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Road vehicles — Liquefied petroleum gas (LPG) refuelling connector

Véhicules routiers — Connecteur de remplissage en gaz de pétrole liquéfié (GPL)

Reference number
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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 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 41, *Specific aspects for gaseous fuels*.

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.

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Introduction

This document was developed for the design, examination, testing and certification of newly produced Liquefied Petroleum Gas Vehicle fuelling nozzles and receptacles only.

A nozzle compliant with this document is functionally compatible from a safety and performance perspective with all listed receptacles of compatible profile and system pressure. Similarly, a receptacle compliant with this document is functionally compatible from a safety and performance perspective with all listed nozzles of compatible profile and system pressure.

These standard profiles incorporate the design specifications (mating materials, geometry and tolerances) which can be considered in the certification of a submitted nozzle or receptacle.

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Road vehicles — Liquefied petroleum gas (LPG) refuelling connector

1 Scope

This document applies to Liquefied Petroleum Gas vehicle nozzles and receptacles, hereinafter referred to as devices, constructed entirely of new, unused parts and materials. Liquefied Petroleum Gas fuelling connectors consist of the following components, as applicable:

a) nozzle (mounted on dispenser side) (see Clause 5);

b) receptacle (mounted on vehicle) (see Clause 7).

This document applies to devices which have a gauge service pressure in the range of 110 kPa (Butane rich at 20 °C) and 840 kPa (Propane at 20 °C), hereinafter referred to as [see 9.1 c)]:

— J15;

— K15.

This document also applies to:

— devices with standardized mating components;

— connectors which prevent Liquefied Petroleum Gas vehicles from being fuelled by other gaseous fuels station dispensers; and

— Liquefied Petroleum Gas in accordance with ISO 9162.

NOTE All references to pressures (kPa) throughout this document are considered gauge pressures unless otherwise specified.

This document does not apply to the fuel system of vehicle, with the exception of the Liquefied Petroleum Gas receptacle.

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 188, *Rubber vulcanized — Accelerated ageing or heat-resistance tests*

ISO 1431-1, *Rubber, vulcanized or thermoplastic — Resistance to ozone cracking — Part 1: Static and dynamic strain testing*

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

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

ASTM D4814, *Standard Specification for Automotive Spark-Ignition Engine Fuel*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
dry air
air with moisture content such that the dew point of the air at the required test pressure is at least 11 °C below the ambient test temperature

3.2
working pressure
maximum pressure that a connector can be expected to withstand in actual service

3.3
Liquefied Petroleum Gas
LPG
autogas
low pressure gas composed of one or more light hydrocarbons which are assigned to UN 1011, UN 1075, UN 1965, UN 1969 or UN 1978 only and which consists mainly of propane, propene, butane, butane isomers, butene with traces of other hydrocarbon gases

3.4
nozzle
Liquefied Petroleum Gas refuelling nozzle
device which permits quick connection and disconnection of fuel supply hose to the *Liquefied Petroleum Gas receptacle* (3.5) in a safe manner

3.5
receptacle
Liquefied Petroleum Gas refuelling receptacle
device connected to a vehicle or storage system which receives the *Liquefied Petroleum Gas nozzle* (3.4) and permits safe transfer of fuel

3.6
connector
Liquefied Petroleum Gas refuelling connector
joined assembly of *Liquefied Petroleum Gas nozzle* (3.4) and *receptacle* (3.5)

3.7
non-sparking material
material that does not contain, by mass, more than 7,5 % in total of magnesium, titanium and zirconium

[SOURCE: IEC 60079-0:2017, 8.3]

3.8
service gasket
replaceable gasket ensuring tightness of the connection between the nozzle outlet and the receptacle inlet

3.9
cycle life
number of connections and disconnections between the *nozzle* (3.4) and the *receptacle* (3.5) required for testing purposes

3.10
service life
number of operations of the *receptacle* (3.5) required for testing purposes

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