

# Electrical apparatus for explosive gas atmospheres —

## Part 15: Construction, test and marking of type of protection “n” electrical apparatus

The European Standard EN 60079-15:2005 has the status of a  
British Standard

ICS 29.260.20

## National foreword

This British Standard is the official English language version of EN 60079-15:2005. It is identical with IEC 60079-15:2005. It supersedes BS 6941:1988 which is withdrawn, BS EN 50021:1999 which will remain current until 1 July 2006 then it will be declared obsolescent until 1 June 2008 when it will be withdrawn, and BS EN 60079-15:2003 which will remain current until 1 June 2008 then it will be declared obsolescent.

Technical Committee GEL/31 asks users of this standard to note that requirements for large rotating electrical machines are still developing across a range of standards. At the time of publication of this standard, a draft for a future revision of IEC 60079-7 (eventually to be published as BS EN 60079-7) contains a revised table of parameters which may reduce the need for testing complete machines in the presence of gas to prove the absence of dangerous rotor sparking. It will be inconsistent for the requirements for Ex n in this standard to be more restrictive than the requirements for Ex e in that standard and users of this standard may wish to refer to the next edition of BS EN 60079-7 when it is published — probably in 2006.

The UK participation in its preparation was entrusted by Technical Committee GEL/31, Electrical apparatus for explosive atmospheres, to Subcommittee GEL/31/14, Type of protection “e” and “N”, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

### Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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### Summary of pages

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English version

**Electrical apparatus for explosive gas atmospheres**  
**Part 15: Construction, test and marking of type of protection "n"**  
**electrical apparatus**  
(IEC 60079-15:2005)

Matériel électrique pour atmosphères  
explosives gazeuses  
Partie 15: Construction, essais et  
marquage des matériels électriques  
du mode de protection "n"  
(CEI 60079-15:2005)

Elektrische Betriebsmittel für  
gasexplosionsgefährdete Bereiche  
Teil 15: Konstruktion, Prüfung  
und Kennzeichnung von elektrischen  
Betriebsmitteln der Zündschutzart "n"  
(IEC 60079-15:2005)

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## 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 31/558/FDIS, future edition 3 of IEC 60079-15, 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 60079-15 on 2005-06-01.

This European Standard is to be read in conjunction with EN 60079-0.

This European Standard supersedes EN 60079-15:2003.

The significant technical changes with respect to EN 60079-15:2003 are as follows:

- linking the standard to EN 60079-0 and adding Table 1 to show the connections;
- references to third party testing stations removed;
- adding the definition of associated energy limiting apparatus [nL] and [Ex nL];
- definitions eliminated that also appear in EN 60079-0;
- elimination of n-pressurization, all pressurization requirements now covered by EN 60079-2;
- air gap spark test requirement added for motors over 100 kW;
- added risk assessment tables for motors over 1 kV and over 100 kW;
- requirements changed for motors operating with frequency converters;
- references to other IEC and European standards updated for luminaires;
- caplights and handlights addressed by reference to EN 60079-0;
- creepage and clearance requirements for low powered apparatus between 60 V a.c. up to 250 V a.c. added in Table 10;
- requirement for plugs and sockets to maintain the degree of protection expanded;
- cable clamping test eliminated;
- insertion and removal torque values for E40/E39 lamp caps adjusted downward;
- high-voltage impulse test for ballasts eliminated;
- changes made to test and acceptance criteria in luminaire starter and ignitor tests;
- ignition tests for large or high-voltage machines added;
- marking and documentation sections changed to reflect changes elsewhere in the standard;
- manufacturer's responsibility section dropped and replaced with instructions section.

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) 2006-05-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2008-06-01

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.

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### **Endorsement notice**

The text of the International Standard IEC 60079-15:2005 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 60068-2-6 | NOTE | Harmonized as EN 60068-2-6:1995 (not modified).              |
| IEC 60079-18  | NOTE | Harmonized as EN 60079-18:2004 (not modified).               |
| IEC 60297     | NOTE | Harmonized in the HD 493 and EN 60297 series (not modified). |
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## CONTENTS

