SVENSK STANDARD

SS-EN IEC 60079-31, utg 3:2024

2024-06-19

REDLINE VERSION

Explosiv atmosfär –
Del 31: Utrustning i utförande med dammskyddande kapsling "t"

Explosive atmospheres –
Part 31: Equipment dust ignition protection by enclosure "t"

En så kallad ”Redline version” (RLV) innehåller både standarden som fastställts som SS och en ändringsmarkerad IEC-standard. Alla tillägg och borttagningar sedan den tidigare utgåvan av IEC-standarden är markerade med färg. Med en RLV sparar du mycket tid när du ska identifiera och bedöma aktuella ändringar i standarden. SEK Svensk Elstandard kan bara ge ut RLV i de fall den finns tillgänglig från IEC.

IEC 60079-31

Edition 3.0 2022-01
REDLINE VERSION

INTERNATIONAL STANDARD

colour inside

Explosive atmospheres –
Part 31: Equipment dust ignition protection by enclosure "t"

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 29.260.20

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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EXPLOSIVE ATMOSPHERES –

Part 31: Equipment dust ignition protection by enclosure "t"

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.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 60603-7:2013. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

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

This third edition cancels and replaces the second edition published in 2013. This edition constitutes a technical revision.

The significance of changes between IEC Standard, IEC 60079-31, Edition 3.0 and IEC 60079-31, Edition 2.0, are as listed below:

		Type		
Changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
Document has been restructured from edition 2	Numerous	X		
Withstand of prospective short-circuit current	4.3.1		X	
Fault current rating of interrupting contacts rated greater than 10 kA for mains connected circuits	4.4.1 and 6.1.1.1			C1
Thermal protective device can include a thermal protective circuit with an appropriate sensor.	4.4.4.1		X	
Cells and batteries	4.3.6 and 4.4.5			C2
Joints employing parallel threads with an additional seal or gasket are permitted to have less than five threads.	5.1.2		X	
Gasket joints that interlock (not a butt joint) and are designed such that under the intended compression no gap between the pieces exist so that an uninterrupted periphery is formed, these joints do not need to be permanently joined.	5.1.3		X	
Overload or malfunction condition for the determination of temperature class for "tb" converter fed rotating electric machines	Table 2			C3
Additional requirements for entry devices with dust ignition protection by enclosure "t"	Annex A			C4
Thermal tests are relocated to IEC 60079-0.	Formerly 6.1.2	A1		

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. More guidance may be found by referring to the Redline Version of the standard.

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clarification
decrease of technical requirements
minor technical change
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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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NOTE These changes represent current technological knowledge. However, these changes should not normally have an influence on equipment already placed on the market.

B) Information about the background of 'Major Technical Changes'

C1 – For Ex Equipment having Level of Protection "tb" or "tc" which is intended for mains connection and intended to interrupt fault current above 10kA is tested according to 6.1.1.1, and is marked according to Clause 7.

C2 – For Ex Equipment having Level of Protection "ta" only sealed primary cells or batteries shall be used. A control device shall be provided to prevent overheating of the cell or battery during normal operation, expected malfunctions, or rare malfunctions. The control device may also be considered as a thermal protective device or overcurrent protective device. For Ex Equipment having Level of Protection "tb" and "tc" only sealed cells or batteries shall be used. A control device shall be provided to prevent overheating of the cell or battery during normal operation or expected malfunctions ("tb") or during normal operation ("tc"). The control device may also be considered as a thermal protective device or overcurrent protective device.

C3 – Table 2 now includes malfunction conditions for temperature class determination of Level of Protection "tb" converter-fed electric machines.

C4 – Annex A added for entry devices with Type of Protection "t" including cable transit devices.

A1 – Thermal tests formerly located in 6.1.2 are relocated to IEC 60079-0 for the 2017 and later editions.

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

Draft	Report on voting
31/1595/FDIS	31/1606/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.

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- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

The contents of the corrigendum 1 (2023-10) have been included in this copy.

INTRODUCTION

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent. IEC takes no position concerning the evidence, validity, and scope of this patent right.

The holder of this patent right has assured IEC that s/he is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with IEC. Information may be obtained from the patent database available at http://patents.iec.ch.

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

EXPLOSIVE ATMOSPHERES –

Part 31: Equipment dust ignition protection by enclosure "t"

1 Scope

This part of IEC 60079 is applicable to ~~electrical~~ equipment protected by enclosure and surface temperature limitation for use in explosive dust atmospheres. It specifies requirements for design, construction and testing of ~~electrical equipment~~ Ex Equipment and Ex Components.

This document supplements and modifies the general requirements of IEC 60079-0. Where a requirement of this document conflicts with a requirement of IEC 60079-0, the requirement of this document takes precedence.

This document does not apply to dusts of explosives, which do not require atmospheric oxygen for combustion, or to pyrophoric substances.

This document does not apply to ~~electrical equipment~~ Ex Equipment or Ex Components 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.

This document does not take account of any ~~risk~~ hazard due to an emission of flammable or toxic gas from the dust.

~~Consideration of additional protective measures is required where the application of electrical equipment is in atmospheres, which can contain combustible dust and explosive gas, whether simultaneously or separately.~~

This document does not contain requirements for Ex Equipment used in areas where both combustible dust and explosive gas atmospheres can occur, whether simultaneously or separately. Requirements for explosive gas atmospheres can be found in other parts of the IEC 60079 series. Guidance on Ex Equipment to be used where combustible dust and explosive gas atmospheres occur simultaneously ("hybrid mixtures") can be found in IEC 60079-14.

