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

GB/T 13004-2016

Replacing GB 13004-1999

**Periodic inspection and evaluation of seamless steel gas
cylinders**

钢质无缝气瓶定期检验与评定

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Foreword

This Standard was drafted as per the rules specified in GB/T 1.1-2009. This Standard replaced GB 13004-1999 Periodic Inspection and Evaluation of Seamless Steel Gas Cylinders. Compared with GB 13004-1999, this Standard has the major changes as follows:

--- Applicable scope of standard.

- a) The pressure in hydrostatic test less than or equal to 45MPa is changed into nominal working pressure less than or equal to 30MPa;
- b) Nominal volume is changed from the original 0.4L~80L to 0.4L~150L;
- c) Add applicable mixed gas to the gas that can be contained;
- d) Delete the provisions applicable to the seamless gas cylinders for automotive natural gas;

e) Modify the inapplicable scope into the following ones are not applicable like internal filled gas cylinders, fire extinguishing cylinders, or auxiliary cylinder pressure containers on the transport tools and machinery equipment;

f) Add "NOTE". the gas cylinders with nominal volume less than 0.4L can perform periodic inspection as per this Standard;

--- Add requirements to the inspection agency. the inspection agency that carries out the gas cylinder inspection shall meet the requirements of GB 12135; and shall be approved by national special equipment safety supervision and management department as per TSG Z7001;

--- Add requirements to perform comprehensive thickness-measurement inspection of the gas cylinders containing corrosive gases one by one;

--- Add requirements of residual wall-thickness after the treatment against the knock injuries, scratches and corrosive defects; confirm the residual wall-thickness shall be less than design wall-thickness of cylinder;

--- Modify the description of volume measurement;

--- Confirm the cylinder valves are not allowed to be repaired; and add the requirements for the assembly torque of the cylinder valves;

--- Add requirements for the gas cylinder periodic inspection report;

1 Scope

GB/T 13004-2016 is the Chinese national standard on periodic inspection and evaluation of seamless steel gas cylinders, 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 24 February 2016 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 September 2016. 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 Standard specifies the basic methods and technical requirements of periodic inspection and evaluation of seamless steel gas cylinders (hereinafter refers to as "gas cylinder"). This Standard is applicable to the periodic inspection and evaluation of seamless steel gas cylinders with nominal working pressure less than or equal to 30MPa, nominal volume of 0.4L~150L, containing compressed gas, high pressure liquefied gas or mixed

gas, and that can be recharged. This Standard is not applicable to the internal filled gas cylinders, fire extinguishing cylinders, or auxiliary cylinder pressure container on the transport tools and machinery equipment. NOTE. the gas cylinder with nominal volume less than 0.4L can perform periodic inspection as per this Standard.

2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this document.

GB 7144 Coloured Cylinder Mark for Gases

GB 8335 Special Threads for Gas Cylinders

GB/T 8336 Special Thread Gauges for Gas Cylinders

GB/T 9251 Methods for Hydrostatic Test of Gas Cylinders

GB/T 10878 Special Taps of Taper Threads for Gas Cylinders

GB 12135 Technical Specifications for Periodic Inspection Station of Gas Cylinders

GB/T 12137 Methods for Leakage Test of Gas Cylinders TSG R0006 Gas Cylinder Safety Specification TSG Z7001 Accreditation Criteria on Special Equipment Inspection Agencies

3 Inspection Agency, Inspection Cycle, and

Inspection Items

3.1 Inspection agency The inspection agency performing the periodic inspection of gas cylinder shall meet the requirements of GB 12135; and shall be approved by national special equipment safety supervision and management department as per TSG Z7001.

3.2 Inspection cycle The gas cylinder containing nitrogen, hexafluoroethane, inert gas and non-corrosive high-purity gas with purity greater than or equal to 99.999% shall be inspected once every 5 years; the gas cylinder containing the gas generated corrosive role against the cylinder materials, as well as gas cylinder in constant contact with seawater shall be inspected once every 2 years; while the gas cylinder containing other gases shall be inspected once every 3 years. The inspection cycle of gas cylinder containing mixed gas shall be subject to the gas with shortest inspection cycle. In the course of use, if the cylinder is found to have serious corrosion, damage or dubious safety and reliability problems, the inspected shall be performed in advance. The gas cylinder that has been stored in the warehouse or shutdowns for more than one inspection cycle, it shall be re-inspected before starting to use.

3.3 Inspection items The periodic inspection items of gas cylinders include appearance inspection, sound inspection, cylinder-mouth thread inspection, internal inspection, weight and volume determination, hydrostatic test, cylinder valve inspection, and air tightness test.

4.1 Records

4.1.1 Check the gas cylinders' manufacturing marks and inspection marks one by one. The record contents shall include the following information at least like manufacturer name code or manufacturing license number, gas cylinder number,

5.5 Inspection and evaluation of collar, base and others

5.5.1 For the gas cylinders with loose collar that can't be reinforced, or damaged collar that can't be replaced, they shall be rejected.

5.5.2 For the gas cylinders with loose, tilting, rupturing, worn base or the distance between the support surface and lowest point of the cylinder bottom is less than 10mm, they shall be rejected.

5.5.3 Gas cylinders shall be rejected under one of the following conditions.

- a) Measure the difference between the maximum and minimum outer diameters in the same section of the cylinder, if it exceeds 3.0% average outer diameter of such section;
- b) If cylinder's straightness exceeds 0.4% length of cylinder straight line, and the bending depth is greater than 5mm;
- c) If the cylinder's perpendicularity exceeds 1% length of cylinder straight line.

6.1 Inspection requirements

6.1.1 The gas cylinders that are qualified in appearance inspection shall perform the acoustic inspection.

6.1.2 Use 250g-weight copper hammer to gently hit the cylinder wall in the absence of appendage or other objects that hinder the shake of steel cylinders.

6.2 Evaluation of results If it emits the sound that is crisp, powerful, its lingering sound is light, long, and has a sense of melody, such inspection is qualified. If the gas cylinders emit the sound that is turbid, grave, the lingering sound is heavy, short, and has the shell-broken sound, such gas cylinders shall be rejected.

7.1 Inspection and result evaluation

7.1.1 Use direct visual inspection or low-power magnifier visual inspection methods to check whether the cylinder-mouth thread has cracks, deformation, wearing, corrosion, or other mechanical damages one by one.