

# SVENSK STANDARD

## SS-EN ISO 4126-4:2013



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### **Rörledningsarmatur – Säkerhetskomponenter till skydd mot otillåten tryckförhöjning – Del 4: Pilotstyrda säkerhetsventiler (ISO 4126-4:2013)**

### **Safety devices for protection against excessive pressure – Part 4: Pilot-operated safety valves (ISO 4126-4:2013)**



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Europastandarden EN ISO 4126-4:2013 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN ISO 4126-4:2013.

Denna standard ersätter SS-EN ISO 4126-4:2004, utgåva 1.

The European Standard EN ISO 4126-4:2013 has the status of a Swedish Standard. This document contains the official version of EN ISO 4126-4:2013.

This standard supersedes the Swedish Standard SS-EN ISO 4126-4:2004, edition 1.

**Förhållandet till övriga delar under samma huvudtitel - Utdrag ur Förord i ISO 4126-4:2013/  
Relations to other parts under the same general title - Extract from the Foreword of  
ISO 4126-4:2013**

ISO 4126 consists of the following parts, under the general title *Safety devices for protection against excessive pressure*:

- *Part 1: Safety valves*
- *Part 2: Bursting disc safety devices*
- *Part 3: Safety valves and bursting disc safety devices in combination*
- *Part 4: Pilot operated safety valves*
- *Part 5: Controlled safety pressure relief systems (CSPRS)*
- *Part 6: Application, selection and installation of bursting disc safety devices*
- *Part 7: Common data*
- *Part 9: Application and installation of safety devices excluding stand-alone bursting disc safety devices*
- *Part 10: Sizing of safety valves for gas/liquid two-phase flow*
- *Part 11: Performance testing<sup>1)</sup>*

Part 7 contains data that is common to more than one of the parts of ISO 4126 to avoid unnecessary repetition.

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN ISO 4126-4**

July 2013

ICS 13.240

Supersedes EN ISO 4126-4:2004

English Version

## Safety devices for protection against excessive pressure - Part 4: Pilot-operated safety valves (ISO 4126-4:2013)

Dispositifs de sécurité pour protection contre les pressions  
excessives - Partie 4: Soupapes de sûreté pilotées (ISO  
4126-4:2013)

Sicherheitseinrichtungen gegen unzulässigen Überdruck -  
Teil 4: Pilotgesteuerte Sicherheitsventile (ISO 4126-4:2013)

This European Standard was approved by CEN on 28 December 2012.

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.

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<b>Contents</b>		Page
<b>Foreword</b> .....		<b>iv</b>
<b>1 Scope</b> .....		<b>1</b>
<b>2 Normative references</b> .....		<b>1</b>
<b>3 Terms and definitions</b> .....		<b>1</b>
<b>4 Symbols and units</b> .....		<b>5</b>
<b>5 Design</b> .....		<b>5</b>
5.1 General .....		5
5.2 Valve end connections .....		6
5.3 Minimum requirements for springs .....		6
5.4 Materials .....		7
<b>6 Production testing</b> .....		<b>7</b>
6.1 Purpose .....		7
6.2 General .....		7
6.3 Hydrostatic testing .....		7
6.4 Pneumatic testing .....		8
6.5 Adjustment of set or cold differential test pressure .....		8
6.6 Seat leakage test .....		9
6.7 Pressure seals .....		9
<b>7 Type testing</b> .....		<b>9</b>
7.1 General .....		9
7.2 Tests to determine operating characteristics .....		10
7.3 Tests to determine flow characteristics .....		12
7.4 Determination of the coefficient of discharge .....		14
7.5 Certification of coefficient of discharge .....		14
<b>8 Determination of pilot operated safety valve performance</b> .....		<b>14</b>
<b>9 Sizing of pilot operated safety valves</b> .....		<b>14</b>
<b>10 Marking and sealing</b> .....		<b>14</b>
10.1 Marking .....		14
10.2 Sealing of a pilot operated safety valve .....		15
<b>Annex ZA (informative) Relationship between this International Standard and the Essential Requirements of EU Directive 97/23/EC (PED)</b> .....		<b>16</b>
<b>Bibliography</b> .....		<b>17</b>

## Foreword

This document (EN ISO 4126-4:2013) has been prepared by Technical Committee ISO/TC 185 "Safety devices for protection against excessive pressure" in collaboration with Technical Committee CEN/TC 69 "Industrial valves" 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 January 2014, and conflicting national standards shall be withdrawn at the latest by January 2014.

