

**Električne naprave za eksplozivne plinske atmosfere - 0. del: Splošne zahteve
(IEC 60079-0:2004, spremenjen)**

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

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SIST EN 60079-0:2006

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English version

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

Matériel électrique pour atmosphères
explosives gazeuses
Partie 0: Règles générales
(CEI 60079-0:2004, modifiée)

Elektrische Betriebsmittel für
gasexplosionsgefährdete Bereiche
Teil 0: Allgemeine Anforderungen
(IEC 60079-0:2004, modifiziert)

This European Standard was approved by CENELEC on 2005-09-13. 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.

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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, 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 31/474A/FDIS, future edition 4 of IEC 60079-0, prepared by IEC TC 31, Electrical apparatus for explosive atmospheres, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60079-0 on 2004-03-01.

A draft amendment to the European Standard EN 60079-0:2004, prepared by the Technical Committee CENELEC TC 31, Electrical apparatus for explosive atmospheres - General requirements, was submitted to the formal vote and was approved by CENELEC on 2005-09-13 to be combined with the published standard and published as new edition of EN 60079-0.

This European Standard supersedes EN 60079-0:2004.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2007-02-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2008-10-01

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.

Clauses, subclauses, notes, tables and figures which are additional to those in IEC 60079-0 are prefixed "Z".

Annexes ZA, ZB and ZZ have been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 60079-0:2004 was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

1 Scope

Add:

This European Standard EN 60079-0 covers Category M2, 2G and 3G apparatus and partly also Category M1 and 1G.

In all cases where apparatus are involved the references to zones shall be read:

Zone 1	Category 2G
Zone 2	Category 3G

3 Terms and definitions

Add:

3.21 category

within an apparatus group, a category is the classification according to the required level of protection

NOTE 1 The term "apparatus" used throughout this standard, has the same meaning as the term "equipment" used in EC Directive 94/9/EC.

NOTE 2 The categories are defined as given in Annex ZA.

6 Requirement for all electrical apparatus

Add:

6.21 Operating faults

6.21.1 Equipment, which is intended to be used in Zone 1, must be so designed and constructed as to prevent ignition sources arising, even in the event of frequently occurring disturbances or equipment operating faults, which normally have to be taken into account.

6.21.2 Equipment, which is intended to be used in Zone 2, must be so designed and constructed as to prevent foreseeable ignition sources which can occur during normal operation.

6.22 Overloading of equipment

Dangerous overloading of equipment must be prevented at the design stage by means of integrated measurement, regulation and control devices, such as over-current cut-off switches, temperature limiters, differential pressure switches, flow meters, time-lag relays, over speed monitors and/or similar types of monitoring devices.

29 Marking

29.2 General

Add after a):

z1) address of the manufacturer;

Add after j):

z2) CE marking together with the number of the notified body, which performed the quality assessment;

NOTE Z1 This marking to be included only for certain products as required by EC Directive 94/9/EC.

z3) year of construction;

z4) the specific marking of explosion protection  followed by the symbol of the Equipment-group and Category;

z5) for Equipment-group II, the letter "G" (concerning explosive atmospheres caused by gases, vapours or mists);

z6) for Equipment-group I, the letter "M" for mining.

30 Instructions

Add:

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30.Z1 Languages

The instructions must be drawn up in one of the Community languages by the manufacturer or his authorized representative in the Community.

On being put into service, all equipment must be accompanied by a translation of the instruction in the language or languages of the country in which the equipment or protective system is to be used and by the instructions in the original language.

This translation must be made by either the manufacturer or his authorized representative established in the Community or the person introducing the equipment into the language area in question.

By way of derogation from this requirement, the maintenance instructions for use by the specialist personnel employed by the manufacturer or authorized representative established in the Community may be drawn up in a single Community language understood by that personnel.

30.Z2 Documents

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

30.Z3 Literature

Literature describing the equipment must not contradict the instructions with regard to safety aspects.

Bibliography

Add the following notes for the standards indicated:

IEC 60079-14 NOTE Harmonized as EN 60079-14:2003 (not modified).

IEC 60079-17 NOTE Harmonized as EN 60079-17:2003 (not modified).

Add:

Annex ZA (informative)

Classification of Equipment-groups into Categories

ZA.1 Categories

ZA.1.1 Equipment-group I

ZA.1.1.1 Category M1

Equipment-group I Category M1 comprises equipment designed and, where necessary, equipped with additional special means of protection to be capable of functioning in conformity with the operational parameters established by the manufacturer and ensuring a very high level of protection.

Equipment in this category is intended for use in underground parts of mines as well as those parts of surface installations of such mines endangered by firedamp and/or combustible dust.

Equipment in this category is required to remain functional, even in the event of rare incidents relating to equipment, with an explosive atmosphere present, and is characterized by means of protection such that:

- either, in the event of failure of one means of protection, at least an independent second means provides the requisite level of protection,
- or the requisite level of protection is assured in the event of two faults occurring independently of each other.

ZA.1.1.2 Category M2

Category M2 comprises equipment designed to be capable of functioning in conformity with the operational parameters established by the manufacturer and ensuring a high level of protection.

