

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Fire-extinguishing system for protection of galley extract ducts**

with type designation(s)

Novenco XFlow Watermist

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 ducts.**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

"Novenco XFlow Watermist"

is an automatic/manual water mist system for protection of galley extract ducts. The system is composed of nozzles, stainless steel piping, section valves and electric pump(s). Operation is manual. The system may be used to protect other ducts, such as laundry extract ducts.

The galley exhaust duct fire extinguishing system shall be designed according to ISO 15371, Ch.4 with components satisfying ISO 15371, Ch.3. Only the nozzles are type approved by this certificate. Pumps, pipes, valves, couplings and other systems components are subject to case by case approval.

The nozzle is manufactured by Novenco fire Fighting A/S, Odense SØ, Denmark.

Application/Limitation

Approved for use as a fixed fire extinguishing system for exhaust ducts with perimeter of duct not exceeding 2.1 m from galley ranges.

The system shall cover the duct between the lower damper and the closing appliance on open deck (SOLAS Ch. II-2, Reg. 9.7.5).

Spray heads in ducts	
Maximum horizontal spacing ^{1,2} :	2 m ³) (between first and second nozzle) 6.0 m (one nozzle every 6 m on straight duct)
Maximum duct dimensions ⁴ :	700 x 350 mm (W x H) (2.1 m perimeter) 650 mm round duct
Minimum pressure at spray head:	5.8 bar
Nozzle type:	NF-ED6
Notes: 1) The spray heads are to be installed perpendicular to the duct wall. 2) The maximum spacing is 6 m and covers only the area downstream of it to the next closing appliances/damper. 3) The first nozzle shall be located in 90° bend/plenum. 4) Larger ducts can be assessed case by case (reduced spacing).	

Nozzle information

Nozzle type	k-factor ($Q = k \times p^{1/2}$)	Rated flow	Drawing no.
NF-ED6	4.9 lpm/bar ^{1/2}	11.8 lpm at 5.8 bar	30036760
Nozzles are to be made of brass (EN CW511L). Maximum operating pressure is 16 bar.			

If automatic release of the extinguishing media is provided, the closing appliances in above defined duct should be closed before the system is activated.

The system may also incorporate protection of other areas (galley hoods, deep fat fryers, laundry extract ducts, etc.).

For all systems:

1. 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.
2. 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 shall be regarded as class III.
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:

- System arrangement plans including location of nozzles, section valves, release stations and pressure equipment.

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- Specification of pipes, cylinders, valves and associated components.
- Pressure drop calculations and water capacity calculations
- Manual with operating, test and maintenance instructions

Installation testing:

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

Each system is to be supplied with a manual for installation, operation and maintenance according to ISO 15371:2015, Chapter 6.

Type Approval documentation

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

Fire Test Report No. PE010025B dated 20 July 2017 from "DBI" Danish Institute of Fire and Security Technology.

Design Manual XFDUCT & CANOPY2017 Version 0 Rev.E from manufacturer.

Owners Manual XFDUCT & CANOPY2017 Version 0 from manufacturer.

Drawings No. 30037660 and 30037673 both dated 26 September 2017, 30037683 dated 27 September 2017, 56-00-615 dated 6 May 2017,

Data Sheet No. 56-09-615 dated 6 October 2017 from manufacturer.

Tests carried out

Fire 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.