DNV·GL

Certificate No:
TAF00000BY

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Fixed Water Based Local Application System

with type designation(s)
MisterySpray

Issued to
GW Sprinkler A/S
GLAMSBJERG, Denmark

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

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.

This Certificate is valid until **2021-06-30**.

Issued at **Høvik** on **2016-07-01**

for **DNV GL**

DNV GL local station: **Fredericia**

Approval Engineer: **Synnøve Bolstad Eri**

Petter Langnes
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: **262.1-001245-6**
Certificate No: **TAF00000BY**

Product description

"MisterySpray",
is a water mist system, composed of spray heads, steel piping, manual or automatic section valves, test valves, control panel 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 M5 spray heads are manufactured by GW-Sprinkler AS, Glamsbjerg, Denmark.

Application/Limitation

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

For heights between 0.5 and 8.0 m	
Maximum horizontal spacing:	3.0 m
Approved height above protected object	0.5 m to 8.0 m
Minimum pressure at spray head:	4.0 bar (at spray heads)
Spray head type:	GW M5
Spray heads are to be installed out to a position being at the periphery of the protected object (see IMO MSC/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.	

For heights between 8.0 and 14.5 m	
Maximum horizontal spacing:	3.0 m
Approved height above protected object	8.0 m to 14.5 m
Minimum pressure at spray head:	9.0 bar (at spray heads)
Spray head type:	GW M5
Spray heads are to be installed out to a position being at the periphery of the protected object (see IMO MSC/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 ($Q = k \times p^{1/2}$)	Flow	Drawings
GW M5	5.0 lpm/bar1/2	10 lpm at 4 bar 15 lpm at 9 bar	140191, rev. C, 29 June 2010 140190, rev. D, 02 February 2011 140243, rev. B, June 2003
Spray heads are to be made of naval brass. Maximum operating pressure is 16 bar.			

For all systems:

1. The pump(s) or the pump unit is to be delivered with a DNV GL product certificate. Other system components are to be inspected in accordance with the DNV GL Rules. The piping is to be regarded as class III.
2. Turbo machinery equipment, air intakes and preferably also essential electrical equipment shall not be directly exposed to the water discharge. Electrical equipment as per DNV GL rules (Pt.4 Ch.8 Sec.10, Table B1) shall be applied for newbuildings.
3. 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 spray heads, sections valves, release stations and pump-unit (including water supply);
ii. Documentation of power supply and control system;
iii. Specification of pipes, electrical motor, valves, pumps and associated components;
iv. Pressure drop calculations and water mist capacity calculations;
v. Arrangement of interface to fire detection and alarm system (where applicable);
vi. Manual with design, installation, operation, test and maintenance instructions .

Installation testing:

- At least one section should be tested with full flow through the spray heads;
- 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);
- Testing of automatic start of system (in case of unattended machinery spaces);
- Pressure testing of water pipe system to at least 1.5 times maximum working pressure;
- System to be cleaned in accordance with routines outlined in makers 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 makers test manual.

Type Approval documentation

Certification in accordance with Class Programme DNVGL-CP-0338, October 2015.

GW Model M5 type approval manual, dated October 2001
Drawing no. 140191, rev. C, Assembly watermist M5
Drawing no. 140190, rev. D, Deflector for M5 nozzle
Drawing no. 140243, rev. B, watermist M5 nozzle

Fire Performance Test Report, SINTEF Report NBL10 F01121, September 2001 and SINTEF Report NBL F01135, September 2001

Component testing of water mist nozzles:

- FM Project ID. 3009895 dated January 2002;
- FM Project ID. 3041062 dated 15 March 2011.

Tests carried out

Tested according to IMO MSC/Circ. 913 (fire tests) and IMO MSC/Circ. 668 and IMO MSC/Circ. 728 (component tests of spray heads).

Marking of product

The nozzles are to be marked with the type designation whereas the pump/control unit is to be marked with the name of manufacturer and type designation.

Periodical assessment

The DNVGL'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 the procedure described in the Class Programme DNVGL-CP-0338, Section 4.