
**Safety devices for protection against
excessive pressure —**

**Part 2:
Bursting disc safety devices**

*Dispositifs de sécurité pour protection contre les pressions
excessives —*

Partie 2: Dispositifs de sûreté à disque de rupture



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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 4126-2 was prepared by the European Committee for Standardization (CEN) in collaboration with Technical Committee ISO/TC 185, *Safety devices for protection against excessive pressure*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This first edition of ISO 4126-2, together with that of ISO 4126-6, cancels and replaces ISO 6718:1991.

Throughout the text of this document, read "...this European Standard..." to mean "...this International Standard...".

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*

For the purposes of this part of ISO 4126, the CEN annex regarding fulfilment of European Council Directives has been removed.

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Foreword

This document (EN ISO 4126-2:2003) has been prepared by Technical Committee CEN/TC 69 "Industrial valves", the secretariat of which is held by AFNOR, in collaboration with ISO/TC 185 "Safety devices for protection against excessive pressure".

This European Standard EN ISO 4126-2:2003 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2003, and conflicting national standards shall be withdrawn at the latest by July 2003.

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).

This standard for safety devices for protection against excessive pressure consists of seven parts of which this is Part 2. The various parts are:

- *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 7 contains data that is common to more than one of the parts of this standard to avoid unnecessary repetition.

Annex A is normative. Annex B is informative.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

A bursting disc safety device is a non-reclosing pressure relief device used to protect pressure equipment such as pressure vessels, piping, gas cylinders or other enclosures from excessive pressure and/or excessive vacuum.

A bursting disc safety device typically comprises an assembly of components including a bursting disc, a bursting disc holder and, where necessary, other components such as back pressure supports, stiffening rings etc.

The bursting disc is a pressure-containing and pressure-sensitive part of the bursting disc safety device and is designed to open by bursting at a pre-determined pressure. There are many different types of bursting disc safety devices manufactured in corrosion resistant materials, both metallic and non-metallic, to cover a wide range of nominal sizes, burst pressures and temperatures.

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1 Scope

This part of this European Standard specifies the requirements for bursting disc safety devices.

It includes the requirements for the design, manufacture, inspection, testing, certification, marking, and packaging.

The requirements for the application, selection and installation of bursting disc safety devices are given in Part 6 of this European Standard.

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 485-1, *Aluminium and aluminium alloys – Sheet, strip and plate – Part 1: Technical conditions for inspection and delivery.*

EN 485-2, *Aluminium and aluminium alloys – Sheet, strip and plate – Part 2: Mechanical Properties.*

EN 485-3, *Aluminium and aluminium alloys – Sheet, strip and plate – Part 3: Tolerances on shape and dimensions for hot-rolled products.*

EN 485-4, *Aluminium and aluminium alloys – Sheet, strip and plate – Part 4: Tolerances on shape and dimensions for cold-rolled products.*

EN 573-3, *Aluminium and aluminium alloys – Chemical composition and form of wrought products – Part 3: Chemical composition.*

EN 573-4, *Aluminium and aluminium alloys – Chemical composition and form of wrought products – Part 4: Forms of products.*

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

EN 1333, *Pipework components - Definition and selection of PN.*

EN 1652, *Copper and copper alloys – Plate, sheet, strip and circles for general purposes.*

EN 1653, *Copper and copper alloys – Plate, sheet and circles for boilers, pressure vessels and hot water storage units.*

EN 10028-1, *Flat products made of steels for pressure purposes – Part 1: General requirements.*

EN 10028-7, *Flat products made of steels for pressure purposes – Part 7: Stainless steels.*

EN 10088-1, *Stainless steels – Part 1: List of stainless steels.*

EN 10095, *Heat resisting steels and nickel alloys.*

EN 10222-1, *Steel forgings for pressure purposes – Part 1: General requirements for open die forgings.*

EN ISO 6708, *Pipework components - Definition and selection of DN (nominal size) (ISO 6708:1995).*