Equipment in this category is intended for use in underground parts of mines as well as those parts of surface installations of such mines likely to be endangered by firedamp and/or combustible dust.

This equipment is intended to be de-energized in the event of an explosive atmosphere.

The means of protection relating to equipment in this category assure the requisite level of protection during normal operation and also in the case of more severe operating conditions, in particular those arising from rough handling and changing environmental conditions.

ZA.1.2 Equipment-group II

ZA.1.2.1 Category 1

Equipment-group II Category 1 comprises equipment designed to be capable of functioning in conformity with the operational parameters established by the manufacturer and ensuring a very high level of protection.

Equipment in this category is intended for use in areas in which explosive atmospheres caused by mixtures of air and gases, vapours or mists or by air/dust mixtures are present continuously, for long periods or frequently.

Equipment in this category must ensure the requisite level of protection, even in the event of rare incidents relating to equipment, and is characterized by means of protection such that:

- either, in the event of failure of one means of protection, at least an independent second means provides the requisite level of protection,
- or the requisite level of protection is assured in the event of two faults occurring independently of each other.

ZA.1.2.2 Category 2

Category 2 comprises equipment designed to be capable of functioning in conformity with the operational parameters established by the manufacturer and of ensuring a high level of protection.

Equipment in this category is intended for use in areas in which explosive atmospheres caused by gases, vapours, mists or air/dust mixtures are likely to occur.

The means of protection relating to equipment in this category ensure the requisite level of protection, even in the event of frequently occurring disturbances or equipment faults which normally have to be taken into account.

ZA.1.2.3 Category 3

Category 3 comprises equipment 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 is intended for use in areas in which explosive atmospheres caused by gases, vapours, mists, or air/dust mixtures are unlikely to occur or, if they do occur, are likely to do so only infrequently and for a short period only.

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

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Annex ZB (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 60034-5	– 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 60079-1	– ¹⁾	Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosures 'd'	EN 60079-1 + corr. April	2004 ²⁾ 2006
IEC 60079-2	– ¹⁾	Electrical apparatus for explosive gas atmospheres - Part 2: Pressurized enclosures "p"	EN 60079-2 + corr. April	2004 ²⁾ 2006
IEC 60079-4	– ¹⁾	Electrical apparatus for explosive gas atmospheres - Part 4: Method of test for ignition temperature	-	-
IEC 60079-5	– ¹⁾	Electrical apparatus for explosive gas atmospheres - Part 5: Powder filling 'q'	-	-
IEC 60079-6	– ¹⁾	Electrical apparatus for explosive gas atmospheres - Part 6: Oil-immersion "o"	-	-
IEC 60079-7	– ¹⁾	Electrical apparatus for explosive gas atmospheres - Part 7: Increased safety "e"	EN 60079-7	2003 ²⁾
IEC 60079-10	– ¹⁾	Electrical apparatus for explosive gas atmospheres - Part 10: Classification of hazardous areas	EN 60079-10	2003 ²⁾
IEC 60079-11	– ¹⁾	Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety "i"	-	-
IEC 60079-15	– ¹⁾	Electrical apparatus for explosive gas atmospheres - Part 15: Type of protection "n"	EN 60079-15	2005 ²⁾
IEC 60079-18	– ¹⁾	Electrical apparatus for explosive gas atmospheres - Part 18: Construction, test and marking of type of protection encapsulation "m" electrical apparatus	EN 60079-18 + corr. April	2004 ²⁾ 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 60079-25	- ¹⁾	Electrical apparatus for explosive gas atmospheres - Part 25: Intrinsically safe systems	EN 60079-25 + corr. April	2004 ²⁾ 2006
IEC 60079-26 (mod)	- ¹⁾	Electrical apparatus for explosive gas atmospheres - Part 26: Construction, test and marking of Group II Category 1 G electrical apparatus	EN 60079-26	2004 ²⁾
IEC 60086-1	- ¹⁾	Primary batteries - Part 1: General	EN 60086-1	2001 ²⁾
IEC 60095-1	- ¹⁾	Lead-acid starter batteries - Part 1: General requirements and methods of test	- ³⁾	-
IEC 60192	- ¹⁾	Low pressure sodium vapour lamps - Performance specifications	EN 60192	2001 ²⁾
IEC 60216-1	- ¹⁾	Electrical insulating materials - Properties of thermal endurance - Part 1: Ageing procedures and evaluation of test results	EN 60216-1	2001 ²⁾
IEC 60216-2	- ¹⁾	Electrical insulating materials - Thermal endurance properties - Part 2: Determination of thermal endurance properties of electrical insulating materials - Choice of test criteria	EN 60216-2	2005 ²⁾
IEC 60423 (mod)	- ¹⁾	Conduits for electrical purposes - Outside diameters of conduits for electrical installations and threads for conduits and fittings	EN 60423	1994 ²⁾
IEC 60529	- ¹⁾	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 ²⁾ 1993
IEC 60622	- ¹⁾	Secondary cells and batteries containing alkaline or other non-acid electrolytes - Sealed nickel-cadmium prismatic rechargeable single cells	EN 60622	2003 ²⁾
IEC 60623	- ¹⁾	Secondary cells and batteries containing alkaline or other non-acid electrolytes - Vented nickel-cadmium prismatic rechargeable single cells	EN 60623	2001 ²⁾
IEC 60662 (mod)	- ¹⁾	High pressure sodium vapour lamps	EN 60662	1993 ²⁾
IEC 60947-1	- ¹⁾	Low-voltage switchgear and controlgear - Part 1: General rules	EN 60947-1 + corr. November	2004 ²⁾ 2004
IEC 61056-1	- ¹⁾	General purpose lead-acid batteries (valve regulated types) - Part 1: General requirements, functional characteristics - Methods of test	EN 61056-1	2003 ²⁾
IEC 61150	- ^{1) 4)}	Alkaline secondary cells and batteries - Sealed nickel-cadmium rechargeable monobloc batteries in button cell design	EN 61150	1993 ^{2) 4)}

