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

GB/T 5099.1-2017

Replacing GB/T 5099-1994 Partial

**Seamless steel gas cylinders -- Part 1: Quenched and tempered
steel cylinders with tensile strength less than 1 100 MPa**

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Table of Contents

Foreword

1 Scope

2 Normative references

Foreword

GB/T 5099 "seamless steel gas cylinder" is divided into the following sections.

- Part 1. After quenching and tempering the tensile strength of less than 1100MPa cylinder;
- Part 2. Tempered steel after quenching tempering greater than or equal to 1100MPa;
- Part 3. Normalized steel cylinder;
- Part 4. Stainless steel seamless gas cylinder.

This section GB/T 5099 Part 1.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This Part replaces GB/T 5099-1994 "seamless steel cylinder" section.

This section compared with GB/T 5099-1994 main content changes as follows.

- Adjust the scope of the standard.
 - a) Nominal working pressure from the original 8MPa ~ 30MPa changed to not more than 30MPa;
 - b) the nominal water volume from the original 0.4L ~ 80L changed to 0.5L ~ 150L;
 - c) Dressing media increase can be used for mixed gas;
 - d) By deleting "not applicable for fire extinguishing cylinders".
- Expand the scope of cylinder specifications.
 - a) the deletion of the requirement for diameter subdivision;
 - b) Delete the list of filling media and the requirements for pressure binning.
- Change the wall thickness calculation formula.
- Remove the bottom of the bottle finite element calculation requirements.
- The number of each batch is specified as "no more than.200 plus destructive test

cylinder number."

--- After the bulk heat treatment of the bulk metallographic examination changed to type test requirements.

--- Increased the seamless steel pipe made of the bottom of the sealing test requirements.

--- Hydraulic test requires the use of external measurement of volume deformation rate test.

--- Cylinder stamp marks the measured water volume changes to the nominal water volume.

--- Increased bottle valve assembly torque appendix.

--- Added ultrasonic testing methods and assessment of the appendix.

--- Added magnetic particle testing methods and assessment of the appendix.

--- Increased flattening test method appendix.

--- Added the description of the inner and outer surface defects and assessment appendix.

This part of ISO 9809-1:2010 "Cylinder refillable seamless steel cylinders design, manufacture and test Part 1. Quenching

Post-tempering tensile strength of less than 1100MPa cylinder "degree of consistency is not equivalent.

Please note that some of this document may be patentable. The issuing agencies of this document do not bear the responsibility of identifying these patents.

This part of the National Gas Cylinder Standardization Technical Committee (SAC/TC31) and focal point.

This part of the drafting unit. Beijing Tianhai Industrial Co., Ltd., Shanghai High Pressure Container Co., Ltd., Jiangsu Tianhai Special Equipment Co., Ltd.

1 Scope

GB/T 5099 provisions of this part of the tempering after quenching tensile strength of less than 1100MPa seamless steel gas cylinders (the following Jane

Called cylinders) type and parameters, technical requirements, test methods, inspection rules, signs, coating, packaging, transportation, storage, product certification and bulk

Test the quality certificate.

This section applies to the design and manufacture of nominal working pressure is not more than 30MPa, the nominal water volume of 0.5L ~ 150L, the use of ambient temperature

For -40 degrees C ~ 60 degrees C, used for containing compressed gas, high pressure liquefied gas or gas mixture of refillable cylinders.

This section does not apply to automotive gas cylinders and machinery and equipment attached to the bottle pressure vessel.

NOTE For steel seamless cylinders with a nominal water volume of less than 0.5L, refer to this section for manufacturing and inspection.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 196 normal thread basic size (ISO 724)

GB/T 197 ordinary thread tolerance (ISO 965-1)

GB/T 222 steel finished chemical composition tolerance

GB/T 223 (all sections) - Methods for chemical analysis of iron, steel and alloy

Determination of depth of decarburization GB/T 224 steel (ISO 3887)

GB/T 228.1 Tensile testing of metallic materials - Part 1. Test methods at room temperature (ISO 6892)

GB/T 229 Charpy pendulum impact test method for metallic materials (ISO 148-1)

GB/T 230.1 Metallic Rockwell hardness test Part 1. Test methods (A, B, C, D, E, F, G, H, K, N, T scale)
(ISO 6508-1)

GB/T 231.1 Metallic Brinell hardness test - Part 1. Test methods (ISO 6506-1)

GB/T 232 metal materials bending test method (ISO 7438)

GB/T 4336 Determination of multi-element content of carbon steel and low alloy steel Spark discharge atomic emission spectrometry (conventional method)

GB/T 5777-2008 Methods for ultrasonic testing of seamless steel tubes (ISO 9303.1989, MOD)

GB/T 7144 cylinder color logo

GB/T 8335 cylinder special thread

GB/T 8336 cylinders for thread gauges

GB/T 9251 gas cylinder pressure test method

GB/T 9252 cylinder pressure cycle test methods

GB/T 12137 cylinder gas tightness test methods

GB/T 13005 gas bottle terminology

GB/T 13298 metal microstructure test method

Metallographic structure of steel die forgings grading charts and evaluation methods

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