

## Certificate of Type Approval

This is to certify that the product detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations and with the International Convention for the Safety of Life at Sea, (SOLAS), 1974, as amended, for use on ships and offshore installations classed with Lloyd's Register, and for use on ships and offshore installations when authorised by contracting governments to issue the relevant certificates, licences, permits etc.

<b>Manufacturer</b>	<b>VIKING Norsafe Life-Saving Equipment Norway AS</b>
<b>Address</b>	Idrettsvegen 110, Straume Næringspark, 5353 Straume (Bergen), Norway
<b>Type</b>	Marine Evacuation Systems (Mes)
<b>Description</b>	Vertical chute gravity deployed marine evacuation system with liferaft – Type “SES-2B 2007 Viking Offshore Evacuation System”
<b>Trade Name</b>	SES-2B 2007 Viking Offshore Evacuation System
<b>Specified Standard</b>	SOLAS 74, as amended Regulation III/4, 34 and 35 The LSA Code Regulation I/1.2 and VI/6.2 IMO Resolution MSC.81 (70), Part 1 as amended

This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

The attached Design Appraisal Document forms part of this certificate.

This certificate remains valid unless cancelled or revoked, provided the conditions in the attached Design Appraisal Document are complied with and the equipment remains satisfactory in service.

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**Lijo Thomas**

Senior Surveyor to Lloyd's Register EMEA  
A member of the Lloyd's Register group

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**ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR22247206SS**

The undernoted documents have been appraised for compliance with the relevant requirements of International Conventions, and this Design Appraisal Document forms part of the Certificate.

This Certificate is a Renewal and Amendment of Certificate Number SAS S170008

**APPROVAL DOCUMENTATION**

Drawing/specification numbers:

<b><u>Dwg No.</u></b>	<b><u>Rev No.</u></b>	<b><u>DCS</u></b>	<b><u>Drawing Title</u></b>
980032-VLSE-XD-R-0001	01	-	General arrangement
E32-582	0	-	Name Plate Drawing SES-2B-2007
ENG-20089404	00	-	35 persons platform MEP SES-2A S12
ENG-20114678	00	-	Assembly of Viking 35 person platform MEP
980029-STR-PT-P-0052	00	-	Winch Drawing Zollern ZR 4.20 1523176
E12-319	00	-	Cover plate Assembly
D01-064	0	-	SES-2B 2007 deployed at sea
D01-065	0	-	Deployed chute w/side motion arrangement, SES-2B 2007
E12-300	04	-	Container Assembly SES-2B 2007
E12-303	04	-	Stabilising Weight Assembly
980032-VLSE-MB-O-0001	02	-	Operation Instruction
980032-VLSE-MB-R-0001	02	-	Maintenance Instructions SES-2B 2007
A-97/27136/EOJ	-	-	Approval of heavy weather sea trail of selantic SES FF 140
-	-	-	Deployment test recorded on DVD, dated 29 May 2008
00079921 (sheet 1 &2)	-	-	Viking SES Chute risk assessment dated 11.08.08
174T4 (page 1-11)	01	-	Variable chute length study. Nonlinear movement analysis of SES chute escape system with lengths between 20 and 50 meters and wind velocity 13.8m/s at 10m above sea level, dated 1.10.08
00079957	-	-	Heavy Weather Sea Trial, SES-2A 2006
980032-I01-036	00	-	Wire force calculations SES-2B 2007

**TEST REPORTS**

Test of Viking evacuation chute, report No. BGN-ELIN-07.002-53570543, dated 2 October 2007.

Cold test of Selantic chute, report No. MNBKD220SUSW040906-9, dated 8 September 2004.

Marine evacuation systems MSC/Circ 980 test, witnessed by DNV surveyor, dated 24 April 2008, 16 December 2005, 3 September 2007, 24 April 2008, 28 April 2008, and witnessed by LR surveyor, dated 20 October 2008, 6 November 2008 and 12 November 2008.

Load test report prototype SES-2B 2007, report No. N11-060, witnessed by DNV surveyor, dated 28 May 2008.

Timed evacuation test, witnessed by DNV surveyor, 11. November 2004.

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Flow test of Long evacuation chute off shore evacuation system SES-2A 2006, witnessed by DNV surveyor, dated 22 May 2008.

Heavy weather sea trial, report No. A-97/27136/EOJ Ark: 561, witnessed by NMD and DNV surveyor, dated 6 January 1999.

Heavy weather sea trial MES SES T FF 140, report No. MTP863/LTHA/Lifesaving-J-1471, witnessed by DNV surveyor, dated 22 May 2001.

Selantic industrial a/s SES-33 twin chute vertical decent (TCVD) Marine Evacuation system. Harbour capacity test at Fredrikshavn Denmark onboard Stena Nordica, ref MS 3/67/016, witnessed by Department of Transport Surveyor, dated 14<sup>th</sup> September 1993.

Heavy weather sea trial test report No. 990047 SES-2A 2006, dated 15<sup>th</sup> June 2010, as witnessed by a Lloyds Register surveyor.

Heavy weather sea trial test report No. 990047-00085855, rev 1 SES-2A 2006, dated 29<sup>th</sup> November 2011, as witnessed by a Lloyds Register surveyor.

Lloyds Register witness report No. BGN 1100680, dated 5<sup>th</sup> December 2011.

Patch test, report Number 1734 dated 30<sup>th</sup> January 2012.

Patch test, report Number 1735 dated 26<sup>th</sup> April 2012.

Evacuation Trial Timings, witnessed by a Surveyor acceptable to LR and dated 11.11.2004.

