

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Fixed Water Based Local Application System

with type designation(s)
Skagerrak - K6 Nozzle

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

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

"Skagerrak - K6 Nozzle"

is a fresh water spray system, composed of spray heads, stainless steel piping, manual or automatic section valves, test valves, control panel and water supply pump(s). The system is to be designed according to principal requirements for the system, SOLAS Ch. II-2, Reg.10.5.6 and IMO MSC/Circ.1387.

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

The K6 spray heads are manufactured by VID Fire-Kill ApS, Svendborg, Denmark.

Application/Limitation

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

For heights between 1.75 and 12.0 m	
Maximum horizontal spacing:	1.5 m
Approved height above protected object	0.75 - 11.0 m
Minimum pressure at spray head:	12.5 bar (at spray heads)
Spray head type:	K6
Spray heads are to be installed out to a position being minimum 0.375 mm outside at the periphery of the protected object (see IMO MSC/Circ.1387, annex 3.4.2.1).	
The spray heads are to be installed in a pendant (downward) position.	
Single spray heads or single rows are accepted when half spacing is used.	

Spray head information

Spray head	k-factor ($Q = k \times p^{1/2}$)	Flow	Drawings
K6	5.6 lpm/bar ^{1/2}	19.8 lpm (at 12.5 bar)	100714-836, appendix E
Spray heads are to be made of naval brass, NiSn coating and stainless steel AISI316.			
Maximum operating pressure is 16 bar.			

For all applications:

- 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.
- Turbo machinery equipment, air intakes and preferably also essential electrical equipment shall not be directly exposed to the water discharge. Electrical equipment as per DNV GL Rules (Pt.4 Ch.8 Sec.10, Table 1) shall be applied for newbuildings
- The pump unit and section valves shall be installed in a room having ambient temperature between +4 °C and +45 °C.
- 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.

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

- System arrangement plans including location of nozzles, sections, release stations and pump-unit, water supply, including any heating facilities for pumpunit room
- Documentation of power supply and control system
- Specification of pipes, electrical motor, valves, pumps and associated components
- Pressure drop calculations and water mist capacity calculations
- Arrangement of interface to fire detection and alarm system (if applicable)
- Manual with design, installation, operation, test and maintenance instructions

Installation testing:

- At least one section should be tested with full flow through the spray heads
- 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)
- Testing of automatic start of system (in case of unattended machinery spaces)
- Pressure testing of water pipe system to at least 1.5 times maximum working pressure

Job Id: **262.1-013710-3**
Certificate No: **TAF00000D6**

- System to be cleaned in accordance with routines outlined in makers installation manual
- Testing of automatic release of system (in case of unattended machinery spaces)
- 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 type approval manual

Type Approval documentation

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

Fire Test Report No. 100623-43, dated 15 September 2010 from Danish Fire Laboratories.

Component Test Report No. 110414-2, dated 24 August 2011 from Danish Fire Laboratories.

Design, Instalation and Maintance Manual No. 120716-01-01 from VID Fire-Kill ApS.

Tests carried out

The system is tested according to IMO MSC/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 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.