

# EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:  
**MEDB00007SD**  
Revision No:  
**1**

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 Heading control system (HCS) and Heading control system for high speed craft**

with type designation(s)  
**NAVpilot-1000**

Issued to

**Furuno Electric Co., Ltd.**  
**Nishinomiya, Hyogo Pref, Japan**

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

Regulation (EU) 2022/1157,

**item No. MED/4.16. SOLAS 74 as amended, Regulations V/18 & V/19, IMO Res. A.342(IX), IMO Res. A.694(17), IMO Res. MSC.191(79), IMO Res. MSC.64(67) Annex 3, IMO Res. MSC.302(87)**

**item No. MED/4.40. SOLAS 74 as amended, Regulation X/3, IMO Res. A.694(17), IMO Res. A.822(19), IMO Res. MSC.36(63), IMO Res. MSC.97(73), IMO Res. MSC.191(79), IMO Res. MSC.302(87), IMO MSC.1/Circ.1349**

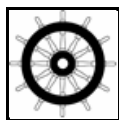
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2028-01-24**.

Issued at **Høvik** on **2023-09-08**

DNV local unit:  
**Japan FiS**

Approval Engineer:  
**Steinar Kristensen**



for **DNV AS**

Notified Body  
No.: **0575**

**Sverre Olav Bergli**  
**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 United States of America and the EEA EFTA states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005, and amended by Decision No 1/2019 dated February 22nd, 2019.



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

NAVpilot Heading Control System (HCS) with high-speed capabilities consisting of the following components:

Name	Type	Note	Location
<b>Standard installation:</b>			
Control Unit	FAP-10001		Protected
Processor Unit	FAP-10002		Protected
<b>Optional components:</b>			
Junction Box FI-5002	Junction Box FI-5002		Protected
Switch	HUB-100		Protected
<b>Software:</b>			
Control Unit FAP-10001		APP:6454041-01.1x BOOT:6454042-01.1x	
Processor Unit FAP-10002		APP:6454045-01.1x BOOT:6454046-01.1x	

## Application/Limitation

- NAVpilot HCS is to be installed in accordance with manufacturers documentation.
- NAVpilot HCS for power failure alert is to be installed interfaced to a secondary system on the bridge using Power Fail relay on Processor Unit FAP-10002. The interfaced system shall be capable of providing an alert message in accordance with ISO 11674, IEC 61162-1 and IEC 62923-1/-2 for HCS Power Failure. For presentation on own display and if installed onboard interfacing to a CAM
- NAVpilot HCS may be installed with 6 Control Unit FAP-10001.
- NAVpilot HCS may provide FU and NFU rudder steering. Steering control functions are to be covered by separate approval as applicable.
- NAVpilot HCS Advanced AUTO mode for GNSS based HCS drift compensations. The function is a additional function to this MED-B certification.

## Tests carried out

- Performance testing HCS: ISO 11674 (2019)
- Performance testing HCS High Speed Craft: ISO 16329 (2003)
- Environmental testing: IEC 60945 (2002) incl. Corr. 1 (2008)
- Interface testing: IEC 61162-1 (2016), IEC 61162-450 ed.2 (2018)
- Presentation testing: IEC 62288 (2021)
- Alert Management: IEC 62923-1 (2018), IEC 62923-2 (2018)

## Type Examination documentation

DNV No	Document ID	Rev.	Description
49	LIC 12-22-215	2023-03-06	Report: Labotech, IEC 62288 (2021) test report for NAVpilot-1000 Autopilot
47	K46-17-617	June 20, 2022	Report: Furuno IEC 62923-1/-2 HCS Autopilot NAVpilot-1000
44	K64-17-645	Ver01.02	Report: Furuno Additional IEC 61162-1 B4.9.2 mode Indicator testing, DNV type approval testing report, Model: Autopilot, Type: NAVpilot-1000
43	K64-17-627		Report: Furuno Reference document for P.19 P.23 P.39 ISO11674
42	K64-17-600	ver0.03	Report: Furuno; NAVpilot-1000 IEC62923 test procedure DNV type approval testing report, Model: Autopilot, Type: NAVpilot-1000
41	K64-17-598	September 6, 2022	Report. Furuno, NAVpilot-1000 HCS DNV type approval testing report, Model: Autopilot, Type: NAVpilot-1000
39	K64-17-619	June 20, 2022	Report: Furuno, additional functions test, DNVGL type approval testing report, Model: Autopilot, Type: NAVpilot-1000

DNV No	Document ID	Rev.	Description
32	LIC 12-22-086	11 July 2022	Report: Labotech, Test Report IEC 60945 (CSD) for Trade name: Furuno, Model: AUTOPILOT, Type: NAVpilot-1000
31	LIC 12-22-085	11 July 2022	Report: Labotech, Test Report IEC 60945 (operational checks, manuals, markings) for Trade name: Furuno, Model: AUTOPILOT, Type: NAVpilot-1000
30	LIC 12-22-084	11 July 2022	Report: Labotech, Test Report IEC 60945 (temperature) for Trade name: Furuno, Model: AUTOPILOT, Type: NAVpilot-1000
29	LIC 12-22-083	11 July 2022	Report: Labotech, Test Report IEC 60945 (vibration) for Trade name: Furuno, Model: AUTOPILOT, Type: NAVpilot-1000
28	LIC 12-22-082	11 July 2022	Report: Labotech, Test Report IEC 60945 IACS UR E10 for Trade name: Furuno, Model: AUTOPILOT, Type: NAVpilot-1000
27	LIC 12-22-076	Rev.1	Report: Labotech, Test Report IEC 60945 for Trade name: Furuno, Model: AUTOPILOT, Type: NAVpilot-1000
26	LIC 12-22-034	Rev.1	Report: Labotech, Test Report (IEC 62288 applicable light ch. 4 and 7) for Trade name: Furuno, Model: AUTOPILOT, Type: NAVpilot-1000
25	LIC 12-22-006	Rev.1	Report: Labotech, Test Report (IEC 61162-450) for Trade name: Furuno, Model: AUTOPILOT, Type: NAVpilot-1000
24	LIC 12-22-005	Rev.1	Report: Labotech, Test Report (IEC 61162-1/-2) for Trade name: Furuno, Model: AUTOPILOT, Type: NAVpilot-1000
23	LIC 01-22-013	11 July 2022	Report: Labotech, Reference document for IEC 61162-450 test performed by LIC (In relation to LIC test report N o. LI C 12 22 006 , Rev.1 for NAVpilot 1000)
22	LIC 01-22-012	11 July 2022	Report: Labotech, Reference document for IEC 61162-1/-2 tests performed by LIC (In relation to LIC test report No. LIC 12-22-005, Rev.1 for NAVpilot-1000)
14	K64-17-618		Report: Furuno IEC 61162-1 B4.9.2 Protocol testing DNV type approval testing report, Model: Autopilot, Type: NAVpilot-1000
6	OME-72890-Z7	Z7 : NOV . 29, 2022	Manual: FURUNO Operator Manual AUTOPILOT Model NAVpilot-1000
5	IME-72890-Z8	Z8 : NOV . 29, 2022	Manual: FURUNO Installation Manual AUTOPILOT Model NAVpilot-1000

## Marking of product

The type designation and name and contact address of the manufacturer shall be affixed visibly, legibly and indelibly to at least one part of the product. In addition, the various equipment shall be marked with serial number. Safe distance to magnetic compass and power consumption and/or supply voltage may be stated in the individual installation manuals.