



**SLOVENSKI STANDARD**  
**SIST EN 60079-15:2004**  
**01-marec-2004**

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**SIST EN 50021:2000**

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Electrical apparatus for explosive gas atmospheres -- Part 15: Type of protection n

Elektrische Betriebsmittel für gasexplosionsgefährdete Bereiche -- Teil 15: Zündschutzart n

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Matériel électrique pour atmosphères explosives gazeuses -- Partie 15: Mode de protection n

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**Ta slovenski standard je istoveten z: EN 60079-15:2003**

**ICS:**

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EUROPEAN STANDARD

**EN 60079-15**

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2003

ICS 29.260.20

Supersedes EN 50021:1999

English version

**Electrical apparatus for explosive gas atmospheres**  
**Part 15: Type of protection "n"**  
(IEC 60079-15:2001, modified)

Matériel électrique pour atmosphères  
explosives gazeuses  
Partie 15: Mode de protection "n"  
(CEI 60079-15:2001, modifiée)

Elektrische Betriebsmittel für  
gasexplosionsgefährdete Bereiche  
Teil 15: Zündschutzart "n"  
(IEC 60079-15:2001, modifiziert)

## iTeh STANDARD PREVIEW

This European Standard was approved by CENELEC on 2003-07-01. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and 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 the International Standard IEC 60079-15:2001, prepared by IEC TC 31, Electrical apparatus for explosive atmospheres, together with common modifications prepared by SC 31-5, Apparatus type of protection "n", of Technical Committee CENELEC TC 31, Electrical apparatus for explosive atmospheres, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 60079-15 on 2003-07-01.

This European Standard supersedes EN 50021:1999.

This European Standard covers essential requirements of the EC Directive 94/9/EC (the ATEX Directive).

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) 2004-07-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2006-07-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this draft European Standard, Annex ZA is normative.

Annexe ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 60079-15:2001 was approved by CENELEC as a European Standard with agreed common modifications as given below.

### COMMON MODIFICATIONS

#### 1 Scope

**Replace** the text of Clause 1 by:

This European Standard specifies requirements for the construction, testing and marking for Group II electrical apparatus with type of protection 'n', intended for use only in areas where explosive atmospheres of gas, vapour and mist are unlikely to occur or if they do occur, are likely to do so infrequently or for a short period only.

This standard is applicable to non-sparking electrical apparatus and also to apparatus with parts or circuits producing arcs or sparks or having hot surfaces which, if not protected in one of the ways specified in this standard, could be capable of igniting a surrounding explosive atmosphere.

A non-incendive component is limited in use to the particular circuit for which it has been shown to be non-ignition capable and, therefore, cannot be separately assessed as complying with this standard.

This standard is applicable to electrical equipment and components of Group II, Category 3G. Such equipment is designed to be capable of functioning in conformity with the operating parameters established by the manufacturer and ensuring a normal level of protection.

Equipment in this category ensures the requisite level of protection during normal operation.

NOTE 1 In this standard the word 'apparatus' has the same meaning as the word 'equipment' used in the Directive.

Compliance with this European Standard does not imply any removal of, or lowering of, the requirements of any other European Standard with which the electrical apparatus complies.

This standard supplements, and may enhance, the requirements for apparatus for normal industrial applications.

NOTE 2 The application of this standard may require the exercise of engineering judgement because of the wide range of apparatus and technologies covered. If apparatus is to be certified the relevant requirements may need to be agreed between the manufacturer and the testing station.

NOTE 3 This standard makes several specific references to IEC 60079-0. It is not intended that apparatus with type of protection "n" should comply with IEC 60079-0 in its entirety, or that the level of protection achieved by compliance with this standard should be equal to the level of protection achieved by compliance with IEC 60079-0 and any of the types of protection listed therein.

#### 3 Definitions

##### 3.10 Ex component

**Add** the following note to the definition:

NOTE Directive 94/9/EC defines a component as:

Any item essential to the safe functioning of equipment and protective systems but with no autonomous function. In this standard, the words 'Ex component' have the same meaning as the word 'component used in the Directive'.

## 19 Supplementary requirements for hermetically sealed devices producing arcs, sparks or hot surfaces

Add the following note after the first paragraph.

NOTE A leakage rate equivalent to a He-leakage rate less than  $10^{-2}$  Pa<sup>3</sup>/sec ( $10^{-4}$  mbar<sup>3</sup>/sec) at a pressure difference of  $10^5$  Pa (1 bar) is sufficient.

## 21 Supplementary requirements for energy-limited apparatus and circuits producing arcs, sparks or hot surfaces

### 21.8.1 Ratings of components

Replace the text of 21.8.1 by:

Any component on which the type of protection depends, except such devices as transformers, fuses, thermal trips, relays and switches, shall either

- have a failure mode such that protection is maintained or,
- not operate in normal conditions at more than two thirds of their maximum current, voltage and power related to the rating of the device, the mounting conditions and the temperature range specified. These maximum rated values shall be those specified by the manufacturer of the component.

