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Explosiv atmosfär – Del 13: Utrustning skyddad genom placering i trycksatt rum eller byggnad "p" och i rum med mekanisk ventilation "v"

Explosive atmospheres –

Part 13: Equipment protection by pressurized room "p" and artificially ventilated room "v"

Som svensk standard gäller europastandarden EN 60079-13:2017. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60079-13:2017.

Nationellt förord

Europastandarden EN 60079-13:2017

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60079-13, Second edition, 2017 - Explosive atmospheres - Part 13: Equipment protection by pressurized room "p" and artificially ventilated room "v"**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60079-13, utgåva 1, 2011, gäller ej fr o m 2020-10-06.

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SEK Svensk Elstandard

Box 1284
164 29 Kista
Tel 08-444 14 00
www.elstandard.se

English Version

Explosive atmospheres - Part 13: Equipment protection by pressurized room "p" and artificially ventilated room "v" (IEC 60079-13:2017)

Atmosphères explosives - Partie 13: Protection du matériel
par salle à surpression interne "p" et salle ventilée
artificiellement "v"
(IEC 60079-13:2017)

Explosionsgefährdete Bereiche - Teil 13: Schutz von
Einrichtungen durch einen überdruckgekapselten Raum "p"
und einen fremdbelüfteten Raum "v"
(IEC 60079-13:2017)

This European Standard was approved by CENELEC on 2017-06-26. 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.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

The text of document 31/1309/FDIS, future edition 2 of IEC 60079-13, prepared by IEC/TC 31 "Equipment for explosive atmospheres" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60079-13:2017.

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) 2018-04-06
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-10-06

This document supersedes EN 60079-13:2010.

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.

Endorsement notice

The text of the International Standard IEC 60079-13:2017 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 60079-2	NOTE	Harmonized as EN 60079-2.
IEC 60079-14	NOTE	Harmonized as EN 60079-14.
IEC 60079-17	NOTE	Harmonized as EN 60079-17.
IEC 60529	NOTE	Harmonized as EN 60529.
IEC 61285	NOTE	Harmonized as EN 61285.
IEC 61508 Series	NOTE	Harmonized as EN 61508 Series.
IEC 61511 Series	NOTE	Harmonized as EN 61511 Series.

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.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-426	-	International Electrotechnical Vocabulary - - Part 426: Equipment for explosive atmospheres		-
IEC 60079-0	-	Explosive atmospheres - Part 0: Equipment - General requirements	EN 60079-0	-
IEC 60079-10-1	-	Explosive atmospheres - Part 10-1: Classification of areas - Explosive gas atmospheres	EN 60079-10-1	-
IEC 60079-29	Series	Explosive atmospheres - Part 29: Gas detectors	EN 60079-29	Series

CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references	10
3 Terms and definitions	11
4 Requirements for all rooms.....	13
4.1 General.....	13
4.2 Type and level of protection	13
4.2.1 Pressurization "p"	13
4.2.2 Artificial ventilation "v"	14
4.3 Construction	14
4.4 Mechanical strength.....	14
4.5 Penetrations and seals	14
4.6 Personnel access doors.....	14
4.7 Inlets and outlets	15
4.8 Ducts	15
4.9 Purging and cleaning	15
4.9.1 General	15
4.9.2 Gases – Purging.....	15
4.9.3 Enclosures within the room.....	16
4.10 Ignition prevention under system failure	16
5 Clean air supply.....	16
5.1 General.....	16
5.2 Source of clean air.....	16
5.3 Environmental and air temperature conditions.....	17
5.4 Heating, ventilation and air conditioning services	17
6 Requirements for pressurized rooms	17
6.1 General.....	17
6.1.1 Design	17
6.1.2 Source of clean air	17
6.1.3 Flow	17
6.1.4 Pressurization system.....	17
6.1.5 Preventing the explosive atmosphere from entering through an open door.....	18
6.1.6 Airlock	18
6.1.7 Outward air velocity through a door	18
6.1.8 Air consuming device.....	19
6.1.9 Action when pressurization system fails.....	19
6.1.10 Re-energizing the room	19
6.2 Purging of rooms	19
6.2.1 General	19
6.2.2 Sequence of operations of the purging safety devices	20
6.2.3 Dusts – Cleaning	20
6.3 Minimum safety provisions, safety devices and electrical disconnects.....	20
6.3.1 Safety devices	20
6.3.2 Safety devices based upon level of protection	21

