

PRODUCT SAFETY DATA SHEET

PRODUCTS: L90

SECTION 1: IDENTIFICATION

PRODUCT NAME	Marine Safety Light Systems L90
MANUFACTURERS NAME	DANIAMANT LIMITED
DESCRIPTION	Alkaline cell powered marine safety light system. The battery cells are hermetically sealed pressurised primary Alkaline Manganese Dioxide and as supplied are protected 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
Manganese Dioxide	1313-13-9	215-202-6	35-40%	N/A	N/A
Zinc	7440-66-6	231-175-3	10-25%	N/A	N/A
Potassium Hydroxide (35%)	1310-58-3	215-181-3	5-10%	N/A	N/A
	Reference : Sax's dangerous properties of industrial materials. NOTE: This product does not contain asbestos.				

SECTION 3: HAZARD IDENTIFICATION

Critical Hazards to man:	If battery leaking, exposure to caustic ingredients may occur.
Critical Hazards to the environment:	Dispose of battery properly (See Section 13). Contains mercury compounds which may present a hazard to aquatic environments.
Other information:	Keep batteries away from small children.

SECTION 4: FIRST AID MEASURES

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

GENERAL ADVICE:	These chemicals and metals are contained in a sealed can. Potential for exposure should not exist unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused. Contains concentrated (35%) potassium hydroxide, which is caustic. Anticipated potential leakage of potassium hydroxide is 2 to 20 ml, depending on battery size. A similar amount of zinc/zinc oxide may also leak.
INHALATION:	If inhaled respiratory and eye irritation may occur if fumes are released due to heat or an abundance of leaking batteries. Remove to fresh air. Contact physician if irritation persists.
SKIN:	Irritation, including caustic burns/injury, may occur following exposure to a leaking battery. Irrigate exposed skin with copious amounts of clear, tepid water for at least 15 minutes. If irrigation, injury or pain persists, consult a physician.
INGESTION:	Not anticipated due to size of batteries; choking may occur with the smaller AAA battery. Irritation, including caustic burns/injury may occur following exposure to a leaking battery. Rinse the mouth and surrounding area with clear, tepid water for at least 15 minutes. Consult a physician immediately for treatment and to rule out involvement of the oesophagus and other tissues.
NOTES TO PHYSICIAN:	The primary acutely toxic ingredient is concentrated (35%) potassium hydroxide. Anticipated potential leakage of potassium hydroxide is 2 to 20 ml, depending on battery size. Other materials are either inert or have low hazard associated with their exposure.

SECTION 5: FIRE FIGHTING MEASURES

Extinguishing Media:	As appropriate for adjacent fire.
Special Fire Fighting Procedures:	In fires involving large quantities of product, use self-contained breathing apparatus and full protective clothing.
Further information:	Hazardous decomposition products may be produced.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Notify safety personnel of large spills. Caustic potassium hydroxide may be released from leaking or ruptured batteries. Avoid eye or skin contact and inhalation of vapours. Increase ventilation. Clean up personnel should wear appropriate protective gear.
Environmental Precautions:	Not applicable.
Methods for cleaning up:	Not applicable.

SECTION 7: HANDLING AND STORAGE

Handle and store in cool, well-ventilated area. Keep out of direct sunlight and away from heat sources. DO NOT short or install cells incorrectly. Batteries may explode, pyrolyze or vent if disassembled, crushed, recharged or exposed to high temperatures. Install batteries in accordance with equipment instructions. Do not mix battery systems, such as alkaline and zinc carbon, in the same equipment. Replace all batteries in equipment at the same time. Do not carry batteries loose in pocket or bag.

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. Use neoprene, rubber or nitrile gloves and safety glasses when handling leaking batteries.

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	N/A
MELTING POINT	N/A
EVAPORATION POINT	N/A

SECTION 10: STABILITY AND REACTIVITY

HAZARDOUS DECOMPOSITION REACTIONS	Thermal degradation may produce hazardous fumes of zinc and manganese; hydrogen gas; caustic vapours of potassium hydroxide and other toxic by-products.
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SECTION 11: TOXICOLOGICAL INFORMATION

NONE, unless battery ruptures, then see Section 2.

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	Dispose in accordance with appropriate regulations. Do not incinerate, since batteries may explode at excessive temperatures.
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SECTION 14: TRANSPORT INFORMATION

UN Hazard Code	Not Applicable.
UN Number	Not Applicable.
UN Name	Not Applicable.
Other information for air transport (IATA)	Not restricted as per special provision A123 must be marked on the AWB (8.2.6.1)
Total Battery Weight	695g (Weight of Individual Cell 139g)

SECTION 15: REGULATORY INFORMATION

Classification	Not controlled under ADNR (Europe)
Hazard Symbol	None.
Risk Phrases	This product is not classified according to the EU regulations.

