

ICS 23.020.30

CCS J74



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

GB 5842-2023

Replacing GB/T 5842-2022

Liquefied petroleum steel gas cylinders

液化石油气钢瓶

Issued on: November 27, 2023

Implemented on: December 1, 2023

**Issued by: State Administration for Market Regulation;
Standardization Administration of China**

Table of Contents

1	Scope
2	Normative references
3	Design
3.2	MPa at a rate not exceeding
4	Symbols
5	Type, model and basic parameters
5.3	Structural type
6.1	General
6.3	Mechanical properties
7	Design
7.1	General
7.2	Calculation of bottle wall thickness
7.2.3	The design wall thickness of the shell and head of YSP118/
7.3	Attachments
8	Manufacturing
8.1	Welding procedure qualification
8.2	Welding
8.3	Welds
8.4	Weld repair
8.5	Cylinder
8.6	Head
8.7	Assembly
8.8	Heat treatment
9	Test methods and inspection rules
9.1	Radiographic testing of welds
9.2	Inspection of each item
9.2.1	General inspection
9.2.2	Water pressure test
9.2.3	Air tightness test
9.2.4	Rework

1 Scope

GB 5842-2023 is the Chinese national standard on liquefied petroleum steel gas cylinders, in the field of fluid systems and general-purpose components. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 27 November 2023 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 December 2023. 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.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this text. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 150.3 Pressure Vessels Part

GB/T 1804 General tolerances Tolerances of linear and angular dimensions without tolerance indication

GB/T 2651 Destructive tests on welds of metallic materials - Transverse tensile tests

GB/T 2653 Welded joint bending test method

GB/T 6653 Steel plates and strips for welded gas cylinders

GB/T 7144 Color marking of gas cylinders

GB 7512 Liquefied petroleum gas cylinder valve

GB/T 8335 Special threads for gas cylinders

GB/T 9251 Gas cylinder water pressure test method

GB/T 9252 Gas cylinder pressure cycle test method

GB/T 12137 Test method for gas cylinder air tightness

GB/T 13005 Gas Cylinder Terminology

GB/T 15385 Gas cylinder hydraulic burst test method

GB/T 17925 X-ray digital imaging inspection of butt welds of gas cylinders

GB/T 33209 Welding procedure assessment for welding gas cylinders

3 Design

GB/T 222 Permissible deviation of chemical composition of finished steel products

GB/T 228.1 Tensile test of metallic materials Part

3.2 MPa at a rate not exceeding

0.5 MPa per second and maintained for not less than 30 seconds. There should be no macro deformation and leakage, and the pressure gauge should not have any visible drop.

9.2.2.3 The on-site or video inspection confirmation documents for the hydrostatic test of each gas cylinder should be kept for at least 8 years.

4 Symbols

The following symbols apply to this document (see Table 1).

5 Type, model and basic parameters

5.1 Model Indication The gas cylinder model is indicated as follows:

Note. The modification number is used to indicate that the structure, gas supply method, etc. of a certain type of gas cylinder in the YSP series has changed; if there is no change, the modification number may not be marked.

5.2 Models and parameters Gas cylinders shall be designed and manufactured in accordance with the specifications in Table 2.YSP118/

49.5 and YSP118/Liquid/

49.5 gas cylinders shall not be equipped with Other types of gas cylinders should not be installed indoors in crowded places in the buildings they serve.

6.1 General

6.1.1 The material of the gas cylinder body (referring to the cylinder, head and other pressure-bearing components) should have good ductility and welding performance; and should be accompanied by material quality Original certificate of quantity or electronic version of QR code material quality certificate.

6.1.2 The gas cylinder manufacturing unit shall verify the chemical composition of the main materials according to the furnace and tank number, verify the mechanical properties according to the batch number, and verify the compliance. The material of the standard shall be marked. Verify the analysis results. the chemical composition shall comply with the requirements of Table 3; the mechanical properties shall comply with the requirements of

6.3.1. The allowable deviation of chemical composition shall comply with the provisions of

GB/T 222.

6.1.3 All accessories welded to the main body of the gas cylinder should be made of materials with welding properties compatible with the main body material.

6.1.4 The tensile strength of welds made with the welding consumables used shall not be lower than the lower limit of the specified tensile strength of the parent material.

6.1.5 Materials (including welding materials) should comply with the requirements of relevant standards.

6.2 Chemical composition The chemical composition (mass fraction) of the main material shall comply with the requirements of Table 3.

6.3 Mechanical properties

6.3.1 The mechanical properties of the main material shall comply with the requirements of GB/T 6653.

6.3.2 Yield strength ratio of main material (R_{eL}/R_m). When the tensile strength of the material is $\geq 490\text{MPa}$, R_{eL}/R_m should be ≤ 0.85 ; When the temperature is less than 490MPa , R_{eL}/R_m should be ≤ 0.75 .

7.1 General

7.1.1 The design documents of gas cylinders shall be verified by the design document appraisal. When the regulatory authorities require, the gas cylinder manufacturer shall reapply for the design document appraisal. Identification.

7.1.2 When the gas cylinder body is composed of two parts, there should be only one girth weld and the gas cylinder body should be assembled with a lock bottom joint. There should be two circumferential welds and one longitudinal weld (the longitudinal weld should not have a permanent lining), and the head and cylinder should be assembled with a lock bottom joint.

7.1.3 When designing and calculating the wall thickness of the pressure-bearing components of gas cylinders, the material strength parameter should be the lower yield strength (R_{eL}).

7.1.4 The shape of the gas cylinder head should be elliptical.

7.2 Calculation of bottle wall thickness

7.2.1 The calculated wall thickness of the shell and the calculated wall thickness of the straight edge of the head (S_1) are calculated according to formula (1).

7.2.2 The wall thickness (S_2) of the curved surface of the head shall be calculated according to formula (2).