

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Automatic self-righting liferafts**

with type designation(s)

25 DKS, 25 DKS-S30, 39 DKS, 39 DKS-S30, 50 DKS, 50 DKS-S30, 50 DKS VENOC, 50 DKS VENOC-S30, 100 DKS, 100 DKS VENOC, 100 DKS-S30, 100 DKS VENOC-S30, 150 DKS, 150 DKS-S30

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 GL.**Issued at **Høvik** on **2019-06-30**for **DNV GL**This Certificate is valid until **2024-06-29**.DNV GL local station: **Fredericia FiS**Approval Engineer: **Tessa Biever****Mårten Schei-Nilsson
Head of Section**

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.



Product description

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

- 12 DKS, 12 DKS_N, 16 DKS_N, 25 DKS, 25 DKS_N, 39 DKS, 50 DKS, 50 DKS+ VENOC, 100 DKS, 100 DKS VENOC, 100DKSU, 100 DKS SBS, 150 DKS, 150 DKSU, 150 DKS SBS
- 12 DKS S30, 12 DKS_N S30, 16 DKS_N S30, 25 DKS S30, 25 DKS_N S30, 39 DKS S30, 50 DKS S30, 100 DKS S30, 150 DKS S30
- 12 DKS E, 25 DKS E, 39 DKS E, 50 DKS E, 100 DKS E, 150 DKS E

Application/Limitation

S30: added to type designation e.g.12 DKS S30. Liferaft environmentally packed to allow for extended service intervals up to 30 months. The life raft is subject to an annual onboard inspection.

N: added to type designation e.g. 12 DKS_N. The liferaft is equipped with an improved "stairway" like boarding arrangement.

VENOC: added to type designation e.g. 50 DKS VENOC: The liferaft equipped with reduced SOLAS A emergency pack: 1 liter of drinking water per person is replaced by manually powered reverse osmosis desalinator according to LSA Code §4.1.5.1.19.

E: added to type designation e.g. 6 DK+ E. Environmental packed liferaft prepared for extended service intervals

Liferaft type	18m	22m	25m	30m	33m	35m	36m	60m	Cap.
12 DKS 12 DKS S30 12 DKS E	A 9044 A 0119		A 0120						12 persons
12 DKS _N 12 DKS _N S30	A 9044 A 0119		A 0120						12 persons
16 DKS _N 16 DKS _N S30							A 5200 A 5200		16 persons
25 DKS 25 DKS S30 25 DKS E							B 0162	A 8600	25 persons
25 DKS _N 25 DKS _N S30	A 0162 B 0162 B 8900						A 8600		25 persons
39 DKS 39 DKS S30 39 DKS E			A 8601				A 5700 B 5400		39 persons
50 DKS 50 DKS S30 50 DKS E 50 DKS+ VENOC				A 0142 B 7500 B 5700			A 7600		51 persons
100 DKS 100 DKS S30 100 DKS E 100 DKSU 100 DKS SBS		A 0500 A 0501 A 0502 B 0530 B 0531 B 0532		A 0135 A 0185 B 8800	A 9100	A 9700			101 persons
100 DKS VENOC						A 9700			101 persons
150 DKS 150 DKS S30 150 DKS E 150 DKSU 150 DKS SBS	A 9200 A 9800 A 9500 A 0202				A 9100 B 9100				153 persons

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Towing strain:

Liferaft type	Towing strain 2 knots	Towing strain 3 knots
12 DKS	0.8 kN	1.3 kN
12 DKS N	0.8 kN	1.3 kN
16 DKS N	0.7 kN	1.4 kN
25 DKS	0.7 kN	1.4 kN
25 DKS N	0.7 kN	1.4 kN
39 DKS	1.57 kN	2.65 kN
50 DKS	1.37 kN	2.15 kN
100 DKS	1.1 kN	2.3 kN
150 DKS	1.7 kN	3.1 kN

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 Life saving 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).

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 15738:2002.

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.

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

The liferafts are approved for extended service intervals up to 30 months in accordance with SOLAS Ch. III, Regulation 20.8.3 on the condition that:

1. Such extended service intervals has been approved by the ships flag administration.
2. 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.
3. 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 DNVGL-CP-0338, September 2018.

This certificate replaces LB-516.

