



SLOVENSKI STANDARD
SIST EN 60079-7:2007

01-december-2007

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Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

Explosionsfähige Atmosphäre - Teil 7: Geräteschutz durch erhöhte Sicherheit "e"

Atmospheres explosives - Partie 7: Protection de l'équipement par sécurité augmentée "e"

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Ta slovenski standard je istoveten z: [SIST EN 60079-7:2007](http://log.standards.iteh.ai/standards/106104/95365/sist-en-60079-7-2007)
[EN 60079-7:2007](http://log.standards.iteh.ai/standards/106104/95365/sist-en-60079-7-2007)
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English version

**Explosive atmospheres -
Part 7: Equipment protection by increased safety "e"
(IEC 60079-7:2006)**

Atmosphères explosives -
Partie 7: Protection de l'équipement par
sécurité augmentée "e"
(CEI 60079-7:2006)

Explosionsfähige Atmosphäre -
Teil 7: Geräteschutz durch erhöhte
Sicherheit "e"
(IEC 60079-7:2006)

This European Standard was approved by CENELEC on 2006-10-01. CENELEC 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 CENELEC 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 31/623/FDIS, future edition 4 of IEC 60079-7, prepared by IEC TC 31, Equipment for explosive atmospheres, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60079-7 on 2006-10-01.

This European Standard supersedes EN 60079-7:2003.

The significant changes with respect to EN 60079-7:2003 are:

- requirements for electrical connections expanded and clarified;
- requirements for luminaire ballasts expanded and clarified,
- requirements for evaluation and testing of motor rotors clarified.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2007-08-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2009-10-01

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directive 94/9/EC. See Annex ZZ.

Annexes ZA and ZZ have been added by CENELEC.

[SIST EN 60079-7:2007](https://standards.iteh.ai/catalog/standards/sist/6a02b278-f43d-4ce3-af86-106104f95365/sist-en-60079-7-2007)

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Endorsement notice

The text of the International Standard IEC 60079-7:2006 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

| | | |
|--------------|------|--|
| IEC 60034-17 | NOTE | Harmonized as CLC/TS 60034-17:2004 (not modified). |
| IEC 60079-14 | NOTE | Harmonized as EN 60079-14:2003 (not modified). |
| IEC 60079-17 | NOTE | Harmonized as EN 60079-17:2003 (not modified). |
| IEC 60079-18 | NOTE | Harmonized as EN 60079-18:2004 (not modified). |
| IEC 60086-1 | NOTE | Harmonized as EN 60086-1:2001 (not modified). |
| IEC 60095-1 | NOTE | Harmonized as EN 60095-1:1993 (not modified). |
| IEC 60622 | NOTE | Harmonized as EN 60622:2003 (not modified). |
| IEC 60623 | NOTE | Harmonized as EN 60623:2001 (not modified). |
| IEC 61008-1 | NOTE | Harmonized as EN 61008-1:2004 (not modified). |
| IEC 61056-1 | NOTE | Harmonized as EN 61056-1:2003 (not modified). |
| IEC 61951-1 | NOTE | Harmonized as EN 61951-1:2003 (not modified). |
| IEC 62013-1 | NOTE | Harmonized as EN 62013-1:2006 (not modified). |

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-----------------|--|---------------|--------------------|
| IEC 60034-1 | – ¹⁾ | Rotating electrical machines - Part 1: Rating and performance | EN 60034-1 | 2004 ²⁾ |
| IEC 60034-5 | – ¹⁾ | Rotating electrical machines - Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code) - Classification | EN 60034-5 | 2001 ²⁾ |
| IEC 60044-6 (mod) | – ¹⁾ | Instrument transformers - Part 6: Requirements for protective current transformers for transient performance | EN 60044-6 | 1999 ²⁾ |
| IEC 60050-426 | – ¹⁾ | International Electrotechnical Vocabulary (IEV) - Chapter 426: Electrical apparatus for explosive atmospheres | - | - |
| IEC 60061-1 (mod) | – ¹⁾ | Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 1: Lamp caps | EN 60061-1 | 1993 ²⁾ |
| IEC 60061-2 (mod) | – ¹⁾ | Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 2: Lampholders | EN 60061-2 | 1993 ²⁾ |
| IEC 60064 (mod) | – ¹⁾ | Tungsten filament lamps for domestic and similar general lighting purposes - Performance requirements | EN 60064 | 1995 ²⁾ |
| IEC 60068-2-6 | – ¹⁾ | Environmental testing - Part 2: Tests - Test Fc: Vibration (sinusoidal) | EN 60068-2-6 | 1995 ²⁾ |
| IEC 60068-2-27 | 1987 | Environmental testing - Part 2: Tests - Test Ea and guidance: Shock | EN 60068-2-27 | 1993 |
| IEC 60068-2-42 | – ¹⁾ | Environmental testing - Part 2-42: Tests - Test Kc: Sulphur dioxide test for contacts and connections | EN 60068-2-42 | 2003 ²⁾ |
| IEC 60079-0 (mod) | 2004 | Electrical apparatus for explosive gas atmospheres - Part 0: General requirements | EN 60079-0 | 2006 |

