



Lloyd's
Register

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

This certificate is issued to:

PRODUCER Kongsberg Maritime AS
Skonnertvegen 1
7053 Ranheim
Norway

DESCRIPTION Cargo monitoring and control system

TYPES K-Gauge

The system may include the following components:

<i>Type</i>	<i>Description</i>
RMP 420	Remote Multi-purpose Module
RDIOR420	Remote Digital In-Output Relay Module
GC-306 (* / **)	Cargo Temperature Unit (6 temperature inputs)
GLK-300/### (*)	Signal Processing Unit covering 3 variants ### = CLS, LPG or LNG
GLA-310/5 (* / **)	Radar Tank Gauge (RTG) for Gas Carriers
GLA-310/5-Dual (* / **)	Radar Tank Gauge (RTG) for Gas Carriers
GLA-310/5-Fuel (* / **)	Radar Tank Gauge (RTG) for LNG Fuel Tank
GLA-310/5-NH ₃ (* / **)	Radar Tank Gauge (RTG) for liquified ammonia (NH ₃)
RCU-502 (*)	Remote Controller Unit

Certificate No. 18/20065 (E1)

Issue Date 18 September 2019

Expiry Date 15 October 2023

Sheet 1 of 3



Jörn Brüggemann
Hamburg Technical Support Office
Lloyd's Register EMEA

Lloyd's Register EMEA
71 Fenchurch Street, London EC3M 4BS

Lloyd's Register EMEA
Is a subsidiary of Lloyd's Register Group

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

This is a copy of an electronic document. In the event of any conflict or ambiguity between the copy and the electronic document which is retained and published by Lloyd's Register, the original electronic and certified version shall always prevail.

TYPES (continued)	<p>Software versions for above components as listed in document no. 386311/N, dated 08 October 2018.</p> <p>Other components used by the K-Gauge are covered by other LR Type Approval certificates.</p>
APPLICATION	<p>Marine, offshore and industrial use in categories ENV1, ENV2, ENV3 (*) and ENV5 (**) as detailed in Lloyd's Register Test Specification No. 1: 2002 where the Test Specification is satisfactory for the intended operation:</p>
STANDARDS	<p>LR Rules and Regulations for the Classification of Ships, Manufacturer's Specification</p>
LIMITATIONS	<p>Special conditions for Safe Use as stated in applicable Ex-certificates and the conditions of the LR Ship Rules & Regulations of Classification of Ships Part 6, Chapter 2 shall be observed when installed in hazardous areas and are to be verified by local surveyors. The Ex-certification does not form part of this certificate.</p>
OTHER CONDITIONS	<p>Systems comprising the components described above are subject to a separate plan appraisal where required by applicable LR Rules and Regulations when installed on LR classed vessels.</p>
PLACES OF PRODUCTION	<p>Kongsberg Maritime AS Skonnertveien 1 7053 Ranheim Norway</p> <p>Kongsberg Maritime China Ltd. (Shanghai) 136 North Fute Road China (Shanghai) Pilot Free Trade Zone 200131 Shanghai People's Republic of China</p>
Certificate No.	18/20065 (E1)
Issue Date	18 September 2019
Expiry Date	15 October 2023
Sheet	2 of 3



Jörn Brüggemann
Hamburg Technical Support Office
Lloyd's Register EMEA

Lloyd's Register EMEA
71 Fenchurch Street, London EC3M 4BS

Lloyd's Register EMEA
Is a subsidiary of Lloyd's Register Group

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.



Lloyd's
Register

PLACES OF PRODUCTION Kongsberg Maritime Korea Ltd.
(continued) 9-7, Sandan 3-Ro
Junggwan-Eup
Gijang-Gun
Busan 46027
Korea

The Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

If the specified standards are amended during the validity of this certificate, the product is to be re-approved prior to it being supplied to vessels to which the amended standards apply.

The Design Appraisal Document No. HTS/ETS 38798-19 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

Certificate No. 18/20065 (E1)
Issue Date 18 September 2019
Expiry Date 15 October 2023
Sheet 3 of 3



Jörn Brüggemann
Hamburg Technical Support Office
Lloyd's Register EMEA

Lloyd's Register EMEA
71 Fenchurch Street, London EC3M 4BS

Lloyd's Register EMEA
Is a subsidiary of Lloyd's Register Group

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

This is a copy of an electronic document. In the event of any conflict or ambiguity between the copy and the electronic document which is retained and published by Lloyd's Register, the original electronic and certified version shall always prevail.