



Certificate No:
TAF00001J8

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Water and Foam Monitor

with type designation(s)
LJM-100M and LJM-100E

Issued to

Navutec Co., Ltd.
Busan, Korea, Republic of

is found to comply with

DNV rules for classification – Ships

DNV offshore standards

DNV statutory interpretations DNV-SI-0364 – SOLAS interpretations, Edition July 2021

Application :

The water 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 **2021-12-02**

This Certificate is valid until **2026-12-01**.

for **DNV**

DNV local station: **Gimhae Station**

Approval Engineer: **Tessa Biever**

Helene David-Andersen
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.

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.



Form code: TA 251

Revision: 2021-03

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Product description

'LJM-100M' and 'LJM-100E'

Are red coloured water monitors consisting of a branch pipe and turret made of stainless steel (AISI 316) with a jet function only. The jet nozzles are of constant flow type.

The certificate covers the following water monitor types:

Type	Rotation	Elevation	Capacity [lpm]	Max. working pressure [bar]	Weight [kg]
LJM-100M (manual control)	360°	-55° - +90°	6000	16	38
LJM-100E (electrical control)	340°	-80° - +80°	6000	16	58

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

The water monitors are Manufactured by Navutec Co., Ltd., Busan, Korea.

Application/Limitation

The water and foam monitors are approved for installation on ships and offshore vessels.

Type	Flow rate ¹⁾ [lpm]	Throw length ²⁾ [m]	Inlet pressure [bar]	k-factor [lpm/√bar]
LJM-100M (manual control)	2160 - 4206	60 - 105	4-15	1080-1086
	2160 - 5790	60 - 110	4-12	1080-1676
LJM-100E (electrical control)	2157 - 4207	60 - 105	4-15	1080-1086
	2157 - 5790	60 - 110	4-12	1080-1676

1) Nozzle can change the flowrate adjusting the reduction droplet

2) Throw length measured at 30° angle

Maximum working pressure at 16 bar.

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 water 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.

User manual No. NVT-D-LJM-004 Rev. 00 dated 2021-03-06

Technical description of fixed water monitors, Document No. NVT-D-LJM-001 dated 2021-03-06

Test Report No. NVT-D-LJM-003 dated 2021-08-26 witnessed by DNV surveyor

Test Report No. NVT-D-LJM-002 dated 2021-10-20~21 witnessed by DNV surveyor

Inspection Report No. NVT-WM-VD-210826 dated 2021-08-26

Drawing No. LJM-60-22-010 Rev.0 dated 2020-05-22 (fixed water monitor LJM-100M)

Drawing No. LJM-60-22-020 Rev.0 dated 2020-05-22 (fixed water monitor LJM-100E)



Job Id: **262.1-035596-1**
Certificate No: **TAF00001J8**

Tests carried out

Tested in accordance with EN 13565-1:2019(E) as branchpipe (discharge coefficient/characteristics (flow) test, range test, leak test and mechanical test).

Marking of product

The product is to be marked 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 DNV-CP-0338 Section 4.