

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 Nozzles for equivalent water-mist fire extinguishing systems for machinery spaces and cargo pump rooms

with type designation(s)

Ultra Fog High Pressure Water Mist System

Issued to

ULTRA FOG S.R.L.
VIAREGGIO, LU, Italy

is found to comply with the requirements in the following Regulations/Standards:

Regulation **(EU) 2020/1170**,

item No. MED/3.39. SOLAS 74, Regulation II-2/10 & X/3, 2000 HSC Code 7, FSS Code 7, IMO MSC.1/Circ.1313, IMO MSC.1/Circ.1458 and IMO MSC/Circ.1165 as amended

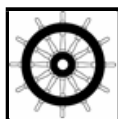
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2025-09-02**.

Issued at **Høvik** on **2020-09-03**

DNV GL local station:
Italy/Malta CMC

Approval Engineer:
Helge Bjørnarå



Notified Body
No.: **0575**

for **DNV GL AS**

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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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

"Ultra Fog High Pressure Water Mist System",
is a high pressure water mist system, composed of spray heads, stainless steel piping, section valves, filter and electrical driven pumps.

The system is to be designed in accordance with the "Principal Requirements for the System" in IMO MSC/Circ.1165 as amended.

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

Application/Limitation

Approved for use as fixed fire extinguishing system for machinery spaces and cargo pump rooms.

The spray heads are to be installed to the following specifications with one layer of ceiling mounted spray heads (including spray heads under every platform) and a bilge system:

Volume and height of protected spaces	
Maximum ceiling height of protected space ¹⁾ :	10.1 m
Maximum volume of protected space ²⁾ :	3348 m ³
Note: 1) Standard casings need in general not to be considered when assessing this height limitation. 2) Net volume can be increased to 4959 m ³ (height remain at 10.1 m) based on IMO MSC.1/Circ.1385 as extinguishing time is within 10 min. This volume shall include bilges, casings, etc.	

Ceiling mounted spray heads	
Spray head type:	202-209-O
Maximum horizontal spray head spacing:	5.0 x 5.0 m
Maximum distance to bulkhead:	2.5 m
Maximum coverage area per spray head (average):	25 m ²
Maximum height of spray head above floor level:	9.8 m
Minimum pressure at spray head:	100 bar
Spray head orientation:	Downwards
Note: Spray heads are to be installed in a downward position and fitted at ceiling level, maximum 300 mm below ceiling. Casing and areas under platforms and other similar obstruction shall be protected by spray heads. For areas of limited height, spray heads with lower installation height is recommended to be used.	

Bilge spray heads ⁵⁾	
Spray head type:	20011110-101 (FOAM)
Maximum horizontal spray head spacing:	1.6 x 6.0 m ³⁾
Maximum coverage area per spray head:	5 m ²
Height of spray head above tank top/floor level:	0.7 m ⁴⁾
Minimum pressure at spray head:	4 bar
Spray heads orientation:	Horizontal
Note: 3) Example: Spacing between spray heads is 1.6 m along a row and 6.0 m between rows. Spray heads of two adjacent rows to be installed in a staggered pattern with spray direction towards each other covering half the row distance each. 4) The bilge plate was located at 0.7 m in the fire test. Installations on vessels with bilges and spray heads higher than these figures will be considered case by case. 5) AFFF foam concentrate is to be applied with 1% admixture to water to the bilge spray heads.	

Job Id: **344.1-010531-1**
Certificate No: **MEDB00006KJ**

Spray head information

Spray head type	Application	K-factor [lpm/bar ^{1/2}]	Flow [lpm] ⁶⁾	Pressure [bar] ⁷⁾	Dwg. no.
202-209-O	Ceiling	2.09	20.9	100	940610-034, issue 1
20011110-101	Bilge	2.78	5.56	4	20011110-101, issue 4
Note: 6) At applicable minimum operation pressure. 7) Pressure at spray head.					

For all applications

- A. The pump or pump unit 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. Stainless steel piping (or equivalent) and fresh water shall be applied, and a strainer of adequate size is to be provided downstream of pump (to avoid clogging of spray head).
- C. Redundant pump arrangement is to be approved on a case by case basis.
- D. Pipes, couplings and other components are regarded as "Class I" 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 documents are to be approved and filed by the Flag State Administration for each project:

- a. System arrangement plans including routing of pipes, location of spray heads, section valves, release stations, pump unit with back-up capacity and water supply.
- b. Documentation of power supply and control system.
- c. Specification of pipes, section valves, electrical motors, pumps and associated components.
- d. Pressure drop calculations and water mist capacity calculations.
- e. Design, installation, operation and maintenance manual.

Other documents:

- Gas cylinders, gas pumps, any pipes above DN 50 mm, valves and couplings above DN 100 mm are to be delivered with product certificates (or standards considered by the Flag Administration to be equivalent).
- Documentation for other components (according to EN 3.1B and EN 2.2, as applicable) shall be submitted to the site representative of the Flag Administration.

Installation testing:

- System to be cleaned in accordance with routines outlined in makers installation manual.
- All sections should be tested with full flow through the spray heads.
- Manual release of all section valves and start of pumps shall be carried out.
- Alarms inside protected space and at a manned control stations and switchover to emergency power shall be tested.
- Other tests as required by class rules (pressure testing of piping, etc.) and according to maker's manual shall be carried out.

Periodical testing:

- The periodical testing shall comply with instructions from flag administration, statutory interpretations and maker's maintenance manual.
- At least one section should each year be tested with full flow through the nozzle. The sections tested should be chosen so that all sections are tested within a five-year period.

Job Id: **344.1-010531-1**
Certificate No: **MEDB00006KJ**

Type Examination documentation

Fire test report:

Test report No. F08117 dated January 2009 from SINTEF, Trondheim, Norway.
Test report No. 150409-153 dated 3 August 2015 from DFL, Svendborg, Denmark.
Test report No. 170427-202 dated 16 July 2017 from DFL, Svendborg, Denmark.

Component test report:

Test report No. 3045656 dated 23 April 2013 from FM Approvals, USA.
Test report No. Ex5204 dated 23 July 1999 from UL, Northbrook, USA.

Tests carried out

Fire and component tested according to IMO MSC/Circ.1165.

Marking of product

The spray heads are to be marked with type designation, the MED Mark of Conformity, Notified Body No. and the year of manufacturing (see first page) whereas the pump unit is to be marked with name and address of manufacturer and type designation.