

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM0000176
Revision No:
2

This is to certify:

That

Lucchini RS S.p.A.
Love, 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 Forgings for boilers, pressure vessels and piping systems Ferritic steel forgings for low temperature service
Steel type	Carbon and carbon-manganese, Alloy,
Forging method	Open die forging
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 **2019-12-30**

for **DNV GL**

This Certificate is valid until **2023-01-31**.

DNV GL local station: **Milan**

Approval Engineer: **Stefan Röhr**

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Thorsten Lohmann
Head of Section



Job Id: **263.11-002865-4**
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Particulars of the approval

Forgings for hull structures and equipment

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
C and C-Mn	VL F400UW, VL F440UW, VL F480UW, VL F520UW, VL F560UW, VL F600UW	OD	39 000	N, NT, QT
Alloy	VL F550AW, VL F600AW, VL F650AW	OD	39 000	QT

Forgings for shafting and machinery

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	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	39 000	N, NT, QT
Alloy	VL F600A, VL F700A, VL F800A, VL F900A, VL F1000A, VL F1100A	OD	39 000	QT

Forgings for boilers, pressure vessels and piping systems

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
C and C-Mn	VL F450H, VL F490H	OD	39 000	N, NT, QT
Alloy	VL F0.5Mo, VL F1Cr0.5Mo	OD	39 000	N, NT, QT
	VL F2.25Cr1Mo	OD	39 000	N, QT

Ferritic steel forgings for low temperature service

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
C and C-Mn	VL F450L, VL F490L	OD	39 000	N, NT, QT
Alloy	VL F3.5Ni	OD	12 000	NT, QT

Remarks:

- 1) OD: Open die forging
- 2) QT: Quenched and tempered; N: Normalized; NT: Normalized and tempered
- 3) Incl. equivalent grades in acc. to other standards