

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00001GW
Revision No:
1

This is to certify:

That

CMF S.p.A.
Cormons, GO, 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 hull structures and equipment Forgings for shafting and machinery Forgings for crankshafts Forgings for gearing Stainless steel forgings
Steel type	Carbon and carbon-manganese, Alloy, Austenitic stainless, Martensitic stainless, Ferritic stainless, Ferritic-austenitic (duplex) stainless
Forging method	See page 2 Open die forging
Max. weight	See page 2
Max. diameter / section	See page 2
Heat treatment condition	Normalized, Normalized and tempered, Quenched and tempered, Solution heat treated, 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 **2019-06-19**

for **DNV GL**

This Certificate is valid until **2020-06-30**.

DNV GL local station: **Venice**

Approval Engineer: **Enno Brück**

Thorsten Lohmann
Head of Section



Job Id: **263.11-003347-3**
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Particulars of the approval

Forgings for hull structures and equipment

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Max. diameter [mm]	Heat treatment condition ²⁾
C and C-Mn	VL F400UW, VL F440UW, VL F480UW, VL F520UW, VL F560UW, VL F600UW	OD	25 000	950	N, NT, QT
Alloy	VL F550AW, VL F600AW, VL F650AW	OD	25 000	950	QT

Forgings for shafting and machinery

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Max. diameter [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	25 000	950	N, NT, QT
Alloy	VL F600A, VL F700A, VL F800A, VL F900A, VL F1000A, VL F1100A	OD	25 000	950	QT

Forgings for gearing

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Max. diameter [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	25 000	950	N, NT, QT
Alloy	VL F600A, VL F700A, VL F800A, VL F900A, VL F1000A, VL F1100A	OD	25 000	950	QT

Stainless steel forgings

Steel type	Grade ³⁾⁴⁾	Forging method ¹⁾	Max. weight [kg]	Max. diameter [mm]	Heat treatment condition ²⁾
Ferritic-austenitic	22 Cr Duplex	OD	5 000	400	SHT
	25 Cr Duplex	OD	5 000	400	SHT

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Stainless steel forgings

Steel type / grade ⁴⁾	Forging method ¹⁾	Max. weight [kg]	Max. diameter [mm]	Heat treatment condition ²⁾
Austenitic stainless	OD	5 000	400	SHT
Martensitic stainless	OD	5 000	400	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.