

TYPE APPROVAL CERTIFICATE

Certificate no.:
TALB000002D
Revision No:
1

This is to certify:

that the **Automatic self-righting liferafts**

with type designation(s)

12 DKFS, 12 DKFS S30, 12 DKFS E, 16 DKFS, 16 DKFS S30, 16 DKFS E, 20 DKFS, 20 DKFS S30, 20 DKFS E, 25 DKFS, 25 DKFS S30, 25 DKFS E, 35DKFS, 35 DKFS S30, 35 DKFS E, 39 DKFS, 39 DKFS S30, 39 DKFS E

issued to

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

is found to comply with

SOLAS 74 as amended, Regulation III/4, III/26.2, III/34. IMO Res. MSC 48(66) - Lifesaving Appliance Code.
Tested to IMO Res. MSC 81(70).

Application:

This certificate is recognized by Transport Canada.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2023-12-04**

This Certificate is valid until **2028-12-03**.

DNV local unit: **Fredericia Fleet In Service**

Approval Engineer: **Tessa Bieber**

for **DNV**



Digitally Signed By:
Jowita Permoda

Location: **DNV Gdynia, Poland**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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

Automatic self-righting davit launched inflatable liferaft with the following type designations:

- 12 DKFS, 12 DKFS S30, 12 DKFS E
- 16 DKFS, 16 DKFS S30, 16 DKFS E
- 20 DKFS, 20 DKFS S30, 20 DKFS E
- 25 DKFS, 25 DKFS S30, 25 DKFS E
- 35 DKFS, 35 DKFS S30, 35 DKFS E
- 39 DKFS, 39 DKFS S30, 39 DKFS E

The design assessment is based on IMO Res. MSC.48(66) as amended including IMO Res. MSC.293(87) and Canadian Lifesaving Appliance Standard TP 14475E, Ch. IV §4.1 and §4.2 and Lifesaving equipment regulations C.R.C.1436 Schedule VIII.

Liferaft designs with type designation including S30 comply also with MSC.1/Circ. 1328 (extended service intervals).

Application/Limitation

The liferafts are available with features added on to the existing type approved base raft.

S30: added to type designation e.g. 25DKFS S30. Liferaft tested according to MSC.1/Circ. 1328 and packed in a sealed packing bag to allow for extended service intervals up to 30 months. The raft is subject to an annual onboard inspection.

E: added to type designation e.g. 25DKFS E. Environmental packed liferaft prepared for extended service intervals.

Cargo: added to type designation e.g. 25 DKFS Cargo. Alternative variant for Cargo vessels.

Notes to below from Capacity and installation heights: Container type designation is given as 16-xxxx, and emergency packs SOLAS A or B is given as "A" and "B".

Liferaft type	Towing strain 2 knots	Towing strain 3 knots	Container type installation height 25 m	Container type installation height 36 m	Container type installation height 60 m	Max. capacity [persons]	Weight of liferaft ± 2% [kg]
12 DKFS 12 DKFS S30 12 DKFS E	0.58 kN	1.17 kN			A 69XX	12	132 (SOLAS A-pack)
16 DKFS 16 DKFS S30 16 DKFS E	0.68 kN	1.27 kN			A 80XX	16	140 (SOALS A-pack)
20 DKFS 20 DKFS S30 20 DKFS E	0.55 kN	1.21 kN			A 80XX	20	174 (SOLAS A-pack)
25 DKFS 25 DKFS S30 25 DKFS E	0.7 kN	1.4 kN		A 8200 B 8500 B 0113 B 0140	A 8200	25	226 (SOLAS A-pack) 170 (SOLAS B-pack)
25 DKFS Cargo	0.74 kN	1.44 kN		A 810X	A 810X	25	198 (SOLAS A-Pack)
35 DKFS 35 DKFS S30 35 DKFS E	1.05 kN	1.79 kN		B 82XX	A 84XX	35	304 (SOLAS A-pack) 213 (SOLAS B-pack)
39 DKFS 39 DKFS S30 39 DKFS E	1.05 kN	2.45 kN	B 8200	A 8400		39	333 (SOLAS A-pack) 230 (SOLAS B-pack)

The liferaft shall be packed with a SOLAS A PACK or SOLAS B PACK.

Gas cylinders shall be of an approved type.

Components in the gas inflation system should be approved according to ISO 15738:2019.

The liferaft is intended to be installed with external weak link and a hydrostatic release unit. Float free arrangement to be checked upon installation on board.

The design assessment is based on International Life-Saving Appliances (LSA) Code, IMO Res. MSC. 48(66) as amended by IMO Res. MSC.218(82) and IMO Res. MSC.293(87).

Production testing shall be carried out according to IMO Res. MSC.81(70) part 2.

