

ICS 43.020



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 44410.1-2024

**Road vehicles - Compressed natural gas (CNG) fuel systems -
Part 1: Safety requirements
(English Translation)**

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Foreword

This document was drafted in accordance with the rules provided in GB/T 1.1-2020

Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents.

This document is Part 1 of GB/T 44410 Road vehicles - Compressed natural gas (CNG) fuel systems. The following parts have been issued for GB/T 44410:

-- Part 1: Safety requirements;

-- Part 2: Test methods.

This document adopts ISO 15501-1:2016, Road vehicles - Compressed natural gas (CNG) fuel systems - Part 1: Safety requirements, by modification.

Compared with ISO 15501-1:2016, this document has a lot of adjustments in structure.

See Appendix A for a list of structure number changes between the two documents.

The technical differences between this document and ISO 15501-1:2016 and their reasons are as follows:

-- Change the scope of the document (see Chapter 1; Chapter 1 of ISO 15501-

1:2016) to meet the requirements of our country's standard writing.

-- Add the normatively referenced GB/T 3730.2 (see Chapter 3), GB/T 20735-

2006 (see 4.1.2.3), GB/T 17676 (see Chapter 6) and GB/T 25978 (see Chapter

6) to adapt to our country's technical conditions;

-- Delete the terms 3.1, 3.4, 3.5, 3.6, 3.7 and 3.8 (see Chapter 3 of ISO 15501-

1:2016) to adapt to our country's technical conditions;

-- Use the normatively referenced GB/T 17258-2022 and GB/T 24160-2022 to replace ISO 11439:2016 (see 4.1.1.1, 4.1.1.6, 4.1.2.2, 4.1.2.4, 4.4.1) to adapt to our country's technical conditions, since there is no type-4-cylinder specification in our country. The consistency between the two documents is non-equivalent.

-- Use the normatively referenced GB/T 43408 to replace ISO 14469 (see 4.1.1.1, 4.1.2.1). After checking, ISO 14469 is of no sub-part documents, so "(all parts)" is deleted to adapt to our country's technical conditions and increase operability;

-- Change the requirements for automatic valves (see 4.1.1.6; 4.1.1 of ISO 15501-1:2016) to suit the product situation in our country;

Road vehicles - Compressed natural gas (CNG) fuel systems

- Part 1: Safety requirements

1 Scope

This document specifies the safety requirements for vehicles using CNG on-board fuel systems.

This document is applicable to vehicles using single gas fuel, bi-fuel, and dual-fuel compressed natural gas, and as a reference for the implementation of other 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 version corresponding to that date is applicable to this document; for undated references, the latest version (including all amendments) is applicable to this document.

GB/T 3730.2, Road vehicle - Masses - Vocabulary and codes

GB 3836.14-2014, Explosive atmospheres - Part 14: Classification of areas - Explosive gas atmosphere (IEC 60079-10-1:2008, IDT)

GB/T 17258-2022, Steel cylinders for the on-board storage of compressed natural gas as a fuel for automotive vehicles (ISO 11439:2013, NEQ)

GB/T 17676, Natural gas vehicle and liquefied petroleum gas vehicle - Identification marks

GB/T 20735-2006, Pressure regulator of CNG vehicles

GB/T 24160-2022, Hoop-wrapped composite cylinders with steel liner for the on-board storage of compressed natural gas as a fuel for automotive vehicles (ISO 11439:2013, NEQ)

GB/T 25978, Road vehicle - Plate and label

GB/T 43408, Road vehicles - Compressed natural gas (CNG) refuelling connector (GB/T 43408-2023, ISO 14469:2017, MOD)

GB/T 44410.2-2024, Road vehicles - Compressed natural gas (CNG) fuel systems - Part 2: Test methods (ISO 15501-2:2016, MOD)

When the valve has a gas-conducting channel, a sealing box or a gas discharge hose shall seal the connection, pipeline, and gas discharge hole. If all leak sources (including the cylinder-valve interface) are sealed and lead to the valve's internal gas-conducting passages, it is not necessary to close off the valve body.

4.3.5 The natural gas discharge hole shall be located away from the gas vents in the

vehicle cabin, away from any fire source, and in a position that is not easily blocked.

4.3.6 The housing of a pressure relief device equipped with a fusible plug element shall

have good heat conductivity to enable the heat around the gas cylinder to be transferred to the pressure relief device.

4.4.1 The following requirements must be met when installing gas cylinders.

- a) The gas cylinder or gas cylinder group shall be fixed on the vehicle, prevented from slipping, rotation and displacement.
- b) It shall be carried out in accordance with the instructions of the gas cylinder manufacturer and the requirements of GB/T 17258-2022 and GB/T 24160-2022.
- c) The distance between the cylinder and the edge of the rear contour of the vehicle shall be greater than or equal to 200 mm, and the cylinder and its accessories shall not be placed in front of the front axle of the vehicle. When the cylinder is installed under the automobile frame, effective protective measures shall be taken under and behind the cylinder. When the cylinder is installed behind the rear axle of the vehicle, effective protective measures shall be taken behind the cylinder.
- d) Shall be prevented from contact with other vehicle parts which could cause damage or wear to the cylinder over time.
- e) There shall be at least two support points, which shall be designed to reduce the impact of external loads on the gas cylinder. Where applicable, mounting hardware specified and described by the cylinder manufacturer shall be used.
- f) The cylinder shall be installed in accordance with the cylinder manufacturer's specifications to reduce damage to the mounting system or corrosion between the cylinder and the mounting system.
- g) An elastic pad shall be installed between the gas cylinder and the bracket or clamping strap to prevent the metal on the bracket from directly contacting the gas cylinder. The thickness and hardness of the pad shall be such that the cylinder remains stable at filling and operating temperatures. When the cylinder