

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00000XR
Revision No:
1

This is to certify:

That
BGH Edelstahl Lippendorf GmbH
Hauptstraße 100, 04575 Lippendorf,
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 boilers, pressure vessels and piping systems Stainless steel forgings
Steel type	Carbon and carbon-manganese, Alloy, Ferritic stainless, Martensitic stainless, Austenitic stainless, 22Cr duplex stainless, 25Cr duplex stainless, See page 2 and 3
Forging method	Open die forging
Max. weight	15 000 kg
Heat treatment condition	See page 2 and 3

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 **2019-07-16**

for **DNV GL**

This Certificate is valid until **2022-06-30**.

DNV GL local station: **Magdeburg**

Approval Engineer: **Christian Wildhagen**

Thorsten Lohmann
Head of Section



Job Id: **263.11-003230-4**
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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	15 000	N, NT, QT
Alloy	VL F550AW, VL F600AW, VL F650AW	OD	15 000	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	15 000	N, NT, QT
Alloy	VL F600A, VL F700A, VL F800A, VL F900A, VL F1000A, VL F1100A	OD	15 000	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	15 000	N, NT, QT
Alloy	VL F0.5Mo, VL F1Cr0.5Mo	OD	15 000	N, NT, QT
	VL F2.25Cr1Mo	OD	15 000	N, QT

Stainless steel forgings

Steel type / grade ⁴⁾	Forging method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
Austenitic stainless	OD	15 000	SHT
Martensitic stainless	OD	15 000	QT
Ferritic stainless	OD	15 000	A, QT
22Cr duplex stainless	OD	15 000	SHT
25Cr duplex stainless	OD	15 000	SHT

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Steels acc. other standards

Grade	Forging method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
Steel acc. to EN 10250-2	OD	15 000	Acc. to standard
Steel acc. to EN 10250-3	OD	15 000	Acc. to standard
Steel acc. to EN 10250-4	OD	15 000	Acc. to standard
Steel acc. to EN 10222-2	OD	15 000	Acc. to standard
Steel acc. to EN 10222-4	OD	15 000	Acc. to standard
Steel acc. to EN 10222-5	OD	15 000	Acc. to standard

Remarks:

- 1) OD: Open die forging
- 2) QT: Quenched and tempered
N: Normalized
NT: Normalized and tempered
SHT: Solution Heat Treated (Solution Annealing)
A: Annealed
- 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.