

PRODUCT SAFETY DATA SHEET

PRODUCTS: Rescue Master 2B/ Rescue Master 3B/R.EXT

SECTION 1: IDENTIFICATION

PRODUCT NAME	Marine Safety Light Systems Rescue Master 2B / 3B / R.EXT
MANUFACTURERS NAME	DANIAMANT LIMITED (RM2B/3B) DANIAMANT A/S (R.EXT)
DESCRIPTION	Lithium powered marine safety light systems are designed to be stored for up to five years before use. The battery cells are hermetically sealed. Pressurised primary lithium/sulphur dioxide and as supplied are electronically protected by a fuse and from external environment by a moulded plastic casing. In this state the units constitute no definable hazard to health. However, disassembly, abuse or destruction of the battery cell will expose the contents and the following Health and Safety Hazards.

SECTION 2: INFORMATION OF INGREDIENTS

HAZARDOUS COMPONENTS:					
	CAS NUMBER	EC Number	% OPTIONAL	OSHA/PEL	ACGIH TLV 5 TEL
Lithium Metal	7439-93-2	231-102-5	<2.5%	N/A	N/A
Sulphur Dioxide	7446-09-5	231-195-2	<33%	5ppm	5ppm
Acetonitrile	75-05-8	200-835-2	<8%	40ppm	40ppm
Lithium Bromide	7550-35-8	231-439-8	<2%		
Carbon Black	1333-86-4	215-609-9	<6.5%		
Reference: Sax's dangerous properties of industrial materials.					
NOTE: These products do not contain asbestos.					

SECTION 3: HAZARD IDENTIFICATION

LITHIUM METAL:	This is flammable when in contact with water. It reacts violently to produce hydrogen and lithium hydroxide. Use only soda ash, sodium chloride or graphite to extinguish flames.		
SULPHUR DIOXIDE:	This is a colourless gas with a pungent choking odour. The fumes are toxic when in contact with fire. The vapour will cause irritation of the eyes and throat, which can result in bronchitis, asphyxia and conjunctivitis. See First Aid notes below.		
ACETONITRILE:	This is a colourless volatile liquid with an ether like odour, which is highly flammable. The toxic fumes should not be inhaled as they can cause fatigue and abdominal pain. In severe cases there may be delirium, convulsions, or paralysis and coma. See First Aid notes below.		
ROUTES FOR ENTRY:			
Sulphur Dioxide	Inhalation: Yes	Skin: Yes	Ingestion: Yes
HEALTH HAZARDS (ACUTE & CHRONIC)			
Carcinogenicity:	None		
Signs and Symptoms of Exposure:	Sulphur Dioxide – irritation of nose, throat, ears and/or skin. Suffocating odour.		
Medical Conditions:	Generally aggravated by exposure – sulphur dioxide – asthma and other respiratory diseases.		
Emergency and First Aid Procedures:	If cell vents, personnel should be evacuated from contaminated areas.		
	Artificial respiration should be given if breathing stops. Flush any material from skin.		

SECTION 4: FIRST AID MEASURES

In the unlikely event of the battery becoming damaged the user may come into contact with the above components.

EYES:	Irrigate thoroughly with water for at least 15 minutes. Obtain medical attention.
INHALATION:	Remove from exposure, rest and keep warm. In severe cases, or if exposure has been great, obtain medical attention.
SKIN:	Drench the skin thoroughly with water. Remove contaminated clothing and wash before re-use. Unless contact has been slight, obtain medical attention.
INGESTION:	Wash out mouth thoroughly with water and give plenty of water to drink. Obtain medical attention.
	Other materials are either inert or have low hazard associated with their exposure.

SECTION 5: FIRE FIGHTING MEASURES

In the case where significant quantities of lithium / sulphur dioxide batteries have been involved in a fire, account must be taken of the possibility that flammable gases might be evolved should water come into contact with the cold battery residues. These gases might include Acetylene, Hydrogen and Cyanide. It is recommended that ventilation should be maximised should this scenario be realised.

