

# APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:  
**AMMM0000152**  
Revision No:  
**1**

**This is to certify:**

That  
**Franchini Acciai S.P.A.**  
**Mairano BS, Italy**

is an approved manufacturer of  
**Steel Forgings**

in accordance with  
**DNV GL rules for classification – Ships**

and the following particulars:

<b>Application area</b>	<b>Forgings for hull structures and equipment Forgings for shafting and machinery Forgings for gearing</b>
<b>Steel type</b>	<b>Carbon and carbon-manganese, Alloy</b>
<b>Forging method</b>	<b>See page 2</b>
<b>Max. weight</b>	<b>100 000 kg (Carbon and carbon-manganese) 30 000 kg (Alloy)</b>
<b>Max. diameter / section</b>	<b>See page 2</b>
<b>Heat treatment condition</b>	<b>See page 2</b>

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 GL classed object shall fulfill the material requirements in the applicable DNV GL class rules.

Issued at **Hamburg** on **2019-09-24**

This Certificate is valid until **2022-12-31**.  
DNV GL local station: **Milan**

Approval Engineer: **Andreas Koch**



for **DNV GL**

Digitally Signed By: Wildhagen, Christian  
Location: DNV GL Hamburg, Germany  
Signing Date: 2019-09-26, on behalf of

**Thorsten Lohmann**  
**Head of Section**



Job Id: **263.11-006750-2**  
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## Particulars of the approval

### Forgings for hull structures and equipment

Steel type	Grade <sup>3)</sup>	Forging method <sup>1)</sup>	Max. weight [kg]	Heat treatment condition <sup>2)</sup>
C and C-Mn	VL F400UW, VL F440UW, VL F480UW, VL F520UW, VL F560UW, VL F600UW	OD	100 000	N, NT, QT
Alloy	VL F550AW, VL F600AW, VL F650AW	OD	30 000	QT

### Forgings for shafting and machinery

#### Forgings for gearing

Steel type	Grade <sup>3)</sup>	Forging method <sup>1)</sup>	Max. weight [kg]	Heat treatment condition <sup>2)</sup>
C and C-Mn	VL F400U, VL F440U, VL F480U, VL F520U, VL F560U, VL F600U, VL F640U, VL F680U, VL F720U, VL F760U	OD	100 000	N, NT, QT
Alloy	VL F600A, VL F700A, VL F800A, VL F900A, VL F1000A, VL F1100A	OD	30 000	QT

#### Remarks:

- 1) OD: Open die forging
- 2) QT: Quenched and tempered  
N: Normalized  
NT: Normalized and tempered
- 3) Incl. equivalent grades in acc. to other standards (e.g. 18CrNiMo7-6 acc. EN 10084, C45 and 28Mn6 acc. EN 10083-2 as well as S235JRG3, S235J2G3 and S355J2G3 acc. EN 10250-2).