



中国船级社  
CHINA CLASSIFICATION SOCIETY

证书编号/Certificate No.  
BG21PTB00018\_02

型式认可证书  
CERTIFICATE OF TYPE APPROVAL

兹证明本证书所述制造厂具备按照下列标准的要求生产本证书所列产品的能力和条件。

This is to certify that the manufacturer stated in the certificate meets the requirements of the standards listed below and is available with the ability and conditions to produce the products described in the certificate.

制造厂/Manufacturer

Kongsberg Maritime AS (Kongsberg)

地址/Address

Kirkegardsveien 45, P.O. Box 483 NO-3601 Kongsberg, Norway

产品名称/Product

航向控制系统 (HCS)  
Heading Control System (HCS)

附加标志/Notations

无/Nil.

认可标准/Approval Standard

- 1974年国际海上人命安全公约及其修正案第V章第18、19条  
Regulations 18 and 19, Chapter V of International Convention for the Safety of Life at Sea, 1974, as Amended
- 国际海事组织海上安全委员会决议IMO Res. MSC. 64 (67) Annex 3 《关于自动操舵执行标准A. 342 (IX) 决议的修正案》  
IMO Res. MSC.64(67) Annex 3 Amendment to Resolution A.342(Ix) on Performance Standards for Automatic Pilots
- 国际海事组织大会决议A.694 (17) 《作为全球海上遇险和安全系统 (遇险和安全系统) 组成部分的船载无线电设备和电子助航设备的一般要求》  
IMO Resolution A.694(17) General Requirements for Shipborne Radio Equipment Forming Part of the Global Maritime Distress and Safety System (GMDSS) and for Electronic Navigational Aids
- 国际海事组织海安会决议MSC. 191 (79) 《船载航行显示器有关航行信息显示的性能标准》  
IMO Resolution MSC.191(79) Performance Standards for the Presentation of Navigation-Related Information on Shipborne Navigational Displays
- IMO MSC. 302 (87) 《通过驾驶室警报管理性能标准》  
IMO MSC.302 (87) Adoption of performance standards for Bridge Alert Management



证书有效期至/ This Certificate is valid until 2022年12月16日/ Dec. 16, 2022

发证机构/ Issued by 中国船级社卑尔根办事处  
CCS Bergen Office

签发日期/ Date 2021年11月29日  
Nov. 29, 2021

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Form No: T01.

联系方式/Contact Us, 见本社官方网站/See official web site of the Society (<http://www.ccs.org.cn>)

UTN:P021-10769951

**用于/Intended for**

船舶与海上设施/Ships and Offshore Installations

**产品明细/Product Description**

航向控制系统 (HCS) /Heading Control System (HCS) (M0001)

名称/Name	属性 (值) /Value	单位/Unit
型号/Type	K-Pos Heading control system(HCS)	
系统组成/System Component	For the details, please refer to the item "Remarks" of the certificate	

**批准的图纸/Approved Drawings**

图纸批准号/ Drawings Approval No. : NP18A01463

**产品认可试验报告/ Approval Test Report**

试验报告编号/ Test Report No. : Refer to the additional pages of the certificate

试验报告日期/ Test Report Date :

**认可后的产品检验方式/ Method of Product Inspection after Approval**

按规范认可后应进行产品检验的产品/The product should be inspected in term of the rules:

认可后的产品检验应由本社验船师根据本社规范规定按批准的产品检验计划进行检验, 经检验合格后由本社颁发船用产品证书。

After approval, product inspection should be carried out by the Surveyor of the Society in accordance with the approved product inspection scheme, and the Marine Product Certificate will be issued by the Society upon satisfactory inspection.

**认可保持条件/ Maintenance Requirements of Approval**

1. 型式认可后, 如果产品及其重要零部件的设计、所用材料或制造方法有所改变, 且影响到产品的主要特性、特征; 或产品的性能指标有所更改, 且超过认可的范围, 则有关图纸和文件应经检验机构审批。并在检验机构认为必要时, 经本社检验人员见证有关试验和进行检查, 其结果应能证实仍符合认可条件。

After type approval, if there are changes to the design, materials used or manufacturing method of the product and important components and such changes affect major characteristics and properties of the product, or property indexes of the product are changed and exceed the scope of approval, related drawings and documents are to be examined and approved by the concerned survey office. Where deemed necessary by the survey office, the surveyor to the Society will go to witness relevant tests and conduct inspection and the results should be able to demonstrate compliance with the approval conditions.