Flash Point:	NON-FLAMMABLE (Open flame)
Extinguishing Media:	Lith-X (graphite based) or other metal (Class D) powder fire extinguisher. If a fire is in an adjacent area, and cells are packed in their original containers, the fire can be fought based on fuelling material, e.g. paper and plastic products.
Special Fire Fighting Procedures:	Use a self-contained breathing apparatus.
Unusual Fire and Explosion Hazards:	Battery may vent when subject to excessive heat-exposing contents.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Dispose only via approved landfill site or incineration by an approved source. Steps to be taken in case material is released or spilled. Remove personnel from area until fumes dissipate. Provide maximum ventilation to clear any hazardous gases, waste disposal method. Dispose of cell or battery in accordance with local, state and Federal Environmental regulations.

SECTION 7: HANDLING AND STORAGE

Handle and store in cool, well-ventilated area. Keep out of direct sunlight and away from heat sources.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

External corrosion of the Nickel plated can and tags could result in the formation of toxic metal salts. Avoid ingestion. Observe personal hygiene. Wash hands after contact.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Light in a plastic housing.
STABILITY IN WATER	Product is waterproof.
REACTION WITH WATER	Only if damaged.
BOILING POINT	N/A
VAPOUR PRESSURE mm/hg	N/A
VAPOUR DENSITY	N/A
SOLUBILITY IN WATER	Not soluble in water
APPEARANCE & ODOUR	N/A
SPECIFIC GRAVITY	(H ₂ O = 1) >1
MELTING POINT	190°C Plastic Case
EVAPORATION POINT	N/A

SECTION 10: STABILITY AND REACTIVITY

HAZARDOUS REACTIONS	Flammable when in contact with moisture.
HAZARDOUS DECOMPOSITION REACTIONS	Toxic fumes.

SECTION 11: TOXICOLOGICAL INFORMATION

SIGNS & SYMPTOMS	NONE, unless battery ruptures. In the event of exposure to internal contents, corrosive fumes will be very irritating to skin, eyes and mucous membranes. Over-exposure can cause symptoms of non-fibrotic lung injury and membrane irritation.
INHALATION	Lung irritation.
SKIN CONTACT	Skin irritation.
EYE CONTACT	Eye irritation.
INGESTION	Tissue damage to throat and gastro / respiratory tract if swallowed.
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE.	In the event of exposure to internal contents, eczema, skin allergies, lung injuries, asthma and other respiratory disorders may occur.

SECTION 12: ECOLOGICAL INFORMATION

MAMMALIAN EFFECTS	None known if used / disposed of correctly.
ECO-TOXICITY	None known if used / disposed of correctly.
BIOACCUMULATION POTENTIAL	None known if used / disposed of correctly.
ENVIRONMENTAL FATE	None known if used / disposed of correctly.

SECTION 13: DISPOSAL

DISPOSAL	DO NOT INCINERATE or subject cells to temperatures in excess of 100°C. Such abuse can result in loss of seal, leakage, and/or cell explosion. Dispose only through a recognised disposer. DO NOT ATTEMPT TO DISMANTLE THIS PRODUCT.
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SECTION 14: TRANSPORT INFORMATION

UN Hazard Code	Class 9
UN Number	3090
UN Proper Shipping Name	Lithium Metal Batteries.
IATA Packing Instructions for air	968, Section I
IMDG/ADR Packing instructions for road and sea	P903, Special Provision 230
Lithium Content	4.48grams (Lithium metal battery pack)
Total Battery Weight	Rescue Master 2B – 236 grams / Rescue Master 3B – 277 grams /R.EXT – 236 grams
Labelling	As per IATA, IMDG & ADR requirements
Battery Test Criteria	Tested to UN ST/SG/AC.10/11/Rev.5/Amend.1 Criteria III Section 38.3. (Test Certificate available on request). Each cell and battery incorporates a safety venting device. Each cell and battery is equipped with an effective means of preventing external short circuits and reverse current flow.

