SLOVENSKI STANDARD
SIST EN 13423:2021

01-maj-2021

Nadomešča:
SIST EN 13423:2001

Vozila na zemeljski plin - Zahteve za delavnice za vozila na zemeljski plin in upravljanje vozil na stisnjeni zemeljski plin

Natural gas vehicles - Requirements for NGV workshops and the management of compressed natural gas (CNG) vehicles

Erdgasfahrzeuge - Anforderungen an Werkstätten und an den Umgang von mit komprimiertem Erdgas (CNG) betriebenen Fahrzeugen

Exploitation de véhicules fonctionnant au gaz naturel - Exigences relatives aux ateliers pour véhicules GNV et à la gestion des véhicules fonctionnant au gaz naturel comprimé (GNC)

Ta slovenski standard je istoveten z: **EN 13423:2021**

ICS:

43.180	Diagnostična, vzdrževalna in preskusna oprema	Diagnostic, maintenance and test equipment
75.060	Zemeljski plin	Natural gas
75.200	Oprema za skladiščenje nafte, naftnih proizvodov in zemeljskega plina	Petroleum products and natural gas handling equipment

SIST EN 13423:2021 **en,fr,de**

EUROPEAN STANDARD

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EN 13423

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ICS 43.020; 43.180; 75.200

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English Version

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This European Standard was approved by CEN on 20 December 2020.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 13423:2021) has been prepared by Technical Committee CEN/TC 326 “Natural gas vehicles – Fuelling and operation”, the secretariat of which is held by NEN and TSE.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2021, and conflicting national standards shall be withdrawn at the latest by August 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13423:2000.

In comparison with the previous edition, the following changes have been included:

— the introduction of minimum requirements instead of recommendations to professionals how to safely operate vehicles that use compressed natural gas (CNG) as a fuel for propulsion, covering various aspects of NGV workshops;

— the scope of the document has been expanded by not only addressing the NGV owner and user, but also other parties dealing with NGVs. These changes are reflected in the Introduction and Scope of this document and the new aspects have been introduced in the relevant clauses of this document;

— developments and best practices since the publication of the first edition have been taken into account, also to improve understanding and implementation of this document by the intended user;

— a new Annex is introduced that provides minimum requirements for the user manual of NGVs to be provided by the OEM or system manufacturer.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This document addresses NGV workshops and the management of compressed natural gas (CNG) vehicles. This document can be a useful reference for:

— NGV workshop architects;

— NGV workshop owners;

— NGV workshop staff;

— OEMs;

— system manufacturers;

— NGV owners and users;

— NGV dealers;

— local authorities.

1 Scope

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

This document is applicable to the management of CNG vehicles with a fuel system pressure of 20 MPa (200 bar) at 15 °C. This document can also be applied to vehicles with higher fuel system pressures, taking into account additional safety aspects.

This document also applies to servicing, repair and maintenance of NGVs when work is not performed on the gas fuel system.

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 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 60079-10-1:2015, *Explosive atmospheres — Part 10-1: Classification of areas — Explosive gas atmospheres*

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

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

ISO 15501-1, *Road vehicles — Compressed natural gas (CNG) fuel systems — Part 1: Safety requirements*

ISO 15501-2, *Road vehicles — Compressed natural gas (CNG) fuel systems — Part 2: Test methods*

ISO 19078, *Gas cylinders — Inspection of the cylinder installation, and requalification of high pressure cylinders for the on-board storage of natural gas as a fuel for automotive vehicles*

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 http://www.electropedia.org/

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

3.1
authorized qualification body
body, independent of the NGV workshop, authorized by the certification body to prepare and administer qualification examinations

[SOURCE: EN ISO 9712:2012, 3.1, modified – 'employer' has been changed to 'NGV workshop'.]

3.2
CNG system
assembly of components (cylinder(s), valves, flexible fuel lines, etc.) and connecting parts (rigid fuel lines, pipes fitting, etc.) fitted on motor vehicles using CNG 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
compressed natural gas
CNG
natural gas used as a fuel for automotive vehicles, typically compressed up to 20 MPa in the gaseous state

[SOURCE: EN 16723-2:2017, 3.5]

3.5
cylinder
pressure vessel used for the storage of compressed natural gas

[SOURCE: EN ISO 16923:2018, 3.15]

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 NGV'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

[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
natural gas vehicle
NGV
road vehicle powered by natural gas

3.16
NGV owner
legal entity responsible for the procedures and activities on NGVs

3.17
NGV workshop
dedicated servicing facility, repair and maintenance where work on NGVs is carried out

3.18
purging
displacing natural gas with a non-flammable gas, steam, air or water

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, Annex 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 CNG supply to the vaporizer/pressure regulator

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.]

3.23
service pit
hole in the ground providing standing access to the underside of a vehicle

3.24
service valve
valve for fluid off-take which is manually operated to provide a leak-tight seal

3.25
service vessel
pressure vessel used for retrieving natural gas from the cylinders of a natural gas vehicle

3.26
system manufacturer
company which can assume technical responsibility for the manufacturing or retrofitting of CNG system and can demonstrate that it possesses the features required and the necessary means to provide quality assessment and conformity of production of the CNG system

3.27
technical manager
qualified person which takes responsibility for decisions relating to installation, maintenance and repair of an NGV system

3.28
vehicle manufacturer
person or body responsible to the approval authority for all aspects of the type approval or authorization process and for ensuring conformity of production of the vehicle

Note 1 to entry: It is not essential that the person or body be directly involved in all stages of the construction of the vehicle, system, component or separate technical unit which is the subject of the approval process.

Note 2 to entry: Vehicle manufacturer can also mean vehicle importer where the manufacturer is not represented in the European Union.

[SOURCE: EN ISO 18542-1:2012, 3.1.17, modified – Note 2 to entry has been added.]

3.29
ventilation
movement of air and its replacement with fresh air, due to the effect of wind, temperature gradients, or artificial means (for example fans or extractors)

[SOURCE: EN ISO 16923:2018, 3.54]

3.30
venting
controlled release of natural gas to atmosphere

[SOURCE: EN ISO 16923:2018, 3.55]

4 General provisions

The management of NGVs shall be done in accordance with Annex A. The requirements in Annex A are also intended to apply to the user of the NGV, whether he is the owner, operator or dealer responsible for the sale or maintenance of the vehicle.