

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Explosive atmospheres –  
Part 15: Equipment protection by type of protection "n"**

**Atmosphères explosives –  
Partie 15: Protection du matériel par mode de protection « n »**

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**EXPLOSIVE ATMOSPHERES –**

**Part 15: Equipment protection by type of protection "n"**

**INTERPRETATION SHEET 1**

This interpretation sheet has been prepared by IEC technical committee 31: Equipment for explosive atmospheres.

The text of this interpretation sheet is based on the following documents:

ISH	Report on voting
31/1259/ISH	31/1273/RVD

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

**IEC 60079-15:2010 Edition 4.0, Explosive atmospheres – Part 15: Equipment protection by type of protection "n"**

**Question:**

Do the requirements given in 8.3 prohibit the use of a terminal box opened to the interior of a motor rated 1 kV or greater, provided the interior of the machine has an ingress protection of IP54 or greater?

**IEC 60079-15:2010 Edition 4.0**

**8.3 Terminal boxes**

Terminal boxes attached to machines operating at voltages up to 1 kV, may be opened to the interior of the machine, only when the IP rating of the machine is IP44 or higher. The external IP protection of the box shall be not less than IP54, as determined in accordance with IEC 60079-0.

**Answer:**

No. As long as the interior of the machine has an ingress protection of IP54 or greater, determined in accordance with IEC 60079-0, there is no limitation to less than 1 kV. If the interior of the machine has an ingress rating of IP44 or lower, the use of a terminal box open to the interior of a motor rated 1 kV or greater is not permitted.

NOTE Many manufacturers opt to declare IP44 for the machine for certification purposes, whilst claiming a rating of IP54 or higher, by assessment, for contractual purposes in order to avoid the difficult testing required for certification of the IP of larger machines. As such, this additional IP rating need only comply with IEC 60529 or IEC 60034-5 as applicable, and not with any of the testing detailed in IEC 60079-0.



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## CONTENTS

FOREWORD.....	8
1 Scope.....	10
2 Normative references .....	14
3 Terms and definitions .....	15
4 General .....	17
4.1 Equipment grouping and temperature classification .....	17
4.2 Potential ignition sources .....	17
5 Temperatures.....	17
5.1 Maximum surface temperature .....	17
5.2 Small components.....	18
6 Requirements for electrical equipment.....	18
6.1 General.....	18
6.2 Opening times .....	18
6.3 Minimum degree of protection .....	18
6.3.1 General .....	18
6.3.2 Degree of protection provided by installation .....	18
6.4 Clearances, creepage distances and separations.....	18
6.4.1 General .....	18
6.4.2 Determination of working voltage.....	19
6.4.3 Conformal coating .....	19
6.4.4 Comparative tracking index (CTI).....	19
6.4.5 Measurement of creepage and clearance .....	19
6.4.6 Compound filled cable sealing boxes.....	21
6.5 Electric strength.....	26
6.5.1 Insulation from earth or frame.....	26
6.5.2 Insulation between conductive parts.....	26
7 Connection facilities and terminal compartments .....	27
7.1 General.....	27
7.2 Field wiring connections .....	27
7.2.1 General .....	27
7.2.2 Connections made using terminals complying with IEC 60947-7-1, IEC 60947-7-2, IEC 60999-1, or IEC 60999-2 .....	28
7.2.3 Field wiring connection facilities integral to “n” equipment or components.....	28
7.2.4 Connections designed to be used with cable lugs and similar devices .....	28
7.2.5 Connections using permanent arrangements .....	28
7.3 Factory connections .....	28
7.3.1 General .....	28
7.3.2 Field wiring connection methods used for factory connections .....	28
7.3.3 Other factory connections.....	28
7.3.4 Permanent connections .....	28
7.3.5 Pluggable connections.....	29
7.3.6 Terminal bridging connections .....	29
8 Supplementary requirements for non-sparking electrical machines .....	29
8.1 General.....	29
8.2 Machine enclosure .....	30

