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Technological Specifications for Inspection Agencies of Gas Cylinders

气瓶检验机构技术条件

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Technological Specifications for Inspection Agencies of Gas Cylinders

1 Application Scope

This Standard specifies the technological specifications for periodic inspection agencies of gas cylinders (hereinafter referred to as “inspection agency”).

This Standard applies to inspection agencies of seamless gas cylinders (including steel gas cylinders, aluminium alloy seamless gas cylinders, stainless steel seamless gas cylinders, compressed natural gas cylinders for automotive vehicles), welded gas cylinders (including steel welded gas cylinders and stainless steel welded gas cylinders), liquefied petroleum gas cylinders (including liquefied petroleum gas cylinders, liquefied dimethyl ether cylinders), liquefied petroleum gas cylinders for automotive vehicles (including liquefied petroleum gas cylinders for automotive vehicles and liquefied dimethyl ether cylinders for automotive vehicles), dissolved acetylene gas cylinders, wrapped cylinders [including small volume fibre wrapped gas cylinders with metal liners, fiber loop-wrapped gas cylinders with metal liners (including those for automotive vehicles) and fiber fully-wrapped gas cylinders with metal liners (including those for automotive vehicles)], insulated cylinders (including welded insulated gas cylinders, liquefied natural gas cylinders for automotive vehicles).

This standard does not apply to inspection agencies of gas cylinders for stations, large volume seamless gas cylinders for long tube trailers and tube bundle containers.

2 Normative References

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

GB/T 9251, *Methods for Hydrostatic Test of Gas Cylinders*

GB/T 12137, *Methods for Leakage Test of Gas Cylinders*

GB 13076, *Periodic Inspection and Evaluation of Dissolved Acetylene Gas Cylinders*

JJG 555, *General Verification Regulation for Nonautomatic Weighing Instrument*

JB/T 8105.1, *Vacuum Technology – Connections of Vacuum Gauges – Part 1: Rubber Seal*

JB/T 8105.2, *Vacuum Technology – Connections of Vacuum Gauges – Part 2: Metal*

- c) measuring devices and tools for base depth measurement (excluding liquefied petroleum gas cylinders for automotive vehicles, compressed natural gas cylinders for automotive vehicles, wrapped gas cylinders, insulated gas cylinders);
- d) the maximum measuring value of measuring apparatus for weight and volume shall be (1.5 ~ 3.0) times of common measuring value; the maximum permissible error shall satisfy the accuracy requirements in JJG 555;
- e) if gas cylinders are of welded structure, weld inspection ruler shall be provided;
- f) wooden hammer or rubber hammer (excluding dissolved acetylene gas cylinders and insulated gas cylinders);
- g) endoscope for the checking of the inside of gas cylinders or safelight of voltage not greater than 24 V and adequate lighting;
- h) platform, tools, clamping apparatus, torquemeter or torque wrench for the replacement of cylinder valves and their accessories;
- i) when air is used as test medium for the leakage test of gas cylinders containing combustible gas, 1 combustible gas detector shall be provided;
- j) tools and clamping apparatus for handling gas cylinders for automotive vehicles;
- k) tools for handling accessories such as cylinder valves and tools for handling nondetachable cylinder valves;
- l) typing tools such as steel seal roller press and typing gun [excluding small volume fibre wrapped gas cylinders with metal liners, fibre fully-wrapped gas cylinders with metal liners (including those for automotive vehicles)].

4.3.3 Requirements for test equipment and auxiliary devices

As a minimum, inspection agencies shall provide the test equipment and auxiliary devices as follows:

- a) for gas cylinders containing toxic and combustible media, devices, facilities and appliances for recycle, replacement and treatment of toxic and combustible gases and residual liquids, and tools for safety disposal and residual gas release;
- b) hydrostatic test apparatus as specified in GB/T 9251 (excluding dissolved acetylene gas cylinders and insulated gas cylinders);
- c) leakage test apparatus as specified in GB/T 12137;
- d) leakage test apparatus for gas cylinder valves as specified in relevant standards;
- e) cylinder valves automatic handling machinery suitable for gas cylinders to be tested (the use of pipe chain tongs or other tools which is liable to cause

Annex A

(Normative)

Special Resource Conditions of Inspection Agencies

Inspection agencies of all kinds of gas cylinders shall satisfy the general resource conditions as specified in this Standard; in addition, they shall also satisfy the special resource conditions suitable for the approved projects assumed by them.

A.1 Special conditions of seamless gas cylinders (including steel seamless gas cylinders, aluminium alloy seamless gas cylinders, stainless steel seamless gas cylinders, compressed gas natural gas cylinders for automotive vehicles):

- a) small copper hammer about 250 g heavy (excluding aluminium alloy seamless gas cylinders);
- b) 1 hardometer at least for testing aluminium alloy seamless gas cylinders;
- c) 1 non-manual fluorescent magnetic particle flaw detector (type A highly sensitive shims) and 1 ultrasonic wave flow detector (not required for subcontracting of nondestructive testing) at least for the inspection of compressed natural gas cylinders for automatic vehicles.

A.2 Special conditions of welded gas cylinders:

- a) radiographic testing and magnetic particle testing equipment (not required for the subcontracting of nondestructive testing);
- b) for large volume gas cylinders, hoisting equipment shall be provided.

A.3 Special conditions of liquefied petroleum gas cylinders (including liquefied petroleum gas cylinders and liquefied dimethyl ether cylinders):

Radiographic testing and magnetic particle testing equipment (not required for the subcontracting of nondestructive testing).

A.4 Special conditions of liquefied petroleum gas cylinders (including liquefied petroleum gas cylinders and liquefied dimethyl ether cylinders)

- a) radiographic testing and magnetic particle testing equipment (not required for the subcontracting of nondestructive testing);
- b) abilities and facilities for mounting and dismounting integrated valves or discrete valves and their accessories, and apparatus for assembling and leakage test of integrated valves or discrete valves.

- 1) when measuring range of gas mass flow gauge shall not be greater than 10 L/min, the accuracy shall achieve 0.5%;
 - 2) the rated flow rate of gas mass flow gauge shall be suitable for the flow rate of gas evaporated from gas cylinders;
 - 3) measuring devices for environmental temperature, environmental pressure and flow gauge inlet temperature and pressure.
- e) content gauge inspection device (for welded insulated gas cylinders).
- f) hoisting equipment for handling gas cylinders.

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