



MARINE DIVISION

Certificate number: 31670/A0 BV

File number: ACI 1800/015/001

Product code: 5562H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

*This certificate is issued to***FirePro Systems Limited**

Limassol - CYPRUS

for the type of product

AEROSOL FIXED FIRE EXTINGUISHING SYSTEMS

FIREPRO Aerosol fire extinguishing system (condensed type) for machinery spaces

Requirements:

BV Rules Part C Ch 4

SOLAS 74, as amended, Ch II.2

IMO MSC/Circ.1007

IMO MSC.1/Circ.1270

This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 19 Nov 2017**For BUREAU VERITAS,**

At BV PORT EVERGLADES CENTRE, on 19 Nov 2012,

Flavio Rosas



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

FIREPRO AEROSOL fire extinguishing system units with dry condensed extinguishing agent

Pyrotechnically generated fire extinguishing aerosol system (condensed type) consists in :

- Generator, type FP-5700 : non-pressurised canisters capped with non-permeable membrane filled with:
 - chemical coolant,
 - solid aerosol generating compound (5.7 kg).

Total weight of the generator 26.4 kg

Dimensions 300 x 300 x 300 mm

- Electrical initiator
- Control panel

Discharge duration = 15-20 seconds

Maximum volume of the protected space (as tested) = 500 m³

As per manufacturer recommendations, other types of similar generators (same design with lower aerosol capacity) may be used.

Types declared by the manufacturer : FP20S / FP40S / FP80S / FP100S / FP200S / FP500S / FP1200 / FP2000 / FP3000.

2. DOCUMENTS AND DRAWINGS :

FirePro Information, Instruction & User Manual, Version 5 (01-10-2011) and complementary Marine Manual Annex 1 Version 2 (14-02-2012).

3. TEST REPORTS :

- Test report n° 2011-Efectis-R1134 dated January 2012 as per IMO MSC.1/Cir.1270 from Efectis Nederland BV.
- USCG R&D Center Final Report dated december 2005 as per IMO MSC/Cir.1007 (with DNV letter MTPN0374/AUB/262-J-49620 dated 2006-06-28 - tests witness).
- Report N° 50151217-KPS/TPE 02-6144 dated 02-09-27 from KEMA, The Netherlands (Health and Environmental Aspects of the FirePro Fire Extinguisher).

4. APPLICATION / LIMITATION :

4.1 - Acceptable for use in **normally unoccupied** machinery spaces with **maximum volume (net) of 500 m³** and **maximum height of 5 m**.

4.2- Quantity of aerosol agent: $W = (V \times q) / f$,

where :

- W = agent mass (g)
- V = volume of enclosure to be protected (net volume in m³)
- q = design density = 120 g/m³
- f = efficiency coefficient of the manufacturer's generator (%) as per below

FP20S (60%) / FP40S (63%) / FP80S (60%) / FP100S (63%) / FP200S (61%) / FP500S (63%) / FP1200 (65%) / FP2000 (61%) / FP3000 (62%) / FP5700 (61%)

4.3 - Installation of the generators in the machinery space:

Maximum height of installation	5 m
Maximum clearance from persons / escape routes	1.8 m
Location	Evenly distributed within the risk area
Projection	Vertical, downwards
Minimum clearance from combustible materials	0.8 m

4.4 - Minimum holding time : 15 min.

4.5 - **Automatic release:** Automatic release is subject to the appraisal of the Society and of the Administration.

4.6 - Clear and legible safety labels shall be placed at the entrance to the protected space, inside the protected space, at the system isolation switch and the manual release point. Also, simple operating instructions are to be placed at the system operating position.

4.7 - Means are to be provided to close all openings, which may admit air into the protected space.

4.8 - A means should be provided to relieve any initial overpressure in the protected space when the aerosol generators are activated, to prevent structural damage to the boundaries of the enclosure.

4.9 - The following documentation is to be submitted in each separate application, prior to installation onboard: System design and operation principles; capacity calculations (calculated at both minimum and maximum expected temperatures, i.e 0 - 55 °C); wiring diagram and cable specifications showing cable layout, alarm circuitry (pre-alarm required for at least 20 s + alarm during discharge) and location of the release station; control system and service manual. Separate review and testing for the control panel may be required on a case-by-case basis.

4.10- The fitting aboard to be the same as used for the test. To be used and maintained in accordance with the manual(s) for installation, use and maintenance.

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - The system is to be manufactured, examined and tested by FirePro Systems Ltd in accordance with the type described in this certificate and Bureau Veritas Rules for the Classification of Steel Ships.

5.2 - Production sites are to be recognized by Bureau Veritas as per NR320 for HBV products. To this end FirePro Systems Ltd has to make the necessary arrangements for a Society's Surveyor to perform visits and product audits at the production sites.

5.3 - FirePro Systems Ltd has declared to Bureau Veritas that the type of product described in this certificate may be manufactured at the following production site:

FirePro Systems Ltd
6 Koumandarias & Spyrou Araouzou Street
Tonia Court N.2, 6th Floor
3036 Limassol
CYPRUS

6. MARKING OF PRODUCT :

The product or packing is to be marked with manufacturer name, type, designation and fire-technical rating.

7. OTHERS :

This approval is given under the understanding that the Manufacturer / Supplier / Authorized Distributor will accept full responsibility for informing shipbuilders or their sub-contractors of the proper methods of fitting and general maintenance of the approved equipment and the conditions of this approval.

*** END OF CERTIFICATE ***