DNV·GL

Certificate No:
MEDB00004ZE

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of Norway.

This is to certify:

That the Fixed water-based fire-fighting systems for ro-ro spaces, vehicle spaces and special category spaces: Performance-based systems as per Circ. 1430 Clause 5

with type designation(s)
X-MIST

Issued to
Tanktech Co., Ltd.
Busan, Republic of Korea

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2018/773,**
item No. MED/3.49b and Annex B, Module B in Directive. SOLAS 74 as amended Regulation II-2/19, II-2/20 & X/3, 2000 HSC Code 7 and FSS Code 7, IMO Circ.1430 Clause 5

Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2024-04-10**.

Issued at **Høvik** on **2019-04-11**

DNV GL local station:
Gimhae Station

Approval Engineer:
Helge Bjørnarå

Notified Body
No.: **0575**

for **DNV GL AS**

Roald Vårheim
Head of Notified Body

NORWEGIAN ACCREDITATION PROD 019

The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.
This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.
Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

Job Id: **344.1-003920-2**
Certificate No: **MEDB00004ZE**

Product description

"X-MIST",
is a water mist system of deluge type. The system consists of nozzles and section valves, in addition to pump unit(s), piping, control system as associated equipment.

The system is to be designed in accordance with the "Principal Requirements" of IMO MSC.1/Circ.1430 for prescriptive-based systems.

Only the nozzles are type approved by this certificate. Pumps, pipes, couplings, valves and other systems components are subject to case by case approval.

Nozzles are manufactured by Tanktech Co., Ltd., Busan, Korea.

Application/Limitation

Approved for use as a water-based fixed fire-fighting system for ro-ro spaces, vehicle spaces and special category spaces (prescriptive-based system).

System design and installation shall be in accordance with principal requirements and performance-based system requirements of IMO MSC.1/Circ.1430 Ch.3 and 5 and following limitations:

System type	Nozzle	Maximum spacing [m] 1)	Min. pres. at nozzles [bar]	Min. coverage area [m²]
Deck height up to 5.0 m 2)				
Deluge	RT	4.0	6	See note 3)
Deck height up to 2.5 m				
Deluge	RV	4.0	6	See note 3)

Notes
1) Distance to bulkheads should be half spacing
2) Installations with height above 5.0 will be considered case by case
3) According to Requirements of IMO MSC.1/Circ.1430 Ch.5.4 for type B or type C systems (as applicable)

Spray head information:

Nozzle type	k-factor [lpm/bar$^{1/2}$]	Flow [lpm]	Min. pressure at nozzle [bar]	Drawings
RT	17.1	42	6	Ref. type examination documentation
RV	8.2	20	6	Ref. type examination documentation
Nozzles are made of stainless steel. Maximum operating pressure is 16 bar. The nozzles are to be installed in a pendant (downward) position.				

For all applications

A. Restrictions apply to use of this system on open ro-ro and open special category spaces (see IMO MSC.1/Circ.1430).
B. The pump unit(s) shall be delivered with product certificate. Other system components are to be certified or inspected in accordance with Class Rules (or equivalent standard as specified by the Flag Administration).
C. Redundant pump arrangement is to be approved on a case by case basis.
D. Pipes, couplings and other components are regarded as "Class III" piping.
E. The pump unit and section valves shall be installed in a room having ambient temperature between 4 °C and 45 °C.

The following items are to be submitted for approval for each project:

a. System arrangement plans showing routing of pipes, location of nozzles, sections valves, release stations and pump unit.

b. Documentation of power supply and control system.
c. Specification of pipes, section valves, pumps, including drivers and associated components.
d. Pressure drop calculations and water mist spray capacity calculations.
e. Design, installation, operation and maintenance manual.

Installation testing:
- The system is to be cleaned in accordance with routines outlined in maker's system description manual.
- In case of deluge systems, at least 2 sections should be tested with full flow through the nozzles. Manual release of all section valves (without water accepted) shall be carried out.
- Manual start of pumps shall be carried out.
- Alarms at the manned control stations shall be tested.
- Other tests as required by DNV GL Rules (pressure testing of piping, etc.) or a similar standard acceptable to the Flag Administration and according to maker's manual shall be carried out.

Periodical testing:
- Periodical control and inspection shall be carried out in accordance with maker's system description manual.
- At least one section should each year be tested with full flow through the spray heads (not the same section every year).

Type Examination documentation
Test report No. R2013-0341E dated 16 July 2013 from Fire Insurers Laboratories of Korea.

Drawings Nos.: RT Nozzle Part 1 and Part 2, RT_17.1_Name both dated 08.08.2013 from manufacturer.
Drawings Nos.: RV Nozzle Part 1 and Part 2, RV_8.2_Name both dated 08.08.2013 from manufacturer.

X-MIST System Manual Rev.0 dated 29 July 2013 from Tanktech Co., Ltd.

Tests carried out
Fire performance test in accordance with IMO MSC.1/Circ.1430.

Component tests in accordance with relevant parts of IMO MSC/Circ.1165.

Marking of product
The nozzles are to be marked with manufacturer name and address, type designation and Mark of Conformity (see first page) whereas other main components are to be marked with name of manufacturer.