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Road vehicles — Liquefied natural gas (LNG) fuel systems —

Part 1: Safety requirements

Véhicules routiers — Systèmes à carburant gaz naturel liquéfié (GNL) —

Partie 1: Exigences de sécurité

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by ISO/TC 22, *Road vehicles*, Subcommittee SC 41, *Specific aspects for gaseous fuels*.

A list of all the parts in the ISO 19723 series, can be found on the ISO website.

Introduction

For the purposes of this document, all fuel system components in contact with liquid natural gas have been considered suitable for natural gas as defined in the ISO 15403 series.

When applying this document, it is understood that a safety device to prevent overfilling the vehicle's fuel system is part of the refueling station. The pressure gauge has not been considered as a safety component.

When necessary, technical solutions regarding functional requirements are given in Annex A.

Road vehicles — Liquefied natural gas (LNG) fuel systems —

Part 1: Safety requirements

1 Scope

This document specifies the minimum safety requirements applicable to liquefied natural gas (LNG) on-board fuel system intended for use on the types of motor vehicles defined in ISO 3833.

This document is applicable to vehicles (mono-fuel, bi-fuel or dual-fuel applications) using liquefied natural gas in accordance with the ISO 15403 series. It is not applicable to original-production and converted vehicles.

All matters relating to the skills of installers and converters have been excluded from this document.

This document is only applicable on the components in the "LNG system" meaning an assembly of components (tanks, valves, flexible fuel lines, etc., see Annex B) and connecting parts (fuel lines, fittings, etc.) fitted on motor vehicles using LNG in their propulsion system and related components up to and including the vaporizer. Other parts downstream from the vaporizer are considered as CNG components covered by ISO 15501.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 12614 (all parts), *Road vehicles — Liquefied natural gas (LNG) fuel system components*

ISO 12617, *Road vehicles — Liquefied natural gas (LNG) refuelling connector — 3,1 MPa connector*

ISO 12991, *Liquefied natural gas (LNG) — Tanks for on-board storage as a fuel for automotive vehicles*

ISO 19723-2, *Road vehicles — Liquefied natural gas (LNG) refueling connector — Test methods*

ISO 15500 (all parts), *Road vehicles — Compressed natural gas (CNG) fuel system components*

IEC 60079-1, *Explosive atmospheres — Part 1: Equipment protection by flameproof enclosures “d”*

IEC 60079-10, *Electrical apparatus for explosive gas atmospheres — Part 10: Classification of hazardous areas*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp