Certificate no.:
TAF00001W1

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Water and Foam Monitor

with type designation(s)
LMFM-100H

issued to
Tianjin Lucky Ocean Marine Equipment Co., Ltd.
Tianjin, **China**

is found to comply with
DNV statutory interpretations DNV-SI-0364 – SOLAS interpretations, Edition July 2021
DNV rules for classification – Ships
DNV offshore standards

Application:

The water and foam monitor is approved for installation on ships and offshore vessels.

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

Issued at **Høvik** on **2024-03-17**
This Certificate is valid until **2029-03-16**.
DNV local unit: **Dalian NB & CMC**

for **DNV**

Approval Engineer: **Helge Bjørnarå**

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

"LMFM-100H",
hydraulically operated (H) water and/or foam monitor consisting of jet/fog nozzle (non-aspirating) and turret made of stainless steel (SUS 316L). The nozzle does not return automatically to maximum spray angle after use.

For further details, see drawings listed under Type Approval documentation below.

Manufactured by Tianjin Lucky Ocean Marine Equipment Co., Ltd., Tianjin, China.

Application/Limitation

The water and foam monitor is approved for installation on ships and offshore vessels.

Monitor type:	LMFM-100H*
Capacity [lpm]	1770 – 7000
k-factor [lpm/bar$^{0.5}$]	837 – 2024
Working pressure [bar]	4 – 10
Rated pressure [bar]	16
Throw length (still air) [m]	37 – 83
Max Elevation	-45° – +60°
Rotation	300°
Proportioning of foam	NA
*The capacity and throw length are variable of number of turns (turn disk inside) and pressure using water only.	

Hydraulic test to 1.5 times working pressure to be documented before delivery.

Works certificate indicating mechanical properties of materials in the monitor and pressure test report is to accompany each product.

Materials are to be in accordance with the DNV-RU-SHIP Pt.4 Ch.6 Sec.1 (Pipe of class III).

The specific arrangement of monitors, piping and control equipment is subject to approval in each case.

Each product is to be supplied with its manual for installation, use and maintenance.

Type Approval documentation

Certification in accordance with Class Program DNV-CP-0338, September 2021.

Test report No. LM-20230831 dated 31 August 2023 from manufacturer witnessed by DNV.

Drawing No. LMFM-100H dated 12 February 2023 from manufacturer.

Tests carried out

The monitor is tested as branchpipe according to EN 13565-1:2003 (discharge/coefficient test, range test, leak test and mechanical test).

Marking of product

The product is to be marked with name of manufacturer and type designation and according to EN 13565-1:2019, Section 7.

Periodical assessment

DNV's surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Class Program DNV-CP-0338, Section 4.