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

GB/T 18299-2024

Replacing GB/T 18299-2001

Automotive LPG steel cylinder multivalve

机动车用液化石油气钢瓶集成阀

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1 Scope

GB/T 18299-2024 is the Chinese national standard on automotive lpg steel cylinder multivalve, 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 31 December 2024 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 April 2025. 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 and structure, technical requirements, inspection and test methods, inspection rules and marking, packaging, storage and transportation of automotive LPG steel cylinder multivalve (hereinafter referred to as multivalve). This document is applicable to automotive LPG steel cylinder multivalve with an ambient temperature of -40 °C ~ +60 °C, a nominal working pressure of

2.2 MPa, and a medium that complies with GB 19159.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 228.1, Metallic materials - Tensile testing - Part

2.5 MPa ±

0.2 MPa.

5.1.4 The filling unit shall have at least one non-return valve and one stop valve. The non-return valve shall be of built-in type.

5.1.5 The level indicator shall adopt an indirect liquid level display structure.

5.1.6 The level indicator shall have a dial to indicate the liquid level of liquefied petroleum gas in the cylinder. There shall be a limit filling scale on the dial, marked as "F", and the

area exceeding the limit filling scale shall be indicated in red. The pointer on the dial shall swing flexibly.

5.1.7 The multivalve body shall be forged, and the surface of the valve body and all parts of the functional devices shall not have cracks, wrinkles, inclusions, looseness, shrinkage holes, incomplete filling and other defects that may damage the performance of the multivalve and hinder the identification of the marking.

5.1.8 The manufacturer shall specify the design service life of the multivalve, which shall be at least one regular inspection cycle of the cylinder.

5.1.9 The manufacturer shall install an electronically readable mark on the multivalve body.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in GB/T 13005 and GB/T 33215, as well as the following apply.

3.1 filling unit An unit installed on the air inlet passage of the multivalve body and used to fill the medium into the cylinder.

3.2 level indicator A device with a limit filling warning scale to display the liquid level in the cylinder.

3.3 installation angle The installation angle of the multivalve is the angle between the axis of the multivalve and the horizontal plane.

4 Type and structure

4.1 Model designation The compilation and designation of multivalve models are as follows: Example. The model of an automotive LPG steel cylinder multivalve whose cylinder model is LPG-W-314-60-2.2, installation angle is 30°, and reversion number is I. CYFJ314-30I.

4.2 Basic structure The multivalve is composed of some or all of the functions of a filling unit, a filling limiter, a safety valve, a level indicator, a current limiting device, a liquid inlet stop valve and a liquid outlet stop valve.

5.1 Design and process requirements

5.1.1 The multivalve shall be connected by concave and convex flanges, which shall be evenly distributed, and the number of fastening points shall be no less than

6. When the diameter of the pipe opening of the cylinder end of the flange is greater than or equal to $\phi 40$ mm, the screw specification shall be no less than M5; when the diameter of the pipe opening of the cylinder end of the flange is less than $\phi 40$ mm, the screw specification shall be no less than M

4. The mechanical properties and materials of the screws shall comply with the relevant provisions of GB/T 3098.1, and the performance level shall not be lower than level 8.8.

5.1.2 The inlet and outlet connections of the multivalve shall be in the form of compression fittings.

5.1.3 The safety valve shall be installed in the gas phase interval of the cylinder, and the opening pressure shall be

5.2 Material requirements

5.2.1 Metallic materials The multivalve body material shall be HPb59-1 lead brass, and its mechanical properties and chemical composition shall comply with the requirements of GB/T 4423 and GB/T 5231. Other metal materials, if used, shall be compatible with the liquefied petroleum gas medium, and their mechanical properties shall not be lower than the requirements of HPb59-1.

5.2.2 Non-metallic materials

5.2.2.1 Oxygen aging resistance Rubber seals shall be kept in oxygen with a purity of $\geq 99.5\%$ and a temperature of $70\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ for 96 hours without visible cracks or damage.

5.2.2.2 Ozone aging resistance When the rubber seal is placed in air at a temperature of $40\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ and an ozone concentration of 50 mg/L for 72 h at an elongation of 20%, there shall be no cracks.

5.2.2.3 Dry heat resistance After the rubber seal is placed in air at a temperature of $60\text{ }^{\circ}\text{C}$ for 168 hours, the change in tensile strength shall not be greater than 25%, and the elongation change range shall be $-30\% \sim +10\%$.

5.2.2.4 Media compatibility Immerse the rubber seals and float in n-pentane at a temperature of $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ for 72 hours. The volume change rate of the rubber seal shall be $0\% \sim 20\%$, and the volume change rate of the float shall be $0\% \sim 10\%$. Then place it in air at $40\text{ }^{\circ}\text{C}$ for 48 h, and the mass loss rate shall not exceed 5%.

5.2.2.5 Low temperature resistance Rubber seals and floats shall be placed in air at a temperature of $-40\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ for 24 hours and shall not show any cracks or other damage.

5.3.1 Multivalve performance

5.3.1.1 Air tightness Carry out air tightness test by immersion method; fill with compressed air or nitrogen; let it stand for 3 minutes at

0.05 MPa and

2.2 MPa, respectively. There shall be no Under the nominal working pressure, when the filling unit is tested for 6 000 cycles, there shall be no abnormal phenomenon and it shall