Certificate No:
TAP00002HK

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Fuel Oil Preheater, Electrically Heated

with type designation(s)
Series EV2: EV2A/01, EV2B/01, EV2C and EV2D
Series WEV: WEV2.2/01, WEV3.1/01 and WEV3/01

Issued to
Max Weishaupt GmbH
Max-Weishaupt-Strasse 14
88475 Schwendi, **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.

Type:	Temperature range:	Design pressure:
Series EV2: EV2A/01, EV2B/01, EV2C, EV2D	160°C	30.0 bar
Series WEV: WEV2.2/01, WEV3.1/01, WEV3/01	160°C	30.0 bar

Issued at **Hamburg** on **2022-05-17**
This Certificate is valid until **2026-03-25**.
DNV local station: **Augsburg**

Approval Engineer: **Arthur Ivombo**

for **DNV**

Jonathan Struwe
Head of Section

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.

Product description

Welded pressure vessel made from carbon steel. The preheater is of tubular shape made from different welded coil assembly units, housed between heating respectively base plates.

The coil assembly for the EV2 series is achieved by brazing, whereas it is achieved by autogenous welding for the WEV series.

For details of the pressure vessel (e.g. construction, design data, materials or dimensions) see approved drawings as listed below in “Type Approval documentation”.

Place of production

Application/Limitation

- The fuel oil preheater is approved according to DNV-RU-SHIP Pt.4 Ch.7 ‘Pressure equipment’ (Edition July 2020, amended August 2020), and graded as pressure equipment class I, refer to RU-SHIP Pt.4 Ch.7 Sec.1 [Table 2]. The joint efficiency is v=1, the corrosion allowance 1 mm (carbon steel).
- All material used for pressurized parts shall be delivered with material certificates according to RU-SHIP Pt.4 Ch.7 Sec.1 [Table 5].
- Manufacturing, workmanship and testing shall comply with RU-SHIP Pt.4 Ch.7 Sec.7.
- The manufacturer of the welded fuel oil preheater shall hold a valid Approval of Manufacturer (AOM) certificate according to DNV-CP-0261 ‘Pressure Equipment Manufacturing (PEM)’ and DNV-CP-0352 ‘Welding Workshop Approval (WWA)’ as well, refer to DNV-RU-SHIP Pt.4 Ch.7 Sec.7 [1.1.1].
- The EV2 and WEV preheaters’ series are intended for use in combination with Weishaupt Monarch oil burners.
- The present TA deals with the strength of parts of the fuel oil preheater subjected to pressure.
- Electrical Systems and Automation Control Systems are not part of this TA. However, having regard to a safe operation of the fuel oil preheater unit, following requirements shall be adhered to:
    - Each separate heating element rated more than 16 A is to be considered as a separate consumer, refer to DNV-RU-SHIP Pt.4 Ch.8 Sec.8 [1.3.1],
    - Temperature rise limit for heaters, refer to DNV-RU-SHIP Pt.4 Ch.8 Sec.8 [1.3.2],
    - For specific oil heaters requirements for monitoring and safety devices, particularly thermostat and over-temperature thermostat requirements, refer to DNV-RU-SHIP Pt.4 Ch.7 Sec.6 [2] and RU-SHIP Pt.4 Ch.8 Sec.8 [1.3.7].

Type Approval documentation

Approval testing

As per initial type approval testing, burst pressure test according to LGL Rules VI-Pt.7-Ch.8-Sec.2.B.10 and a fire resistance test according to ISO 19921 and ISO 19922 were performed.

Each electrically heated fuel oil preheater manufactured to this type approval is to be:

- constructional tested,
- isolation and high voltage tested,
- hydraulic pressure tested to minimum 1.5 times design pressure,
- certified by DNV and delivered with a product certificate.

Marking of product

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

- manufacturer’s name and address,
- manufacturer's type designation and serial number,
- year of manufacture,
- maximum allowable working pressure (design pressure),
- design temperature in °C,
- electrical data (voltage, current, power, etc.),
- hydrostatic test pressure,

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