SLOVENSKI STANDARD
SIST EN 16129:2014

01-januar-2014

Nadomešča:
SIST EN 12864:2002
SIST EN 12864:2002/A1:2004
SIST EN 12864:2002/A2:2005
SIST EN 12864:2002/A3:2009
SIST EN 13785:2005+A1:2009
SIST EN 13786:2004+A1:2009

Regulatorji tlaka, samodejni preklopni ventili z največjim nastavljivim tlakom do vključno 4 bar, s pretokom do vključno 150 kg/h in s pripadajočimi varnostnimi napravami ter priključki za butan, propan in njune zmesi

Pressure regulators, automatic change-over devices, having a maximum regulated pressure of 4 bar, with a maximum capacity of 150 kg/h, associated safety devices and adaptors for butane, propane, and their mixtures

Druckregelgeräte, automatische Umschaltanlagen mit einem höchstem Ausgangsdruck bis einschließlich 4 bar und einem maximalen Durchfluss von 150 kg/h sowie die dazugehörigen Sicherheitseinrichtungen und Übergangsstücke für Butan, Propan und deren Gemische

Détendeurs, inverseurs automatiques, ayant une pression maximum de détente de 4 bar, avec une capacité maximale de 100 kg/h, dispositifs de sécurité associés et adaptateurs pour butane, propane et leurs mélanges

Ta slovenski standard je istoveten z: **EN 16129:2013**

ICS:

23.060.40 Tlačni regulatorji Pressure regulators

SIST EN 16129:2014 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16129

June 2013

ICS 23.060.40

Supersedes EN 12864:2001, EN 13785:2005+A1:2008, EN 13786:2004+A1:2008

English Version

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This European Standard was approved by CEN on 9 March 2013.

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-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

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Foreword

This document (EN 16129:2013) has been prepared by Technical Committee CEN/TC 181 “Dedicated liquefied petroleum gas appliances”, the secretariat of which is held by AFNOR.

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 December 2013, and conflicting national standards shall be withdrawn at the latest by December 2015.

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 12864:2001, EN 13786:2004+A1:2008 and EN 13785:2005+A1:2008.

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.

The main technical changes that have been made since the latest edition are as follows:

— the merging of EN 12864, EN 13785 and EN 13786 and their amendments;

— the extension of the scope to adaptors;

— the addition of requirements for taking into account pressure loses of gas installations;

— the removal from this standard of drawing of connections described in other standards;

— the improvement of testing methods;

— additional corrections.

Change-over devices and adaptors within the scope of this standard, are not covered by the EU Directive for gas appliances (2009/142/EC).

Items relating to quality assurance systems, production testing and particularly certificates of conformity are not covered in this standard.

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, Former Yugoslav Republic of Macedonia, 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.

1 Scope

This European Standard defines the constructional and operational characteristics, the safety requirements, test methods and the marking of regulators and automatic change-over devices having a maximum regulated pressure of 4 bar, with a maximum capacity of 150 kg/h, for use with butane, propane and their mixtures in the vapour phase.

This European Standard also applies to the safety devices which are included within regulating devices covered by this standard. The characteristics of these safety devices are given in Annexes A and B.

This European Standard also includes the requirements for:

— adaptors for connecting to self closing valves;

— auxiliary safety devices.

For the purpose of this European Standard:

— regulators and automatic change-over devices are referred to as "regulating devices";

— regulators, automatic change-over devices and adaptors are referred to as "devices".

The requirements apply to devices used in locations where the temperature likely to be reached during use is between -20 °C and +50 °C. Additional requirements for devices to be used at temperatures below –20 °C are given in Annex C.

Additional requirements for regulating devices intended to be used in caravans, motor caravans and freshwater boats are given in Annex D.

Additional requirements for regulating devices intended to be used in seawater boats are given in Annex M.

For specific use in caravans motor caravans and boats (freshwater and seawater), the automatic change over device function may also be carried out by an assembly of regulators, forming an "automatic change over device system" as defined in 3.1.9.

