS (UK)
R3, R3S R4	NQT	230	Sidenor Aceros especiales, S.L, Reinos plant
			LIBERTY SPECIALITY STEELS (UK)

Remarks:

- <sup>1)</sup> For approved material specification see table S1
- <sup>2)</sup> QT: Quenched and tempered; NQT: Normalized, Quenched and Tempered.
- <sup>3)</sup> The approval is limited to the listed raw material manufacturer.
- <sup>4)</sup> Forgings are carried out at GN Rope Fittings.

Table S1 - Specification for chemical composition, chain cable accessories

Grade, dia. or thickness		C	Si	Mn	P	S	Cr	Ni	Mo	Cu	Al	N	
R3 R3S R4	230 mm	Min	.30	.10	.50	-	-	1.30	1.30	.20	-	.020	-
		Max	.38	.40	.80	.035	.035	1.70	1.70	.30	.40	.060	.015

Remarks:

The content of Sn, Sb, As and B may be required determined. In such cases, the maximum content shall be 0.040 % for Sn and 0.030 % for Sb, 0.030 % As and 0.001 % for B.

**Miscellaneous:**

- 1) Approval of procedures detailed in the approval letter: M-WW-VMC/MVH/261.0 General-J-1639.