

# Type Examination Certificate

This is to certify that: AF-X Systems B.V.  
Impuls 20  
Purmerend  
1446 WX  
The Netherlands

Holds Certificate Number: BSI/UK/3.46/826710

In respect of:

**UK/3.46a - Equivalent fixed gas fire extinguishing systems for machinery spaces (aerosol systems)**

**Products - Fireblocker nBL, nBM, nBS, nBXS, nCM, nCS, nCXS & nCXXS.**

**Specified standard: IMO MSC/Circ 1270 incl Corr.1, as amended.**

On the basis of our examination under the requirements of the Merchant Shipping (Marine Equipment) Regulations (SI 2016/1025) as amended for Conformity Assessment Procedure Module B - Type Examination.

For and on behalf of BSI, an Approved Body for the above Regulation (Approved Body Number 0086):

Shahm Barhom, Group Product Certification Director

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## Schedule of Approval

### Product Specification:

**The products listed below are to be installed with an actuation system/panel where manual activation is achieved as defined in MSC1/Circ 1270 chapter 17 and as per the relevant User/Installation Manual. The actuation system/panel is excluded from this certification.**

Fireblocker nBM	Aerosol generating fire extinguishing system unit with 2550g dry condensed extinguishing agent, Fire Class A & B
Fireblocker nBL	Aerosol generating fire extinguishing system unit with 3900g dry condensed extinguishing agent, Fire Class A & B
Fireblocker nBS	Aerosol generating fire extinguishing system unit with 1050g dry condensed extinguishing agent, Fire Class A & B
Fireblocker nBXS	Aerosol generating fire extinguishing system unit with 750g dry condensed extinguishing agent, Fire Class A & B
Fireblocker nCM	Aerosol generating fire extinguishing system unit with 450g dry condensed extinguishing agent, Fire Class A & B
Fireblocker nCS	Aerosol generating fire extinguishing system unit with 150g dry condensed extinguishing agent, Fire Class A & B
Fireblocker nCXS	Aerosol generating fire extinguishing system unit with 60g dry condensed extinguishing agent, Fire Class A & B
Fireblocker nCXXS	Aerosol generating fire extinguishing system unit with 30g dry condensed extinguishing agent, Fire Class A & B

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BSI Assurance UK Limited, registered in England under number 7805321 at Seventh and Eighth Floors, The Acre, 90 Long Acre, London, WC2E 9RA, UK.  
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### Approval Documentation that forms part of this certification

Drawing No.	Rev/Issue	Date	Title
AER-DR-308	2	09/12/2020	nBL General Assembly Drawing
AER-DR-145	6	09/12/2020	nBM General Assembly Drawing
11212620-AFX	0	07/11/2022	nBS General Assembly Drawing
11212620-AFX	0	07/11/2022	nBXS General Assembly Drawing
AER-DR-100	7	09/12/2020	nCM General Assembly Drawing
AER-DR-129	6	09/12/2020	nCS General Assembly Drawing
860/006000	1	24/01/2023	nCXS General Assembly Drawing
860/006000	1	24/01/2023	nCXXS General Assembly Drawing

  

Supporting Documentation	
Technical Dossier	Technical documentation of AF-X Fireblocker products complying with MED 2014/90/EU Annex II & (EU) 2023/1667. Netherlands, Purmerend, 01-July-2024. BSI Reference – 30410782.
Manuals	Design, Installation, Operation and Maintenance Manual – AF-X Fireblocker Nano Series – Version 4.3 dated 01/08/2023.
Test Reports	2024-Efectis-R000671 (testing witnessed by BSI) - IMO MSC.1/Circ.1270 incl. Corr.1.

The models were assessed against the requirements of the Merchant Shipping (Marine Equipment) Regulation SI 2016/1025 as amended & MSN 1874 (M+F) Amendment 10 (UK/3.46a - Row 2 of 2).

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### Design Calculation:

#### Agent

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

$$W = \frac{V \times q \text{ (g)}}{f}$$

where

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

V = Volume of enclosure (m<sup>3</sup>) (Protected volume)

q = Design application density (g/m<sup>3</sup>) (net mass of agent per unit volume (g/m<sup>3</sup>) 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 = 100 g/m<sup>3</sup>

Efficiency coefficients (related to each generator model):

nBL = 78.9%

nCM = 68.0%

nBM = 69.4%

nCS = 73.6%

nBS = 70.0%

nCXS = 80.0%

nBXS = 68.8%

nCXXS = 73.0%

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

$$n = \frac{M}{Mg}$$

where:

n is the rounded up integer of aerosol generators of one size

M is the design quantity (g)

Mg is the initial mass of the aerosol-forming compound in one generator (g)

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### Technical Specification

#### Model

Type  
Activation mechanism  
Activator type  
Current intensity to be tested  
Weight gross  
Weight net extinguishing agent  
Operational discharge time  
Discharge outlet  
Discharge length  
Size  
Self-activation temperature  
Max. installation height

#### Fireblocker nBM

Cold  
electrical (6 – 36V DC, min 1.0 A for 1 - 2 sec)  
heating element with 1.3 – 3.2 ohm resistance  
maximum 40 mA (0.04 A) within 5 min  
21000g  
2550g  
<35 sec  
1  
5m  
250mm x 250mm x 30.4mm  
300 C  
5m

