



Approval in Principle

***KONGSBERG K-Gauge GL-300 multifunction system with dual Radar
GLA-310/5 designed to measure level in tanks containing liquefied
gases***

P20-196

Ref: DA/21/00005 rev. 01
03 March 2021



**BUREAU
VERITAS**



Approval in Principle
DA/21/00005 rev. 01

At the request of:

Kongsberg Maritime AS

BUREAU VERITAS MARINE & OFFSHORE, acting within the scope of its general conditions ^(*), declares hereunder that the design of the:

KONGSBERG K-Gauge GL-300 based multifunction system with dual Radar GLA-310/5 designed to measure level in tanks containing liquefied gases.

is **Approved in Principle**, with respect of the aim of the classification as defined in Part A, chapter I of the latest edition of our Rules and in the conditions stated in Annex 1.

The present Approval in Principle is referring to the general options chosen by the designer and is based on the document listed in Annex 2.

Before ship application to the classification, all relevant drawings, calculation notes, procedures required by the Rules or listed in Annex 3 are to be submitted for review.

The validity of this approval may have to be reconsidered, in case of any major modification likely to invalidate the design principles; the approval would become null and void should BUREAU VERITAS MARINE & OFFSHORE not be kept informed of such modifications.

For the avoidance of doubt the present Agreement shall not be considered as compliant with statutory requirements, therefore Kongsberg is to note that flag administration agreement will be required for statutory compliance matter.

Issued at Paris, on 03th March 2021

O. Salinas

B. Delannoy

^(*): See Annex 4

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ANNEX 1

CONDITIONS OF APPROVAL

GENERAL

KONGSBERG K-Gauge System is a Radar based Tank Gauging system. It is primarily intended to measure the ullage/level in tanks on-board ships and on offshore units.

APPLICABLE RULES AND REGULATIONS

This Approval in Principle has been carried out with reference to the following Rules or Regulations:

- Bureau Veritas NR 467 - Rules for the Classification of Steel Ships – July 2020
- Bureau Veritas NR 529 - Rule Note for Gas fuelled Ships – Jan. 2020
- IMO IGF Code - MSC.391(95).
- IMO IGC Code.

CONCLUSION

The concept of the KONGSBERG K-Gauge GL-300 based multifunction system with dual Radar was reviewed within the scope of an Approval in Principle in accordance with Bureau Veritas procedures and within the Scope of Bureau Veritas Marine & Offshore Division General Conditions.

Based on the available documentation and information, it is confirmed that this concept does not present any contradiction with the applicable Rules and Regulations.

For the avoidance of doubt the present Agreement shall not be considered as compliant with statutory requirements, therefore Kongsberg is to note that flag administration agreement will be required for statutory compliance matter.

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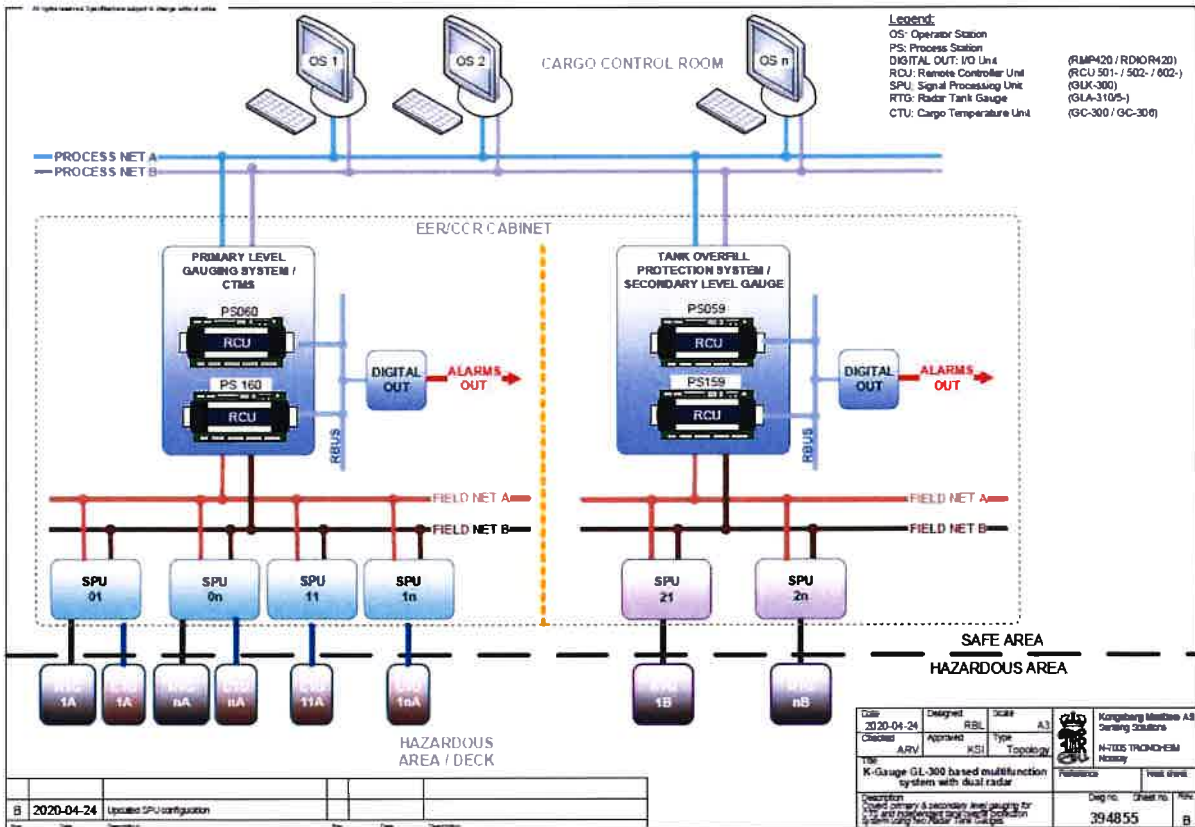
ANNEX 2