DIN 17740, *Wrought nickel – Chemical composition.*

DIN 17742, *Wrought nickel alloy with chromium – Chemical composition.*

DIN 17743, *Wrought nickel alloys with copper – Chemical composition.*

DIN 17744, *Wrought nickel alloys with molybdenum and chromium – Chemical composition.*

DIN 17850, *Titanium – Chemical composition.*

SEW 400, *Rolled and forged stainless steels.*

BS 3072, *Specification for nickel and nickel alloys – Sheet and plate.*

BS 3073, *Specification for nickel and nickel alloys – Strip.*

ASTM A240/A240M, *Standard specification for chromium and chromium-nickel stainless steel plate, sheet and strip for pressure vessels and for general applications.*

ASTM B127, *Standard specification for nickel-copper alloy (UNS N04400) plate, sheet, and strip.*

ASTM B162, *Standard specification for nickel plate, sheet and strip.*

ASTM B168, *Standard specification for nickel-chromium-iron alloys (UNS N06600, N06601, N06603, N06690, N06025, and N06045) and nickel-chromium-cobalt-molybdenum alloy (UNS N06617) plate, sheet and strip.*

ASTM B209, *Standard specification for aluminium and aluminium-alloy sheet and plate.*

ASTM B265, *Standard specification for titanium and titanium alloy strip, sheet and plate.*

ASTM B333, *Standard specification for nickel-molybdenum alloy plate, sheet and strip.*

ASTM B424, *Standard specification for Ni-Fe-Cr-Mo-Cu alloy (UNS N08825 and UNS N08221), plate, sheet and strip.*

ASTM B443, *Standard specification for nickel-chromium-molybdenum-columbium alloy (UNS N06625) and nickel-chromium-molybdenum-silicon alloy (UNS N06219), plate, sheet and strip.*

ASTM B569, *Standard specification for brass strip in narrow widths and light gauge for heat-exchanger tubing.*

ASTM B575, *Specification for low-carbon nickel-molybdenum-chromium, low-carbon nickel-chromium-molybdenum, low-carbon nickel-chromium-molybdenum-copper, low-carbon nickel-chromium-molybdenum-tantalum, low-carbon nickel-chromium-molybdenum-tungsten alloy plate, sheet and strip.*

ASTM B708, *Standard specification for tantalum and tantalum alloy, plate, sheet and strip.*

3 Terms and definitions

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

3.1

bursting disc safety device

non-reclosing pressure relief device actuated by differential pressure and designed to function by the bursting of the bursting disc(s), and which is the complete assembly of installed components including, where appropriate, the bursting disc holder

3.2

bursting disc assembly

complete assembly of components which are installed in the bursting disc holder to perform the desired function

3.3

bursting disc

pressure-containing and pressure-sensitive component of a bursting disc safety device

3.4

bursting disc holder

part of a bursting disc safety device which retains the bursting disc assembly in position

3.5

conventional domed bursting disc (also referred to as: forward-acting)

bursting disc which is domed in the direction of the bursting pressure (i.e. where the bursting pressure is applied to the concave side of the bursting disc, see Figure 1)

3.6

slotted lined bursting disc

bursting disc made up of two or more layers, at least one of which is slit or slotted to control the bursting pressure of the bursting disc

3.7

reverse domed bursting disc (also referred to as: reverse-acting)

bursting disc which is domed against the direction of the bursting pressure (i.e. where the bursting pressure is applied to the convex side of the bursting disc, see Figure 2)

3.8

flat bursting disc

bursting disc having one or more layers which is flat when installed. It may be made of a ductile or brittle material

3.9

graphite bursting disc

bursting disc manufactured from graphite, impregnated graphite, flexible graphite or graphite composite and designed to burst due to bending or shearing forces

NOTE The following definitions apply:

- a) **graphite.** A crystalline form of the element carbon;
- b) **impregnated graphite.** Graphite in which the open porosity is impregnated with a filler material;
- c) **flexible graphite.** A graphite structure formed by the compression of thermally exfoliated graphite intercalation compounds;