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-----------------|--|--------------------------------|----------------------------|
| IEC 60079-1 | - ¹⁾ | Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosures 'd' | EN 60079-1 + corr. April | 2004 ²⁾ 2006 |
| IEC 60079-11 | - ¹⁾ | Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i" | EN 60079-11 | 2007 ²⁾ |
| IEC 60085 | - ¹⁾ | Electrical insulation - Thermal classification | EN 60085 | 2004 ²⁾ |
| IEC 60112 | - ¹⁾ | Method for the determination of the proof and the comparative tracking indices of solid insulating materials | EN 60112 | 2003 ²⁾ |
| IEC 60228 | - ¹⁾ | Conductors of insulated cables | EN 60228 + corr. May | 2005 ²⁾ 2005 |
| IEC 60238 | - ¹⁾ | Edison screw lampholders | EN 60238 + corr. January | 2004 ²⁾ 2005 |
| IEC 60317-3 | 2004 | Specifications for particular types of winding wires - Part 3: Polyester enamelled round copper wire, class 155 | - | - |
| IEC 60317-7 | 1990 | Specifications for particular types of winding wires - Part 7: Polyimide enamelled round copper wire, class 220 | EN 60317-7 | 1994 |
| IEC 60317-8 | 1990 | Specifications for particular types of winding wires - Part 8: Polyesterimide enamelled round copper wire, class 180 | EN 60317-8 | 1994 |
| IEC 60317-13 | 1990 | Specifications for particular types of winding wires - Part 13: Polyester or polyesterimide overcoated with polyamide-imide enamelled round copper wire, class 200 | EN 60317-13 | 1994 |
| IEC 60364-5-55 | - ¹⁾ | Electrical installations of buildings - Part 5-55: Selection and erection of electrical equipment - Other equipments | - | - |
| IEC 60400 (mod) | - ¹⁾ | Lampholders for tubular fluorescent lamps and starterholders | EN 60400 | 2000 ²⁾ |
| IEC 60432-1 (mod) | - ¹⁾ | Incandescent lamps - Safety specifications - Part 1: Tungsten filament lamps for domestic and similar general lighting purposes | EN 60432-1 | 2000 ²⁾ |
| IEC 60529 | - ¹⁾ | Degrees of protection provided by enclosures (IP Code) | EN 60529 + corr. May | 1991 ²⁾ 1993 |
| IEC 60664-1 | 1992 | Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests | EN 60664-1 ³⁾ | 2003 |
| IEC 60947-1 | - ¹⁾ | Low-voltage switchgear and controlgear - Part 1: General rules | EN 60947-1 + corr. November | 2004 ²⁾ 2004 |

³⁾ EN 60664-1 includes A1:2000 + A2:2002 to IEC 60664-1.

