

APPROVAL OF MANUFACTURER CERTIFICATE

This is to certify:

That
AMMA SPA
Gazzo, PD, Italy

is an approved manufacturer of
Steel Forgings

in accordance with
DNV GL rules for classification – Ships

and the following particulars:

Application area	Forgings for shafting and machinery
Steel type	Forgings for gearing
Forging method	Carbon and carbon-manganese,
Max. weight	Alloy
Heat treatment condition	See page 2
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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 **2019-10-28**

for **DNV GL**

This Certificate is valid until **2022-10-27**.

DNV GL local station: **Milan**

Approval Engineer: **Stefan Röhr**

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Thorsten Lohmann
Head of Section



Particulars of the approval

Forgings for shafting and machinery Forgings for gearing

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Heat treatment condition ^{2) 4)}
C and C-Mn	VL F400U, VL F440U, VL F480U, VL F520U, VL F560U, VL F600U, VL F640U, VL F680U, VL F720U, VL F760U	CD	30	QT, A
C and C-Mn	VL F400U, VL F440U, VL F480U, VL F520U, VL F560U, VL F600U, VL F640U, VL F680U, VL F720U, VL F760U	EUP	15	QT, A
Alloy	VL F600A, VL F700A, VL F800A, VL F900A, VL F1000A, VL F1100A	CD	30	QT, A
Alloy	VL F600A, VL F700A, VL F800A, VL F900A, VL F1000A, VL F1100A	EUP	15	QT, A

Remarks:

- 1) CD: Closed die forging; EUP: Electrical upsetting process
- 2) QT: Quenched and tempered; N: Normalized; N+T: Normalized and tempered; A: Annealed
- 3) Incl. equivalent grades in acc. to other standards
- 4) Forgings intended for carburized gears shall be supplied in either the fully annealed or the normalized and tempered condition. Tempering temperature shall be not less than 550°C; Forgings intended for induction hardened or nitride hardened gears shall be heat-treated at an appropriate stage (generally by quenching followed by tempering at a temperature not less than 550°C).