BS EN IEC 60079-17:2024

BSI Standards Publication

# Explosive atmospheres

Part 17: Electrical installations inspection and maintenance

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# National foreword

This British Standard is the UK implementation of EN IEC 60079-17:2024. It is identical to IEC 60079-17:2023. It supersedes BS EN 60079-17:2014, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EXL/31/3, Codes of practice.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Published by BSI Standards Limited 2024

ISBN 978 0 539 04386 0

ICS 13.230; 29.260.20

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 January 2024.

**Amendments/corrigenda issued since publication**

| Date | Text affected |
|---|---|

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN IEC 60079-17

January 2024

ICS 29.260.20

Supersedes EN 60079-17:2014

English Version

## Explosive atmospheres - Part 17: Electrical installations inspection and maintenance (IEC 60079-17:2023)

Atmosphères explosives - Partie 17 : Inspection et maintenance des installations électriques (IEC 60079-17:2023)

Explosionsgefährdete Bereiche - Teil 17: Prüfung und Instandhaltung elektrischer Anlagen (IEC 60079-17:2023)

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# European foreword

The text of document 31J/345/FDIS, future edition 6 of IEC 60079-17, prepared by SC 31J "Classification of hazardous areas and installation requirements" of IEC/TC 31 "Equipment for explosive atmospheres" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60079-17:2024.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2024-10-05
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2027-01-05

This document supersedes EN 60079-17:2014 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

## Endorsement notice

The text of the International Standard IEC 60079-17:2023 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 standard indicated:

| | |
|---|---|
| IEC 60079-5 | NOTE Approved as EN 60079-5 |
| IEC 60079-6 | NOTE Approved as EN 60079-6 |
| IEC 60079-7:2015 | NOTE Approved as EN 60079-7:2015 (not modified) |
| IEC 60079-11 | NOTE Approved as EN 60079-11 |
| IEC 60079-13 | NOTE Approved as EN 60079-13 |
| IEC 60079-18 | NOTE Approved as EN 60079-18 |
| IEC 60079-26 | NOTE Approved as EN 60079-26 |
| IEC 60079-28 | NOTE Approved as EN 60079-28 |
| IEC 60204-1 | NOTE Approved as EN 60204-1 |

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# Annex ZA
(normative)

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

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

| Publication | Year | Title | EN/HD | Year |
|---|---|---|---|---|
| IEC 60079-0 | - | Explosive atmospheres - Part 0: Equipment - General requirements | EN IEC 60079-0 | - |
| IEC 60079-10-1 | - | Explosive atmospheres - Part 10-1: Classification of areas - Explosive gas atmospheres | EN IEC 60079-10-1 | - |
| IEC 60079-10-2 | - | Explosive atmospheres - Part 10-2: Classification of areas - Explosive dust atmospheres | EN 60079-10-2 | - |
| IEC 60079-14 | - | Explosive atmospheres - Part 14: Electrical installations design, selection and erection | EN 60079-14 | - |
| IEC 60079-15 | - | Explosive atmospheres - Part 15: Equipment protection by type of protection "n" | EN IEC 60079-15 | - |
| IEC 60079-19 | - | Explosive atmospheres - Part 19: Equipment repair, overhaul and reclamation | EN IEC 60079-19 | - |
| IEC 60364-6 | - | Low voltage electrical installations - Part 6: Verification | HD 60364-6 | - |

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

# EXPLOSIVE ATMOSPHERES –

## Part 17: Electrical installations inspection and maintenance

## 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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IEC 60079-17 has been prepared by subcommittee 31J: Classification of hazardous areas and installation requirements, of IEC technical committee 31: Equipment for explosive atmospheres. It is an International Standard.

This sixth edition cancels and replaces the fifth edition published in 2013. This edition constitutes a technical revision.

