International Standard

ISO 16923

Natural gas fuelling stations — Compressed natural gas (CNG) stations for fuelling vehicles

Stations-service de gaz naturel — Stations de gaz naturel comprimé (GNC) pour le ravitaillement de véhicules

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 340, *Natural gas fuelling stations,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 326, *Natural gas vehicles – Fuelling and operation,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 16923:2016), which has been technically revised.

The main changes are as follows:

— clarification and expansion of the scope to explicitly exclude vehicle-to-vehicle transfer and vehicle refuelling appliances (VRAs);

— revision of Clause 2;

— revision of Clause 3, with the inclusion of new entries;

— revision of the risk management clause to incorporate a lifecycle approach, with enhanced provisions for ignition prevention, explosion mitigation, and equipment protection;

— revision of the design and safety provisions to strengthen them, including requirements for physical protection of exposed gas equipment, electrical system reliability, and enhanced venting and shutdown protocols;

— revision of Annex A (hazardous zone classification) to clarify designer responsibilities in determining hazardous areas;

— revision of annexes to reflect current operational practices, with revised examples for fuelling procedures, emergency instructions, and maintenance programs.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Natural gas fuelling stations — Compressed natural gas (CNG) stations for fuelling vehicles

1 Scope

This document specifies requirements for the design, construction, operation, maintenance and inspection of stations for fuelling compressed natural gas (CNG) to vehicles, including equipment, safety and control devices up to the fuelling nozzle to the vehicle.

This document applies to fuelling stations supplied with natural gas as defined in local applicable gas composition regulations or ISO 13686. It also applies to other gases meeting these requirements.

This document also applies to portions of a fuelling station where natural gas is in a gaseous state and dispensing CNG derived from liquefied natural gas (LCNG) according to ISO 16924.

This document covers all equipment for downstream gas supply connection (i.e. point of separation between the CNG fuelling station piping and the pipeline network). Fuelling station nozzle are not defined in this document.

This document covers fuelling stations with the following characteristics:

— slow fill;

— fast fill;

— private access;

— public access (self-service or assisted);

— fuelling stations with fixed storage;

— fuelling stations with mobile storage (daughter station);

— multi-fuel stations.

This document is not applicable to vehicle to vehicle transfer or vehicle refuelling appliances (VRA).

NOTE This document is based on the condition that the gas entering the fuelling station is odorized. For unodorized gas fuelling stations, additional safety requirements are included in Clause 10.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 834-1, *Fire-resistance tests — Elements of building construction — Part 1: General requirements*

ISO 4126-1, *Safety devices for protection against excessive pressure — Part 1: Safety valves*

ISO 30013, *Rubber and plastics hoses — Methods of exposure to laboratory light sources — Determination of changes in colour, appearance and other physical properties*

ISO 9809-1, *Gas cylinders — Design, construction and testing of refillable seamless steel gas cylinders and tubes — Part 1: Quenched and tempered steel cylinders and tubes with tensile strength less than 1 100 MPa*