

# APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:  
**AMMM00001KG**  
Revision No:  
**1**

## This is to certify:

That

**GN Rope Fittings - Grofsmederij Nieuwkoop B.V.**  
**NIEUWKOOP, Netherlands**

is an approved manufacturer of  
**Chain Cables**

in accordance with  
**DNVGL-OS-E302 – Offshore mooring chain, Edition July 2015**

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>

Manufacturer approved by this certificate is 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 **Høvik** on **2017-10-09**

for **DNV GL**

This Certificate is valid until **2020-06-30**.

DNV GL local station: **Rotterdam**

Approval Engineer: **Gorka Lozano**

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**Hanne Anita Hjerpetjønn**  
**Head of Section**



Job Id: **263.11-004049-3**  
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## Particulars of the approval

Forged chain cable accessories			
Grade <sup>1)</sup>	Delivery conditions <sup>2)</sup>	Max. diameter or thickness (mm)	Material manufacturer
R3 R3S R4	QT	120	Sidenor Aceros especiales, S.L, Reinosa plant TATA Steel UK Ltd. Stocksbridge & Rotherham Works
R3 R3S R4	NQT	230	Sidenor Aceros especiales, S.L, Reinosa plant TATA Steel UK Ltd. Stocksbridge & Rotherham Works

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.

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: MRWNL460/MVH/261.0 General-J-1636