



Certificate no.:
TAP00002W1

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Plate Heat Exchanger

with type designation(s)
See certificate

issued to

Funke Wärmeaustauscher Apparatebau GmbH
Gronau (Leine), Niedersachsen, Germany

is found to comply with

Application:

Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Issued at **Hamburg** on **2024-07-16**

This Certificate is valid until **2029-07-15**.

for **DNV**

DNV local unit: **Hamburg – CMC North/East**

Approval Engineer: **Le Loi Nguyen**

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This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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.



Product description

- Plate heat exchangers with tie bolted frame plates,
- For details of the plate heat exchangers (e. g. design data, materials or dimensions) see Application / Limitation and Type Approval documentation listed below.

Application/Limitation

- Applied rules:
 - Approved drawings according to DNV-RU-SHIP Pt.4 Ch.7 (Edition July 2021)
 - and DNVGL-RU-NAVAL Pt.3 Ch.5 Sec.16 (Edition December 2015)
 - AD2000 Merkblatt
- Approved design pressure and design temperature:

Type	Design Pressure	Design Temperature
FP2010/2016/2022	10 bar	-10°C / 150°C
FP2010/2016/2022	16 bar	-10°C / 150°C
FP3017/3030/3043	10 bar	-10°C / 150°C
FP3017/3030/3043	16 bar	-10°C / 150°C
FP 4031/4040/4050/4071	10 bar	-10°C / 150°C
FP 4031/4040/4050/4071	16 bar	-10°C / 150°C
FP4206	10 bar / 16 bar	-10°C / 150°C
FP42/62/82/112	10 bar	-10°C / 150°C
FP42/62/82/112	16 bar	-10°C / 150°C
FP405/70/100/130	10 bar	-10°C / 150°C
FP405/70/100/130	16 bar	-10°C / 150°C
FP81/120/160/190	10 bar	-10°C / 150°C
FP81/120/160/190	16 bar	-10°C / 150°C

- All material used for pressurized parts shall be delivered with material certificates according to DNV-RU-SHIP Pt.4 Ch.7 Sec.1 Table 6 or 7 (depending on the governing pressure equipment class of the plate heat exchanger). It shall meet the impact requirements as stated in DNV-RU-SHIP Pt.2 Ch.2 Sec.2,
- Pressure equipment class II and III according to DNV-RU-SHIP Pt.4 Ch.7 Sec.1 Table 2
- In case of pressure equipment class II: the material used for the movable or fixed covers or the tightening bolts and nuts shall be delivered by a manufacturer holding a valid certificate according to DNV-CP-0346 'DNV approval of manufacturing scheme',
- It is the manufacturer's responsibility to ensure that the materials for the heat transfer plates and the gaskets are suitable for the intended service conditions and life time, also concerning the applicable media, corrosion resistance and wear,

Each plate heat exchanger is to be:

- Hydraulic pressure tested to minimum 1.5 x design pressure,
- Certified by DNV and to be delivered with a product certificate.
- A separate customer drawing will be created for each order. The DNV Type Approval Number will be shown on the drawing.

Type Approval documentation

Places of Production

Funke Wärmeaustauscher Apparatebau GmbH
 Gronau (Leine), Niedersachsen, Germany

Marking of product

For traceability to this type approval the products are at least to be marked with:

- the name and domicile of the manufacturer,
- the manufacturer's type designation and serial number,
- the year of manufacture,
- the design pressure,
- the design temperature in °C,
- the hydraulic test pressure, and
- DNV's identifying mark.

Periodical assessment

The objective of the periodical assessment is to verify that the conditions for the type approval (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 w.r.t. ensuring continued consistent production of the TA products at the TA applicant's own premises and at other companies that are given the responsibility for manufacturing of the products,
- Review of TA documentation and that this is still used as basis for the production,
- Review of possible changes in the design, the materials and the performance of the product, and
- Verification of the product marking.

For retention of the TA certificate in its validity period the periodical assessments will be carried out bi- yearly.

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

End of Certificate