

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate no.:
MEDB00004HK
Revision No:
2

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 Rigid rescue boats

with type designation(s)
Matrix-450 MKI

issued to
VIKING LIFE-SAVING EQUIPMENT NORWAY AS
FÆRVIK, Norway

is found to comply with the requirements in the following Regulations/Standards:
Regulation (EU) 2023/1667,

item No. MED/1.18. SOLAS 1974 as amended, Reg. III/4, III/21, III/31, III/34 & X/3, LSA Code, 2000 HSC Code 8 and IMO Res. MSC.481(102), IMO MSC.1/Circ.1631,IMO MSC/Circ.1006

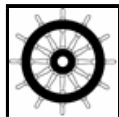
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2028-10-30**.

Issued at **Høvik** on **2023-10-31**

DNV local unit:
West Norway CMC

Approval Engineer:
Tessa Bieber



Notified Body
No.: **0575**



for **DNV AS**

Digitally Signed By:
Kristin Grønnæss Hovden
Location: DNV AS, 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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

"Matrix-450 MK I" is a rigid rescue boat equipped with outboard engine and 3-point lifting slings.

Material specification:

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

Length over all: 4,50 m
 Breadth over all: 1,96 m
 Height over all: 1,96 m

Weight of boat, fully equipped: 505 kg

Weight of boat, fully manned (82.5 kg/person): 1000 kg

Lifting arrangement: 3-point lifting slings

Hull material: FRP

Propulsion system: Outboard engine

Engine manufacturer and type:

- Tohatsu Corporation, Tohatsu Outboard, 15 Hp ⁽¹⁾
- Tohatsu Corporation, Tohatsu Outboard, 18 Hp ⁽²⁾
- Tohatsu Corporation, Tohatsu Outboard, 25 Hp ⁽³⁾
- Suzhou Parsun Power Machine Co., Ltd., T15BML, 15 Hp ⁽⁴⁾
- Suzhou Parsun Power Machine Co., Ltd., T25BML, 25 Hp ⁽⁵⁾
- Mercury Marine, Mercury/Mariner, 25 Hp ⁽⁶⁾
- Norsafe AS, Norsafe Marine T15BML, 15 Hp ⁽⁷⁾
- Norsafe AS, Norsafe Marine T25BML, 25 Hp ⁽⁸⁾

Bollard pull: 1.1 kN ⁽¹⁾
 1.22 kN ⁽²⁾
 1.5 kN ⁽³⁾
 1.23 kN ⁽⁴⁾
 1.57 kN ⁽⁵⁾
 1.35 kN ⁽⁶⁾
 1.23 kN ⁽⁷⁾
 1.57 kN ⁽⁸⁾

Application/Limitation

Approved engine power, max: 11 kW ⁽¹⁾
 13.2 kW ⁽²⁾
 18.4 kW ⁽³⁾
 11 kW ⁽⁴⁾

18.4 kW ⁽⁵⁾
 18.4 kW ⁽⁶⁾
 11 kW ⁽⁷⁾
 18.4 kW ⁽⁸⁾

Number of persons, max: 6
 Maximum load of persons (with 82.5 kg/person): 495 kg
 Approved colour: Orange

Rescue boat equipment and marking/instructions to be inspected after installation onboard the ship. Equipment shall comply with LSA Code and IMO Res.MSC.81(70).

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

Various components transferring the load ("loose gear") such as shackles, chains, links, blocks etc. shall comply with recognised standard or code and shall be delivered with manufacturer's certificate, confirming a safety factor minimum 6 compared to the sustained load (LSA Code Ch. 6.1.1.6).

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
A-500647 Rev. 2 - Painter release hook, 4.6T	2022-11-09
A-501001 Rev. 5 - Matrix-450, Lifting slings system	2021-02-23
A-501831 Rev. 0 - Lifting Slings For 3-Points	2014-12-13
D-500112 Rev.1 - Matrix-450, Laminate thickness control, Hull	2022-10-31
D-500113 Rev.1 - Matrix-450, Laminate thickness control, Liner	2022-10-31
E-506363 Rev. 0 - Electrical Circuit Diagram MATRIX-450 Manual Start With Consumption Battery	2023-07-31
G-500081 Rev. 5 - Matrix-450 MKI, General Arrangement	2022-03-28
G-505543 Rev. 0 - Matrix-450 MKI, General Arrangement (Battery Power)	2023-08-02
R-500696 Rev. 1 - Matrix-450 MKI, Seating Plan	2020-07-23
S-501320 Rev. 0 - Hull, Matrix-450	2014-03-28
S-501338 Rev. 1 - Hull liner, Matrix-450	2022-08-03
Calculations	Date
CAL-0227 Rev. 1 (7 sheets) - Lifting lug and grp strength calculation for Matrix-450	2021-02-24
CAL-0231 Rev. 0 - Structure strength calculation of Matrix-450	2014-08-27
R-500679 Rev. 1 - Matrix-450, Buoyancy calculation	2022-10-31
Test reports	
REP-1139 Rev. 0 - Matrix-450 prototype test report by BGV	2013-03-07
REP-1140 Rev. 0 - Matrix-450 prototype test report by NK	2015-08-28
REP-1141 Rev. 0 - Matrix-450 prototype test report by CCS	2011
REP-1142 Rev. 0 - Matrix-450 prototype test report by CCS	2014
REP-1202 Rev. 0 - Matrix-450, Prototype Test Report by BGV	2002-08-16
REP-1219 Rev. 0 - Report for Laminate strength	2016-06-20
REP-1428 Rev. 0 - Report for Laminate strength	2018-02-13
REP-1509 Rev. 0 - Report for IMO MSC.1/Circ.1006	2018-07-25
REP-1510 Rev. 0 - Report for IMO MSC.1/Circ.1006	2018-07-25
REP-1511 Rev. 0 - Report for IMO MSC.1/Circ.1006	2018-07-25
REP-1512 Rev. 0 - Report for IMO MSC.1/Circ.1006	2018-07-25
REP-1981 Rev. 0 - Risk assessment of Matrix-450	2021-07-20
Other	
MAN-0106 Rev. 9 - Matrix-450 Outboard, Operation and maintenance manual	2022-12-28
Document Index No.12415 Rev .0 - Components data sheets and approval certificates	2017-05-27
Document Index No. 23387 Rev. A - Alternative Polyester Resin Eterset 2929PT	2021-03-01

Tests carried out

Tests are documented in accordance with recommendation on testing of Lifesaving 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), IMO Res. MSC.323(89) and IMO MSC./Circ.1006.



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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 manufacturer, 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 rescue boat equipment to be posted in the boat.