

TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MERB00007SD
Revision No:
0

This Certificate is issued by DNV UK Limited based on authorisation of the Maritime & Coast Guard Agency (MCA) as an UK Approved Body to undertake conformity assessments on marine equipment in accordance with the requirements of the Merchant Shipping (Marine Equipment) Regulations 2016 as amended.

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, Japan

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

Regulation **MSN 1874 Amendment 7,**

item No. UK/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. UK/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 **London** on **2023-09-08**

DNV local unit:
Kobe



for **DNV UK Ltd.**

Approval Engineer:
Steinar Kristensen

Approved Body No.: **0097**

Christine Mydlak-Röder
MER Service Responsible



**Maritime &
Coastguard
Agency**

UK Approved Body Authorised
by the MCA

This certificate will not be valid if the manufacturer makes any changes or modifications to the approved type of equipment, which have not been notified to, and agreed with the approved body named on this certificate.

During the period of validity of this certificate the applicable regulations (international conventions and the relevant resolutions and circulars of the IMO) and testing standards may change, therefore the product conformity may need to be re-assessed by the Approved 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-control phase module (D, E or F) of Schedule 2 of the Merchant Shipping (Marine Equipment) Regulations 2016, as amended is fully complied with and controlled by a written inspection agreement with an approved body. In case limitations of use apply, these should be indicated in the Annex.

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 consists of the following components:

Name	Type	Location
Standard installation:		
Control Unit	FAP-10001	Protected
Processor Unit	FAP-10002	Protected
Optional components:		
Junction Box FI-5002	Junction Box FI-5002	Protected
Switch	HUB-100	Protected
Software: Version:		
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 an 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) and IEC 61162-450 (2018)
- Presentation testing: IEC 62288 (2021)
- Alert Management: IEC 62923-1 (2018) and 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.