



TYPE APPROVAL CERTIFICATE

Certificate No. : HMB05219-FD003 **Initial Approval :** 15th October, 2019
Product : Smoke Detection System
Manufacturer : Safetec, Brandes und Niehoff GmbH
Kringelsburg 2a, 21379 Scharnebeck, Germany

Product Description : Sample Extraction Smoke Detection System
- Type: SDS-72
- Intended for : Sample extraction smoke detection system for up to 72 detection lines for cargo holds onboard ships
" See Appendix 1 "

Approval Condition : " See Appendix 1 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows and entered in the "List of Approved Manufacturers and Type Approved Equipment".

Pt. 6, Ch. 2, Art. 301 of the Rules for Classification, Steel Ships, FSS Code Ch.10, EN54-2, IEC60092-504

This Certificate is valid until 14th October, 2024

Issued at Busan, Korea on 15th October, 2019



This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "<http://e-cert.krs.co.kr>" by using the tracking No (ME19028118879) and certificate No.(HMB05219-FD003).



KOREAN REGISTER OF SHIPPING

*General Manager of
Marine & Ocean Equipment Team*

*Note : 1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.*

Appendix 1

Product Description and/or Approval Condition

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A. Product Description

1. Product Specification

1) System Description (Type : SDS-72)

The SDS-72 is a sample extraction smoke detection system for up to 72 detection lines for cargo holds onboard ships.

2) System Comprising

- ADP-3500 : Adapter module
- SDS-3000 : Smoke detection panel
- SDS-3104 : Smoke detection panel with up to 1-4 detection lines
- SDS-3108 : Smoke detection panel with up to 5-8 detection lines
- SDS-3112 : Smoke detection panel with up to 9-12 detection lines
- SDS-3208 : Extension panel with up to 5-8 detection lines
- SDS-3212 : Extension panel with up to 9-12 detection lines
- SDS-3216 : Extension panel with up to 13-16 detection lines
- SDS-3300 : Smoke detection unit(SDU)
- SDS-3500 : Remote panel
- SDS-3600 : Junction box for SDS-M0460
- SDS-3700 : Junction box for smoke detection unit SDU
- SDS-3800 : 3/2-way flap for fan modules SDS-M0460
- SDS-M0440 : Fan unit, 2 fans on a frame, 230VAC
- SDS-M0441 : Fan unit, 2 fans on a frame, 110VAC, 440W each
- SDS-M0460 : Fan module, 1 fan, 230/400VAC, 1.5kW
- Smoke detector : XP95 I.S.
- Smoke detector : Discovery

* Remark : The SDS-72 must be used in conjunction with KR Type approved Smoke Detector (Type Approval Certificate No : LDN23417-FD001, LDN23417-FD003)

3) Software version: CM3100A-01.01.XXX (2018.01.16.)
CM3100B-01.01.XXX (2018.01.16.)

2. Approved Drawings and Documents

1) Drawings

- SDS-72-3000 2018.04.17 Rev.5
- SDS-72-3104 2017.02.23 Rev.0
- SDS-72-3108 2017.01.23 Rev.0
- SDS-72-3112 2017.01.23 Rev.0
- SDS-72-3216 2017.01.23 Rev.0
- SDS-72-3500 2017.09.29 Rev.4
- SDS-72-3600 2016.09.02 Rev.0
- SDS-72-3700-3300-XP95-IS 2018.02.06 Rev.2
- SDS-72-3700-XP95-IS 2018.02.06 Rev.3
- SDS-72-3700-XP95-Discovery 2018.02.06 Rev.1
- SDS-3000.01 2016.08.26 Rev.1
- SDS-3100.01 2017.04.04 Rev.2
- SDS-3200.01 2016.08.26 Rev.0
- SDS-3300.01 2018.02.27 Rev.7
- SDS-3500.01 2017.08.10 Rev.4
- ADP-3500.01 2017.08.11 Rev.1
- SDS-3600.01 2015.12.23 Rev.1
- SDS-3700.01 2018.02.06 Rev.1
- SDS-3800.01 2018.04.20 Rev.3
- SDS-M0440.01 2018.02.28 Rev.12
- SDS02.441.01 2018.02.26 Rev.6
- SDS02.441.05 2018.02.26 Rev.4
- SDS-M0460.01 2018.04.18 Rev.1
- SDS-M0460.03 2018.04.26. Rev.1

