



TYPE APPROVAL CERTIFICATE

Certificate No. : SHI27069-FF001 **Initial Approval :** 10th October, 2018
Product : Fixed Water-Based Local Application Fire-Fighting
Manufacturer : DESMI Pumping Technology (Suzhou) Co., Ltd.
 No. 740, Fengting Avenue, Weiting Sub District, Suzhou, 215122, P.R.China
Product Description : Model : Fine-Fog ™
 Intended for : Fire fighting systems for use in category "A"
 machinery spaces
 " See Appendix 1 "

Approval Condition : " See Appendix 1 ~ 2 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows and entered in the "List of Approved Manufacturers and Type Approved Equipment".

Pt 8, Ch 8 of the Rules for the Classification of Steel Ships and IMO MSC.1/Circ.1387.

This Certificate is valid until 9th October, 2023
Issued at Shanghai, China on 10th October, 2018



KOREAN REGISTER OF SHIPPING

*General Manager of
Technical Support Team
CHINA KR Co., Ltd.*

- Note** : 1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

Appendix 1

Product Description and/or Approval Condition

Certificate No : SHI27069-FF001

Date of Issue : 10 October, 2018

A. Product Description

1. Product Specification

- (1) For heights between 0.5 m and 8.0 m
 - 1) Used Nozzle Type : GW M5
 - 2) Tested Nozzle grid arrangement : 2 X 2
 - 3) Max. Nozzle spacing : 3.0 m
 - 4) Min. operating pressure : 4.0 bar
 - 5) Min./Max. vertical distance from object : 0.5 m / 8.0 m
 - 6) Nozzle flow rate : 10.0 l/min at 4 bar
 - 7) K-factor of the nozzle : 5.0
 - (2) For heights between 8.0 m and 14.5 m
 - 1) Used Nozzle Type : GW M5
 - 2) Tested Nozzle grid arrangement : 2 X 2
 - 3) Max. Nozzle spacing : 3.0 m
 - 4) Min. operating pressure : 9.0 bar
 - 5) Min./Max. vertical distance from object : 8.0 m / 14.5 m
 - 6) Nozzle flow rate : 15 l/min at 9 bar
 - 7) K-factor of the nozzle : 5.0
- * Note : K-factor = $Q / (P^{1/2})$ [Q = Water flow rate(l/min), P = Pressure(bar)]

2. Approved Drawings and documents

- (1) Desmi type approval documentation approved on 23 August 2018.
- (2) Drawings for nozzles
 - 140191 rev. B (Assembly watermist M5),
 - 140190 rev. C (Deflector for M5 nozzle) and
 - 140243 rev. B (Watermist M5 nozzle).

3. Test Reports, etc.

- (1) The system is tested according to IMO MSC/Circ. 913.
- (2) Test reports NBL10 F01121 dated 05 September 2001 and NBL10 F01135 dated 27 September 2001, both from SINTEF NBL, Trondheim, Norway.
- (3) Component testing of water mist nozzles: FM Project ID. 3009895, January 2002.
- (4) Water discharge test against electric system test report no. 08-007(E) issued by Japan Research Institute of Marine Engineering dated 18 June 2008.
- (5) Water mist local application - IP test of generator set, surveyor report No. QAP-17-992284-4 dated 29 August 2017 under the witness of KR surveyor.

B. Approval Condition

1. Application & Limitation

- (1) This type approval is not to be construed as a substitute for Government's approval.
- (2) The electrical components of the pressure source for the system should have a minimum rating of IPX4, if located in the protected space.

2. Individual Product Cert. and Drawing Approval Requirement

- (1) The following items are to be submitted for approval for each actual application.
 - Diagrams of piping and instrument
 - Diagrams of control & detection system
 - Piping arrangements and hyd. calculation sheets
 - Plans for pump including performance curve
 - Specifications of pipes and pipe fittings
 - Specifications of location and dimension on the protected area
 - Others considered necessary by the Society
- (2) The following items are to be tested upon installation.
 - Pressure testing of water pipe system to at least 1.5 times max. working pressure by using test valve.
 - Testing of automatic starting system and alarms in accordance with SOLAS II-2, Reg. 10.5.6.4.
 - Other test items considered necessary by this Society.
- (3) Individual Product Certification for system unit is required.

< To be continued >

Appendix 2

Product Description and/or Approval Condition

Certificate No : SHI27069-FF001

Date of Issue :10 October, 2018

3. Marking

- The product is to be marked with manufacturer' s name or trademark, a date of manufacture and type designation number.

4. Others

- Not applicable.

< End of Certificate >

