



**SLOVENSKI STANDARD**  
**SIST EN 14382:2005+A1:2009**  
**01-junij-2009**

**BUXca Yý U**  
**SIST EN 14382:2005**

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Safety devices for gas pressure regulating stations and installations - Gas safety shut-off devices for inlet pressures up to 100 bar

Sicherheitseinrichtungen für Gas-Druckregelanlagen und -einrichtungen - Gas-Sicherheitsabsperreinrichtungen für Eingangsdrücke bis 100 bar  
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Dispositifs de sécurité pour postes et installations de détente-régulation de pression de gaz - Clapets de sécurité pour pressions amont jusqu'à 100 bar  
 c0bfc09f92d2/sist-en-14382-2005a1-2009

**Ta slovenski standard je istoveten z: EN 14382:2005+A1:2009**

**ICS:**

23.060.40 V|æ } ã^\* ~ |æ[ !lä Pressure regulators

**SIST EN 14382:2005+A1:2009 en,fr,de**

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EUROPEAN STANDARD

**EN 14382:2005+A1**

NORME EUROPÉENNE

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## Safety devices for gas pressure regulating stations and installations - Gas safety shut-off devices for inlet pressures up to 100 bar

Dispositifs de sécurité pour postes et installations de détente-régulation de pression de gaz - Clapets de sécurité pour pressions amont jusqu'à 100 bar

Sicherheitseinrichtungen für Gas-Druckregelanlagen und -einrichtungen - Gas-Sicherheitsabsperreinrichtungen für Eingangsdrücke bis 100 bar

This European Standard was approved by CEN on 30 December 2004 and includes Amendment 1 approved by CEN on 12 January 2009.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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## Foreword

This document (EN 14382:2005+A1:2009) has been prepared by Technical Committee CEN/TC 235 "Gas pressure regulators and associated safety devices for use in gas transmission and distribution", the secretariat of which is held by UNI.

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of an identical text or by endorsement, at the latest by September 2009, and conflicting national standards shall be withdrawn at the latest by September 2009.

This document includes Amendment 1, approved by CEN on 2009-01-12.

This document supersedes A1 EN 14382:2005 A1.

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

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 97/23/EC.

For relationship with EU Directive 97/23/EC, see informative Annex ZA, which is an integral part of this document.

**iTeh STANDARD PREVIEW**

Safety shut-off devices dealt with in this document are standard safety shut-off devices and, when used in pressure regulating stations complying with EN 12186 or EN 12279, they are considered as standard pressure equipment in accordance with Clause 3.1 of Art. 1 of Pressure Equipment Directive (PED).

For standard safety shut-off devices used in pressure regulating stations complying with EN 12186 or EN 12279, Table ZA.1 given in Annex ZA includes all applicable Essential Requirements given in Annex I of PED A1 except the external corrosion resistance in case of environmental conditions where corrosion is likely to occur A1.

The normative Annex J of this document lists some suitable materials for pressure containing parts, inner metallic partition walls, fasteners and connectors. Other materials may be used when complying with the restrictions given in Table 5.

A1 *deleted text* A1

A1 Continued A1 integrity of safety shut-off devices is assured by periodic functional checks. For periodic functional checks it is common to refer to national regulations/standards where existing or users/manufacturers practices.

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.

**EN 14382:2005+A1:2009 (E)****1 Scope**

**A1** This document specifies constructional, functional, testing and marking requirements, sizing and documentation of gas safety shut-off devices used in the pressure regulating stations in accordance with EN 12186 or EN 12279: **A1**

- for inlet pressures up to 100 bar and nominal diameters up to DN 400;
- for an operating temperature range from  $-20\text{ }^{\circ}\text{C}$  to  $+60\text{ }^{\circ}\text{C}$ ,

which operate with fuel gases of the 1<sup>st</sup> and 2<sup>nd</sup> family in accordance with EN 437 in transmission and distribution networks and also in commercial and industrial installations.

"Gas safety shut-off devices" will hereafter be called "SSDs" except in titles.

