DNV·GL

Certificate No:
MEDB00005RF

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV GL SE based on the notification of the Federal Maritime and Hydrographic Agency of Germany.

This is to certify:

That the Fixed water-based fire-fighting systems for ro-ro spaces, vehicle spaces and special category spaces: Prescriptive-based systems as per Circ. 1430 Clause 4

with type designation(s)
RD, MXD-RD21, MXD-SD

Issued to
Minimax GmbH & Co. KG
Bad Oldesloe, Germany

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2019/1397,**
item No. MED/3.49a. 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 4

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

This Certificate is valid until **2021-02-24**.
Issued at **Hamburg** on **2020-02-25**

DNV GL local station:
Hamburg

Approval Engineer:
Andrii Pishchanskyi

Notified Body
No.: **0098**

for **DNV GL SE**

Gerhard Aulbert
Head of Notified Body

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 SE 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.

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Product description

Types RD, MXD-RD21, MXD-SD are open nozzles for deluge type of fixed water-based fire-fighting system. Nozzle characteristics are as follows:

Type	**K-factor** $\left[\frac{l}{min \cdot \sqrt{bar}}\right]$	**Material**
MXD-RD21	14, 20, 28, 40, 57, 80, 115	Brass or stainless steel
MXD-SD	20, 28, 40, 57	Brass or stainless steel
RD	4.5, 7, 10, 13, 21, 26.5, 34, 42, 48, 53, 60, 67, 73, 85, 94, 108, 120, 138, 153, 170	Brass
Working pressure range is between 0.5 bar and 12 bar. For flow rate refer to a nozzle data sheet. The nozzles are to be installed in a pendant (downward) position.		

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

Application/Limitation

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

System design and installation shall be as per IMO MSC.1/Circ.1430, 3 "Principal requirements for all systems" and 4 "Additional prescriptive-based design requirements". In addition, uniform distribution of nozzles inside protected space as well as overlap of the spray pattern shall be ensured.

For all applications

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

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

i. System arrangement plans including routing of pipes, location of nozzles, sections valves, release stations and pump unit;
ii. Documentation of power supply and control system;
iii. Specification of pipes, section valves, pumps, including drivers and associated components;
iv. Pressure drop calculations and water spray capacity calculations;
v. Design, installation, operation and maintenance manual.

Installation testing:

a. The system is to be cleaned in accordance with routines outlined in maker's system description manual;
b. 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;
c. Manual start of pumps shall be carried out;
d. Alarms at the manned control stations shall be tested;
e. Other tests as required by Class 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 nozzles.

Type Examination documentation

1. Technical documentation:
    a. Product sheet No. S3-14-02 Part 1 – nozzles MXD-RD21 dated 2020-01;
    b. Product sheet No. M2-01-17 Part 1 – nozzles MXD-SD dated 2013-01;
    c. Product sheet No. S3-14-01 Part 1 – nozzles RD dated 2011-01;
2. Component test reports:
    a. File EX26426, Project 47867284101 dated 2014-09-17 from UL;
    b. File EX26426, Project 4786755343 dated 2015-01-20 from UL;
    c. File EX26426, Project 4786898684 dated 2015-12-17 from UL.

Tests carried out

Component testing according to IMO MSC.1/Circ.1165.

Marking of product

The product is to be marked with:

- Trademark;
- Type designation;
- K-factor;
- Date of manufacture;
- Production number.
- MED Mark of Conformity (see footnote on page 1).