



APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM0000011
Revision No:
2

This is to certify:

That

Bifrangi S.p.A.
Via Alessandro Manzoni, 14
36065 Mussolente VI,
Italy

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 Forgings for boilers, pressure vessels and piping systems
Steel type	Carbon, Carbon-Manganese
Forging method	Open die forging/closed die forging
Max. weight	See page 2
Max. diameter/section	See page 2
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 classed object shall fulfill the material requirements in the applicable DNV class rules.

Issued at **Hamburg** on **2022-06-24**

for **DNV**

This Certificate is valid until **2025-06-30**.

DNV local station: **Venice**

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.



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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, CD	200	100	N, NT, QT
Alloy	NV F550AW, NV F600AW, NV F650AW	OD, CD	200	100	QT

Forgings for boilers, pressure vessels and piping systems

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Max. diameter/section [mm]	Heat treatment condition ²⁾
C and C-Mn	NV F450H, NV F490H	OD, CD	200	100	N, NT, QT
Alloy	NV F0.5Mo, NV F1Cr0.5Mo	OD, CD	200	100	N, NT, QT
	NV F2.25Cr1Mo	OD, CD	200	100	N, QT

Remarks:

- 1) OD: Open die forging; CD: Closed die forging
- 2) QT: Quenched and tempered; N: Normalized; NT: Normalized and tempered
- 3) Incl. equivalent grades in acc. to other standards