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 ISO 4126-4:2004.

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.

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### Endorsement notice

The text of ISO 4126-4:2013 has been approved by CEN as EN ISO 4126-4:2013 without any modification.





# Safety devices for protection against excessive pressure —

## Part 4: Pilot operated safety valves

### 1 Scope

This part of ISO 4126 specifies general requirements for pilot operated safety valves, irrespective of the fluid for which they are designed. In all cases, the operation is carried out by the fluid in the system to be protected.

It is applicable to pilot operated safety valves having a valve flow diameter of 4 mm and above which are for use at set pressures of 0,1 bar gauge and above. No limitation is placed on temperature.

This is a product standard and it is not applicable to applications of pilot operated safety valves.

### 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.

ISO 4126-7:2013, *Safety devices for protection against excessive pressure — Part 7: Common data*

### 3 Terms and definitions

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

#### 3.1

##### **pilot operated safety valve**

self-actuated device comprising a main valve and an attached pilot

Note 1 to entry: The pilot responds to the pressure of the fluid without any other actuating energy than the fluid itself and controls the operation of the main valve. The main valve opens when the fluid pressure that keeps it closed is removed or reduced. The main valve re-closes when the pressure is re-applied.

Note 2 to entry: See [Figure 1](#) for a list of main components.

#### 3.2

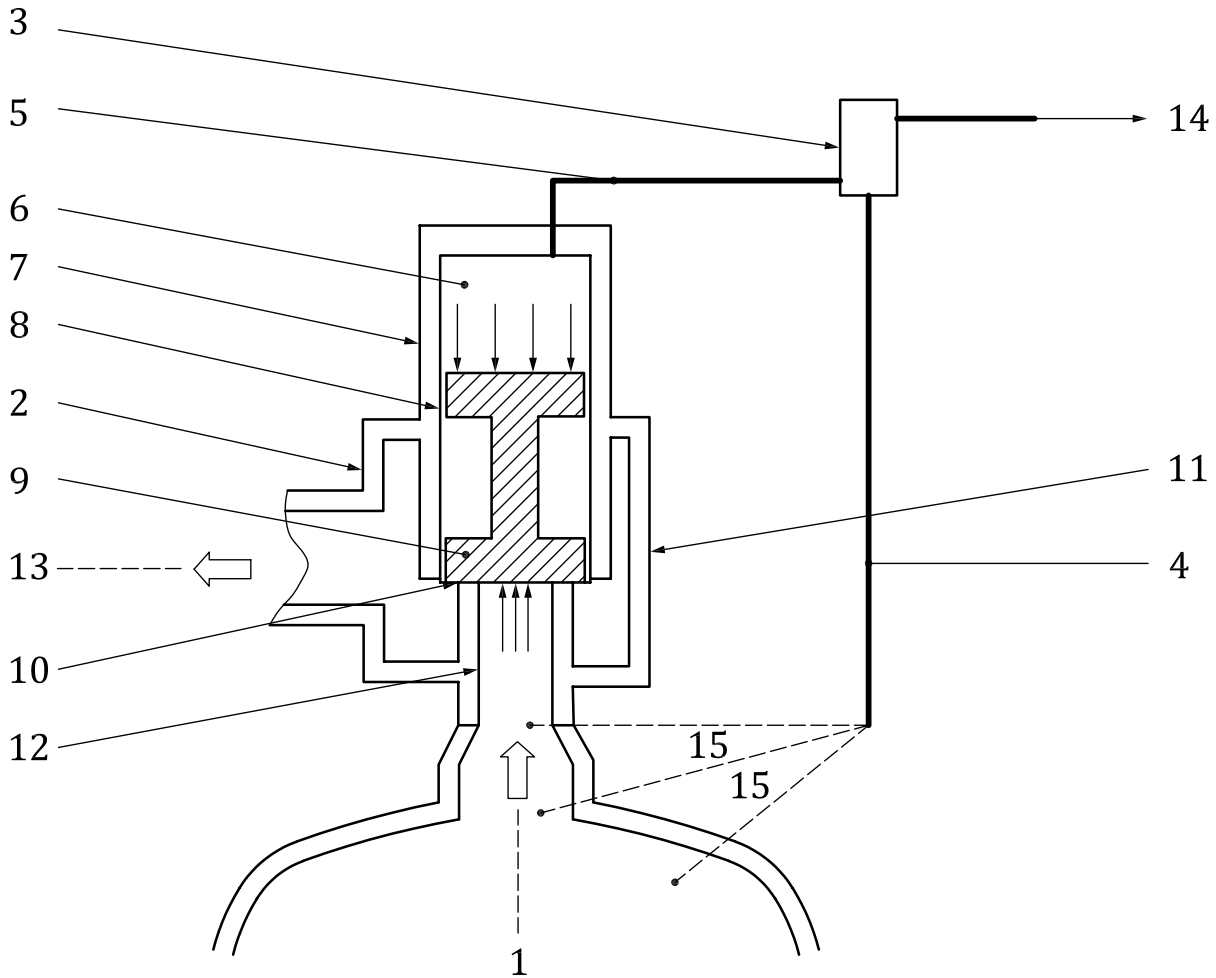
##### **main valve**

parts of a pilot operated safety valve, through which the discharge capacity is achieved

#### 3.3

##### **flowing pilot**

pilot which discharges the fluid throughout the relieving cycle of the pilot operated safety valve



**Key**

- |   |                           |    |   |
|---|---------------------------|----|---|
| 1 | equipment to be protected | 9  | disc (or piston)                          |
| 2 | main valve                | 10 | seat                                      |
| 3 | pilot valve               | 11 | main valve body                           |
| 4 | sensing line              | 12 | main valve inlet                          |
| 5 | loading/unloading line    | 13 | main valve outlet                         |
| 6 | pressure chamber          | 14 | pilot outlet                              |
| 7 | cover (or cap)            | 15 | connection of the sensing line (see Note) |
| 8 | guide                     |    |   |