Basis for approval:

Liferaft type	Parts list no.	Drawing no.
12 DKS N, 12 DKS N S30	43000435.000	43000435.001/002/003
12 DKS N, 12 DKS N S30	43001825.000	43001825.001/002/003
12 DKS N, 12 DKS N S30	43001870.000	43001870.001/002/003
12 DKS N, 12 DKS N S30	43002376.000	43002376.001/002/003
12 DKS, 12 DKS S30, 12 DKS E	43002448.000	43002448.001/002/003

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16 DKS, 16 DKS S30	43002546.000	43002546.001/002/003
25 DKS, 25 DKS S30	43000334.000	43000334.001/002/003
25 DKS, 25 DKS S30	43000445.000	43000445.001/002/003
25 DKS Direct Boarding	43000542.000	43000542.001/002/003
25 DKS, DD-MES	43000547.000	43000547.001/002/003
25 DKS, 25 DKS S30	43001826.000	43001826.001/002/003
39 DKS, 39 DKS S30, 39 DKS E	43002375.000	43002375.001/002/003
50 DKS	43000621.000	43000621.001/002/003
50 DKS, 50 DKS S30, 50 DKS E	43002438.000	43002438.001/002/003
50 DKS	43002444.000	43002444.001/002/003
50 DKS	43002447.000	43002447.001/002/003
50 DKS	43002464.000	43002464.001/002/003
100 DKS Basic canopy no.1	42002623.000	42002623.000
100 DKS basic raft no.1	42002641.000	42002641.001/002/003
100 DKS basic raft no.2	42002693.000	42002693.001/002/003
100 DKS Basic canopy no.6	42002764.000	42002764.001/002/003
100 DKS Basic canopy no.2	42004381.000	42004381.001
100 DKS basic raft no.5	43001954.000	43001954.001/002/003
100 DKSU	43002454.000	43002454.001/002
100 DKS SBS	43002540.000	43002540.001/002/003
150 DKS, 150 DKS S30	43001922.000	43001922.001-009
150 DKS	43002482.000	43002482.001-009
150 DKSU	43002454.000	43002454.001-009
150 DKS SBS	43002488.000	43002488.000/002

10348	2015-02-27	50 DKS downgraded (35 person@100 kg)	1740
10349	2015-04-22	50 DKS, change in location of the stabilizing pockets	2185, 2186
10359	2015-09-08	DKSU - 100 DKS modified to fit Undertun MES	2235
10362	2015-10-15	DKSU - 150 DKS modified to fit Undertun MES	2260
10371	2015-11-30	9800 container for 150 DKS A pack with desalter	2274, 2275
10378	2016-01-22	Fabric RBND6, new boarding ramp, introducing stabilizing pockets, handles for boarding, change floor to single layer, inner and outer lifelines	1532, 1573, 2252~2254
10389	2017-06-22	Containers for 100 DKS B-pack. Drawing Nos.: 16008569, 16008128, 16008133, 16008131, 16008570, 16008571	2507, 2508, 2509, 2514, 2515, 2516, 2522, 2607, 2608, 2609, 2610, 2611, 2612, 2725~2730
10392	2017-02-03	150 DKS: liferaft inflates outward, away from chute (when used as integrated liferaft for VEMC -MES system)	2532 (150 DKS reverse B-pack)
10396	2017-03-15	39 DKFS packed in container 016-8601	2460, 2468
10402	2017-01-20	Containers for 100 DKS A-pack Drawing Nos.: 16008569, 16008128, 16008133, 16008131, 16008570, 16008571	2427, 2429, 2430, 2431, 2432, 2434, 2438, 2475, 2476, 2477, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2500, 2528, 2725~2730
10419	2018-05-04	Packing procedure for liferaft 100 and 150 DKS and DKR used in SBS.	2739, 2740, 2743, 2583, 2624, 2625, 2628, 2738, 2741, 2744, 2731, 2735, 2736, 2742
10420	2018-05-18	Fabric NK300C from ContiTech	2595, 2596, 2667, 2733, 2734, 2673, 2674, 2688, 2682, 2683,

