

## **Paiskpinnaga plahvatuskaitsed**

Explosion venting devices

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 14797:2007 sisaldab Euroopa standardi EN 14797:2006 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 29.01.2007 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 14797:2007 consists of the English text of the European standard EN 14797:2006.</p> <p>This document is endorsed on 29.01.2007 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

<p><b>Käsitlusala:</b> This European Standard specifies the requirements for venting devices used to protect enclosures against the major effects of internal explosions arising from the rapid burning of suspended dust, vapour or gas contained within. It includes the requirements for the esign, inspection, testing, marking, documentation and packaging. This European Standard specifies explosion venting devices which are put on the market as autonomous protective systems. Explosion venting devices are safety devices comprised of a pressure sensitive membrane fixed to and forming part of the structure that it protects, designed to intervene in the event of an explosion at a redetermined low pressure, to immediately open a vent area sufficient to ensure that the maximum pressure attained by the explosion within the enclosure does not exceed its designed resistance to pressure.</p>	<p><b>Scope:</b> This European Standard specifies the requirements for venting devices used to protect enclosures against the major effects of internal explosions arising from the rapid burning of suspended dust, vapour or gas contained within. It includes the requirements for the esign, inspection, testing, marking, documentation and packaging. This European Standard specifies explosion venting devices which are put on the market as autonomous protective systems. Explosion venting devices are safety devices comprised of a pressure sensitive membrane fixed to and forming part of the structure that it protects, designed to intervene in the event of an explosion at a redetermined low pressure, to immediately open a vent area sufficient to ensure that the maximum pressure attained by the explosion within the enclosure does not exceed its designed resistance to pressure.</p>
---	---

ICS 13.230

Võtmesõnad:

ICS 13.230

English Version

## Explosion venting devices

Dispositifs de décharge d'explosion

Einrichtungen zur Explosionsdruckentlastung

This European Standard was approved by CEN on 4 November 2006.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, 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.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

**Contents**

Page

Foreword.....	4
<b>1 Scope .....</b>	<b>5</b>
<b>2 Normative references .....</b>	<b>5</b>
<b>3 Terms and definitions .....</b>	<b>6</b>
<b>4 Design requirements .....</b>	<b>8</b>
4.1 General.....	8
4.2 Potential sources of ignition .....	9
<b>5 Types of explosion venting devices .....</b>	<b>9</b>
5.1 Explosion venting devices with reusable elements.....	9
5.2 Explosion venting devices with non reusable elements .....	9
<b>6 Back pressure supports.....</b>	<b>9</b>
6.1 General.....	9
6.2 Opening back pressure supports .....	10
6.3 Non-opening back pressure supports.....	10
<b>7 Testing of explosion venting devices.....</b>	<b>10</b>
7.1 General.....	10
7.2 Static activation pressure .....	10
7.3 Explosion testing .....	12
<b>8 Information for use .....</b>	<b>16</b>
<b>9 Assembly, replacements or reusability .....</b>	<b>17</b>
<b>10 Marking .....</b>	<b>17</b>
10.1 General.....	17
10.2 Explosion venting devices with reusable retaining elements .....	17
10.3 Explosion venting devices with non-reusable retaining elements.....	18
10.4 Omission of markings .....	18
<b>11 Packaging .....</b>	<b>19</b>
11.1 General.....	19
11.2 Marking .....	19
<b>Annex A (informative) Examples for explosion venting devices .....</b>	<b>20</b>
A.1 Re-closing explosion venting devices .....	20
A.2 Devices which require manual repositioning or replacement of the retaining element .....	21
A.3 Devices with non reusable elements .....	23
<b>Annex B (informative) Service and maintenance.....</b>	<b>26</b>
B.1 General.....	26
B.2 Servicing.....	26
<b>Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 94/9/EC .....</b>	<b>27</b>
<b>Bibliography .....</b>	<b>29</b>
<b>Figures</b>	
<b>Figure 1 — Direct comparison method.....</b>	<b>14</b>
<b>Figure 2 — Example for direct comparison method .....</b>	<b>15</b>

Figure A.1 — Example for an explosion door.....	21
Figure A.2 — Example for a buckling-rod device.....	22
Figure A.3 — Example for a bursting panel device.....	23
Figure A.4 — Example for a restrained pop-out panel device .....	24
Figure A.5 — Example for a back pressure support.....	25
<b>Tables</b>	
Table 1 — Symbols and their descriptions.....	8
Table 2 — Number of tests of explosion venting devices with non-reusable elements .....	12
Table ZA.1 — Correspondence between this European Standard and Directive 94/9/EC .....	27

## Foreword

This document (EN 14797:2006) has been prepared by Technical Committee CEN/TC 305 "Potentially explosive atmospheres - Explosion prevention and protection", the secretariat of which is held by DIN.

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 June 2007, and conflicting national standards shall be withdrawn at the latest by June 2007.

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.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, 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.

## 1 Scope

This European Standard specifies the requirements for venting devices used to protect enclosures against the major effects of internal explosions arising from the rapid burning of suspended dust, vapour or gas contained within. It includes the requirements for the design, inspection, testing, marking, documentation and packaging. This European Standard specifies explosion venting devices which are put on the market as autonomous protective systems.

Explosion venting devices are safety devices comprised of a pressure sensitive membrane fixed to and forming part of the structure that it protects, designed to intervene in the event of an explosion at a predetermined low pressure, to immediately open a vent area sufficient to ensure that the maximum pressure attained by the explosion within the enclosure does not exceed its designed resistance to pressure.

The application and specification of explosion venting devices is outlined for dust explosion protection in EN 14491 and for gas explosion protection in prEN 14994. The use of venting devices according to this European Standard on pipelines and on applications other than described in EN 14491 or prEN 14994 needs to be carefully evaluated and where appropriate their suitability needs to be confirmed by tests.

Flameless explosion venting devices avoid the breakthrough of flames into the surroundings. They are used to allow explosion venting in situations where the hazards of flames resulting from the venting action are not acceptable. Flameless explosion venting devices are treated in a separate standard.

This European Standard does not cover details for the avoidance of ignition sources from detection devices or other parts of the venting devices.

## 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.

EN 13237:2003, *Potentially explosive atmospheres — Terms and definitions for equipment and protective systems intended for use in potentially explosive atmospheres*

EN 13463-1, *Non-electrical equipment for potentially explosive atmospheres — Part 1: Basic method and requirements*

EN 14491, *Dust explosion venting protective systems*

prEN 14994:2005, *Gas explosion venting protective systems*

EN 60079-0, *Electrical apparatus for explosive gas atmospheres — Part 0: General requirements (IEC 60079-0:2004)*

prEN 61241-0, *IEC 61241-0, Ed. 1: Electrical apparatus for use in the presence of combustible dust — Part 0: General requirements*