6.3.3	Gas detectors	21
6.4	Verification for pressurized rooms.....	21
6.4.1	General	21
6.4.2	Tests	21
6.4.3	Overpressure test	22
6.4.4	Purging test.....	22
6.4.5	Minimum pressure differential test	22
6.4.6	Confirmation of the ratings of the safety devices.....	22
6.4.7	Verification of sequence of operation of the safety devices	22
7	Requirements for artificially ventilated rooms.....	22
7.1	General.....	22
7.1.1	Design	22
7.1.2	Source of clean air	22
7.1.3	Minimum flow rate	23
7.1.4	Ventilation system	23
7.1.5	Air consuming device.....	24
7.1.6	Safety actions when ventilation system fails	24
7.1.7	Energizing the artificially ventilated area.....	24
7.2	Purging of artificially ventilated rooms.....	25
7.2.1	General	25
7.2.2	Sequence of operations of the purging safety devices	25
7.3	Minimum safety provisions, safety devices and electrical disconnects.....	25
7.3.1	Safety devices	25
7.3.2	Safety devices based upon equipment protection level	25
7.3.3	Artificial ventilation protection.....	26
7.3.4	Gas detectors	26
7.4	Loss of artificial ventilation.....	26
7.5	Verification for artificially ventilated rooms	27
7.5.1	General	27
7.5.2	Tests	27
7.5.3	Purging test.....	27
7.5.4	Minimum ventilation flow rate test.....	27
7.5.5	Confirmation of the ratings of the safety devices.....	27
7.5.6	Verification of sequence of operation of the safety devices	27
7.5.7	Testing of ventilation system	28
8	Marking	28
8.1	General.....	28
8.2	Marking of pressurized rooms	28
8.3	Marking for artificially ventilated rooms	29
9	Instructions.....	30
9.1	General.....	30
9.2	Technical documentation for pressurized rooms.....	30
9.3	Technical documentation for artificially ventilated rooms.....	30
9.4	Technical documentation for rooms protected by pressurization and artificial ventilation combined	31
9.5	Modifications.....	31
Annex A (informative)	Maintenance.....	32
A.1	Periodic verification	32
A.2	Modifications.....	32

Annex B (informative) Guidelines when pressurization or artificial ventilation is not immediately restored..... 33

Annex C (informative) Examples of applications and associated guidelines 34

 C.1 Examples of applications 34

 C.2 Guidelines for gas turbine enclosure/package 34

Bibliography..... 35

Table 1 – Exclusion of specific clauses or subclauses of IEC 60079-0 9

Table 2 – Safety devices for pressurized rooms 21

Table 3 – Safety actions for artificial ventilation failure..... 24

Table 4 – Required safety devices for artificial ventilation 26

INTERNATIONAL ELECTROTECHNICAL COMMISSION

EXPLOSIVE ATMOSPHERES –**Part 13: Equipment protection by pressurized room "p" and artificially ventilated room "v"**

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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International Standard IEC 60079-13 has been prepared by IEC technical committee 31: Equipment for explosive atmospheres

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

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

- a) modification of the title of this document to include artificially ventilated room "v" in addition to pressurized room "p";
- b) addition of types of protection "pb", "pc", and "vc" and removal of types of protection "px", "py", "pz" and "pv";
- c) definition of the differences between pressurization and artificial ventilation types of protection;

- d) removal of protection of rooms with an inert gas or a flammable gas from the scope of this document;
- e) addition of an informative annex to include examples of applications where types of protection pressurization or artificial ventilation or pressurization and artificial ventilation can be used and associated guidelines.

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

FDIS	Report on voting
31/1309/FDIS	31/1317/RVD

Full information on the voting for the approval of this document 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.

This document is to be used in conjunction with the principles of hazardous area classification from IEC 60079-10-1 and artificial ventilation for the protection of analyser(s) houses from IEC 60079-16.