Description and Documentation

The following document has been reviewed for compliance with the applicable Rules within the scope of this Approval in Principal:

Title	Date
KONGSBERG K-Gauge GL-300 based multifunction system with dual Radar, Dwg. No 394855, Rev.B.	24/04/2020

DESCRIPTION.



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RADAR TANK GAUGE (RTG), GLA-310/5.

The KONGSBERG Radar Tank Gauge (RTG), GLA-310/5 is designed to measure level in tanks containing liquefied gases. Accurate measurement is possible regardless of the tank atmospheric conditions. Flexible design ensure easy adaptation to LPG (Propane, Butane), LEG (Ethylene, Ethane), VCM, liquefied Ammonia (NH₃), liquefied Hydrogen (LH₂), and LNG. The RTG is type approved, and due to its modular design, can be applied as both primary and secondary level gauge, and as tank overfill protection sensor on board gas carriers

RADAR TANK GAUGE (RTG), GLA-310/5 FAMILY.

- GLA-310/5-FUEL - Doc.No 394663, Rev.B.
- GLA-310/5-NH₃ - Doc.No 411509, Rev.A
- GLA-310/5-DUAL - Doc.No 442205, Rev A.
- GLA-310/5-LH₂ - Doc.No 435445, Rev B.

ANNEX 3

Application / Limitations

The configuration of Custody Transfer System, Tank Level Gauging System and Tank Overfill Protection System, as indicated in Kongsberg Maritime drawing No. 394855 rev, B, is considered to be in accordance with BV rules for Liquefied Gas Carriers and Gas Fuelled Ships.

A single level sensor assembly is considered acceptable 2 out of 3 of below functions where separation is unconditionally required by BV Rules, provided at least 2 independent channel cards are installed, each with independent power supply and out to independent channels:

- Overfill Alarm
- High Level Alarm
- Level Gauging

This is provided that:

- There are two or more operator stations present in the Cargo Control room, on a redundant network (as shown in drawing), thus ensuring redundancy on HMI level.
- The “High Level alarm” and the “High High Level alarm w/shutdown” are arranged independent of each other, i.e. one of these are combined with level gauging system, and one is implemented in the tank overfill protection system.
- “Field Net A and B” for the Tank Level Gauging system is independent of “Field Net A and B” for the Tank Overfill Protection System.
- For " Liquefied Gas Tankers" where "High Level alarm" and "Overfill alarm" are implemented in two mutually independent measurement systems, "Overfill alarm" may be combined with the level gauging function, provided that the alarm function operate separately.

It should be further noted that this approval is only addressing the overall principle, i.e. the topology of the new concept, and that each system delivery must still be approved case-by-case.

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BUREAU VERITAS MARINE & OFFSHORE

GENERAL CONDITIONS

1. INDEPENDENCE OF THE SOCIETY AND APPLICABLE TERMS

1.1 The Society shall remain at all times an independent contractor and neither the Society nor any of its officers, employees, servants, agents or subcontractors shall be or act as an employee, servant or agent of any other party hereto in the performance of the Services.

1.2 The operations of the Society in providing its Services are exclusively conducted by way of random inspections and do not, in any circumstances, involve monitoring or exhaustive verification.

