



APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00002KR
Revision No:
1

This is to certify:

That

Luda (Taian) Industrial Co., Ltd.
Development Zone of Wangguadian Town
Feicheng City, Shandong Province,
China

is an approved manufacturer of
Steel Forgings

in accordance with
DNV rules for classification – Ships

and the following particulars:

| | |
|---------------------------------|---|
| Application area | Forgings for boilers, pressure vessels and piping systems |
| Steel type | Stainless steel forgings Carbon and Carbon-Manganese, Austenitic Stainless |
| Forging method | See page 2 |
| Max. weight | See page 2 |
| Max. thickness | 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 **2022-12-06**

This Certificate is valid until **2025-09-12**.

DNV local unit: **Qingdao NB & CMC**

Approval Engineer: **Christian Wildhagen**



for **DNV**

Digitally Signed By: Wenning, Martin

Location: DNV Hamburg, Germany

Signing Date: 09.12.2022 , on behalf of

Thorsten Lohmann
Head of Section

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.



Form code: AM 311

Revision: 2022-09

www.dnv.com

Page 1 of 2

Particulars of the approval

Forgings for boilers, pressure vessels and piping systems

| Steel type | Grade ³⁾ | Forging method ¹⁾ | Max. weight [kg] | Max. thickness [mm] | Heat treatment condition ²⁾ |
|------------|-----------------------|------------------------------|------------------|---------------------|--|
| C and C-Mn | NV F450H, NV F490H | OD/CD | 1 000 | 1 000 | N |

Stainless steel forgings

| Steel type | Grade ³⁾⁴⁾ | Forging method ¹⁾ | Max. weight [kg] | Max. thickness [mm] | Heat treatment condition ²⁾ |
|------------|-----------------------|------------------------------|------------------|---------------------|--|
| Austenitic | CrNi | OD/CD | 1 000 | 1 000 | SHT |
| | CrNiMo | OD/CD | 1 000 | 1 000 | SHT |

Remarks:

- ¹⁾ OD: Open die forging
CD: Closed die forging
- ²⁾ N: Normalized
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.