#### Model

Type  
Activation mechanism  
Activator type  
Current intensity to be tested  
Weight gross  
Weight net extinguishing agent  
Operational discharge time  
Discharge outlet  
Discharge length  
Size  
Self-activation temperature  
Max. installation height

#### Fireblocker nBL

Cold  
electrical (6 – 36V DC, min 1.0 A for 1 - 2 sec)  
heating element with 1.3 – 3.2 ohm resistance  
maximum 40 mA (0.04 A) within 5 min  
19000g  
3900g  
<60 sec  
1  
6m  
250mm x 250mm x 30.4mm  
300 C  
8m

#### Model

Type  
Activation mechanism  
Activator type  
Current intensity to be tested  
Weight gross  
Weight net extinguishing agent  
Operational discharge time  
Discharge outlet  
Discharge length  
Size  
Self-activation temperature  
Max. installation height  
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#### Fireblocker nBS

Cold  
electrical (6 – 36V DC, min 1.0 A for 1 - 2 sec)  
heating element with 1.3 – 3.2 ohm resistance  
maximum 40 mA (0.04 A) within 5 min  
4600g  
1050g  
<60 sec  
1  
2.5m  
185mm x 200mm x 160mm  
300 C  
3m

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## Model

Type  
Activation mechanism  
Activator type  
Current intensity to be tested  
Weight gross  
Weight net extinguishing agent  
Operational discharge time  
Discharge outlet  
Discharge length  
Size  
Self-activation temperature  
Max. installation height

## Fireblocker nBXS

Cold  
electrical (6 – 36V DC, min 1.0 A for 1 - 2 sec)  
heating element with 1.3 – 3.2 ohm resistance  
maximum 40 mA (0.04 A) within 5 min  
4300g  
750g  
59 sec  
1  
2m  
185mm x 200mm x 160mm  
300 C  
2.6m

## Model

Type  
Activation mechanism  
Activator type  
Current intensity to be tested  
Weight gross  
Weight net extinguishing agent  
Operational discharge time  
Discharge outlet  
Discharge length  
Size  
Self-activation temperature  
Max. installation height

## Fireblocker nCM

Cold  
electrical (6 – 36V DC, min 1.0 A for 1 - 2 sec)  
heating element with 1.3 – 3.2 ohm resistance  
maximum 40 mA (0.04 A) within 5 min  
3500g  
450g  
<54 sec  
1  
1.5m  
450mm x 94mm  
300 C  
1.5m

## Model

Type  
Activation mechanism  
Activator type  
Current intensity to be tested  
Weight gross  
Weight net extinguishing agent  
Operational discharge time  
Discharge outlet  
Discharge length  
Size  
Self-activation temperature  
Max. installation height

## Fireblocker nCS

Cold  
electrical (6 – 36V DC, min 1.0 A for 1 - 2 sec)  
heating element with 1.3 – 3.2 ohm resistance  
maximum 40 mA (0.04 A) within 5 min  
2500g  
150g  
<25 sec  
1  
1.5m  
310mm 94mm  
300 C  
1.5m

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## Model

Type  
Activation mechanism  
Activator type  
Current intensity to be tested  
Weight gross  
Weight net extinguishing agent  
Operational discharge time  
Discharge outlet  
Discharge length  
Size  
Self-activation temperature  
Max. installation height

## Fireblocker nCXS

Cold  
electrical (6 – 36V DC, min 1.0 A for 1 - 2 sec)  
heating element with 1.3 – 3.2 ohm resistance  
maximum 40 mA (0.04 A) within 5 min  
500g  
60g  
36 sec  
1  
2m  
180mm x 38mm  
300 C  
2m

## Model

Type  
Activation mechanism  
Activator type  
Current intensity to be tested  
Weight gross  
Weight net extinguishing agent  
Operational discharge time  
Discharge outlet  
Discharge length  
Size  
Self-activation temperature  
Max. installation height

## Fireblocker nCXXS

Cold  
electrical (6 – 36V DC, min 1.0 A for 1 - 2 sec)  
heating element with 1.3 – 3.2 ohm resistance  
maximum 40 mA (0.04 A) within 5 min  
400g  
30g  
17 sec  
1  
1.5m  
180mm x 38mm  
300 C  
1.5m

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### Certificate Amendment Record and BSI internal Review relating to this Certificate

Issue date	Comments	BSI Review No.
September 2025	First Issue	0086:25:30410783

### Conditions of Certification

- i) This 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 Conformity to Type Based on Quality Assurance of the Production Process (Module D) of the Merchant Shipping (Marine Equipment) Regulation SI 2016/1025, as amended.
- iii) SOLAS 74 Reg. II-2/10, SOLAS 74 Reg. X/3, IMO Res.MSC.98(73)-(FSS Code) 5, IMO Res.MSC.36(63)-(1994 HSC Code) 7, IMO Res.MSC.97(73)-(2000 HSC Code) 7, IMO Res. MSC.391(95)-(IGF Code) 11, IMO MSC/Circ.1270 incl. Corr.1, IMO MSC.1/Circ.1313 requirements, as applicable.
- 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 Conformity to Type Based on Quality Assurance of the Production Process (Module D) of the Marine Equipment Directive & the Merchant Shipping (Marine Equipment) Regulation SI 2016/1025, as amended.
- 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".
- vii) Detailed User instructions are to be provided with each product.

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