Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested in accordance with the relevant requirements of the GL Type Approval System.

Certificate No. 21 034 - 04 HH
Company Fire Eater A/S
Valundsvej 17
3400 Hillerød, DENMARK

Product Description Fixed gas fire extinguishing system acc. to FSS Code Chapter 5, para 2.5 (equivalent to systems required by SOLAS 2009 II-2/10.5 and II-2/10.9)

Type INERGEN Fire Extinguishing System

Environmental Category None

Technical Data / Range of Application Extinguishing gas:

INERGEN: inert gas composition consisting of 52 % nitrogen, 40 % argon and 8 % carbon dioxide, all average values

Further technical data: see page 2

Equivalent fixed gas fire extinguishing system for protection of machinery spaces, cargo pump rooms and similar hazards.

The system may be installed as centralized system with cylinders in a separate storage room or as modular system with cylinders located inside the protected space.

Test Standard MSC/Circ.348, as amended by MSC.1/Circ.1267

Documents
- Approval documents reviewed with our ref.-no. 12-050136
- Fire Eater system approval manual edition June 2002, reviewed with our ref.-no. 04-063717
- DIFT fire test report, file no. E-98097-01

Remarks None

Valid until 2017-07-01

Page 1 of 3
File No. II.H.01
Hamburg, 2012-06-07

Germanischer Lloyd

This certificate is issued on the basis of "Guidelines for the Performance of Type Approvals Part 1, Procedure".

Hanspeter Raschle
Michael Kampf
Type Approval Certificate

This is to certify that the undersigned product(s) has/have been tested in accordance with the relevant requirements of the GL Type Approval System.

Certificate No. 21 034 - 04 HH

TECHNICAL DATA:

Main components:

GL approved gas cylinders with associated cylinder valves, control panel, release cabinet, audible / visual alarms, time delay unit, piping and discharge nozzles (nozzles of type 2101xx). The nozzles are made of brass or stainless steel. Components in compliance with EN 12094 may be used on condition that specific requirements of our Rules, if any, are observed.

Basic design parameters:

- Min. design concentration of Inergen (applied on the net volume of the protected space): 46.2 %
- Specific mass of Inergen (at 20 °C): 0.871 kg/cbm
- Max. design concentration of Inergen (net volume; max. expected ambient temperature): 52.0 %
- Min. extinguishing concentration (after any single failure; bottles within the protected space): 35.6 %
- Max. agent discharge time: 120 sec for 85 % of the design concentration

Nozzle arrangement details:

- Max. coverage height (for a grid of nozzles): 5 m
- 360° nozzles: max. spacing 8.0 m
- 180° nozzles: max. coverage area 5.0 m x 5.0 m

Valid until 2017-07-01

Page 2 of 3

File No. II.H.01

Hamburg, 2012-06-07

Germanischer Lloyd

Hanspeter Rasiche
Michael Kämpf

This certificate is issued on the basis of "Guidelines for the Performance of Type Approvals Part 1, Procedure".
Type Approval Certificate

This is to certify that the undersigned product(s) has/have been tested in accordance with the relevant requirements of the GL Type Approval System.

Certificate No. 21 034 - 04 HH

CONDITIONS:

1. Installation of the system on board vessels is subject to acceptance / approval by the competent flag state Administration.

2. Installation to be in accordance with the principal requirements of IMO MSC/Circ.848, as amended by MSC.1/Circ.1267, and the type approval documentation. Besides, the GL Rules are to be observed.

3. Prior to fitting on board, the following details are to be submitted to GL Head Office for approval for each installation:
   - operational diagram of the system,
   - capacity and hydraulic calculations,
   - release arrangements and nozzle arrangement drawings.

4. Prior to commissioning, each installation is subject to inspection and testing in presence of a Surveyor to Germanischer Lloyd in acc. with the manufacturers’ specification.

PERIODICAL PRODUCTION AUDITS:

Germanischer Lloyd is to be given the permission to perform periodical production audits at any time during the validity of this certificate.

Valid until 2017-07-01

Page 3 of 3

Hamburg, 2012-06-07

Germanischer Lloyd

Hanspeter Raschle

Michael Kämpf

This certificate is issued on the basis of "Guidelines for the Performance of Type Approvals Part 1, Procedure".
Renewal of Type Approval Certificate for your INERGEN Fire Extinguishing System
Our Order No. 9060 12 17691 199
Our Quotation No. CL-T-MC-12-0106

Dear Mr. Kroneder,

On the basis of your order, please find attached your new type approval certificate no. 21034 - 04 HH for your subject system.

The invoice of our fees under subject accounting number will be sent to you by separate mail.

Thank you for your order.

Yours faithfully,

Germanischer Lloyd

i.V. Hans Peter Raschle

Michael Kämpf

Enclosure