

APPROVAL OF MANUFACTURER CERTIFICATE

This is to certify:

That

**SONA BLW Präzisionsschmiede GmbH,
Werk Duisburg
Friemersheimer Straße 40, 47249 Duisburg,
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
Steel type	Carbon and carbon-manganese, Alloy
Forging method	Closed die forging
Max. weight	350 kg
Heat treatment condition	See page 2
Additional approval conditions	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 **2019-01-08**

for **DNV GL**

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

DNV GL local station: **Essen**

Approval Engineer: **Christian Wildhagen**

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]	Heat treatment condition ²⁾
C and C-Mn	VL F400UW, VL F440UW, VL F480UW, VL F520UW, VL F560UW, VL F600UW	CD	350	N, NT, QT
Alloy	VL F550AW, VL F600AW, VL F650AW	CD	350	QT

Forgings for shafting and machinery

Steel type	Grade ³⁾⁴⁾	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	CD	350	N, NT, QT
Alloy	VL F600A, VL F700A, VL F800A, VL F900A	CD	350	QT

Remarks:

- 1) CD: Closed die forging
- 2) QT: Quenched and tempered
N: Normalised
NT: Normalised and tempered
- 3) Certification of any material applied to classed object shall fulfill the applicable material requirements in the DNV GL class rules
- 4) Incl. equivalent grades in acc. to other standards