



APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00000EZ
Revision No:
4

This is to certify:

That
FORJAS IRIZAR, S.L.
Lazkao, Gipuzkoa,
Spain

is an approved manufacturer of
Steel Forgings

in accordance with
DNV rules for classification – Ships
DNV-OS-B101 – Metallic materials

and the following particulars:

Application area	Forgings for hull structures and equipment
Steel type	Forgings for shafting and machinery
Forging method	Carbon and carbon-manganese,
Max. weight	Alloy
Max. thickness	Open die forging
Heat treatment condition	See page 2
	See page 2
	See page 2
	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 classed object shall fulfill the material requirements in the applicable DNV class rules.

Issued at **Hamburg** on **2022-06-01**

for **DNV**

This Certificate is valid until **2024-10-25**.

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

Approval Engineer: **Christian Wildhagen**

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.



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Particulars of the approval

Forgings for hull structures and equipment

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Max. diameter / section [mm]	Heat treatment condition ²⁾
C and C-Mn	NV F400UW, NV F440UW, NV F480UW, NV F520UW, NV F560UW, NV F600UW	OD	20 000	950	N, NT, QT
Alloy	NV F550AW, NV F600AW, NV F650AW	OD	20 000	950	QT

Forgings for shafting and machinery

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Max. diameter / section [mm]	Heat treatment condition ²⁾
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	20 000	950	N, NT, QT
Alloy	NV F600A, NV F700A, NV F800A, NV F900A, NV F1000A, NV F1100A	OD	20 000	950	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

Special condition:

Heat treatment subcontracted