

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Fire-extinguishing system for protection of galley deep-fat cooking equipment**with type designation(s)
NF-DFF Model 9

Issued to

Novenco Fire Fighting A/S
Odense SØ, 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 fire extinguishing system for galley extract ducts and galley deep-fat cooking equipment.**Issued at **Høvik** on **2017-12-21**This Certificate is valid until **2022-12-20**.for **DNV GL**DNV GL local station: **Fredericia**Approval Engineer: **Piotr Orzechowski**

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.



Product description

"NF-DFF Model 9"

Is an automatic/manual water mist system for protection of galley deep-fat cooking equipment. The system is composed of nozzles, stainless steel piping, section valves, and pressure tanks.

The galley deep-fat cooking protection system shall be designed according to SOLAS 2014 Ch. II-2, Reg.10.6.4 (deep-fat cooking equipment). Compliance with the shut down function according to SOLAS 2014 Ch. II-2, Reg.10, 6.4.2–6.4.5 has to be verified in each case.

Only the nozzles are type approved by this certificate. Other systems components are subject to case by case approval.

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:

The system is composed of the following main components:

Part	Description	Part no.
Nozzle NF-DFF M9 ¹⁾	NF-DFF M9	30037641
Expansion Tank	Pressure: 25 Bar Capacity: 24 L	925652-0
Piping system	15 x 1mm sst pipes	
Manual pull station	(electrical)	1052462
Notes:		
1) The nozzles material is made of stainless steel SS316L.		

System specifications:

Vat Deep Fat Fryer	
Vertical distance from vat	Min. 830 mm Max. 1320 mm
Length of piping	Min. 3 m (5 elbow, 1 tee) Max. 8.7 m (9 elbows, 1 tee)
Number of nozzles	Two (1 m from each other)
Position of nozzles (pairs):	0.69 m from the back of the fryer vat with approx. spreading angel of 60 degrees between nozzles (for detail please see Manual)
Min. operated pressure	7 bar
Max. nozzle/pipe pressure	15/25 bar
k-factor ($Q = k \times p^{1/2}$)	4
Flow rate	10,6 lpm at 7 bar
Maximum size of vats:	0.568 x 0.50 (W x H) or 0.28 m ²
Maximum volume of vats:	40 l

System components, such as pipes and pipe connections as well as welding of pipes are to be certified or inspected in accordance with DNV GL Rules or equivalent standards acceptable to the Flag State.

For all applications:

- A. The pumps or pump unit and the pressure tank are to be delivered with DNV GL product certificate. Other system components are to be certified or inspected in accordance with DNV GL Rules.
- B. Pipes, couplings and other components are regarded as "Class II" piping.
- C. The pump unit and section valves shall be installed in a room having ambient temperature between +4 °C and +45 °C.
- D. Only stainless steel piping, or equivalent corrosion resistant pipes, is to be applied (to avoid clogging of sprinklers). Primary water supply shall be fresh water of potable quality.

Job Id: **262.1-026783-1**
Certificate No: **TAF00000UY**

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

- System arrangement plans including location of nozzle, section, release stations and control circuitry/arrangement.
- Capacity of pressure vessel system.
- Specification of pipes, pump, and associated components;
- Shut down of function defined by SOLAS 2000 II-2/10.6.4.2-5.
- Manual containing operating and maintenance instructions..

Installation testing:

- Pressure testing of water pipe system to at least 1,5 times maximum working pressure;
- Other tests according to makers manual.

Testing according to maker's manual.

Periodical testing:

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

Type Approval documentation

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

Test Report No. PEO10025A dated 20 july 2017 from "DBI" Danish Institute of fire and Security Technology.

Design Manual XFDF2017 Version 0 Rev.D from manufacturer.

Owners Manual XFDF2017 Version 0 from manufacturer.

Drawings No. 30037644 and 30037641 dated 29 September 2017, 56-09-610 dated 10 March 2017 all from manufacturer.

Tests carried out

Tested according to ISO 15371:2015 (supersedes ISO 15371:2009).

Marking of product

The nozzles are to be marked with type designation whereas the pump and pressure units are also to be marked with name of manufacturer.

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.