NOTE Normal operation may include open-circuit, short-circuit and earth fault conditions at the field terminals.

## 22 Supplementary requirements for restricted-breathing enclosures protecting apparatus producing arcs, sparks or hot surfaces

Replace the text of Clause 22 by:

**22.1** Protection by restricted breathing enclosures may be applied under the following two circumstances with differing test and provision for maintenance according to the particular type.

- a) Enclosures containing sparking contacts but with a limitation in dissipated power such that the averaged air temperature within the enclosure does not exceed the external ambient temperature by more than 10 K. However the internal air temperature may exceed the external ambient temperature by up to 20 K if the rate of temperature decay, when the apparatus is de-energized, is limited to not more than 10 K/h.
- b) Enclosures not containing sparking contacts with limitation only in external surface temperature.

NOTE 1 The use of a restricted-breathing enclosure to protect against ignition from sparking contacts is not allowed where, because of high internal air temperatures, there is an increased risk of drawing the hazardous atmosphere into the enclosure when the apparatus is de-energized.

NOTE 2 The effects of the sun's direct heating on the exterior of the enclosure should be taken into account. This can cause a larger internal temperature change than the 10 K allowed.

NOTE 3 Restricted breathing is not suitable for equipment operated on a short time duty cycle because of the increased probability that the apparatus might be de-energized when flammable gas or vapour surrounds the enclosure.

**22.2** Equipment of type 22.1 a) shall be provided with a test point to enable routine testing of the restricted breathing properties to be carried out after installation and during routine maintenance. It shall be subject to the type test of 26.8.1.

**22.3** Equipment of type 22.1 b) shall either be considered as being of type 22.1 a) or shall omit the test point and be subject to the type test of 26.8.2

**22.4** Resilient gasket seals shall be positioned so that they are not subject to mechanical damage under normal operating conditions and they shall retain their sealing properties over the expected life of the device.

Alternatively the manufacturer shall recommend a nominated replacement frequency.

**22.5** Poured seals and encapsulating compounds shall have a continuous operating temperature (COT) at least 10 K higher than that occurring when operating in the most onerous rated service conditions.

**22.6** Restricted-breathing enclosures without the provision for carrying out checks after installation or maintenance shall be type tested, including the cable entry devices.

NOTE The installation instructions provided with the apparatus should contain information on the selection of entry devices and cables.

**22.7** If internal fans are fitted, the suction shall not induce a depression at a potential source of leakage.

## 26 Type tests

### 26.3.1 Order of tests

Replace the text of 26.3.1 by:

#### 26.3.1.1 Non-metallic enclosures and non-metallic parts of enclosures (other than glass)

Tests shall be made on two samples which shall be submitted first to the tests of thermal endurance to heat (see 26.3.2.1), then to the tests of thermal endurance to cold (see 26.3.2.2), then to the mechanical tests (see 26.3.3), then to the tests for degrees of protection (IP) (see 26.3.4) or the tests for restricted breathing (see 26.8) and finally, when necessary, to any other test specified in this standard or any product standard.

#### 26.3.1.2 Metallic enclosures, metallic parts of enclosures and glass parts of enclosures

Tests shall be made on the number of samples specified for each test, first the mechanical tests (26.3.3), then to the tests for degrees of protection (IP) (see 26.3.4) or the tests for restricted breathing (see 26.8) and finally, when necessary, any other test specified in this standard or any product standard.

### 26.5.1 Preparation of enclosed-break device samples

Delete the second paragraph.

Add the following note:

NOTE Any remaining non-metallic parts of the enclosure will have been subjected to the conditioning test described in 26.3.2.

**26.6.3.1 d) Replace "10 °C" by "-10 °C".**

## 28 Marking

**28.2 c) Replace** the existing text of c) by:

c) the symbol EEx n;

**28.4 c) Replace** the existing text of c) by:

c) the symbol EEx n;

**28.5 b) Replace** the existing text of b) by:

b) the symbol EEx n;

**28.6.1 Replace** line 3 of the marking example by:

EEx nA II T3 X

**28.6.2 Replace** line 3 of the marking example by:

EEx nR II U

**28.6.3 Replace** line 2 of the marking example by:

EEx nL IIC T4

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## 29 Documentation

[SIST EN 60079-15:2004](https://standards.itech.ai/catalog/standards/sist/ae4fc5d4-c2c5-4828-b348-09c1a66549fd/sist-en-60079-15-2004)