SECTION 15: REGULATORY INFORMATION

Risk Phrases	R11 R14/15 R21 R22 R36/37 R35 R41 R42/43	Highly flammable Reacts violently with water liberating extremely flammable gases Harmful in contact with skin Harmful if swallowed Irritating to respiratory system Causes burns Risk of serious damage to the eyes May cause sensitisation by inhalation and skin contact
Safety Phrases	S2 S8 S22 S24 S26 S36 S37 S45	Keep out of the reach of children Keep away from moisture Do not breathe dust Avoid contact with skin In case of contact with eyes, rinse immediately with plenty of water Wear suitable protective clothing Wear suitable gloves In case of incident, seek medical attention

SECTION 16: OTHER INFORMATION

Disclaimer

This PSDS is provided for information only. The information and recommendations set forth herein are made in good faith and are believed to be accurate as of the date of preparation. However, the company makes no warranty, either expressed or implied with respect to this information and disclaims all liability from reliance on. It is the shippers responsibility to ensure that they are trained and competent in handling and shipping lithium batteries by all transport modes.

28 January 2020



LITHIUM CELL/BATTERY TEST SUMMARY

IN ACCORDANCE WITH UN MANUAL OF TESTS AND CRITERIA SUB SECTION 38.3.5

SECTION 1: NAME OF CELL/BATTERY	
PRODUCT NAME	Rescue Master 2B & 3B Battery
SECTION 2: MANUFACTURER OF CELL/BATTERY	
NAME	DANIAMANT LIMITED
SECTION 3: TEST LAB OF CELL/BATTERY	
NAME	TUV SUD PRODUCT SERVICE LTD
SECTION 4: TEST REPORT DETAILS	
TEST REPORT NUMBER	75922374
TEST REPORT DATE	May 2013
SECTION 5: DESCRIPTION OF CELL/BATTERY	
BATTERY/CELL TYPE	LITHIUM METAL
BATTERY/CELL MASS	236 Grams (2B Battery); 277 Grams (3B Battery)
BATTERY/CELL LITHIUM CONTENT	4.48 Grams
BATTERY/CELL PHYSICAL DESCRIPTION	Lithium Sulphur Dioxide battery comprised of two x D cells connected in series inside a sealed plastic casing
BATTERY/CELL MODEL NUMBER	23-004A, 23-004-001A, 23-004-002A, 23-004-003A, 23-006A, 23-006-001A, 23-006-003A, 23-006-004A

SECTION 6: LIST OF TESTS CONDUCTED AND RESULTS

	N/A	PASS	FAIL
T1 – ALTITUDE SIMULATION		X	
T2 – THERMAL TEST		X	
T3 – VIBRATION		X	
T4 – SHOCK		X	
T5 – EXTERNAL SHORT CIRCUIT		X	
T6 – IMPACT/CRUSH	X		
T7 – OVERCHARGE	X		
T8 – FORCED DISCHARGE	X		
ASSEMBLED BATTERY TESTING REQUIREMENTS	UN 38.3.3 (f)		

SECTION 7: REFERENCE TO THE REVISED EDITION OF THE MANUAL OF TESTS AND CRITERIA

UN ST/SG/AC.10/11/Rev 5/Amend 1. Criteria III, Section 38.3 Dated 2011

SECTION 8: NAME AND TITLE OF SIGNATORY

SIGNATURE	
NAME	Clare Palmer
TITLE	Trade Compliance Manager
DATE	26.05.2020



COMMERCIAL-IN-CONFIDENCE

TEST HOUSE CERTIFICATE

CLIENT Daniamant Limited

DOCUMENT

75929303 THC 01 Issue 2

CLIENT'S ORDER NUMBER

PC0001458, dated 02.02.2015

INCOMING RELEASE NOTE

Not Released

DATE OF RECEIPT

10 February 2015

EQUIPMENT UNDER TEST (EUT)

Survivor Location Lights, as stated below (x9 units tested)

MODEL/PART NUMBERS(S)

	Description	Model	TSR No* [*]
1	External Raft Light	Rescue Master 2B	001
2	Lifebuoy Light	L170	002
3	Lifebuoy Light	L160	003
4	Lifebuoy Light	L161	004
5	Lifebuoy Light	L162	005
6	Lifebuoy Light	L163	006
7	Hand Held LED Distress Flare	ODEO Mk.3	007
8	Lifebuoy Light	L90	008
9	Life Raft External Light	RL6	009

* Test Sample Registration Number

TEST SPECIFICATION / ISSUE

EN 60529:1992. Table III, Table VIII and clause 14.2.7.

