

PLAHVATUSOHTLIKUD KESKKONNAD. OSA 2: SEADME  
KAITSE SURVESTATUD ÜMBRISE ABIL "P"

Explosive atmospheres - Part 2: Equipment protection  
by pressurized enclosure "p"

## EESTI STANDARDI EESSÕNA

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See Eesti standard EVS-EN 60079-2:2015 sisaldab Euroopa standardi EN 60079-2:2014 ingliskeelset teksti.	This Estonian standard EVS-EN 60079-2:2015 consists of the English text of the European standard EN 60079-2:2014.
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English Version

## Explosive atmospheres - Part 2: Equipment protection by pressurized enclosure "p" (IEC 60079-2:2014)

Atmosphères explosives - Partie 2: Protection du matériel  
par enveloppe à surpression interne "p"  
(IEC 60079-2:2014)

Explosionsgefährdete Bereiche - Teil 2: Geräteschutz durch  
Überdruckkapselung "p"  
(IEC 60079-2:2014)

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## Foreword

The text of document 31/1119/FDIS, future edition 6 of IEC 60079-2, prepared by IEC/TC 31 "Equipment for explosive atmospheres" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60079-2:2014.

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) 2015-06-19
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-08-25

This document supersedes EN 60079-2:2007 and EN 61241-4:2006.

The State of the Art is included in Annex ZY "Significant changes between this European Standard and EN 60079-2:2007".

For the significant changes with respect to EN 60079-2:2007, see Annex ZY.

This standard is to be read in conjunction with EN 60079-0.

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

## Endorsement notice

The text of the International Standard IEC 60079-2:2014 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 60051	NOTE	Harmonized in EN 60051 series.
IEC 60079-1	NOTE	Harmonized as EN 60079-1.
IEC 60079-5	NOTE	Harmonized as EN 60079-5.
IEC 60079-6	NOTE	Harmonized as EN 60079-6.

IEC 60079-7	NOTE	Harmonized as EN 60079-7.
IEC 60079-13	NOTE	Harmonized as EN 60079-13.
IEC 60079-18	NOTE	Harmonized as EN 60079-18.
IEC 60079-20-1	NOTE	Harmonized as EN 60079-20-1.
IEC 60079-26	NOTE	Harmonized as EN 60079-26.
IEC 60079-28	NOTE	Harmonized as EN 60079-28.
IEC 61511	NOTE	Harmonized in EN 61511 series.

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## INTRODUCTION

This part of IEC 60079 gives requirements for the design, construction, testing and marking of electrical equipment for use in explosive atmospheres in which

- a) a protective gas maintained at a pressure above that of the external atmosphere is used to guard against the formation of an explosive gas atmosphere within enclosures which do not contain an internal source of release of flammable gas or vapour;
- b) a protective gas maintained at a pressure above that of the external atmosphere is used to guard against the formation of an explosive gas atmosphere within enclosures and is supplied to an enclosure containing one or more internal sources of release in order to guard against the formation of an explosive gas atmosphere; or
- c) a protective gas maintained at a pressure above that of the external atmosphere, is used to prevent the entry of combustible dust which might otherwise lead to the formation of an explosive dust atmosphere within enclosures, but only where there is no internal source of release of combustible dust.

This standard includes requirements for the equipment and its associated equipment including the inlet and exhaust ducts, and also for the auxiliary control equipment necessary to ensure that pressurization and/or dilution is established and maintained.

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## EXPLOSIVE ATMOSPHERES –

### Part 2: Equipment protection by pressurized enclosure "p"

#### 1 Scope

This part of IEC 60079 contains the specific requirements for the construction and testing of electrical equipment with pressurized enclosures, of type of protection "p", intended for use in explosive gas atmospheres or explosive dust atmospheres. It also includes the requirements for pressurized enclosures containing a limited release of a flammable substance.

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

This standard does not include the requirements for:

- pressurized enclosures where the containment system may release
  - a) air with an oxygen content greater than normal, or
  - b) oxygen in combination with inert gas where the oxygen is in a proportion greater than 21 %.
- pressurized rooms or analyser houses; see IEC 60079-13;
- pressurized enclosures used where "explosives" or pyrotechnics are present;
- pressurized enclosures used where hybrid mixtures of gas/vapour and combustible dust are present;
- pressurized enclosures used where pyrophoric substances such as explosives or propellants containing their own oxidizers are present
- pressurized enclosures with an internal source of release of combustible dust.

NOTE When the user acts in the role of the manufacturer, it is typically the user's responsibility to ensure that all relevant parts of this standard are applied to the manufacturing and testing of the equipment.

#### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

IEC 60050 (all parts), *International Electrotechnical Vocabulary*

IEC 60079-0, *Explosive atmospheres – Part 0: Equipment – General requirements*

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

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

IEC 60112, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60127, (All parts) *Miniature fuses*

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

IEC 60664-1, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-151, IEC 60050-426 and IEC 60079-0, as well as the following apply.

NOTE Unless otherwise specified, the terms "voltage" and "current" mean the r.m.s. values of an alternating, direct or composite voltage or current.

#### 3.1

##### **alarm**

piece of equipment that generates a visual or audible signal that is intended to attract attention

#### 3.2

##### **containment system**

part of the equipment containing the flammable substance that may constitute an internal source of release

#### 3.3

##### **dilution**

continuous supply of a protective gas, after purging, at such a rate that the concentration of a flammable substance inside the pressurized enclosure is maintained at a value outside the explosive limits at any potential ignition source (that is to say, outside the dilution area)

Note 1 to entry: Dilution of oxygen by inert gas may result in a concentration of flammable gas or vapour above the upper flammable limit (UFL).

#### 3.4

##### **dilution area**

area in the vicinity of an internal source of release where the concentration of a flammable substance is not diluted to a safe concentration

#### 3.5

##### **enclosure volume**

volume of the empty enclosure without internal equipment. For rotating electrical machines, the free internal volume plus the volume displaced by the rotor

#### 3.6

##### **flammable substance**

gases, vapours, liquids or mixtures thereof that are capable of being ignited

#### 3.7

##### **hermetically sealed device**

device which is so constructed that the external atmosphere cannot gain access to the interior and in which any seal is made by fusion

Note 1 to entry: Examples of fusion include brazing, welding or the fusion of glass to metal.