

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00001WE
Revision No:
1

This is to certify:

That

Ire Omba S.p.A.

Via Carlo Serassi, 14 - 24100 Bergamo BG, 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 hull structures and equipment Forgings for shafting and machinery Stainless steel forgings
Steel type(s)	Carbon, Carbon-Manganese, Alloy, Austenitic stainless
Forging method	Open die forging, ring rolling
Max. thickness	See page 2
Max. weight	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 GL classed object shall fulfill the material requirements in the applicable DNV GL class rules.

Issued at **Hamburg** on **2020-12-22**

for **DNV GL**

This Certificate is valid until **2023-12-31**.

DNV GL local station: **Milan**

Approval Engineer: **Stefan Röhr**

Thorsten Lohmann
Head of Section

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Job Id: **263.11-004140-3**
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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. thickness [mm]	Heat treatment condition ²⁾
C and C-Mn	VL F400UW, VL F440UW, VL F480UW, VL F520UW, VL F560UW, VL F600UW	OD / RR	4 000	250	N, NT, QT
Alloy	VL F550AW, VL F620AW, VL F650AW	OD / RR	4 000	250	NT, QT

Forgings for shafting and machinery

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Max. 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	4 000	250	N, NT, QT
Alloy	VL F600A, VL F700A, VL F800A, VL F900A, VL F1000A, VL F1100A	OD / RR	4 000	250	NT, QT

Stainless steel forgings

Steel type / grade ⁴⁾	Forging method ¹⁾	Max. weight [kg]	Max. thickness [mm]	Heat treatment condition ²⁾
Austenitic stainless	OD / RR	4 000	250	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) Including equivalent grades to other standards, e.g. EN 10250-2,-3
- 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