DEVIATIONS FROM THE STANDARD

None

DATE OF TEST

11 February 2015

TEST(S) DESCRIPTION

Protection Against Ingress by Immersion in Water (IPX7)

The following test was required by the specification:

1. Immediately prior to the test examine each EUT. Manually switch each EUT to ON and OFF.
2. Immerse each EUT in water so that the lowest point of the EUT is 1000 mm below the surface of the water, and for a duration of 30 mins.
3. On completion of the test re-examine the units. Note any conspicuous ingress of water. Manually switch each EUT to ON and OFF.

RESULT(S) OF TEST

The test requirements were satisfied. No water ingress, other damage or detrimental effects were observed or reported during or on completion of the test. When switched ON after the test all lights operated and/or flashed satisfactorily as required and as compared to the operation prior to the test. Items 1 and 9 required the connection of an external battery source before they were operated.

This certificate relates only to the actual item/items tested.

This THC has been up-issued to Issue 2 to correct an incorrect description applied to item 9 (RL6 unit)

Approved by


G Stephens
Authorised Signatory



Date 4 March 2015



COMMERCIAL-IN-CONFIDENCE

TEST HOUSE CERTIFICATE

CLIENT Daniamant Limited

DOCUMENT 75929802 THC 01 Issue 1

CLIENT'S ORDER NUMBER PC0001483, dated 11.03.2015

INCOMING RELEASE NOTE

Not Released

DATE OF RECEIPT

18 March 2015

EQUIPMENT UNDER TEST (EUT)

Survivor Location Lights, as stated below (x11 units tested)

MODEL/PART NUMBERS(S)

	Description	Model	TSR No *
1	External Raft Light	Rescue Master 2B	001
2	Lifebuoy Light	L170	002
3	Lifebuoy Light	L160	003
4	Lifebuoy Light	L161	004
5	Lifebuoy Light	L162	005
6	Lifebuoy Light	L163	006
7	LED Distress Flare	ODEO Mk.3	007
8	Lifebuoy Light	L90	008
9	Life Raft External Light	RL6	009
10	Lifejacket Light	L6-Ex	010
11	Lifejacket Light	L6A-Ex	011

* Test Sample Registration Number

TEST SPECIFICATION / ISSUE

EN 60529:1992. Table III, Table VIII and clauses 14.2.8 & 14.3.

DEVIATIONS FROM THE STANDARD

None

DATE OF TEST

19 March 2015

TEST(S) DESCRIPTION

Protection Against Ingress by Immersion in Water (IPX8)

The following test was required by the specification:

1. Immediately prior to the test examine each EUT. Manually switch each EUT to ON and OFF.
2. Immerse each EUT in water and increase the surface air pressure to 5 bar to reproduce the pressure equivalent to an immersion depth of 50 metre. Maintain the immersion for a period of 30 mins.
3. On completion of the test re-examine the units. Note any conspicuous ingress of water. Manually switch each EUT to ON and OFF.

RESULT(S) OF TEST

The test requirements were satisfied on all units.

On completion of the test there was no evidence of water ingress to the following units; 1, 2, 3, 4, 5, 7, 9, 10 & 11. Unit 6 indicated a weight gain of 16 g. Unit 8 indicated a weight gain of 3 g. Water ingress is acceptable provided it does not interfere with the light operation (spec ref 14.3). All units were manually operated satisfactorily after the test, except units 1 and 9 as these units were supplied without a power supply. The client representative subsequently reported that these lights operated satisfactorily. Unit 8 (L90) suffered permanent distortion of the buoyancy chamber after the test. The client's representative advised that the maximum recommended depth to avoid distortion of this unit was exceeded.

