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**Steel Cylinders for The On-Board Storage of
Compressed Natural Gas as A Fuel for Automotive
Vehicles**

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(ISO 11439:2013, Gas cylinders — High pressure cylinders for the on-board storage of natural gas as a fuel for automotive vehicles, NEQ)

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Steel Cylinders for The On-Board Storage of Compressed Natural Gas as A Fuel for Automotive Vehicles

1 SCOPE

This document specifies the types and parameters, technical requirements, test methods, inspection rules, marking, coating, packaging, transportation and storage with respect to the steel cylinders for the on-board storage of compressed natural gas as a fuel for automotive vehicles (hereinafter referred to as “steel cylinders”).

This document is applicable to the design and manufacture of the steel cylinders with a nominal working pressure of 20 MPa or 25 MPa, a nominal water capacity of 30L to 300L, a working temperature between -40°C and ≤ 65°C, and a design service life of 15 years.

The steel cylinders manufactured in accordance with this document are only intended for the on-board storage of compressed natural gas (CNG) that complies with GB 18047 as a fuel for automotive vehicles to which the cylinders are to be fixed. The service conditions do not cover additional loadings arise from external force, etc.

This document is neither applicable to the steel cylinders for the storage of gas in the CNG filling stations, nor applicable to the welded steel cylinders.

2 NORMATIVE REFERENCES

The following normative documents contain provisions which, through normative reference in this text, constitute essential provision of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendment) applies.

GB/T 192 General purpose metric screw threads - Basic profile
GB/T 196 General purpose metric screw threads - Basic dimensions
GB/T 197 General purpose metric screw threads - Tolerances
GB/T 222 Permissible tolerances for chemical composition of steel products
GB/T 223 (all parts) Methods for chemical analysis of iron, steel and alloy
GB/T 224 Determination of the depth of decarburization of steels
GB/T 226 Test method for macrostructure and defect of steel by etching
GB/T 228.1 Metallic materials - Tensile testing - Part 1: Method of test at room temperature
GB/T 229 Metallic materials - Charpy pendulum impact test method
GB/T 230.1 Metallic materials - Rockwell hardness test - Part 1: Test method (Scales A, B, C, D, E, F, G, H, K, N, T)
GB/T 231.1 Metallic materials - Brinell hardness test - Part 1: Test method
GB/T 232 Metallic materials - Bend test
GB/T 1979 Standard diagrams for macrostructure and defect of structural steels
GB/T 4157 Laboratory testing of metals for resistance to sulfide stress cracking and stress corrosion cracking in H₂S environment
GB/T 4336 Nickel-based alloy - Determination of multi-element contents - Spark discharge atomic emission spectrometric method (routine method)
GB/T 5777 Automated full peripheral ultrasonic testing of seamless and welded (except submerged arc-welded) steel tubes for the detection of longitudinal and/or transverse imperfections
GB/T 7144 Colored cylinder mark for gases
GB/T 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 9252 Method for pressure cycling test of gas cylinders
GB/T 12137 Method for leakage test of gas cylinders
GB/T 13005 Terminology of gas cylinders
GB/T 13298 Inspection methods of microstructure for metals
GB/T 13320 Metallographic grading atlas and assessing method for steel die forgings
GB/T 13447 Steel blank for seamless gas cylinder

GB/T 15385 Method for hydraulic burst test of gas cylinder
GB/T 17926 Compressed natural gas cylinder valve for vehicle
GB/T 18248 Seamless steel tubes for gas cylinder
GB/T 20668 Unified screw threads - Basic dimensions
GB/T 33215 Pressure relief devices for gas cylinders

3 TERMS, DEFINITIONS AND SYMBOLS

3.1 Terms and Definitions

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

3.1.1 batch

Limited number of steel cylinders that are produced successively in accordance with the same design, the same manufacturing process, and the same heat treatment procedure, using the materials of the same furnace number



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