

Certificate

EC TYPE-EXAMINATION (MODULE B) CERTIFICATE No. BSI/A.1/3.46/560436

This is to certify that BSI did undertake the relevant type approval procedures for the equipment identified below which was found to be in compliance with the Fire protection requirements of Marine Equipment Directive (MED) 96/98/EC, as amended, last amended by Directive 2009/26/EC, subject to any conditions in the schedule attached hereto.

Applicant Address	FirePro Systems Limited 6 Koumandarias & Spyrou Araouzou Street Tonia Court No2, 6 th Floor Limassol 3036 Cyprus
Manufacturer Address	FirePro Systems Limited Ayios Athansios 4 Falea Street Limassol District Cyprus
Annex A1 Item	A.1/3.46 - Equivalent fixed gas fire extinguishing systems for machinery spaces (aerosol systems)
Product Type	Aerosol Fire Extinguishing System Units with dry condensed extinguishing agent, Fire Class A & B
Product Description	FP20S, FP40S, FP80S, FP100S, FP200S, FP500S, FP1200, FP2000, FP3000 & FP5700.
Specified Standard	IMO MSC/Circ.1007, MSC/Circ 1270

The attached schedule of approval forms part of this certificate.

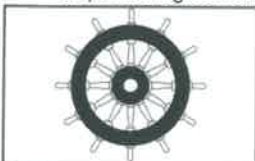
First Issued: 20 August 2010 For and on behalf of the BSI, a Notified Body for the above Directive
Date of issue: 23 March 2012 Notified Body Number 0086.
Expiry date: 19 August 2015



Gary Fenton, Global Assurance Director

Notes:

- (i): This BSI/A.1/3.46/560436 issue 2 certificate will not be valid if the manufacturer makes any changes or modifications to the approved equipment, which have not been notified to, and agreed with the notified body named on this certificate.
- (ii): 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.
- (iii): "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-control phase module (D) of ANNEX B of the Directive is fully complied with and controlled by a written inspection agreement with a notified body."
- iv) "Wheelmark" Format yy Last two digits of year mark affixed.
0086 Notified Body number undertaking surveillance module



0086/yy

Sheet 1 of 9

raising standards worldwide™



Certificate

Certificate No. BSI/A.1/3.46/560436

Date: 23 March 2012

SCHEDULE OF APPROVAL

Product Specification

- FP20S : Aerosol generating fire extinguishing system unit with 20g dry condensed extinguishing agent, thermal activation by thermocord at 172 °C, Fire Class A & B
- FP40S : Aerosol generating fire extinguishing system unit with 40g dry condensed extinguishing agent, thermal activation by thermocord at 172 °C, electrical (6 - 36 V D/C 0.8 A in 3 - 4 sec), heating element with 2.3 ohm resistance , Fire Class A & B
- FP80S : Aerosol generating fire extinguishing system unit with 80g dry condensed extinguishing agent, thermal activation by thermocord at 172 °C, electrical (6 - 36 V D/C 0.8 A in 3 - 4 sec), heating element with 2.3 ohm resistance , Fire Class A & B
- FP100S : Aerosol generating fire extinguishing system unit with 100g dry condensed extinguishing agent, thermal activation by thermocord at 172 °C, electrical (6 - 36 V D/C 0.8 A in 3 - 4 sec), heating element with 2.3 ohm resistance , Fire Class A & B
- FP200S : :Aerosol generating fire extinguishing system unit with 200g dry condensed extinguishing agent, thermal activation by thermocord at 172 °C, electrical (6 - 36 V D/C 0.8 A in 3 - 4 sec), heating element with 2.3 ohm resistance , Fire Class A & B
- FP500S : :Aerosol generating fire extinguishing system unit with 500g dry condensed extinguishing agent, thermal activation by thermocord at 172 °C, electrical (6 - 36 V D/C 0.8 A in 3 - 4 sec), heating element with 2.3 ohm resistance , Fire Class A & B
- FP1200 : :Aerosol generating fire extinguishing system unit with 1200g dry condensed extinguishing agent, thermal activation by thermocord at 172 °C, electrical (6 - 36 V D/C 0.8 A in 3 - 4 sec), heating element with 2.3 ohm resistance , Fire Class A & B
- FP2000 : :Aerosol generating fire extinguishing system unit with 2000g dry condensed extinguishing agent, thermal activation by thermocord at 172 °C, electrical (6 - 36 V D/C 0.8 A in 3 - 4 sec), heating element with 2.3 ohm resistance , Fire Class A & B
- FP3000 : :Aerosol generating fire extinguishing system unit with 3000g dry condensed extinguishing agent, thermal activation by thermocord at 172 °C, electrical (6 - 36 V D/C 0.8 A in 3 - 4 sec), heating element with 2.3 ohm resistance , Fire Class A & B
- FP5700 : :Aerosol generating fire extinguishing system unit with 5700g dry condensed extinguishing agent, thermal activation by thermocord at 172 °C, electrical (6 - 36 V D/C 0.8 A in 3 - 4 sec), heating element with 2.3 ohm resistance , Fire Class A & B