This certificate relates only to the actual item/items tested.

Approved by

G M Stephens
Authorised Signatory



Date 09 April 2015

TEST CERTIFICATE

CLIENT: TÜV SÜD Product Service

CERTIFICATE NUMBER 13063/01 Issue 02

CUSTOMER ORDER NUMBER 10010649

TÜV REFERENCE 75929303

DATE OF RECEIPT

17 February 2015

EQUIPMENT SUPPLIER

TEST ITEM(S)

TSR	Identity	Description	Quantity	PTL ID
010	Rescue Master 2B	Life Raft Light	1	19486
011	L170	Lifebuoy Light	1	19487
012	L160	Lifebuoy Light	1	19489
013	L161	Lifebuoy Light	1	19490
014	L162	Lifebuoy Light	1	19491
015	L163	Lifebuoy Light	1	19492
016	ODEO Mk.3	Hand Held LED Distress Flare	1	19493
017	L90	Lifebuoy Light	1	19494
018	RL6	Life Raft External Light	1	19495

TEST SPECIFICATION / ISSUE

BS EN 60529:1992 +A2:2013 IP6X Cat 1

DATE OF TEST

18 February 2015

TEST(S) APPLIED

Protection Against Solid Foreign Objects, Dust-Tight

Initially the units were examined for apertures and openings allowing penetration of a 1mm diameter probe applied with a force of 1 N.

Prior to testing a vacuum of 19.9 mbar was applied to each item individually, the airflow was below measurable therefore an 8 hour test was required. A 19.9 mbar vacuum was applied to each of the units for the duration of the test. The test conditions were as follows:

Dust Grade: BS EN 60529 Talc Test Dust

Concentration: 2 kg/m³

Duration: 8 hrs

Temperature/Humidity: 26 °C / 35% rh

TEST CERTIFICATE

CLIENT: TÜV SÜD Product Service
Octagon House
Concorde Way
Fareham
Hampshire
PO15 5RL

CERTIFICATE NUMBER 13063/01 Issue 02

CUSTOMER ORDER NUMBER 10010649

TÜV REFERENCE 75929303

PAGE 2 OF 2

RESULT(S) OF TEST

IP6X

There were no apertures permitting entry with a 1 mm diameter probe when using a force of 1 N.

On completion of the dust test excess dust was removed by light brushing, no conspicuous damage was noticed on the exterior of the units.

Instructions were supplied by the customer to perform functional assessment on the units (with the exception of 010 & 018). All lights performed satisfactorily.

Each unit was opened for inspection, where necessary the units were cut open; there was no visible dust ingress into the Survivor Location Lights.

COMPLIANCE

The Survivor Location Lights conform to the standard required by BS EN 60529:1992 +A2:2013 IP6X Category 1.



Approved by
G J Spicer, MEng
Managing Director

Date: 04 March 2015



Lloyd's
Register

Transport
Canada
Safety and Security



CERTIFICATE OF TYPE APPROVAL ISSUED ON BEHALF OF TRANSPORT CANADA

This is to certify that

The product detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations with regards to 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 Transport Canada to issue the relevant certificates, licences, permits etc.

Manufacturer Daniamant Limited

Product Type LIFERAFT LIGHTS

Product Description **Manually controlled flashing position indicating lights for survival craft - Type: "Rescue-Master 1, Rescue-Master Lite GB"**

Specified Standards IMO Resolution MSC.81(70), Part 1, as amended by Resolution MSC.226(82), MSC.200(80) & 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 22 November 2016 Expiry date 21 November 2021

Certificate No. LRTC 0000114 Signed 

Sheet No 1 of 3 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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Document number LRTC 0000114
Issue number 1

DESIGN APPRAISAL DOCUMENT

Date 22 November 2016	Quote this reference on all future communications SOUTSO/SFS/TA/MM/LT/WP27423868
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ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LRTC 0000114

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.