1.3 The Society acts as a services provider. This cannot be construed as an obligation bearing on the Society to obtain a result or as a warranty. The Society is not and may not be considered as an underwriter, broker in Unit's sale or chartering, expert in Unit's valuation, consulting engineer, controller, naval architect, designer, manufacturer, shipbuilder, repair or conversion yard, charterer or shipowner, none of them above listed being relieved of any of their expressed or implied obligations as a result of the interventions of the Society.

1.4 The Society only is qualified to apply and interpret its Rules.

1.5 The Client acknowledges the latest versions of the Conditions and of the applicable Rules applying to the Services' performance.

1.6 Unless an express written agreement is made between the Parties on the applicable Rules, the applicable Rules shall be the Rules applicable at the time of entering into the relevant contract for the performance of the Services.

1.7 The Services' performance is solely based on the Conditions. No other terms shall apply whether express or implied.

2. DEFINITIONS

2.1 "Certificate(s)" means classification or statutory certificates, attestations and reports following the Society's intervention.

2.2 "Certification" means the activity of certification in application of national and international regulations or standards, in particular by delegation from different governments that can result in the issuance of a Certificate.

2.3 "Classification" means the classification of a Unit that can result or not in the issuance of a classification Certificate with reference to the Rules. Classification is an appraisal given by the Society to the Client, at a certain date, following surveys by its surveyors on the level of compliance of the Unit to the Society's Rules or to the documents of reference for the Services provided. They cannot be construed as an implied or express warranty of safety, fitness for the purpose, seaworthiness of the Unit or of its value for sale, insurance or chartering.

2.4 "Client" means the Party and/or its representative requesting the Services.

2.5 "Conditions" means the terms and conditions set out in the present document.

2.6 "Industry Practice" means international maritime and/or offshore industry practices.

2.7 "Intellectual Property" means all patents, rights to inventions, utility models, copyright and related rights, trade marks, logos, service marks, trade dress, business and domain names, rights in trade dress or get-up, rights in goodwill or to sue for passing off, unfair competition rights, rights in designs, rights in computer software, database rights, topography rights, moral rights, rights in confidential information (including know-how and trade secrets), methods and protocols for Services, and any other intellectual property rights, in each case whether capable of registration, registered or unregistered and including all applications for and renewals, reversions or extensions of such rights, and all similar or equivalent rights or forms of protection in any part of the world.

2.8 "Parties" means the Society and Client together.

2.9 "Party" means the Society or the Client.

2.10 "Register" means the public electronic register of ships updated regularly by the Society.

2.11 "Rules" means the Society's classification rules and other documents. The Society's Rules take into account at the date of their preparation the state of currently available and proven technical minimum requirements but are not a standard or a code of construction neither a guide for maintenance, a safety handbook or a guide of professional practices, all of which are assumed to be known in detail and carefully followed at all times by the Client.

2.12 "Services" means the services set out in clauses 2.2 and 2.3 but also other services related to Classification and Certification such as, but not limited to: ship and company safety management certification, ship and port security certification, maritime labour certification, training activities, all activities and duties incidental thereto such as documentation on any supporting means, software, instrumentation, measurements, tests and trials on board. The Services are carried out by the Society according to the applicable referential

and to the Bureau Veritas' Code of Ethics. The Society shall perform the Services according to the applicable national and international standards and Industry Practice and always on the assumption that the Client is aware of such standards and Industry Practice.

2.13 "Society" means the classification society 'Bureau Veritas Marine & Offshore SAS', a company organized and existing under the laws of France, registered in Nanterre under number 821 131 844, or any other legal entity of Bureau Veritas Group as may be specified in the relevant contract, and whose main activities are Classification and Certification of ships or offshore units.

2.14 "Unit" means any ship or vessel or offshore unit or structure of any type or part of it or system whether linked to shore, river bed or sea bed or not, whether operated or located at sea or in inland waters or partly on land, including submarines, hovercrafts, drilling rigs, offshore installations of any type and of any purpose, their related and ancillary equipment, subsea or not, such as well head and pipelines, mooring legs and mooring points or otherwise as decided by the Society.

3. SCOPE AND PERFORMANCE

3.1 Subject to the Services requested and always by reference to the Rules, the Society shall:

- review the construction arrangements of the Unit as shown on the documents provided by the Client;
- conduct the Unit surveys at the place of the Unit construction;
- class the Unit and enter the Unit's class in the Society's Register;
- survey the Unit periodically in service to note whether the requirements for the maintenance of class are met. The Client shall inform the Society without delay of any circumstances which may cause any changes on the conducted surveys or Services.

