



SLOVENSKI STANDARD

SIST EN 13153:2002

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Specifikacija in preskušanje ventilov za jeklenke za utekočinjeni naftni plin (UNP) - Ročno upravljanje

Specification and testing of LPG cylinder valves - Manually operated

Spezifikation und Prüfung der LPG-Zylinderventile - Handbetätigt

Spécifications et essais des robinets de bouteilles de GPL - Fermeture manuelle

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EUROPEAN STANDARD

EN 13153

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Specification and testing of LPG cylinder valves - Manually operated

Spécifications et essais des robinets de bouteilles de GPL -
Fermeture manuelle

Spezifikation und Prüfung der LPG-Zylinderventile -
Handbetätigt

This European Standard was approved by CEN on 25 October 2001.

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 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 Management Centre has the same status as the official versions.

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

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EN 13153:2001 (E)**Foreword**

This European Standard 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of an identical text or by endorsement, at the latest by June 2002, and conflicting national standards shall be withdrawn at the latest by June 2002.

This European Standard 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).

In this standard the annexes A, B and D are normative and the annex C is informative.

The standard has been submitted for reference into the RID and/or in the technical annexes of the ADR. Therefore the standards listed in the normative references and covering basic requirements of the RID/ADR not addressed within the present standard are normative only when the standards themselves are referred to in the RID and/or in the technical annexes of the ADR.

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

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Introduction

This European Standard calls for the use of substances and procedures that can be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

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

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EN 13153:2001 (E)**1 Scope**

This European Standard specifies the requirements for design, specification and type testing of manually operated cylinder valves specifically for use with LPG. It includes references to associated equipment for vapour or liquid service.

NOTE Annex C gives the recommendations for production testing and inspection.

This European Standard applies to manually operated valves fitted to transportable refillable LPG cylinders from 0,5 l up to 150 l water capacity intended to convey LPG only.

This European Standard does not apply to fixed automotive installations.

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 629-1, *Transportable gas cylinders – 25E taper thread for connection of valves to gas cylinders – Part 1: Specification.*

EN ISO 11116, *Gas cylinders – 17E taper thread for connections of valves to gas cylinders – Part 1 Specifications.*

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

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

prEN 12864, *Low pressure, non adjustable regulators having a maximum outlet pressure of less than or equal to 200 mbar with a capacity of less than or equal to 4 kg/h, and their associated devices for butane, propane or their mixtures.*

prEN 13175, *Specifications and testing for Liquefied Petroleum Gas (LPG) tank valves.*

prEN 13953, *Pressure relief valves for transportable refillable cylinders for liquefied petroleum gas (LPG).*

3 Terms and definitions

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

3.1**LPG**

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

3.2**cylinder valve**

valve designed for use in one or more of the following applications: liquid filling, liquid service, vapour service or liquid level indication

3.3**external tightness**

resistance to leakage through the valve body to or from the atmosphere

3.4**internal tightness**

resistance to leakage across the valve seat, or other internal sealing components when the valve is closed

3.5**reduction tube**

tube fitted to the valve to allow withdrawal of liquid LPG with the cylinder in its normal operating position

3.6**fixed liquid level gauge**

control device, such as a dip tube in combination with a vent valve to verify that the predetermined maximum liquid level in a cylinder has been reached

3.7**liquid level indicator**

control device, such as a float gauge, permitting the gauging of the liquid level in the cylinder

3.8**valve body**

major valve component including valve stem and/or valve outlet and, where applicable, the provision for other optional components

3.9**excess flow device**

device designed to close or partially close when the flow of liquid or vapour 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

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3.10**non return valve**

valve designed to close automatically to restrict reverse flow

3.11**vapour/liquid dual valve**

valve designed to allow vapour and liquid withdrawal from a cylinder in its normal operating position

3.12**sealing element**

element used to obtain internal leak tightness

3.13**valve stem**

section of the valve body, which connects to the cylinder

3.14**valve outlet**

section of the valve to which a regulator or connector can be fitted

3.15**type test**

test or series of tests conducted to prove that the design meets the requirements of this standard

3.16**cylinder opening**

part of the cylinder to which the valve stem connects

EN 13153:2001 (E)**3.17****test pressure**

pressure at which the valve or component is tested in bar gauge

3.18**sediment tube**

device designed to reduce the risk of foreign matter, which may be in the cylinder, entering the valve

3.19**protection cap/dust cap**

device fitted to the valve outlet and intended for one or more of the following functions:

- to protect the outlet;
- to prevent the ingress of foreign matters;
- to indicate unauthorised manipulation.

3.20**sealing cap**

device fitted to, or integral with, the outlet of the cylinder valve to provide secondary closure

3.21**valve operating mechanism**

device which closes and opens the valve orifice

3.22**sealing mechanism**

mechanism to obtain internal leak tightness

3.23**operating torque**

torque necessary to open or to close a valve

3.24**opening torque**

torque required to open a valve

3.25**closing torque**

torque required to obtain the required internal tightness

4 Design and specification**4.1 General**

4.1.1 The valve operation shall not be adversely affected by a change in cylinder pressure.

4.1.2 The valve shall be capable of withstanding:

- mechanical stresses, including dynamic loads such as pressure shocks, cyclic changes or transport vibrations;
- operating temperatures.

4.2 Materials

4.2.1 General

Materials in contact with LPG shall be physically and chemically compatible with LPG under all operating conditions for which the valve is designed.

In selecting an appropriate material for valve components, it is important to select not only for adequate strength in service, but also to give consideration to other modes of failure due to atmospheric corrosion, brass dezincification, stress corrosion, shock loads, and material failure.

4.2.2 Operating temperatures

Materials used shall be suitable for the temperatures for which the valve is designed.

The minimum operating temperature to which the valve is expected to be exposed during normal use is minus 20 °C. In service, temperatures below this may be encountered during short periods, for example, during filling. Where necessary, e.g. in some parts of Europe and for certain applications, lower minimum operating temperatures shall be used. When equipment is designed for a temperature of minus 40 °C, it shall also meet the requirements of annex D.

The maximum operating temperature to which the valve is expected to be exposed during normal operation is 60 °C. In service, this temperature may be exceeded for short periods.

4.2.3 Copper alloys

Valve bodies made from copper alloys shall be manufactured from materials in accordance with EN 12164, EN 12165, or from alloys of equivalent properties.

4.2.4 Non-metallic materials

Non-metallic materials in contact with LPG shall be compatible with LPG and shall not distort, harden or adhere to the body or seat face to such an extent as to impair the function of the valve and shall also comply with the appropriate requirements of EN 549.

Elastomeric materials in contact with LPG shall meet the specific requirement of EN 549 for resistance to:

- gas (pentane test);
- lubricants;
- ageing;
- low temperature;
- high temperature;
- compression;
- ozone (where the material is exposed to the atmosphere).

4.3 Essential components

4.3.1 Valve operating mechanism

The valve operating mechanism normally includes a hand wheel.

The valve operating mechanism shall be designed in such a way that it remains captive, and it achieves direct contact with the valve body in the absence of the sealing element.