# APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
**AMMM00000WY**
Revision No:
**3**

## This is to certify:

**That**

**Flanschenwerk Bebitz GmbH**
**Lebendorfer Str. 1, 06420 Könnern**,
**Germany**

is an approved manufacturer of
**Steel Forgings**

in accordance with
**DNV rules for classification – Ships**
**DNV-OS-B101 – Metallic materials**
**DNV class programme – DNV-CP-0247 Steel forgings**

and the following particulars:

| | |
|---|---|
| **Application area** | **Forgings for boilers, pressure vessels and piping systems**<br>**Stainless steel forgings** |
| **Steel type** | **Carbon and carbon-manganese,**<br>**Alloy,**<br>**Austenitic stainless,**<br>**Ferritic-austenitic (duplex) stainless**<br>**See page 2** |
| **Forging method** | **Open die forging / closed die forging / ring rolling,**<br>**See page 2** |
| **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 classed object shall fulfill the material requirements in the applicable DNV class rules.

Issued at **Hamburg** on **2025-06-05**

This Certificate is valid until **2028-06-30**.
DNV local unit: **Hamburg**

Approval Engineer: **Christian Wildhagen**

for **DNV**

This document has been digitally signed and will therefore not have handwritten signature

Stefan Röhr

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

## Particulars of the approval

### Forgings for boilers, pressure vessels and piping systems

| Steel type | Grade [3] | Forging method [1] | Max. weight [kg] | Max. diameter [mm] | Heat treatment condition [2] |
|---|---|---|---|---|---|
| C and C-Mn | NV F450H, NV F490H | OD, CD | 600 | DN 10 – DN 1400 | N, NT, QT |
| Alloy | NV F0.5Mo, NV F1Cr0.5Mo | OD, CD | 600 | DN 10 – DN 1400 | N, NT, QT |
| | NV F2.25Cr1Mo | OD, CD | 600 | DN 10 – DN 1400 | N, QT |

### Stainless steel forgings

| Steel type/Grade [4] | Forging method [1] | Max. weight [kg] | Max. diameter [mm] | Heat treatment condition [2] |
|---|---|---|---|---|
| Austenitic | OD, CD, RR | 600 | DN 10 – DN 1400 | SHT |
| 22 Cr Duplex | OD, CD, RR | 600 | DN 10 – DN 1400 | SHT |
| 25 Cr Duplex | OD, CD, RR | 600 | DN 10 – DN 1400 | SHT |

### Steels acc. other standards

| Grade | Forging method | Max. weight [kg] | Max. diameter [mm] | Heat treatment condition |
|---|---|---|---|---|
| Steel acc. EN 10025 | OD, CD, RR | 600 | DN 10 – DN 1400 | acc. to Standard |
| Steel acc. EN 10088-1, -2, -3 | OD, CD, RR | 600 | DN 10 – DN 1400 | acc. to Standard |
| Steel acc. EN 10222-1, -2, -3, -4, -5 | OD, CD, RR | 600 | DN 10 – DN 1400 | acc. to Standard |
| ASTM A350 | OD, CD, RR | 600 | DN 10 – DN 1400 | acc. to Standard |
| ASTM A694 | OD, CD, RR | 600 | DN 10 – DN 1400 | acc. to Standard |
| ASTM A105 | OD, CD, RR | 600 | DN 10 – DN 1400 | acc. to Standard |
| ASTM A182 | OD, CD, RR | 600 | DN 10 – DN 1400 | acc. to Standard |

Remarks:

1) OD: Open die forging
CD: Closed die forging
RR: Ring Rolling
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
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.