

**LPG equipment and accessories - Contents gauges for  
Liquefied Petroleum Gas (LPG) pressure vessels**

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## EESTI STANDARDI EESSÕNA

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Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 28.03.2012.	Date of Availability of the European standard is 28.03.2012.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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ICS 23.020.01

Võtmesõnad: gas cylinders, I, liquefied petroleum gases, liquid gas tank, liquid levels, liquid-level indicators, marking, materials, operating conditions, operation, pressure vessels, safety, safety engineering, safety requirements, specification (approval), specifications,

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English Version

## LPG equipment and accessories - Contents gauges for Liquefied Petroleum Gas (LPG) pressure vessels

Équipements et accessoires GPL - Jauges de niveau pour  
les réservoirs de GP

Flüssiggas-Geräte und Ausrüstungsteile -  
Füllstandsanzeiger für Druckbehälter für Flüssiggas (LPG)

This European Standard was approved by CEN on 14 January 2012.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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# Contents

Page

Foreword.....	4
Introduction .....	5
1 Scope .....	6
2 Normative references .....	6
3 Terms and definitions .....	7
4 Operating conditions.....	8
5 Materials .....	8
5.1 General.....	8
5.2 Metallic materials .....	8
5.3 Non-metallic components .....	9
5.4 Lubricants, sealants and adhesives .....	9
6 Design – General requirements.....	9
6.1 General.....	9
6.2 Seals.....	10
6.3 Springs.....	10
6.4 Threads .....	10
6.5 Flanges .....	11
7 Design– Specific requirements .....	11
7.1 Contents gauge.....	11
7.1.1 Float gauge.....	11
7.1.2 Rotary gauge .....	11
7.1.3 Fixed liquid level gauge .....	11
7.1.4 Slip tube gauge .....	12
7.2 Dials for contents gauges .....	12
8 Design testing .....	12
8.1 General.....	12
8.2 Over-torquing deformation test.....	13
8.3 External tightness test .....	14
8.4 Internal tightness test .....	14
8.5 Endurance test.....	15
8.6 Pressure strength test.....	15
8.7 Stress cracking test.....	15
8.7.1 General.....	15
8.7.2 Mercurous nitrate immersion test.....	16
8.7.3 Moist ammonia air stress cracking test .....	16
8.8 Float pressure test.....	16
8.9 Dimensional inspection .....	16
8.10 Function test .....	16
8.11 Vacuum test.....	16
8.12 Float Test.....	16
8.13 Accuracy assessment.....	17
9 Production testing and inspection.....	17
10 Marking .....	17
11 Documentation.....	17
Annex A (normative) Float gauge flange and gasket dimensions .....	19

<b>Annex B (normative) Special low temperature requirements .....</b>	<b>22</b>
<b>Annex C (normative) Production testing and inspection .....</b>	<b>23</b>
<b>Annex D (informative) Vibration Testing .....</b>	<b>24</b>
<b>D.1 General .....</b>	<b>24</b>
<b>D.2 Test samples .....</b>	<b>24</b>
<b>D.3 Test method .....</b>	<b>24</b>
<b>D.4 Criteria for passing the test.....</b>	<b>25</b>
<b>Annex E (informative) Environment checklist.....</b>	<b>26</b>
<b>Bibliography.....</b>	<b>27</b>

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## Foreword

This document (EN 13799:2012) has been prepared by Technical Committee CEN/TC 286 "LPG 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 September 2012, and conflicting national standards shall be withdrawn at the latest by September 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13799:2002.

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.

For the purposes of this standard, contents gauges are considered a pressure accessory in accordance with the Pressure Equipment Directive 97/23/EC in that they have a function additional to that of containing pressure. However, as they have a volume less than 0,1 l and a maximum allowable pressure (PS) of 25 bar, they are designed and manufactured in accordance with sound engineering practice of a Member State in order to ensure safe use.

This document is considered as a supporting European Standard for the Pressure Equipment Directive 97/23/EC.

This document has been submitted for reference into the RID and/or in the technical annexes of the ADR.

