



SLOVENSKI STANDARD

oSIST prEN 17932:2023

01-marec-2023

Vozila na zemeljski plin - Zahteve za delavnice in upravljanje vozil na utekočinjeni zemeljski plin

Natural gas vehicles - Requirements for LNGV workshops and the management of liquefied natural gas (LNG) vehicles

Erdgasfahrzeuge - Anforderungen an Werkstätten und das Management von mit LNG betriebenen Fahrzeugen

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Ta slovenski standard je istoveten z: prEN 17932

ICS:

43.180	Diagnostična, vzdrževalna in preskusna oprema	Diagnostic, maintenance and test equipment
75.060	Zemeljski plin	Natural gas

oSIST prEN 17932:2023

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 17932

February 2023

ICS

English Version

Natural gas vehicles - Requirements for LNGV workshops and the management of liquefied natural gas (LNG) vehicles

Erdgasfahrzeuge - Anforderungen an Werkstätten und
das Management von mit LNG betriebenen Fahrzeugen

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European foreword

This document (prEN 17932:2022) has been prepared by Technical Committee CEN/TC 326 “Natural gas vehicles - Fuelling and operation”, the secretariat of which is held by TSE.

This document is currently submitted to the CEN Enquiry.

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Introduction

This document provides minimum requirements for professionals on how to safely operate vehicles that use liquefied natural gas (LNG) as a fuel for propulsion, covering various aspects of LNGV workshops. In addition, the scope of the document addresses the LNGV owner and user and other parties dealing with LNGVs.

This document addresses LNGV workshops and the management of liquefied natural gas (LNG) vehicles. This document can be a useful reference for:

- LNGV workshop architects;
- LNGV workshop owners;
- LNGV workshop staff;
- OEMs;
- system manufacturers;
- LNG trucks owners and users;
- LNG trucks dealers;
- local authorities.

1 Scope

This document provides requirements for operation of vehicles that use liquefied natural gas (LNG) as a fuel for propulsion, covering various aspects of LNGV workshops including activities, risk management, planning, personnel, layout, systems and operations. It provides requirements regarding the management of LNGV including use, parking, fuelling for commissioning, inspection, installation, repair and maintenance, disposal, transportation and documentation.

This document is applicable to the management of LNG vehicles.

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.

EN 2, *Classification of fires*

EN 50402, *Electrical apparatus for the detection and measurement of combustible or toxic gases or vapours or of oxygen — Requirements on the functional safety of gas detection systems*

EN IEC 60079-10-1, *Explosive atmospheres — Part 10-1: Classification of areas — Explosive gas atmospheres (IEC 60079-10-1)*

EN 60079-29-2, *Explosive atmospheres — Part 29-2: Gas detectors — Selection, installation, use and maintenance of detectors for flammable gases and oxygen (IEC 60079-29-2)*

EN ISO 10012, *Measurement management systems — Requirements for measurement processes and measuring equipment (ISO 10012)*

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ISO 31000, *Risk management — Guidelines*

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:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

authorized qualification body

body, independent of the LNGV workshop, authorized by the certification body to prepare and administer qualification examinations

[SOURCE: EN ISO 9712:2012, 3.1]

3.2

LNG system

assembly of components (tank(s), valves, flexible fuel lines, etc.) and connecting parts (rigid fuel lines, pipes fitting, etc.) fitted on motor vehicles using LNG in their propulsion system

3.3

competent body

person or corporate body, defined by the national or relevant authority, which by combination of appropriate qualification, training, experience and resources is able to make objective judgments on a subject

[SOURCE: ISO 10691:2004, 3.2]

3.4

liquefied natural gas

LNG

natural gas that has been liquefied, after processing, for storage or transportation purposes used as a transport fuel

[SOURCE: EN ISO 16924:2018]

3.5

vehicle tank

cryogenic tank mounted on a vehicle for the storage of LNG as a fuel for that vehicle

[SOURCE: EN ISO 16924:2018]

3.6

examining body

organization that has been appointed to verify compliance with the applicable standard

Note 1 to entry: In certain cases, an external independent examining body can be required.

[SOURCE: ISO/TR 25901-1:2016, 2.5.30]

3.7**gas-free**

less than 10 % of the lower flammable limit of natural gas in air (less than 0,5 % in air)

3.8**hazardous area**

area in which an explosive gas atmosphere is present, or can be expected to be present, in quantities such as that special precautions for the construction, installation and use of equipment are required

Note 1 to entry: The interior of many items of process equipment are commonly considered as a hazardous area even though a flammable atmosphere may not normally be present to account for the possibility of air entering the equipment. Where specific controls such as inerting are used the interior of process equipment may not need to be classified as a hazardous area.

[SOURCE: EN 60079-10-1:2015, 3.3.1]

3.9**ignition source**

source of energy sufficient to ignite a flammable atmosphere

Note 1 to entry: Ignition sources include naked flames, exposed incandescent material, sparks, electric welding arcs, and electrical or mechanical equipment not approved for use in hazardous locations.

3.10**incident**

unplanned event or occurrence that has been assessed as having an actual or potentially adverse effect

Note 1 to entry: An incident can be classified as a 'major incident' or 'minor incident'. A major incident has effect on the LNGV's integrity or structural support (vehicle chassis) whereas a minor incident doesn't. An example of a major incident is damage to the bonnet/wing, which is designed to crumple to absorb the impact rather than continue to transfer the momentum to the car's passengers; a damaged hood can imply a damage on vehicle chassis. An example of a minor incident is damage to a door panel that can be minor when limited to the skin (outer panel).

[SOURCE: ISO 28007-1:2015, 3.21, modified – 'event' has been replaced with 'unplanned event or occurrence' and Note 1 to entry has been added.]

3.11**inspection**

process of measuring, examining, testing, gauging or otherwise comparing the product with the applicable requirements

[SOURCE: ISO 11961:2018, 3.1.19]

3.12**learning outcome**

what a person is expected to know, understand or be able to do at the end of a training programme, course or module

[SOURCE: ISO/IEC TS 17027:2014, 2.57]

3.13**lower flammable limit****LFL**

concentration of flammable gas or vapour in air, below which an explosive gas atmosphere does not form

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[SOURCE: EN 60079-10-1:2015, 3.6.12]

3.14**natural gas**

complex gaseous mixture of hydrocarbons, primarily methane, but generally includes ethane, propane and higher hydrocarbons, and some non-combustible gases such as nitrogen and carbon dioxide

Note 1 to entry: Natural gas can also contain components or contaminants such as mercaptan, sulphur compounds and/or other chemical species.

Note 2 to entry: Annex C provides characteristics of natural gas.

[SOURCE: EN 16723-2:2017, 3.12, modified – Note 2 to entry has been added.]

3.15**Liquefied natural gas vehicle****LNGV**

road vehicle powered by liquefied natural gas

3.16**LNGV owner**

legal entity responsible for the procedures and activities on LNGV

3.17**LNGV workshop**

dedicated servicing facility, repair and maintenance where work on LNGV is carried out

3.18**purging**

displacing natural gas with a dry inert gas

3.19**qualification**

formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards

[SOURCE: CEN Guide 14:2010, B.2]

3.20**qualified person**

individual subjected to qualification process which has passed the qualification

3.21**remote-controlled service valve**

device that allows or interrupts the LNG supply from the vehicle tank

3.22**requirement**

need or expectation that is stated, generally implied or obligatory

[SOURCE: ISO 9000:2015, 3.6.4, modified — Notes 1 to 6 to entry have been deleted.]