1	Scope .....	8
2	Normative references .....	11
3	Terms and definitions .....	13
4	General .....	15
4.1	Apparatus grouping and temperature classification .....	15
4.2	Potential ignition sources .....	16
5	Temperatures .....	16
5.1	Environmental influences .....	16
5.2	Service temperature .....	16
5.3	Maximum surface temperature .....	16
5.4	Surface temperature and ignition temperature .....	16
5.5	Small components .....	17
6	Requirements for electrical apparatus .....	17
6.1	General .....	17
6.2	Mechanical strength of apparatus .....	17
6.3	Opening times .....	17
6.4	Circulating currents .....	17
6.5	Gasket retention .....	17
6.6	Degree of protection of enclosure (IP) .....	17
6.7	Clearances, creepage distances and separations .....	18
6.8	Electric strength .....	25
7	Non-metallic enclosures and non-metallic parts of enclosures .....	26
7.1	General .....	26
7.2	Thermal endurance .....	26
7.3	Electrostatic charges on external non-metallic materials of enclosures .....	26
7.4	Threaded holes .....	26
7.5	Thermal shock .....	26
7.6	Resistance to light .....	26
8	Enclosures containing light metals .....	26
8.1	Material composition .....	26
8.2	Threaded holes .....	26
9	Fasteners .....	27
9.1	General .....	27
9.2	Special fasteners .....	27
10	Interlocking devices .....	27
11	Bushings .....	27
12	Materials used for cementing .....	27
13	Ex components .....	27
13.1	Type of protection "n" .....	27
13.2	Mounting .....	27
13.3	Internal mounting .....	28
13.4	External mounting .....	28
14	Connection facilities and terminal compartments .....	28
14.1	General .....	28
14.2	Connection for external conductors .....	28

14.3	Internal connection facilities.....	29
15	Connection facilities for earthing or bonding conductors .....	29
16	Entries into enclosures .....	29
17	Supplementary requirements for non-sparking electrical machines .....	30
17.1	General.....	30
17.2	Connection facilities for external conductors.....	30
17.3	Neutral point connections .....	31
17.4	Radial air gap.....	31
17.5	Ventilation systems.....	31
17.6	Bearing seals and shaft seals .....	32
17.7	Rotor cages.....	32
17.8	Surface temperature limitation .....	33
17.9	Additional requirements for machines with rated voltage greater than 1 kV .....	34
18	Supplementary requirements for switchgear .....	36
19	Supplementary requirements for non-sparking fuses and fuse assemblies .....	36
19.1	Fuses .....	36
19.2	Temperature class of an apparatus .....	37
19.3	Fuse mounting.....	37
19.4	Fuse enclosures .....	37
19.5	Replacement fuse identification .....	37
20	Supplementary requirements for non-sparking plugs and sockets .....	37
20.1	Plugs and sockets for external connections.....	37
20.2	Maintaining degree of protection .....	38
20.3	Plugs and sockets for internal connections.....	38
20.4	Sockets that do not have plugs inserted in normal operation.....	38
21	Supplementary requirements for non-sparking luminaires .....	38
21.1	General.....	38
21.2	Construction.....	39
21.3	Other apparatus containing light sources.....	45
22	Supplementary requirements for apparatus incorporating non-sparking cells and batteries.....	45
22.1	Categorization of cells and batteries .....	45
22.2	General requirements for cells and batteries of types 1 and 2.....	46
22.3	Charging of type 1 cells and batteries .....	48
22.4	Charging of type 2 cells and batteries .....	48
22.5	Requirements for type 3 secondary batteries.....	49
22.6	Verification and tests .....	52
23	Supplementary requirements for non-sparking low power apparatus .....	52
24	Supplementary requirements for non-sparking current transformers.....	53
25	Other electrical apparatus.....	53
26	General supplementary requirements for apparatus producing arcs, sparks or hot surfaces .....	54
27	Supplementary requirements for enclosed-break devices and non-incendive components producing arcs, sparks or hot surfaces .....	54
27.1	Type testing .....	54
27.2	Ratings .....	54
27.3	Construction of enclosed-break devices .....	55

28	Supplementary requirements for hermetically sealed devices producing arcs, sparks or hot surfaces .....	55
29	Supplementary requirements for sealed devices or encapsulated devices producing arcs, sparks or hot surfaces .....	55
29.1	Non-metallic materials .....	55
29.2	Opening .....	56
29.3	Internal spaces .....	56
29.4	Handling .....	56
29.5	Resilient gasket and seals .....	56
29.6	Encapsulating compounds .....	56
29.7	Thickness of encapsulant .....	57
29.8	Type tests .....	57
30	Supplementary requirements for energy-limited apparatus and circuits producing arcs, sparks or hot surfaces .....	57
30.1	General .....	57
30.2	Associated energy-limited apparatus .....	58
30.3	Energy-limited apparatus .....	58
30.4	Self protected energy-limited apparatus .....	58
30.5	Separation of conducting parts .....	58
30.6	Plugs and sockets .....	58
30.7	Protection against polarity reversal .....	59
30.8	Requirements for components on which energy limitation depends .....	59
30.9	Battery powered apparatus .....	60
30.10	Marking and documentation .....	60
31	Supplementary requirements for restricted-breathing enclosures protecting apparatus producing arcs, sparks or hot surfaces .....	60
31.1	General .....	60
31.2	Test point for restricted-breathing apparatus .....	60
31.3	Test point exemption .....	61
31.4	Gasket and seal requirements .....	61
31.5	Non-resilient seals .....	61
31.6	Maintenance considerations .....	61
31.7	Internal fans .....	61
32	General information on verification and tests .....	61
33	Type tests .....	61
33.1	Representative samples .....	61
33.2	Test configuration .....	62
33.3	Tests for enclosures on which the type of protection depends .....	62
33.4	Test for enclosed-break devices and non-incendive components .....	65
33.5	Tests for sealed devices and encapsulated devices .....	66
33.6	Assessment and test of energy-limited apparatus and circuits .....	68
33.7	Tests for restricted-breathing enclosures .....	69
33.8	Test for screw lampholders .....	69
33.9	Test for starter holders for luminaires .....	70
33.10	Tests for electronic starters for tubular fluorescent lamps and for ignitors for high pressure sodium or metal halide lamps .....	70
33.11	Test for wiring of luminaires subject to high-voltage impulses from ignitors .....	72
33.12	Mechanical shock test for batteries .....	72
33.13	Insulation resistance test for batteries .....	73



