



Certificate no.:
TAA00003K8

TYPE APPROVAL CERTIFICATE

This is to certify:

that the **Control and Monitoring System**

with type designation(s)
K-Master

issued to

Kongsberg Maritime AS
Kongsberg, Norway

is found to comply with

DNV rules for classification – Ships Pt.6 Ch.5 Sec.21 Cyber security

Application:

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

This type approval covers security capabilities in accordance with DNV security profile 1 and IACS UR E27 Rev.1, subject to conditions stated in this certificate.

Issued at **Høvik** on **2025-09-17**

This Certificate is valid until **2027-09-16**.

DNV local unit: **East & South Norway CMC**

Approval Engineer: **Knut Omberg**



for **DNV**

Digitally signed by: Jarle Coll Blomhoff
Location: DNV Høvik, Norway

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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 USD 300 000.

Product description

The K-Master solution is a multifunctional workstation that combines the user interfaces of several systems on the bridge into one centralized operational environment.

K-Master may connect to the following Kongsberg systems and provide a common user interface:

- DP control system (K-Pos)
- Independent joystick system (IJS)
- Propulsion and thruster control system (K-Thrust)
- Integrated automation system (K-Chief)
- Integrated navigational system (K-Bridge)

K-Master consists of the operator stations listed below.

- MDS computer
- TCP computer
- IJS computer

The common user interfaces (VDU screens, levers, joysticks) provided by K-Master are additional to the user interfaces provided by each of the connected control systems.

This TA certificate covers K-Master version 3.y.z consisting of the asset listed in Asset inventory 110-0055090.

Approval conditions

Each type approved system intended for DNV classed vessels shall be delivered with a vessel-specific Product certificate (PC). The Product certificate shall confirm compliance with applicable DNV rules for the project and shall be issued based on approval of design documents and certification survey with testing as specified in DNV-RU-SHIP Pt.4 Ch.9.

For newbuilding projects, design documents for identical deliveries to sister vessels with the same DNV project ID shall be submitted for approval in one common document transmittal. Certification survey and testing is required for each delivery.

When the type approved system is delivered to a vessel with class notation Cyber secure(Essential), the following additional verification applies as per DNV-RU-SHIP Pt.6 Ch.5 Sec.21:

- It shall be demonstrated that the architecture of each delivery is documented in a project-specific system topology (F030) and that this is consistent with type approved document 110-0057149
- It shall be demonstrated that each delivery is correctly represented by a vessel-specific asset inventory (F071) and that this inventory is consistent with type approved document 110-0055090.
- It shall be demonstrated that each delivery has been configured and hardened as per the type approved Cyber security configuration SUM: K-Master (F141).

Certification testing of cyber security capabilities is not required if the delivery is fully covered by this TA certificate.

If a delivered system differs from the type approved system, this shall be described and submitted for assessment.

Application/Limitation

The K-Master may connect directly to the network of other Kongsberg control systems in the same security zone (e.g., K-Pos, K-Thrust, K-Chief).

The K-Master may communicate with specific devices in the K-Bridge integrated navigation system via the router/firewall supplied by Kongsberg as part of e.g., K-Chief, K-Pos or K-Bridge.

The K-Master may also integrate with other 3rd party systems in other security zones via the router/firewall supplied by Kongsberg as part of e.g., K-Chief, K-Pos or K-Bridge.

K-Master is not type approved for communication with untrusted network.

Type Approval documentation

The K-Master version 3.2.0 is represented by the following design documents:

- 110-0064387/E Security capabilities K-Master
- 110-0055090/E Asset inventory K-Master
- 110-0057149/D System topology K-Master
- 110-0082534/B Test procedure K-Master
- 110-0120081/A Release Notes K-Master 3.2.0 / TCP System 3.1.1, including corresponding Cyber security Configuration SUM: K-Master
- 110-0102056 K-Master Operator Manual Release 3.2.0

At renewal of this TA certificate, release notes for K-Master/TCP System shall be submitted, which includes updated and accumulated change logs for the type approved product.

Documentation of major changes to the type approved system shall be informed to DNV. If the changes are considered to affect functionality covered by this TA certificate, a new functional type test may be required, and the certificate may have to be renewed to identify the new version. Minor changes are covered by this type approval.

Minor modifications to the type approved system are reflected by the last two numbers in the version identifier. Major modifications are reflected by the first number in the version identifier. All modifications to the type approved system shall be carried out in accordance with documents:

- KM-PROC-0080/C Change management
- KM-TMPL-0217/A Change management plan – template

Tests carried out

Tested in accordance with requirements for security profile 1 (SP1) as per document test procedure K-CMS, 110-0082534/A, May 22. 2025.

Marking of product

Hardware devices are marked with product name and type as listed in 'Product description' above. Software version(s) can be seen via each product's management interface.

Place of manufacture

Kongsberg Maritime Kirkegårdsveien 45, 3616 Kongsberg, Norway
Kongsberg Maritime AS Bekkajordet 8A 3189 Horten, Norway

Renewal assessment

A renewal assessment will be performed at renewal of the certificate.

The scope of the renewal assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensuring that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate
- Review documented evidence of adherence to Secure Development Lifecycle processes

END OF CERTIFICATE