DNV·GL

Certificate No:
TAF00000VD

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Fixed Water Based Local Application System

with type designation(s)
Micro Fog "YMS-P3"

Issued to
Yamato Protec Corporation
Tokyo 13, Japan

is found to comply with
DNV GL statutory interpretations DNVGL-SI-0364 – SOLAS interpretations
DNV GL rules for classification – Ships
DNV GL offshore standards

Application :

Approved for use as a fixed water based local application system for machinery spaces of category A.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Issued at **Høvik** on **2017-12-20**
This Certificate is valid until **2022-12-19**.
DNV GL local station: **Kobe**

Approval Engineer: **Helge Bjørnarå**

for **DNV GL**

Mårten Schei-Nilsson
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.

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Job Id: **262.1-006674-4**
Certificate No: **TAF00000VD**

Product description

Micro Fog "YMS-P3"
is a fresh water spray system, composed of spray heads, stainless steel or galvanized piping, manual or automatic section valves, test valves, control system and water supply pump(s). The system is to be designed according to principal requirements for the system, IMO MSC.1/Circ.1387 and SOLAS Ch.II-2, Reg.10.5.6.

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

The spray heads are produced by Yamato Protec Corporation Osaka Factory.

Application/Limitation

The spray heads are to be installed above the protected objects according to the following specifications:

Standard type	
Maximum horizontal spacing:	3.0 m
Approved height above protected object	1.0 – 13.2 m
Minimum pressure at spray head:	4.0 bar
Spray head type:	YMH-3SH
Spray heads are to be installed out to a position being at the periphery of the protected object (see IMO MSC.1/Circ.1387, annex 3.4.2.2). The spray heads are to be installed in a pendant (downward) position. Single spray heads or single rows are accepted when half spacing is used.	

Short range type	
Maximum horizontal spacing:	3.5 m
Approved height above protected object	0.5 m to 1.8 m
Minimum pressure at spray head:	4.0 bar
Spray head type:	YMH-3SE
Spray heads are to be installed out to a position being at the periphery of the protected object (see IMO MSC.1/Circ.1387, annex 3.4.2.2). The spray heads are to be installed in a pendant (downward) position. Single spray heads or single rows are accepted when half spacing is used.	

Spray head information

Spray head	k-factor [lpm/bar$^{1/2}$]	Flow [lpm]	Drawing no.
YMH-3SH	6.68	13.9 (at 4.0 bar)	Y2244
YMH-3SE	6.68	13.9 (at 4.0 bar)	Y2245
Spray heads are to be made of stainless steel. Max. operating pressure is 14.4 bar			

For all systems:

A. The pump(s) or the pump unit is to be delivered with a DNV product certificate. Other system components are to be inspected in accordance with the DNV Rules.
B. Turbo machinery should also be covered by the system but with gentle application of water. Essential electrical equipment and air intakes should preferably not be directly exposed to the water discharge. Electrical equipment as per DNV GL Rules (Pt.4 Ch.8 Sec.10, Table 1) shall be applied for new buildings.
C. Ambient room temperature for pump unit should be between +4 °C and +45 °C.

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

i. System arrangement plans including location of nozzles, sections, release stations and pump-unit, water supply, including any heating facilities for pump-unit room
ii. Specification of pipes, electrical motor, pumps, valves and associated components
iii. Pressure calculations and mist capacity calculations
iv. Arrangement of power supply and control system.

v. Arrangement of interface to fire detection and alarm system (if applicable)
vi. Manual containing installation, operation and maintenance instructions.

Installation testing:
- A 30 seconds water mist discharge is to be carried out for at least one section
- Test of manual and remote release of all section valves and start of pumps
- Testing of alarms (SOLAS Ch. II-2, Reg.10.5.6.4)
- Pressure testing of water pipe system to at least 1.5 times maximum working pressure
- Testing of automatic start of system (in case of unattended machinery spaces)
- System to be cleaned in accordance with routines outlined in maker's installation manual
- Other tests as required by DNV GL Rules (pressure testing of piping, etc.) and according to maker's manual shall be carried out

Periodical testing:
- Periodical control and inspection to be in accordance with maker's test manual

Type Approval documentation

Certification in accordance with Class Programme DNVGL-CP-0338, October 2017.

Yamato: Description of system, Type Approval Documentation, December 2008

Fire performance testing:
RIME Report No. 08-348(E) dated 20 January 2009 (YMH-3SH)
RIME Report No. 08-347(E) dated 20 January 2009 (YMH-3SE)

Component testing of water mist spray heads:
RIME Report No. 08-434(E) dated 20 January 2009 (YMH-3SH)
RIME Report No. 08-433(E) dated 20 January 2009 (YMH-3SE)

IP grade electrical equipment discharge testing (IMO MSC/Circ.913, 3.2):
RIME Report No. 08-455(E) dated 20 January 2009 (YMH-3SH)
RIME Report No. 08-458(E) dated 20 January 2009 (YMH-3SE)

Generator discharge testing (IMO MSC/Circ.913, 3.2):
RIME Report No. 08-457(E) dated 20 January 2009 (YMH-3SH)
RIME Report No. 08-456(E) dated 20 January 2009 (YMH-3SE)

Tests carried out

Tested according to IMO MSC/Circ.913 (fire performance tests) and relevant parts of IMO MSC/Circ.1165 (component tests)

Marking of product

The spray head is to be marked with type designation (YMH-3SH or YMH-3SE) whereas pump / control unit is to be marked with name of manufacturer and type designation.

Periodical assessment

DNV GL'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 Class Programme DNVGL-CP-0338, Section 4.