**A1** For standard safety shut-off devices when used in pressure regulating stations complying with EN 12186 or EN 12279, Annex ZA lists all applicable Essential Requirements except the external corrosion resistance in case of environmental conditions where corrosion is likely to occur. **A1**

**A1** This document considers the following classes/types of SSDs: **A1**

temperature classes:

- class 1: operating temperature range from  $-10\text{ }^{\circ}\text{C}$  to  $60\text{ }^{\circ}\text{C}$ ;
- class 2: operating temperature range from  $-20\text{ }^{\circ}\text{C}$  to  $60\text{ }^{\circ}\text{C}$ ;

functional classes:

- **A1** class A: SSDs that close when damage to the pressure detector element occurs (applicable to overpressure SSDs only) or when external power fails and whose re-opening, after an intervention for overpressure, is possible only manually;
- class B: SSDs that do not close when damage to the pressure detector element occurs and whose re-opening, after an intervention for overpressure, is possible only manually;

SSDs types:

- type IS: (integral strength type);
- type DS: (differential strength type). **A1**

SSDs complying with the requirements of this document may be declared as "in conformity with EN 14382" and bear the mark "EN 14382".

The material and functional requirements specified in this document may be applied to SSDs which use thermal energy or the effects of electrical energy to trip the operation of the closing member. For these SSDs the operational parameters are not specified in this document.

This document does not apply to:

- SSDs upstream from/on/in domestic gas-consuming appliances which are installed downstream of domestic gas meters;
- **A1** SSDs incorporated into pressure-regulating devices used in service lines with volumetric flow rate  $\leq 200\text{ m}^3/\text{h}$  at normal conditions and inlet pressure  $\leq 5\text{ bar}$ . **A1**



## 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 amendments) applies.

**A1** deleted text **A1**

**A1** EN 287-1:1992, *Approval testing of welders – Fusion welding – Part 1: Steel* **A1**

EN 334:2005, *Gas pressure regulators for inlet pressures up to 100 bar*

**A1** EN 473:2000 **A1**, *Non destructive testing – Qualification and certification of NDT personnel – General principles*

**A1** deleted text **A1**

**A1** EN 970:1997 **A1**, *Non-destructive examination of fusion welds – Visual examination*

**A1** deleted text **A1**

**A1** EN 1092-1:2007, *Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, PN designated – Part 1: Steel flanges*

EN 1092-2:1999, *Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, PN designated – Part 2: Cast iron flanges*

EN 1092-3:2005, *Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, PN designated – Part 3: Copper alloy flanges*

EN 1092-4:2004, *Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, PN designated – Part 4: Aluminium alloy flanges* **A1**

EN 1349, *Industrial process control valves*

**A1** EN 1418:1997 **A1**, *Welding personnel – Approval testing of welding operators for fusion welding and resistance weld setters for fully mechanized and automatic welding of metallic materials*

**A1** deleted text **A1**

**A1** EN 1759-1, *Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, Class-designated – Part 1: Steel flanges, NPS ½ to 24*

EN 1759-3, *Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, Class designated – Part 3: Copper alloy flanges*

EN 1759-4, *Flanges and their joint – Circular flanges for pipes, valves, fittings and accessories, class designated – Part 4: Aluminium alloy flanges* **A1**

EN 10045-1, *Metallic materials – Charpy impact test – Part 1: Test method*

**A1** EN 10204:2004 **A1**, *Metallic products – Types of inspection documents*

**A1** 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* **A1**

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EN 12186, *Gas supply systems – Gas pressure regulating stations for transmission and distribution – Functional requirements*

EN 12279, *Gas supply systems – Gas pressure regulating installations on service lines – Functional requirements*

**[A1]** EN 12516-1:2005, *Industrial valves – Shell design strength – Part 1: Tabulation method for steel valve shells*

EN 12516-2:2004, *Industrial valves – Shell design strength – Part 2: Calculation method for steel valve shells*

EN 12516-4:2008, *Industrial valves – Shell design strength – Part 4: Calculation method for valve shells in metallic materials other than steel* **[A1]**

**[A1]** *deleted text* **[A1]**

EN 12627, *Industrial valves – Butt welding ends for steel valves*

EN 13445-4, *Unfired pressure vessels – Part 4: Fabrication*

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

EN 13906-2, *Cylindrical helical springs made from round wire and bar – Calculation and design – Part 2: Extension springs*

EN 60534-1:1993, *Industrial-process control valves – Part 1: Control valve terminology and general considerations (IEC 60534-1:1987)*