For installation rules of devices and their possible associated safety devices, reference should be made to national regulations in force in the member countries.

All connections and the countries in which they are used are given in Annexes G and H.

This European Standard defines only specific connections which are not defined in other standards (e.g. EN 15202 for cylinder valve connections).

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 437, *Test gases — Test pressures — Appliances categories*

EN 521, *Specifications for dedicated liquefied petroleum gas appliances — Portable vapour pressure liquefied petroleum gas appliances*

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

EN 560, *Gas welding equipment — Hose connections for equipment for welding, cutting and allied processes*

EN 561, *Gas welding equipment — Quick-action coupling with shut-off valves for welding, cutting and allied processes*

EN 1563, *Founding — Spheroidal graphite cast irons*

EN 1774, *Zinc and zinc alloys — Alloys for foundry purposes — Ingot and liquid*

EN 10226-1, *Pipe threads where pressure tight joints are made on the threads — Part 1: Taper external threads and parallel internal threads — Dimensions, tolerances and designation*

EN 10226-2, *Pipe threads where pressure tight joints are made on the threads — Part 2: Taper external threads and taper internal threads — Dimensions, tolerances and designation*

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

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

EN 12420, *Copper and copper alloys — Forgings*

EN 12844, *Zinc and zinc alloys — Castings — Specifications*

EN 15202, *LPG equipment and accessories — Essential operational dimensions for LPG cylinder valve outlet and associated equipment connections*

EN 60695-11-10, *Fire hazard testing — Part 11-10: Test flames — 50 W horizontal and vertical flame test methods (IEC 60695-11-10)*

EN ISO 75 (all parts), *Plastics — Determination of temperature of deflection under load (ISO 75)*

EN ISO 178, *Plastics — Determination of flexural properties (ISO 178)*

EN ISO 180, *Plastics — Determination of Izod impact strength (ISO 180)*

EN ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation (ISO 228-1)*

EN ISO 527 (all parts), *Plastics — Determination of tensile properties (ISO 527)*

EN ISO 4628-3:2003, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 3: Assessment of degree of rusting (ISO 4628-3:2003)*

EN ISO 4892-3, *Plastics — Methods of exposure to laboratory light sources — Part 3: Fluorescent UV lamps (ISO 4892-3)*

EN ISO 8434-1, *Metallic tube connections for fluid power and general use — Part 1: 24 degree cone connectors (ISO 8434-1)*

EN ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests (ISO 9227)*

ISO 565, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*

ISO 7005-1, *Pipe flanges — Part 1: Steel flanges for industrial and general service piping systems*