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			<p>2767, 2768, 2675, 2676, 2677, 2678, 2668, 2669, 2686, 2687, 2692, 2685, 2693, 2684, 2752, 2689, 2690, 2691</p> <p>Additional buoyancy material (NK300C) supported by the following test reports:</p> <p>Prototype test in accordance with IMO Res. MSC.81(70), Part 1:</p> <ul style="list-style-type: none"> - 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
10421	2018-04-23	100 DKS SBS liferaft with slide entrance (identical to 150 DKS) Drawing no. 43002540.000 (3 sheets) dated 2018-02-06	781, 2753, 2754, 2755, 2756
10422	2018-05-25	Signal Lamp - in box with spare bulb and battery	2456, 2458, 2464, 2466
10424	2018-07-06	16 DKSN with average load of 110 kg per person	2764, 2775, 2776,2766,2774, 2255, 2077, 1685, 2785, 2765, 659, 1596, 1640, Canopy closure test (no rep no - dated 1997-11-20), 682, Weaklink test - Hammer certificate includes weaklink test, Damage test (no rep no - dated 1998-02-05), 2253, 2762, 2759, 2760, 2761,1947, 2253, 225, 2116+2120, 1043, 2596, 2667, Buoyancy of float free liferafts (no rep no - dated 1998-02-04)
10434	2018-10-08	Alternative hardener 'Desmodur RFE'	2834 (3x over pressure test) 2828, 2829, 2830, 2831, 2833 (seam strength tests)
10437	2018-12-10	Alternative hardener 'Beyond'	2905, 2914, 2915 (3 x overpressure test) 2880, 2881, 2882, 2883, 2884, 2885 (seam strength test)
10443	2019-04-23	Improved painter system for liferafts with capacity of 26 and more	3088, 3087, 2952, 2953
10438	2019-04-23	Alternative hardener 'TM-93'	2868, 2869, 2870, 2871, 2872, 2873, 2876, 2877, 2878, 2988, 2989, 2990, 3017, 3019
10450	2019-04-12	Add container 9500 and 0202 to 18m for	Test report No.:

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		150 DKS liferafts	- 1535, 1536, 1538, 1539 Drawing No.: - 16001051 Rev.03 dated 2017-01-20 (150 DKS Container VEDC 2.2/2.3 – (Raft 2 016-0202)) - 16001552 Rev.02 dated 2017-01-20 (150 DKS A desalter container VEDC 2.3 Raft 1 (016-9500))
10451	2019-04-23	Paintersystem with alternative hardener 'TM-93' and 'Beyond'	3085, 3086

- Correspondance Transport Canada, email dated 2015-01-13 (our ref. 262.1-018166 techdoc 3)

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:
 - 25 DKS: test report no. 907, 220, 1620, 461, 2167, 1595, 1635, 659, 651, 1640, 1672, 1185, 294, 1597, 678, 1947, 334, 1562, 1228, 1413, 1993, 2007, 2008, 2010
 - 50 DKS: test report no. 907, 432, 1912, 229a, 1611, 2167, 1534, 1638, 659, 1581, 1642, 408b, 2033, 408a, 408c, 206a, 362, 206b, 1803, 206c, 207, 208, 1899, 1562, 1228, 1413, 1993, 2007, 2008, 2010, incl. 2185 (towing test) and 2186 (righting test) for DC: DNV10349.
 - 100 DKS: test report no. 907, 2154, 2155, 1912, 1012, 1026, 1554, 2167, 1534, 1638, 659, 1581, 1642, 266b, 2033, 1475, 1582, 266c, 1895, 1897, 1007, 2157, 533, 1542, 328i, 1899, 1562, 1228, 1413, 1993, 2007, 2008, 2010
 - 150 DKS: testreport no. 907, 1035, 1544, 1035, 1509, 2167, 1580, 1638, 696, 1581, 1642, 364, 1582, 1992, 1564, 1561, 364, 1715, 1562, 1228, 1413, 1993, 2007, 2008, 2010
- Tested to the requirements given in the Canadian Lifesaving Appliance Standard TP 14475E, Part II, Ch.5 §5.1.2.
- Test report 1740 witnessed by DNV dd. 2012-02-13 wrt design change DNV 10348

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 "Approval Procedures for, Life Saving Equipment and Structural Fire Protection Products (TP 14612)", DNV GL confirms that the product/s listed in this certificate is/are in accordance with Transport Canada's requirements.



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Periodical assessment

DNV GL'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 DNVGL-CP-0338, Section 4.