Certificate

Certificate No. BSI/A.1/3.46/560436

Date: 23 March 2012

SCHEDULE OF APPROVAL

Approval Documentation that forms part of this certification:

Drawing No.	Rev./ Issue No.	Date	Title
C20ASS	0	17/01/2009	FP20S – General Assembly Drawing
C40ASS	0	16/01/2008	FP40S – General Assembly Drawing
C80ASS	0	16/01/2008	FP80S – General Assembly Drawing
C1AS	2	29/05/2009	FP100S – General Assembly Drawings
C2AS	2	25/05/2009	FP200S – General Assembly Drawings
C5AS	2	16/02/2009	FP500S – General Assembly Drawings
B12AS	0	01/01/2008	FP1200 – General Assembly Drawing
B12EH	0	01/01/2008	FP1200 – External Housing Construction Drawing
B12IH	0	01/01/2008	FP1200 – Internal Housing Construction Drawing
B12IAS	0	01/01/2008	FP1200 – Internal Assembly Drawing
B20AS	0	01/01/2008	FP2000 – General Assembly Drawing
B20IAS	0	01/01/2008	FP2000 – Internal Assembly Drawing
B30AS	0	01/01/2008	FP3000 – General Assembly Drawing
B30IAS	0	01/01/2008	FP3000 – Internal Assembly Drawing
B2030EH	1	01/01/2008	FP2000 & FP3000 – External Housing Construction Drawing
B2030IH	0	01/01/2008	FP2000 & FP3000 – Internal Housing Construction Drawing
B122020BRKT	0	01/01/2008	FP1200 – Mounting Bracket
B2030BRKT	0	01/01/2008	FP2000 & FP3000 – Mounting Bracket
B57EH	1	01/10/2008	FP 5700 – External Housing Construction Drawing
B57IH	0	01/01/2008	FP5700 – Internal Housing Construction Drawing
B57IAS	0	01/01/2008	FP5700 – Internal Assembly Drawing
B57BRKT	0	01/01/2008	FP5700 – Mounting Bracket
AELACT	0	01/01/2008	Electrical Activators for all Models where fitted

Certificate

Certificate No. BSI/A.1/3.46/560436

Date: 23 March 2012

SCHEDULE OF APPROVAL

Approval Documentation that forms part of this certification:

Supporting Documentation			
Technical Dossier	0	22/07/2010	SMO Ref 7498123– Electronic copy of the Technical file covering all models listed on page 1
Technical Dossier		Feb 2012	Updated to include minor changes to some drawings, Efectis Witness Test Report and Updated KIWA Certificate
Reports & Certificates	-	-	KIWA Certificate K21477/08 01/04/2010 UL Test Report, Project Ref 05CA05359, File EX6960 USCG Report CG-D-03-06 Russian Maritime Register of Shipping, Type approval Certificate Ref 10.80012.180 dated 11/06/2010 for MCS 1270 Hughes Associates INC Analysis Report dated Nov 2004 & 15/01/2009
	-	06/08/2010	Technical Dossier Assessment Report 2411/7498123
	-	Aug 2011	K21477/08 01/08/2011
		26/01/2012	Cone Calorimeter Tests of IMO MSC Circ 1270 Class A Plastic Materials – Hughes Associates Inc
	-	Jan 2012	Efectis Test Report R1134, Fire test - Wood Cribs & Plastic Sheets
		12/09/2011	KIWA, EMC Test Report 126076-EMC
Manuals	5	01/10/2011	Information, Instruction & User Manual
	2	14/02/2012	Annex 1 Marine Manual to be read in conjunction with the above manual

Certificate

Certificate No. BSI/A.1/3.46/560436

Date: 23 March 2012

SCHEDULE OF APPROVAL

DESIGN CALCULATION.