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This edition includes the following significant technical changes with respect to the previous edition:

| | | Type | | |
|---|---|---|---|---|
| **Changes** | **Clause** | **Minor and editorial changes** | **Extension** | **Major technical changes** |
| Simplifying description of explosive gas and dust atmospheres in the Scope and uses of these terms throughout document | 1 | X | | |
| Clarifies the exclusion of ventilated rooms in the Scope | 1 | X | | |
| Aligns maintenance terms and definitions in 3.7 and 3.8 with IEV & 60079. | 3 | X | | |
| Introducing new clause 4.4.1.2. **Manufacturer's documentation** for cross referencing in text without repetition | 4 | X | | |
| Further guidance added into Note 4 regarding factors contributing to the deterioration of Ex Equipment. | 4.4.1.1. | | X | |
| Clarifies the change in terminology from previously used **Special Condition of Safe Use** to current terminology **Specific Conditions of Use**. | 4.11 | | X | |
| Further requirements added regarding Type of Protection "o". | 5.7 | | | C1 |
| Clarification added regarding use of inspection tables | 6 | | X | |
| Minor editorial changes and correction made to Tables 1 to 4 but with no change to item numbering or content | Tables 1 to 4 | X | | |
| Modified reference in this standard to align all types of inspection with Continuous Supervision terms for example; Skilled Personnel and Technical Persons with Executive Function. | Annex B | | | C2 |
| A typical assessment and test report is shown in C.5.14. | Annex C | X | | |
| Introducing new items in the Bibliography | Bibliography | X | | |
| NOTE The technical changes referred to include the significance of technical changes in the revised IEC Standard, but they do not form an exhaustive list of all modifications from the previous version. | | | | |

**Explanations:**

## A Definitions

### Minor and editorial changes

– clarification
– decrease of technical requirements
– minor technical change
– editorial corrections

These are changes which modify requirements in an editorial or a minor technical way. They include changes of the wording to clarify technical requirements without any technical change, or a reduction in level of existing requirement.

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**Extension**

– addition of technical options

These are changes which add new or modify existing technical requirements, in a way that new options are given, but without increasing requirements from the previous standard.

**Major technical changes**

– addition of technical requirements
– increase of technical requirements

These are changes to technical requirements (addition, increase of the level or removal) made in a way that an overhaul or repair of product to the preceding edition will not always be able to fulfil the requirements given in the later edition. For these changes additional information is provided in clause B) below.

NOTE These changes represent current technological knowledge. However, these changes do not normally have an influence on equipment already placed on the market.

## B Information about the background of 'major technical changes'

C1 Sub-clause 5.7 and Table 4 has been inserted based on text submitted by MT60079-6 *Explosive atmospheres – Part 6: Equipment protection by liquid immersion "o".*

C2 The previous reference to Responsible Person in Annex B usually reflects the roles and the responsibilities of a person rather than the technical knowledge, skills and competencies required to manage the activity of periodic inspection and maintenance of Ex equipment. The term used within the Continuous Supervision clauses of Technical Person With Executive Function provides clarity and harmonises the clauses within the document.

The text of this International Standard is based on the following documents:

| Draft | Report on voting |
|---|---|
| 31J/345/FDIS | 31J/351/RVD |

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

This International Standard is intended to be used in conjunction with IEC 60364-6.

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

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The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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# INTRODUCTION

Electrical installations in hazardous areas possess features specially designed to render them suitable for operations in such atmospheres. It is essential for reasons of safety in those areas that, throughout the life of such installations, the integrity of those special features is preserved. This document provides the details for initial inspection and on-going inspections as either:

a) regular periodic inspections thereafter, or,

b) continuous supervision

by Skilled Personnel.

Where necessary, maintenance might also be needed.

Correct functional operation of hazardous area installations does not mean, and is not to be interpreted as meaning, that the integrity of the special features referred to above are preserved.

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# EXPLOSIVE ATMOSPHERES –

# Part 17: Electrical installations inspection and maintenance

## 1 Scope

This part of IEC 60079 applies to users and covers only those factors directly related to the inspection and maintenance of electrical installations specifically designed for hazardous areas, where the hazard is caused by explosive atmospheres.

It does not include:

- other fundamental installation and inspection requirements for electrical installations;
- the verification of electrical equipment;
- protection or ventilation of rooms;
- gas detection systems;
- the repair, overhaul and reclamation of explosion protected equipment (see IEC 60079-19).

While this document does not include inspection of safety devices such as used in ventilated rooms (see IEC 60079-13), it does include the requirements for inspection and maintenance of individual items of equipment that will be part of such systems, for example motors or sensors.

