



EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB0000370
Revision No:
4

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV AS under the authority of the Government of Norway.

This is to certify:

That the Fast rescue boats: (b) rigid

with type designation(s)
Merlin-615 MKI Outboard

Issued to

VIKING NORSAFE LIFE-SAVING EQUIPMENT NORWAY AS
FÆRVIK, Norway

is found to comply with the requirements in the following Regulations/Standards:

Regulation (EU) 2022/1157,

item No. MED/1.20b. SOLAS 74 as amended, Regulation III/4, III/26, III/34, LSA Code and IMO MSC/Circ.1006, 1016 & 1094

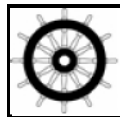
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2028-01-11**.

Issued at **Høvik** on **2023-01-12**

DNV local unit:
West Norway CMC

Approval Engineer:
Tessa Bieber



Notified Body
No.: **0575**



for **DNV AS**
Digitally Signed By: Sæle-Nilsen, Dag

Location: DNV Høvik, Norway
on behalf of

Sverre Olav Bergli
Head of Notified Body



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 AS 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.

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

“Merlin-615 MKI Outboard”,
 is a rigid fast rescue boat equipped with outboard engine and with single point lifting hook.

Material specification:

| ASIA | | |
|-------------------|--|---|
| Material | Type | Manufacturer |
| Polyester resin: | FL-918, OR ETERSET 2929PT | Jiangsu Fullmark Chemical Co., Ltd., OR Eternal Materials Co.Ltd. |
| Gelcoat: | Enguard series: Enguard GE XXXXS/HZ, Enguard TM XXXXS/HZ | Ashland (Changzhou) Specialty Chemical Co., Ltd. |
| Gelcoat/topcoat | FL-NCxxxxG | Jiangsu Fullmark Chemicals Co., Ltd. |
| Glass fibre: | CSM: P-100g/m ² – P-900 g/m ² , chopped strand mat - powder bound | Jiangsu Changhai Composite Materials Holding Co., Ltd. |
| | CSM: EMC (powder type), EMCL (emulsion type) | Taishan Fiberglass Inc. |
| Buoyant material: | Rigid polyurethane foam, | Jiangyin Tongqi Allied Chemical Factory, OR Qingdao Lianmei Chemical Co., Ltd. |
| | Rigid polyurethane foam, LM-206A/LM- 206B | Qingdao Lianmei Chemical Co. Ltd. |

| EUROPE | | |
|-------------------|---|---|
| Material | Type | Manufacturer |
| Polyester resin: | Aropol F 207 or Aropol F 207 INF | INEOS Composites Finland Oy |
| Gelcoat: | Maxguard NP WHI S, Maxguard NP WHI H | INEOS Composites Finland Oy |
| | LS-30PA white, LS-31PA & LS-30PA variants | Scott Bader Co., Ltd. |
| Gelcoat/topcoat: | FL-NCxxxxG | Jiangsu Fullmark Chemicals Co., Ltd. |
| Glass fibre: | CSM: Emulsion Bound E-100 – 900 g/m ² | Jiangsu Changhai Composite Materials Holding Co., Ltd. |
| | Multi-axial: Uni-axial; UNIE-L (250-1200 g/m ²) with or without CSM (100-600 g/m ²), Multi-axial: Uni-axial; UNIE-T (150-1000 g/m ²) with or without CSM (100-600 g/m ²) | Selcom S.r.l. a Socio Unico |
| | Multi-axial: Bi-axial; EBX (200-2000 g/m ²) with or without CSM (100-600 g/m ²), Multi-axial: Bi-axial; EBXS (300-2000 g/m ²) with or without CSM (100-600 g/m ²) | Selcom S.R.L. a Socio Unico |
| | Multi-axial: Tri-axial; ETLX (350-2200 g/m ²) with or without CSM (100-600 g/m ²), Multi-axial: Tri-axial; ETXT (200-2000 g/m ²) with or without CSM (100-600 g/m ²) | Selcom S.R.L. a Socio Unico |
| | Multi-axial: Quadri-axial; EQX (400-3500 g/m ²) with or without CSM (100-600 g/m ²) | Selcom S.R.L. a Socio Unico |
| | Spray Gun Rovings: ER13-2400-180, ER13-3000-180 | Jushi Group Co., Ltd. |
| Buoyant material: | Elastopor H 1700/10, Elastopor H 1700/11 and Elastopor H 1702/4 | BASF Polyurethanes Nordic AB |

