

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00000DB
Revision No:
4

This is to certify:

That

ASFO S.p.A.
Via Stradone del Dieci, 24
45030 Villamarzana RO,
Italy

is an approved manufacturer of
Steel Forgings

in accordance with

DNV rules for classification – Ships
DNV class programme – DNV-CP-0247 Steel forgings

and the following particulars:

Application area	Forgings for hull structures and equipment Forgings for shafting and machinery Forgings for gearing Stainless steel forgings
Steel type	Carbon and carbon-manganese, Alloy, Austenitic-ferritic (Duplex) stainless
Forging method	See page 2 Open die forging, Ring rolling, see page 2
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 **2025-05-20**

This Certificate is valid until **2028-02-28**.

DNV local unit: **Italy/Malta CMC**

Approval Engineer: **Christian Wildhagen**

for **DNV**



This document has been digitally signed and will
therefore not have handwritten signature

Martin Wenning

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.

Particulars of the approval

Forgings for hull structures and equipment

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Max. thickness [mm]	Heat treatment condition ²⁾	Max. Height [mm] ⁵⁾
C and C-Mn	NV F400UW, NV F440UW, NV F480UW, NV F520UW, NV F560UW, NV F600UW	OD, RR	14 000	600	N, NT, QT	1 200
Alloy	NV F550AW, NV F600AW, NV F650AW	OD, RR	14 000	600	QT	1 200

Forgings for shafting and machinery

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Max. thickness [mm]	Heat treatment condition ²⁾	Max. Height [mm] ⁵⁾
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	14 000	600	N, NT, QT	1 200
Alloy	NV F600A, NV F700A, NV F800A, NV F900A, NV F1000A, NV F1100A	OD, RR	14 000	600	QT	1 200

Forgings for gearing

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Max. thickness [mm]	Heat treatment condition ²⁾	Max. Height [mm] ⁵⁾
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	14 000	600	N, NT, QT	1200
Alloy	NV F600A, NV F700A, NV F800A, NV F900A, NV F1000A, NV F1100A	OD, RR	14 000	600	QT	1200

Stainless steel forgings

Steel type ³⁾⁴⁾	Forging method ¹⁾	Max. weight [kg]	Max. thickness [mm]	Heat treatment condition ²⁾	Max. Height [mm] ⁵⁾
22 Cr Duplex (1.4462 acc. EN 10088-3)	OD, RR	14 000	600	SHT	1 200
25 Cr Duplex (1.4460 acc. EN 10088-3)	OD, RR	14 000	600	SHT	1 200

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, 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
- 5) Height of ring forging