

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00001FJ
Revision No:
2

This is to certify:

That

OFAR S.p.A.

Visano, BS,

Plant No. 1: Via dell'Industria, 5 - Visano BS,

Plant No. 2: Strada Provinciale SP4, 7 - Canneto sull'Oglio MN,

Italy

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 shafting and machinery
	Forgings for gearing
Steel type	Carbon and carbon-manganese,
	Alloy,
	Ferritic-austenitic (duplex) stainless
Forging method	See page 2
Max. weight	85 000 kg (Carbon and carbon manganese)
	183 000 kg (Alloy)
	22 000 kg (Ferritic-austenitic (duplex) stainless)
Max. diameter / section	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 GL classed object shall fulfill the material requirements in the applicable DNV GL class rules.

Issued at **Hamburg** on **2020-10-19**

for **DNV GL**

This Certificate is valid until **2023-09-30**.

DNV GL local station: **Italy/Malta CMC**

Approval Engineer: **Andreas Koch**

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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 GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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.



Job Id: **263.11-003393-3**
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Particulars of the approval

Forgings for shafting and machinery Forgings for gearing

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Max. wall thickness [mm]	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, RR ⁵⁾	85 000	500	N, NT, QT
Alloy	VL F600A, VL F700A, VL F800A, VL F900A, VL F1000A, VL F1100A	OD, RR ⁵⁾	183 000	500	QT

Stainless steel forgings

Steel type	Grade ^{3) 4)}	Forging method ¹⁾	Max. weight [kg]	Max. wall thickness [mm]	Heat treatment condition ²⁾
Ferritic-austenitic	22 Cr Duplex	OD, RR ⁵⁾	22 000	500	SHT
	25 Cr Duplex	OD, RR ⁵⁾	22 000	500	SHT

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) Max. outer diameter 6 500 mm for rolled rings

Special conditions:

Including Ferritic-Austenitic stainless (Duplex) acc. to NORSOK standard