



CERTIFICATE NUMBER 18-1801766-PDA-DUP
EFFECTIVE DATE 22-April-2020
EXPIRATION DATE 20-Dec-2023
ABS TECHNICAL OFFICE CN Shanghai ESD

CERTIFICATE OF

Product Design Assessment

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

KONGSBERG MARITIME CHINA LTD.

located at

**No.6 Building, 555 ChuanQiao Road, JinQiao Export and Processing
Zone, PuDong District, Shanghai, China, 201206**

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 Alarm System, High Level and Overfill

Model K-Gauge HLA/TOP System

This Product Design Assessment (PDA) Certificate remains valid until 20 Dec 2023 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

Bin-Hong Wang, Director

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)

KONGSBERG MARITIME CHINA LTD.

NO. 6 BUILDING, 555 CHUANQIAO ROAD,

JINQIAO EXPORT AND PROCESSING ZONE, PUDONG DISTRICT

SHANGHAI

China 201206

Telephone: +86 213279888

Fax: +86 2131279555

Email: kmcs.project@km.kongsberg.com

Web: www.kongsberg.com

Tier: 3 - Type Approved, unit certification not required

Product: Alarm System, High Level and Overfill

Model: K-Gauge HLA/TOP System

Intended Service:

High Level and Overfill alarm system used on ABS classed Oil & Chemical Tankers, LNG & LPG Carriers with AMS, ACC, ABCU, ACCU notations and Offshore Installations. The system is suitable for use in hazardous locations.

Description:

Intrinsically safe High Level and Overfill alarm system designed to monitor overfilling in all type of cargo tanks.

The system may comprise the following components:

- Operator Panels NL-5/HLA-M, NL-5/HLA-S, NL-5/TOP.
- Process Control Units RCU 500/510.
- Level Sensors: GL-7B
- Remote I/O Modules (optional) RDIO 400/401, RDIOR 400, RMP 420, RMP 400/401.
- Zener barriers Z-972, DZ-110, Ex isolated amplifiers KDF2-SR2-Ex2.W, power supply, network switch (optional).

The RCU processing units include dual Ethernet connections allowing fully integration of the High Level and Overfill alarm system and connection to Integrated Automation Systems (IAS).

Rating:

Power supplies: 230 V AC;

Safety Certificate: ATEX Code II 1 G EEx ia IIC T5 Ta: 70 deg C

Service Restriction:

Unit Certification is not required for this product.

Comments:

- The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
- Tests and approval are for hardware only. Each application/configuration and external connection is to be submitted for approval by system integrator.
- Drawings to include system block diagram, single line diagram for IS-circuits, location of equipment, power supply arrangement and instrumentation list.
- Any specific instructions regarding onboard installation are to be adhered to.

Notes/Drawing/Documentation:

Drawing No. IECEX_TUN_13, IECEX_TUN_13, Revision: -, Pages: 1

Drawing No. TA ABS K-Gauge HLA_TOP Renewal bhj, TA ABS K-Gauge HLA_TOP Renewal bhj, Revision: -, Pages: 1

Drawing No. TUV13ATEX124272X-Issue 1, TUV13ATEX124272X-Issue 1, Revision: -, Pages: 1

Terms of Validity:

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STANDARDS

ABS Rules:

The Rules applicable to this assessment are:

- Steel Vessel Rules (2018): 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-8-3/1.7, 4-9-8/7, 4-9-8/13, 4-9-8/Table1, 5C-1-7/13, 5C-8-13/2, 5C-8-13/3
- Steel Vessels Under 90 Meters (295 Feet) in Length (2018): 1-1-4/7.7, 1-1-A3, 1-1-A4
- Facilities on Offshore Installations (2018): 1-1-4/9.7, 1-1-A2, 1-1-A3
- Offshore Support Vessels (2018): 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-8-3/1.7, 4-9-8/7, 4-9-8/13, 4-9-8/Table1
- Mobile Offshore Drilling Units (2018): 1-1-4/9.7, 1-1-A2, 1-1-A3, 4-1-1/7.9, 4-3-1/11, 6-1-1/9, 6-1-1/13
- Steel Vessels for Service on Rivers and Intracoastal Waterways (2018): 1-1-4/7.7, 1-1-A3, 1-1-A4
- High Speed Crafts (2018): 1-1-4/11.9, 1-1-A2, 1-1-A3
- Steel Barge Rules (2018): 1-1-4/7.9, 1-1-A3, 1-1-A4

National:

EU-Type Examination Certificates:
TUV 13 ATEX 124272 X

IECEX Certificate of Conformity
IECEX TUN 13.0030X

International:

IEC 60079-0 Ed. 7.0: 2017
IEC 60079-11 Ed. 6.0 b:2011
IEC 60079-26:2014-10 Ed.3.0
EN 60079-14:2013 + Corr.2016

Government:

NA

EUMED:

NA

OTHERS:

NA