Length, overall: 6.25 m
 Breadth, overall: 2.45 m
 Depth: 0.98 m
 Height, overall: 2.50 m

Weight of boat, fully equipped: 1150 kg
 Weight of boat, fully manned (82.5 kg/person): 2388 kg

Hook manufacturer and type:

Viking Norsafe Life-Saving Equipment Norway AS, K4-D / K4-D FM ⁽¹⁾
 Viking Norsafe Life-Saving Equipment Norway AS, DIB32 ⁽²⁾

Hook SWL: 4000 kg ⁽¹⁾
 3263 kg ⁽²⁾

Hull material: FRP

Propulsion system: Outboard engine
 Engine manufacturer and type: Yamaha Motor Co., Ltd., 60 ⁽¹⁾
 Mercury Marine, Mercury/Mariner 60 ⁽²⁾
 Mercury Marine, Mercury/Mariner 90 ⁽³⁾
 Frydenbo Marine AS, Evinrude E-TEC 75 ⁽⁴⁾
 Viking Norsafe Life-Saving Equipment Norway AS, T75FEL-T ⁽⁵⁾
 Viking Norsafe Life-Saving Equipment Norway AS, T90FEL-T ⁽⁶⁾

Bollard pull: 3.4 kN ⁽¹⁾
 3.4 kN ⁽²⁾
 4.7 kN ⁽³⁾
 3.2 kN ⁽⁴⁾
 4.12 kN ⁽⁵⁾
 4.07 kN ⁽⁶⁾

Application/Limitation

Approved engine power: 44.1 kW ⁽¹⁾
 44.1 kW ⁽²⁾
 66.2 kW ⁽³⁾
 56.0 kW ⁽⁴⁾
 55.2 kW ⁽⁵⁾
 66.2 kW ⁽⁶⁾

Number number of persons: 15
 Maximum load of persons (82.5 kg/person): 1237.5 kg

Approved colour: Orange

The fast rescue boat equipment and marking/instructions to be inspected after installation on board the ship. Equipment shall comply with LSA Code and IMO Res. MSC.81(70).

The fast rescue boat is fitted with a release hook without on-load release capabilities, in accordance with LSA Code 4.4.7.6.9. Hence, if it is to be combined with launching appliances with permanent high-speed tensioning device (LSA Code 6.1.7.3), compatibility must be assured.

The normal equipment of the fast rescue boat to include a hands-free and watertight VHF radio communication set, in addition to the ones required on the bridge.

The design assessment is based on IMO Res. MSC.48(66) as amended by IMO Res. MSC.207(81), IMO Res. MSC.218(82), IMO Res. MSC.272(85) and IMO Res. MSC.320(89).

Production and installation testing shall be carried out according to IMO Res. MSC.81(70), part 2, as amended.

Type Examination documentation

| Drawing No. | Date |
|--|------------|
| G-501154 Rev. 8 - Merlin-615 MKI Outboard, K4-D FM, Fast rescue boat | 2021-02-24 |
| G-504345 Rev. 0 - Merlin-615 MKI Outboard, DIB-32, Fast rescue boat | 2021-05-27 |
| A-500647 Rev. 2 - Painter release hook, 4.6T | 2022-11-09 |
| A-502150 Rev. 4 - K4-D FM | 2018-11-02 |
| A-503097 Rev. 2 - Merlin-615 OUTBOARD, K4-D FM W/REMOTE CONTROL | 2022-08-13 |
| A-503219 Rev. 4 - Merlin-615 Outboard, Hook Arrangement | 2022-08-13 |
| A-505117 Rev. 1 - Merlin-615 MKI Outboard, Propulsion system | 2021-07-19 |
| A-505143 Rev. 3 - Merlin-615 MKI Outboard, Fuel tank 140 litres (Aluminium 4mm) | 2020-08-10 |
| A-505144 Rev. 2 - Merlin-615 MKI Outboard, Fuel system | 2022-07-24 |
| A-505147 Rev. 1 - Merlin-615 MKI Outboard, Engine system | 2022-05-30 |
| A-509014 Rev. 3 - Merlin-615 Outboard, Hook Arrangement, DIB32 single | 2022-08-15 |
| D-500163 Rev. 1 - Control table for laminate thickness in console Merlin 615 | 2022-10-31 |
| D-500228 Rev. 1 - Merlin-615 Outboard, Control table for laminate thickness hull | 2022-10-31 |