³⁾ See EN 50342-1:2006, Lead-acid starter batteries -- Part 1: General requirements and methods of test.

⁴⁾ Withdrawn.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61436	- ¹⁾	Secondary cells and batteries containing alkaline or other non-acid electrolytes - Sealed nickel-metal hydride rechargeable single cells	EN 61436 ⁵⁾	1998 ²⁾
IEC 61951-1	- ¹⁾	Secondary cells and batteries containing alkaline or other non-acid electrolytes - Portable sealed rechargeable single cells - Part 1: Nickel-cadmium	EN 61951-1	2003 ²⁾
IEC 62013-1	- ¹⁾	Caplights for use in mines susceptible to firedamp - Part 1: General requirements - Construction and testing in relation to the risk of explosion	EN 62013-1	2006 ²⁾
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 48	- ¹⁾	Rubber, vulcanized or thermoplastic - Determination of hardness (hardness between 10 IRHD and 100 IRHD)	-	-
ISO 178	- ¹⁾	Plastics - Determination of flexural properties	EN ISO 178	2003 ²⁾
ISO 179	Series	Plastics - Determination of Charpy impact strength	EN ISO 179	Series
ISO 262	- ¹⁾	ISO general-purpose metric screw threads - Selected sizes for screws, bolts and nuts	-	-
ISO 273	- ¹⁾	Fasteners - Clearance holes for bolts and screws	EN 20273	1991 ²⁾
ISO 286-2	- ¹⁾	ISO system of limits and fits - Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts	EN 20286-2	1993 ²⁾
ISO 527-2	- ¹⁾	Plastics - Determination of tensile properties - Part 2: Test conditions for moulding and extrusion plastics	EN ISO 527-2	1996 ²⁾
ISO 965-1	- ¹⁾	ISO general-purpose metric screw threads - Tolerances - Part 1: Principles and basic data	-	-
ISO 965-3	- ¹⁾	ISO general purpose metric screw threads - Tolerances - Part 3: Deviations for constructional threads	-	-
ISO 1817	- ¹⁾	Rubber, vulcanized - Determination of the effect of liquids	-	-
ISO 4014	- ¹⁾	Hexagon head bolts - Product grades A and B	EN ISO 4014	2000 ²⁾
ISO 4017	- ¹⁾	Hexagon head screws - Product grades A and B	EN ISO 4017	2000 ²⁾
ISO 4026	- ¹⁾	Hexagon socket set screws with flat point	EN ISO 4026	2003 ²⁾

⁵⁾ EN 61436 is superseded by EN 61951-2:2003.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 4027	- ¹⁾	Hexagon socket set screws with cone point	EN ISO 4027	2003 ²⁾
ISO 4028	- ¹⁾	Hexagon socket set screws with dog point	EN ISO 4028	2003 ²⁾
ISO 4029	- ¹⁾	Hexagon socket set screws with cup point	EN ISO 4029	2003 ²⁾
ISO 4032	- ¹⁾	Hexagon nuts, style 1 - Product grades A and B	EN ISO 4032	2000 ²⁾
ISO 4762	- ¹⁾	Hexagon socket head cap screws - Product grade A	EN ISO 4762	2004 ²⁾
ISO 4892-1	- ¹⁾	Plastics - Methods of exposure to laboratory light sources - Part 1: General guidance	EN ISO 4892-1	2000 ²⁾
ANSI/UL 746B	- ¹⁾	Polymeric Materials - Long-Term Property Evaluations	-	-

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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 1.0.2 to ER 1.0.6
- ER 1.1
- ER 1.2.2 (partly), ER 1.2.3, ER 1.2.5 to ER 1.2.9
- ER 1.3.1 to ER 1.3.4
- ER 1.4.1, ER 1.4.2
- ER 1.6.2, ER 1.6.4
- ER 2.0.2.1, ER 2.0.2.2
- ER 2.2.1, ER 2.2.1.1 to ER 2.2.1.3
- ER 2.3.1.1, ER 2.3.1.2

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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Electrical apparatus for explosive gas atmospheres –

Part 0: General requirements

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