

**PLAHVATUSOHTLIKUD KESKKONNAD.
OSA 25: SÄDEMEOHUTUD ELEKTRILISED SÜSTEEMID**

**Explosive atmospheres - Part 25: Intrinsically safe
electrical systems (IEC 60079-25:2020 + COR1:2020 +
IEC 60079-25:2020/AMD1:2025)**

EESTI STANDARDI EESSÕNA**NATIONAL FOREWORD**

See Eesti standard EVS-EN IEC 60079-25:2022+A1:2025 sisaldab Euroopa standardi EN IEC 60079-25:2022 ja selle muudatuse A1:2025 ning paranduse AC:2022 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 60079-25:2022+A1:2025 consists of the English text of the European standard EN IEC 60079-25:2022 and its amendment A1:2025 and corrigendum AC:2022.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 09.09.2022, A1 07.11.2025.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. Date of Availability of the European standard is 09.09.2022 and A1 07.11.2025.
Parandusega AC lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega AC AC . Muudatusega A1 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega A1 A1 . Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The start and finish of text introduced or altered by corrigendum AC is indicated in the text by tags AC AC . The start and finish of text introduced or altered by amendment A1 is indicated in the text by tags A1 A1 . The standard is available from the Estonian Centre for Standardisation and Accreditation.

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ICS 29.260.20

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EN IEC 60079-25 + A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

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Explosive atmospheres - Part 25: Intrinsically safe electrical systems (IEC 60079-25:2020 + COR1:2020 + IEC 60079-25:2020/AMD1:2025)

Atmosphères explosives - Partie 25: Systèmes électriques de sécurité intrinsèque (IEC 60079-25:2020 + COR1:2020 + IEC 60079-25:2020/AMD1:2025)

Explosionsfähige Atmosphäre - Teil 25: Eigensichere Systeme (IEC 60079-25:2020 + COR1:2020 + IEC 60079-25:2020/AMD1:2025)

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Comité Européen de Normalisation Electrotechnique
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European foreword

The text of document 31G/318/FDIS, future edition 3 of IEC 60079-25, prepared by SC 31G "Intrinsically-safe apparatus" of IEC/TC 31 "Equipment for explosive atmospheres" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60079-25:2022.

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) 2023-03-09
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2025-09-09

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For the relationship with EU Directive(s) / Regulation(s), see informative Annex ZZ, which is an integral part of this document.

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

IEC 60529 NOTE Harmonized as EN 60529

A1 Amendment A1 European foreword

The text of document 31G/426/FDIS, future edition 3 of IEC 60079-25/AMD1, prepared by SC 31G "Intrinsically-safe apparatus" of IEC/TC 31 "Equipment for explosive atmospheres" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60079-25:2022/A1:2025.

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- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2026-11-30
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The text of the International Standard IEC 60079-25:2020/AMD1:2025 was approved by CENELEC as a European Standard without any modification. **A1**

INTERNATIONAL STANDARD

CONSOLIDATED VERSION

**Explosive atmospheres -
Part 25: Intrinsically safe electrical systems**



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IEC Secretariat
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

EXPLOSIVE ATMOSPHERES –

Part 25: Intrinsically safe electrical systems

FOREWORD

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International Standard IEC 60079-25 has been prepared by subcommittee 31G: Intrinsically safe apparatus, of IEC technical committee 31: Equipment for explosive atmospheres.

This third edition cancels and replaces the second edition published in 2010 and constitutes a technical revision.

The significance of the changes between IEC 60079-25, Edition 2 (2010) and IEC 60079-25, Edition 3 (2019) are as listed below:

Changes	Clause	Type		
		Minor and editorial changes	Extension	Major technical changes
References to 'electrical systems' changed to 'systems' and note added that installation requirement for Group I are being considered.	0	X		
Normative references updated to remove references that were outdated or not mentioned in the body of the standard.	0	X		
Reference to IEC Electropedia and ISO Online Browsing platform added, abbreviations dropped from title. Definition of 'system designer' deleted, definitions of 'certified intrinsically safe electrical system', and 'uncertified intrinsically safe electrical system' dropped.	0	X		
'Intrinsically safe electrical system' changed to 'intrinsically safe system'.	3.1	X		
Definition for 'multi-circuit cable' added.	3.2	X		
'Maximum' changed to 'total' on definitions of cable capacitance and cable inductance.	3.4, 3.5	X		
'Maximum' deleted on definition of cable inductance to resistance ratio.	3.6	X		
FISCO changed to definition from abbreviation.	3.9	X		
The requirement for the system designer to sign and date the document dropped, editorial changes for clarity made, and a reference to Annex E made to show typical descriptive system documents.	0	X		
Title of clause changed to 'Grouping and temperature classification', ambient temperature range added to things to be included in the system document and reworded for clarity.	0		X	
Notes moved and reworded among the clauses.	6.1, 6.2, 6.3, 6.4	X		
Changed from 'Ambient temperature rating' which was moved to Clause 0, and new section renamed 'Non-intrinsically safe circuits' added.	0		X	
Clause reorganized into sections and some rewording done for clarity.	0	X		
Title changed to 'Requirements of single and multi-circuit cables'.	0	X		
Requirement for insulation thickness moved into this clause, and it now applies to all cables.	9.1		X	
Title changed to 'Dielectric strength' and consolidation of requirements for single circuit and multi-circuit cables. Requirement for dielectric testing changed to twice the circuit voltage with a minimum of 500VAC.	9.2		X	
Dielectric strength requirements for single circuit cables consolidated here.	9.2.1	X		
Dielectric strength requirements for multi-circuit cables consolidated here.	9.2.2	X		
Multi-circuit cables shall not be used for intrinsically safe circuits with voltages exceeding 90 V.	9.2.2			C1
Title changed to 'Intrinsic safety parameters of cables'	9.3	X		

