DNV·GL

Certificate No:
MEDB000065G

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

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 GL AS under the authority of the Government of Norway.

This is to certify:

That the Nozzles for deep fat cooking equipment fire extinguishing systems (automatic or manual type)

with type designation(s)
HI-FOG Systems for the protection of deep-fat cooking equipment with a cooking area not exceeding 0.27 m2

Issued to
MARIOFF CORPORATION OY
VANTAA, Finland

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2019/1397,**
item No. MED/3.43. SOLAS 74 as amended, Regulation II-2/1, II-2/10 & X/3, 2000 HSC Code 7, MSC.1/Circ.1433 and ISO 15371:2015

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

This Certificate is valid until **2025-01-20**.

Issued at **Høvik** on **2020-01-21**

DNV GL local station:
Helsinki FIS

Approval Engineer:
Tessa Biever

Notified Body
No.: **0575**

for **DNV GL AS**

Roald Vårheim
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 GL 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.

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Job Id: **344.1-004071-2**
Certificate No: **MEDB000065G**

Product description

"HI-FOG Systems for the protection of deep-fat cooking equipment"
is a high pressure water mist system, composed of spray heads, stainless steel piping, section valves and supply component(s).

The galley protection system should be designed according to SOLAS Ch. II-2 Reg. 10, 6.4.1-5. This certificate addresses only item 6.4.1.

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

The spray heads are manufactured by the Marioff Corporation OY, Vantaa, Finland.

Application/Limitation

Approved for use as a fire extinguishing system for galley deep-fat cooking equipment.

The spray heads are to be installed in according to the following specifications:

Fat fryer protection	
Distance above fryer:	0.8 m – 1.33 m
Position of spray head:	One centrally over the vat (ref. manual)
Maximum size of vats:	460 mm x 594 mm (0.27 m^2)
Operating pressure:	60 bar – 140 bar
Spray heads type:	3S 000 9FB 1000

Spray head information			
Spray head	k-factor [lpm/$bar^{1/2}$]	Flow rate [lpm]	Drawing no.
3S 000 9FB 1000	1.25	12.5 (at 100 bar)	K0009380
The spray heads are made of stainless steel and have a maximum rated pressure of 140 bar.			

For all systems:

A. The pump(s) (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).
B. Only stainless steel piping is to be applied and a system filter shall be provided for each pump unit (to avoid clogging of spray heads).
C. Pipes, couplings and other components are regarded as "Class I" piping.
D. 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:

a) System arrangement plans including location of nozzle, section valves, release stations and cylinders.
b) Specification of pipes, supply component(s), and associated components.
c) Capacity of water supply system.
d) Shut down of function defined by SOLAS II-2/10.6.4.2-5.
e) Manual containing operating and maintenance instructions.

Installation testing:

- Pressure testing of water pipe system to at least 1,5 times maximum working pressure.
- Function testing of the system.
- Other tests according to maker's manual.

Periodical testing:

- Periodical control and inspection to be in accordance with maker's manual.

Type Examination documentation

Design, Installation, Operation and Maintained Manual No. MO/ES/35/DIOM/ISO/13 Rev. 1.8

Fire test reports
Test report No. VTT-S-04444-13 dated 19 June 2013 from VTT Expert Services Ltd., Finland.
Test report No. VTT-S-05422-14 dated 21 November 2014 from VTT Expert Services Ltd., Finland.

Component test reports
Test report No. VTT-S-04445-13 dated 19 June 2013 from VTT Expert Services Ltd., Finland.
Test report No. RTE11340-95 dated 22 November 1995 from VTT Expert Services Ltd., Finland.
Test report No. Ex4553 dated 30 November 1995 from "UL" Underwriters Laboratories Inc., USA.
Test report No. 98-1147 dated 25 August 1998 from DNV Norway.

Tests carried out

Fire tested according to ISO 15371:2009, component test of spray heads according to IMO MSC/Circ.668 and IMO Res. A.800(19).

Marking of product

Main components in the system are to be marked with name and address of manufacturer, type designation and Mark of Conformity.