8.3	Terminal boxes.....	30
8.4	Conduit stopping boxes, cable sealing and dividing boxes.....	30
8.5	Connection facilities for external conductors.....	30
8.6	Neutral point connections.....	30
8.7	Radial air gap.....	31
8.8	Rotor cages.....	31
8.8.1	Rotor cages built from bars connected to end rings.....	31
8.8.2	Cast rotor cages.....	31
8.8.3	Assessment for possible air gap sparking.....	31
8.9	Stator winding insulation system.....	32
8.10	Surface temperature limitation.....	33
8.10.1	Prevention of thermal ignition.....	33
8.10.2	Operation with a frequency convertor or a non-sinusoidal supply.....	33
9	Supplementary requirements for non-sparking fuses and fuse assemblies.....	34
9.1	Fuses.....	34
9.2	Temperature class of equipment.....	34
9.3	Fuse mounting.....	34
9.4	Fuse enclosures.....	34
9.5	Replacement fuse identification.....	34
10	Supplementary requirements for non-sparking plugs and sockets.....	34
10.1	Plugs and sockets for external connections.....	34
10.2	Maintaining degree of protection (IP code).....	35
10.3	Sockets that do not have plugs inserted in normal operation.....	35
11	Supplementary requirements for non-sparking luminaires.....	35
11.1	General.....	35
11.2	Construction.....	35
11.2.1	General.....	35
11.2.2	Enclosure of lamp.....	36
11.2.3	Lampholders.....	36
11.2.4	Auxiliaries.....	37
11.2.5	Creepage distances and clearances.....	38
11.2.6	Terminals.....	39
11.2.7	Internal wiring.....	39
11.3	Luminaires for tubular fluorescent bi-pin lamps.....	39
11.3.1	General.....	39
11.3.2	Maximum ambient temperature.....	39
11.3.3	Temperature class.....	39
11.3.4	Endurance tests and thermal tests.....	40
11.3.5	Resistance to dust and moisture.....	41
11.3.6	Insulation resistance and electric strength.....	41
11.4	Other equipment containing light sources.....	41
12	Supplementary requirements for equipment incorporating non-sparking cells and batteries.....	41
12.1	General.....	41
12.2	Categorization of cells and batteries.....	41
12.2.1	Type 1 cells and batteries.....	41
12.2.2	Type 2 cells and batteries.....	42
12.2.3	Type 3 cells and batteries.....	42



12.3	General requirements for cells and batteries of types 1 and 2 .....	43
12.3.1	General .....	43
12.3.2	Maximum capacity .....	43
12.3.3	Secondary cells .....	43
12.3.4	Cell connection .....	43
12.3.5	Discharge mode .....	43
12.3.6	Temperature .....	43
12.3.7	Creepage and clearance .....	43
12.3.8	Connections .....	43
12.3.9	Connecting cells in series .....	43
12.3.10	Deep discharge protection .....	43
12.3.11	Temperature test conditions .....	44
12.3.12	Battery packs .....	44
12.3.13	Battery pack connections .....	44
12.3.14	Cell electrolyte and gas release .....	44
12.3.15	Excessive load draw .....	44
12.4	Charging of type 1 and type 2 cells and batteries .....	44
12.4.1	Temperature range .....	44
12.4.2	Charger specifications .....	44
12.4.3	Charging separated cells or batteries .....	44
12.4.4	Charger limitations .....	44
12.4.5	Charging outside the hazardous area .....	44
12.4.6	Gassing during charging of type 2 cells or batteries .....	45
12.5	Requirements for type 3 secondary batteries .....	45
12.5.1	Types of permissible batteries .....	45
12.5.2	Battery containers .....	45
12.5.3	Cells .....	46
12.5.4	Connections .....	47
12.6	Verification and tests .....	47
12.6.1	Insulation resistance .....	47
12.6.2	Mechanical shock test .....	47
13	Supplementary requirements for non-sparking low power equipment .....	47
14	Supplementary requirements for non-sparking current transformers .....	49
15	Other non-sparking electrical equipment .....	49
16	General supplementary requirements for equipment producing arcs, sparks or hot surfaces .....	49
17	Supplementary requirements for enclosed-break devices and non-incendive components producing arcs, sparks or hot surfaces .....	49
17.1	Type testing .....	49
17.2	Ratings .....	49
17.2.1	Enclosed-break devices .....	49
17.2.2	Non-incendive components .....	50
17.3	Construction of enclosed-break devices .....	50
17.3.1	Free internal volume .....	50
17.3.2	Continuous operating temperature (COT) requirements .....	50
17.3.3	Seal protection .....	50
18	Supplementary requirements for hermetically sealed devices producing arcs, sparks or hot surfaces .....	50