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[09c1a66549fd/sist-en-60079-15-2004](https://standards.itech.ai/catalog/standards/sist/ae4fc5d4-c2c5-4828-b348-09c1a66549fd/sist-en-60079-15-2004)

**Delete** the existing Clause 29 and replace it by:

## 29 Instructions

**29.1** All electrical apparatus shall be accompanied by instructions, including at least the following particulars:

- a recapitulation of the information with which the electrical apparatus is marked, except for the serial number (see Clause 28), together with any appropriate additional information to facilitate maintenance (e.g. address of the importer, repairer, etc.);
- instructions for safe:
  - putting into service;
  - use;
  - assembling and dismantling;
  - maintenance (servicing and emergency repair);
  - installation;
  - adjustment;
- where necessary, training instructions;
- details which allow a decision to be taken as to whether the apparatus can be used safely in the intended area under the expected operating conditions;
- electrical and pressure parameters, maximum surface temperatures and other limit values;



- where necessary, special conditions of use, including particulars of possible misuse which experience has shown might occur. For luminaires, this shall include a warning that type "n" luminaires shall not be operated in an ambient temperature in excess of  $T_a$  even for a short period;
- additional special conditions requiring the use of the symbol "X" (see 28.2 k and 28.5 g);

NOTE It is important to ensure that the requirements of special conditions for safe use are passed to the purchaser together with any other relevant information.

- where necessary, the essential characteristics of tools which may be fitted to the apparatus;
- a list of the standards, including the issue date, with which the apparatus is declared to comply. For certified apparatus, the inclusion of the certificate can be used to satisfy this requirement.

**29.2** The instructions shall contain the drawings and diagrams necessary for the putting into service, maintenance, inspection, checking of correct operation and, where appropriate, repair of the apparatus, together with all useful instructions, in particular with regard to safety.

**29.3** Where it is necessary for the user to replace cells or batteries contained within an enclosure, the relevant parameters to allow correct replacement shall be included in the instructions, including either the manufacturer's name and part number, or the electrochemical system, nominal voltage and rated capacity.

## Bibliography

Add the following notes for the standards indicated:

IEC 60068-2-6	NOTE	Harmonized as EN 60068-2-6:1995 (not modified).
IEC 60068-2-75	NOTE	Harmonized as EN 60068-2-75:1997 (not modified).
IEC 60345	NOTE	Harmonized as HD 438 S1:1984 (not modified).
IEC 60947-1	NOTE	Harmonized as EN 60947-1:1999 (not modified).
ISO 4892	NOTE	Harmonized in the series EN ISO 4892 (not modified).

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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).

NOTE 1 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Where a standard cited below belongs to the EN 50000 series, this European Standard applies instead of the relevant International Standard.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60034 (mod)	Series	Rotating electrical machines	EN 60034	Series
IEC 60034-1 (mod)	1996	Rotating electrical machines Part 1: Rating and performance	EN 60034-1	1998
IEC 60034-5	- <sup>1)</sup>	Part 5: Classification of degrees of enclosures of rotating electrical machines (IP code)	EN 60034-5	2001 <sup>2)</sup>
IEC 60050-411	- <sup>1)</sup>	International Electrotechnical Vocabulary (IEV) – Chapter 411: Rotating machinery	-	-
IEC 60050-426	- <sup>1)</sup>	Chapter 426: Electrical apparatus for explosive atmospheres	-	-
IEC 60050-486	- <sup>1)</sup>	Chapter 486: Secondary cells and batteries	-	-
IEC 60060	Series	High-voltage test techniques	HD 588.1 S1 EN 60060-2 A11	1991 1994 1998
IEC 60061 (mod)	Series	Lamp caps and holders together with gauges for the control of interchangeability and safety	EN 60061	Series
IEC 60068-2-27	1987	Environmental testing Part 2: Tests – Test Ea and guidance: Shock	EN 60068-2-27	1993
IEC 60079-0	1998	Electrical apparatus for explosive gas atmospheres Part 0: General requirements	-	-
IEC 60079-2	- <sup>1)</sup>	Part 2: Electrical apparatus, type of protection “p”	-	-

<sup>1)</sup> Undated reference.

