DNV·GL

Certificate No:
MEDB00003NC

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

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 GL AS under the authority of the Government of Norway.

This is to certify:

That the Heading control system (HCS)

with type designation(s)
HCS-9000 Series

Issued to
Tokyo Keiki Inc.
Tokyo, Japan

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2018/773,**
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)

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

This Certificate is valid until **2023-09-05**.

Issued at **Høvik** on **2018-09-06**

DNV GL local station:
Yokohama

Approval Engineer:
Frederik Tore Elter

Notified Body
No.: **0575**

for **DNV GL AS**

Roald Vårheim
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.

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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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

NORWEGIAN ACCREDITATION PROD 019

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Job Id: **344.1-003524-4**
Certificate No: **MEDB00003NC**

Product description

Heading Control System, HCS-9000, consists of following components

- HCU (Heading Control Unit)
- HCIFU (Heading Control Interface Unit)
- HCTU (Heading Control Terminal Unit)
- HCSWU (Heading Control Switch Unit)
- RU (Repeater Unit)

Heading Control System, HCS-9000, consists following components;

Model	Description	Software Version	Location	Remark
HCU	Heading Control Unit	HCCPU: 1.xx	Protected	PID CPU board
		ADNCT2: 1.xx	Protected	Adaptive CPU board (option)
HCIFU	Heading Control Interface Unit	1.xx	Protected	-
HCTU	Heading Control Terminal Unit	-	Protected	-
HCSWU	Heading Control Switch Unit	-	Protected	-
RU	Repeater Unit	1.xx	Protected	-

Application/Limitation

- The installation shall be verified on board in accordance with installation and operation manual.
- Other control modes and functions than HCS are subject for separate approvals.
- HCS installation is always to be with connection to both Main (AC) and Battery (DC) power supply.
- Function of HCIFU (Heading Control System Interface Board) complies with DNVGL-RU-SHIP Pt.6 Ch.3. (Ed. Jan. 2018) - 6.2.3.7 Safety system – NAUT(AW)

Tests carried out

- Environment Test: IEC60945 (2002)
- Serial Interface test: IEC61162-1(2016) and IEC61162-2(1998)
- Presentation Test: IEC62288 (2014)
- Performance Test: ISO11674 (2006)

Type Examination documentation

DNV GL No	Title	Document No	Rev
76	Report: Heading Control System HCS-9000 - Test Report BAM and IEC 61924-2 (Signed)	TKME1-18-E016	
65	Manual: Heading Control System HCS-9000 Operator's Manual	E11-3070E	2018.4
56	Test Result of Pt.6 Ch.8 Sec.6 B307	WW-000001439	
55	Heading control System (Safety System) block diagram		
54	Heading Control System HCS-9000 Type Test Report IEC 62288 Ed.2 (2014)	TKME1-15-E001-W1	
53	Heading Control System HCS-9000	TKME-12-E003-W2	
52	Operator's Manual for Repeater Unit UD-100	E11-3073B	3rd
48	PCB LAYOUT	11990082/83/84/85/86/87/88/89/	0

DNV GL No	Title	Document No	Rev
		90	
47	HEADING CONTROL UNIT LAYOUT DRAWING	11990094/95/96/97/98/99/100/101/102/103/104	0
46	INTER UNIT WIRING DIAGRAM	11990154	0
41	HCS system block diagram :single system	119901520/30	
40	HCS system block diagram: Dual system	119901510	
39	TYPE TEST REPORT FOR TYPE APPROVAL (Environmental)	TKME1-12-E015-W2	
38	Type Test Report for Type Approval (IEC62288)	TKME1-12-E016-W2	
36	Type Test Report for Type Approval (FMEA)	TKME1-12-E009-W1	
35	Type Test Report for Type Approval (ISO11674) -PID	TKME1-12-E011-W1	
34	Type Test Report for Type Approval (ISO11674) -adaptive	TKME1-12-E011-W2	
32	Type Test Report for Type Approval (IEC61162)	TKME-12-E015-W1	
31	Type Test Report for Type Approval (IEC6228)	TKME1-12-E016-W1	
30	Environmental Type Test Report	TKME1-12-E003-W1	
29	Environmental Type Test Report	TKME1-12-E003-W3	
27	Product Specifications HCS-9000 Heading Control System	TKME1-12-E001	1.03
19	Heading Control System HCS-9000-xx-ZZ OPERATOR'S MANUAL	E11-3071	1.0
17	Environmental Test Report HCS-9000	TKME1-12-E003	
14	Service Menu Manual	TKME1-12-E012	1.00
13	Installation Manual	TKME1-12-E004	1.00
12	Verifiaction of HC Simulator	TKME1-12-E007	1.00
10	Software Design Specifications	TKME1-12-E010	1.00
9	EMC test report	EMC12113	
8	Test Report (compass safety distance)	12-186(E)	
4	Hardware Design Specifications HCS-9000 Heading Control System	TKME1-12-E002	

Marking of product

The manufacturer and Type Designation to be applied to the equipment in a clearly visible location and in addition the equipment shall be marked with serial number, safe distance to magnetic compass, power consumption and/or supply voltage.