Where the ~~electrical equipment~~ Ex Equipment has to meet other environmental conditions, for example, protection against ingress of water and resistance to corrosion, additional measures which do not adversely affect the integrity of the enclosure can be necessary. ~~The measures used should not adversely affect the integrity of the enclosure.~~

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 60127 (all parts), *Miniature fuses*

IEC 60269 (all parts), *Low-voltage fuses*

IEC 60691, *Thermal-links – Requirements and application guide*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60034-5, *Rotating electrical machines – Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code) – Classification*

ISO 965-1, *ISO general-purpose metric screw threads – Tolerances – Part 1: Principles and basic data*

ANSI/ASME B1.20.1*, Pipe threads, general purpose (inch)*

ANSI/UL 248 *(all parts), Standard for Low-Voltage Fuses*

SVENSK STANDARD

SS-EN IEC 60079-31, utg 3:2024

Fastställd	Sida	Ansvarig kommitté
2024-06-19	1 (23)	SEK TK 31

Explosiv atmosfär –
Del 31: Utrustning i utförande med dammskyddande kapsling "t"

Explosive atmospheres –
Part 31: Equipment dust ignition protection by enclosure "t"

Som svensk standard gäller europastandarden EN IEC 60079-31:2024. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60079-31:2024.

Nationellt förord

Europastandarden EN IEC 60079-31:2024

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60079-31, Third edition, 2022**[*)] **- Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60079-31, utg 2:2014 med eventuella tillägg, ändringar och rättelser gäller ej fr o m 2026-12-13.

[*)] Corrigendum No 1 (2023-10) till IEC 60079-31:2022 är inarbetat i standarden.

ICS 29.260.20

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Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

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Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60079-31

March 2024

ICS 29.260.20

Supersedes EN 60079-31:2014

English Version

Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t" (IEC 60079-31:2022 + COR1:2023)

Atmosphères explosives - Partie 31: Protection contre l'inflammation de poussières par enveloppe "t" relative à l'appareil
(IEC 60079-31:2022 + COR1:2023)

Explosionsgefährdete Bereiche - Teil 31: Geräte-Staubexplosionsschutz durch Gehäuse "t"
(IEC 60079-31:2022 + COR1:2023)

This European Standard was approved by CENELEC on 2023-12-13. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN IEC 60079-31:2024 E

SEK Svensk Elstandard

SS-EN IEC 60079-31, utg 3:2024

European foreword

The text of document 31/1595/FDIS, future edition 3 of IEC 60079-31+COR1, prepared by IEC/TC 31 "Equipment for explosive atmospheres" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60079-31:2024.

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) 2024-09-13
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-12-13

This document supersedes EN 60079-31:2014 and all of its amendments and corrigenda (if any).

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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 60079-31:2022+COR1:2023 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60079-14 NOTE Approved as EN 60079-14

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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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 60127	series	Miniature fuses	-	series
IEC 60269	series	Low-voltage fuses	EN 60269	series
IEC 60691	-	Thermal-links - Requirements and application guide	EN IEC 60691	-
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	-	-
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ISO 965-1	-	ISO general purpose metric screw threads - Tolerances - Part 1: Principles and basic data	-	-
ANSI/ASME B1.20.1	-	Pipe threads, general purpose (inch)	-	-
ANSI/UL 248	series	Standard for low-voltage fuses	-	series

IEC 60079-31

Edition 3.0 2022-01

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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Part 31: Equipment dust ignition protection by enclosure "t"

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INTRODUCTION

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent. IEC takes no position concerning the evidence, validity, and scope of this patent right.

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EXPLOSIVE ATMOSPHERES –

Part 31: Equipment dust ignition protection by enclosure "t"

1 Scope

This part of IEC 60079 is applicable to equipment protected by enclosure and surface temperature limitation for use in explosive dust atmospheres. It specifies requirements for design, construction and testing of Ex Equipment and Ex Components.

This document supplements and modifies the general requirements of IEC 60079-0. Where a requirement of this document conflicts with a requirement of IEC 60079-0, the requirement of this document takes precedence.

This document does not apply to dusts of explosives, which do not require atmospheric oxygen for combustion, or to pyrophoric substances.

This document does not apply to Ex Equipment or Ex Components 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.

This document does not take account of any hazard due to an emission of flammable or toxic gas from the dust.

This document does not contain requirements for Ex Equipment used in areas where both combustible dust and explosive gas atmospheres can occur, whether simultaneously or separately. Requirements for explosive gas atmospheres can be found in other parts of the IEC 60079 series. Guidance on Ex Equipment to be used where combustible dust and explosive gas atmospheres occur simultaneously ("hybrid mixtures") can be found in IEC 60079-14.

Where the Ex Equipment has to meet other environmental conditions, for example, protection against ingress of water and resistance to corrosion, additional measures which do not adversely affect the integrity of the enclosure can be necessary.

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 60127 (all parts), *Miniature fuses*

IEC 60269 (all parts), *Low-voltage fuses*

IEC 60691, *Thermal-links – Requirements and application guide*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60034-5, *Rotating electrical machines – Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code) – Classification*

ISO 965-1, *ISO general-purpose metric screw threads – Tolerances – Part 1: Principles and basic data*

ANSI/ASME B1.20.1*, Pipe threads, general purpose (inch)*

ANSI/UL 248 *(all parts), Standard for Low-Voltage Fuses*