APPROVAL DOCUMENTATION

<u>Plan/Doc No.:</u>	<u>Revision</u>	<u>Title or Description</u>
TF-DK-08	02	Technical File

Installation and Maintenance Instruction, Rescue Lite-GB/Rescue Master 1,23-713, Issue 03 (C6469)

TEST REPORTS

Light output test, test report No. 09-07, dated 7th May 2009.

Temperature cycling test carried out at Force Institute for Rescue Master 1 survival craft internal lights, test report No. 110984/m1445-481.c, dated 24-03-1999.

Fire test report, Danish Institute of Fire Technology, File No: F10719, dated 19-04-1999. Measurement of Chromaticity, test report No. DANAK-KAP724037-1304, dated 04-05-1999.

Vibration test, test report No. K251078, dated 03-06-1999.

CONDITIONS OF CERTIFICATION

1. Lights powered by batteries shall be marked with a means of determining their age or the date by which they are to be replaced
2. Each light is to be marked with the information required by the LSA Code Paragraph 1.2.2.9. and 1.2.3
3. For compliance with SOLAS Regulation III/35 and III/36, fully detailed operations and maintenance manuals shall be supplied with each light
4. Lights which have reached their date of replacement shall be disposed of safely with due regard to their lithium batteries
5. The arrangements and installation of the lights on survival crafts are not part of this design appraisal or certificate and are to be to the satisfaction of the Surveyors attending on board
6. 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
7. 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
8. 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
9. 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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DESIGN APPRAISAL DOCUMENT

Date 22 November 2016	Quote this reference on all future communications SOUTSO/SFS/TA/MM/LT/WP27423868
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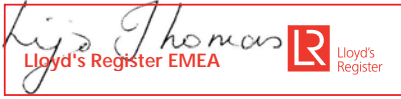
ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LRTC 0000114

10. All instructions or markings that accompany life-saving appliances or are printed directly on the appliances must be in both English and French, as per Canadian procedures for approval of life-saving appliances and fire safety systems, equipment and products document no. TP 14612E (05/2011) paragraph 2.2.1.3. However independent signage can be accepted in lieu of the instructions or marking required in paragraph 2.2.1.3 if it is in both English and French, highly visible (size, colour, posting location), water and weather proof and posted at each muster station and where the appliance is stored

PLACE OF PRODUCTION

Daniamant Limited

Daniamant ApS



Lijo Thomas
Senior Specialist
Statutory Fire & Safety
Southampton Technical Support Office, Marine & Offshore
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).

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV GL SE based on the notification of the Federal Maritime and Hydrographic Agency of Germany.

This is to certify:

That the Position indicating lights for life-saving appliances: (a) for survival craft and rescue boats

with type designation(s)
Rescue-Master 1, Rescue-Master Lite GB

Issued to
Daniamant Ltd
Portsmouth, Hampshire, United Kingdom

is found to comply with the requirements in the following Regulations/Standards:
Regulation (EU) 2019/1397,
item No. MED/1.2a. SOLAS 74 as amended, Regulation III/4, III/34 & X/3, LSA Code I & IV,
1994 HSC Code 8, 2000 HSC Code 8

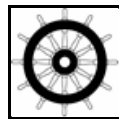
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until 2024-10-10.

Issued at Hamburg on 2019-10-11

DNV GL local station:
Denmark CMC

Approval Engineer:
Nicolay Horn



Notified Body
No.: 0098

for DNV GL SE

Gerhard Aulbert
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 European Community and the United States of America on Mutual Recognition of Certificates of Conformity for Marine Equipment", signed February 27th, 2004.

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 GL SE 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.

Job Id: 344.1-009935-1
Certificate No: MEDB000061E

Product description

Manually controlled flashing position indication lights for survival craft – Type Rescue-Master 1, Rescue-Master Lite GB

Application/Limitation

Lights powered by batteries shall be marked with means of determining their age or the date by which they are to be replaced.

For compliance with SOLAS Regulation III/35 and III/36, fully detailed operations and maintenance manuals shall be supplied with each light.

