DNV

APPROVAL OF MANUFACTURER CERTIFICATE

This is to certify:

That

Fomas S.p.A.
Via Martiri dell Liberazione, 17 - 23875 Osnago, LC,
Italy

is an approved manufacturer of
Steel Forgings

in accordance with
  DNV rules for classification – Ships

and the following particulars:

Application area	**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
Steel type	**Carbon and carbon-manganese,**
	Alloy,
	Austenitic stainless,
	Ferritic-austenitic (duplex) stainless
Forging method	**Open die forging**
Max. weight	**See page 2**
Max. diameter	**See page 2**
Heat treatment condition	**See page 2**
Additional approval conditions	**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 **2022-06-13**

This Certificate is valid until **2025-06-30**.
DNV local station: **Italy/Malta CMC**

Approval Engineer: **Christian Wildhagen**

for **DNV**
Digitally Signed By: Roehr, Stefan
Location: DNV Hamburg, Germany
Signing Date: 15.06.2022 , on behalf of

Thorsten Lohmann
Head of Section

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	NV F400UW, NV F440UW, NV F480UW, NV F520UW, NV F560UW, NV F600UW	OD	65 000	N, NT, QT
Alloy	NV F550AW, NV F600AW, NV F650AW	OD	65 000	QT

Forgings for shafting and machinery
Forging for gearing

Steel type	Grade [3]	Forging method [1]	Max. weight [kg]	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	65 000	N, NT, QT
Alloy	NV F600A, NV F700A, NV F800A, NV F900A, NV F1000A, NV F1100A	OD	65 000	QT

Forgings for boilers, pressure vessels and piping systems

Steel type	Grade [3]	Forging method [1]	Max. weight [kg]	Heat treatment condition [2]
C and C-Mn	NV F450H, NV F490H	OD	65 000	N, NT, QT
Alloy	NV F0.5Mo, NV F1Cr0.5Mo	OD	65 000	N, NT, QT
	NV F2.25Cr1Mo	OD	65 000	N, QT

Stainless steel forgings

Steel type / grade [4]	Forging method [1]	Max. weight [kg]	Heat treatment condition [2]
Austenitic stainless	OD	65 000	SHT
Ferritic-austenitic (duplex) stainless	OD	65 000	SHT

Remarks:

[1] OD: Open 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 Electro Slag Remelting process (ESR)