



SLOVENSKI STANDARD

SIST EN 14071:2025

01-februar-2025

Nadomešča:

SIST EN 14071:2015+A1:2019

Oprema in pribor za utekočinjeni naftni plin (UNP) - Varnostni ventili za tlačne posode za UNP - Pomožna oprema

LPG equipment and accessories - Pressure relief valves for LPG pressure vessels - Ancillary equipment

Flüssiggas-Geräte und Ausrüstungsteile - Druckentlastungsventile für Druckbehälter für Flüssiggas (LPG) - Zusatzausrüstung

Équipements pour GPL et leurs accessoires - Soupapes de sécurité des réservoirs de gaz de pétrole liquéfié (GPL) - Équipement auxiliaire

Ta slovenski standard je istoveten z: EN 14071:2024

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ICS:

23.020.32	Tlačne posode	Pressure vessels
23.060.40	Tlačni regulatorji	Pressure regulators

SIST EN 14071:2025

en,fr,de

EUROPEAN STANDARD

EN 14071

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2024

ICS 23.060.40

Supersedes EN 14071:2015+A1:2019

English Version

LPG equipment and accessories - Pressure relief valves for LPG pressure vessels - Ancillary equipment

Équipements pour GPL et leurs accessoires - Soupapes
de sécurité des réservoirs de gaz de pétrole liquéfié
(GPL) - Équipements auxiliaires

Flüssiggas-Geräte und Ausrüstungsteile -
Druckentlastungsventile für Druckbehälter für
Flüssiggas (LPG) - Zusatzausrüstung

This European Standard was approved by CEN on 27 October 2024.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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EN 14071:2024 (E)**European foreword**

This document (EN 14071:2024) 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of an identical text or by endorsement, at the latest by May 2025, and conflicting national standards shall be withdrawn at the latest by May 2025.

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

This document has been prepared under a standardization request 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 supersedes EN 14071:2015+A1:2019.

The major changes in comparison to the previous edition include:

- Revision of 5.2 Metallic materials;
- Revision of 5.3 Non-metallic materials;
- Clarification to Table 1
- Revision of 6.3 Vent pipe
- Revision to the resistance of the isolating mechanism test, 7.6;
- Revision to the operation test, 7.8;
- Revision of the Kd value for M 36;
- Revision of Annex ZA.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Introduction

This document calls for the use of substances and procedures that may be injurious to health and/or the environment if adequate precautions are not taken. It refers only to technical suitability: it does not absolve the user from their legal obligations at any stage.

It is recommended that manufacturers develop an environmental management policy. For guidance, see the EN ISO 14000 series [1], [2] and [3].

Protection of the environment is a key political issue in Europe and elsewhere. For TC 286 this is covered in CEN/TS 16765 [4] *LPG equipment and accessories - Environmental considerations for CEN/TC 286 standards*, and this Technical Specification should be read in conjunction with this document. The Technical Specification provides guidance on the environmental aspects to be considered regarding equipment and accessories produced for the LPG industry and the following is addressed:

- a) design;
- b) manufacture;
- c) packaging;
- d) use and operation; and
- e) disposal.

It has been assumed in the drafting of this document that the execution of its provisions is entrusted to appropriately qualified and experienced people.

All pressures are gauge pressures unless otherwise stated.

NOTE This document requires measurement of material properties, dimensions and pressures. All such measurements are subject to a degree of uncertainty due to tolerances in measuring equipment, etc. It may be beneficial to refer to the leaflet "measurement uncertainty leaflet" SP INFO 2000 27 [5].

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EN 14071:2024 (E)

1 Scope

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

This document addresses both prototype testing and production testing of isolating devices and PRV manifolds.

PRVs for LPG pressure vessels are specified in EN 14129:2024.

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.

EN 549:2019+A2:2024, *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 751-3:2022+A1:2023, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water - Part 3: Unsintered PTFE tapes and PTFE strings*

EN 1092-1:2018, *Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 1: Steel flanges*

EN 1563:2018, *Founding - Spheroidal graphite cast irons*

EN 10204:2004, *Metallic products - Types of inspection documents*

EN 12164:2016, *Copper and copper alloys - Rod for free machining purposes*

EN 12165:2016, *Copper and copper alloys - Wrought and unwrought forging stock*

EN 12420:2014, *Copper and copper alloys - Forgings*

EN 12516-1:2014+A1:2018, *Industrial valves - Shell design strength - Part 1: Tabulation method for steel valve shells*

EN 12516-4:2014+A1:2018, *Industrial valves - Shell design strength - Part 4: Calculation method for valve shells manufactured in metallic materials other than steel*

EN 13480-3:2017,¹ *Metallic industrial piping - Part 3: Design and calculation*

EN 13445-2:2021+A1:2023, *Unfired pressure vessels - Part 2: Materials*

1) As impacted by EN 13480-3:2017/A2:2020 and EN 13480-3:2017/A3:2020.

EN 13906-1:2013, *Cylindrical helical springs made from round wire and bar - Calculation and design - Part 1 : Compression springs*

EN 14129:2024, *LPG Equipment and accessories - Pressure relief valves for LPG pressure vessels*

EN ISO 9227:2022, *Corrosion tests in artificial atmospheres - Salt spray tests (ISO 9227:2022)*

EN ISO 11114-1:2020, *Gas cylinders - Compatibility of cylinder and valve materials with gas contents - Part 1: Metallic materials (ISO 11114-1:2020)*

EN ISO 11114-2:2021, *Gas cylinders - Compatibility of cylinder and valve materials with gas contents - Part 2: Non-metallic materials (ISO 11114-2:2021)*

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

ASME B1.20.1:2013, *Pipe threads, general purpose (inch)*

3 Terms and definitions

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

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

liquefied petroleum gas

LPG

low pressure liquefied 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

pressure vessel

assembly of the pressure envelope (including the openings and their closures) and non-pressure-retaining parts attached directly to it

3.3

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

Note 1 to entry: This is known as a “safety valve” in ADR.

3.4

pressure relief valve system

PRV system

pressure relief valve(s) for use on the pressure vessel complete with isolating device or PRV manifold, and vent pipe where appropriate

EN 14071:2024 (E)**3.5****pressure relief valve isolating device**

device fitted between the storage tank and the external pressure relief valve, which permits the replacement of the pressure relief valve without de-pressuring the pressure vessel

3.6**coefficient of discharge****Kd**

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

3.7**pressure relief valve manifold****PRV manifold**

device fitted to a storage vessel permitting two or more pressure relief valves to be fitted only one of which can be isolated at a time, which permits replacement of the isolated pressure relief valve without depressurizing the vessel

3.8**discharge capacity**

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

3.9**vent pipe**

open-ended pipe, fitted with a protection cap and attached to the pressure relief valve outlet, to direct discharged fluid away from the protected pressure vessel surface

3.10**design signal flow**

limited flow of LPG intended to equalise pressures so that a replacement PRV can be properly fitted to an isolating device; indicate the effectiveness of the internal shut off in an isolating device before the PRV is completely removed; and produce an acoustic signal

3.11**Standard Temperature and Pressure****STP**

15,6 °C (288,7 K), 1,013 bar absolute (0,1013 MPa absolute)

3.12**flow rating pressure**

inlet pressure at which the discharge capacity is measured

3.13**lift**

actual travel of the sealing disc away from the closed position

3.14**sealing element**

non-metallic resilient component which effects a seal by contact with the valve seat

3.15**valve seat**

normally raised area of the pressure relief valve body on to which the sealing element effects a seal