



Lloyd's
Register

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.

Manufacturer Survitec Group

Address Kingsway
Dunmurry
Belfast, BT17 9AF

Product Type LIFERAFTS

Product Description 12 persons, 16 persons, 20 persons, 25 persons davit launched canopied inflatable liferafts - Type: "RFD Surviva DL MKIV" (also known as Beaufort Seafarer DL, DSB LR07L , EV DL M10, Crewsaver, Elliot, Survitec Zodiac and DBC)

Specified Standard IMO Resolution MSC.81 (70) Part 1 as amended by Resolution MSC.295 (87), Resolution MSC.274 (85), Resolution MSC.226 (82) and Resolution MSC.323 (89)

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.

Date of issue 26 August 2015

Expiry date 25 November 2017

Certificate No. SAS S120100/M3

Signed

Sheet No 1 of 6

Name

L. Thomas
Surveyor to Lloyd's Register EMEA
A Member of the Lloyd's Register Group

Note:

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 of any modification or changes to the equipment in order to obtain a valid certificate.

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.



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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

EXAMINED DOCUMENTATION

- Liferaft Approval data issued by Lloyd's Register
- LR Certificate No.: SAS S070160/M2, SAS S070161/M2, SAS S070162/M2, SAS S070163/M2, SAS S100008/M1, SAS S100009/M1, SAS S100010/M1, SAS S100011/M1
- EC Module B Certificate no.: MED 0750274/M2, MED 0750275/M2, MED 0750256/M2, MED 0750277/M2, MED 1050009/M1, MED 1050010/M1, MED 1050011/M1, MED 1050012/M1
- DCS 9701 "PU coated structural fabric p/n. 10772009, RFD Spec. 1015 Type 1 (single sided)" issued on 19.09.11
- DCS 9968 "Thanner DK99 Inflation system" issued on 20.06.12
- DCS 9323 "Bostik 6530" issued on 30.03.10
- DCS 0110 regarding the introduction of a new Daniamant RL6 lighting system as an alternative lighting system on Marine MK4 SOLAS liferafts

<u>Drawing No.</u>	<u>Rev. No.</u>	<u>Date</u>	<u>Drawing Title</u>
D50867	2	07.08.07	Surviva Mk4 25-Persons Davit Launch Liferaft
22543-01/02/03	2	02.07.07	General Arrangement (3 drawings)
DCS 8920	-	08.09.08	Surviva MkIV range Marine Liferasts: USCG Compliant
D50864	1	07.08.07	Survival Mk4 12-Persons davit launched
21239-01/02/03	2	04.07.07	General Arrangement (3 drawings)
D50865	2	07.08.07	Surviva Mk4 16-Persons Davit Launched Lifeboat
21642-01/02/03	2	25.06.07	General Arrangement (3 drawings)
D50866	1	07.08.07	Surviva MK4 20-Persons Davit Launched Liferaft
22056-01/02/03	2	18.07.07	General Arrangement (3 drawings)

TEST REPORTS

- DSB Test Report for LR 97 8 person date completed 17 October 1997
- Series of tests completed for DSB LR 97 Liferasts carried out between 5 February 1997 and 6 June 1997
- DSB LR97, 25 persons Righting Test, report No. 027/07 completed on 09.08.07
- Series of MSC/Circ. 980 test reports completed to demonstrate compliance with Resolution MSC.295 (87) and MSC.274 (85), dated 22.04.2010 to 03.03.2011, witnessed by a Lloyd's Register surveyor
- Marine Report No 01/13 dated 29.11.2012 (Drop test report as witnessed by a LR surveyor)
- Marine Report No 02/13 dated 07.11.2012 (Cold Inflation test report as witnessed by a LR surveyor)
- Marine Report No 03/13 dated 07.11.2012 (Cold Inflation test report as witnessed by a LR surveyor)



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Liferafts Fitted with TPED Compliant Cylinders

- Hot Inflation Test of RFD Endura MK4 25 Person davit launched and 6 person throw over liferaft completed with Leaffield (GIST), report no. 24/07, dated 07.09.07.
- Cold Inflation Test Endura (using Surviva MK4 hull), completed with Leaffield (GIST), report no. 25/07, dated 11.09.07

Qualifying Test for Leaffield GIST Inflation System

Liferafts fitted with US DOT Compliant Cylinders
DCS 8920

Report No.	Date	Description
07/08	01.08.08	Hot Inflation (Leaffield GIST)
02/08	14.04.08	Cold Inflation (Leaffield GIST)
14/08	14.07.08	36m Drop Test (Leaffield GIST)
39/08	04.08.08	46m Drop Test (Leaffield GIST)
06/08	23.04.08	Ambient Inflation / Painter Pull Force (Leaffield GIST)

"Qualifying Test for Thanner Compact Inflation System" & "Liferafts Fitted with TPED Compliant Cylinders"

Report No.	Date	Description
16/08	09.06.08	36m Drop test (c/w Thanner Mk6 Inlet Valve & Thanner DK99 Short Operating Head)
18/08	04.06.08	Cold Inflation (c/w Thanner Mk6 Inlet Valve & Thanner DK99 Short Operating Head)
19/08	05.06.08	Hot Inflation (c/w Thanner Mk6 Inlet Valve & Thanner DK99 Short Operating Head)