Type Examination documentation

Technical file doc. No. TF-DK-08, revision 02

Installation and Maintenance Instruction, Rescue-Master 1, Rescue-Master Lite GB, 23-713 (C6469)

Test report No	Title	Date
09-07	Light output test	2009-05-07
110984/ m1445-481.c	Temperature cycling test carried out at Force Institute for Rescue-Master 1 survival craft internal lights	1999-03-24
F10719	Fire test report, Danish Institute of Fire Technology	1999-04-19
DANAK-KAP724037-1304	Measurement of Chromaticity	1999-05-04
K251078	Vibration test	1999-06-03

Tests carried out

-IMO Resolution MSC.81(70), part 1, as amended
-IEC 60945:2002 incl. IEC 60945 Corr. 1 (2008)

Marking of product

To be marked with information requested by the LSA Code Paragraph 1.2.2.9 and 1.2.3

- Manufacturer name
- Type identification
- Serial or Lot number
- Date of expiry
- USCG Approval Number: USCG 161.101/EC0098/ MEDB000061E

END OF CERTIFICATE



Lloyd's
Register

Transport
Canada
Safety and Security



CERTIFICATE OF TYPE APPROVAL ISSUED ON BEHALF OF TRANSPORT CANADA

This is to certify that

The product detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations with regards to 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 Transport Canada to issue the relevant certificates, licences, permits etc.

Manufacturer Daniamant Limited

Type LIFERAFT LIGHTS

Description Manually controlled flashing position indicating lights for survival craft - Type:
"Rescue-Master 2B, Rescue-Master 3B and Rescue-Master 12V"

Specified Standards IMO Resolution MSC.81 (70), Part 1, as amended by Resolution
MSC.226(82), MSC.200(80) & 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 22 November 2016 Expiry date 21 November 2021

Certificate No. LRTC 0000115 Signed 

Sheet No 1 of 3 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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DESIGN APPRAISAL DOCUMENT

Date 22 November 2016	Quote this reference on all future communications SOUTSO/SFS/TA/MM/LT/WP27423868
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ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LRTC 0000115

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.

APPROVAL DOCUMENTATION

<u>Plan/Doc No.:</u>	<u>Revision</u>	<u>Title or Description</u>
TF-DK-07	02	Technical File

Installation and Maintenance Instructions, Rescue Master 2B/Rescue Master 3B Liferaft Light, 23-712, Issue 04 (C6495)
Installation and Maintenance Instructions, Rescue-Master 12V, 23-714 Issue 05 (C6468)

TEST REPORTS

Force Institute, test report No. 117524/m1445-527, dated 06-09-1999.
Temperature cycling and light output test, Force Institute, File No. 110984/m1445-481.b, dated 18-03-1999.
Temperature cycling and light output test, Force Institute, File No. 123175/m1445-575 rev.1, dated 29-09-1999 (5.3V battery).
Light output test, Force Institute, File No. 1445-184090, dated 15-08-2002 (12V).
Fire test report, Danish Institute of Fire Technology, File No. F101719, dated 19-04-1999.
Measurement of Chromaticity, test report No. DANAK-KAP724037-1304, dated 04-05-1999.
Vibration test, test report No. K251078, dated 03-06-1999.

CONDITIONS OF CERTIFICATION

1. The "Rescue Master 12V" position indicating lamp is to be connected to the crafts 12V electrical system. The survival craft is to have a fuel tank capacity for 12 hours operation
2. Lights powered by batteries shall be marked with a means of determining their age or the date by which they are to be replaced
3. Each light is to be marked with the information required by the LSA Code Paragraph 1.2.2.9 and 1.2.3
4. Lights which have reached their date of replacement shall be disposed of safely with due regard to their lithium batteries
5. For compliance with SOLAS Regulation III/35 and III/36, fully detailed operations and maintenance manuals shall be supplied with each light
6. The arrangements and installation of the lights on survival crafts are not part of this design appraisal or certificate and are to be to the satisfaction of the Surveyors attending on board
7. 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
8. 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