NOTE The sensing line from the pilot can be either connected to the main valve inlet or connected directly to the equipment to be protected. In cases where the sensing line is not connected to the main valve inlet, considerations should be given to the length and to the protection from damage of the sensing line.

**Figure 1 — Nomenclature of main components of a pilot operated safety valve**

**3.4 non-flowing pilot**

pilot in which the fluid flows only during the opening and/or closing of the pilot operated safety valve

**3.5 ON/OFF**

action characterized by stable operation resulting in fully open or fully closed main valve position

Note 1 to entry: This is an action of the pilot operated safety valve.

**3.6  
modulating**

action characterized by a gradual opening and closing of the disc of the main valve which is a function of the pressure, proportional but not necessarily linear

Note 1 to entry: This is an action of the pilot operated safety valve.

**3.7  
set pressure**

predetermined pressure at which the main valve of a pilot operated safety valve under operating conditions commences to open

Note 1 to entry: It is the gauge pressure measured at the main valve inlet at which the pressure forces tending to lift the main valve disc for the specific service conditions are in equilibrium with the forces retaining the main valve disc on its seat.

**3.8  
maximum allowable pressure  
PS**

maximum pressure for which the protected equipment is designed

**3.9  
opening sensing pressure**

pressure at which the pilot commences to open in order to achieve the set pressure

**3.10  
overpressure**

pressure increase over the set pressure, usually expressed as a percentage of the set pressure

**3.11  
reseating pressure**

value of the inlet static pressure at which the main valve disc re-establishes contact with the seat or at which the lift becomes zero

**3.12  
cold differential test pressure**

inlet static pressure at which a pilot operated safety valve is set to commence to open on the test bench

Note 1 to entry: This test pressure includes corrections for service conditions, e.g. back pressure and/or temperature.

**3.13  
relieving pressure**

pressure used for the sizing of a pilot operated safety valve which is greater than or equal to the set pressure plus overpressure

**3.14  
back pressure**

pressure that exists at the outlet of a safety valve as a result of the pressure in the discharge system

Note 1 to entry: The back pressure is the sum of the superimposed and built-up back pressures.

**3.15  
built-up back pressure**

pressure existing at the outlet of the main valve caused by flow through the main valve and the discharge system

**3.16  
superimposed back pressure**

pressure existing at the outlet of the main valve at the time when the device is required to operate

Note 1 to entry: It is the result of pressure in the discharge system from other sources.