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 website 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.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

This part of IEC 60079 gives requirements for the design, construction, assessment, verification and marking of rooms used to protect internal equipment by pressurization or artificial ventilation or both as applicable when located in an explosive gas atmosphere or combustible dust atmosphere hazardous area with or without an internal source of a flammable gas or vapour. It also includes a room located in a non-hazardous area that has an internal source of release of a flammable gas or vapour.

This document deals with rooms that are partially constructed in a manufacturer's facility and intended to have the final installation completed on-site, as well as rooms that are constructed completely on-site. Rooms partially constructed in a manufacturer's facility may include third-party verification. For rooms built on-site, this document can be used by plant operators as a guide for assessment of those facilities.

This document represents a major technical revision of the requirements for equipment protection by pressurized room "p" and artificially ventilated room "v" and should be considered as introducing all new requirements.

EXPLOSIVE ATMOSPHERES –

Part 13: Equipment protection by pressurized room "p" and artificially ventilated room "v"

1 Scope

This part of IEC 60079 gives requirements for the design, construction, assessment, verification and marking of rooms used to protect internal equipment:

- located in a Zone 1 or Zone 2 or Zone 21 or Zone 22 explosive atmosphere (an area normally requiring an equipment protection level (EPL) Gb, Gc, Db or Dc) without an internal source of gas/vapour release and protected by pressurization;
- located in a Zone 2 explosive atmosphere (an area normally requiring EPL Gc) with or without an internal source of gas/vapour release and protected by artificial ventilation;
- located in a non-hazardous area, containing an internal source of gas/vapour release and protected by artificial ventilation;
- located in a Zone 1 or Zone 2 or Zone 21 or Zone 22 explosive atmosphere (an area normally requiring EPL Gb, Gc, Db or Dc), containing an internal source of gas/vapour release and protected by both pressurization and artificial ventilation.

The term "room" used in this document includes single rooms, multiple rooms, a complete building or a room contained within a building. A room is intended to facilitate the entry of personnel and includes inlet and outlet ducts. An acoustic hood and other like enclosures designed to permit the entry of personnel can be considered as a room.

This document also includes requirements related safety devices and controls necessary to ensure that artificial ventilation, purging and pressurization is established and maintained.

A room assembled or constructed on site, can be either on land or off-shore. The room is primarily intended for installation by an end-user but could be constructed and assessed at a manufacturer's facility, where the final construction such as ducting can be completed on site.

Rooms can be located in an explosive gas atmosphere requiring EPL Gb or Gc, or a combustible dust atmosphere requiring EPL Db, or Dc.

This document does not specify the methods that may be required to ensure adequate air quality for personnel with regard to toxicity and temperature within the room. National or other regulations and requirements may exist to ensure the safety of personnel in this regard.

Protection of rooms by using an inert gas or a flammable gas is outside of the scope of this document. It is recognized that such applications are special cases, which in part may be addressed using the principles from IEC 60079-2, but in all probability will also be the subject of additional, stringent engineering standards, procedures and practices. Pressurized enclosures for equipment that are not intended to facilitate the entry of personnel are addressed in IEC 60079-2, and are not in the scope of this document.

NOTE Maintenance recommendations are contained in Annex A until they can be included in IEC 60079-17.

This document supplements and modifies the general requirements of IEC 60079-0, except exclusions as indicated in Table 1. Where a requirement of this document conflicts with a requirement of IEC 60079-0, the requirement of this document takes precedence.

