
**Road vehicles — Compressed natural
gas (CNG) refuelling connector**

*Véhicules routiers — Connecteur de remplissage en gaz naturel
comprimé (GNC)*





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Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 General construction requirements	2
5 Nozzles	3
6 Standard receptacle dimensions	4
6.1 Standard receptacle dimensions Size 1 (B200, B250).....	4
6.2 Standard receptacle dimensions size 2 (C200, C250).....	7
7 Receptacles	10
8 Instructions	11
9 Marking	11
10 Tests	12
10.1 General requirements.....	12
10.2 User interface.....	12
10.3 Impact resistance.....	12
10.4 Receptacle protective caps.....	13
10.5 Leakage at room temperature.....	13
10.5.1 Nozzle.....	13
10.5.2 Receptacle.....	13
10.6 Valve operating handle.....	14
10.7 Abnormal loads.....	14
10.7.1 General.....	14
10.7.2 Test in the unpressurized condition.....	15
10.7.3 Test in the pressurized condition.....	15
10.8 Rocking/Twisting.....	15
10.9 Mounting hardware torque.....	16
10.10 Low and high temperatures.....	16
10.10.1 General.....	16
10.10.2 Leakage test.....	16
10.10.3 Operation test.....	17
10.11 Durability.....	17
10.11.1 Durability cycling.....	17
10.11.2 Oxygen ageing.....	23
10.11.3 Seal material compatibility.....	23
10.11.4 Ten-day moist ammonia-air stress cracking.....	24
10.11.5 Electrical resistance.....	24
10.12 Hydrostatic strength.....	24
10.13 Corrosion resistance.....	24
10.13.1 Nozzles.....	25
10.13.2 Receptacles.....	25
10.14 Deformation.....	25
10.15 Non-igniting evaluation.....	25
10.16 Pressure-tight protective cap (PTPC).....	25
10.16.1 General.....	25
10.16.2 Leakage.....	26
10.16.3 Durability cycling.....	26
10.16.4 Abuse.....	27
10.16.5 Impact resistance.....	27

10.16.6 Corrosion resistance.....	27
10.16.7 Hydrostatic strength.....	27
Annex A (informative) Nozzle characteristics.....	28
Annex B (normative) Receptacle test fixture.....	29
Bibliography.....	37

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. www.iso.org/directives

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 41, *Specific aspects for gaseous fuels*.

This first edition of ISO 14469:2016 cancels and replaces the first edition of ISO 14469-1:2004, ISO 14469-2:2007 and ISO 14469-3:2006, which have been technically revised.

Introduction

This document was developed to use in the examination, testing and certification of newly produced compressed natural (CNG) gas vehicle fuelling nozzles and receptacles and, as such, applies only to the nozzles and receptacles used in CNG fuelling systems, and not to the system itself.

A nozzle certified to this International Standard will be functionally compatible from a safety and performance perspective with all listed receptacles of compatible profile and system pressure. Similarly, a certified receptacle will be functionally compatible from a safety and performance perspective with all listed nozzles of compatible profile and system pressure.

As there may eventually be many different kinds of nozzles and receptacles available from a variety of manufacturers which, for safety reasons, have to be all compatible with one another, this document specifies a series of receptacle profiles. These standard profiles incorporate the design specifications (mating materials, geometry and tolerances) which may be considered in the certification of a submitted nozzle or receptacle.

The construction and performance of nozzles and receptacles are based on the observation that three main parameters affect user safety and system compatibility.

a) Service pressure

All nozzles and receptacles are designed to have a service pressure of either 20 MPa (200 bar) for B200 and C200 connectors or 25 MPa (250 Bar) for B250 and C250 connectors.

b) Design life

Frequency of use is the second parameter to be considered. Since frequency of use will differ with the nozzle/receptacle application (i.e. public sector, fleet employee and residential), all receptacles will be tested at 10 000 connect/disconnect cycles for compliance with this document. In addition, all nozzles will be tested according to the following frequency use classifications, as applicable:

- Class A Nozzle, specifying high frequency use, with a cycle life of 100 000 cycles and equating to approximately 100 fills per day for three years;
- Class B Nozzle, specifying medium frequency use, with a cycle life of 20 000 cycles and equating to approximately 10 fills per day for five years.

c) Training

Operator training required is in accordance with national requirements.

Road vehicles — Compressed natural gas (CNG) refuelling connector

1 Scope

This document specifies CNG refuelling nozzles and receptacles constructed entirely of new and unused parts and materials, for road vehicles powered by compressed natural gas. A CNG refuelling connector consists of, as applicable, the receptacle and its protective cap (mounted on the vehicle) and the nozzle.

This document is applicable only to such devices designed for a service pressure of 20 MPa (200 bar) and 25 MPa (250 bar), to those using CNG according to ISO 15403-1 and ISO 15403-2 and having standardized mating components, and to connectors that prevent natural gas vehicles from being fuelled by dispensers with service pressures higher than that of the vehicle, while allowing them to be fuelled by dispensers with service pressures less than or equal to the vehicle fuel system service pressure.

This document refers to service pressures of 20 MPa and 25 MPa for:

- size 1: B200 and B250;
- size 2: C200 and C250.

NOTE All references to pressures, given in megapascals and bar¹⁾ are considered gauge pressures, unless otherwise specified.

2 Normative references

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

ISO 188, *Rubber, vulcanized or thermoplastic — Accelerated ageing and heat resistance tests*

ISO 1817, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*

ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*

ISO 15500-2, *Road vehicles — Compressed natural gas (CNG) fuel system components — Part 2: Performance and general test methods*

ISO 15501-1, *Road vehicles — Compressed natural gas (CNG) fuel systems — Part 1: Safety requirements*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply. ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

1) (1 bar = 0,1 MPa = 10⁵ Pa; 1 MPa = 1 N/mm²)