

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00001TS
Revision No:
6

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV AS under the authority of the Government of Norway.

This is to certify:

That the Marine evacuation systems

with type designation(s)
VEC+ 3A.1, VEC+ 3B.1 and VEC+ 2B.1

Issued to

Viking Life-Saving Equipment A/S
Esbjerg V, Denmark

is found to comply with the requirements in the following Regulations/Standards:

Regulation **(EU) 2021/1158**,

item No. MED/1.27. SOLAS 74 as amended, Reg. III/4, III/15, III/26, III/34 & X/3, LSA Code and 2000 HSC Code 8.

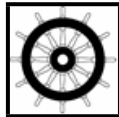
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2027-02-28**.

Issued at **Høvik** on **2022-03-01**

DNV local station:
Denmark CMC

Approval Engineer:
Tessa Bieber



Notified Body
No.: **0575**



for **DNV AS**

Digitally Signed By:
Øyvind Hoff
Location: **DNV Høvik, Norway**
on behalf of

Sverre Olav Bergli
Head of Notified Body

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005, and amended by Decision No 1/2019 dated February 22nd, 2019.

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-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.

This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.

Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.



LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

VEC+ 3A.1, VEC+ 3B.1 and VEC+ 2B.1

Are Marine Evacuation Systems with single vertical chute evacuation. The certificate covers the following variants:

1. Viking Evacuation Chute, VEC+3A.1

is a Marine Evacuation System with single vertical chute evacuation directly into VIKING 100 DKS S30 Liferaft (SOLAS A-pack) with 2 pcs. VIKING 100 DKS A S30 (SOLAS A-pack) as secondary liferafts. The system is equipped with a traffic light alarm type. The MES is approved with the following chute/liferaft configuration:

Type Designation: VEC+ 3A.1
Type of Liferaft integrated: 3 x 100 DKS S30 with SOLAS A-pack

2. Viking Evacuation Chute Plus, VEC+ 3B.1

is a Marine Evacuation System with single vertical chute evacuation directly into VIKING 100 DKS S30 Liferaft (SOLAS B-pack) with 2 pcs. VIKING 100 DKS S30 (SOLAS B-pack) as secondary liferafts. The system is equipped with a traffic light alarm type. The MES is approved with the following chute/liferaft configuration:

Type Designation: VEC+ 3B.1
Type of Liferaft integrated: 3 x 100 DKS S30 with SOLAS B-pack

3. Viking Evacuation Chute, VEC+2B.1

is a Marine Evacuation System with single vertical chute evacuation directly into 100 DKS S30 Liferaft (SOLAS B-pack) with a VIKING 100 DKS S30 (SOLAS B-pack) as secondary liferaft. The system is equipped with a traffic light alarm type. The MES is approved with the following chute/liferaft configuration:

Type Designation: VEC+ 2B.1
Type of Liferaft integrated: 2 x 100 DKS S30 with SOLAS B-pack

These MES systems have been tested according to IMO Res. MSC 81(70) item 12.6.1 and 12.6.2 with VIKING 100 DKS and 100DKS+S30 dropdown liferafts. DNV GL accepts the smaller associated drop-down liferaft for VEC+ 3A.1, VEC+ 3B.1 and VEC+ 2B.1 provided the line attachment arrangement is the same as arranged for 100 DKS or 100 DKS S30. Approved associated drop-down liferafts: Viking 100 DKS, 50 DKS and 25 DKS.

Application/Limitation

Installation height: 5-20 meter.

Max evacuation capacity for VEC+ 3A.1, VEC+ 3B.1 and VEC+ 2B.1:

- 317 persons in 17 min. 40 sec. according to the HSC code (incl. cut free of liferafts)
- 565 persons in 30 min. (incl. cut free of liferafts)

The associated liferafts shall have separate MED approval and be wheelmarked.

The arrangement of the MES onboard any vessel, including the passageway and embarkation areas, are subject to approval by the administration to ensure that the flow rate as stated above can be maintained throughout the total evacuation of the number of persons for which the MES is certified for.

It shall be verified that the ship on which the MES is installed is equipped with a sufficient number of rescue boats to satisfactory manhandle and support the bowing and tow away, as applicable, of all the associated life rafts within the times allowed for embarkation as per SOLAS Ch.III/Reg.21.1.3 and 31.1.5.

Production and installation testing shall be according to IMO Res. MSC. 81(70), part 2.

Gas cylinders and components in the pressure gas systems shall be of an approved type.

Components in the gas inflation system should be approved according to ISO 15738:2002.

The following is to be submitted to the Flag Administration in each case, either by the yard, owner or equipment manufacturer:

- Plan showing the MES system fully deployed on the specific vessel in side-view and cross-sectional view under required unfavourable conditions of trim and list as the type approval does not cover the requirements to installation covered by LSA Code Ch. 6.2.2.1.4 and SOLAS Ch. III. Details shall be shown.