EN ISO 175:2000, *Plastics – Methods of test for the determination of the effects of immersion in liquid chemicals (ISO 175:1999)*

**[A1]** EN ISO 9606-2:2004, *Qualification test of welders – Fusion welding – Part 2: Aluminium and aluminium alloys (ISO 9606-2:2004)*

EN ISO 9606-3:1999, *Qualification test of welders – Fusion welding – Part 3: Copper and copper alloys (ISO 9606-3:1999)*

EN ISO 9606-4:1999, *Qualification test of welders – Fusion welding – Part 4: Nickel and nickel alloys (ISO 9606-4:1999)*

EN ISO 15607:2003, *Specification and qualification of welding procedures for metallic materials – General rules (ISO 15607:2003)*

EN ISO 15609-1:2004, *Specification and qualification of welding procedures for metallic materials – Welding procedure specification – Part 1: Arc welding (ISO 15609-1:2004)*

EN ISO 15610:2003, *Specification and qualification of welding procedures for metallic materials – Qualification based on tested welding consumables (ISO 15610:2003)*

EN ISO 15611:2003, *Specification and qualification of welding procedures for metallic materials – Qualification based on previous welding experience (ISO 15611:2003)*

EN ISO 15612:2004, *Specification and qualification of welding procedures for metallic materials – Qualification by adoption of a standard welding procedure (ISO 15612:2004)*

EN ISO 15613:2004, *Specification and qualification of welding procedures for metallic materials – Qualification based on pre-production welding test (ISO 15613:2004)*

EN ISO 15614-1:2004, *Specification and qualification of welding procedures for metallic materials – Welding procedure test – Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys (ISO 15614-1:2004)*

EN ISO 15614-2:2005, *Specification and qualification of welding procedures for metallic materials – Welding procedure test – Part 2: Arc welding of aluminium and its alloys (ISO 15614-2:2005)* <sup>A1</sup>

EN ISO/IEC 17025:2000, *General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025:1999)*

ISO 7-1, *Pipe threads where pressure tight joints are made on threads – Part 1: Dimensions, tolerances and designation*

ISO 1817, *Rubber, vulcanized – Determination of the effect of liquids*

ISO 7005 (all parts), *Metallic flanges*

ANSI/ASME B1.20.1:1983, *Pipe threads, general purpose (inch)*

<sup>A1</sup> *deleted text* <sup>A1</sup>

MSS SP 55:1985, *Quality standard for steel castings for valves, flanges and fittings and other piping components (Visual method)*

### 3 Terms, definitions and symbols

<sup>A1</sup> For the purposes of this document, the following terms, definitions and symbols apply.

NOTE Annex L list all definitions and terms in alphabetic order for English language, the relevant translation in French and German language and the relevant sub clause of this clause. <sup>A1</sup>

#### 3.1 <sup>A1</sup> General terms and definition of type of safety devices <sup>A1</sup>

<sup>A1</sup> *deleted text* <sup>A1</sup>

##### 3.1.1 safety shut-off device

device whose function is to stay in the open position under normal operating conditions and to shut-off the gas flow automatically and completely when the monitored pressure exceeds the pre-set values <sup>A1</sup> (over-pressure monitoring and/or under-pressure monitoring) <sup>A1</sup>

##### 3.1.2 direct acting shut-off device

<sup>A1</sup> SSD in which the pressure detector element is directly connected to the trip mechanism (see Figure 1) <sup>A1</sup>

##### 3.1.3 indirect acting shut-off device

SSD in which the energy required to move the closing member or to operate the controller is supplied by an internal or external power supply (see Figures 2 and 3)

##### 3.1.4 cut-off device

SSD designed to shut-off the gas flow, which responds slower dynamically than a slam shut device when the monitored pressure exceeds the pre-set values

EXAMPLE SSD using actuator driven by pipeline gas or external power

**EN 14382:2005+A1:2009 (E)****3.1.5****slam shut device**

SSD designed to quickly shut-off the gas flow when the monitored pressure exceeds the pre-set values