ISO 7005-2, *Metallic flanges — Part 2: Cast iron flanges*

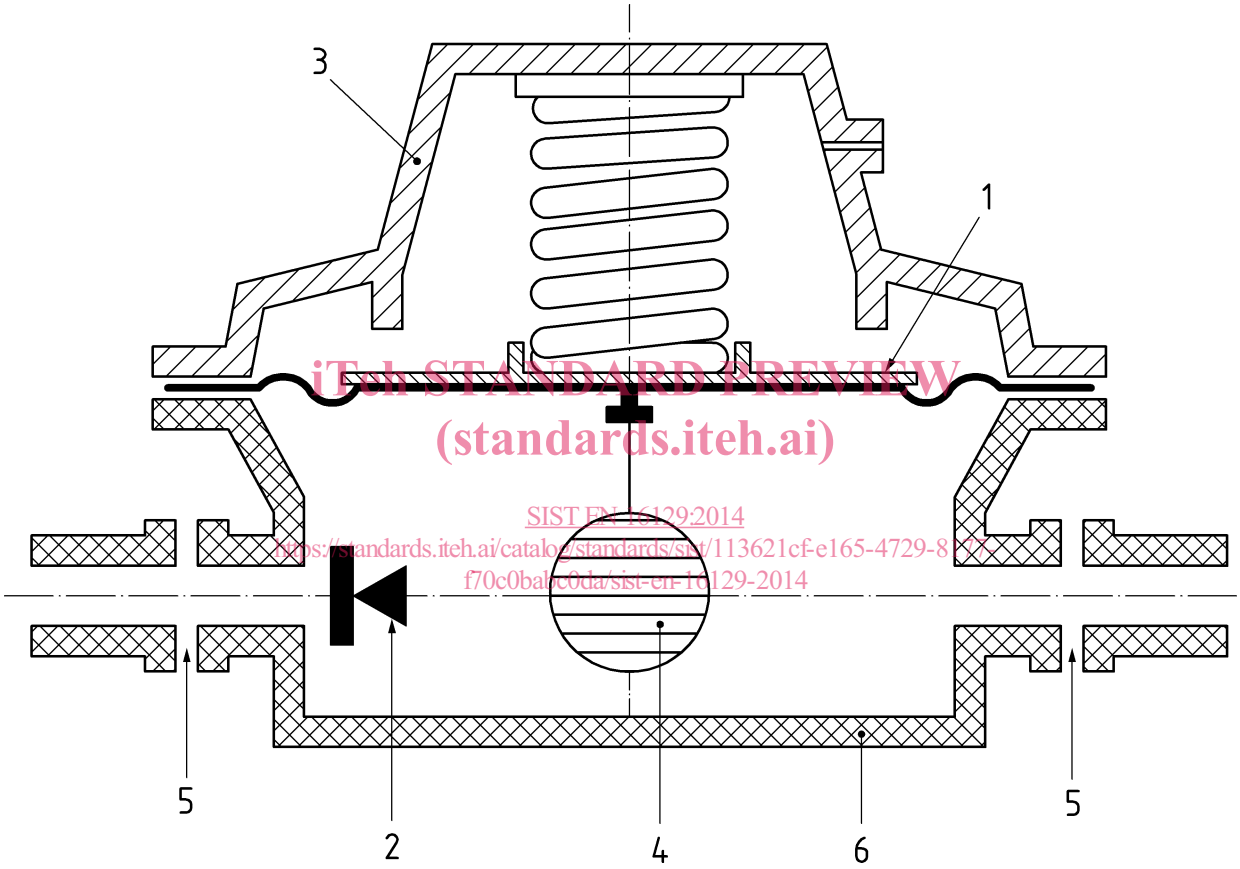
ANSI B1.20.1, *Pipe Threads, General Purpose*

3 Terms and definitions

3.1 General terms and definitions

3.1.1
regulator
device which maintains a regulated pressure within pre-set limits, whatever the upstream pressure, flow rate and temperature

Note 1 to entry: Figure 1 gives the terminology used in this standard. The design shown is only an example.



Key

1 pressure sensing subassembly (diaphragm and plate)
2 regulation subassembly (seat and valve pad)
3 back pressure subassembly (cover, vent, spring and spring adjustment)
4 mechanical linkage subassembly (levers, linkages)
5 connection subassembly (inlet and outlet connections)
6 body

Figure 1 — Principal parts of a regulator

3.1.2
automatic change over device
device which maintains the gas supply continuity by automatically using gas from a "reserve" cylinder or series of cylinders when the supply pressure from a "service" cylinder or series of cylinders preselected by the user drops below a defined value

Note 1 to entry: This device maintains a regulated pressure within defined limits, whatever the upstream pressure, rate and temperature.

3.1.3
integral two stage automatic change over device
regulating device combining an automatic change over device and a regulator

3.1.4
regulating device
regulator or automatic change over device or combination of both

3.1.5
adaptor
device which connects another device (e.g. hose) directly to a self closing cylinder valve and may incorporate an “on/off” or other function

3.1.6
fixed regulating device
regulating device whose regulated pressure is adjusted by the manufacturer and fixed and whose adjustment cannot be modified by the user

3.1.7
adjustable regulating device
regulating device whose regulated pressure may only be modified by a competent person at the time of installation or during maintenance; it is then fixed

3.1.8
variable regulating device
regulating device whose regulated pressure may be modified by the user with simple manipulation between two fixed limits