- Plan showing the arrangement of the MES on board any vessel, including the passageway and embarkation areas, to ensure that the flow rate as stated above can be maintained throughout the total evacuation of the number of persons for which the MES is certified for.

It shall be verified that the ship on which the MES is installed is equipped with a sufficient number of rescue boats to satisfactory marshal and support the bowing and tow away, as applicable, of all the associated life rafts within the times allowed for embarkation as per SOLAS Ch.III/Reg. 21.1.3 and 31.1.5.

The on-board arrangements and installation of this MES is not part of the design appraisal or certificate and to be of the satisfaction of the Flag Administration.

Installation tests to be carried out in accordance with IMO Res. MSC.81(70), Part 2, item 7 and to be documented by the manufacturer. This does not preclude any further testing to additional requirements of the Flag Administration or those acting on their behalf.

Inflatable components or sections of the marine evacuation systems are to be service at intervals not exceeding twelve months by a person suitably qualified and authorized by the manufacturer.

Any electrical, pressurized and hydraulic components are only assessed as integrated parts of the VEC but are not assessed individually. The electrical, pressurized and hydraulic components shall be designed to codes of practice to the satisfaction of the Flag Administration having regards to their locations and maximum ambient temperatures expected in service.

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 shown.

Type Examination documentation

This certificate replaces MEDB00001TS Rev.5.

Drawings	Date
42004413, Rev. 1 - VEC+ 3A.1 Arrangement, Deployed mode	28-05-2018
42004586, Rev. 0 - VEC+ 2B.1 Arrangement, Deployed mode	2017-06-14
42004640, Rev. 0 - VEC+ 3B.1 Arrangement, Deployed mode	2017-08-15
42004414, Rev. 1 - VEC+ 3A.1 Arrangement, Stowed mode	2018-05-29
42004585, Rev. 0 - VEC+ 2B.1 Arrangement, Stowed mode	2017-06-13
42004639, Rev. 0 - VEC+ 3B.1 Arrangement, Stowed mode	2017-08-18
42004415, Rev. 1 - VEC+ 3A.1 Launching Sequence	2018-05-25
42004589, Rev. 0 - VEC+ 2B.1 Launching Sequence	2017-06-13
42004641, Rev. 0 - VEC+ 3B.1 Launching Sequence	2017-08-17
42004416, Rev. 1 - VEC+ 3A.1 Release, lashing and wire system	2018-05-29
42004591, Rev. 0 - VEC+ 2B.1 Release, lashing and wire system	2017-06-20
42004644, Rev. 0 - VEC+ 3B.1 Release, lashing and wire system	2017-08-24
42004435, Rev. 3 - VEC+ 3A.1 Release unit-quick release	2018-08-01
42004590, Rev. 1 - VEC+ 2B.1 Release unit-quick release	2018-06-27
42004645, Rev. 0 - VEC+ 3B.1 Release unit-quick release	2018-06-29
42004417, Rev. 1 - VEC+ 3A.1 Arrangement, Deployed 20 Degree list	2018-05-29
42004588, Rev. 0 - VEC+ 2B.1 Arrangement, Deployed 20 Degree list	2017-06-14
42004643, Rev. 0 - VEC+ 3B.1 Arrangement, Deployed 20 Degree list	2017-08-15
42004419, Rev. 1 - VEC+ 3A.1 Float Free Sequence	2018-05-28
42004587, Rev. 0 - VEC+ 2B.1 Float Free Sequence	2017-06-14
42004642, Rev. 0 - VEC+ 3B.1 Float Free Sequence	2017-08-21
42004433, Rev. 1 - VEC+ Mounting of chute on chute box	2017-06-12
Calculations	Date
Report no. RD-00063, Rev.2 – VEC+ 3A.1 Stress calculations	2017-02-24
Report no. RD-00063, Rev.0 – VEC+ 2B.1 Stress calculations	2017-05-17
Report no. RD-00063, Rev.1 – VEC+ 3B.1 Stress calculations	2018-05-04
Prototype test reports LSA Code part 1, § 12.2:	Date

