

TYPE APPROVAL CERTIFICATE

Certificate no.:
TAF000015Z
Revision No:
1

This is to certify:

that the **Fixed Water Based Local Application System**

with type designation(s)

K7 - Kattegat low pressure water mist nozzles

issued to

Vid Fire-Kill ApS

Svendborg, Syddanmark, Denmark

is found to comply with

DNV rules for classification – Ships

DNV offshore standards

DNV statutory interpretations DNV-SI-0364 – SOLAS interpretations, Edition July 2021

Application:

Approved for use as a fixed water based local application system for machinery spaces of category A.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2023-11-26**

for **DNV**

This Certificate is valid until **2028-11-25**.

DNV local unit: **Fredericia Fleet In Service**

Approval Engineer: **Tessa Biever**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

"K7-Kattegat low pressure water mist system", is a local application water mist system for machinery spaces of category A consisting of open low-pressure water mist nozzles, stainless steel piping, electrically operated control valves, filters, strainers, control systems and electrically driven pumps.

The system is to be designed according to principal requirements for the system, IMO MSC.1/Circ.1387 and SOLAS Ch.II-2, Reg.10.5.6.

Only the nozzles are type approved by this certificate. Pumps, pipes, couplings, valves and other systems components are subject to case-by-case approval.

The nozzles are manufactured by Vid Fire-Kill ApS, Denmark.

Application/Limitation

The nozzles are to be installed above the protected objects according to the following specifications:

Nozzle	K7	K7
Maximum horizontal spacing:	3.0 m x 3.0 m	3.0 m x 3.0 m
Vertical distance from object:	1.0 m – 3.75 m	0.75 m – 9.25 m
Minimum operation pressure:	2 bar (at nozzles)	6 bar (at nozzles)
Flow rate:	9.9 lpm (at 2 bar)	17.1 lpm (at 6 bar)
k-factor (using $Q = k \times p^{1/2}$):	7.0 lpm/bar ^{1/2}	7.0 lpm/bar ^{1/2}
Drawing:	180824-4959, Rev.B	180824-4959, Rev.B
Nozzles are to cover the area out to the periphery of the protected object (see IMO MSC.1/Circ.1387, annex 3.4.2.2).		
The nozzles are to be installed in a pendant (downward) position.		
Single nozzle or single rows are accepted when half spacing is used.		

For all systems

- Nozzles are to be made of stainless steel or nickel coated brass. The maximum operating pressure is 16 bar.
- Turbo machinery should also be covered by the system but with gentle application of water. Essential electrical equipment and air intakes should preferably not be directly exposed to the water discharge. Electrical equipment as per Class Rules shall be applied for new buildings.
- The pumps (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).
- Only stainless-steel piping or equivalent corrosion resistant pipes are to be applied (to avoid clogging of nozzles). System filter shall be provided for each pump unit. Primary water supply shall be a fresh water of potable quality.
- Pipes, couplings and other components are regarded as "Class I" piping.
- The pump unit and section valves shall be installed in a room having ambient temperature between 4 °C and 45 °C.

The following documents are to be approved and filed by the Flag Administration:

- System arrangement plans including location of nozzles, sections valves, release stations and pump-unit (including water supply specifications).
- Documentation of power supply and control system.
- Specification of pipes, electrical motor, valves, pumps and associated components.
- Pressure drop calculations and water capacity calculations.
- Arrangement of interface to fire detection and alarm system (where applicable).
- Design, installation, operation and maintenance manual.

Other documents:

- Documentation for other components (according to DIN 3.1B and DIN 2.2, or equivalent), including qualification of welders and approval of welding procedures (if applicable) is to be submitted to the Flag Administration/Recognized organization in question.

Installation testing:

- At least one section should be tested with full flow through the nozzles.
- Test of manual and remote release of all section valves and start of pumps.
- Testing of alarms (SOLAS Ch. II-2, Reg.10.5.6.4).
- Cleaning according to Sem-Safe installation procedure.
- Pressure testing of water pipe system to at least 1.5 times maximum working pressure.
- Testing of automatic start of system (in case of unattended machinery spaces).

- Other tests according to maker's manual and any required by the authority having jurisdiction.

Periodical testing:

- Periodical testing shall comply with instructions from flag administration, statutory interpretations and maker's maintenance manual.
- At least one section should each year be tested with full flow through the nozzles.

Type Approval documentation

Certification in accordance with Class Programme DNV-CP-0338, September 2021.

Design, Installation, Operation and maintenance (DIOM) manual, 181019-01-03-K7 DIOM 1387 LP Rev.3 dated 17 October 2021 from maker.

Fire Test Report:

No. 180808-218 dated 2018-11-21 from DFL, Svendborg, Denmark.

Component Test Reports:

No. 110415-5 dated 2015-04-15 from DFL, Svendborg, Denmark

No. 150918-161 D dated 2015-12-02 from DFL, Svendborg, Denmark

Drawing, nozzle:

No. 180824-4959 Rev.B dated 2018-12-11 from maker.

Tests carried out

Fire performance testes according to IMO MSC.1/Circ. 1387.

Component tests in accordance with IMO Res. A.800(19) as amended by IMO Res. MSC.265(84) (as required by IMO MSC.1/Circ.1387).

Marking of product

The spray head is to be marked with type designation whereas pump / control unit is to be marked with name of manufacturer and type designation.

Periodical assessment

DNV'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 DNV-CP-0338, Section 4.