



TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MERB00003XA
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 Integrated navigation system (INS)

with type designation(s)
K-Bridge INS

Issued to

Kongsberg Maritime AS
Kongsberg, Norway

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

Regulation **MSN 1874 Amendment 9,**

item No. UK/4.59. SOLAS 74 as amended, Regulations V/15, V/18, V/19 & X/3, IMO Res. A.694(17), IMO Res. MSC.36(63), IMO Res. MSC.97(73), IMO Res. MSC.191(79), IMO Res. MSC.252(83), IMO Res. MSC.302(87)

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

This Certificate is valid until **2026-10-10**.

Issued at **London** on **2024-10-14**

DNV local unit:
East & South Norway CMC



for **DNV UK Ltd.**

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**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.

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Product description

The K-Bridge Integrated Navigation System (INS) consists of several K-Bridge Operator stations (Multifunction displays, MFDs) incorporating the below functions and integrated via redundant Ethernets:

Function Type

- RADAR K-Bridge Radar
- ECDIS K-Bridge ECDIS
- CONNING Included in K-Bridge Radar and ECDIS
- CAM Included in K-Bridge Radar and ECDIS

All functions may be operated on any of the MFDs in the INS.

The K-Bridge INS is realised using the following components, connected in a topology as described in Ch. 2 of the K-Bridge INS System Description (see Type Examination Documentation below):

Functions	Components	Remark
ECDIS	<ul style="list-style-type: none"> • K-Bridge Operator station, consisting of: <ul style="list-style-type: none"> ○ Main Computer Unit ○ Graphical Interface ○ Display Unit ○ Sensor Interface ○ Input Device ○ Computer keyboard ○ Software Module • Radar Interface • Transceivers and antenna units 	See ECDIS EC-Type Examination certificate MEDB000013V ⁾ and Type Approval certificate TAA00000FJ ⁾ for details
RADAR		See Radar EC-Type Examination Certificate MEDB000013U ⁾ and Type Approval certificate TAA00000FJ ⁾ for details
CONNING / CAM		
Software version	K-Bridge version 9.1.x	

⁾ Certificates MEDB000013V, MEDB000013U and TAA00000FJ for K-Bridge and K-Bridge Standalone systems (see Type Examination documentation below) in their latest revision at the date of placing the system on the market is part of this certificate.

For the relevant revision see also <https://approvalfinder.dnv.com/>.

Application/Limitation

- The ECDIS and Radar functions shall hold valid type approval certificates documenting compliance with applicable international standards in accordance with the Directive.
- The minimum configuration of K-Bridge INS for SOLAS compliance comprises 4 MFDs. An INS-topology involving additional MFDs may be approved on case-by-case basis.
- The K-Bridge INS shall be interconnected with dual installations of position, heading and speed sensors holding valid type approval certificates.
- The K-Bridge INS is to be connected to an alarm transfer system for transfer of back-up navigator alarms.
- The INS Alert Management (CAM) may handle, distribute and present bridge alerts being additional to the K-Bridge INS and its primary sensors.
- For vessels where BAM-compliance in accordance with MSC.302(87) is required the INS CAM-HMI should be arranged as the functional HMI for the BAM.
- The K-Bridge INS ECDIS function may be integrated with and act as HMI for the K-Bridge Heading Control System (HCS) and K-Bridge Track Control System (TCS)
- The K-Bridge INS shall be installed and commissioned onboard according to manufacturer's installation instructions for the individual functions/components.

Tests carried out

- Performance testing: IEC 61924-2 (2012) incl. Corr.1 (2013)
- Environmental testing: IEC 60945 (2002) incl. Corr.1 (2008)
- Serial Interface testing: IEC 61162-1 (2016)
- Presentation of navigation information: IEC 62288 (2021)
- Bridge Alert Management: IEC 62923-1 (2018) and IEC 62923-2 (2018)

Type Examination documentation

DNV No	Document Id.	Rev.	Description
40	110-0054816	A	Manual: Kongsberg Maritime, K-Bridge CAM-HMI Operator Manual, Release 9.1
39	110-0054812	A	Manual: Kongsberg Maritime, K-Bridge 9.1 INS, On-board familiarization for navigators
38	110-0062707	A	Specification: Kongsberg Maritime, K-Bridge 9.1 INS System Description
37	110-0062706	A	Specification: Kongsberg Maritime, K-Bridge 9.1 INS FMEA Document
36	110-0052052	A	Report: Kongsberg Maritime, K-Bridge 9.1 test Report IEC 62288 Ed.3 (2021)
35	110-0054820	A	Manual: Kongsberg Maritime, K-Bridge Radar Operator Manual, Release 9.1
34	110-0054818	A	Manual: Kongsberg Maritime, K-Bridge ECDIS and Planning Station Operator Manual, Release 9.1
33	110-0054817	A	Manual: Kongsberg Maritime, Conning Operator Manual, Release 9.
31	110-0004215	A	Report: Kongsberg Maritime, K-Bridge v9 HMI Test Report
21	TAA00000FJ	Latest rev.	Certificate: DNV, Type Approval certificate for K-Bridge and K-Bridge Standalone System Platform
20	MEDB000013U	Latest rev.	Certificate: DNV, Module B certificate for K-Bridge and K-Bridge Radar Standalone
19	MEDB000013V	Latest rev.	Certificate: DNV, Module B certificate for K-Bridge and K-Bridge ECDIS Standalone
18	477915	C	Report: Kongsberg Maritime, K-Bridge and K-NAV CAM BAM Type Approval Test report
7	419854	D	Report: Kongsberg Maritime, Test Report for K-Bridge ICS, DVNGL-RU-SHIP Pt.6 Ch.3
6	415228	A	Report: Kongsberg Maritime, Type Approval Test Report for K-Bridge BAM, Central Alert Management System
5	424988	J	Report: Kongsberg Maritime, Type Approval Test Report for K-Bridge INS, Alert Management
4	418199	B	Report: Kongsberg Maritime, Type Approval Test Report for K-Bridge INS Clause 6, CCRS
2	424985	G	Report: Kongsberg Maritime, Type Approval Test Report for K-Bridge INS, Tasks and functions Clause 7
1	170083	U	Manual: Kongsberg Maritime, Kongsberg Maritime, Network, Installation Manual

Marking of product

The designation of Manufacturer and Type shall be fixed in a clearly visible location on the individual equipment. In addition the equipment shall be marked with serial number. Safe distance to magnetic compass and power consumption and/or supply voltage may be included on the label or stated in the individual installation manuals.