

# APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:  
**AMMM00001FC**  
Revision No:  
**2**

## This is to certify:

That

**Riganti S.p.A.**  
**Via Vittorio Veneto, 1 21048 Solbiate Arno VA,**  
**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:

<b>Application area</b>	<b>Forgings for hull structures and equipment, Forgings for shafting and machinery, Forgings for gearing, Forgings for boilers, pressure vessels and piping systems, Stainless steel forgings</b>
<b>Steel type</b>	<b>Carbon and carbon-manganese, Alloy, Austenitic stainless, Ferritic-austenitic (duplex) stainless</b>
<b>Forging method</b>	<b>Open die forging/closed die forging</b>
<b>Max. weight</b>	<b>See page 2 ff.</b>
<b>Heat treatment condition</b>	<b>See page 2 ff.</b>
<b>Additional approval conditions</b>	<b>See page 2 ff.</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 **2020-10-20**

This Certificate is valid until **2023-09-30**.

for **DNV GL**

DNV GL local station: **Milan**

Approval Engineer: **Stefan Röhr**

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**Thorsten Lohmann**  
**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 GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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.



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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/CD	1 000	N, NT, QT
Alloy	VL F550AW, VL F600AW, VL F650AW	OD/CD	1 000	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/CD	1 000	N, NT, QT
Alloy	VL F600A, VL F700A, VL F800A, VL F900A, VL F1000A, VL F1100A	OD/CD	1 000	QT

### Forgings for boilers, pressure vessels and piping systems

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 F450H, VL F490H	OD/CD	1 000	N, NT, QT
Alloy	VL F0.5Mo, VL F1Cr0.5Mo	OD/CD	1 000	NT, QT
	VL F2.25Cr1Mo	OD	20 000	N, QT

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### 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/CD	1 000	SHT
22 Cr duplex	OD/CD	1 000	SHT
25 Cr duplex	OD/CD	1 000	SHT

#### Remarks:

- 1) OD: Open die forging; CD: Closed die forging
- 2) QT: Quenched and tempered N: Normalized;  
NT: Normalized and tempered; 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

#### Additional approval conditions

Including low temperature service for austenitic stainless steel