SECTION 16: OTHER INFORMATION

	N/A
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The above information is given based on the present state of our knowledge of this product and is, to the best of our knowledge and belief, accurate at the time of publication. No warranty given, either express or implied, with respect to the accuracy, reliability or completeness of the information contained herein and we will assume no liability resulting from its use. The users must satisfy themselves that the information provided is entirely suitable for their particular use.

07 October 2019



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



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Document number LRTC 0000148
Issue number 1

DESIGN APPRAISAL DOCUMENT

Date 30 May 2017	Quote this reference on all future communications SOUTSO/SFS/TA/LT/WP27423868
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ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LRTC 0000148

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

- Technical File No TF006 Revision No 3
- Installation and Maintenance Instruction, L90 Lifebuoy Light, 63-126, Issue 08 (C6553)
- Installation and Maintenance Instruction, L90 Lifebuoy Light, 63-132, Issue 06 (C6553)

TEST REPORTS

- Test Report No.14-02 "L90 76 metre drop test" dated March 26th 2014, witnessed by TUV product Service Ltd
- Test Report No.14-04 "L90 Life test" dated April 28th 2014, witnessed by TUV product Service Ltd
- Test Report No.75917538 report 01, issue 1 "Environmental testing of the Daniamant lifebuoy lights" dated April 2012, witnessed by TUV product Service Ltd
- Test Report No.75925967 report 01, issue 1 "Temperature cycling test, Luminous intensity test, Chromaticity test, vibration test" dated June 2014, witnessed by TUV product Service Ltd
- Evaluation and test report as per MSC 81(70), dated 15/05/2006 witnessed by See-BG and BAM
- Microbiological test report, report no J-5036, dated 15/10/2013

CONDITIONS OF CERTIFICATION

1. Maximum installation height: 76 m
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 Each light is to be marked with the information required by the LSA Code Regulation 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. The arrangements and installation of the lights on board are not part of this design appraisal or certificate and are to be to the satisfaction of the Surveyors attending on board
5. 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
6. 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
7. Production items are to be manufactured in accordance with a quality control procedure and records kept as required by MSC.81(70) Part 2, Paragraph 1.2. Production tests are to be conducted to ensure compliance with SOLAS Chapter III Regulation 5. 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



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Document number LRTC 0000148
Issue number 1

DESIGN APPRAISAL DOCUMENT

Date 30 May 2017	Quote this reference on all future communications SOUTSO/SFS/TA/LT/WP27423868
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ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LRTC 0000148

- 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
- 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 Ltd

Daniamant ApS
r k



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: (b) for lifebuoys

with type designation(s)
L90

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/1.2b. SOLAS 74 as amended, Regulation III/4, III/7, III/22, III/32, III/34 &
X/3, LSA Code, 2000 HSC Code 8

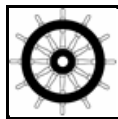
Further details of the equipment and conditions for certification are given overleaf.

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: 344.1-009919-1
Certificate No: MEDB000060Y

Product description

Self-activated lights for lifebuoys L90

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.

Maximum installation Height: 76 m.

Type Examination documentation

Technical file doc. No. TF006, revision 03

Installation and Maintenance Instruction, L90 lifebuoy lights, 63-126, Issue 08 (C6553)

Installation and Maintenance Instruction, L90 lifebuoy lights, 63-132, Issue 06 (C6553)

Test report No	Title	Date
14-02	"L90 76 meter drop test", witnessed by TUV product service Ltd	2014-03-26
14-04	"L90 Life test", witnessed by TUV product service Ltd	2014-04-28
75917538, report 01, Issue 1	"Environmental testing of the Daniamant lifebuoy lights", witnessed by TUV product service Ltd	2012-04
75925967, report 01, Issue 1	"Temperature cycling test, Luminous intensity test, Chromatic test, Vibration test", witnessed by TUV product service Ltd	2014-06
	"Evaluation and test report per MSC 81(70)" witnessed by See-BG & BAM	2006-05-15
J-5036	Microbiological test report	2013-10-15

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 161.110/EC0098/ MEDB000060Y

END OF CERTIFICATE

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

Daniamant Limited

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 CERTIFICATE NUMBER 13063/01 Issue 02
CUSTOMER ORDER NUMBER 10010649
TÜV REFERENCE 75929303

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