

JJG

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Liquefied Natural Gas Dispensers (English Translation)

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1 Scope

This Regulation applies to the initial verification, subsequent verification and in-service inspection of liquefied natural gas (LNG) dispensers (hereinafter referred to as dispensers).

2 Normative references

GB/T18442.1, Static vacuum insulated cryogenic pressure vessels - Part 1: General requirements

GB/T 19204, General characteristics of liquefied natural gas

GB/T 20368, Production, storage and handling of liquefied natural gas (LNG)

GB/T 25986, Filling device of natural gas vehicles

GB 50156, Technical standard of fuelling station

OIML R81:2006(E), Dynamic measuring devices and systems for cryogenic liquids

For dated references, only the dated version applies to this Regulation; for undated references, the latest edition (including all amendments) applies to this Regulation.

3.1.1 Liquefied natural gas (LNG) dispensers

A complete measuring system of LNG semi-invariant - providing LNG filling service - which generally consists of cryogenic flowmeter, control valve, dispenser nozzle, reclaiming nozzle, filling hose, reclaiming hose, as well as electronic computer and ancillary devices.

3.1.2 LNG gas vessel

A vacuum insulated cryogenic pressure vessel used for storing and supplying LNG fuel, of which the technical indicators shall meet the requirements of GB/T 18442.1.

3.1.3 Filling receptacle

A connecting part, after being connected with the dispenser nozzle, for filling LNG fuel to the LNG gas vessel.

3.1.4 Reclaiming receptacle

A connecting part, after being connected with the reclaiming nozzle, used to reclaim the residual gas in the LNG gas vessel.

3.1.5 Circulation receptacle

A connecting part on the gas dispenser used, after being connected with the dispenser nozzle, for the pre-cooling circulation.

3.1.6 Dispenser nozzle

A special tool for manual operation on the gas dispenser for connecting the filling receptacle or the circulation receptacle, which shall meet the requirements of GB/T

25986.

3.1.7 Reclaiming nozzle

A special tool for manual operation on the gas dispenser for connecting the reclaiming receptacle, which shall meet the requirements of GB/T 25986.

3.1.8 Breakaway coupling valve

A special protection device on the gas dispenser, which is installed on the filling hose and the reclaiming hose of the gas dispenser, and can be broken into two sections under the action of the rated pull-out force.

3.1.9 Emergency shutdown device

A special protection device on the gas dispenser, which, after being manually triggered in an emergency, can execute the corresponding shutdown logic, cut off or isolate the LNG fuel source, and shut down the equipment that will aggravate and expand the accident due to continued operation. It is generally located at an obvious location of the gas dispenser.

3.1.10 Electronic computer

A calculation and control device of the gas dispenser, which can receive the flow electric signal transmitted by the flow meter and the pressure electric signal transmitted by the pressure sensor, etc., and calculate according to the set parameters;

can carry out data transmission and display operations, and automatically judge and control the flow of the fluid; has the functions of returning to zero, indicating the payment amount, etc., and can also realize the adjustment of the measurement error.

refilling. The electronic computer of the gas dispenser automatically controls the gas filling process, and calculates according to the flow signal output by the flowmeter.

The mass of LNG filled into the gas vessel is the difference between the measurement value of the liquid-phase flowmeter and the measurement value of the gas-phase flowmeter (when the gas dispenser is not connected to the reclaiming pipeline, the measurement value of the gas-phase flowmeter is zero), and the panel of the gas dispenser displays the final measurement value.

For the gas dispenser used for trade settlement, a gas-phase flow meter must be installed in the reclaiming pipeline to measure the residual gas in the gas vessel recycled.

5.1 Maximum allowable error

The maximum allowable error of the gas dispenser is $\pm 1.5\%$.

5.2 Repeatability

The measurement repeatability of the gas dispenser does not exceed 0.5%.

5.3 Flow range

The mass flow rate of the gas dispenser is less than or equal to 80 kg/min, and the range ratio is not less than 4:1.

5.4 Minimum quality variable

The minimum quality variable of the gas dispenser shall not be greater than 0.01 kg.

5.5 Payment amount error

The payment amount displayed on the gas dispenser panel shall not be greater than the calculated payment amount (the product of the unit price and the displayed value).

6.1.1 Appearance

6.1.1.1

The nameplate and markings of the gas dispenser shall be clear and reliable.

6.1.1.2

The connectors of the gas dispenser must be firm and reliable, and shall not loosen or fall off due to vibration.

6.1.2 Accompanying documents

The gas dispenser shall be provided with the factory inspection certificate and the instruction manual, which shall give the technical requirements, installation conditions, usage methods, safety protection measures and the like.

6.1.3 Markings and nameplate

6.1.3.1

There shall be obvious safety and operation markings on the dispenser.

6.1.3.2 The nameplate of the gas dispenser generally indicates the following contents:

- 1) Manufacturer's name (trademark), product name and model specifications;
- 2) Date of manufacture and serial number;
- 3) Marking and number of the license for manufacturing measuring instruments;