Changes	Clause	Type		
		Minor and editorial changes	Extension	Major technical changes
Title changed to 'Enclosures'	0	X		
Most of the old Clause 12 moved to IEC 60079-14.	0			C2
This clause was Clause 13 in the previous edition, and the entire clause has been re-arranged for clarity and easier reading.	0	X		
This General clause has been re-written in list format to make it easier to understand, and analysis of single and multiple power supplies moved to 12.4 and 12.5 respectively.	12.1		X	
This clause added to clarify fault applications in assemblies of certified equipment.	12.2		X	
This clause added to provide guidance on how to handle non-certified items in larger assemblies.	12.3		X	
Analysis of single power source information consolidated here and amplified.	12.4		X	
Analysis of multiple power sources information consolidated in this clause. Information added for clarity.	12.5		X	
The circuit analysis example dropped in text for simple apparatus, new Annex F added with more information.	12.6	X		
Section added to provide more information on determining capacitance, inductance and L/R that was moved from Annex A.	12.7		X	
Requirements for Type A, B, and C cables reworded for clarity.	12.8	X		
Information on evaluation of capacitance and inductance moved to 12.7.	Annex A	X		
Changed from normative to informative	Annex B	X		
Reordered and rewritten for greater clarity.	Annex C	X		
Annex updated for clarity.	Annex E	X		
The former Annex F on surge protection has been removed.	Annex F			C3
Annex G in the previous edition was on testing of cable parameters and has been removed from this edition. Annex G is now FISCO systems.	Annex G	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. More guidance may be found by referring to the Redline Version of the standard.

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.

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 for equipment that was fully compliant with the previous standard. Therefore, these will not have to be considered for products in conformity with the preceding edition.

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 a product in conformity with the preceding edition will not always be able to fulfil the requirements given in the later edition. These changes have to be considered for products in conformity with the preceding edition. For these changes additional information is provided in clause B) below.

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'

B1 – A limitation of 90 V for multi-circuit system has been added since for this voltage level a dielectric test of at least 500 V AC or 700 V DC is normally used to validate the insulation.

B2 – Most of the earthing and bonding requirements have been removed and moved to IEC 60079-14, and the surge protection requirements that were in the old Clause 12 were added here in Clause 11. The rest of the old Clause 12 was also removed and moved to IEC 60079-14.

B3 – The former Annex F on surge protection has been removed and will be covered in IEC 60079-14. Annex F is now Simple Apparatus, which was Annex H in the previous edition.

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

FDIS	Report on voting
31G/318/FDIS	31G/321/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 publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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

The committee has decided that the contents of this publication will remain unchanged until the stability 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 corrigendum of October 2020 have been included in this copy.

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A1 Amendment A1 FOREWORD

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Amendment 1 to IEC 60079-25:2020 has been prepared by subcommittee 31G: Intrinsically safe apparatus, of IEC technical committee 31: Equipment for explosive atmospheres.

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

Draft	Report on voting
31G/426/FDIS	31G/432/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 Amendment 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/publications/.

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- reconfirmed,
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- revised. [A1](#)

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EXPLOSIVE ATMOSPHERES –

Part 25: Intrinsically safe electrical systems

1 Scope

This part of IEC 60079 contains the specific requirements for design, construction and assessment of intrinsically safe systems, Type of Protection “i”, intended for use, as a whole or in part, in locations in which the use of Group I, II or III Ex Equipment is required.

NOTE 1 This standard is intended for use by the designer of the system e.g. a person who could be a manufacturer, a specialist consultant or a member of the end-user’s staff.

This document supplements and modifies the general requirements of IEC 60079-0 and the intrinsic safety standard IEC 60079-11. Where a requirement of this standard conflicts with a requirement of IEC 60079-0 or IEC 60079-11, the requirement of this standard takes precedence.

A1 The installation requirements of Group II or Group III systems designed in accordance with this document are specified in IEC 60079-14. Where a specific requirement of IEC 60079-14 is applied by this document, the same requirements can be applied for Group I. **A1**

NOTE 2 Group I installation requirements are presently not provided in IEC 60079-14. Installation requirements for Group I are being considered.

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 60079-11, *Explosive atmospheres – Part 11: Equipment protection by intrinsic safety “i”*

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

IEC 61158-2, *Industrial communication networks – Fieldbus specifications – Part 2: Physical layer specification and service definition*

A1 IEC TS 60079-47, *Explosive atmospheres – Part 47: Equipment protection by 2-wire intrinsically safe ethernet concept (2-WISE)* **A1**