

APPROVAL OF MANUFACTURER CERTIFICATE

This is to certify:

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

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
Steel type	Carbon and carbon-manganese,
	Alloy,
	see page 2
Forging method	Open die forging
Max. weight	20 000 kg
Heat treatment condition	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 **2019-08-13**

for **DNV GL**

This Certificate is valid until **2022-03-10**.

DNV GL local station: **Bilbao**

Approval Engineer: **Christian Wildhagen**

Thorsten Lohmann
Head of Section



Job Id: **263.11-010170-1**
Certificate No: **AMMM00000EZ**
Revision No: **3**

Particulars of the approval

Forgings for hull structures and equipment

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

Forgings for shafting and machinery

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