Certificate no.:
TAP00002UT

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Heat Exchanger

with type designation(s)
Drinking water heater 300 Ltr

issued to
Anton Christophers GmbH & Co. KG
Bremen, **Germany**

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.7 Pressure equipment

Application:

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Temperature range:	**0 to 95 °C / 0 to 160°C**
Design pressure:	**10bar / 16bar**
Operating media:	**Water / Steam**

Issued at **Hamburg** on **2024-03-11**
This Certificate is valid until **2029-03-10**.
DNV local unit: **Hamburg – CMC North/East**

for **DNV**

Approval Engineer: **Astrid Caschube**

Product description
1 type of Drinking water heater: Pressure vessel with steam heating coil.

Place of production
Anton Christophers GmbH & Co. KG
Senator-Bömers-Straße 12
28197 Bremen

Application/Limitation

Applied Rules:
- DNV-RU-SHIP Pt.4 Ch.7 'Pressure Equipment' (Edition July 2021)

The pressure equipment shall be classified in pressure equipment classes (PEC) according to DNV-RU-SHIP Pt.4 Ch.7 Sec.1 Table 2.

The applicable pressure equipment class defines the scope of the certification requirements for the materials used (see DNV-RU-Rule Pt.4 Ch.7 Sec.1 Table 6 or 7 respectively).

The materials of pressure equipment of PEC II shall be delivered by a material manufacturer holding a valid certificate according to:
- DNV-CP-0346 'DNV approval of manufacturer scheme'.

The welding work for pressure equipment graded as PEC II shall be carried out by a welding workshop holding a valid certificate according to following DNV class programmes:
- DNV-CP-0261 'Approval of manufacturers – Pressure equipment' and
- DNV-CP-0352 'Approval of manufacturers – Manufacture of welded products – Welding workshop'.

The pressure equipment is to be suitable mounted on board and secured against vibrations and forces resulting from ship accelerations.

The handhole has to be delivered suitable for the pressure and temperature conditions in this case.

The corrosion allowance is 0 mm. The joint efficiency is 0.85.

Manufacturing, workmanship and testing shall be done according to DNV-RU-SHIP Pt.4 Ch.7 Sec.7.

Each product assembly is to be:
- Constructional tested and hydraulic pressure tested with 1.5 times the design pressure,
- Certified by DNV and delivered with a product certificate.

Type Approval documentation
Tests carried out

Calculations.

Marking of product
For traceability to this type approval (TA) the products are at least to be marked with:

a. Name and domicile of the manufacturer
b. Manufacturer's type designation and serial number
c. Year of manufacture
d. Maximum allowable working pressure
e. Design temperature in °C
f. Hydrostatic test pressure
g. DNV's identifying mark

Periodical assessment
The objective of periodical assessments is to verify that the conditions for the TA have not been altered.

The main scope of the periodical assessment will normally include:

- Verification of the TA applicant's production and quality system with relation to ensuring continue consistent production of the type approved products at the TA applicant's own premises and at other companies that are given the responsibility for manufacturing of the products,
- Review of the TA documentation and that this is still used as basis for the production,
- Review of possible changes to the design, the material and the performance of the product,
- Verification of the product marking.

Periodical assessments for TA with a validity period of five years will be required after two years (+/- 90 days) and after 3.5 years (+/- 90 days).

Unscheduled assessments for retention of the TA may be carried out when there is reason to believe that the TA applicant has not adhered to the obligations stipulated in the TA certificate or in the applicable requirements.

END OF CERTIFICATE