With ref. to 'Test carried out' the liferafts including the type designation S30 are approved for extended service intervals up to 30 months in accordance with SOLAS Ch. III, Regulation 20.8.3 on the condition that:

- Such extended service intervals have been approved by the ships flag administration.
- The liferafts are checked onboard in accordance with SOLAS Ch. III Regulation 20.8.3.2 at intervals in accordance with SOLAS Ch. III Regulation 20.8.1.1, according to procedures issued by the manufacturer.
- The liferafts shall be serviced at approved servicing stations in accordance with the recommendations in IMO Res. A.761(18) at intervals not exceeding 30 months.

Type approval documentation

Certification in accordance with Class Programme DNV-CP-0338, September 2021.

This certificate replaces TALB000002D.

Drawings and parts lists:

Liferaft type	Parts list No.	Drawing no.
12 DKFS 12 DKFS S30 12 DKFS E	ENG-20069961 Rev.1, (Page 4/4)	ENG-20069961 Rev.1, (Page 1-3/4) 16012707 Rev. 0 ENG-20070293 Rev.0
16 DKFS 16 DKFS S30 16 DKFS E	ENG-20068215 Rev.1, (Page 4/4)	ENG-20068215 Rev.1, (Page 1-3/4) ENG-20070265 Rev.0 ENG-20070285 Rev.0
20 DKFS 20 DKFS S30 20 DKFS E	ENG-20068461 Rev.1, (Page 4/4)	ENG-20068461 Rev.1, (Page 1-3/4) ENG-20070265 Rev.0 ENG-20070294 Rev.0
25 DKFS 25 DKFS S30 25 DKFS E 25 DKFS Cargo 25 DKFS S30 Cargo 25 DKFS E Cargo	43002434.000, 43002446.000 ENG-20096915 (page 4/4)	43002434.001/002/003 43002446.001/002 ENG-20096915 (page 1-2-3/4) ENG-200701168 ENG-20159042 16006799
35 DKFS 35 DKFS S30 35 DKFS E	ENG-20095314 (Page 4-5/5)	ENG-20095314 (Page 1-3/5) ENG-20081994 Rev.0 ENG-20081208 Rev 1 ENG-20115228 Rev.0 ENG-20115262
39 DKFS 39 DKFS S30 39 DKFS E	ENG-20072744 (Page 4/4)	ENG-20072744 (Page 1-3/4)

Tests carried out

Prototype tests and test reports in accordance with the Recommendation on Testing of Life-Saving Appliances, IMO Res. MSC 81(70) part 1, including IMO Res. MSC 226(82), MSC 295(87) and MSC.323(89), have been witnessed and evaluated and found to be in compliance.

Tests and reports in accordance with test requirements listed in MSC.1/Circ. 1328 item 5.4.2 - 5.4.10 have been witnessed by DNV surveyor and evaluated and found to be in compliance (test report item 5.4.4 dd. 2009-09-01, item 5.4.6 dd. 2009-10-29, item 5.4.7 dd. 2009-10-28, item 5.4.8 - 5.4.10 dd. 2009-11-02/2009-11-04)

Tested according to the MarED recommendation for liferaft occupancy weight increase from 75 kg to 82.5 kg: 1027-1029, 1228, 1395, 1451, 1497, 1509, 1534, 1544, 1554, 1581-1587, 1589, 1591-1593, 1595-1603, 1605-1617, 1620, 1622, 1627-1642, 1655-1657 and 1683-1685

Prototype tests and reports in accordance with test requirements listed in IMO Res. MSC 81(70) part 1 as amended as listed in Conformity Assessment report (CAR) for 12 DKFS, 12 DKFS S30 and 12 DKFS E dated 2021-06-25.

Prototype tests and reports in accordance with test requirements listed in IMO Res. MSC 81(70) part 1 as amended as listed in Conformity Assessment report (CAR) for 16 DKFS, 16 DKFS S30 and 16 DKFS E dated 2021-06-25.

Prototype tests and reports in accordance with test requirements listed in IMO Res. MSC 81(70) part 1 as amended as listed in Conformity Assessment report (CAR) for 20 DKFS, 20 DKFS S30 and 20 DKFS E dated 2021-06-25.

Prototype tests and reports in accordance with test requirements listed in IMO Res. MSC 81(70) part 1 as amended as listed in Conformity Assessment report (CAR) for 35 DKFS, 35 DKFS S30 and 35 DKFS E dated 2021-12-17.

Prototype tests and reports in accordance with test requirements listed in IMO Res. MSC 81(70) part 1 as amended as listed in Conformity Assessment report (CAR) 25 DKFS, 25 DKFS S30, 25 DKFS E (Cargo) dated 2023-01-13.