3.2 The Society will not:

- declare the acceptance or commissioning of a Unit, nor its construction in conformity with its design, such activities remaining under the exclusive responsibility of the Unit's owner or builder;
- engage in any work relating to the design, construction, production or repair checks, neither in the operation of the Unit or the Unit's trade, neither in any advisory services, and cannot be held liable on those accounts.

4. RESERVATION CLAUSE

4.1 The Client shall always: (i) maintain the Unit in good condition after surveys; (ii) present the Unit for surveys; and (iii) inform the Society in due time of any circumstances that may affect the given appraisal of the Unit or cause to modify the scope of the Services.

4.2 Certificates are only valid if issued by the Society.

4.3 The Society has entire control over the Certificates issued and may at any time withdraw a Certificate at its entire discretion including, but not limited to, in the following situations: where the Client fails to comply in due time with instructions of the Society or where the Client fails to pay in accordance with clause 6.2 hereunder.

4.4 The Society may at times and at its sole discretion give an opinion on a design or any technical element that would 'in principle' be acceptable to the Society. This opinion shall not presume on the final issuance of any Certificate or on its content in the event of the actual issuance of a Certificate. This opinion shall only be an appraisal made by the Society which shall not be held liable for it.

5. ACCESS AND SAFETY

5.1 The Client shall give to the Society all access and information necessary for the efficient performance of the requested Services. The Client shall be the sole responsible for the conditions of presentation of the Unit for tests, trials and surveys and the conditions under which tests and trials are carried out. Any information, drawing, etc. required for the performance of the Services must be made available in due time.

5.2 The Client shall notify the Society of any relevant safety issue and shall take all necessary safety-related measures to ensure a safe work environment for the Society or any of its officers, employees, servants, agents or subcontractors and shall comply with all applicable safety regulations.

6. PAYMENT OF INVOICES

6.1 The provision of the Services by the Society, whether complete or not, involve, for the part carried out, the payment of fees thirty (30) days upon issuance of the invoice.

6.2 Without prejudice to any other rights hereunder, in case of Client's payment default, the Society shall be entitled to charge, in addition to the amount not properly paid, interests equal to twelve (12) months LIBOR plus two (2) per cent as of due date calculated on the number of days such payment is delinquent. The Society shall also have the right to withhold Certificates and other documents and/or to suspend or revoke the validity of Certificates.

6.3 In case of dispute on the invoice amount, the undisputed portion of the invoice shall be paid and an explanation on the dispute shall accompany payment so that action can be taken to solve the dispute.

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7. LIABILITY

7.1 The Society bears no liability for consequential loss. For the purpose of this clause consequential loss shall include, without limitation:

- Indirect or consequential loss;
- Any loss and/or deferral of production, loss of product, loss of use, loss of bargain, loss of revenue, loss of profit or anticipated profit, loss of business and business interruption, in each case whether direct or indirect.

The Client shall defend, release, save, indemnify, defend and hold harmless the Society from the Client's own consequential loss regardless of cause.

7.2 Except in case of wilful misconduct of the Society, death or bodily injury caused by the Society's negligence and any other liability that could not be, by law, limited, the Society's maximum liability towards the Client is limited to one hundred and fifty per-cents (150%) of the price paid by the Client to the Society for the Services having caused the damage. This limit applies to any liability of whatsoever nature and howsoever arising, including fault by the Society, breach of contract, breach of warranty, tort, strict liability, breach of statute.

7.3 All claims shall be presented to the Society in writing within three (3) months of the completion of Services' performance or (if later) the date when the events which are relied on were first discovered by the Client. Any claim not so presented as defined above shall be deemed waived and absolutely time barred.

8. INDEMNITY CLAUSE

8.1 The Client shall defend, release, save, indemnify and hold harmless the Society from and against any and all claims, demands, lawsuits or actions for damages, including legal fees, for harm or loss to persons and/or property tangible, intangible or otherwise which may be brought against the Society, incidental to, arising out of or in connection with the performance of the Services (including for damages arising out of or in connection with opinions delivered according to clause 4.4 above) except for those claims caused solely and completely by the gross negligence of the Society, its officers, employees, servants, agents or subcontractors.

9. TERMINATION

9.1 The Parties shall have the right to terminate the Services (and the relevant contract) for convenience after giving the other Party thirty (30) days' written notice, and without prejudice to clause 6 above.

9.2 In such a case, the Classification granted to the concerned Unit and the previously issued Certificates shall remain valid until the date of effect of the termination notice issued, subject to compliance with clause 4.1 and 8 above.