2. 工厂的质量管理体系应保持有效运行, 并且与认可时一致。如果质量管理体系发生改变, 应经原体系认证机构审核并报本社批准。

The quality management system of the factory shall be ensure effective operation, and shall be the same as the situation of approval. If there are any changes to the quality management system, auditing of the original certification organization for quality management system and the society's approval shall be obtained.

3. 认可证书有效期内, 如果出现可能导致本社取消认可的情况, 工厂应及时采取有效的纠正措施。

Within the validity of the approval certificate, if cases occur that may cause the Society to withdraw the approval, the manufacturer should take corrective actions in a prompt and effective manner.

4. 在认可证书有效期内, 本社检验人员可在未经事先通知的情况下对工厂的产品制造过程进行审核, 以验证产品的生产是否符合业经本社批准的图纸和文件。工厂应予以配合。

Within the validity of the approval certificate, the surveyor to the Society may pay unannounced audit to the manufacturing process of the product in order to confirm whether it is in compliance with the drawings and documents approved by the Society. The factory should provide an active cooperation and necessary for the surveyor.

5. 如果属于获得型式认可B 模式证书, 且无需颁发船用产品证书/等效证明文件的情况, 证书获得者应接受本社每年一次的定期审核, 定期审核日为认可证书期满之日对应的每一周年日, 检查工作应在周年日的前后三个月内进行。

If belong to the situation of the product has type approval mode B certificate, and marine product certificate/equivalent document is not necessary, those who have obtained the certificate should be

subject to periodical audit every year. The date of periodical audit shall be each anniversary date which corresponds to the date of expiry of the relevant certificate and the periodical audit shall be done within a time span of three months before and after the annual surveillance date.

## 备注/Remarks

1. 本证书由原型式认可证书 (No. BG20PTB00009\_02) 变更并替代原证书。  
This certificate is modified from and supersedes the previous Type Approval Certificate No. BG20PTB00009\_02.
2. The approval history:  
--Initial approval: GB10T00031\_02  
--The first update: GB12T00039\_02  
--The second update: BG14T00012\_02  
--The third update: BG19PTB00016\_02  
--The fourth update: BG20PTB00009\_02  
--The fifth update: BG21PTB00018\_02
3. K-Pos Heading Control System consisting of the following components:  
◇Main processing unit (one of the following):  
-Dynamic Positioning Controller with process unit(s)  
-CC Series Compact Controller with process unit  
  
◇Operating Station/Terminal (at least one of the following):  
-K-Pos OS Operator Station for K-Pos DP/DPM/PM (including built-in versions)  
-K-Thrust OS Operator Station as part of Thruster Control (including built-in versions)  
-cJoy OT Operator Terminal for cJoy  
-cJoy DP-OT Remote DP Operator Terminal (additional operating terminal)  
-K-Master Operator Station for K-Pos DP  
--TCP Computer: NEO CE-HW-01 or MC330 i3 LAN or MP5810 Base Model  
--Application server for DP: MC330 i3 LAN or MP5810 Base Model  
--Main Display Server(s): MC330 i3 GPU, or MP5810 4-Display Model or MP5810 NAV RoLAN Model  
--Network Units: Moxa EDS-316 or Moxa IKS-6728A-4GTXSFP-HV-HV-T  
--USB extender: Veinland USB Extender VL-66199-T/R  
--Power Unit: Phoenix Contact Quint-PS/1AC/24DC/10  
--Operator interface: Display 13.3" TCP, K-Master units (Heading Wheel, Joystick, Alarm Panel, Thruster Command Panel, I/O Controller), COP-05 Standalone Trackball  
--Main display: Display 27" FHD ECDIS S MK4 or Display 27" FHD ECDIS KM05 MK4 or Display 27" FHD ECDIS G MK2 or Display 32" FHD ECDIS G MK1 or Display 55" UHD ECDIS G MK1  
--Additional display (option): MD24 16:9 ECDIS Glass
4. Software Version:  
-DP basis release 8.4, update 2 onwards  
-K-Master release 2.1, update 6 onwards
5. For each designed vessel, the drawing of Heading Control System (HCS) should be submitted for approval to the Society Plan Approval Center.
6. Manufacturing places include as below:  
(1) Kongsberg Maritime AS, Bekkajordet 8A, 3189 Horten, Norway  
(2) Kongsberg Maritime AS, Søndre Kullerød 1, 3241 Sandefjord, Norway  
(3) Kongsberg Maritime AS, Kirkegårdsveien 45, 3616 Kongsberg, Norway  
(4) Kongsberg Maritime China Waigaoqiao Ltd., No. 136 North FuTe Road, China (Shanghai), Pilot Free Trade Zone, 200131 Shanghai, China  
(5) Kongsberg Maritime China Ltd., No. 136 North FuTe Road, China (Shanghai), Pilot Free Trade Zone, 200131 Shanghai, China.
7. The hardware was tested and found in compliance with the requirements of IACS E10: 2021 (rev 8).
8. 本社已审核了产品厂无石棉声明, 但本社的审核不免除产品厂按照合同关系向订货方保证产品无石棉的责任。  
The declaration of asbestos-free submitted by manufacturer has been reviewed by the Society. However, liability of the manufacturer to guarantee the products are asbestos-free to purchaser under contract will not be exempted.

