

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Equivalent Sprinkler System**with type designation(s)
Poseidon OH-Nozzles

Issued to

Vid Fire-Kill ApS
Svendborg, Denmark

is found to comply with

DNV GL rules for classification – Ships**DNV GL statutory interpretations DNVGL-SI-0364 – SOLAS interpretations****DNV GL offshore standards****Application :****Approved for use as an automatic water sprinkler system for accommodation areas, public spaces and store rooms.****Product approved by this certificate is accepted for installation on all vessels classed by DNV GL.**This Certificate is valid until **2021-08-10**.Issued at **Høvik** on **2016-08-11**DNV GL local station: **Fredericia**Approval Engineer: **Tomasz Werchowicz**for **DNV GL**

Petter Langnes
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

"Poseidon OH-Nozzles"

is an automatic, fast response, low-pressure sprinkler system of wet pipe type. The system composed of sprinkler heads, stainless steel piping, sections valves, pump units (redundant) filter unit and alarm panel.

Only the sprinkler heads are type approved by this certificate. Pipes, couplings, valves and other systems components are subject to case by case approval. The system is to be designed in accordance with the "Principal Requirements for the System" in IMO Res. A.800(19) as amended by IMO Res. MSC.265(84).

The spray heads are manufactured by VID Fire-Kill ApS, Svendborg, Denmark.

Application/Limitation

Installation should be in accordance with the below:

Application	Sprinkler type	Spacing [m]	Distance to wall [m]
Public space (h < 2.5 m)	OH-L1	4.0	2.0
Public space (h < 5 m) ¹⁾	OH-L2	4.0	2.0
Cabins	OH-SWC	Centered in front wall	0.12
Corridors ²⁾	OH- CO	3.0	0.75
Storage areas	OH-PX1	4.0	2.0

Notes:

- 1) Ceiling height of more than 5 meter is subject to case by case approval.
- 2) Maximum width of corridor should not exceed 1.5 m.

Sprinkler head	k-factor [lpm/bar ^{1/2}]	Pressure [bar]	Min. flow [lpm]	Dwg. no.
OH-L1	13.5	6.0	33.1	91104-737B rev. C, 71016-459D rev. D, 71114-468B rev. B, 80115-494, 80220-524A rev. A,
OH-L2	14.5	6.0	35.5	81201-624B rev. B, 71114-468B rev. B, 80115-494, 80125-518F rev. E-F, 71212-488C rev. C
OH-SWC	23.0	6.0	56.3	100519-830, 100519-828A rev. A, 100519-829A rev. A, 100519-827A rev. A, 100519-826D rev. D
OH- CO	15.5	6.0	38.0	110420-857B, rev. B, 71112-466C rev. C, 71121-471A rev. A, 71112-467d rev. D, 71114-468C, rev. C
OH-PX1	23.0	9.0	69.0	80930-596D, 101116-852A rev. A, 80717-570A rev. A, 81021-607A rev. A

All sprinkler heads are made of brass.
Maximum system working pressure is 16 bar.

For all applications:

- A. All sprinklers are to be installed in the ceiling in a pendant (downward) position, except model OH-SWC which have to be located centered in front wall.
- B. All sprinkler heads are fitted with Job F2, with nominal release temperature of 57°C (orange), 68°C (red), 79°C (yellow), 93°C (green). Bulbs with higher temperature ratings, but not more than 30°C over ambient temperature, are subject to approval in each case.
- C. Redundant pump arrangement is subject to approval in each case.

- D. 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.
- E. The pump unit and section valves shall be installed in a room having ambient temperature between +4 °C and +45 °C.
- F. 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.
- G. Pipes, couplings and other components are regarded as "Class III" piping.

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

- System arrangement plans including location of sprinklers, pipes, sections valves, control system and pump-unit.
- Specification of pipes, valves, electrical motor, pumps, pressurised tank(s) and associated components (including water supply specifications).
- Pressure drop calculations and water capacity calculations.
- Arrangement of power supply and control system.
- Manual containing installation, operation and maintenance instructions.

Installation

- System to be cleaned in accordance with the specification of maker's design, installation, operation and maintenance manual
- Only water complying with maker's specification shall be used in the system. This includes testing and flushing operations

Installation testing:

- Water to be sampled from the sprinkler tank, the pump unit and from a representative number of sections and tested for the relevant contaminations identified by maker's specification
- Not less than 10 sprinkler heads from at least 5 different sections shall be tested. Further testing will be required in case of failures
- Testing of automatic start and stop of pumps, automatic change over from main to emergency electric supply and other tests as required by DNV GL Rules (pressure testing of piping, etc.) and according to maker's manual to be carried out

Periodical testing:

- The testing shall comply with instructions from flag administration, DNV GL Statutory Interpretations and maker's maintenance manual
- Water to be sampled annually from sprinkler tank, pump unit and from a representative number of sections and tested for the relevant contaminations identified by maker's specification
- Not less than 5 sprinkler heads shall be tested annually. Further testing will be required in case of failure(s)

Type Approval documentation

Certification in accordance with Class Programme DNVGL-CP-0338, October 2015.

Fire Performance Test Reports:

- No. 111014-58 dated 15 December 2009
- No. 111014-57 dated 15 April 2010
- No. 110110-48 dated 13 August 2010,

all from Danish Fire Laboratories (DFL) ApS.

Component Testing:

- No. 110415-5, dated 15 April 2011 from Danish Fire Laboratories (DFL) ApS.

Job Id: **262.1-023357-1**
Certificate No: **TAF00000D2**

Drawings from manufacturer:

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|----------------------|------------------------|-----------------------|
| - 91104-737B rev. C, | - 80125-518F rev. E-F, | - 71112-466C rev. C, |
| - 71016-459D rev. D, | - 71212-488C rev. C, | - 71121-471A rev. A, |
| - 71114-468B rev. B, | - 100519-830, | - 71112-467d rev. D, |
| - 80115-494, | - 100519-828A rev. A, | - 71114-468C, rev. C, |
| - 80220-524A rev. A, | - 100519-829A rev. A, | - 80930-596D, |
| - 81201-624B rev. B, | - 100519-827A rev.A, | - 101116-852A rev. A, |
| - 71114-468B rev. B, | - 100519-826D rev. D, | - 80717-570A rev. A, |
| - 80115-494, | - 110420-857B, rev. B, | - 81021-607A rev. A. |

Installation and system design manual from Vid Fire-Kill ApS.

Tests carried out

Tested according to IMO Res. A.800 (19) as amended by MSC Resolution 265(84).

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 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.