



# APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:  
**AMMM00000KN**  
Revision No:  
**4**

This is to certify:

That

**Euskalforging S.A.**  
**Irura plant**  
**Irura, Gipuzkoa,**  
**Spain**

is an approved manufacturer of  
**Steel Forgings**

in accordance with  
**DNV rules for classification – Ships**  
**DNV-OS-B101 – Metallic materials**  
**DNV class programme – DNV-CP-0247 Steel Forgings**

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, Ferritic steel forgings for low temperature service, Stainless steel forgings</b>
<b>Steel type</b>	<b>Carbon and carbon-manganese, Alloy, Austenitic stainless, Martensitic stainless, Ferritic-austenitic (duplex) stainless</b>
<b>Forging method</b>	<b>Open die forging/Ring Rolling</b>
<b>Max. weight</b>	<b>See page 2 ff.</b>
<b>Heat treatment condition</b>	<b>See page 2 ff.</b>

Manufacturer approved by this certificate is accepted to deliver according to DNV GL, DNV and GL rules. Materials to be applied to DNV classed object shall fulfill the material requirements in the applicable DNV class rules.

Issued at **Hamburg** on **2023-03-15**

for **DNV**

This Certificate is valid until **2025-12-31**.

DNV local unit: **Area NB/CMC Iberia**

Approval Engineer: **Stefan Röhr**

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



Form code: AM 311

Revision: 2022-12

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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]	Max. section [mm]	Heat treatment condition <sup>2)</sup>
C and C-Mn	NV F400UW, NV F440UW, NV F480UW, NV F520UW, NV F560UW, NV F600UW	OD/RR	10 000	500	N, NT, QT
Alloy	NV F550AW, NV F600AW, NV F650AW	OD/RR	10 000	500	QT

### Forgings for shafting and machinery

#### Forgings for gearing

Steel type	Grade <sup>3)</sup>	Forging method <sup>1)</sup>	Max. weight [kg]	Max. section [mm]	Heat treatment condition <sup>2)</sup>
C and C-Mn	NV F400U, NV F440U, NV F480U, NV F520U, NV F560U, NV F600U, NV F640U, NV F680U, NV F720U, NV F760U	OD/RR	10 000	500	N, NT, QT
Alloy	NV F600A, NV F700A, NV F800A, NV F900A, NV F1000A, NV F1100A	OD/RR	10 000	500	QT

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

Steel type	Grade <sup>3)</sup>	Forging method <sup>1)</sup>	Max. weight [kg]	Max. section [mm]	Heat treatment condition <sup>2)</sup>
C and C-Mn	NV F450H, NV F490H	OD/RR	10 000	500	N, NT, QT
Alloy	NV F0.5Mo, NV F1Cr0.5Mo	OD/RR	10 000	500	N, NT, QT
	NV F2.25Cr1Mo	OD/RR	10 000	500	N, QT

### Ferritic steel forgings for low temperature service

Steel type	Grade <sup>3)</sup>	Forging method <sup>1)</sup>	Max. weight [kg]	Max. section [mm]	Heat treatment condition <sup>2)</sup>
C and C-Mn	NV F450L, NV F490L	OD/RR	10 000	500	N, NT, QT
Alloy	NV F3.5Ni, NV F5Ni, NV F9Ni	OD/RR	10 000	500	NT, QT

**Stainless steel forgings**

Steel type / grade <sup>4)</sup>	Forging method <sup>1)</sup>	Max. weight [kg]	Max. section [mm]	Heat treatment condition <sup>2)</sup>
Austenitic Stainless	OD/RR	10 000	500	SHT
Ferritic-austenitic Stainless (22 Cr Duplex)	OD/RR	10 000	500	SHT
Martensitic Stainless	OD/RR	10 000	500	QT

Remarks:

- 1) OD: Open Die Forging; RR: Ring Rolling
- 2) QT: Quenched and tempered; N: Normalised; NT: Normalised 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, EN 10250, EN 10088, 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.