

# APPROVAL OF MANUFACTURER CERTIFICATE

**This is to certify:**

That

**Forgital Italy S.p.A.  
Seghe die Velo d'Astico (VI),  
Italy**is an approved manufacturer of  
**Steel Forgings**in accordance with  
**DNV GL rules for classification – Ships  
DNVGL-OS-B101 – Metallic materials**

and the following particulars:

**Application area****Forgings for hull structures and equipment,  
Forgings for shafting and machinery,  
Forgings for gearing,  
Stainless steel forgings****Steel type****Carbon and carbon-manganese,  
Alloy,  
Austenitic stainless,  
Ferritic-austenitic (duplex) stainless  
See page 2****Forging method****Open die forging / ring rolling****Max. weight****See page 2****Max. diameter / section****See page 2****Heat treatment condition****See page 2****Additional approval conditions****Including grades acc. to international standards,  
see page 2**

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 **2020-09-15**This Certificate is valid until **2023-09-30**.for **DNV GL**DNV GL local station: **Venice**Approval Engineer: **Christian Wildhagen****Thorsten Lohmann  
Head of Section**

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Job Id: **263.11-007350-2**  
 Certificate No: **AMMM00001BB**  
 Revision No: **3**

## 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, RR <sup>6)</sup>	30 000	N, QT
Alloy	VL F550AW, VL F600AW, VL F650AW	OD, RR <sup>6)</sup>	30 000	QT

### Forgings for shafting and machinery

#### Forging 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, RR <sup>6)</sup>	30 000	N, QT
Alloy	VL F600A, VL F700A, VL F800A, VL F900A, VL F1000A, VL F1100A	OD, RR <sup>6)</sup>	30 000	QT

### Stainless steel forgings

Steel type / grade <sup>4)</sup>	Forging method <sup>1)</sup>	Max. weight [kg]	Heat treatment condition <sup>2)</sup>
Austenitic stainless	OD, RR <sup>6)</sup>	30 000	SHT
22 Cr duplex stainless	OD, RR <sup>6)</sup>	30 000	SHT
25 Cr duplex stainless	OD, RR <sup>6)</sup>	30 000	SHT

### Steels acc. other standards

Grade <sup>5)</sup>	Forging method <sup>1)</sup>	Max. weight [kg]	Heat treatment condition <sup>2)</sup>
Steel acc. to EN 10083-2, -3 and EN 10250-2, -3	OD, RR <sup>6)</sup>	30 000	N, QT

#### Remarks:

- 1) OD: Open die forging  
RR: Ring Rolling
- 2) QT: Quenched and tempered  
N: Normalised  
SHT: Solution Heat Treated (Solution Annealing)
- 3) Incl. equivalent grades in acc. to other standards
- 4) Stainless steel forgings shall be in accordance with recognized standards, e.g. EN 10222, ASTM A473/A965/A1049 and JIS G 3214, provided that supplementary requirements contained herein are also met. Recognition of other standards is subject to submission to the Society for evaluation.
- 5) Possible application and certification of any material to classed object is subject to case by case approval
- 6) Max. outer diameter 7 000 mm for rolled rings