2) Circuit diagram

- BG03.800.20 2018.05.17 Rev.7
- PCB03.100-7.2 2018.12.05 Rev.7.2
- PCB03.501-5 2017.06.23 Rev.5
- PCB03.590-1 2017.05.02 Rev.1.0
- PCB03.701-3 2018.03.21 Rev.1
- PCB03.810-2 2017.04.27 Rev.2

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- PCB03.820-3 2017.04.27 Rev.3

- 3) Manual for Smoke Detection System : DOK02.140 Rev.6 (2019.04.09.)
- 4) Installation and Operation Instructions : DOK02.055 Rev.6 (2013.01.15.)
- 5) Software Quality Management Manual Rev.2 (2016.05.16.)
- 6) Failure Mode and Effects Analysis Rev.0 (2019.06.18.)
- 7) Ex-Certificates
 - IECEx BAS 12.0091X (2015.02.23. Issue No.3)
 - IECEx BAS 08.0079 (2008.09.10. Issue No.0)

3. Test Reports, etc.

- 1) Functional Test Report : DOK22.002-A1 issued by Safetec (2017.05.08.)
- 2) ENV : 15-7421-BE issued by PACONSULT (2016.01.06.)
 - 320-16_V1U issued by TREO (2016.11.29.)
 - 313-17 V1U issued by TREO (2017.12.19.)
 - 058-16_V3U issued by TREO (2016.08.19.)
- 3) EMC : 15012-3-R01 issued by TUV NORD (2016.08.11.)
 - 16185-1-R01 issued by TUV NORD (2016.12.13.)
 - 16185-2-R00 issued by TUV NORD (2016.10.27.)
 - 16185-3-R00 issued by TUV NORD (2016.12.20.)
 - 17228-1-R01 issued by TUV NORD (2017.12.19.)

B. Approval Condition

1. Application & Limitation

- 1) This approval is granted on the basis of the approved documentation and test reports.
- 2) Degree of protection shall be complied with Rule Pt.6 Ch.1 Sec.2 201.2.(5).
- 3) Unless specially directed by the Administration, this approval is not to be construed as a substitute for a flag Administration's approval.
- 4) The manufacturer should inform this Society of all kinds of the equipment including software. If the changes are recognized to affect functionality of the approved equipment, type test to confirm the reliability of the revised equipment may be performed in the presence of our surveyor.
- 5) Installation is to be in accordance with manufacture's instruction.
- 6) Explosion-proof certification by a notified/recognized Certification Body is not covered by this certificate. Ratings and special condition for safe use in hazardous areas are to be obtained from the relevant valid Ex-Certificate.
- 7) According to FSS Code, the sampling pipes shall be so designed as to ensure that, as far as practicable, equal quantities of airflow are extracted from each interconnected accumulator. And sampling pipe designer for each vessel shall submit relevant documents for compliance with FSS Code and their reliability.
- 8) This certificate is valid on condition that type approvals for smoke detectors (Cert. No. : LDN23417-FD001 and LDN23417-FD003) are maintained separately from this approval.

2. Individual Product Cert. and Drawing Approval Requirement

- 1) In case where this system is to be installed on board a ship, the system drawings are to be approved by this Society.
- 2) Individual Product Certification is required during commission.

3. Marking

- 1) The product or packing is to be marked with the manufacturer's name and type designation on a suitable position.

4. Others

- 1) Test condition

Test	Condition	Remark
EMC	All locations including the bridge and deck zone	Up to 6GHz

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Test	Condition	Remark
Temperature	+5 ~ +55℃ +5 ~ +70℃	- SDS-3500
Vibration	Acceleration $\pm 0.7g$	-

< End of Certificate >

