



CERTIFICATE NUMBER  
16-LD1533538-PDA

DATE  
22 Jun 2016

ABS TECHNICAL OFFICE  
London Engineering Department

# CERTIFICATE OF DESIGN ASSESSMENT

This is to certify that a representative of this Bureau did, at the request of

## **AUTRONICA FIRE AND SECURITY AS**

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product: **Fire Extinguishing System, Water-Mist**

Model: **FlexiFOG Water Mist - Lo Flow M5 LP**

This Product Design Assessment (PDA) Certificate 16-LD1533538-PDA, dated 22/Jun/2016 remains valid until 21/Jun/2021 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

AMERICAN BUREAU OF SHIPPING

  
Mohammed K.M. Abbas  
Engineer/Consultant

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by the terms and conditions as contained in ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

## AUTRONICA FIRE AND SECURITY AS

STALSBÆRGVEIEN 9

NOTTEROY

Norway N-3128

Telephone: +47-90-90-55-00

Fax:

Email: info@autronicafire.no

Web: www.autronicafire.no

**Tier: 3 - Type Approved, unit certification not required**

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**Product:** Fire Extinguishing System, Water-Mist

**Model:** FlexiFOG Water Mist - Lo Flow M5 LP

**Intended Service:**

Water based local application fire fighting system for use in Category A machinery spaces to protect areas of high risk such as the hazard portions of internal combustion machinery, incinerator units, boiler fronts, purifiers for heated oil, etc. The fire fighting system is applicable to all Ship Type and Offshore Units.

**Description:**

The system is a dry pipe low-pressure system comprises equipment and components as specified in the Heien Larssen AS design manual "FlexiFOG Water Mist Extinguishing System, Dry Pipe Local Protection System" dated 18 October 2002 Issue 0 including the nozzle, pump, valve, zone valve, pressure gauge, pressure switch, alarm siren, pump starter cabinet, output distribution cabinet, main control and remote operating panels with manual release push buttons, local release push button unit and cabling. The main control components consist of programmable logic controllers (PLC) and associated input and output units. The control system is designed to allow immediate release of water mist in the protected areas in respond to either manual release push button or fire alarm signals. The main control equipment is based on the Siemens LOGO PLC components. For automatic executive actions, the main control system is compatible with the Autosafe fire detection system or interfaced with other fire detection system.

**Rating:**

Nozzle Type M5 (5/1.8-60) K Factor = 5;

Power supplies: Control Unit - 240 VAC with 24 V DC backup batteries, Pump Unit - 240 VAC 3-phase;

Enclosure rating: Control Unit - IP56

**Service Restriction:**

(1) Unit Certification is not required for this product. If the manufacturer or purchaser's request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

(2) Distance of the nozzles from the fire hazard, required pressures at the nozzles and nozzle spacing are to be in accordance with the following: (a) 0.5 to 8 meters above protected object at minimum 4 bar. (b) 8 to 14.5 meters above protected object at minimum 9 bar. (c) Maximum Nozzle spacing 3m. (d) 2 x 2 Grid over the protected object.

**Comments:**

(1) The following details are to be submitted to the ABS Technical Department for review for each installation:

(a) The General Arrangement plan and schematics, indicating the protected areas, the distribution piping layout, release stations, nozzle spacing, the distance of the nozzle from the fire hazard, location of nozzles, section valves and flushing/drain valves and the location of the pump unit and alarm panels.

(b) Pipe Data including materials, size and wall thickness.

(c) Hydraulic pressure drop calculations for each protected area, including capacity calculations.

(d) Wiring diagrams and cable specifications.

(e) Nozzle type for each location.

(f) Data sheets for the pump, valves, fittings, nozzles, pressure switches, fire detection and alarm equipment, system control panels, etc.

(g) Electronic control system logic diagram, including fire detection and alarm system.

(h) Arrangement of interface to fire detection and alarm system, (if applicable and installed).

(2) Operational routines for periodic flushing and nozzle release tests are to be agreed with ABS for each installation.

**Notes/Drawing/Documentation:**

a) Type 9023XX Operating and Maintenance Manual and typical inter connecting diagrams. LOGO! PLC is covered in Certificate No.15-HG1409747-PDA

b) SINTEF test reports nos. NBL 10FO1121 dated 5 September 2001 and NBL FO1135 dated 27 September 2001:

**AUTRONICA FIRE AND SECURITY AS**

STALSBERGVEIEN 9

NOTTEROY

Norway N-3128

Telephone: +47-90-90-55-00

Fax:

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Web: www.autronicafire.no

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Factory Mutual test report no. 3013524 dated 25 February 2002 and ABS IP 22 Miscellaneous Survey Report dated 30 May 2002

**Terms of Validity:**

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**STANDARDS**

**ABS Rules:**

ABS Rules for Building and Classing Steel Vessels (2016): 1-1-4/7.7, 1-1-Appendix 3 & 4, 4-7-2/1.11.2, 4-7-3/11, 4-9-8/7

ABS Rules for Offshore Units and Structures (2016): 1-1-4/9.7, 1-1-Appendix 2 & 3

**National:**

NA

**International:**

International Convention for the Safety of Life at Sea (SOLAS), 1974 (2014 Consolidated Edition) Chapter II-2/10.5.6,

IMO Res. MSC.1/Circ.1387, adopted on 10 December 2010.

IMO FSS Code 2015 Edition

**Government:**

NA

**EUMED:**

NA

**OTHERS:**

NA