

# APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:  
**AMMM000004W**  
Revision No:  
**1**

**This is to certify:**

That  
**OFAR S.p.A.**  
**Visano BS, Italy**

is an approved manufacturer of  
**Steel Forgings**

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

and the following particulars:

<b>Product</b>	<b>Forgings for chain cable accessories</b>
<b>Grade</b>	<b>R3S</b>
<b>Delivery Condition</b>	<b>Normalized, Quenched and Tempered</b>
<b>Max. thickness</b>	<b>600 mm, see page 2</b>
<b>Remark</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 GL classed object shall fulfill the material requirements in the applicable DNV GL class rules.

Issued at **Høvik** on **2019-11-25**

for **DNV GL**

This Certificate is valid until **2022-12-31**.

DNV GL local station: **Italy/Malta CMC**

Approval Engineer: **Dechun Lou**

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



Job Id: **263.11-004940-2**  
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**Particulars of the approval**

<b>Forgings for chain cable accessories</b>			
<b>Grade</b>	<b>Delivery conditions <sup>1)</sup></b>	<b>Max. diameter or thickness (mm)</b>	<b>Material manufacturer <sup>2)</sup></b>
R3S	NQT	600	Breitenfeld Edelstahl AG

Remarks:

- <sup>1)</sup> NQT: Normalized, Quenched and Tempered
- <sup>2)</sup> The approval is limited to the listed raw material manufacturer.
- <sup>3)</sup> For approved specification see table S1

<b>Table S1 - Specification for chemical composition - Ingots for chain cables</b>													
<b>Grade, thickness (mm)</b>		<b>C</b>	<b>Mn</b>	<b>Si</b>	<b>P</b>	<b>S</b>	<b>Cr</b>	<b>Ni</b>	<b>Mo</b>	<b>Cu</b>	<b>Al</b>	<b>V</b>	<b>N</b>
<b>R3S</b>	600	Min	.10	.30	-	-	2.00	-	.90	-	.020	.03	-
		Max	.20	.90	.50	.025	.015	2.50	.50	1.20	.35	.025	.05

Remarks:

The content of Sn, Sb, As and B may be required. In such cases, the maximum content shall be 0.025 % for Sn, 0.0025 % for Sb, 0.010% As and 0.0005% for B.