Test report no. 2478 (deployment by icing – VEC+3A.1)	2016-10-18
Test report no. 2597 (deployment by icing – VEC+2B.1)	2017-06-08
Test report no. 2469 (deployment – VEC+3A.1)	2016-09-08
Test report no. 2585 (deployment – VEC+2B.1)	2017-05-30
Test report no. 2473 (container static load test – VEC+3A.1)	2016-10-05
Test report no. 2586 (container static load test – VEC+2B.1)	2017-05-08
Test report no. 2479 (container door hose test – VEC+3A.1/VEC+2B.1)	2016-10-21
Test report no. 2480 (container door dry release – VEC+3A.1/VEC+2B.1)	2016-10-21
Test report no. 2433 (container door trim release test – VEC+3A.1)	2016-07-08
Test report no. 2592 (container door trim release test – VEC+2B.1)	2017-05-16
Prototype test reports LSA Code part 1, § 12.3:	Date
Test report no. 2020 & 2021 (2 x times sliding test – VEC+3A.1/VEC+2B.1)	2013-11-27
Test report no. 2474 (load test of passage to container – VEC+3A.1)	2016-10-05
Test report no. 2587 (load test of passage to container – VEC+2B.1)	2017-05-08
Test report no. 2113 (-30-degree cold test on chute passage – VEC+3A.1/VEC+2B.1)	1999-06-17
Test report no. 2525 (slide path wear test – VEC+3A.1/VEC+2B.1)	1999-06-16
Prototype test reports LSA Code part 1, § 12.5:	Date
Test report no. 2472 (independent release – VEC+3A.1/VEC+2B.1)	2016-10-05
Test report no. 2445 (float free – VEC+3A.1/VEC+2B.1)	2016-08-15
Test report no. 2531 (capacity test – VEC+3A.1/VEC+2B.1)	1999-10-14
Prototype test reports LSA Code part 1, § 12.6:	Date
Test report no. 2470 (timed evacuation test – VEC+3A.1/VEC+2B.1)	2016-09-29
Test report no. 2533 (heavy weather sea trail test – phase 1 – VEC+3A.1)	2017-01-25
Test report no. 2577 (heavy weather sea trail test – phase 1 – VEC+2B.1)	2017-04-05
Test report no. 2526 (heavy weather sea trial tests – phase 1-4) – VEC	1999-08-17 1999-09-02
Manuals:	Date
Training and operating manual, Viking Evacuation Chute	Jan 2017
Final Assembly and service manual, Viking Evacuation Chute	Jan 2017
Liferaft manual 100 DKS Chute Liferafts	-
Other	Date
Conversion table for drawings and test reports	2017-02-24
VEC+ Type variants and used material appendix, Rev.2	2018-06-23
Design change	Date
DC10406 - Design Change: VEC+ 3A.1 chute box and associated rail system + supporting test reports: Test reports Nos.:	2018-06-25
- 2585 (deployment test – VEC+2B.1)	
- 2680 (deployment test – VEC+3B.1)	2017-05-30
- 2587 (static load test Chute – VEC+2B.1)	2018-01-25
- 2698 (static load test Chute – VEC+3B.1)	2018-05-08
- 2592 (trim/list – VEC+2B.1)	2018-01-25
- 2597 (ice test – VEC+2B.1)	2017-05-16
- 2577 (heavy weather sea trail test – phase 1 – VEC+2B.1)	2017-06-08 2017-04-05
DC 10435 – traffic light upgrade to generation 3.1+ supporting documents:	2018-11-06
- DNV GL Advisory Maritime – report no. 1-10119722, rev.2, test & root cause discovery review	2018-10-17
- Statement USCG, successful MES deployment with traffic light system generation 3.1	2018-11-01
- Viking document: A0433 Traffic light Mechanical issues, 3.1 + referenced testing	2018-10-12
- Viking document: A0432 Traffic light Generation 3 + referenced testing	2018-07-13
DC10437 + DC10439 - use of alternative hardener 'Beyond' + supporting documentation.	2018-12-10
Test report Nos.:	2018-12-11
- 2905, 2914, 2915 (3x over pressure test)	
- 2880, 2881, 2882, 2883, 2884, 2885 (seam strength tests)	
- Viking report: Comparison of strength in existing and alternative hardener	
DC10446 – use of alternative hardener for MES system liferafts and slides – TM-93 + supporting documentation:	2019-03-19
- Report – Strength of 'TM-93'	
- Design review – Use of 'Beyond'	
DC10447 (extension of DC 10437, DC10438, DC10439, DC 10446) – Alternative hardener on patches for all liferaft and slide production – 'Beyond' and 'TM-93' + supporting documentation:	2019-03-19
- Report – Strength of 'Beyond'	
- Report – Strength of 'TM-93'	

<ul style="list-style-type: none"> - Report – Use of Alternative hardener on MES patches - Design review – Use of 'Beyond' 	
DC10474 – Alternative chute lines (Dyneema SK78 - 9 mm line) and supporting test reports: <ul style="list-style-type: none"> - External test report 3435 - External test report 3442 - External test report 3436 	2020-07-29

Tests carried out

Test documentation in accordance with recommendation on testing of Lifesaving Appliances, IMO Res. MSC 81(70), part 1 as given by the Technical Documentation specified above.

Marking

The product is to be indelibly marked with name and address of manufacturer, type designation, dimensions and date of manufacture, the MED Mark of Conformity and USCG Approval Number (see first page). The marking shall be according to LSA Code, item 6.2.4 and 6.2.5.