TECHNICAL CRITERIA

Liferaft Capacity	SoLaS E-Pack	RFD Containers			DSB Containers	Eurovinil	Weight (Kg)	Drop Height (m)	Laden Weight (Kg)
		Mk10 Size	Mk14 Size	Mk20 Size	F Series				
12DL	A	6DL					114	36	1104
	B	4DL					90	36	1080
	A		14DL				113	36	1103
	B		14DL				92	36	1082
	A				10/12F		126	36	1116
	B				10/12F		105	36	1095
16DL	A	7DL					139	36	1459
	B	6DL					107	36	1427
	A		14DL				152	36	1472
	B		14DL				106	36	1426
	A		17DL				141	46	1461
	A				16/20F		152	36	1472
20DL	B				10/12F		118	36	1438
	A	9DL					160	46	1810
	B	7DL					120	36	1770
	A			7DL			160	20	1810



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A		17DL				163	46	1813
B		17DL				123	46	1773
A				25F		163	36	1813
B				16/20F		133	36	1783

Liferaft Capacity	SoLaS E-Pack	RFD Containers			DSB Containers	Eurovinil Other	Weight (Kg)	Drop Height (m)	Laden Weight (Kg)
		Mk10 Size	Mk14 Size	Mk20 Size	F Series				
25DL	A	9DL					183	46	2246
	B	7DL					133	36	2196
	A		17DL				185	46	2248
	B		17DL				135	46	2198
	A			7DL			183	20	2246
	B			7DL			153	20	2216
	A				25F		185	36	2248
	B				16/20F		146	36	2209

Towing Forces:

	12DL	16DL	20DL	25DL
Towing Force @ 2 Knots (kN)	0.8	0.87	0.78	1.3
Towing Force @ 3 Knots (kN)	1.79	2.06	1.5	2.59

CONDITIONS OF CERTIFICATION

- Lloyd's Register's acceptance for the MkIV range of liferafts to be fitted with US DOT approved cylinders is subjected to relevant USCG Approval Certification remaining valid
- Operating head inflation system:**
 - Manufacturer: Leafield Marine Limited
Type: GIST (to be used only with PD 11401& ARCTIC-04 hose)
 - Manufacturer: Thanner & Co A/S
Type: DK 99 series
- The liferaft shall be marked as required by the LSA Code Regulation IV/4.2.7.1 with the maker's name or trade mark, serial number, date of manufacture, approving authority, name and place of last servicing station, and the number of persons it is approved to carry
- The liferaft's container shall be marked as required by the LSA Code Regulation IV/4.2.6.3 with the marker's name or trade mark, serial number, approving authority, number of persons it is approved to carry, SOLAS, the type of emergency pack enclosed, date when last serviced, length of painter, maximum stowage height and launching instructions. In addition, containers of liferafts carried on ro-ro passenger ships fitted with a radar transponder shall be clearly marked
- Provision shall be made for marking each liferaft as required by the LSA Code Regulation IV/4.2.7.2 with the name and port of registry of the ship to which the liferaft is supplied, in such a form that the ship identification can be changed at any time without opening the container



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6. Retro-reflective materials, position-indicating lights and the equipment carried on board the liferaft as required by LSA Code Regulations IV/4.1.5 and 4.2.9 are to be approved in accordance with the Marine Equipment Directive 96/98/EC, as amended, or by the Marine Administration of the country where the ship is registered (i.e. the flag state) or those acting on behalf of that Administration, as applicable
7. **Installation on board:** The on board arrangements and installation of the liferaft are not part of this design appraisal or certificate. All such arrangements are to be to the satisfaction of the Surveyors attending on board
8. Detailed instructions for use, maintenance and installation of the liferaft complying with SOLAS Regulations III/35 and 36 and also instructions for use and maintenance of the liferaft equipment shall be provided to each purchaser and be available on board. The liferaft and its equipment shall be kept in good working order at all times and checked at regular intervals according to the manufacturer's instructions and SOLAS requirements
9. Clear operating instructions shall be provided with a suitably worded warning notice using colour coding, pictograms and/or symbols as necessary for clarity. Fully detailed Operations and Maintenance Manuals shall be supplied with each hook or hook system for compliance with SOLAS Regulations III/35/36 and paragraph 2.2.1.3 - 2.2.1.4 of Transport Canada Procedures for Approval of Lifesaving Appliances and Fire Safety Systems, Equipment & Products (TP 146212E - 05/2011)
10. 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
11. 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
12. 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
13. 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



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PLACES OF PRODUCTION

Survitec Group,
DBC Marine Safety Systems LTD,
1689 Cliveden Ave,
Delta,
BC,
V3M 6V5,
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Survitec Group
Suzhou Betacera
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1420 Wolf Creek Trail
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Lijo Thomas
Senior Specialist
Statutory Fire & Safety
Marine Technology and Engineering Services
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).