Certificate no.:
TAF00001UF

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Water and Foam Monitor

with type designation(s)
Monitor type series M2/M3/M4/M5

issued to
FireDos GmbH
Wölfersheim, **Germany**

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:

Water and foam monitors 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 **2024-07-29**
This Certificate is valid until **2029-07-28**.
DNV local unit: **Essen**

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

"Monitor type series M2/M3/M4/M5",
manually or electrically controlled water and/or foam monitors consisting of jet/fog nozzle (non-aspirating) and turret. The nozzles come in two variants: multi-purpose nozzle (MPN). In addition, the nozzles may be fitted with a removable foam pipe (RFP) for higher expansion ratio.

The nozzles do not return automatically to maximum spray angle after use.

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

Manufactured by FireDos GmbH, Wölfersheim, Germany.

Application/Limitation

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

Table 1 Monitor type.

Monitor type	M2	M3	M4	M5
~~Max~~ Flow rate [lpm]	450 – 2500	600 – 4500	1000 – 8000	2000 – 12000
k-factor [lpm/bar$^{0.5}$]	150 – 900	250 – 1650	500 – 2650	750 – 4250
Working pressure [bar]	4 – 16	4 – 16	4 – 16	4 – 16
Rated pressure [bar]	16	16	16	16
Throw length (still air) [m]	24 – 80*	23 – 93*	27 – 114*	33 – 126*
Nozzle type	See table 2			
Monitor control	See table 3			

* Throw length will depend on nozzle type, flow/pressure, water or foam discharge, throw angle and installation height.

Table 2 Nozzle type.

Nozzle type	M2	M3	M4	M5
MPN	●	●	●	●
RFP	●	●	●	●

Table 3 Monitor control.

Monitor control →		Manual, hand wheel (MO)	Remote, three-phase
Nozzle type ↓	Monitor type →	M2 – M5	M2 – M5
MPN	Horizontal	360°	-180° – +180°
	Vertical	-90° – +90°	-90° – +90°
RFP	Horizontal	360	350
	Vertical	-90° – +90°	-90°/-80° – +90°
Model designation example		M2-MO	M2-ACXXX-XX*

* XXX-XX in model name represents operating voltage and frequency. Standard voltage frequency is 400V/50Hz, optional voltages and frequencies are: 220V/50Hz, 230V/50Hz, 240V/50Hz, 380V/50Hz, 415V/50Hz, 440V/60Hz, 460V/60HZ, 480V/60Hz, 500V/50Hz, 525V/50Hz, 575V/60Hz, 600V/60Hz, 660V/50Hz and 690V/50Hz.

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.

FM report No. 3058829 dated 21 September 2017 from FM approval, Norwood, MA, USA.
Test Checklist for 3058829 from FM approval, Norwood, MA, USA.
FM report No. PR453426 dated 22 March 2022 from FM approval, Norwood, MA, USA.

Drawing No. MO2-00085-01 dated 21 March 2024 from manufacturer.
Drawing No. MO2-00083-01 dated 25 September 2023 from manufacturer.
Drawing No. MO2-00010-02 dated 10 June 2003 from manufacturer.

Drawing No. MO3-xxxxx-xx (MO) dated 7 June 2024 from manufacturer.
Drawing No. MO3-xxxxx-xx (AC) dated 7 June 2024 from manufacturer.
Drawing No. MO4-000092-01 dated 20 June 2024 from manufacturer.
Drawing No. MO4-xxxxx-xx (AC) dated 24 June 2024 from manufacturer.
Drawing No. MO5-xxxxx-xx (MO) dated 21 June 2024 from manufacturer.
Drawing No. MO5-xxxxx-xx (AC) dated 21 June 2024 from manufacturer.

Material Specification dated 5 September 2023 from manufacturer.

Tests carried out
Discharge/coefficient test, range test, corrosion test, leak test and mechanical test.

Marking of product
The product is to be marked with name or trademark of the manufacturer, model designation (type), serial or batch number, working pressure, and nominal flow.

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.