<sup>2)</sup> Valid edition at date of issue.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60079-11	- <sup>1)</sup>	Part 11: Intrinsic safety "i"	EN 50020	1994 <sup>2)</sup>
IEC 60081	- <sup>1)</sup>	Double-capped fluorescent lamps – Performance specifications	EN 60081	1998 <sup>2)</sup>
IEC 60112	- <sup>1)</sup>	Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions	HD 214 S2	1980 <sup>2)</sup>
IEC 60155	- <sup>1)</sup>	Glow-starters for fluorescent lamps	EN 60155	1995 <sup>2)</sup>
IEC 60216-1	1990	Guide for the determination of thermal endurance properties of electrical insulating materials Part 1: General guidelines for ageing procedures and evaluation of test results	HD 611.1 S1	1992 <sup>3)</sup>
IEC 60216-2	- <sup>1)</sup>	Part 2: Choice of test criteria	HD 611.2 S1	1992 <sup>2)</sup>
IEC 60238	1998	Edison screw lampholders	EN 60238	1998
IEC 60269-3	- <sup>1)</sup>	Low-voltage fuses Part 3: Supplementary requirements for fuses for use by unskilled persons (fuses mainly for household and similar applications)	EN 60269-3	1995 <sup>2)</sup>
IEC 60400 (mod)	- <sup>1)</sup>	Lampholders for tubular fluorescent lamps and starter holders	EN 60400	2000 <sup>2)</sup>
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 60598-1 (mod)	1996	Luminaires Part 1: General requirements and tests	EN 60598-1	1997 <sup>4)</sup>
IEC 60598-2 (mod)	Series	Part 2: Particular requirements	EN 60598-2	Series
IEC 60662	1980	High-pressure sodium vapour lamps	EN 60662	1993 <sup>5)</sup>
IEC 60664-1 (mod)	- <sup>1)</sup>	Insulation coordination for equipment within low-voltage systems Part 1: Principles, requirements and tests	EN 60664-1	2003
IEC 60920	- <sup>6)</sup>	Ballasts for tubular fluorescent lamps – General and safety requirements	-	-

<sup>3)</sup> HD 611.1 S1 is superseded by EN 60216-1:2001 which is based on IEC 60216-1:2001.

<sup>4)</sup> EN 60598-1 is superseded by EN 60598-1:2000 which is based on IEC 60598-1:1999, mod.

<sup>5)</sup> EN 60662 includes A2:1987 + A3:1990 to IEC 60662.

<sup>6)</sup> IEC 60920 is superseded by IEC 61347-1:2000 + IEC 61347-2-8:2000 + IEC 61347-2-11:2001 which were harmonized as EN's in 2001.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60922	- <sup>7)</sup>	Auxiliaries for lamps – Ballasts for discharge lamps (excluding tubular fluorescent lamps) – General and safety requirements	-	-
IEC 60924	- <sup>8)</sup>	D.C. supplied electronic ballasts for tubular fluorescent lamps – General and safety requirements	-	-
IEC 60926 (mod)	1995	Auxiliaries for lamps – Starting devices (other than glow starters) – General and safety requirements	EN 60926	1996 <sup>9)</sup>
IEC 60927	1996	Auxiliaries for lamps – Starting devices (other than glow starters) – Performance requirements	EN 60927	1996
IEC 60928	1995	Auxiliaries for lamps – A.C. supplied electronic ballasts for tubular fluorescent lamps – General and safety requirements	EN 60928	1995 <sup>10)</sup>
IEC 60998-2-4	1993	Connecting devices for low-voltage circuits for household and similar purposes Part 2-4: Particular requirements for twist-on connecting devices	EN 60998-2-4	1993
IEC 61048 (mod)	- <sup>1)</sup>	Auxiliaries for lamps – Capacitors for use in tubular fluorescent and other discharge lamp circuits – General and safety requirements	EN 61048	1993 <sup>2)</sup>
IEC 61049 (mod)	- <sup>1)</sup>	Capacitors for use in tubular fluorescent and other discharge lamp circuits – Performance requirements	EN 61049	1993 <sup>2)</sup>
IEC 61184	- <sup>1)</sup>	Bayonet lampholders	EN 61184	1997 <sup>2)</sup>

<sup>7)</sup> IEC 60922 is superseded by IEC 61347-1:2000 + IEC 61347-2-9:2000 which were harmonized as EN's in 2001.

<sup>8)</sup> IEC 60924 is superseded by IEC 61347-1:2000 + IEC 61347-2-4:2000 + IEC 61347-2-5:2000 + IEC 61347-2-6:2000 + IEC 61347-2-7:2000, which were harmonized as EN's in 2001.

<sup>9)</sup> EN 60926 is superseded by EN 61347-1:2001 and EN 61347-2-1:2001, which are respectively based on IEC 61347-1:2000 and IEC 61347-2-1:2000.

<sup>10)</sup> EN 60928 is superseded by EN 61347-1:2001 and EN 61347-2-3:2001, which are respectively based on IEC 61347-1:2000 and IEC 61347-2-3:2000.

# INTERNATIONAL STANDARD

# IEC 60079-15

Second edition  
2001-02

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## Electrical apparatus for explosive gas atmospheres –

### Part 15: Type of protection "n"

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*Matériel électrique pour atmosphères explosives gazeuses –*

Partie 15: [SIST EN 60079-15:2004](#)

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Mode de protection «n»

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