19	Supplementary requirements for sealed devices producing arcs, sparks or hot surfaces .....	50
19.1	Non-metallic materials .....	50
19.2	Opening .....	50
19.3	Internal spaces .....	50
19.4	Handling .....	51
19.5	Gasket and seals .....	51
19.6	Type tests .....	51
20	Supplementary requirements for restricted-breathing enclosures protecting equipment producing arcs, sparks or hot surfaces .....	51
20.1	General .....	51
20.2	Constructional requirements .....	51
20.2.1	Type of equipment .....	51
20.2.2	Cable glands and conduit entries .....	52
20.2.3	Operating rods, spindles and shafts .....	52
20.2.4	Windows .....	52
20.2.5	Gasket and seal requirements .....	53
20.2.6	Non-resilient seals .....	53
20.2.7	Test port .....	53
20.2.8	Internal fans .....	54
20.2.9	Routine test exemptions .....	54
20.3	Temperature limitation .....	54
20.3.1	General .....	54
20.3.2	Temperature calculation .....	54
20.4	Additional requirements for restricted-breathing luminaires .....	55
20.4.1	Mounting arrangement .....	55
20.4.2	Reflectors .....	55
20.4.3	Surface temperatures of restricted breathing luminaires .....	55
21	General information on verification and tests .....	55
22	Type tests .....	55
22.1	Representative samples .....	55
22.2	Test configuration .....	55
22.3	Tests for enclosures on which the type of protection depends .....	55
22.3.1	Thermal endurance tests .....	55
22.4	Tests for enclosed break devices and non-incendive components .....	56
22.4.1	Preparation of enclosed-break device samples .....	56
22.4.2	Preparation of non-incendive component samples .....	56
22.4.3	Test conditions for enclosed-break devices and non-incendive components .....	56
22.5	Tests for sealed devices .....	57
22.5.1	Conditioning .....	57
22.5.2	Voltage test .....	57
22.5.3	Tests on devices with free space .....	57
22.5.4	Test for sealed devices for luminaires .....	58
22.6	Type test requirements for restricted-breathing enclosures .....	58
22.6.1	General .....	58
22.6.2	Test procedures .....	59
22.6.3	Alternative Type test for equipment where the nominal volume of the enclosure changes due to pressure .....	59

22.7	Test for screw lampholders.....	59
22.8	Test for starter holders for luminaires .....	60
22.9	Tests for electronic starters for tubular fluorescent lamps and for ignitors for high pressure sodium or metal halide lamps .....	60
22.9.1	General .....	60
22.9.2	Moisture resistance, insulation and electric strength test .....	60
22.9.3	Cut-out device test .....	60
22.9.4	Life test (failed lamp).....	61
22.10	Test for wiring of luminaires subject to high-voltage impulses from ignitors.....	61
22.11	Mechanical shock test for batteries .....	62
22.11.1	General.....	62
22.11.2	Test procedure .....	62
22.11.3	Evaluation criteria .....	62
22.12	Insulation resistance test for batteries .....	62
22.12.1	Test conditions.....	62
22.12.2	Evaluation criteria .....	63
22.13	Additional ignition tests for large or high-voltage machines.....	63
22.13.1	Test for cage rotor construction.....	63
22.13.2	Test for stator winding insulation system incendivity.....	63
23	Routine verifications and tests.....	64
23.1	General.....	64
23.2	Specific routine tests .....	64
23.2.1	Electric strength test.....	64
23.2.2	Alternate dielectric strength test .....	64
23.2.3	Routine test requirements for restricted-breathing enclosures .....	64
23.2.4	Routine tests for electronic starters and ignitors .....	65
24	Marking .....	66
24.1	General.....	66
24.2	Where IP marking is required equipment shall be marked in accordance with 6.3. Additional marking for batteries .....	66
24.3	Examples of marking.....	67
24.3.1	Warning markings.....	67
25	Documentation .....	68
26	Instructions.....	68
	Annex A (informative) Application, installation, and testing considerations for Ex “nA” asynchronous machines.....	69
	Bibliography.....	71
	Figure 1 – Examples for determining clearances and creepage distances .....	26
	Table 1 – Relationship of this part to IEC 60079-0 .....	10
	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 .....	22
	Table 5 – Assumed voltage of neutral points.....	30
	Table 6 – Potential air gap sparking risk assessment for cage rotor ignition risk factors.....	32
	Table 7 – Minimum distance between lamp and protective cover .....	36

Table 8 – Creepage distances and clearances at peak values of pulse voltages greater than 1,5 kV .....	39
Table 9 – Types and use of cells and batteries .....	42
Table 10 – Minimum creepage distances, clearances and separations for low power equipment.....	48
Table 11 – Insertion torque .....	59
Table 12 – Minimum removal torque .....	60
Table 13 – Explosion test mixtures .....	64
Table 14 – Text of warning markings .....	67

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**EXPLOSIVE ATMOSPHERES –****Part 15: Equipment protection by type of protection "n"**

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International Standard IEC 60079-15 has been prepared by IEC technical committee 31: Equipment for explosive atmospheres.

This fourth edition cancels and replaces the third edition, published in 2005, and constitutes a technical revision.

The significant technical changes with respect to the previous edition are as follows:

- addition of equipment protection levels;
- removal of the requirements for energy-limited "nL" and associated energy limited apparatus "[nL]";
- removal of the requirements for encapsulated Devices "nC";
- requirements for electrical connections expanded and clarified;
- requirements for luminaire ballasts expanded and clarified;
- requirements for evaluation and testing of motor rotors clarified;

- 15 kV limit for equipment protection by type of protection "n" added;
- spacing requirement for voltages above 10 kV modified;
- requirements for restricted breathing enclosures modified;
- modification to requirements for motor rotors and stators;
- addition of Annex A (informative);
- undated references to IEC 60079-0 included.