The major changes to this revision include:

- scope extended to include transportable equipment;
- gauge graduations and precision included;
- overfill Protection Device is deleted, now included in EN 13175;
- test requirement is included for non-metallic floats;
- torque test values have been changed;
- vacuum test and float test have been introduced;
- Annex C, production testing has been introduced;
- Annex D, vibration testing has been introduced;
- Annex E, environmental checklist has been introduced.

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, Croatia, 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, Turkey and the United Kingdom.

## Introduction

Protection of the environment is a key political issue in Europe and around the world. It is described here in its broadest sense. However, the total life cycle aspects of a product on the environment for example is what is meant. This includes expenditure of energy during all phases: mining of raw materials, fabrication, packaging, distribution, use, scrapping, recycling of materials, etc.

NOTE Annex E indicates which clauses in this European Standard address environmental issues.

Provisions have to be restricted to a general guidance. Limit values are specified in national laws. It is recommended that companies using this standard develop an environmental management policy. For guidance see ISO 14000 series.

## 1 Scope

This European Standard specifies minimum requirements for design and testing of contents gauges, which are directly connected to LPG transportable pressure vessels, LPG drums, LPG cylinders and static LPG pressure vessels above 0,5 l water capacity excluding those used for automotive containers. This European Standard does not apply to refineries or other process plants.

## 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.

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

EN 751 -1:1996, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water — Part 1: Anaerobic jointing compounds*

EN 751-2:1996, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water — Part 2: Non-hardening jointing compounds*

EN 751-3:1996, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water — Part 3: Unsintered PTFE tapes*

EN 1092-1:2007, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 1: Steel flanges*

EN 1503-1:2000, *Valves — Materials for bodies, bonnets and covers — Part 1: Steels specified in European Standards*

EN 1503-2:2000, *Valves — Materials for bodies, bonnets and covers — Part 2: Steels other than those specified in European Standards*

EN 1503-3:2000, *Valves — Materials for bodies, bonnets and covers — Part 3: Cast irons specified in European Standards*

EN 1503-4:2002, *Valves — Materials for bodies, bonnets and covers — Part 4: Copper alloys specified in European Standards*

EN 1563:1997, *Founding — Spheroidal graphite cast irons*

EN 10270-3:2001, *Steel wire for mechanical springs — Part 3: Stainless spring steel wire*

EN 12165:2011, *Copper and copper alloys — Wrought and unwrought forging stock*

EN 12420:1999, *Copper and copper alloys — Forgings*

EN 13906-1:2000, *Cylindrical helical springs made from round wire and bar — Calculation and design — Part 1: Compression springs*

EN 60079-0, *Explosive atmospheres — Part 0: Equipment — General requirements*

ISO 301:2006, *Zinc alloy ingots intended for casting*

ISO 1817:2011, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*



ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

ISO 6957:1988, *Copper alloys — Ammonia test for stress corrosion resistance*

ANSI/ASME B1.20.1 – 1983, *Pipe threads, general purpose (inch); issued by American National Standards Institute in 1983*

### 3 Terms and definitions

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

#### 3.1

##### **Liquefied Petroleum Gas LPG**

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

#### 3.2

##### **contents gauge**

device to indicate the liquid level or contents in a pressure vessel

##### 3.2.1

##### **float gauge**

device to indicate the content of a vessel by means of a float on the liquid surface within the vessel

##### 3.2.2

##### **rotary gauge**

device which operates through a rotating action in order to assess the liquid level in a vessel by means of temporarily venting a limited amount of LPG, whereupon the change from liquid to vapour is detected

##### 3.2.3

##### **fixed liquid level gauge**

control device, such as a dip tube in combination with a vent valve to indicate when a predetermined liquid level has been reached or surpassed

##### 3.2.4

##### **slip tube**

device which operates through a linear action in order to assess the liquid level in a pressure vessel by means of temporarily venting a limited amount of LPG, where upon the change from liquid to vapour is detected

#### 3.3

##### **external tightness**

resistance to leakage through the fitting to or from the atmosphere

#### 3.4

##### **internal tightness**

resistance to leakage to atmosphere across the valve seat or any other pressure containing component when the valve is closed

#### 3.5

##### **maximum allowable pressure**

maximum pressure for which the equipment is designed