

# Pressure relief valves for LPG tanks — Ancillary equipment

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British Standard

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# National foreword

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English version

## Pressure relief valves for LPG tanks - Ancillary equipment

Soupapes de sûreté des réservoirs de gaz de pétrole  
liquéfié (GPL) - Equipement auxiliaire

Sicherheitsventile für Flüssiggas-(LPG)-behälter - Zubehör

This European Standard was approved by CEN on 20 October 2004.

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## **Foreword**

This document (EN 14071:2004) 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of an identical text or by endorsement, at the latest by June 2005, and conflicting national standards shall be withdrawn at the latest by June 2005.

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.

This document includes a Bibliography.

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## 1 Scope

This document specifies the design, testing and inspection requirements for pressure relief valve isolating devices, valve manifolds, vent pipes and system assemblies which are, where necessary, used with pressure relief valves for use in tanks for Liquefied Petroleum Gas (LPG) service.

Pressure relief valves for LPG tanks are specified in EN 14129.

## 2 Normative references

The following referenced documents are indispensable for the application 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.

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

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

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

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

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

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

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

EN 1563, *Founding - Spheroidal graphite cast irons.*

EN 10088-1, *Stainless steels - List of stainless steels.*

EN 10088-3, *Stainless steels - Technical delivery conditions for semi-finished products, bars, rods and sections for general purposes.*

EN 10204:2004, *Metallic products — Type of inspection documents.*

EN 12165, *Copper and copper alloys – Wrought and unwrought forging stock.*

EN 12420, *Copper and copper alloy – Forgings.*

EN 13480-3, *Metallic industrial piping - Part 3: Design and calculation.*

EN 13906 (all parts), *Cylindrical helical springs made from round wire and bar – Calculation and design*

EN 14129, *Pressure relief valves for LPG tanks.*

EN ISO 11114-2, *Transportable gas cylinders - Compatibility of cylinder and valve materials with gas contents – Part 2: Non-metallic materials (ISO 11114-2:2000).*

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

### 3 Terms and definitions

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

#### 3.1

##### **Pressure Relief Valve (PRV)**

self-closing valve which automatically, without the assistance of any energy other than that of the vapour concerned, discharges vapour at a predetermined pressure, and operates with a pop action

#### 3.2

##### **pressure**

NOTE 1 Terms used with LPG PRVs are described graphically in EN 14129.

NOTE 2 All pressures are gauge pressures unless otherwise specified.

#### 3.2.1

##### **nominal set pressure**

predetermined pressure of the pressure relief valve body at which the valve is set to start to discharge

#### 3.2.2

##### **start to discharge pressure**

inlet pressure at which the first of a stream of bubbles appears at the outlet of a pressure relief valve through a water seal of not more than 50 mm water column, or other equivalent method

#### 3.2.3

##### **overpressure**

pressure increase between the nominal set pressure and the flow rating pressure, usually expressed as a percentage of nominal set pressure

#### 3.2.4

##### **flow rating pressure**

inlet pressure at which the discharge capacity is measured

#### 3.2.5

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

maximum pressure for which the valve is designed, as specified by the manufacturer

#### 3.3

##### **blowdown**

difference between start to discharge and reseal pressures, usually expressed as a percentage of the nominal set pressure

#### 3.4

##### **lift**

actual travel of the sealing disc away from the closed position

#### 3.5

##### **discharge capacity**

capacity at the flow rating pressure of a pressure relief valve expressed in cubic metres per minute of free air at STP

#### 3.6

##### **coefficient of discharge (Kd)**

ratio of the actual measured flow capacity divided by the calculated theoretical capacity for the same fluid at the same operating conditions