

APPROVAL OF MANUFACTURER CERTIFICATE

This is to certify:

That
Stahlhammer Bommern GmbH
Hamm, Nordrhein-Westfalen,
Germany

is an approved manufacturer of
Steel Forgings

in accordance with
DNV GL rules for classification – Ships
DNV GL offshore standards

and the following particulars:

Application area	Forgings for hull structures and equipment Forgings for shafting and machinery
Steel type	Carbon and carbon-manganese, Alloy
Forging method	See page 2
Max. Weight	6 000 kg
Heat treatment condition	See page 2
Additional approval conditions	Including forgings for chain cable accessories

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 **2018-12-12**

for **DNV GL**

This Certificate is valid until **2021-12-31**.

DNV GL local station: **Essen**

Approval Engineer: **Andreas Koch**

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Thorsten Lohmann
Head of Section



Particulars of the approval

Forgings for hull structures and equipment

Steel type	Grade ³⁾⁴⁾	Forging method ¹⁾	Max. weight [kg]	Delivery condition ²⁾
C and C-Mn	VL F400UW, VL F440UW, VL F480UW, VL F520UW, VL F560UW, VL F600UW	OD, CD	6 000	N, QT
Alloy	VL F550AW, VL F620AW, VL F650AW	OD, CD	6 000	N, QT

Forgings for shafting and machinery

Steel type	Grade ³⁾⁴⁾	Forging method ¹⁾	Max. weight [kg]	Delivery condition ²⁾
C and C-Mn	VL C400U, VL C440U, VL C480U, VL C520U, VL C560U, VL C600U, VL F640U, VL F680U, VL F720U, VL F760U	OD, CD	6 000	N, QT
Alloy	VL C600A, VL C700A, VL C800A, VL C900A, VL F1000A, VL F1100A	OD, CD	6 000	N, QT

Remarks:

- 1) OD: Open die forging
CD: Closed die forging
- 2) N: Normalised
QT: Quenched and tempered
- 3) Certification of any material applied to classed object shall fulfill the applicable material requirements in the DNV GL class rules
- 4) Including equivalent grades according to international standards