33.14 Additional ignition tests for large or high-voltage machines .....	73
34 Routine verifications and tests .....	75
34.1 General .....	75
34.2 Specific routine tests .....	75
35 Marking .....	76
35.1 General .....	76
35.2 Additional marking for batteries .....	76
35.3 Examples of marking .....	77
36 Documentation .....	78
37 Instructions .....	78

<a href="#">Bibliography .....</a>	<a href="#">79</a>
------------------------------------	--------------------

Annex ZA (normative) Normative references to international publications with their corresponding European publications.....	80
---	----

Annex ZZ (informative) Coverage of essential requirements of the Directive.....	83
---	----

Figure 1 –Examples for determining clearances and creepage distances .....	25
--	----

Figure 2a) – Example of acceptable spring leaf screwless terminal construction .....	43
--	----

Figure 2b) – Example of non-acceptable spring leaf screwless terminal construction .....	43
--	----

Figure 2 – Spring leaf terminal .....	43
---------------------------------------	----

Table 1 – Relationship of this part to IEC 60079-0 .....	8
--	---

Table 2 – Minimum creepage distances, clearances and separations .....	20
--	----

Table 3 – Tracking resistance of insulating materials .....	21
---	----

Table 4 – Separation in compound-filled cable sealing boxes .....	21
---	----

Table 5 – Assumed working voltage of neutral points.....	31
--	----

Table 6 – Potential air gap sparking risk assessment for cage rotor ignition risk factors.....	33
--	----

Table 7 –Potential stator winding discharge risk assessment – Ignition risk factors.....	36
--	----

Table 8 – Creepage distances and clearances at peak values of pulse voltages greater than 1,5 kV .....	42
--	----

Table 9 – Types and use of cells and batteries .....	46
--	----

Table 10 – Minimum creepage distances, clearances and separations for low power apparatus .....	53
---	----

Table 11 – Insertion torque .....	70
-----------------------------------	----

Table 12 – Minimum removal torque.....	70
--	----

Table 13 – Text of warning markings .....	78
---	----

## ELECTRICAL APPARATUS FOR EXPLOSIVE GAS ATMOSPHERES –

### Part 15: Construction, test and marking of type of protection "n" electrical apparatus

#### 1 Scope

This part of IEC 60079 specifies requirements for the construction, testing and marking for Group II electrical apparatus with type of protection, "n" intended for use in explosive gas atmospheres.

This part is applicable to non-sparking electrical apparatus and also to electrical 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 gas atmosphere. This standard describes several different methods by which this can be achieved which may be combined with other methods described in IEC 60079-0.

This part supplements the general requirements in IEC 60079-0. The relationship of IEC 60079-0 to this part is as indicated in Table 1.

**Table 1 – Relationship of this part to IEC 60079-0**

Clause of IEC 60079-0		IEC 60079-0 clause application to IEC 60079-15				
		Type of protection nC	Non sparking apparatus nA and nA nL	Restricted breathing apparatus nR	Energy limited apparatus nL	Associated energy limited apparatus [nL] and [Ex nL]
4	Apparatus grouping and temperature classification	Yes	Yes	Yes	Yes	Yes
5	Temperatures					
5.1	Environmental influences	Yes	Yes	Yes	Yes	Yes
5.2	Service temperature	Yes	Yes	Yes	Yes	Yes
5.3	Maximum surface temperature	Yes	Yes	Yes	Yes	No
5.4	Surface temperature and ignition temperature	No	No	No	No	No
5.5	Small components	Yes	Yes	Yes	Yes	No
6	Requirements for all electrical apparatus					
6.1	General	Yes	Yes	Yes	Yes	Yes
6.2	Mechanical strength of apparatus	Yes	Yes	Yes	Yes <sup>c)</sup>	No
6.3	Opening times	No	No	Yes	No	No
6.4	Circulating currents	Yes	Yes	Yes	No	No
6.5	Gasket retention	Yes	Yes	Yes	Yes	No