

# EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:  
**MEDB00000ET**  
Revision No:  
**20**

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)

**Viking Evacuation Mini Chute (VEMC), 1.1 TL, 1.5, 1.6, 1.7 (navy), 1.8, 1.8.3 (-35°C), 1.9, 1.9.3 (-35°C), 1.14, 1.15, 1.17 (navy), 1.18, 1.19, 1.20, 1.20.3 (-35°C), 1.21, 1.21.3 (-35°C), 1.30, 1.31, 1.32 (navy), 1.33 (navy)**

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.**

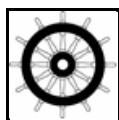
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2026-03-21**.

Issued at **Høvik** on **2021-12-06**

DNV local station:  
**Denmark CMC**

Approval Engineer:  
**Tessa Bieber**



Notified Body  
No.: **0575**

for **DNV AS**

**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

'Viking Evacuation Mini Chute (VEMC), 1.1 TL, 1.5, 1.6, 1.7 (navy), 1.8, 1.8.3 (-35°C), 1.9, 1.9.3 (-35°C), 1.14, 1.15, 1.17 (navy), 1.18, 1.19, 1.20, 1.20.3 (-35°C), 1.21, 1.21.3 (-35°C), 1.30, 1.31, 1.32 (navy) and 1.33 (navy)' are Viking Evacuation Mini Chute (VEMC) Marine Evacuation Systems (MES) with a single vertical chute where evacuation takes place directly into a VIKING 100 DKS or 150 DKS liferaft. The following variants are available:

Table 1

Variants	VIKING 100 DKS liferaft		VIKING 150 DKS liferaft		Max. Evacuation capacity [Persons/30 min]	Installation height [m]
	A-pack	B-pack	A-pack	B-pack		
1.1 TL		•			582	6.1 – 9.1
1.5		•			356	6.1 – 20.2
1.6	•				356	6.1 – 20.2
1.7 (navy)	•				356	6.1 – 15
1.8		•			582	6.1 – 20.2
1.8.3 (-35°C)		•			582	6.1 – 20.2
1.9	•				582	6.1 – 20.2
1.9.3 (-35°C)	•				582	6.1 – 20.2
1.14			•		582	6.1 – 18
1.15				•	582	6.1 – 20.2
1.17 (navy)	•				582	6.1 – 15
1.18			•		582	6.1 – 20.2
1.19				•	582	6.1 – 20.2
1.20		•			582	6.1 – 20.2
1.20.3 (-35°C)		•			582	6.1 – 20.2
1.21	•				582	6.1 – 20.2
1.21.3 (-35°C)	•				582	6.1 – 20.2
1.30		•			582	6.1 – 20.2
1.31	•				582	6.1 – 20.2
1.32 (navy)	•				582	6.1 – 15
1.33 (navy)	•				582	6.1 – 15

For further details and material specification see document "VEMC Type Variants" listed under the examination documentation.

The VEMC has been tested according to IMO Res. MSC 81(70) item 12.6.1 and 12.6.2 with VIKING 150 DKS associated drop-down liferaft. DNV accepts other associated smaller drop-down liferafts for VEMC provided that the line attachment arrangement is the same as arranged for Viking 100 DKS liferaft.

## Applications/Limitations

Min. and max. installation heights for the VEMC variants to be in accordance with the table 1 under product description.

Max evacuation capacity for VEMC 1.5, 1.6 and 1.7 (navy):

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

Max evacuation capacity for VEMC 1.1 TL, 1.8, 1.8.3 (-35°C), 1.9, 1.9.3 (-35°C), 1.14, 1.15, 1.17 (navy), 1.18, 1.19, 1.20, 1.20.3 (-35°C), 1.21, 1.21.3 (-35°C), 1.30, 1.31, 1.32 (navy) and 1.33 (navy):

