



CERTIFICATE NUMBER  
EFFECTIVE DATE  
EXPIRY DATE  
ABS TECHNICAL OFFICE

24-00T2528476-1-PDA-DUP  
11-May-2026  
09-Apr-2029  
London Engineering Department

## CERTIFICATE OF Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

### **KONGSBERG MARITIME KOREA LTD.**

located at

**1058-7, DALSAN-RI, JUNGKWAN-MYEON,, GIJANG-GUN , BUSAN,  
Korea, Republic of**

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

**Product:** Cargo Tank Ullage Monitoring and Control System  
**Model:** K-Gauge  
**Endorsements:**  
**Tier:** 5 - Unit Certification Required

This Product Design Assessment (PDA) Certificate remains valid until 09/Apr/2029 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau Of Shipping

Peter Edward (Peter Deegan) Lewis  
Deegan,Engineer/Consultant

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

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**Tier: 5 - Unit Certification Required**

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**Product:** Cargo Tank Ullage Monitoring and Control System  
**Model:** K-Gauge  
**Endorsements:**

**Intended Service:**

ABS Classed Vessels and Offshore Facilities in accordance with the listed ABS Rules and International standards.

**Description:**

K-Gauge Kongsberg gauging systems for level, pressure and temperature, typically configured in system types as listed below:

**K-Gauge CLS**

Cargo tank monitoring system for monitoring of level, pressure and temperature on cargo tanks for oil, product and chemical cargo. Also included monitoring of level in ballast, fuel and service tanks when operated from same system.

**K-Gauge GAS**

Cargo tank monitoring system for monitoring of level, pressure and temperature on gas carriers. Also included monitoring of level, temperature and pressure related to gas as fuel.

**K-Gauge CTS**

Cargo tank monitoring and Custody Transfer Measurement System for monitoring of level, pressure and temperature on gas carriers.

**K-Gauge TOP**

Flexible high level and overfill alarm system suitable for use in all types of tankers and gas carriers.

**K-Gauge RSS**

Remote Sounding System for draft, ballast and service tanks, including both hydrostatic pressure and electro-pneumatic type.

The K-Gauge system utilizes K-Chief as its tank tank monitoring and control platform. Both K-Gauge and K-Chief are designed and certified in accordance with IACS Unified Requirement E27, which establishes mandatory provisions for cyber resilience in on-board systems and equipment.

Compliance with IACS UR E27 ensures that the system meets the following key requirements:

- Secure System Architecture: Implementation of measures to prevent unauthorized access and maintain system integrity.
- Protection Against Cyber Threats: Safeguards against malware, intrusion, and other vulnerabilities throughout the system lifecycle.
- Operational Availability: Design and verification processes that ensure continued functionality under cyber-related incidents.
- Verification and Documentation: Certification through recognized type approval processes confirming adherence to IACS UR E27 standards.

This certification demonstrates our commitment to delivering robust, secure, and resilient solutions for tank monitoring and control operations.

**Rating:**

Power supplies: 18 - 35 V DC

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**Service Restriction:**

1. Unit Certification is required for this product.
2. Each application and configuration is to be specifically approved.
3. ATEX certified equipment is not to be installed in hazardous areas on U.S. Flagged Vessels, unless it can be proven to have been tested to the IEC 60079 series standards by an independent laboratory accepted by the U.S. Coast Guard. USCG MI Notice 01-12 (February 7, 2012).
4. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.
5. The special components for K-Gauge are covered by 23-00T2404183-1-PDA Type Approval certificate, which is valid until 04-Jun-2028.
6. K-Chief ( K-Chief 600 or K-Chief 700) components and IACS UR E27 compliance are covered by 26-00T2541231-PDA Type approval certificate.

**Comments:**

1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
2. For products to be installed in hazardous area, valid EX-certificates are to be provided for each installation.
3. K-Gauge is assigned Category II as defined by 4-9-3/7 of the 2026 Marine Vessels Rules. Accordingly, documentation is to be maintained and made available to ABS on request and witness testing by an ABS Surveyor is to be carried out as detailed in 4-9-3/8, 4-9-3/9 & 4-9-3/17 Table 5 of the 2026 Marine Vessels Rules.

**Notes/Drawing/Documentation:**

-----Operator Manual-----

- Drawing No. 110-0079902, K-Gauge GAS Operator Manual, Revision: A, Pages: 16
- Drawing No. 110-0079902, K-Gauge CLS Operator Manual, Revision: A , Pages: 36
- Drawing No. 110-0159675, K-Gauge TOP Operator Manual, Revision: A , Pages: 19

-----Datasheets -----

- Drawing No. 110-0161532A, K-Gauge TOP Product sheet, Revision: A , Pages: 4
- Drawing No. 386440, K-Gauge CLS Product sheet, Revision: D, Pages: 4
- Drawing No. 386565, K-Gauge GAS Product sheet, Revision: D, Pages: 4
- Drawing No. 387265, K-Gauge CTS Product sheet, Revision: C, Pages: 4
- Drawing No. 394333, K-Gauge GAS FUEL Product sheet, Revision: D, Pages: 4

-----Other documents-----

- Drawing No. 362760, Material Declaration for K-Gauge, Revision: L , Pages: 3
- Drawing No. 110-0154611, K-Gauge Product Description, Revision: A, Pages: 1
- Drawing No. Decl. of Conformity, Declaration of Conformity for Renewal signed, Revision: 0, Pages: 1
- Drawing No. 26-00T2541231-PDA, Hardware list for K-Chief certificate , Revision: 3 , Pages: 2
- Drawing No. 26-00T2541231-PDA-DUP, K-Chief certificate for Trondheim, Revision:3 , Pages: 6
- Drawing No. 23-00T2404183-1-PDA, GL-300 TA certificate, Revision: 3, Pages: 4

**Terms of Validity:**

This Product Design Assessment (PDA) Certificate remains valid until 09/Apr/2029 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

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**Tier: 5 - Unit Certification Required**

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construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance.  
Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

**STANDARDS**

**ABS Rules:**

2026 Rules for Conditions of Classification : 1-1-4/7.7, 1-1-A3, 1-1-A4 which covers the following:  
2026 Rules for Building and Classing Marine Vessels: 4-1-1/3.3, 4-9-9/13, 4-9-9/Table 1.

2025 Rules for Conditions of Classification, Part 1B - Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which cover the following:

2026 Mobile Offshore Units Rules:4-3-1/15, 4-3-1/17

**National:**

N/A

**International:**

NA

**Government:**

N/A

**EUMED:**

N/A

**OTHERS:**

N/A