Test reports supporting the following design changes:

Design Change no.	Date	Subject	Test reports
10315	2013-03-21	Change to Daniamant RL6 combi light	1881~1889 – witnessed by DNV
10316	2013-04-08	Plastic strapping around container, replacing bursting bands	1887, 1888, 1901~1904 – witnessed by DNV
10322	2013-09-12	Alternative shackle for lifting arrangement	Strength report no. LX90433 dated 2009-11-02 from Shanghai Jinyi Materials test technology Co., Ltd, China Salt spray test dated 2012-04-30 from Danish technological Institute (DTI), Denmark
10326	2014-03-24	New canopy material (Rivertex 4000 PES PU coated)	1899, 1912, 1803, 1993, 1870, 2015 – witnessed by DNV Material Technical Report 1809 A dated 2012-10-25 from SATRA Technology Centre, UK
10345	2014-12-01	Replacing painterline for lifrafts > 25 persons	2168 – witnessed by DNV
10358	2016-01-22	Boarding ramp change/Inflatable floor change / inner and outer lifelines	1532, 2226, 2227 – witnessed by DNV
10385	2016-05-17	Change of installation height (max. 60 m for 25 DKS and 25 DKFS)	2413, 2414, 2415 – witnessed by DNV
10364	2015-11-04	Environmental packed	Extended Service Intervals - S30 tests
10420	2018-05-18	Fabric NK300C from ContiTech	2595, 2596, 2667, 2733, 2734, 2673, 2674, 2688, 2682, 2683, 2767, 2768, 2675, 2676, 2677, 2678, 2668, 2669, 2686, 2687, 2692, 2685, 2693, 2684, 2752, 2689, 2690, 2691 – witnessed by DNV Additional buoyancy material (NK300C) supported by the following test reports: <ul style="list-style-type: none"> - Prototype test in accordance with IMO Res. MSC.81(70), Part 1: weft distortion dated 2017-12-18, - Test report no. 2747: Coating Adhesion dated 2018-04-13 - Test report no. 2749: Oil resistance dated 2018-04-13 - Test report no. 2750: Blocking resistance 2018-04-13 - Laboratory test report no 1530100000 rev. 13 dated 2018-03-05 for NK300C by Contitech Laboratory Northeim, Germany witnessed by DNVGL surveyor - DNV GL verification statement N141GV0D dated 2018-03-15
10422	2018-05-25	Signal Lamp - in box with spare bulb and battery	2456, 2458, 2464, 2466 – witnessed by DNV
10434	2018-10-08	Alternative hardener Desmodur RFE	2834 (3x over pressure test), 2828, 2829, 2830, 2831, 2833 (seam strength tests) – witnessed by DNV
10437	2018-12-10	Alternative hardener 'Beyond'	2905, 2914, 2915 (3x over pressure test), 2880, 2881, 2882, 2883, 2884, 2885 (seam strength

			tests), 2920 (strength test – davit launched liferaft) – witnessed by DNV
10443	2019-04-23	Improved painter system for liferafts with capacity of 26 and more	3088, 3087, 2952, 2953 – witnessed by DNV
10438	2019-04-23	Alternative hardener 'TM-93'	2868, 2869, 2870, 2871, 2872, 2873, 2876, 2877, 2878, 2988, 2989, 2990, 3017, 3019 – witnessed by DNV
10451	2019-04-23	Painter system with alternative hardener 'TM-93' and 'Beyond'	3085, 3086 – witnessed by DNV
10496	2021-09-01	Capacity update to maximum number of persons	-
10512	2022-11-11	Black rubber fabric RBND6 BCR	4035, 4036, 4058, 4059, 4060, 4061, 4062, 4063, 4065, 4066, 4075, 4076, 4079, 4080, 4081, 4082, 4085, 4086, 4087, 4096, 4097, 4098, 4101, 4102, 4103, 4104 – witnessed by DNV Test report TX772622/2022/PL dated 29 September 2022 from SGS, Taoyuan City, Taiwan
10516a	2023-06-12	Extended innertube, long 6-65 persons	4059, 4087, 4066, 4101, 4081, 4419, 4420, 4421, 4422 – witnessed by DNV Drawing No. ENG-20118151 Rev.2
10520	2023-03-10	Bridle patch moved (12 DKS/16 DKS/20 DKS) and valve inside arch tube added (all variants)	Test report Nos.: 4001-4004
10521	2023-03-10	Cargo: Additional product type for 25 DKFS	See Conformity Assessment report (CAR) for 25DKFS Cargo, 25 DKFS S30 Cargo, 25 DKFS E Cargo dated 2023-03-30.

Marking of product

The product is to be indelibly marked with name of manufacturer, type designation and date of manufacture. The marking shall comply with the LSA Code (IMO Res. MSC.48(66)) items 4.2.6.3 and 4.2.7.

All instructions and markings accompanying the liferafts, or printed directly on the liferafts, shall be in both English and French, as per "Procedures For Approval of Life-Saving Appliances and Fire Safety Systems, Equipment and Products" (TP14612E) Ch.2.2.1.3.

Transport Canada Approval

Based on the procedures laid down in the Transport Canada Publication entitled "Procedures for Approval of Life-Saving Appliances, Fire Safety Systems, Equipment and Products (TP14612)", DNV confirms that the product/s listed in this certificate is/are in accordance with Transport Canada's requirements.

Periodical assessment

DNV's surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Class Programme DNV-CP-0338, Section 4.