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

<p><b>Evacuation time VEMC 1.5, 1.6, 1.7 (navy)</b></p> <p><i>(200 seconds includes launching, inflation preparation of system and cut free of liferaft)</i></p>	<p><u>Specified evacuation time - 200 seconds</u> 4.5 seconds/person</p> <p>(1800-200) / 4.5 = 356 persons</p>
<p><b>Evacuation time VEMC 1.1 TL, 1.8, 1.8.3 (-35°C), 1.9, 1.9.3 (-35°C), 1.14, 1.15, 1.17 (navy), 1.18, 1.19, 1.20, 1.20.3 (-35°C), 1.21, 1.21.3 (-35°C), 1.30, 1.31, 1.32 (navy) and 1.33 (navy):</b></p> <p><i>(119 seconds includes launching, inflation preparation of system and cut free of liferaft)</i></p>	<p><u>Specified evacuation time - 119 seconds</u> 2.88 seconds/person</p> <p>(1800-119) / 2.88 = 582 persons</p>

The associated drop-down liferafts shall have separate MED Approval and bear the MED Mark of Conformity.

Accepted with 150 DKS and smaller associated drop-down liferafts provided that the line attachment arrangement is the same as for 100 DKS (see above).

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 15738:2019.

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 VEMC 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 MEDB00000ET Rev.17 (rev.18 and 19 do not exist).

The following documentation is basis for the DNV approval:

Documentation	Date
Operational Manual, Viking Evacuation MiniChute	July 2020
Viking technical documentation for Mini Chute VEMC 1.1/1.2 volume A and B as detailed in Doc. No: VEMC Volume A index, edition 1	December 2002
Product description 'VEMC Type Variants', Rev.9	2021-12-02
Drawings	Date
Drawings as specified in DNV approval letter	2003-12-02
Drawing no. 43002482.000~009 (Viking 150 DKS – VEMC 1.15 reverse) – DC10392	2017-01-30
General arrangement drawings for new variants 1.8.3 (-35°C) and 1.9.3 (-35°C):	-
- Drawing No. 16011490 (VEMC 1.8.3 (-35 degrees))	
- Drawing No. 16011235 (VEMC 1.9.3 (-35 degrees))	
Test reports	Date
Prototype test report witnessed by DNV	2009-09-11 2009-08-28 2010-01-29
Test Report Nos.:	
- 799 witnessed by DNV	2007-02-11
- 809 and 810 witnessed by DNV	2007-03-31
- 1279 witnessed by DNV	2009-09-11
- 1540 witnessed by DNV	2011-02-07
- 1730 witnessed by DNV	2012-01-09
- RD-00043-D-001 witnessed by DNV	2010-10-29
Data sheets; alarm system and traffic light + test report 1279	2009-09-11
Design changes (DC) + supporting test reports	Date
Viking Design change sheet No. DC10370 (modified container design) supported by:	2015-12-01
- Test report No. 2276 (drop and inflation test) witnessed by DNVGL	2015-12-17
Viking Design change sheet No. DC10392 (180° reversed inflation of 150 DKS – raft inflates outward away from the chute) supported by:	2017-01-27
- Test report No. 2532 (180° reversed inflation – 150 DKS B-pack) witnessed by DNVGL	2017-01-27
Viking Design change sheet No. DC10405 (stabilizer added to VEMC) supported by:	2017-08-16
- Test report No. 2632 (Deployment test) witnessed by DNVGL	2017-08-09
Viking Design change sheet No. DC10408 (bottom of raft turned 180 degrees & pressure cylinders contra turned 180 degrees) supported by:	2017-09-01
- Test report No. 2647 (Deployment test), witnessed by DNVGL	2017-09-01
New variants 1.18 and 1.19 based on Viking DC10392 (180° reversed inflation of 150 DKS – raft inflates outward away from the chute) supported by:	2018-04-12
Test reports witnessed by DNV GL (new variants 1.8.3 (-35°C) and 1.9.3 (-35°C):	
- 2250 (cold inflation test at -35°C) witnessed by DNVGL	2015-09-08
- 2251 (cold inflation test at -35°C) witnessed by DNVGL	2015-09-08
- 2664 (cold store test for chute at -35°C) witnessed by DNVGL	2017-02-01
- 2665 (deployment + 10 descent operations after storage at -35°C)	2017-11-02
- 2666 (detailed inspection ref. test report 2664 and 2665) witnessed by DNVGL	2017-11-02
- 1016 (low temperature flexing at -50°C for liferaft materials) witnessed by DNV	2008-08-27
- 2663 low temperature flexing at -35°C for chute materials) witnessed by DNVGL	2017-10-27
Viking Design change sheet No. DC 10435 (traffic light upgrade to generation 3.1) + supporting documents:	2018-11-06 2018-10-17
- DNV GL Advisory Maritime – Report No. 1-10119722, rev.2, test & root cause discovery review	2018-11-01
- Statement USCG, successful MES deployment with traffic light system generation 3.1	
- 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
Viking Design change sheet No. DC10437 + DC10439 (use of alternative hardener 'Beyond') + supporting documentation:	2018-12-10/11
Test report Nos.:	
- 2905, 2914, 2915 (3x over pressure test) witnessed by DNVGL	
- 2880, 2881, 2882, 2883, 2884, 2885 (seam strength tests) witnessed by DNVGL	
- Viking report: Comparison of strength in existing and alternative hardener	