**中国船级社卑尔根办事处**

**CCS Bergen Office**

注: 本证书含有附页, 共3页

Note: The certificate is attached with additional 3 page(s)

**Test report for the Heading Control System (HCS)**

Test Report No.	Date	Main Equipment Under Test
Nemko E21088.03	28 Oct.2021	Verification Test of the marine range of Kongsberg Maritime for IACS E10 Rev.8
<b>KM-05 Operator Station (Slim Line)</b>		
TI 3010-05-0052	02 May 2005	Verification Test of KM-05 Operator Station - 650
DANAK-198574, DELTA-A504273-2	04 Dec. 2006	Vibration testing of PC (MP7600) on wire-isolators (KM kit 603185) in KM05 Slim line console for marine applications
DANAK-198637, DELTA-A504352-1	30 Jan. 2007	IP22 tests of KM-05 Deepline and Slimline operator stations.
<b>KM-05 Operator Station (Deep Line)</b>		
DANAK-198575, DELTA-A504273-3	04 Dec. 2006	Vibration testing of KM05 Deep line console with PC (MP7600) on wire isolators (KM kit 603185), for marine applications.
DANAK-198577, DELTA-A504327-2	04 Dec. 2006	Vibration testing of KM05 Deep line console with PC (MP7600) on rubber isolators (MS2040+305083), for marine applications.
DANAK-198637, DELTA-A504352-1	30 Jan. 2007	IP22 tests of KM-05 Deepline and Slimline operator stations.
<b>KM18 Console Range</b>		
INFO: KM18 Console Range		Environmental test summary, KM doc: 445161B.pdf
Kiwa TI 3000-17-026697 (vibration)	31 Aug. 2017	Display Stands (With lift and tilt) (Static)
Statement Nemko: Ordeno. 334702 (IP)	05 July 2017	Display Stand Lift and Tilt, Display Stand Static, El-mech module
Kiwa TI 3000-17-027224 (vibration)	18 Jan. 2018	Operator Station Lift & Tilt
Kiwa TI 3000-17-027614 (vibration)	18 Jan. 2018	Operator Station Static
Kiwa TI 3000-18-028741 (vibration)	09 May 2018	1400 Table
Kiwa TI 3000-18-028135 (vibration)	22 March 2018	Center Console (700 Centre Long console)
Kiwa TI 3000-18-029457 (vibration)	28 Sept. 2018	500 Beside
Nemko E17254.00 (EMC) (KM18)	02 Nov. 2017	Components for Display Stand w/lift and tilt (Lifting Column, Actuator, Control Box, Desk Panels)
<b>KM Common Operator Panels 2005 (COP-05)</b>		
DANAK-198195, DELTA-A503298-1, Rev. 1	15 June 2007 (19 Dec. 2005)	Type approval testing of KM Common Operator Panels 2005. (The tested joystick has part no. 603551.)
DNV 2006-3293, Rev. 01	19 Oct. 2006	Environmental Testing of Joystick Type KM-MOD, Lilaas AS (The tested joystick has part no. 301491.)
Thales 9501 029 033XX 001	22 Nov. 2006	Joystick KC 06 (The tested joystick (Kwant Controls) has part no. 304849.)
NEMKO 69187	31 Aug. 2006	"IP22 test of COP-05 units: ALC, BU-NAV, Utility"
DNV 2006-3459	13 Oct. 2006	"IP22 test of COP-05 unit: Heading Wheel"
DNV 2006-3460	01 Nov. 2006	"IP22 test of COP-05 unit: Input Panel with Tracker Ball"
DANAK-198637, DELTA-A504352-1	30 Jan. 2007	"IP22 tests of KM-05 Deepline and Slimline operator stations equipped with COP-05 units."
DANAK-1910612 Rev B, DELTA-A506311-1	15 Sept. 2009 (27 Aug. 2009)	KM Tracker Ball Stand Alone Panel
DANAK-1910979/DELTA-A506924-1	13 July 2010	COP-05 Input Panel
<b>MP5810 and MC330</b>		
MS Testing, TL16112	11 Nov. 2016	Kongsberg MP5810 PC (Intel Core i3)
MS Testing, TL15048 Issue 3	09 Dec. 2015	Kongsberg MP5810 PC – Setup 1

