



Type Approval Certificate

[Automatic Control System]

Initial Approval 16 May 2018

Manufacturer Kongsberg Maritime AS, Horten
Bekkajordet 8, NO-3189 Horten, Norway

Product Description Safety Control and Monitoring System

Type: K-Chief 700 , K-Chief and K-Safe

* Manufacturing Place

- Kongsberg Maritime AS (HQ) / Kirkegardsveien 45, 3616 Kongsberg, Norway
- Kongsberg Maritime AS (Horten) / Bekkajordet 8A, NO-3189 Horten, Norway
- Kongsberg Maritime Korea / 9-7 Sandan 3-ro, Jeonggwan-eup, Gijang-gun, Busan, 46027, Republic of Korea
- Kongsberg Maritime China (Shanghai) / No. 136 North Fute Road, China (Shanghai), Pilot Free Trade Zone, 200131, China

" See Appendix 1 "

Approval Condition " See Appendix 1 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows.

Pt. 6, Ch. 2, Art. 301 of the Rules for Classification, Steel Ships.

This Certificate is valid until 6 December 2027

Reissued at Busan, Korea on 3 January 2025



This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "<http://e-cert.krs.co.kr>" by using the tracking No(ME25000447728) and certificate No.(CPH27937-AC003).



KOREAN REGISTER

*General Manager of
Marine & Ocean Equipment Team*

- Note :**
1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
 2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
 3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
 4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

Product Description and/or Approval Condition

Date of Issue : 3 January 2025

A. Product Description

1. Product Specification

A. Product Description :

- 1) K-Chief and K-Chief 700 system performs the following functions:
 - Alarm and monitoring
 - K-Gauge application and GLK SPU
 - Power management System
 - Auxiliary generator controls
 - Tank management
 - Ballast/bunker monitoring and control
 - Gas management
 - Cargo monitoring and control
 - Fully automated climate control
 - Watch call system
 - Operator fitness alarm system
- 2) K-Safe system performs the following functions:
 - Monitors and controls installations according to cause-and-effect charts.
 - Allows operator to safely monitor the situation and intervene with manual actions before preprogrammed actions will take place.
 - Supports multiple redundant configurations.
 - Instrument safety function
- 3) Common for K-Chief 700 and K-Safe
AIM Basis Software Release 8.3, 8.5, 8.6, 8.7, 8.8, 8.10 and 8.12 for the above functions used in K-Chief 700, K-Chief and K-Safe.
- 4) Comprising of modules
 - COP-05 BU-AUT Panel(603529)
 - COP-05 ALC Stand Alone(391890)
 - Tracker Ball Panel(TBP/388930)
 - Panel ALC(603526)
 - Panel Input Mk3 COP-05(110-0049940)
 - Earth Fault Indicator(EFI(16)/321492)
 - Media Converter(RMC-ST/321520)
 - Push Button Telegraph(PTB)
 - Watch Calling Panel(WCC 600)
 - Remote Controller Unit(RCU) - 501/502/502(i)/601/602
 - Remote Digital I/O module(RDIO) - 401S/420S
 - Remote Digital I/O module and Relay channels(RDIOR 420)
 - Remote Multi-Purpose I/O module(RMP) - 420/420(S)/422(i)/422S(i)/200-8/201-8
 - Remote Termination Board(RTB420)
 - Communication HUB and Repeater(RHUB200-5)
 - Serial Line Communication Interface(RSER200-4)
 - Analog Input Module(RAi-16xe/329714)
 - Digital Output Module(RDo-16xe/329699)
 - Digital Input Module(RDi-32xe/333523), (RDi-32Axe/333824)
 - Analog Output Module(RAo-8xe/333505)
 - Combination Unit(C2xe/333346)
 - CAN Star Coupler(PSS/8100184)
 - LAN to CAN Module(L2C/404654, 406381)
 - USB3.0/3.1/3.2 to 4x Gb Ethernet network component(RTL8153B/446030)
 - Alarm buzzer (ALB/110-0051818)

2. Approved Drawings and Documents

- 1) Documents
 - Product Description, KONGSBERG - K-Chief 700, doc. No. 304844/D
 - Operator Manual, KONGSBERG - K-Chief 700, doc. No. 338309/A
 - Product Description, KONGSBERG - K-Safe, doc. No. 163875/I
 - Operator Manual, KONGSBERG - K-Safe, doc. No. 411129/A

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3. Test Reports, etc.

1) Test Reports No.

- DANAK-193886 K250600-3, 197537 E502029-3, 198195 A503298-1 Rev.1, 198508 A503547-1, 198575 DELTA-A504273-3, 198577 DELTA-A504327-2, 198637 DELTA-A504352-1, 198696 A504446-1, 1910121 A505138, 1910264 A505037, 1910280 A505687, 1910281 A505749 Rev.1, 1910541 A506114, 1910830 A506580, 1910979 A506924-1, 1911523 A507567, 19/12618 T202566, 1912904, 1911658 Rev.1
- Nemko E14200.00, 69187, 39760, E13012.00, E14127.00, E13144.02
- TI-3010-13-014234
- E21088.03 issued by NEMKO, dated 2021-10-28
- E19179.01 issued by NEMKO, dated 2020-03-25
- REP019643 issued by NEMKO, dated 2024-01-17
- REP008558 issued by NEMKO, dated 2023-03-16
- REP042855 issued by NEMKO, dated 2024-08-20

B. Approval Condition

1. Application & Limitation

- 1) This approval is granted on the basis of the approved documentation and the test reports (IACS UR E10 Rev. 8).
- 2) The manufacturer should inform this Society of all kinds of revisions of the equipment including software. If the changes are recognized to affect the functionality of the approved equipment, a type test to confirm the reliability of the revised equipment may be performed in the presence of our surveyor.

2. Individual Product Cert. and Drawing Approval Requirement

- 1) Individual Product Certification is required.
- 2) In the case where this system is installed on board, the system drawings for individual vessel are to be approved by this Society.

3. Marking

- 1) The product or packing is to be marked with the manufacturer's name and type designation on a suitable position.

4. Others

N/A

< End of Certificate >