Viking Design change sheet No. DC10446 (use of alternative hardener for MES system liferafts and slides – TM-93) + supporting documentation: <ul style="list-style-type: none"> <li>- Report – Strength of ‘TM-93’</li> <li>- Design review – Use of ‘Beyond’</li> </ul>	2019-03-19
Viking Design change sheet No. 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: <ul style="list-style-type: none"> <li>- Report – Strength of ‘Beyond’</li> <li>- Report – Strength of ‘TM-93’</li> <li>- Report – Use of Alternative hardener on MES patches</li> <li>- Design review – Use of ‘Beyond’</li> </ul>	2019-03-19
Viking Design change sheet No. DC10463 (Upgrade VEMC float free arrangement – VEMC locking mechanism) and supporting documentation:  Test report Nos.: <ul style="list-style-type: none"> <li>- 3307 (deployment test) witnessed by DNVGL</li> <li>- 3317 (5 x dry release test) witnessed by DNVGL</li> <li>- Internal test A0505 dated 2020-01-01 (testing functionality of the sling connected to the VEMC locking mechanism)</li> </ul>	2020-03-19
Drawing No. 16014120 Rev.0 (2 sheets)	2020-03-04
Viking Design change sheet No. DC10473 (including variant VEMC 1.1 TL, equipped with wireless traffic light system, ref. DC 10435)) + supporting documentation:  Test report Nos.: <ul style="list-style-type: none"> <li>- 1279 (timed evacuation capacity) witnessed by DNVGL</li> <li>- 1417 (wear test) witnessed by DNVGL</li> </ul> Drawings/manual: VEMC modi 024: VEMC 1.1 upgrade from sound alarm to wireless traffic light	2020-06-22
Viking Design change sheet No. DC10474 – Alternative chute lines (Dynemaa SK78 - 9 mm line) and supporting test reports: <ul style="list-style-type: none"> <li>- Test report 3435 witnessed by DNVGL</li> <li>- Test report 3442 witnessed by DNVGL</li> <li>- Test report 3436 witnessed by DNVGL</li> </ul>	2020-07-29
Viking Design change sheet No. DC10483 (100 DKS VEMC reverse inflation) + supporting documentation:  Test reports Nos.: <ul style="list-style-type: none"> <li>- 3514 (deployment test – A pack) witnessed by DNVGL</li> <li>- 3529 (trim and list test) witnessed by DNVGL</li> <li>- 3530 (deployment test – B-pack) witnessed by DNVGL</li> </ul> Drawing Nos.: <ul style="list-style-type: none"> <li>- ENG-20061061 Rev.0 (ramp for VEMC – right)</li> <li>- ENG-20057957 Rev.0 (ramp for VEMC – left)</li> <li>- ENG-20065188 Rev.0 (VEMC with ramps for B-pack)</li> </ul>	2020-10-23
D-FMEA VEMC 100DKS	2020-12-03
Viking Design change sheet No. DC10485 (updated container release system (CRS)) + supporting documentation:  Test report No. 3561 (deployment test) witnessed by DNVGL  Drawing No.1614120 Rev.4	2020-10-26
Viking Design change sheet No. DC10488 (VEMC 100DKS S30) + supporting documentation:  Test report Nos.: <ul style="list-style-type: none"> <li>- 3638 (timed evacuation test) witnessed by DNV GL</li> <li>- 3635 (one-person deployment test) witnessed by DNV GL</li> </ul>	2021-01-18
Viking Design change sheet No. DC10491 (VEMC 100DKS A-pack (S30), variants 1.31 and 1.32 (navy)) + supporting documentation:	2020-02-25

