

Pressure relief valves for transportable refillable cylinders for Liquefied Petroleum Gas (LPG)

The European Standard EN 13953:2003, incorporating amendment A1:2007, has the status of a British Standard

ICS 23.060.40

National foreword

This British Standard was published by BSI. It is the UK implementation of EN 13953:2003, incorporating amendment A1:2007.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by **A1** **A1**.

The UK participation in its preparation was entrusted to Technical Committee PVE/19, LPG containers and their associated fittings.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 01 July 2003

© BSI 2007

ISBN 0 580 42208 9

Amendments issued since publication

Amd. No.	Date	Comments
17107	31 May 2007	See national foreword

English Version

**LPG equipment and accessories - Pressure relief valves for
transportable refillable cylinders for Liquefied Petroleum Gas
(LPG)**

Equipements pour gaz de pétrole liquéfié et leurs
accessoires - Soupapes de sûreté des bouteilles
transportables et rechargeables pour gaz de pétrole liquéfié
(GPL)

Flüssiggas-Geräte und Ausrüstungsteile -
Sicherheitsventile für ortsbewegliche, wiederbefüllbare
Flaschen für Flüssiggas (LPG)

This European Standard was approved by CEN on 21 April 2003 and includes Amendment 1, approved by CEN on 15 February 2007.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

	Page
Foreword.....	3
1 Scope	4
2 Normative references	4
3 Terms, definitions and abbreviations	4
3.1 Terms and definitions	4
3.2 Abbreviations	6
4 Operating temperatures	6
5 Materials	6
5.1 General.....	6
5.2 Metallic materials.....	6
5.3 Non-metallic components.....	7
5.4 Lubricants, sealants and adhesives	7
6 Design	7
6.1 General.....	7
6.2 Threads	7
6.3 Springs.....	8
6.4 Test requirements.....	8
7 Testing and inspection of the design	8
7.1 General.....	8
7.2 Hydraulic proof test.....	8
7.3 Start to discharge and discharge capacity test.....	9
7.4 Leak test	9
7.5 Test records	9
7.6 Design changes	10
8 Production testing	10
9 Marking	10
10 Documentation.....	10
Annex A (informative) Terms used with pressure relief valves.....	11
Annex B (normative) Special low temperature requirements for valves.....	12
Annex C (informative) Sizing of pressure relief valves for LPG cylinders	13
Annex D (informative) Production testing	14
D.1 General.....	14
D.2 Dimensional inspection	14
D.3 Setting and leak testing of pressure relief valves	14
Bibliography	15

Foreword

This document (EN 13953:2003+A1:2007) has been prepared by Technical Committee CEN/TC 286 "Liquefied petroleum gas equipment and accessories", the secretariat of which is held by NSAI.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2007 and conflicting national standards shall be withdrawn at the latest by September 2007.

This document includes Amendment 1, approved by CEN on 2007-02-15.

This document supersedes EN 13953:2003.

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

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 specifies the design, testing and marking requirements for spring loaded pressure relief valves, for use in liquefied petroleum gas (LPG) cylinders.

These valves can be either an integral part of a cylinder valve (see EN 13152 and EN 13153) or a separate device.

This European Standard does not exclude the use of other designs of pressure relief devices that provide a similar level of safety.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

EN 751 (all parts), *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water*

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

EN 1563, *Founding – Spheroidal graphite cast irons*

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

EN 12164, *Copper and copper alloys – Rod for free machining purposes*

EN 12420, *Copper and copper alloys – Forgings*

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

3 Terms, definitions and abbreviations

3.1 Terms and definitions

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

3.1.1

LPG

mixture of light hydrocarbons, gaseous under standard atmospheric conditions, which can be liquefied by increased pressure or decreased temperature. The main components are propane, propene, butane and butene isomers

3.1.2

pressure relief valve

valve which automatically, without the assistance of any energy other than that of the fluid concerned, discharges a quantity of fluid so as to prevent a predetermined safe pressure being exceeded, and which is designed to re-close and prevent the further flow of fluid after normal pressure conditions of service have been restored. The loading due to the fluid pressure underneath the valve-sealing element is opposed by a spring