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-----------------|--|---------------------------|--------------------|
| IEC 60947-7-1 | - ¹⁾ | Low-voltage switchgear and controlgear - Part 7-1: Ancillary equipment - Terminal blocks for copper conductors | EN 60947-7-1 | 2002 ²⁾ |
| IEC 60947-7-2 | - ¹⁾ | Low-voltage switchgear and controlgear - Part 7-2: Ancillary equipment - Protective conductor terminal blocks for copper conductors | EN 60947-7-2 | 2002 ²⁾ |
| IEC 60999-1 | - ¹⁾ | Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units - Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm ² up to 35 mm ² (included) | EN 60999-1 | 2000 ²⁾ |
| IEC 60999-2 | - ¹⁾ | Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units - Part 2: Particular requirements for clamping units for conductors above 35 mm ² up to 300 mm ² (included) | EN 60999-2 | 2003 ²⁾ |
| IEC 61195 | 1999 | Double-capped fluorescent lamps - Safety specifications | EN 61195 | 1999 |
| IEC 61347-2-3 | 2000 | Lamp controlgear - Part 2-3: Particular requirements for a.c. supplied electronic ballasts for fluorescent lamps | EN 61347-2-3 + corr. July | 2001 2003 |
| A1 | 2004 | supplied electronic ballasts for fluorescent lamps | A1 | 2004 |
| A2 | 2006 | lamps | A2 | 2006 |
| IEC 62086-1 | - ¹⁾ | Electrical apparatus for explosive gas atmospheres - Electrical resistance trace heating - Part 1: General and testing requirements | EN 62086-1 | 2005 ²⁾ |
| ISO 2859-1 | - ¹⁾ | Sampling procedures for inspection by attributes - Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection | - | - |

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Annex ZZ (informative)

Coverage of Essential Requirements of EC Directives

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers only the following essential requirements out of those given in Annex II of the EC Directive 94/9/EC:

- ER 1.0.1 to ER 1.0.6
- ER 1.1.1 to ER 1.1.3
- ER 1.2.1, ER 1.2.2, ER 1.2.3, ER 1.2.5 to ER 1.2.8
- ER 1.3.1, ER 1.3.3, ER 1.3.4
- ER 1.4.1, ER 1.4.2
- ER 1.5.1 to ER 1.5.8
- ER 2.0.2.1, ER 2.0.2.3

Compliance with this standard provides one means of conformity with the specified essential requirements of the Directive concerned.

WARNING: Other requirements and other EC Directives may be applicable to the products falling within the scope of this standard.

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IEC 60079-7

Edition 4.0 2006-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Explosive atmospheres –
Part 7: Equipment protection by increased safety "e"

Atmosphères explosives –
Partie 7: Protection de l'équipement par sécurité augmentée «e»

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

EXPLOSIVE ATMOSPHERES –**Part 7: Equipment protection
by increased safety "e"**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60079-7 has been prepared by IEC technical committee 31: Equipment for explosive atmospheres.

This fourth edition cancels and replaces the third edition published in 2001, and constitutes a technical revision.

The significant changes with respect to the previous edition are listed below:

- requirements for electrical connections expanded and clarified,
- requirements for luminaire ballasts expanded and clarified,
- requirements for evaluation and testing of motor rotors clarified.

The text of this standard is based on the following documents:

| FDIS | Report on voting |
|-------------|------------------|
| 31/623/FDIS | 31/639/RVD |

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

Cette publication a été rédigée selon les Directives ISO/CEI, Partie 2.

The list of all parts of IEC 60079 series, under the general title *Explosive atmospheres*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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EXPLOSIVE ATMOSPHERES –

Part 7: Equipment protection by increased safety "e"

1 Scope

This part of IEC 60079 specifies the requirements for the design, construction, testing and marking of electrical apparatus with type of protection increased safety "e" intended for use in explosive gas atmospheres. This standard applies to electrical apparatus where the rated voltage does not exceed 11 kV r.m.s. a.c. or d.c. Additional measures are applied to ensure that the apparatus does not produce arcs, sparks, or excessive temperatures in normal operation or under specified abnormal conditions.

This standard supplements and modifies the general requirements of IEC 60079-0. Where a requirement of this standard conflicts with a requirement of IEC 60079-0, the requirement of this standard takes precedence.

NOTE Increased safety "e" can provide Equipment Protection Levels (EPL) Mb or Gb. For further information, see Annex I.

2 Normative references

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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.

IEC 60034-1, *Rotating electrical machines – Part 1: Rating and performance*

IEC 60034-5, *Rotating electrical machines – Part 5: Degrees of protection provided by the internal design of rotating electrical machines (IP code) – Classification*

IEC 60044-6, *Instrument transformers – Part 6: Requirements for protective current transformers for transient performance*

IEC 60050(426), *International Electrotechnical Vocabulary (IEV) – Chapter 426: Electrical apparatus for explosive atmospheres*

IEC 60061-1, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 1: Lamp caps*

IEC 60061-2, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 2: Lampholders*

IEC 60064, *Tungsten filament lamps for domestic and similar general lighting purposes – Performance requirements*

IEC 60068-2-6, *Environmental testing – Part 2: Tests – Test Fc: Vibration (sinusoidal)*