<p>Test report Nos.:</p> <ul style="list-style-type: none"> <li>- 3638 (timed evacuation test) witnessed by DNVGL</li> <li>- 3635 (one-person deployment test) witnessed by DNVGL</li> <li>- 3629 (free float test) witnessed by DNVGL</li> <li>- Internal test report A 559 (pulling test)</li> </ul> <p>Drawing Nos.:</p> <ul style="list-style-type: none"> <li>- ENG-20021220 (Assembly drawing for VEMC 100 DKS A-pack, variant 1.31 and 1.32 (navy))</li> <li>- ENG-20086773 (S30 chute protection)</li> <li>- ENG-20086780 (Tarpaulin)</li> <li>- ENG-20086897 (bowsing connection line)</li> <li>- 42005490 (bowsing rope)</li> </ul>	
<p>Viking Design change sheet No. DC10492 (VEMC tear brake for all systems w. bottles towards ship) + supporting documentation:</p> <p>Test report No. 3630 (Deployment test) witnessed by DNV</p>	2021-03-15
<p>Viking Design change sheet DNV10497 (new variant VEMC 1.33 based on VEMC 1.32) + supporting documentation:</p> <p>Test reports Nos.:</p> <ul style="list-style-type: none"> <li>- 3841 (float free test) witnessed by DNV</li> <li>- 3830 (deployment test by one person) witnessed by DNV</li> </ul> <p>Drawing No. ENG-20099035 Rev.0 (general arrangement)</p>	2021-07-01
<p>Viking Design change sheet DNV10502 (VEMC 100DKS S12 update, all S12 variants) + supporting documentation:</p> <p>Test report Nos.:</p> <ul style="list-style-type: none"> <li>- 3801 (deployment test by one person) witnessed by DNV</li> <li>- 3800 (deployment from storage position) witnessed by DNV</li> <li>- 3796 (deployment from storage position) witnessed by DNV</li> <li>- 3799 (float free test) witnessed by DNV</li> <li>- 3798 (float free test) witnessed by DNV</li> <li>- 3797 (deployment by one person) witnessed by DNV</li> </ul>	2021-09-03
<p>Viking Design change sheet DNV10508 (New variant 1.30) + supporting documentation:</p> <p>Test report Nos.:</p> <ul style="list-style-type: none"> <li>- 3851 (Float free test) witnessed by DNV</li> <li>- 3862 (deployment from storage position) witnessed by DNV</li> <li>- 3863 (deployment test by one person) witnessed by DNV</li> <li>- 2098 (static load 2.2 times) witnessed by DNV</li> </ul> <p>Drawing Nos.:</p> <ul style="list-style-type: none"> <li>- ENG - 20112615 Rev.0 ( VEMC 1.30 General Arrangement)</li> <li>- ENG - 20099403 Rev.0 (trim/list VEMC 1.30 B-Pack S30)</li> </ul>	2021-11-09

### Tests carried out

Documentation of tests in accordance with Recommendation on Testing of Lifesaving Appliances, IMO Resolution MSC.81(70), part 1, included in volume A of 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.