

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of Norway.

This is to certify:

That the Fixed water based local application fire fighting systems components for use in category "A" machinery spaces

with type designation(s)
FOGEX

Issued to

Phirex Australia
Wangara, WA, Australia

is found to comply with the requirements in the following Regulations/Standards:

Regulation **(EU) 2017/306,**

item No. MED/3.48 and Annex B, Module B in Directive. SOLAS 74 as amended Regulation II-2/10 & X/3 and 2000 HSC Code 7

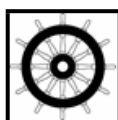
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2023-05-01**.

Issued at **Høvik** on **2018-05-02**

DNV GL local station:
Perth

Approval Engineer:
Synnøve Bolstad Eri



Notified Body
No.: **0575**

for **DNV GL AS**

Roald Vårheim
Head of Notified Body



The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.

This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.

Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.



Product description

"Fogex"

is a water mist system, composed of spray heads, stainless steel piping, manual or automatic section valves, strainers, electrical motors and high pressure 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 spray heads are type approved by this certificate. Pumps, pipes, valves, couplings and other systems components are subject to case by case approval.

The spray heads are manufactured by Phirex Australia.

Application/Limitation

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

Spray Head F11	
Maximum horizontal spacing:	4.0 m
Vertical distance from object:	2.0 m – 10.1 m
Minimum operation pressure:	100 bar (at spray heads)
Flow rate:	10 lpm (at 100 bar)
Spray head type:	Phirex F11
k-factor (using $Q = k \times p^{1/2}$):	1.0 lpm/bar ^{1/2}
Drawing:	1101-002, rev. 02, January 2008
Spray heads are to cover the area out to minimum 1.0 m outside the periphery of the protected object (see IMO MSC.1/Circ.1387, annex 3.4.2.2). 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.	

For all systems:

- Spray heads are to be made of aluminium bronze or stainless steel. The maximum operating pressure is 150 bar.
- Only stainless steel piping is to be applied and a system filter (P/N PHF-1 or equivalent) shall be provided for each pump unit (to avoid clogging of spray heads).
- Pipes, couplings and other components are regarded as "Class I" piping.
- 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 DNV GL rules (Pt.4 Ch.8 Sec.10, Table 1) shall be applied for new buildings.
- The pump(s) or the pump unit(s) is to be delivered with a product certificate whereas other system components are to be inspected in accordance with Class rules or equivalent standard as specified by the Flag Administration.
- Ambient room temperature for pump unit should be between +4 °C and +45 °C.

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

- System arrangement plans including location of spray heads, 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.

Job Id: **344.1-001268-7**
Certificate No: **MEDB000043E**

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 of the local application systems shall be full scale tested when all engines are running.
- 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 of system according to maker's 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:

- The 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 spray heads.

Type Examination documentation

Fire Performance Test:

Test Report, VTT report no. RTE1295/02 dated August 2002.

Component Test:

FM Project 3007879, July 2002 and VTT Report no. RTE4147/03 dated November 2003.

Phirex: Technical Design, Installation and Service Manual, November 2002.

Tests carried out

Tested according to IMO MSC/Circ. 913 (fire tests) and relevant parts of IMO Circ.668/728 (component tests).

Marking of product

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