

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate no.:
MEDB00008JV

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 AS under the authority of the Government of Norway.

This is to certify:

that the Sprinkler systems components for accommodation spaces, service spaces and control stations equivalent to that referred to in SOLAS 74 Regulation II-2/12(limited to nozzles and their performance)

with type designation(s)
Sprinkler system

issued to

Ningbo Yonghang Fire Equipment Co., Ltd.
Ningbo, 130, China

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

Regulation (EU) 2024/1975,

item No. MED/3.9. SOLAS 74 as amended, Regulation II-2/7, II-2/9, II-2/10 & X/3, HSC Code 7, FSS Code 8, IMO MSC/Circ.912, IMO MSC/Circ. 1556, IMO Res.MSC.44(65), IMO Res. A.800(19) as amended

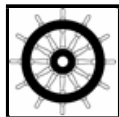
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2029-09-23**.

Issued at **Høvik** on **2024-09-24**

DNV local unit:
Ningbo FIS

Approval Engineer:
Tessa Biever



Notified Body
No.: **0575**

for **DNV AS**

Mydlak-Röder, Christine
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 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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 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

'Sprinkler system'.

is an automatic fast response low-pressure water mist system of wet pipe type. The system is composed of sprinkler heads, steel piping, sprinkler valves, control system, strainers, pumps and a pressure tank.

The system is to be designed in accordance with the "Principal Requirements for the System" as defined in IMO Res. A.800(19) and amended by IMO Resolution MSC.265(84).

Only the spray heads are type approved by this certificate. Other components are to be approved and/or certified case by case.

Application/Limitation

Approved for use as an automatic water sprinkler system for accommodation areas, public spaces, service spaces and storerooms.

Installation shall be in accordance with table 1, appendix 2, IMO Res. MSC.265(84):

Application	Nozzle model	Location	Projection	Spacing [m]	Dist. to wall [m]
Cabins, < 12 m ² ¹⁾	ZSTX-10	Ceiling	Pendent	Single	centre
Cabins, < 12 m ² ¹⁾	ZSTDY-10	Ceiling	Pendent	Single	centre
Corridor ²⁾	ZSTX-10	Ceiling	Pendent	3.5	1.75
Corridor ²⁾	ZSTDY-10	Ceiling	Pendent	3.5	1.75
Public space (h < 2.5 m)	ZSTX-10	Ceiling	Pendent	3.5	1.75
Public space (h < 5.0 m) ³⁾	ZSTX-10	Ceiling	Pendent	3.5	1.75
Storage area	ZSTX-10	Ceiling	Pendent	3.5	1.75
Note:					
1) Cabin area is gross area, including wet unit.					
2) Maximum width of corridor should not exceed 1.5 m.					
3) Ceiling height of more than 5 meter is subject to case-by-case approval.					

Nozzle model	k-factor [lpm/bar ^{1/2}]	Min. pressure [bar]	Flow [lpm]	Drawing
ZSTX-10	57	3	88	ZSTX-10/68°C dated 2024-07-05
ZSTDY-10	57	3	88	ZSTDY-10/68°C dated 2024-07-05

For all applications

- Minimum design pressure is 3.0 bar. Max. system working pressure is 12.0 bar.
- Sprinkler heads to be installed in a pendant (downward) position.
- All spray heads are comprised of parts made of brass and fitted with a 68 °C, 79 °C or 93 °C 3.0 mm bulb. Bulbs with higher temperature ratings, but not more than 30 °C above ambient temperature, are subject to approval in each case.
- The pumps (or pump unit) shall be delivered with product certificate, whereas other system components are to be certified or inspected in accordance with Class Rules (or equivalent standard as specified by the Flag Administration).
- Redundant pump arrangement is to be approved on a case-by-case basis.
- Pipes, couplings and other components are regarded as "Class III" piping.
- 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:

- System arrangement plans showing location of sprinklers, pipes, sections valves, control system and pump-unit.
- Specification of pipes, valves, electrical motor, pumps, pressurised tank(s) and associated components (including water supply specifications).
- Pressure drop calculations and water capacity calculations.
- Arrangement of power supply and control system.
- Manual containing installation, operation and maintenance instructions.

Installation

- Water to be in accordance with manufacturer's specification for water quality. No chemicals shall be added to the water, for the purpose of e.g. cleaning, bacterial control, corrosion inhibition, etc., without the acceptance from the Manufacturer.

Installation testing:

- Not less than 2 sprinkler heads in each section shall be tested. Testing may be limited to 10 sections. i.e. 2 x 10 sprinkler heads if it is successful.
- Automatic start and stop of pumps.
- Automatic change over from main to emergency electric supply
- Other tests as required by Class Rules (pressure testing of piping, etc.) and according to maker's manual (or equivalent standard as specified by the Flag Administration).

Periodical testing:

- The testing shall comply with instructions from flag administration, Statutory Interpretations and maker's maintenance manual.
- Not less than 2 sprinkler heads shall be tested annually. Further testing will be required in case of failure(s) or for systems older than 5 years.

Type Examination documentation

Maker's design, installation, operation and maintenance manual.

Fire test report:

Test report No. Gn202303317 dated 12 September 2023 from Tianjin Fire Research Institute, Tianjin, China.

Component test reports:

Test report No. Gn202303317 dated 12 September 2023 from Tianjin Fire Research Institute, Tianjin, China.

Test report No. YHSY-20230801 dated 2 August 2023 from manufacturer, witnessed by DNV. Test report No. YHSY-20240701 dated 22 July 2024 from manufacturer, witnessed by DNV.

Drawings, sprinkler:

Drawing for ZSTX-10/68 (79, 93) dated 5 July 2024

Drawing for ZSTDY-10/68 (79, 93) dated 5 July 2024.

Tests carried out

Fire performance test in accordance with IMO Res. A.800(19) and as amended by IMO Resolution MSC.265(84).

Component test in accordance with IMO Res. A.800(19) and as amended by IMO Resolution MSC.265(84).

Marking of product

The sprinkler heads are to be marked with type designation and MED Mark of Conformity (see first page) whereas the pump unit is to be marked with name of manufacturer and type designation.