AGENT

The quantity (mass) of aerosol agent to be used should be determined as follows:

$$W = \frac{V \times q}{f}$$

where

W = Agent mass (g) (Total mass required to protect the specific volume)

V = Volume of enclosure (m³) (Protected volume)

q = Design application density (gr/m³) (net mass of agent per unit volume (g/m³) required by the system designer for the fire protection application)

f = Efficiency coefficient of generator's model (%) (net mass of agent delivered by a generator model (size))

q = 120 gr/m³

Efficiency coefficients (related to each generator model (size)):

FP-20S/SE= 60%

FP-500S = 63%

FP-40S= 63%

FP-1200 = 65%

FP-80S= 60%

FP-2000 = 61%

FP-100S = 63%

FP-3000 = 62%

FP-200S = 61%

FP-5700 = 61%

The total number of generators (N) to be used is derived by the following formula

$$N = \frac{W \text{ (total agent mass)}}{\text{nominal mass (initial mass of the solid compound) of each generator model (size)}}$$

Example: FP2000 = 2000 grams of nominal mass

FP5700 = 5700 grams of nominal mass

Note: If different generator models (size) should be selected, the total mass of extinguishant (solid compound) shall not be less than the quantity required (W).

Certificate

Certificate No. BSI/A.1/3.46/560436

Date: 23 March 2012

SCHEDULE OF APPROVAL

TECHNICAL SPECIFICATION

Model	FP-20S
Type	Cold
Activation mechanism	FP20S thermal activation by thermocord at 172°C
Activation mechanism	FP20SE electrical (6 - 36 V D/C 0.8 A in 3 - 4 sec)
Current intensity to be tested	N/A
Weight gross	310 g
Weight net extinguishing agent	20 g
Operational discharge time	5 - 10 seconds
Discharge outlet	2
Discharge length	0.6 m
Size	165 mm x 32 mm (incl. connector housing)
Self activation temperature	300°C
Model	FP-40S
Type	Cold
Activation mechanism	thermal activation by thermocord at 172°C
Activator type	electrical (6 - 36 V D/C 0.8 A in 3 - 4 sec)
Current intensity to be tested	heating element with 2.3 ohm resistance
Weight gross	maximum 5 mA
Weight net extinguishing agent	610 g
Operational discharge time	40 g
Discharge outlets	5 - 10 seconds
Discharge length	2
Size	1.2 m
Self activation temperature	140 mm x 51 mm
	300°C
Model	FP-80S
Type	Cold
Activation mechanism	thermal activation by thermocord at 172°C
Activator type	electrical (6 - 36 V D/C 0.8 A in 3 - 4 sec)
Current intensity to be tested	heating element with 2.3 ohm resistance
Weight gross	maximum 5 mA
Weight net extinguishing agent	870 g
Operational discharge time	80 g
Discharge outlets	5 - 10 seconds
Discharge length	2
Size	2 m
Self activation temperature	185 mm x 51 mm (incl. connector housing)
	300°C

