DNV-GL

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 / sectionSee page 2Heat treatment conditionSee page 2Additional approval conditionsSee 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**

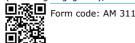
Approval Engineer: Andreas Koch

Thorsten Lohmann Head of Section

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Revision: 2020-01



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Job Id: **263.11-003393-3** Certificate No: **AMMM00001FJ**

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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

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