9.3 In the event where, in the reasonable opinion of the Society, the Client is in breach, or is suspected to be in breach of clause 16 of the Conditions, the Society shall have the right to terminate the Services (and the relevant contracts associated) with immediate effect.

10. FORCE MAJEURE

10.1 Neither Party shall be responsible or liable for any failure to fulfil any term or provision of the Conditions if and to the extent that fulfilment has been delayed or temporarily prevented by a force majeure occurrence without the fault or negligence of the Party affected and which, by the exercise of reasonable diligence, the said Party is unable to provide against.

10.2 For the purpose of this clause, force majeure shall mean any circumstance not being within a Party's reasonable control including, but not limited to: acts of God, natural disasters, epidemics or pandemics, wars, terrorist attacks, riots, sabotages, impositions of sanctions, embargoes, nuclear, chemical or biological contaminations, laws or action taken by a government or public authority, quotas or prohibition, expropriations, destructions of the worksite, explosions, fires, accidents, any labour or trade disputes, strikes or lockouts.

11. CONFIDENTIALITY

11.1 The documents and data provided to or prepared by the Society in performing the Services, and the information made available to the Society, are treated as confidential except where the information:

- is property and lawfully in the possession of the Society;
- is already in possession of the public or has entered the public domain, otherwise than through a breach of this obligation;
- is acquired or received independently from a third party that has the right to disseminate such information;
- is required to be disclosed under applicable law or by a governmental order, decree, regulation or rule or by a stock exchange authority (provided that the receiving Party shall make all reasonable efforts to give prompt written notice to the disclosing Party prior to such disclosure).

11.2 The Parties shall use the confidential information exclusively within the framework of their activity underlying these Conditions.

11.3 Confidential information shall only be provided to third parties with the prior written consent of the other Party. However, such prior consent shall not be required when the Society provides the confidential information to a subsidiary.

11.4 Without prejudice to sub-clause 11.1, the Society shall have the right to disclose the confidential information if required to do so under regulations of the International Association of Classification Societies (IACS) or any statutory obligations.

12. INTELLECTUAL PROPERTY

12.1 Each Party exclusively owns all rights to its Intellectual Property created before or after the commencement date of the Conditions and whether or not associated with any contract between the Parties.

12.2 The Intellectual Property developed by the Society for the performance of the Services including, but not limited to drawings, calculations, and reports shall remain the exclusive property of the Society.

13. ASSIGNMENT

13.1 The contract resulting from these Conditions cannot be assigned or transferred by any means by a Party to any third party without the prior written consent of the other Party.

13.2 The Society shall however have the right to assign or transfer by any means the said contract to a subsidiary of the Bureau Veritas Group.

14. SEVERABILITY

14.1 Invalidation of one or more provisions does not affect the remaining provisions.

14.2 Definitions herein take precedence over other definitions which may appear in other documents issued by the Society.

14.3 In case of doubt as to the interpretation of the Conditions, the English text shall prevail.

15. GOVERNING LAW AND DISPUTE RESOLUTION

15.1 These Conditions shall be construed and governed by the laws of England and Wales.

15.2 The Parties shall make every effort to settle any dispute amicably and in good faith by way of negotiation within thirty (30) days from the date of receipt by either one of the Parties of a written notice of such a dispute.

15.3 Failing that, the dispute shall finally be settled under the Rules of Arbitration of the Maritime Arbitration Chamber of Paris ("CAMP"), which rules are deemed to be incorporated by reference into this clause. The number of arbitrators shall be three (3). The place of arbitration shall be Paris (France). The Parties agree to keep the arbitration proceedings confidential.

16. PROFESSIONAL ETHICS

16.1 Each Party shall conduct all activities in compliance with all laws, statutes, rules, economic and trade sanctions (including but not limited to US sanctions and EU sanctions) and regulations applicable to such Party including but not limited to: child labour, forced labour, collective bargaining, discrimination, abuse, working hours and minimum wages, anti-bribery, anti-corruption, copyright and trademark protection, personal data protection

(<https://personalkdataprotection.bureauveritas.com/privacypolicy>).

Each of the Parties warrants that neither it, nor its affiliates, has made or will make, with respect to the matters provided for hereunder, any offer, payment, gift or authorization of the payment of any money directly or indirectly, to or for the use or benefit of any official or employee of the government, political party, official, or candidate.

16.2 In addition, the Client shall act consistently with the Bureau Veritas' Code of Ethics. <https://group.bureauveritas.com/group/corporate-social-responsibility>