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

GB/T 17259-2024

Replacing GB/T 17259-2009

Liquefied petroleum gas steel cylinders for vehicles

机动车用液化石油气钢瓶

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Table of Contents

1 Scope	
2 Normative references	
2.5 MPa ±	
3 Design	
4 Symbols...	
5 Hz ~ 200 Hz ~	
6 Materials...	
7 Design...	
7.4 Welded joints	
7.5 Accessories	
7.5.1 The integrated valves in accordance with	
8 Manufacturing...	
8.4.3 Welds	
8.4.4 Repair of welds	
8.5 Heat treatment	
9 Test methods and inspection rules	
9.1 Weld seam radiographic and magnetic particle inspection	
9.2 Inspection one-by-one	
9.2.1 General inspection	
9.2.2 Weight and volume	
9.3 Batch inspection	
9.3.3 Mechanical properties	
9.6 Fire test	
9.8 Repeated test	
9.9 Type test	
10 Marking, coating, packaging, storage and transportation, exit-factory documents	
10.1 Marking	
10.2 Coating	
10.3 Packaging, storage and transportation	
10.4 Exit-factory documents	
11 Design service life of vehicle cylinders	

1 Scope

GB/T 17259-2024 is the Chinese national standard on liquefied petroleum gas steel cylinders for vehicles, in the field of fluid systems and general-purpose components. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 25 April 2024 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 November 2024. Classification: ICS 23.020.30, CCS J74. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the type, material, design, manufacturing, test methods and inspection rules, marking, packaging, coating, storage and transportation, design service life and exit-factory documents of liquefied petroleum gas cylinders for motor vehicles (hereinafter referred to as vehicle cylinders). This document is applicable to LPG cylinders for road motor vehicles and LPG cylinders for on-site motor vehicles, which are designed and manufactured for use at ambient temperature ($-40\text{ }^{\circ}\text{C} \sim 60\text{ }^{\circ}\text{C}$), at a nominal working pressure of

2.2 MPa, a nominal volume of 20 L $\sim$ 240 L, can be repeatedly filled in accordance with GB 19159.

2 Normative references

The contents of the following documents constitute the essential terms of this document through normative references in the text. Among them, for dated references, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies to this document.

GB/T 150.3 Pressure vessels - Part

2.5 MPa $\pm$

0.2 MPa; the return pressure shall not be less than

2.2 MPa; the discharge volume shall not be less than the calculated value of formula (4) at

2.64 MPa. Where. Q - The discharge volume of air under standard conditions (absolute pressure

0.1 MPa, $15\text{ }^{\circ}\text{C}$), in cubic meters per minute (m^3/min); A_o - The outer surface area of the shell of the vehicle cylinder, in square meters (m^2).

8.4.2.2 The butt weld of the cylinder body and the fillet weld of the valve seat shall be welded by automatic welding method; the qualified welding process shall be followed.

8.4.2.3 The shape and size of the welding groove shall comply with the requirements of the drawing. The groove surface shall be clean and smooth; it shall not have defects such as cracks, delamination and slag inclusions and other residual substances.

8.4.2.4 Welding (including welding repair) shall be carried out indoors; the indoor relative humidity shall not be greater than 90%; otherwise, effective measures shall be taken. When the temperature of the welded part is lower than 0 °C, it shall be preheated at the welding place; the preheating temperature shall not be lower than 15 °C.

8.4.2.5 When welding, the arc shall not be struck at non-welding places. The longitudinal weld shall have an arc-starting plate and an arc-extinguishing plate; the plate length shall not be less than 100 mm. When removing the arc-starting plate and the arc-extinguishing plate, the cutting method shall be adopted; the knocking method shall not be used; the cut-off place shall be polished.

3 Design

GB/T 222 Permissible tolerances for chemical composition of steel products

GB/T 228.1 Metallic materials - Tensile testing - Part

5 Hz ~ 200 Hz ~

5 Hz; each test process shall be carried out for 15 minutes. After the vibration test, the vehicle cylinder is inspected. There shall be no leakage in any part; the valves and accessories shall not be damaged.

7.4 Welded joints

7.4.1 The welded joints of the main welds shall adopt the full penetration butt joint form.

7.4.2 There shall be no permanent pads for longitudinal welds; permanent pads are allowed for circumferential welds, or integral pads with stepped shapes on one side of the joints.

7.5.1 The integrated valves in accordance with

GB/T 18299 shall be used for vehicle cylinders. The integrated valves shall generally include a filling device, an 80% filling limit device, a safety valve, a stop valve, and a liquid level display device. The safety valve can also be separately set at the gas phase position of the vehicle cylinder near the integrated valve, meanwhile a safety protection device shall be set. The selected model shall be within the coverage of the integrated valve type test certificate. The safety valve on the integrated valve shall also be set at the gas phase position of the vehicle cylinder. The opening pressure of the safety valve shall be

8.4.3 Welds

8.4.3.1 The butt weld of the cylinder body and the fillet weld of the valve seat shall be a full penetration structure.

8.4.3.2 The appearance of the weld surface shall meet the following requirements.

- a) The weld and heat-affected zone shall not have defects such as cracks, pores, arc pits, slag inclusions, non-fusion, etc.;
- b) The weld of the cylinder body is not allowed to undercut; the weld of the cylinder body accessories is not allowed to undercut on the cylinder body side;
- c) The weld surface shall not have depressions or irregular sudden changes;
- d) The spatter on both sides of the weld shall be cleaned;
- e) The residual height of the cylinder body butt weld is 0 mm ~ 3.5 mm; the difference between the widest and narrowest parts of the same weld shall not be greater than 4 mm;
- f) Where there is no requirement in the drawing, the weld leg height of the fillet weld shall not be less than the thickness of the thinner one of the welded parts; its geometric shape shall smoothly transition to the surface of the parent material.

8.4.4 Repair of welds

8.4.4.1 Repair of welds shall have a repair process that has been evaluated and qualified.

8.4.4.2 The repaired parts of longitudinal and circumferential welds shall be re-inspected for appearance and radiography and qualified; the qualified level shall comply with the provisions of 9.1.4.

8.4.4.3 The same part of the weld is only allowed to be repaired once.

8.4.4.4 The repaired part shall be recorded in the product production inspection record.

8.5 Heat treatment

8.5.1 After all welding is completed, the vehicle cylinder shall be subjected to overall stress relief heat treatment. The heat treatment device shall have automatic temperature control and real-time recording functions. The temperature of the effective heating zone shall not exceed the set temperature $\pm 25^{\circ}\text{C}$. There shall be no less than 3 temperature measurement points in the furnace used for actual production; it shall be able to reflect the temperature change trend of the temperature field of the entire effective heating zone. The repaired cylinder shall be re-heat treated after the repair is completed.

8.5.2 The heat treatment of the vehicle cylinder shall be evaluated for the heat treatment