MS Testing, TL15049 Issue 3	09 Dec. 2015	Kongsberg MP5810 PC – Setup 2
MS Testing, TL15050 Issue 3	09 Dec. 2015	Kongsberg MP5810 PC – Setup 3
MS Testing, TL15051 Issue 3	09 Dec. 2015	Kongsberg MP5810 PC – Setup 4
S585A-2019	30 Dec. 2019	MC330 (Think Station P330 Tiny)
S498A(2)-2019	28 Feb. 2020	MC330 (Think Station P330 Tiny)
C201911053334-G2	27 Nov. 2019	MC330 (Think Station P330 Tiny)
<b>K-Master (focus DP + IJS, DP HCS)</b>		
TI 3010-09-0221 Rev.-	21 Jan. 2010	Vibration test of K-Master Chair
Statement KM, K-Master Workstation		Vibration Test Statement, KM doc: 368822B.pdf
Statement Hatteland, 100984-1_R18		Statement for K-Master 13.3” and 8” TCPs
DNV 2011-3416	14 Oct. 2011	HD13T21 KMD-DR1-CORP (for K-Master TCP)
Nemko no. E11024.03	07 May 2012	K-Master Panel System Note: Testing of Utility Panel (for K-Thrust RCS), Alarm Panel, Heading Wheel, Chair Control Panel, IO controller and Joystick DP/IJS4 buttons, including IP tests.
Nemko no. E12059.00	07 May 2012	K-Master Bridge Chair (Covers; Compass Safe Distance, Acoustic Noise)
Statement KM, K-Master joystick		Test statement K-Master 1 and 3 button joystick, KM doc.: 394658A.pdf
TI 3000-14-015548 Rev.-	12 March 2012	K-Master Pilot Chairs
Statement KM, K-Master Pilot Chair		Test statement K-Master Pilot Chairs, KM doc.: 391995B.pdf
TI 3000-14-016343 Rev.-	20 March 2014	KMX Medium-800 Console
Statement KM, K-Master console		Test statement KMX FWD Centre Console, KM doc.: 391778A.pdf
TI 3000-14-016067 Rev.-	12 March 2014	KMX Pedestal-300
Nemko no. E16203.00	29 March 2017	K-Thrust Modules (Thruster Command Panel (for K-Thrust 720))
DELTA, DANAK-19/15434 Rev.A	07 July 2015	ISIC DuraPanel 7” and 12,1”, ++ (KM term: Panel PC 7” 5:3 J1900) (for K-Master IJS, no HCS) (KM term: Panel PC 12.1” 16:10 1.6 GHz (for K-Thrust 720))
<b>DP Controller</b>		
DANAK-198307, DELTA-A503711	03 April 2006	Vibration and IP testing of DPC-3 cabinet for the purpose of type approval and type examination.
INFO: General Arrangement, DPC-1/2 Cabinet		KM doc: 302199B.pdf
INFO: General Arrangement, DPC-3 Cabinet		KM doc: 302152B.pdf DPC-3 has an additional top mounted cabinet compared with DPC-1/2. There is a gasket for IP between the cabinets. The cabinet sections are bolted together. DPC-1/2 has on the cabinet top a dummy plate with necessary gasket for IP.
TI 310-03-0319, Rev. No. A	28 Oct. 2004	Verification Test of FS120, NDU and NDU Mini. Considered to cover cC-1 cabinet.
<b>RCU501 (previous), RSER200-4, RHUB200-5 and RMP200-8 (previous)</b>		
DANAK-198508, DELTA-A503547-1	17 Oct. 2006	RCU501, RSER200-4, RHUB200-5 and RMP200-8
<b>RCU602</b>		

