

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00000JA
Revision No:
1

This is to certify:

That

SSK von Schaewen Hückeswagen GmbH
Hückeswagen, Germany

is an approved manufacturer of
Steel Forgings

in accordance with
DNV GL rules for classification – Ships
DNV GL rules for classification – Naval vessels

and the following particulars:

Application area	Forgings for hull structures and equipment Forgings for shafting and machinery Special materials for naval ships
Steel type	Carbon and carbon-manganese, Alloy Ferritic-austenitic (duplex) stainless Non magnetizable steels
Forging method	Open die forging
Max. weight	See page 2
Max. diameter / section	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 **2019-06-07**

for **DNV GL**

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

DNV GL local station: **Essen**

Approval Engineer: **Stefan Röhr**

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Thorsten Lohmann
Head of Section



Job Id: **263.11-000720-6**
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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	20 000	1 500	N, NT, QT
Alloy	VL F550AW, VL F600AW, VL F650AW	OD	20 000	1 500	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	20 000	1 500	N, NT, QT
Alloy	VL F600A, VL F700A, VL F800A, VL F900A, VL F1000A, VL F1100A	OD	20 000	1 500	QT

Stainless steel forgings

Steel type / grade ⁵⁾	Forging method ¹⁾	Max. weight [kg]	Max. thickness [mm]	Heat treatment condition ²⁾
1.4462 acc. to EN 10250-4, 1.4462 acc. to EN 10222-5	OD	20 000	1 500	SHT

Steels acc. other standards

Grade	Forging method ¹⁾	Max. weight [kg]	Max. thickness [mm]	Heat treatment condition ²⁾
C & C-Mn steels acc. to EN 10083-2	OD	20 000	1 500	acc. to standard
C & C-Mn steels acc. to EN 10250-2	OD	20 000	1 500	acc. to standard
Alloy steels acc. to EN 10083-3	OD	20 000	1 500	acc. to standard
Alloy steels acc. to EN 10250 -3	OD	20 000	1 500	acc. to standard

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Non magnetizable steels

Grade	Forging method ¹⁾	Max. weight [kg]	Max. thickness [mm]	Heat treatment condition ²⁾
1.3964 acc. to SEW390 and VG81237 (WL1.3964)	OD	3 000	400	QT

Remarks:

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