Lloyd's Register

CERTIFICATE OF FIRE APPROVAL

This is to certify that

The product detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations and with the International Convention for the Safety of Life at Sea, (SOLAS), 1974, as amended, for use on ships and offshore installations classed with Lloyd's Register, and for use on ships and offshore installations when authorised by contracting governments to issue the relevant certificates, licences, permits etc.

Manufacturer	VID Fire-Kill ApS
Address	Svalbardvej 13 DK-5700 Svendborg Denmark
Type	**FIXED LOCAL APPLICATION FIRE-FIGHTING SYSTEM**
Description	Fixed Local Application Fire Extinguishing System – Type: "**Skagerrak**" Nozzles
Specified Standard	IMO MSC.1/Circ. 1387 superseding MSC/Circ. 913 (and superseding MSC.1/Circ.1276)

The attached Design Appraisal Document forms part of this certificate.
This certificate remains valid unless cancelled or revoked, provided the conditions in the attached Design Appraisal Document are complied with and the equipment remains satisfactory in service.

Date of issue	7 June 2017	Expiry date	10 October 2021
Certificate No.	SAS F170002/M1	Signed	
Sheet No	1 of 4	Name	S. Abraham Surveyor to Lloyd's Register EMEA A Member of the Lloyd's Register Group

Note:

This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Lloyd's Register of any modification or changes to the equipment in order to obtain a valid Certificate.

Lloyd's Register EMEA
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Document number
SAS F170002/M1

Issue number
1

DESIGN APPRAISAL DOCUMENT

Date	Quote this reference on all future communications
7 June 2017	SOUTSO/SFS/TA/FF/SA/WP26693236

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. SAS F170002/M1

This Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

DFL (Danish Fire Laboratories/Svendborg Denmark) Test Reports: 100623-43, dated 15 September 2010 and 110414-2, dated 24 August 2011.

CONDITIONS OF CERTIFICATION

1. The system has been designed in accordance with IMO MSC/Circ. 1387, Annex, "Principle Requirements for the System"
2. For use in Machinery Spaces of Category A for the protection of local hazards. The capacity and arrangement of the spray nozzles is to be denoted in the following;
   - Table 2-1 for Passenger Ships, Cargo Ships, Yachts, High Speed Craft and Tankers **OR;**
   - When the system is provided onboard LR Classed Inland Waterways Passenger ships, the capacity and arrangement of the nozzles shall be specially considered in the design stages in all cases
3. Arrangement drawings and calculations are to be submitted for acceptance in each case where it is proposed to install this system. Control panel schematics are also to be submitted for acceptance in each case where it is proposed to be identified with their location in relation to the protected space(s) indicated
4. Production items are to be manufactured in accordance with a quality control system which shall be maintained to ensure that items are of the same standard as the approved prototype
5. See GENERAL NOTES

Table 2-1 Recommended Nozzle Arrangements for Passenger Ships, Cargo Ships, Yachts, High Speed Craft and Tankers

Nozzle Designation	Location	Max. Distance from Hazard	Min. Distance from Hazard	Spacing	Lateral Distance from Hazard (1)	Minimum Water Pressure
		M	M	M	M	Bar
Skagerrak	Ceiling	11.0	0.75	1.5 x 1.5	0.375	12.5

(1) The outer nozzles of grid must be located at least a quarter of the maximum nozzle spacing outside of the protected area.

GENERAL NOTES

1. The type approval is restricted to the arrangement and approval of the nozzles only, approval of ancillary components is to be carried out at the design stage

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2. For installations which may be protected using individual nozzles or a single row of nozzles, the protected area (width and length) is to be in accordance with MSC.1/Circ.1387 for a 3 x 3 nozzle grid (3.4.2.1 & Figures 3.4.2.5 & 3.4.2.6)
3. The minimum CONSTANT nozzle pressure being 12.5 bar.
4. The as tested nozzle is made in NiSn plated naval brass. Each individual water spray nozzle shall be fitted with a mesh strainer (mesh size No. 16, 1200µm). The nozzle characteristics are delineated in Table 4-1:

Table 4-1 - Nozzle Characteristics

Nozzle designation	K-factor l/min*bar ½	Flow at 12.5 bar l/min
Skagerrak	**5.6**	**19.80**

5. Piping and water tank material shall be made of stainless steel having minimum grade of AISI 304L
6. To ensure that the system is capable of 20 minutes operation, in all installations the system is to incorporate a sea water inlet via remotely operated valve, allowing for either an automatic or a manual change-over connection to sea water supply upon loss of fresh water unless alternative arrangements are agreed at the design stage by the plan approval authority. These connections are to be located in the same compartment as the pump unit and in a readily accessible position
7. The system main pump unit, water tank and sea connection shall not be situated in any area required to be protected by the system
8. The pump unit shall have on the pressure side a mess strainer (mesh size No. 50, 300µm)
9. Activation of any water distribution valve (e.g. section valve) should give a visual and audible alarm in the engine control room and the navigating bridge or continuously manned central control station. Audible alarms may use a single tone
10. The number of spare watermist nozzles and parts for the system being provided are to be indicated in the manufacturer's design, installation, operation and maintenance manual
11. The use of subject system in conjunction with or as part of a water based main fire extinguishing system (MSC/Circ. 1165, as amended by MSC/1269) is acceptable and will be specially considered at the design stage provided the local protection system is capable of being isolated from the main system
12. Appropriate operational measures or interlocks should be provided if the engine room is fitted with a fixed high expansion foam or aerosol fire-fighting system, to prevent the local application system from interfering with the effectiveness of these systems
13. Construction details and constituent component of the system as well as calculations are to be submitted for acceptance in each case where it is proposed to install this system. Control panel schematics and if applicable also details of any PLC (Programmable Logic Controller) are to be submitted. All principle components of the system are to be identified with their location in relation to the protected space(s) indicated. The control system is to be surveyed at the manufacturer's works prior to installation on board

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14. The electrical components of the pressure source for the system should have a minimum rating of IPX4 if located in the protected space. Where, X means the characteristic numeral used to mark the degree of protection against access to hazardous parts and ingress of solid foreign objects, which could be 1 to 6
15. Any fire detection and alarm system installed in conjunction with this system is outside of the scope of this Fire Approval Certificate and must be separately approved by Lloyd's Register.
16. Nozzles are to be installed in the vertically downwards position
17. Valves and other piping system components having working pressures exceeding 7 bar, and all pumps and any independent power units are to constructed under survey. Additionally, the system pipe work including; flexible hoses and pipes are to be LR approved, in accordance with Lloyd's Register Rules, Part 5
18. In the case of Periodically Unattended machinery Spaces, the local application fire fighting system shall have both automatic and manual release capabilities in accordance with revised SOLAS 74 Chapter II-2 Regulation 10.5.6.2. The automatic activation arrangements are in each case to be approved by Lloyd's Register at the design stage
19. On completion of the installation final acceptance of the system is dependent on satisfactory survey and testing in accordance with the manufacturer's Design, Installation, Operation and Maintenance Instructions which being submitted in each case where the system is intended being installed

PLACE OF PRODUCTION

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Southampton Technical Support Office, Marine & Offshore
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Supplementary Type Approval Terms and Conditions

This certificate and Design Appraisal Document relates to type approval, it certifies that the prototype(s) of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein, it does not mean or imply approval for any other use, nor approval of any products designed or manufactured otherwise than in strict conformity with the said prototype(s).