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ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LRTC 0000115

9. 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
10. 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
11. All instructions or markings that accompany life-saving appliances or are printed directly on the appliances must be in both English and French, as per Canadian procedures for approval of life-saving appliances and fire safety systems, equipment and products document no. TP 14612E (05/2011) paragraph 2.2.1.3. However independent signage can be accepted in lieu of the instructions or marking required in paragraph 2.2.1.3 if it is in both English and French, highly visible (size, colour, posting location), water and weather proof and posted at each muster station and where the appliance is stored

PLACES OF PRODUCTION

Daniamant Limited

Daniamant ApS



Lijo Thomas
Senior Specialist
Statutory Fire & Safety
Southampton Technical Support Office, Marine & Offshore
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).

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV GL SE based on the notification of the Federal Maritime and Hydrographic Agency of Germany.

This is to certify:

That the Position indicating lights for life-saving appliances: (a) for survival craft and rescue boats

with type designation(s)

Rescue-Master 2B, Rescue-Master 3B and Rescue-Master 12V

Issued to

Daniamant Ltd

Portsmouth, Hampshire, United Kingdom

is found to comply with the requirements in the following Regulations/Standards: Regulation
(EU) 2019/1397,

**item No. MED/1.2a. SOLAS 74 as amended, Regulation III/4, III/34 & X/3, LSA Code I & IV, 1994 HSC Code 8,
2000 HSC Code 8**

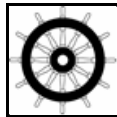
Further details of the equipment and conditions for certification are given overleaf. This

Certificate is valid until **2024-10-10**.

Issued at **Hamburg** on **2019-10-11**

DNV GL local station:
Denmark CMC

Approval Engineer:
Nicolay Horn



Notified Body
No.: **0098**

for **DNV GL SE**

**Gerhard Aulbert 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 European Community and the United States of America on Mutual Recognition of Certificates of Conformity for Marine Equipment", signed February 27th, 2004.

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 GL SE 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.

Job Id: **344.1-009936-1**
Certificate No: **MEDB000061F**

Product description

Manually controlled flashing position indication lights for survival craft – Type Rescue-Master 2B, Rescue-Master 3B and Rescue-Master 12V

Application/Limitation

Lights powered by batteries shall be marked with means of determining their age or the date by which they are to be replaced.

The "Rescue Master 12V position indication lamp is to be connected to the craft 12V electrical system. The survival craft is to have a fuel tank capacity for 12 hours operation.

For compliance with SOLAS Regulation III/35 and III/36, fully detailed operations and maintenance manuals shall be supplied with each light.

Type Examination documentation

Technical file doc. No. TF-DK-07, revision 02

Installation and Maintenance Instruction, Rescue-Master 12V 23-714, Issue 05 (C6468).

Installation and Maintenance Instruction Rescue-Master 2B / Rescue-Master 3B Liferaft Lift, 23-712 Issue 04 (C6495)

Test report No	Title	Date
1445-184090	Light output test (12V)	2002-08-15
117524/m1445-527	Test report, Force Institute	1999-09-06
110984/ m1445-481.b	Temperature cycling test carried out at Force Institute	1999-03-18
123175/m1445-575 rev.1	Temperature cycling test carried out at Force Institute (5.3V)	1999-09-29
F10719	Fire test report, Danish Institute of Fire Technology	1999-04-19
DANAK-KAP724037-1304	Measurement of Chromaticity	1999-05-04
K251078	Vibration test	1999-06-03

Tests carried out

-IMO Resolution MSC.81(70), part 1, as amended by Resolution MSC.226(82), MSC.200 and MSC.323(89)

-IEC 60945:2002 incl. IEC 60945 Corr. 1 (2008)

Marking of product

To be marked with information requested by the LSA Code Paragraph 1.2.2.9 and 1.2.3

- Manufacturer name
- Type identification
- Serial or Lot number
- Date of expiry
- USCG Approval Number: USCG 161.101/EC0098/ MEDB000061F

END OF CERTIFICATE