This document supplements the requirements for inspection and testing in non-hazardous areas in IEC 60364-6. This document is intended to be applied where there is a risk due to the potential presence of explosive gas or dust mixtures with air or combustible dust layers under normal atmospheric conditions. It does not apply to:

- underground mining areas,
- dusts of explosives,
- pyrophoric substances.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60079-0, *Explosive atmospheres – Part 0: Equipment – General requirements*

IEC 60079-10-1, *Explosive atmospheres – Part 10-1: Classification of areas – Explosive gas atmospheres*

IEC 60079-10-2, *Explosive atmospheres – Part 10-2: Classification of areas – Explosive dust atmospheres*

IEC 60079-14, *Explosive atmospheres – Part 14: Electrical installations design, selection and erection*

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

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IEC 60079-19, *Explosive atmospheres – Part 19: Equipment repair, overhaul and reclamation*

IEC 60364-6, *Low voltage electrical installations – Part 6: Verification*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60079-0 and the following apply.

NOTE Additional definitions applicable to explosive atmospheres can be found in IEC 60050-426.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

**3.1**
**close inspection**
inspection that encompasses those aspects covered by a visual inspection and, in addition, identifies those defects, such as loose bolts, which will be apparent only by the use of access equipment, for example steps (where necessary) and tools

Note 1 to entry: Close inspections do not normally require the enclosure to be opened, or the equipment to be de-energized.

**3.2**
**continuous supervision**
frequent attendance, inspection, service, care and maintenance of the electrical installation by Skilled Personnel who have experience in the specific installation and its environment in order to maintain the explosion protection features of the installation in satisfactory condition

**3.3**
**detailed inspection**
inspection that encompasses those aspects covered by a close inspection and, in addition, identifies those defects, such as loose terminations, which will only be apparent by opening the enclosure, and/or using, where necessary, tools and test equipment

**3.4**
**hazardous area**
area in which an explosive atmosphere is present, or can be expected to be present, in quantities such as to require special precautions for the construction, installation and use of equipment

Note 1 to entry: IEC 60079-10-1, *Explosive atmospheres – Part 10-1: Classification of areas – Explosive gas atmospheres*, gives a classification of hazardous areas containing explosive gas atmospheres (see IEC 60050-426:2020, 426-03-03, 426-03-04 and 426-03-05).

Note 2 to entry: IEC 60079-10-2, *Explosive atmospheres – Part 10-2: Classification of areas – Explosive dust atmospheres*, gives a classification of hazardous areas containing explosive dust atmospheres (see IEC 60050-426:2020, 426-03-23, 426-03-24, and 426-03-25).

**3.5**
**initial inspection**
inspection of all electrical equipment, systems and installations before they are brought into service

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**3.6**
**inspection**
**<for explosive atmospheres>** action comprising careful scrutiny of an item carried out either without dismantling, or with the addition of partial dismantling as required, supplemented by means such as measurement, in order to arrive at a reliable conclusion as to the condition of an item

**3.7**
**live maintenance**

maintenance activities carried out while the associated apparatus, intrinsically safe apparatus, and circuits are energized

[SOURCE: IEC 60050-426: 2020, 426-11-51]

**3.8**
**maintenance**
**<for explosive atmospheres>** combination of routine actions taken to preserve the fully serviceable condition of the installed apparatus

**3.9**
**non-hazardous area**
area in which an explosive atmosphere is not expected to be present in quantities such as to require special precautions for the construction, installation and use of equipment

**3.10**
**periodic inspection**
inspection of all electrical equipment, systems and installations carried out on a routine basis

**3.11**
**sample inspection**
inspection of a representative proportion of the electrical equipment, systems and installations

**3.12**
**Skilled Personnel**
people who meet specific requirements for the qualification of personnel

Note 1 to entry: The specific requirements for the qualification of personnel with respect to installation and maintenance are specified in Annex B.

**3.13**
**Technical Persons with Executive Function**
persons providing technical management of the Skilled Personnel, having adequate knowledge in the field of explosion protection, familiar with the local conditions, familiar with the installation and who has overall responsibility and control of the inspection systems for the electrical equipment within hazardous areas

**3.14**
**visual inspection**
inspection that identifies, without the use of access equipment or tools, those defects, such as missing bolts, which will be apparent to the eye

## 4 General requirements

### 4.1 Documentation

For the purposes of inspection and maintenance, up-to-date documentation (verification dossier) including any modification records, of the following items shall be available:

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