Timed Evacuation Test, witnessed by a Surveyor acceptable to LR and dated 11.11.2004.

Timed report for timed evacuation test of evacuation chute offshore evacuation system SES-2A 81 metres, Doc. No Q01-004, witnessed by a Surveyor acceptable to LR and dated 20.09.2014.

Drop test for liferaft 50 DKS conducted from 36 meters, Test report No 2215, dated 27/05/2015

Drop test for liferaft 50 DKS conducted from 36 meters, Test report No 2216, dated 27/05/2015

**CONDITIONS OF CERTIFICATION**

This MES is constructed with either the Viking 50 DKS (@ 82.5 kg per person), Viking 35 DK+ liferafts, Viking 25 DK+ liferafts, Viking 20 DK+ liferafts, Viking 16 DK+ or the Viking 12 DK+, DNV certificate No No MEDB00001JE, Revision 7 & DKS MEDB00001JF Revision 18.

1. This MES SES-2B 2007 is for off shore use only

**Rating:**

Capacity in 10 min.: 159 Persons

Overall Capacity 200 Persons in 11 minutes 50 seconds.

2. The area directly below MES to have a minimum clear safety area to allow for inflation of platform and liferafts. A side motion/drift analysis to be carried out for each installation based on the chute length and site specific wind, current and wave parameters. No protruding objects shall be located within the deployment zone.

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3. When used with life jackets, they are to be of an approved type with crotch strap or an equivalent solution which ensures the life jacket stays in place when used.
4. Maximum stowage height 50.0 metres.
5. Following satisfactory testing in conjunction with liferafts of the type below, the marine evacuation system is certified for use off shore to which requirements of Resolution MSC 81 (70) , Part 2, section 7 apply.

<u>Manufacturer</u>	<u>Type</u>	<u>SOLAS Pack</u>	<u>Maximum Freefall Drop Height</u>	<u>Required Towing Force @ 2 knots/3knots (kN)</u>
Viking	Viking 50 DKS	A	36m	1.37/2.15
Viking	Viking 35 DK+	A	37m	1.05/1.8
Viking	Viking 35 DK+	B	50m	1.05/1.8
Viking	Viking 25 DK+	A	60m	0.5/1.2
Viking	Viking 25 DK+	B	36m	0.5/1.2
Viking	Viking 20 DK+	A	60m	0.5/1.2
Viking	Viking 20 DK+	B	36m	0.5/1.2
Viking	Viking 16 DK+	A	60m	0.5/1.2
Viking	Viking 16 DK+	B	36m	0.5/1.2
Viking	Viking 12 DK+	A	60m	0.5/1.1
Viking	Viking 12 DK+	B	73m	0.5/1.1

6. The MES container is to be marked with the maker's name and trade mark, serial number, approving authority, capacity of the system, SOLAS, date of Manufacture, date when last serviced, maximum stowage height and stowage position.
7. The MES is to be marked with the maker's name and trade mark, serial number, date of manufacture, approving authority, name and place of last servicing station and the capacity of the system.
8. A full set of manuals and associated documents are to be provided onboard for use on all operations involved in the inspections, maintenance and resetting of the MES and associated equipment.
9. Inflatable components or sections of marine evacuation systems are to be serviced at intervals not exceeding twelve months by a person suitably qualified and authorised by the manufacturer unless approved for 30 months extended service interval.
10. The production models are to be manufactured in accordance with an approved Production Quality Control Assurance system which ensures that the items are of the same standard as the approved prototype.
11. **Installation onboard:** The on-board arrangements and installation of this MES system are not part of this design Appraisal or certificate. This approval does not apply to any aspect of installation of the system on board or the arrangements connected therewith which the Manufacturer shall ensure to be to the satisfaction of the rigs Administration and Classification Society. All such arrangements are to be to the satisfaction of the Surveyors attending on board.

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12. 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.
13. Production items are to be manufactured in accordance with a quality control system which shall be maintained to ensure compliance with SOLAS Regulation III/5.
14. Production tests are to be conducted in accordance with the applicable requirements of IMO Resolution MSC.81 (70), Part 2 and each item, batch, or lot be delivered with an LR Certificate of SOLAS Production Testing issued by the attending LR Surveyors following their witness of the tests. This does not preclude any further testing to additional requirements of the Marine Administration of the country where the ship is registered (i.e. the flag state) or those acting on behalf of that Administration.
15. Should a change of Place of Production from that stated below be required i.e. where the stages of manufacture/assembly/testing of this product take place, the new Place of Production is to be advised to us prior to the change taking place. This Certificate will require to be updated for Approval to be maintained.

**Note:** Res. 81 (70) has a test requirement to load the liferaft and platform to their certified capacity with weights representing 82.5 kg/person. The heavy weather sea trial test, dated 29<sup>th</sup> November 2011, was conducted with the liferaft and platform to their certified capacity with weights representing 98 kg/person.

**PLACE OF PRODUCTION**

VIKING NORSAFE LIFE-SAVING EQUIPMENT JIANGYIN LTD.  
Beihuan Road No. 29 Yuecheng Town  
214404 Jiangyin City, Jiangsu Province  
China



Lijo Thomas  
Senior Specialist  
Fire & Safety, Statutory Discipline Team  
UK&I Technical Support Office, Marine & Offshore  
Lloyd's Register EMEA

**Supplementary Type Approval Terms and Conditions**

*This certificate and Design Appraisal Document relates to type approval, it certifies that the prototype(s) of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein, it does not mean or imply approval for any other use, nor approval of any products designed or manufactured otherwise than in strict conformity with the said prototype(s).*