3.1.9
automatic change over device system “kit”
system of several regulators designed and adjusted in such a way as to operate like an automatic change over device as in 3.1.2

3.1.10
quick coupling
connection system which allows the fitting of a regulator or adaptor to a cylinder valve without a threaded connection and without using tools

3.1.11
manual closing device
device used on regulators or adaptors for closing the gas flow which requires an intentional manual action (for example on a lever or selector)

3.1.12
self closing valve
device fixed on the gas cylinder allowing the automatic shut off of the gas flow, by simple disconnection of the regulator or adaptor from the cylinder valve

3.1.13
valve pad
component part of the regulation subassembly which ensures soundness between the part of the regulator at supply pressure and the part of the regulator at regulated pressure, when the supply pressure is greater or equal to the lock-up pressure

3.1.14
auxiliary safety device
safety device with a separate body which is directly and factory fitted to a regulating device

3.1.15
sealing
any arrangement of any component, for example an adjuster, such that any interference likely to change its setting causes the breaking of the component or sealing material making the interference apparent

3.1.16
nominal diameter
DN
numerical designation common to all the components of the same pipework other than those named by their external diameter or by the size of the thread

Note 1 to entry: It is a whole number used as a reference and related approximately to the manufacturing dimensions.

3.1.17
freely rotating outlet connection
integral outlet connection designed to fully rotate around a defined axis

3.1.18
gas container
gas storage vessel such as gas cylinder, gas cartridge or tank

3.1.19
fresh water boat
boat used only on inland waterways where the water does not normally contain salt (e.g. lakes, canals, non-tidal parts of a river)

3.1.20
sea water boat
boat that may be used in salt water

3.2 Terms and definitions concerning gas

3.2.1
butane
mixture of third family gases whose vapour pressure (p_v) at 50 °C is greater than or equal to 4,3 bar and at most equal to 7,5 bar, of mean volumetric mass in the gas phase equal to 2,45 kg/m^3 at reference condition 15 °C and 1 013,25 mbar

3.2.2
propane
mixture of third family gases whose vapour pressure (p_v) at 50 °C is greater than or equal to 7,5 bar or at most equal to 16 bar, of mean volumetric mass in the gas phase equal to 1,85 kg/m^3 at reference condition 15 °C and 1 013,25 mbar

3.2.3
LPG
mixture of third family gases whose vapour pressure (p_v) at 50 °C is greater than or equal to 4,3 bar or at most equal to 16 bar, of mean volumetric mass in the gas phase equal to 2,12 kg/m^3 at reference condition 15 °C and 1 013,25 mbar

3.3 Terms and definitions concerning pressures

The values of pressures given in the text are to be considered as gauge pressure and are expressed in bar (bar) or millibar (mbar).

3.3.1
supply pressure
p
value of the gas pressure measured at the device inlet

3.3.2
regulated pressure
value of the gas pressure measured at the regulating device outlet

3.3.3
nominal regulated pressure
p_d
value of the regulated pressure corresponding:

— either to the “normal pressure” for appliances as defined in EN 437;

— either to the normal pressure for appliances operating outside the scope of EN 437;

— or to an intermediate pressure allowing for the supply of a second or third stage regulator under the conditions fixed

3.3.4
lock up pressure
p_o
maximum pressure obtainable at no flow for all values of the supply pressure given in Clause 6

3.3.5
minimum pressure
p_{Mg}
minimum value of the regulated pressure supplied by the regulating device for all values of the supply pressure and all values of the flow rate

3.3.6
maximum pressure
p_{Mp}
maximum value of the regulated pressure supplied by the regulating device for all values of the supply pressure and all values of the flow rate between the closing area or pilot flow rate and the guaranteed flow rate

3.3.7
minimum intervention pressure of a limiter
p_{lim}
pressure below which a limiter does not operate

3.3.8
change over nominal pressure
p_{di}
value of the nominal regulated pressure of the change over function, in the case of an integral two stage automatic change over device

3.3.9
supply-reserve indicator
indicator for automatic change over device showing which cylinder(s) is (are) in use