EXAMPLE Spring or weight loaded SSD

**3.1.6****sensing point**

point from which the monitored variable is fed to the SSD

**3.1.7****SSD size**

**A1** *deleted text* **A1**

nominal size DN of the inlet connection in accordance with EN ISO 6708

**A1 3.1.8****series of safety shut-off devices**

SSDs with the same design concept but differing only in size **A1**

**3.2 A1 Terms and definition of components of safety devices A1****3.2.1****main components**

parts including normally: a controller, a trip mechanism, an actuator, a closing member and a relatching device permitting the manual opening of the SSD. All these parts are functionally connected (see Figures 1, 2 and 3)

**3.2.1.1****closing member**

part which shuts off the gas flow completely

**3.2.1.2****trip mechanism**

mechanism which releases the closing member when activated by the controller

**3.2.1.3****actuator**

device activated by the trip mechanism which shuts the closing member

**3.2.1.4****relatching device**

device which enables the complete opening of the SSD

**3.2.1.5****body**

main pressure containing envelope which provides the fluid flow passageway and the pipe end connections

**3.2.1.6****valve seat**

corresponding sealing surfaces within an SSD which make full contact only when the closing member is in the closed position

**3.2.1.7****seat ring**

part assembled in a component of the SSD to provide a removable seat

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**3.2.1.8  
controller**

Ⓐ) device which includes:

- a setting element to adjust the set value of the trip pressure;
- a pressure detector element which has the function to detect the feedback of the monitored pressure (e.g. a diaphragm);
- a unit which compares the set value of the trip pressure with the monitored pressure;
- a system which gives the energy to operate the trip mechanism Ⓐ)

**3.2.1.9  
bypass**

device permitting manual equalization of pressure across a closed SSD

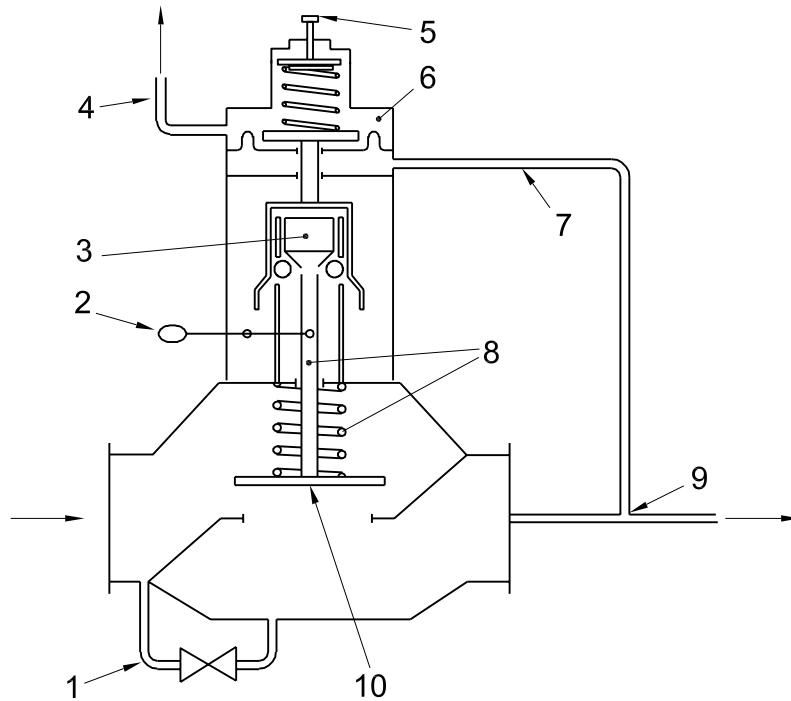
**3.2.2  
fixtures**

devices functionally connected to the main components of the SSD

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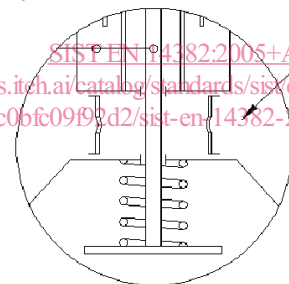
[SIST EN 14382:2005+A1:2009](https://standards.iteh.ai/catalog/standards/sist/c4e64453-7b8e-4fb8-8aa6-c0bfc09f92d2/sist-en-14382-2005a1-2009)

<https://standards.iteh.ai/catalog/standards/sist/c4e64453-7b8e-4fb8-8aa6-c0bfc09f92d2/sist-en-14382-2005a1-2009>