| | |
|---|----------------|
| D-500229 Rev. 1 - Merlin-615 Outboard, Control table for laminate thickness liner | 2022-10-31 |
| R-501506 Rev. 5 - Merlin-615 MKI Outboard, Seating plan 15 persons (Replace 60-011 | 2020-07-29 |
| R-501509 Rev. 1 - Merlin-615 Outboard, Buoyancy calculation (Replace 60-010) | 2021-04-27 |
| R-504252 Rev. 0 - DIB32 SINGLE POINT GA | 2020-07-07 |
| S-502285 Rev. 1 - Lower lifting bracket, Merlin-615 | 2021-01-12 |
| S-507504 Rev. 3 - Support beam for lifting bracket, Merlin-615 | 2022-04-02 |
| S-507639 Rev. 1 - Upper lifting bracket, Merlin-615 | 2021-01-12 |
| S-509054 Rev. 5 - Merlin-615, Self-righting frame (Replaced 60-022) | 2022-04-12 |
| S-509091 Rev. 1 - Merlin-615 Outboard, Lamination drawing liner (Replace 60-006s) | 2020-06-28 |
| S-509094 Rev. 1 - Merlin-615 Outboard, Lamination drawing hull (Replace 60-005) | 2022-10-31 |
| Calculations | Date |
| CAL-0366 Rev. 7 - Merlin-615, Lifting arrangement equipment strength analysis | 2022-05-06 |
| Test reports | Date |
| REP-0977 Rev. 0 - Fire test and moulding journal GES-18 and Mako-655 NO | 2002-06-18 |
| REP-1123 Rev. 0 - Merlin-615 Outboard, Mercury 90hp, K4-D FM, Prototype test report | May /July 2016 |
| REP-1159 Rev. 0 - Merlin-615 Outboard, Prototype Test Report signed by BGV | 2001-02-12 |
| REP-1212 Rev. 0 - Merlin-615 Outboard, Prototype Test Report signed by BGV | 2010-05-04 |
| REP-1218 Rev. 0 - Merlin-615 Hull Fire-retardant and Flame-resistant test report no. 2016-05-M002 from Shanghai R&D Center for Polymer Materials, Shanghai, China | 2016-06-21 |
| REP-1219 Rev. 0 - Merlin-615 Laminate strength test report no. 2016-06-0435 from Shanghai R&D Center for Polymer Materials, Shanghai, China | 2016-06-24 |
| REP-1222 Rev. 0 - Merlin-615 Outboard, prototype test report signed by LR | 2002-01-17 |
| REP-1459 Rev. 0 - Merlin-615 Outboard, prototype test report with T75/T95FEL-T, witnessed by DNV | 2018-04-17 |
| REP-1509 Rev. 0 - Fire-retardant & Flame-resistant test of CSM laminate w/Scott Bader gel coat, test report no. 2018-07-M012 from Shanghai R&D Center for Polymer Materials, Shanghai, China | 2018-07-30 |
| REP-1510 Rev. 0 - Fire-retardant & Flame-resistant test of Spray-up laminate w/Scott Bader gel coat, test report no. 2018-07-M011 from Shanghai R&D Center for Polymer Materials, Shanghai, China | 2018-07-30 |
| REP-2080 Rev. 0 - Merlin-615 Outboard initial fitted with DIB32-Prototype test report | 2022-02-22 |
| Other | Date |
| MAN-0431 Rev. 9 - Merlin-615 Outboard, K4-D FM, Operation and maintenance manual | 2020-12-04 |
| MAN-2000 Rev. 0 - Merlin-615 Outboard, DIB-32, Operation and maintenance manual | 2021-05-26 |
| Document Index No. 23387 Rev. A - Alternative Polyester Resin ETERTSET 2929PT | 2021-03-01 |
| Document Index No. 12556 Rev. 0 - Components data sheets and approval certificates | 2017-06-09 |

Tests carried out

Tests are documented in accordance with recommendation on testing of Life-Saving Appliances, IMO Res. MSC.81(70) part 1, as amended by IMO Res. MSC.226(82), IMO Res. MSC.274(85), IMO Res. MSC.321(89) and IMO Res. MSC.323(89), and IMO MSC/Circ.1006.

Marking of product

The product is to be indelibly marked with name and address of manufacturer, boat model and serial number, month and year of manufacture, number of persons approved for and operational restrictions, if any, according to LSA code item 4.4.1.2 and the MED Mark of Conformity (see page 1).

List of fast rescue boat equipment to be posted in the boat.