Certificate No. BSI/A.1/3.46/560436

Date: 23 March 2012

SCHEDULE OF APPROVAL

TECHNICAL SPECIFICATION

Model	FP-100S
Type	Cold
Activation mechanism	thermal activation by thermocord at 172°C electrical (6 – 36 V D/C 0.8 A in 3 – 4 sec)
Activator type	Heating element with 2.3 ohm resistance
Current intensity to be tested	Maximum 5 mA
Weight gross	1370 g
Weight net extinguishing agent	100 g
Operational discharge time	5 - 10 seconds
Nozzle	optional
Discharge outlet	1
Discharge length	1 m
Size	155 mm x 84 mm (incl. connector housing)
Self activation temperature	300°C
Model	FP-200S
Type	Cold
Activation mechanism	thermal activation by thermocord at 172°C electrical (6 - 36 V D/C 0.8 A in 3 - 4 sec)
Activator type	heating element with 2.3 ohm resistance
Current intensity to be tested	maximum 5 mA
Weight gross	1840 g
Weight net extinguishing agent	200 g
Operational discharge time	5 - 10 seconds
Nozzle	Optional
Discharge outlet	1
Discharge length	2 m
Size	185 mm x 84 mm (incl. connector housing)
Self activation temperature	300°C
Model	FP-500S
Type	Cold
Activation mechanism	thermal activation by thermocord at 172°C electrical (6 - 36 V D/C 0.8 A in 3 - 4 sec)
Activator type	heating element with 2.3 ohm resistance
Current intensity to be tested	maximum 5 mA
Weight gross	3340 g
Weight net extinguishing agent	500 g
Operational discharge time	5 - 10 seconds
Discharge outlet	1
Discharge length	2.5 m
Size	295 mm x 84 mm (incl. connector housing)
Self activation temperature	300°C

Certificate

Certificate No. BSI/A.1/3.46/560436

Date: 23 March 2012

SCHEDULE OF APPROVAL

TECHNICAL SPECIFICATION

Model	FP-1200
Type	Cold
Activation mechanism	thermal activation by thermocord at 172°C electrical (6 - 36 V D/C 0.8 A in 3 - 4 sec)
Activator type	heating element 2.3 ohm resistance
Current intensity to be tested	maximum 5 mA
Weight gross	10900 g (excl bracket)
Weight net extinguishing agent	1200 g
Operational discharge time	10 -15 seconds
Discharge outlet	1
Discharge length	3.5 m
Size	216 mm x 300 mm x 167 mm
Self activation temperature	300°C

Model	FP-2000
Type	Cold
Activation mechanism	thermal activation by thermocord at 172°C electrical (6 - 36 V D/C 0.8 A in 3-4 sec)
Activator type	heating element 2.3 ohm resistance
Current intensity to be tested	maximum 5 mA
Weight gross	15500 g
Weight net extinguishing agent	2000 g
Operational discharge time	10 - 15 seconds
Discharge outlet	1
Discharge length	3.5 m
Size	300 mm x 300 mm x 185 mm
Self activation temperature	300°C

Model	FP-3000
Type	Cold
Activation mechanism	thermal activation by thermocord at 172°C electrical (6 - 36 V D/C 0.8 A in 3-4 sec)
Activator type	heating element 2.3 ohm resistance
Current intensity to be tested	maximum 5 mA
Weight gross	16300 g
Weight net extinguishing agent	3000 g
Operational discharge time	15 - 20 seconds
Discharge outlet	1
Discharge length	4 m
Size	300 mm x 300 mm x 185 mm
Self activation temperature	300°C

Certificate

Certificate No. BSI/A.1/3.46/560436

Date: 23 March 2012

SCHEDULE OF APPROVAL

TECHNICAL ESPECIFICATION

Model	FP-5700
Type	Cold
Activation mechanism	thermal activation by thermocord at 172°C electrical (6 - 36 V D/C 0.8 A in 3-4 sec)
Activator type	heating element 2.3 ohm resistance
Current intensity to be tested	maximum 5 mA
Weight gross	26400 g
Weight net extinguishing agent	5700 g
Operational discharge time	15 - 20 seconds
Discharge outlet	1
Discharge length	8 m
Size	300 mm x 300 mm x 300 mm
Self activation temperature	300°C

Conditions of Certification

- i) The BSI/A.1/3.46/560436 issue 2 certificate remains valid unless cancelled or revoked, provided the conditions listed below are complied with and the equipment remains satisfactory in service
- ii) The equipment detailed on page 1 on this certificate is to be manufactured in accordance with Production Quality Assurance system (Module D)
- iii) Detailed User instructions are to be provided with each product.
- iv) If the specified standards are amended during the validity of this certificate, this product type is to be re-approved prior to it being supplied to vessels to which the amended standards apply.
- v) Production tests are to be conducted in accordance with the applicable requirements of the IMO Resolutions and applicable standards and be recorded by the manufacturer in accordance with the approved Production Quality Assurance system (Module D) of the Marine Equipment Directive.
- vi) Each item, batch or lot of the equipment is to have the "Mark of Conformity" affixed and be issued with a "Declaration of Conformity".