

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00000DX
Revision No:
3

This is to certify:

That
BGH Edelstahl Freital GmbH
Freital, Germany

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 gearing Stainless steel forgings
Steel type	Carbon and carbon-manganese, Alloy, Austenitic stainless, Martensitic stainless, Ferritic stainless, Austenitic-ferritic (Duplex) stainless
Forging method	Open die forging including forged bars and rolled rings
Max. weight	See page 2 ff.
Max. diameter	See page 2 ff.
Heat treatment condition	See page 2 ff.

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 **2019-05-27**

This Certificate is valid until **2022-02-24**.

DNV GL local station: **Magdeburg**

Approval Engineer: **Stefan Röhr**



for **DNV GL**

Digitally Signed By: Wildhagen, Christian
Location: DNV GL Hamburg, Germany
Signing Date: 2019-05-28, on behalf of

Thorsten Lohmann
Head of Section



Job Id: **263.11-003440-3**
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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/RR	32 000	900	N, NT, QT
Alloy	VL F550AW, VL F620AW, VL F650AW	OD/RR	32 000	900	N, NT, QT

Forgings for shafting and machinery 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/RR	32 000	900	N, NT, QT
Alloy	VL F600A, VL F700A, VL F800A, VL F900A, VL F1000A, VL F1100A	OD/RR	32 000	900	N, NT, QT

Steels acc. other standards

Steel type	Grade	Forging method ¹⁾	Max. weight [kg]	Max. diameter [mm]	Heat treatment condition ²⁾
C and C-Mn	EN 10083-2, EN 10250-2, EN 10084, SEW 550	OD/RR	32 000	900	N, NT, QT
Alloy	EN 10083-3, EN 10250-3, EN 10084, SEW 550	OD/RR	32 000	900	QT

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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/RR	32 000	900	SHT
Martensitic stainless	OD/RR	32 000	900	QT
Ferritic stainless	OD/RR	32 000	900	A
Austenitic-ferritic (duplex) stainless	OD/RR	32 000	900	SHT

Remarks:

- 1) OD: Open die forgings including forged bars; RR: Rolled rings
- 2) N: Normalized
NT: Normalized and tempered
QT: Quenched and tempered;
SHT: Solution Heat Treated (Solution Annealing)
A: Annealed
- 3) Including equivalent grades 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. Recognition of other standards is subject to submission to the Society for evaluation