
**Road vehicles — Liquefied natural gas
(LNG) fuel system components —**

**Part 1:
General requirements and definitions**

*Véhicules routiers — Équipements pour véhicules utilisant le gaz
naturel liquéfié (GNL) comme combustible —*

Partie 1: Exigences générales et définitions

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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 of 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 www.iso.org/iso/foreword.html.

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

This second edition cancels and replaces the first edition (ISO 12614-1:2014), which has been technically revised.

The main changes compared to the previous edition are as follows:

— editorial changes.

A list of all parts in the ISO 12614 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Road vehicles — Liquefied natural gas (LNG) fuel system components —

Part 1: General requirements and definitions

1 Scope

This document specifies general requirements and definitions of liquefied natural gas fuel system components, intended for use on the types of motor vehicles as defined in ISO 3833. It also provides general design principles and specifies requirements for instructions and marking.

This document is not applicable to the following:

- a) fuel containers;
- b) stationary gas engines;
- c) container mounting hardware;
- d) electronic fuel management;
- e) fuelling receptacles.

It is recognized that miscellaneous components, not specifically covered herein can be examined to meet the criteria of this document and tested according to the appropriate functional tests.

All references to pressure in this document are to be considered gauge pressures unless otherwise specified.

This document is based upon a working pressure for natural gas as fuel of 1,6 MPa [16 bar¹⁾]. Other working pressures can be accommodated by adjusting the pressure by the appropriate factor (ratio). For example, a 2 MPa (20 bar) working pressure system will require pressures to be multiplied by 1,25.

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 6722 (all parts), *Road vehicles — 60 V and 600 V single-core cables*

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

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

3 Terms and definitions

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

1) 1 bar = 0,1 MPa = 105 Pa; 1 MPa = 1 N/mm².

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>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

burst pressure

static pressure which causes failure and consequential fluid loss through the component envelope

Note 1 to entry: It is the highest pressure during a burst test.

3.2

electronic control unit

ECU

device for control of the engine

3.3

fitting

connector used in joining a piping, tubing, or hose system

3.4

flexible fuel line

flexible tubing or hose through which natural gas flows

3.5

fuel content gauge

system that measures the level of the liquid in the fuel tank

3.6

differential pressure fuel content gauge

fuel content gauge (3.5) based on the difference of the pressure at the top and bottom parts of the fuel tank (the system measures the weight of the liquid)

3.7

capacitance fuel content gauge

device that measures changes in fuel level through indirect or direct capacitive sensing techniques

3.8

gas temperature sensor

device for gas temperature measurement, which is placed downstream of the *vaporizer* (3.10)

3.9

gas tight housing

device which vents gas leakage to outside the vehicle, including the gas ventilation hose

3.10

heat exchanger

vaporizer

device for vaporizing the cryogenic liquid fuel and delivering it as gas to the engine

3.11

liquefied natural gas

LNG

natural gas which has been liquefied after processing for storage, transportation, or use as a fuel

3.12

LNG vehicle

vehicle which is using *liquefied natural gas* (3.11) as a source of gaseous fuel for its engine