

MARINE DIVISION
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Certificate N°:
12238/AC BV
The attached Schedule forms part of the certificate
File Number : ACI 1800/001/001
Product Code : 5562H

**BUREAU
VERITAS**

CERTIFICATE OF TYPE APPROVAL

This is to certify that the product identified below was found to be in compliance with the relevant hereunder stated Regulations & standards

AEROSOL FIXED FIRE EXTINGUISHING SYSTEM PYROGEN "MAG" AEROSOL FIRE EXTINGUISHING SYSTEM

MANUFACTURED BY:

Pyrogen Ltd.
Bolton - UNITED KINGDOM

SPECIFIED REGULATIONS & STANDARDS :
ISO/DIS 9094-1 & 2

The Approval is valid until : 23/08/2007

BUREAU VERITAS LONDON



At Paris la Défense, on : 23/08/2002

J. BENOIT
For the Secretary

This Certificate remains valid until the date stated on hereunder, unless suspended or revoked, provided the conditions in the attached schedule are complied with and the equipment remains satisfactory in service.
This Certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested.
This Certificate is not valid without the stamp of the above mentioned by BUREAU VERITAS Inspection Centre.
The manufacturer should notify BUREAU VERITAS of any modification or changes to the equipment in order to obtain a valid Certificate.
The latest published Regulations or Standards referred to, above, and the Marine Division (General) Conditions are applicable.



THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

PYROGEN "MAG" AEROSOL FIRE EXTINGUISHING SYSTEM.

Pyrotechnically generated Fire Extinguishing Aerosol System which consists in:

- 1.1- Non-pressurised canisters "MAG" with one or two end-plate delivery nozzle filled with:
 - chemical coolant;
 - Solid aerosol generating composition.
- 1.2- An electrical and thermal ignition device.
- 1.3- A Marine Control Panel SP-1.

After activation of the system, the extinguishing aerosol is a mixture of finely divided solid particles and gaseous matter. Solids form 40% and mainly consist in potassium bicarbonate while gases form 60% and comprise nitrogen gas, carbone dioxide, water vapour, carbon monoxide, nitrogen dioxide and ammonia.

2. DESIGN DRAWINGS and/or SPECIFICATIONS

- 2.1- As per the Manufacturer's drawings.
- 2.2- As per design, operation & maintenance manual n°D2000-0010 rev. 1.6 dated March 9, 2001 issued by Pyrogen Ltd.
- 2.3 - Manual(s) for installation, use and maintenance is(are) to be stamped by the Society and supplied in the language prescribed by the Maritime National Administration to whom the ship is registered.

3. TYPE TEST REPORTS / LABORATORY RECOGNITION STATUS

- 3.1- Test report n°PGUK: 3-12/99 dated December 12, 1999 and Certificate of Inspection and tests n°SUR222(REV4/94) dated February 1, 2001 both issued by the Maritime and Coastguard Agency, UK.
- 3.2- Test report PYROGEN/10 dated November 1995 as per UL1058 issued by Pyrogen Ltd.
- 3.3- Letter dated July 21, 1995 issued the United States Environmental Protection Agency, US.
- 3.4- Letter dated June 20, 2001 issued by the Institute of Naval Medicine, Australia.

4. MATERIALS and/or COMPONENTS REQUIRED TO BE TYPE APPROVED

None.

5. OTHER MATERIALS and/or COMPONENTS

None.

6. APPLICATION / LIMITATION OF USE

- 6.1- This system machinery spaces of small craft with a hull length over 15m.
 6.2- This system is acceptable for use in unoccupied and normally unoccupied areas. The maximum human beings exposure time is 5 min.
 6.3- Minimum holding time equals 3 min.
 6.4- The arrangement of the system, the wiring diagrams, and the service manual are to be submitted for each ship application.
 6.5- Installation :

Maximum protected volume (m ³)	35
Maximum height of the protected volume (m)	2.4
Location	Evenly distributed within the risk area
Projection	Perpendicular to the vertical walls
Minimum clearance from the generator (mm)	MAG-02 : 150 MAG-1 : 300 MAG-2 : 400 MAG-3 : 700 MAG-4 : 1000 MAG-5 : 700 MAG-11 : 1500 MAG-12 : 1600 MAG-13 : 1700 MAG-14 : 1800
Design density (g/m ³)	117

7. PRODUCTION SURVEY REQUIREMENTS

As per H₉₅ products.

8. ON BOARD INSTALLATION & MAINTENANCE REQUIREMENTS

- 8.1- To be used and maintained in accordance with the manual(s) for installation, use and maintenance (cf para 2.3. above)
 8.2- The Manufacturer's instruction manual should be kept on board.
 8.3- The fitting aboard to be the same as used for the test.

9. MARKING FOR IDENTIFICATION

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

10. OTHERS

10.1- This approval is given under the understanding that the Manufacturer / 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.

10.2- Manufacturing works: Federal Center for Dual Technologies "SOYUZ"
 6, Sovetskaya Street
 DZERZHINSKY (MOSCOW Region)
 RUSSIA, 140056

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