SLOVENSKI STANDARD
SIST EN 60079-19:2008

01-januar-2008

Eksplozivne atmosfere - 19. del: Popravilo, obnova in remont opreme (IEC 60079-19:2006)

Explosive atmospheres - Part 19: Equipment repair, overhaul and reclamation

Explosionsfähige Atmosphäre - Teil 19: Gerätereparatur, Überholung und Regenerierung

Atmospheres explosives - Partie 19: Réparation, révision et remise en état du matériel

Ta slovenski standard je istoveten z: **EN 60079-19:2007**

ICS:

29.260.20	Električni aparati za eksplozivna ozračja	Electrical apparatus for explosive atmospheres

SIST EN 60079-19:2008 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60079-19

July 2007

ICS 29.260.20

English version

Explosive atmospheres - Part 19: Equipment repair, overhaul and reclamation

(IEC 60079-19:2006)

Atmosphères explosives - Partie 19: Réparation, révision et remise en état du matériel (CEI 60079-19:2006)

Explosionsfähige Atmosphäre - Teil 19: Gerätereparatur, Überholung und Regenerierung (IEC 60079-19:2006)

This European Standard was approved by CENELEC on 2007-04-11. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

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Foreword

The text of document 31J/124/FDIS, future edition 2 of IEC 60079-19, 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 was approved by CENELEC as EN 60079-19 on 2007-04-11.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2008-02-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2010-05-01

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 60079-19:2006 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60079	Series	Explosive atmospheres	EN 60079	Series
IEC 60085	-[1)]	Electrical insulation - Thermal classification	EN 60085	2004[2)]
IEC 60529	-[1)]	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991[2)] 1993
IEC 61241-0 (mod)	-[1)]	Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements	EN 61241-0	2006[2)]
IEC 61241-2	Series	Electrical apparatus for use in the presence of combustible dust - Part 2: Test methods	-	-
ISO 4526	-[1)]	Metallic coatings - Electroplated coatings of nickel for engineering purposes	EN ISO 4526	2004[2)]
ISO 6158	-[1)]	Metallic coatings - Electrodeposited coatings of chromium for engineering purposes	EN ISO 6158	2004[2)]
ISO 9000	-[1)]	Quality management systems - Fundamentals and vocabulary	EN ISO 9000	2005[2)]

[1)] Undated reference.

[2)] Valid edition at date of issue.

IEC 60079-19

Edition 2.0 2006-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Explosive atmospheres –
Part 19: Equipment repair, overhaul and reclamation

Atmosphères explosives –
Partie 19: Réparation, révision et remise en état du matériel

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

EXPLOSIVE ATMOSPHERES –

Part 19: Equipment repair, overhaul and reclamation

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 60079-19 has been prepared by subcommittee 31J: Classification of hazardous areas and installation requirements, of IEC technical committee 31: Equipment for explosive atmospheres.

This second edition cancels and replaces the first edition published in 1993 and constitutes a technical revision.

The significant technical changes with respect to the previous edition are as follows:

- additional requirements for repair and overhaul of equipment covered by IEC 60079-26 are included;
- additional requirements for repair and overhaul of equipment with type of protection 'tD' and 'pD' for combustible dusts are included;

- knowlege, skills and competencies of "Responsible Persons" and "Operatives" are explained;
- requirements for measurements in flameproof equipment during overhaul, repair and reclamation (including guidance on tolerances) are added.

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

FDIS	Report on voting
31J/124/FDIS	31J/135/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 of the IEC 60079 series, under the general title *Explosive atmospheres*, can be found on the the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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.

INTRODUCTION

When electrical equipment is installed in areas where dangerous concentrations and quantities of flammable gases, vapours, mists or dusts may be present in the atmosphere, protective measures are to be applied to reduce the likelihood of explosion due to ignition by arcs, sparks or hot surfaces produced either in normal operation or under specified fault conditions.

This part of IEC 60079 is supplementary to other relevant IEC standards, for example IEC 60364, as regards installation requirements, and also refers to IEC 60079 and its appropriate parts for the design requirements of suitable electrical equipment.

Clause 4 of this part of IEC 60079 contains general requirements for the repair and overhaul of equipment and should be read in conjunction with the other relevant clauses of this standard dealing with the detailed requirements for individual types of protection.

In cases where protected equipment incorporates more than one type of protection, reference should be made to all clauses involved.

This part not only gives guidance on the practical means of maintaining the electrical safety and performance requirements of repaired equipment, but also defines procedures for maintaining, after repair, overhaul or reclamation, compliance of the equipment with the provisions of the certificate of conformity or with the provisions of the appropriate explosion protection standard where a certificate is not available.

The nature of the explosion protection offered by each type of protection varies according to its unique features. Reference should be made to the appropriate standard(s) for details.

Users will utilize the most appropriate repair facilities for any particular item of equipment, whether they be the facilities of the manufacturer or a suitably competent and equipped repairer (see note).

This part recognizes the necessity of a required level of competence for the repair, overhaul and reclamation of the equipment. Some manufacturers may recommend that the equipment be repaired only by them.

In the case of the repair, overhaul or reclamation of equipment which has been the subject of design certification, it may be necessary to clarify the position of the continued conformity of the equipment with the certificate.

