Certificate no.:
TAP00002YX

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Pressure Vessel

with type designation(s)
Pulsation Damper 20L, Mixing Tube FCM One & 1.5 65L & 85L, Mixing Tube FCM One & 1.5 110L & 140L, Mixing Tube 250L

issued to
Jingjiang Jiangyang Marine Facilities Co., Ltd.
JINGJIANG, JIANGSU, China

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

Application:

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

Type:	Max. working temp.:	Design pressure:	Operating Medium
Pulsation Damper 20L	150 °C	16 bar	Fuel oil
Mixing Tube FCM One & 1.5 65L & 85L	150 °C	10 bar	Fuel oil
Mixing Tube FCM One & 1.5 110L & 140L	150 °C	10 bar	Fuel oil
Mixing Tube 250L	150 °C	10 bar	Fuel oil

Issued at **Hamburg** on **2025-01-13**
This Certificate is valid until **2030-01-12**.
DNV local unit: **Jiangyin NB & CMC**

for **DNV**

Approval Engineer: **Le Loi Nguyen**

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 USD 300 000.

Product description

Welded pressure vessels made from carbon steel, with cylindrical shell with flat ends or ellipsoidal heads.

- Pulsation Damper 20L (Outer diameter 219 mm, length overall 696 mm, corresponding to a volume of 20L)
- Mixing Tube FCM One & 1.5 65L & 85L (Outer diameter 273 mm, length overall 1675 mm or 1975 mm, corresponding to a volume of 65L or 85L)
- Mixing Tube FCM One & 1.5 110L & 140L (Outer diameter 356 mm, length overall 1675 mm or 1975 mm, corresponding to a volume of 110L or 140L)
- Mixing Tube 250L (Outer diameter 457 mm, length overall 2120 mm, corresponding to a volume of 250L)

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

Application/Limitation

The pressure vessels are approved according to DNV-RU-SHIP Pt.4 Ch.7 (Edition July 2021), it is graded as pressure equipment class II. The corrosion allowance 1 mm (carbon steel).
All materials used for pressurized parts shall conform DNV-RU-SHIP Pt.2 Ch.2 Sec.3 (Edition July 2024). They shall be delivered with material certificates according to DNV-RU-SHIP Pt.4 Ch.7 Sec.1 Tab. 6 (Edition July 2021).
The material used for pressurized parts shall be delivered by a manufacturer holding a valid certificate according to DNV CP-0346 ‘DNV approval of manufacturing scheme’, the manufacturer of the pressure vessels shall hold a valid certificate according to DNV CP-0261 “Pressure equipment”.
Manufacturing, workmanship and testing shall be done according to DNV-RU-SHIP Pt.4 Ch.7 Sec.7 (Edition July 2021).
Screwed socket connections with parallel or tapered threads are not permitted in case of flammable media.

Type Approval documentation

Tests carried out

Each pressure vessel manufactured to this type approval is to be:

- Constructionally checked and hydraulic pressure tested to minimum 1.5 x design pressure,
- Certified by DNV and delivered with a product certificate.

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 every two years.
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.

Manufactured by:

Jingjiang Jiangyang Marine Facilities Co., Ltd.
JINGJIANG, JIANGSU, China

End of Certificate