

SVENSK STANDARD

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Rörledningsarmatur – Säkerhetskomponenter till skydd mot otillåten tryckförhöjning – Del 1: Säkerhetsventiler (ISO 4126-1:2013)

Safety devices for protection against excessive pressure – Part 1: Safety valves (ISO 4126-1:2013)



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Europastandarden EN ISO 4126-1:2013 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN ISO 4126-1:2013.

Denna standard ersätter SS-EN ISO 4126-1:2004, utgåva 1 och SS-EN ISO 4126-1:2004/AC:2006, utgåva 1.

The European Standard EN ISO 4126-1:2013 has the status of a Swedish Standard. This document contains the official version of EN ISO 4126-1:2013.

This standard supersedes the Swedish Standard SS-EN ISO 4126-1:2004, edition 1 and SS-EN ISO 4126-1:2004/AC:2006, edition 1.

**Förhållandet till övriga delar under samma huvudtitel - Utdrag ur Förord i ISO 4126-1:2013/
Relations to other parts under the same general title - Extract from the Foreword of
ISO 4126-1:2013**

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 testing¹*

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 4126-1

July 2013

ICS 13.240

Supersedes EN ISO 4126-1:2004

English Version

**Safety devices for protection against excessive pressure - Part
1: Safety valves (ISO 4126-1:2013)**

Dispositifs de sécurité pour protection contre les pressions
excessives - Partie 1: Soupapes de sûreté (ISO 4126-
1:2013)

Sicherheitseinrichtungen gegen unzulässigen Überdruck -
Teil 1: Sicherheitsventile (ISO 4126-1:2013)

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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Contents		Page
Foreword		iv
1 Scope		1
2 Normative references		1
3 Terms and definitions		1
4 Symbols and units		4
5 Design		4
5.1 General		4
5.2 Valve end connections		5
5.3 Minimum requirements for springs		5
5.4 Materials		6
6 Production testing		6
6.1 Purpose		6
6.2 General		6
6.3 Hydrostatic testing		6
6.4 Pneumatic testing		7
6.5 Adjustment of set or cold differential test pressure		8
6.6 Seat leakage test		8
7 Type testing		8
7.1 General		8
7.2 Tests to determine operating characteristics		9
7.3 Tests to determine flow characteristics		11
7.4 Determination of the coefficient of discharge		12
7.5 Certification of coefficient of discharge		12
8 Determination of safety valve performance		13
9 Sizing of safety valves		13
10 Marking and sealing		13
10.1 Marking		13
10.2 Sealing of a safety valve		13
Annex ZA (informative) Relationship between this International Standard and the Essential Requirements of EU Directive 97/23/EC (PED)		%4
Bibliography		1

Foreword

This document (EN ISO 4126-1:2013) 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 4126-1:2004.

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 4126-1:2013 has been approved by CEN as EN ISO 4126-1:2013 without any modification.

Safety devices for protection against excessive pressure —

Part 1: Safety valves

1 Scope

This part of ISO 4126 specifies general requirements for safety valves irrespective of the fluid for which they are designed.

It is applicable to safety valves having a 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 is not applicable to applications of 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

safety valve

valve which automatically, without the assistance of any energy other than that of the fluid concerned, discharges a quantity of the fluid so as to prevent a predetermined safe pressure being exceeded, and which is designed to re-close and prevent further flow of fluid after normal pressure conditions of service have been restored

Note 1 to entry: The valve can be characterized either by pop action (rapid opening) or by opening in proportion (not necessarily linear) to the increase in pressure over the set pressure.

3.2

direct loaded safety valve

safety valve in which the loading due to the fluid pressure underneath the valve disc is opposed only by a direct mechanical loading device such as a weight, lever and weight, or spring

3.3

assisted safety valve

safety valve which, by means of a powered assistance mechanism, may additionally be lifted at a pressure lower than the set pressure and will, even in the event of failure of the assistance mechanism, comply with all the requirements for safety valves given in ISO 4126

3.4 supplementary loaded safety valve

safety valve which has, until the pressure at the inlet to the safety valve reaches the set pressure, an additional force which increases the sealing force

Note 1 to entry: This additional force (supplementary load), which may be provided by means of an extraneous power source, is reliably released when the pressure at the inlet of the safety valve reaches the set pressure. The amount of supplementary loading is so arranged that if such supplementary loading is not released, the safety valve will attain its certified discharge capacity at a pressure not greater than 1,1 times the maximum allowable pressure of the equipment to be protected.

Note 2 to entry: Other types of supplementary loaded safety devices are dealt with in ISO 4126-5.

3.5 set pressure

predetermined pressure at which a safety valve under operating conditions commences to open

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

3.6 maximum allowable pressure

PS
maximum pressure for which the protected equipment is designed

3.7 overpressure

pressure increase over the set pressure

Note 1 to entry: Overpressure is usually expressed as a percentage of the set pressure.

3.8 reseating pressure

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

3.9 cold differential test pressure

inlet static pressure at which a 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.

3.10 relieving pressure

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

3.11 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.

3.12 built-up back pressure

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

3.13 superimposed back pressure

pressure existing at the outlet of a safety 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.

3.14**balanced bellows**

device which minimizes the effect of back pressure on the set pressure and/or the operation of a safety valve

3.15**blowdown**

difference between set and reseating pressures

Note 1 to entry: Blowdown is normally stated as a percentage of set pressure except for pressures of less than 3 bar when the blowdown is expressed in bar.

3.16**lift**

actual travel of the valve disc away from the closed position

3.17**flow area**

minimum cross-sectional flow area (but not the smallest area between disc and seat) between inlet and seat which is used to calculate the theoretical flow capacity, with no deduction for any obstruction

3.18**flow diameter**

diameter corresponding to the flow area

3.19**theoretical discharge capacity**

calculated capacity expressed in mass or volumetric units of a theoretically perfect nozzle having a cross-sectional flow area equal to the flow area of a safety valve

3.20**coefficient of discharge**

value of actual flowing capacity (from tests) divided by the theoretical flowing capacity (from calculation)

3.21**certified (discharge) capacity**

that portion of the measured capacity permitted to be used as a basis for the application of a safety valve

Note 1 to entry: It may, for example, equal the: a) measured flow rate times the derating factor; or b) theoretical flow rate times the coefficient of discharge times the derating factor; or c) theoretical flow rate times the certified de-rated coefficient of discharge.

3.22**DN (nominal size)**

alphanumeric designation of size that is common for components used in a piping system, used for reference purposes, comprising the letters DN followed by a dimensionless number having an indirect correspondence to the physical size of the bore or outside diameter of the component end connection

Note 1 to entry: The dimensionless number does not represent a measurable value and is not used for calculation purposes.

Note 2 to entry: Prefix DN usage is applicable to components bearing PN designations according to ISO 7268.

Note 3 to entry: Adapted from ISO 6708:1995, definition 2.1.