NOTE Whilst some manufacturers recommend that certain equipment be returned to them for repair or reclamation, there are also competent independent repair organizations who have the facilities to carry out repair work on equipment employing some or all of the types of protection covered by IEC 60079. For repaired equipment to retain the integrity of the type(s) of protection employed in its design and construction, detailed knowledge of the original manufacturer's design (which may only be obtainable from design and manufacturing drawings) and any certification documentation may be necessary. Where equipment is not being returned to the original manufacturer for repair or reclamation, the use of repair organizations that are recommended by the original manufacturer should be considered.

EXPLOSIVE ATMOSPHERES –

Part 19: Equipment repair, overhaul and reclamation

1 Scope

This part of IEC 60079

– gives instructions, principally of a technical nature, on the repair, overhaul, reclamation and modification of a certified equipment designed for use in explosive atmospheres;

– is not applicable to maintenance, other than when repair and overhaul cannot be disassociated from maintenance, neither does it give advice on cable entry systems which may require renewal when the equipment is re-installed;

– is not applicable to type of protection 'm';

– assumes that good engineering practices are adopted throughout.

NOTE Much of the content of this standard is concerned with the repair and overhaul of electrical rotating machines. This is not because they are the most important items of explosion-protected equipment but rather because they are often major items of repairable capital equipment in which, whatever type of protection is involved, sufficient commonality of construction exists as to make possible more detailed instructions for their repair, overhaul, reclamation or modification.

2 Normative references

The following referenced documents are indispensable for the application 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 (all parts), *Explosive atmospheres*

IEC 60085, *Electrical insulation – Thermal classification*

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

IEC 61241-0, *Electrical apparatus for use in the presence of combustible dust – Part 0: General requirements*

IEC 61241-2, *Electrical apparatus for use in the presence of combustible dust – Part 2: Test methods*

ISO 4526, *Metallic coatings – Electroplated coatings of nickel for engineering purposes*

ISO 6158, *Metallic coatings – Electrodeposited coatings of chromium for engineering purposes*

ISO 9000, *Quality management and systems – Fundamentals and vocabulary*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
serviceable condition
condition which permits a replacement or reclaimed component part to be used without prejudice to the performance or explosion protection aspects of the equipment, with due regard to the certification requirements as applicable, in which such a component part is used

3.2
repair
action to restore faulty equipment to its fully serviceable condition and in compliance with the relevant standard

NOTE The relevant standard means the standard to which the equipment was originally designed.

3.3
overhaul
action to restore to a fully serviceable condition equipment which has been in use or in storage for a period of time but which is not faulty

3.4
maintenance
routine actions taken to preserve the fully serviceable condition of the installed equipment (see Clause 1)

3.5
component part
an indivisible item

NOTE The assembly of such items may form equipment.

3.6
reclamation
means of repair involving, for example, the removal or addition of material to reclaim component parts which have sustained damage, in order to restore such parts to a serviceable condition in accordance with the relevant standard

NOTE The relevant standard means the standard to which the individual parts were originally manufactured.

3.7
modification
change to the design of the equipment which affects material, fit, form or function

3.8
manufacturer
maker of the equipment (who may also be the supplier, the importer or the agent) in whose name usually the certification, where appropriate, of the equipment was originally registered

3.9
user
user of the equipment

3.10
repair facility
facility providing a service that consists of repairs, overhauls, or reclamations of explosion-protected equipment who may be the manufacturer, the user or a third party (repair agency)

3.11
certification
certification leading to the issue of a certificate of conformity which refers primarily to assessments of equipment carried out by a recognized testing authority.

This standard may also apply to equipment certified by other certification authorities, or to equipment which has been self-certified by manufacturers or users as complying with recognized standards.

3.12
certificate references
a certificate reference number may refer to a single design or a range of equipment of similar design

3.13
symbol "X"
the symbol "X" is used to denote special conditions of safe use. The certification documents need to be studied before such equipment is installed, repaired, overhauled, reclaimed or modified.

3.14
copy winding
process by which a winding is totally or partially replaced by another, the characteristics and properties of which are at least as good as those of the original

3.15
type of protection "d"
type of protection in which parts which can ignite an explosive atmosphere are placed in an enclosure which can withstand the pressure developed during an explosion of an explosive mixture and which prevents the transmission of the explosion to the explosive atmosphere surrounding the enclosure

3.16
type of protection "i"
circuit in which no spark or any thermal effect produced in the test conditions prescribed in the relevant standard(s) (which include normal operation and specific fault condition) is capable of causing ignition of a given explosive atmosphere.

3.17
type of protection "p"
type of protection by which the entry of a surrounding atmosphere into the enclosure of the electrical equipment is prevented by maintaining, inside the said enclosure, a protective gas at a higher pressure than that of the surrounding atmosphere. The overpressure is maintained either with or without a continuous flow of the protective gas.

3.18
type of protection "e"
type of protection by which measures are applied so as to prevent, with a higher degree of security, the possibility of excessive temperatures and the occurrence of arcs or sparks in the interior and on the external parts of the electrical equipment which would not produce them in normal service