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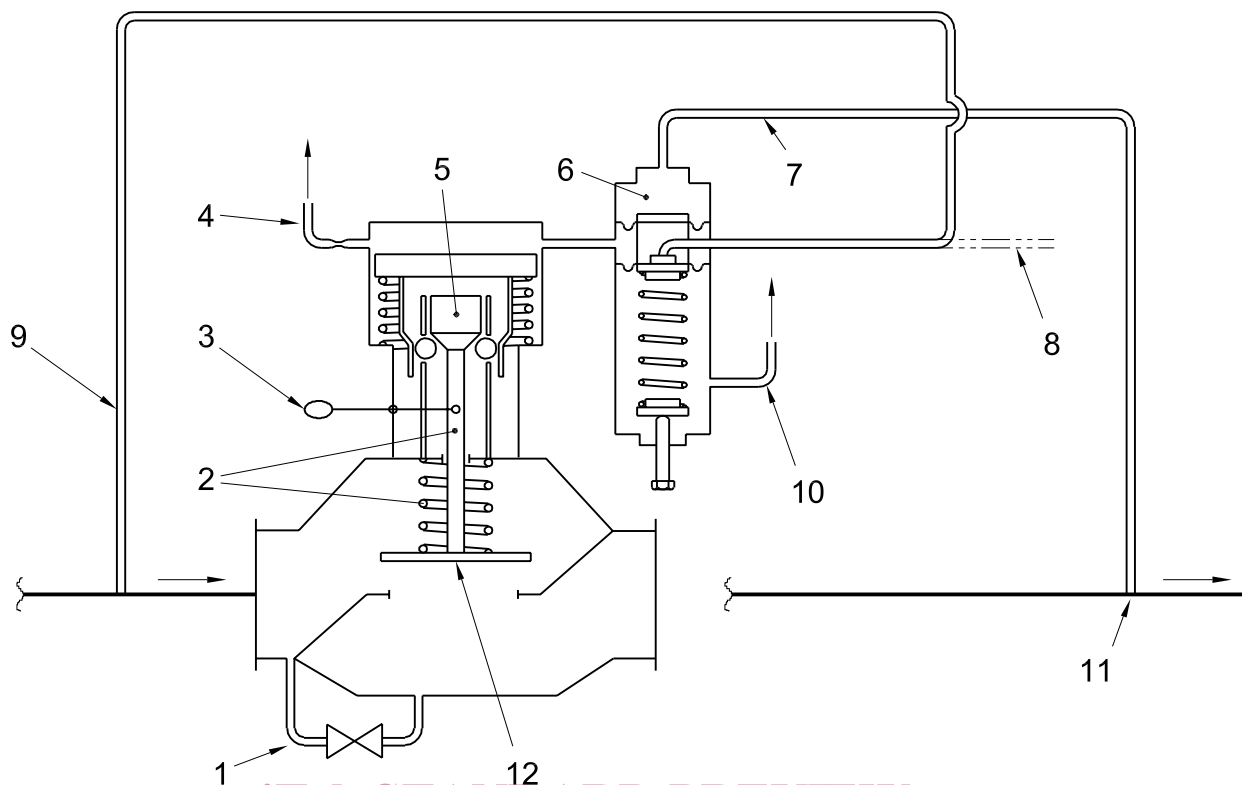
scheme 1a

Ⓐ<sub>1</sub>

#### Key

- |                     |  |
|---------------------|--|
| 1 Bypass            | 6 Controller                               |
| 2 Relatching device | 7 Sensing line                             |
| 3 Trip mechanism    | 8 Actuator                                 |
| 4 Breather line     | 9 Sensing point                            |
| 5 Setting element   | 10 Closing member                          |
|                     | Ⓐ <sub>1</sub> 11 Scheme 1a Ⓐ <sub>1</sub> |

Figure 1 — Example of a direct acting safety shut-off device

**Key**

- |                     |                                  |
|---------------------|----------------------------------|
| 1 Bypass            | 7 Sensing line                   |
| 2 Actuator          | 8 External loading pressure line |
| 3 Relatching device | 9 Internal loading pressure line |
| 4 Exhaust line      | 10 Breather/exhaust line         |
| 5 Trip mechanism    | 11 Sensing point                 |
| 6 Controller        | 12 Closing member                |

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**Figure 2 — Example of an indirect acting shut-off device**