

**Vedelgaasi seadmed ja tarvikud. Seadmed
vedelgaasitanklatele. Osa 1: Tankurid**

LPG equipment and accessories - Construction and
performance of LPG equipment for automotive filling stations
- Part 1: Dispensers CONSOLIDATED TEXT

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 14678-1:2006+A1:2009 sisaldab Euroopa standardi EN 14678-1:2006+A1:2009 ingliskeelset teksti.

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English Version

LPG equipment and accessories - Construction and
performance of LPG equipment for automotive filling stations -
Part 1: Dispensers

Équipements pour GPL et leurs accessoires - Construction
et caractéristiques des équipements GPL dans les stations-
service - Partie 1: Distributeurs

Flüssiggas-Geräte und Ausrüstungsteile - Bau- und
Arbeitsweise von Flüssiggas-Geräten für Autogas-
Tankstellen - Teil 1: Zapfsäulen

This European Standard was approved by CEN on 9 January 2006 and includes Amendment 1 approved by CEN on 21 March 2009.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 14678-1:2006+A1:2009) has been prepared by Technical Committee CEN/TC 286 "Liquefied petroleum gas equipment and accessories", the secretariat of which is held by NSAI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2009, and conflicting national standards shall be withdrawn at the latest by October 2009.

This document includes Amendment 1, approved by CEN on 2009-03-21.

This document supersedes EN 14678-1:2006.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

NOTE The Pressure Equipment Directive 97/23/EC (PED) applies to any assembly with a component defined as category II or higher in this Directive:

- Article 1, 3.6 of the PED excludes equipment classified as no higher than category I under article 9 if it is covered by Directive 94/9/EC (ATEX).
- The category I limit is defined in Annex II Table 6 of the PED. It applies to piping for liquids whose vapour pressure at the maximum allowable temperature is greater than 0,5 bar (50 kPa) above DN 100 or, in the case of maximum allowable pressures greater than 10 bar (1 kPa), is above the product of DN and PS of 1 000.
- Because the design pressure (PS) in this document is 25 bar (2 500 kPa) and the DN of the intended piping is less than 40, the product of DN and PS of 1 000 in Table 6 of the PED is not reached.
- The category I limit for vessels is defined in Annex II Table 1 of the PED. It also applies to vessels for liquids whose vapour pressure at the maximum allowable temperature is greater than 0,5 bar (50 kPa) above volumes (V) of 1 litre up to a pressure of 200 bar or, in the case of the product of V and PS of 50.
- Because the design pressure (PS) in this document is 25 bar (2 500 kPa) and if the V of the intended vessel is less than 2 litres, the product of V and PS of 50 in Table 1 of the PED is not reached.

This standard addresses the essential health and safety requirements of the ATEX Directive.

This standard does not include any requirement for metering performance.

The manufacturer may have to consider the requirements of Directives 73/23/EEC and 89/336/EEC where relevant.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard covers the requirements for the design, manufacture, testing and marking of LPG dispensers for automotive LPG filling stations with a design pressure of 25 bar (2 500 KPa), where the piping has a maximum DN 40 and any vessel fitted that has a volume less than 2 litres. This standard does not cover dispensers with integral pumps.

NOTE This standard may also be used for piping greater than DN 40 and/or vessels greater than 2 litres, but then the PED should be consulted.

This standard also covers the requirements for the LPG parts in multi-fuel dispensers.

2 Normative references

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

EN 549:1994, *Rubber materials for seals and diaphragms for gas appliances and gas equipment*.

EN 837-1, *Pressure gauges, Part 1 Bourdon tube pressure gauges - Dimensions, metrology, requirements and testing*.

EN 1762, *Rubber hoses and hose assemblies for liquefied petroleum gas, LPG (liquid or gaseous phase), and natural gas up to 25 bar (2,5 MPa) - Specification*.

EN 13463-1, **[A1]** *Non electrical equipment for use in potentially explosive atmospheres – Part 1: Basic method and requirements* **[A1]**

EN 13617-1:2004, *Petrol filling stations - Part 1: Safety requirements for construction and performance of metering pumps, dispensers and remote pumping units*

EN 13760, *Automotive LPG filling system for light and heavy duty vehicles – Nozzle, test requirements and dimensions*.

[A1] EN 60079-0:2006, *Electrical apparatus for explosive gas atmospheres – Part 0: General requirements (IEC 60079-0:2004, modified)* **[A1]**

[A1] EN 60079-7:2007, *Explosive atmospheres - Part 7: Equipment protection by increased safety "e" (IEC 60079-7:2006)* **[A1]**

EN 60079-10:2003, *Electrical apparatus for explosive gas atmospheres Part 10: Classification of hazardous areas (IEC 60079-10: 2002)*.

[A1] EN 60079-14, *Explosive gas atmospheres - Part 14: Electrical Installations design, selection and erection (IEC 60079-14:2007)* **[A1]**

[A1] EN 60079-15:2005, *Electrical apparatus for explosive gas atmospheres – Part 15: Construction, test and marking of type of protection "n" electrical apparatus (IEC 60079-15:2005)* **[A1]**

[A1] EN 60204-1:2006, *Safety of machinery - Electrical equipment of machines - Part 1: General Requirements (IEC 60204-1:2005, modified)* **[A1]**

EN 60529:1993, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)*

EN 60947-3, *Low voltage switchgear and controlgear.- Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units (IEC 60947-3:1999)*

HD 21.13 S1, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 13: Oil resistant PVC sheathed cables with two or more conductors*

HD 22.4 S4, *Cables of rated voltages up to and including 450/750 V and having crosslinked insulation - Part 4: Cords and flexible cables*

3 Terms and definitions

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

3.1
LPG (liquefied petroleum gas)
mixture of predominantly butane or propane with traces of other hydrocarbon gases classified in accordance with UN number 1965, hydrocarbon gases mixture, liquefied, NOS or UN number 1075, petroleum gases, liquefied

NOTE 1 In some countries, UN numbers 1041 and 1978 may also be designated LPG.

NOTE 2 For automotive LPG specification see EN 589.

3.2
design pressure
pressure for which the equipment is designed

NOTE Gauge pressure unless otherwise stated.

3.3
excess flow valve
valve designed to close automatically, with a small residual flow, when the fluid flow passing through it exceeds a predetermined value, and to re-open when the pressure differential across the valve has been restored below a certain value

3.4
hydrostatic relief valve
device that prevents the build up of hydrostatic pressure above a pre-set value

3.5
shear valve (impact check valve)
normally open valve activated by impact which closes both sides of the break point to prevent flow and remains closed after activation

3.6
dead man's push button
manually operated non latching device which immediately stops the flow when released

3.7
hazardous area
area in which an explosive gas atmosphere is present, or may be expected to be present, in quantities such as to require special precautions for the construction, installation of equipment and use of apparatus

3.8
dispenser
delivery and measuring unit for LPG in the liquid phase