Nemko no. E15165.01	28 April 2017	RCU602 and RMC-ST
<b>RMP201-8</b>		
“Environmental tests for RMP201-8 based upon RMP200-8”	16 April 2009	KM clarification of RMP201-8
<b>cJoy OT MK3 (for MS WIN7 / WIN10)</b>		
TI 3000-14-018241 Rev.-	23 March 2015	cJoy OT MK3 WIN7
<b>cWing</b>		
TI 310-04-0125, Rev. No. A	16 March 2005	Environmental Verification Test, cWing and cJoy. For verification of new cWing Terminal display, see TI Report No. 3010-05-0121. The NEMKO Test report included in Appendix 8 of the TI Report No. 310-04-0125, Rev. No. A has been corrected, see NEMKO 32743 Rev. 1
NEMKO Order No. 32743, Revision number 1	06 April 2005 (15 Dec. 2004)	NEMKO Test Report – EN 60945, Corrosion Test (cWing).
DNV 2005-3115	01 March 2005	Compass Safe Distance Test of Joystick and DP Equipment. Covers verification of cJoy OT, cJoy JB, cWing, cWing JB, cPos OP and cPos OP JB.
TI 3010-05-0121, Rev. No. –	13 April 2005	Environmental Verification Test, Additional Tests on cWing, cJoy, cPos.
NEMKO Order No. 41813, Revision 1.0	12 April 2004	NEMKO Test Report – Electromagnetic Compatibility (cJoy/ cPos/ cWing).
DANAK-198632, DELTA-A503547-4	26 Jan. 2007	CAN2DP Converter
NEMKO Order No. 140487 Rev 3	30 Aug. 2010	(cJoy / cWing) Additional Tests for cJoy (MK 1 / 2) and cWing
<b>Alarm Printer</b>		
NEMKO Order No. 379788	18 Dec. 2019	EMC Test Report (Canon LBP623Cdw) (KM version; Schaffner line filter on AC Mains)
NEMKO Order No. 378649-1	19 Aug. 2019	EMC Test Report (HP LaserJet Pro M254nw) (KM version; Schaffner line filter on AC Mains) (Note: phase out)
NEMKO Order No. 378649-2	19 Aug. 2019	EMC Test Report (OKI ML 280 ECO) (KM version; Schaffner line filter on AC Mains) (Note: phase out)
NEMKO Order No. 378649-3	19 Aug. 2019	EMC Test Report (OKI ML 1190 ECO) (KM version; Schaffner line filter on AC Mains)
NEMKO Order No. 229613	25 Jan. 2013	EMC Test Report (HP LaserJet Pro M401dn) (Note: phase out)
NEMKO Order No. 39760	25 Feb. 2005	EMC Test Report (OKI ML280 ELITE) (Note: phase out)
NEMKO Order No. 265317	13 Aug. 2014	EMC Test Report (Lexmark CS510de) (Note: phase out)
<b>Screen Capture Printer</b>		
NEMKO Order No. 379788	18 Dec. 2019	EMC Test Report (Canon LBP623Cdw) (KM version; Schaffner line filter on AC Mains)
NEMKO Order No. 378649-1	19 Aug. 2019	EMC Test Report (HP LaserJet Pro M254nw) (KM version; Schaffner line filter on AC Mains) (Note: phase out)
NEMKO Order No. 265317	13 Aug. 2014	EMC Test Report (Lexmark CS510de) (Note: phase out)
<b>Network Switch</b>		
MS Testing TL15055 Issue 5	18 Nov. 2015	Moxa, Managed Ethernet Switch (incl. IKS-6728A-4GTXSFP-HV-HV-T)