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

FDIS	Report on voting
31/833/FDIS	31/853/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 International Standard is to be read in conjunction with IEC 60079-0.

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

A list of all parts of the IEC 60079 series, under the general title: *Explosives 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.

The contents of the interpretation sheet of September 2016 have been included in this copy.

## EXPLOSIVE ATMOSPHERES –

### Part 15: Equipment protection by type of protection "n"

#### 1 Scope

This part of IEC 60079 specifies requirements for the construction, testing and marking for Group II electrical equipment with type of protection, "n" intended for use in explosive gas atmospheres. This standard applies to electrical equipment where the rated voltage does not exceed 15 kV r.m.s. a.c. or d.c.

This part of IEC 60079 is applicable to non-sparking electrical equipment and also to electrical equipment 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 standard supplements and modifies the general requirements of IEC 60079-0, except as indicated in Table 1. Where a requirement of this standard conflicts with a requirement of IEC 60079-0, the requirement of this standard takes precedence.

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

Clause of IEC 60079-0			IEC 60079-0 clause application to IEC 60079-15		
Ed. 5.0 (2007) (informative)	Ed. 6.0 <sup>1</sup> (future edition) (informative)	Clause / Subclause title (normative)	Protected sparking nC	Non sparking nA	Restricted breathing nR
4	4	Equipment grouping	Applies	Applies	Applies
4.1	4.1	Group I	Excluded	Excluded	Excluded
4.2	4.2	Group II	Applies	Applies	Applies
4.3	4.3	Group III	Excluded	Excluded	Excluded
4.4	4.4	Equipment for a particular explosive atmosphere	Applies	Applies	Applies
5.1	5.1	Environmental influences	Applies	Applies	Applies
5.1.1	5.1.1	Ambient temperature	Applies	Applies	Applies
5.1.2	5.1.2	External source of heating or cooling	Applies	Applies	Applies
5.2	5.2	Service temperature	Applies	Applies	Applies
5.3.1	5.3.1	Determination of maximum surface temperature	Applies	Applies	Applies
5.3.2.1	5.3.2.1	Group I electrical equipment	Excluded	Excluded	Excluded

<sup>1</sup> Under consideration.

Clause of IEC 60079-0			IEC 60079-0 clause application to IEC 60079-15		
Ed. 5.0 (2007) (informative)	Ed. 6.01 (future edition) (informative)	Clause / Subclause title (normative)	Protected sparking nC	Non sparking nA	Restricted breathing nR
5.3.2.2	5.3.2.2	Group II electrical equipment	Applies	Applies	Applies
5.3.2.3	5.3.2.3	Group III electrical equipment	Excluded	Excluded	Excluded
5.3.3	5.3.3	Small component temperature for Group I and Group II electrical equipment	Applies	Applies	Excluded
6.1	6.1	General	Applies	Applies	Applies
6.2	6.2	Mechanical strength	Applies	Applies	Applies
6.3	6.3	Opening times	Excluded	Excluded	Applies
6.4	6.4	Circulating currents	Applies	Applies	Applies
6.5	6.5	Gasket retention	Applies	Applies	Applies
6.6	6.6	Electromagnetic and ultrasonic radiating equipment	Applies	Applies	Applies
7.1.1	7.1.1	Applicability	Applies	Applies	Applies
7.1.2	7.1.2	Specification of materials	Applies	Applies	Applies
7.1.3	7.1.2.2	Plastic materials	Applies	Applies	Applies
7.1.4	7.1.2.3	Elastomeric materials	Applies	Applies	Applies
7.2	7.2	Thermal endurance	Applies	Applies	Applies
7.3	7.3	Resistance to light	Applies	Applies	Applies
7.4	7.4	Electrostatic charges on external non-metallic materials	Applies	Applies	Applies
7.5	9.1	Threaded holes	Applies	Applies	Applies
8.1.1	8.2	Group I	Excluded	Excluded	Excluded
8.1.2	8.3	Group II	Applies	Applies	Applies
8.1.3	8.4	Group III	Excluded	Excluded	Excluded
8.2	9.1	Threaded holes	Applies	Applies	Applies
9.1	9.1	General	Applies	Applies	Applies
9.2	9.2	Special fasteners	Excluded	Excluded	Excluded
9.3	9.3	Holes for special fasteners	Excluded	Excluded	Excluded
10	10	Interlocking devices	Excluded	Excluded	Excluded
11	11	Bushings	Applies	Applies	Applies
12	12	Materials used for cementing	Modified	Modified	Modified
13	13	Ex components	Applies	Applies	Applies
14	14	Connection facilities and termination compartments	Modified	Modified	Modified
15	15	Connection facilities for earthing and bonding conductors	Applies	Applies	Applies