Table 1 – Exclusion of specific clauses or subclauses of IEC 60079-0

Clause of IEC 60079-0		IEC 60079-0 application to IEC 60079-13
Ed. 6.0 (2011) (Informative)	Clause / subclause title (Normative)	
4	Equipment grouping	Applies
4.1	Group I	Excluded
4.2	Group II	Applies
4.3	Group III	Applies
4.4	Equipment for a particular explosive atmosphere	Applies
5.1	Environmental influences	Applies
5.1.1	Ambient temperature	Applies
5.1.2	External source of heating or cooling	Applies
5.2	Service temperature	Applies
5.3.1	Determination of maximum surface temperature	Applies
5.3.2.1	Group I electrical equipment	Excluded
5.3.2.2	Group II electrical equipment	Applies
5.3.2.3	Group III electrical equipment	Applies
5.3.3	Small component temperature for Group I and Group II electrical equipment	Excluded
6.1	General	Applies
6.2	Mechanical strength	Excluded
6.3	Opening times	Excluded
6.4	Circulating currents	Excluded
6.5	Gasket retention	Excluded
6.6	Electromagnetic and ultrasonic radiating equipment	Applies
7.1	General	Excluded
7.2	Thermal endurance	Excluded
7.3	Resistance to light	Modified
7.4	Electrostatic charges on external non-metallic materials	Excluded
7.5	Accessible metal parts	Excluded
8	Metallic enclosures and metallic parts of enclosures	Excluded
9	Fasteners	Excluded
10	Interlocking devices	Excluded
11	Bushings	Excluded
12	Materials used for cementing	Excluded
13	Ex components	Excluded
14	Connection facilities and termination compartments	Excluded
15	Connection facilities for earthing and bonding conductors	Excluded
16	Entries into enclosures	Excluded
17	Supplementary requirements for rotating electrical machines	Excluded
18	Supplementary requirements for switchgear	Excluded
19	Supplementary requirements for fuses	Excluded
20	Supplementary requirements for plugs and sockets	Excluded
21	Supplementary requirements for luminaires	Excluded
22	Supplementary requirements for caplights and handlights	Excluded
23	Equipment incorporating cells and batteries	Excluded
24	Documentation	Applies
25	Compliance of prototype or sample with documents	Applies
26.1	General	Applies
26.2	Test configuration	Applies
26.3	Tests in explosive test mixtures	Excluded

Clause of IEC 60079-0		IEC 60079-0 application to IEC 60079-13
Ed. 6.0 (2011) (Informative)	Clause / subclause title (Normative)	
26.4	Tests of enclosures	Excluded
26.5	Thermal tests	Excluded
26.6	Torque test for bushings	Excluded
26.7	Non-metallic enclosures or non-metallic parts of enclosures	Excluded
26.8	Thermal endurance to heat	Excluded
26.9	Thermal endurance to cold	Excluded
26.10	Resistance to light	Applies
26.11	Resistance to chemical agents for Group I electrical equipment	Excluded
26.12	Earth continuity	Excluded
26.13	Surface resistance test of parts of enclosures of non-metallic materials	Excluded
26.14	Measurement of capacitance	Excluded
26.15	Verification of ratings of ventilating fans	Excluded
26.16	Alternative qualification of elastomeric sealing O-rings	Excluded
27	Routine tests	Applies
28	Manufacturers responsibility	Applies
29.1	Applicability	Applies
29.2	Location	Modified
29.3	General	Modified
29.4	Ex marking for explosive gas atmospheres	Modified
29.5	Ex marking for explosive dust atmospheres	Applies
29.6	Combined types of protection	Applies
29.7	Multiple types of protection	Excluded
29.8	Ga using two independent Gb types of protection	Excluded
29.9	Ex components	Excluded
29.10	Small equipment and small Ex components	Excluded
29.11	Extremely small equipment and extremely small Ex components	Modified
29.12	Warning markings	Applies
29.13	Alternate marking of equipment protection levels (EPLs)	Excluded
29.14	Cells and batteries	Applies
30	Instructions	Modified
Annex A	Supplementary requirements for Ex cable glands	Excluded
Annex B	Requirements for Ex components	Excluded
Annex C	Example of rig for resistance to impact test	Excluded
Annex D	Introduction to an alternative risk assessment method encompassing "equipment protection levels" for Ex equipment	Applies
<p>Applies: this requirement of IEC 60079-0 is applied without change.</p> <p>Excluded: this requirement of IEC 60079-0 does not apply.</p> <p>Modified: this requirement of IEC 60079-0 is modified as detailed in this document.</p> <p>NOTE The applicable requirements of IEC 60079-0 are identified by the clause title which is normative. This table was written against the specific requirements of IEC 60079-0, Ed 6.0.</p>		

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 60050-426, *International Electrotechnical Vocabulary – Part 426: Equipment for explosive atmospheres*

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 60079-29 (all parts), *Explosive atmospheres – Gas detectors*