# SLOVENSKI STANDARD

# SIST EN 60079-18:2004

junij 2004

**Električne naprave za eksplozivne plinske atmosfere - 18. del: Konstrukcija, preskušanje in označevanje električnih naprav v vrsti protieksplozijske zaščite zalivanje z zalivno maso "m" (IEC 60079-18:2004)**

Electrical apparatus for explosive gas atmospheres - Part 18: Construction, test and marking of type of protection encapsulation "m" electrical apparatus



ICS 29.260.20

Referenčna številka
SIST EN 60079-18:2004(en)

EUROPEAN STANDARD **EN 60079-18**

NORME EUROPÉENNE

EUROPÄISCHE NORM April 2004

ICS 29.260.20 Supersedes EN 50028:1987

English version

# Electrical apparatus for explosive gas atmospheres Part 18: Construction, test and marking of type of protection encapsulation "m" electrical apparatus

(IEC 60079-18:2004)

Matériel électrique pour atmosphères explosives gazeuses
Partie 18: Construction, essais et marquage des matériels électriques du type de protection par encapsulage "m"
(CEI 60079-18:2004)

Elektrische Betriebsmittel für gasexplosionsgefährdete Bereiche
Teil 18: Konstruktion, Prüfung und Kennzeichnung elektrischer Betriebsmittel mit der Schutzart Vergusskapselung "m"
(IEC 60079-18:2004)



This European Standard was approved by CENELEC on 2004-04-01. 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.

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

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**



Ref. No. EN 60079-18:2004 E

## Foreword

The text of document 31/482/FDIS, future edition 2 of IEC 60079-18, prepared by IEC TC 31, Electrical apparatus for explosive atmospheres, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60079-18 on 2004-04-01.

This European Standard supersedes EN 50028:1987.

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) 2005-01-01

– latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2007-04-01

This European Standard was prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and supports the essential requirements of Directive 94/9/EC.

Annex ZA has been added by CENELEC.



## Endorsement notice

The text of the International Standard IEC 60079-18:2004 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 Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

| Publication | Year | Title | EN/HD | Year |
|---|---|---|---|---|
| IEC 60079-0 | - [1)] | Electrical apparatus for explosive gas atmospheres<br>Part 0: General requirements | EN 60079-0<br>+ corr. March | 2004 [2)]<br>2004 [2)] |
| IEC 60079-7 | 2001 | Part 7: Increased safety "e" | EN 60079-7 | 2003 |
| IEC 60079-11 | 1999 | Part 11: Intrinsic safety "i" | - | - |
| IEC 60079-26 | - [1)] | Part 26: Construction, test and marking of Group II Zone 0 electrical apparatus | EN 60079-26 | |
| IEC 60086-1 | - [1)] | Primary batteries<br>Part 1: General | EN 60086-1 | 2001 [2)] |
| IEC 60127 | Series | Miniature fuses | EN 60127 | Series |
| IEC 60243-1 | - [1)] | Electrical strength of insulating materials - Test methods<br>Part 1: Tests at power frequencies | EN 60243-1 | 1998 [2)] |
| IEC 60622 | - [1)] | Secondary cells and batteries containing alkaline or other non-acid electrolytes - Sealed nickel-cadmium prismatic rechargeable single cells | EN 60622 | 2003 [2)] |
| IEC 60664-1<br>+ A1<br>+ A2 | 1992<br>2000<br>2002 | Insulation coordination for equipment within low-voltage systems<br>Part 1: Principles, requirements and tests | EN 60664-1 | 2003 |
| IEC 60691 | - [1)] | Thermal-links - Requirements and application guide | EN 60691 | 2003 [2)] |
| IEC 61150 | - [1)] | Alkaline secondary cells and batteries - Sealed nickel-cadmium rechargeable monobloc batteries in button cell design | EN 61150 | 1993 [2)] |



1) Undated reference.

2) Valid edition at date of issue.

| Publication | Year | Title | EN/HD | Year |
|---|---|---|---|---|
| IEC 61558-2-6 | - [1)] | Safety of power transformers, power supply units and similar<br>Part 2-6: Particular requirements for safety isolating transformers for general use | EN 61558-2-6 | 1997 [2)] |
| IEC 61951-1 | - [1)] | Secondary cells and batteries containing alkaline or other non-acid electrolytes - Portable sealed rechargeable single cells<br>Part 1: Nickel-cadmium | EN 61951-1 | 2003 [2)] |
| IEC 61951-2 | - [1)] | Part 2: Nickel-metal hydride | EN 61951-2 | 2003 [2)] |
| IEC 61960-1 | - [1)] | Secondary lithium cells and batteries for portable applications<br>Part 1: Secondary lithium cells | EN 61960-1 | 2001 [2)] |
| IEC 62326-4-1 | - [1)] | Printed boards<br>Part 4: Rigid multilayer printed boards with interlayer connections - Sectional specification -- Section 1: Capability Detail Specification - Performance levels A, B and C | EN 62326-4-1 | 1997 [2)] |
| ISO 62 | - [1)] | Plastics - Determination of water absorption | EN ISO 62 | 1999 [2)] |
| ANSI/UL 248-1 | - [1)] | Standard for low-voltage fuses<br>Part 1: General requirements | - | - |

# NORME INTERNATIONALE

# INTERNATIONAL STANDARD

**CEI**
**IEC**
**60079-18**

Deuxième édition
Second edition
2004-03

## Matériel électrique pour atmosphères explosives gazeuses –

## Partie 18: Construction, essais et marquage des matériels électriques du type de protection par encapsulage «m»

## Electrical apparatus for explosive gas atmospheres –

## Part 18: Construction, test and marking of type of protection encapsulation "m" electrical apparatus



International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch

Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE V

*Pour prix, voir catalogue en vigueur*
*For price, see current catalogue*

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

# ELECTRICAL APPARATUS FOR EXPLOSIVE GAS ATMOSPHERES –

## Part 18: Construction, test and marking of type of protection encapsulation "m" electrical apparatus

## 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.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.



International Standard IEC 60079-18 has been prepared by IEC technical committee 31: Electrical apparatus for explosive atmospheres.

This second edition cancels and replaces the first edition, published in 1992, and constitutes a technical revision.



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

– introduction of new techniques such as multilayer;
– incorporation of two levels of protection.

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

| FDIS | Report on voting |
|---|---|
| 31/482/FDIS | 31/493/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.

The committee has decided that the contents of this publication will remain unchanged until 2008. At this date, the publication will be

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

# ELECTRICAL APPARATUS FOR EXPLOSIVE GAS ATMOSPHERES –

# Part 18: Construction, test and marking of type of protection encapsulation "m" electrical apparatus

## 1 Scope

This part of IEC 60079 gives the specific requirements for the construction, testing and marking of electrical apparatus, parts of electrical apparatus and Ex components with the type of protection encapsulation "m".

This part of IEC 60079 only applies for encapsulated electrical apparatus, encapsulated parts of electrical apparatus and encapsulated Ex components (hereinafter always referred to as "m" apparatus) where the rated voltage does not exceed 10 kV with a relative tolerance of +10 %.

This standard supplements the general requirements in IEC 60079-0.

## 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 60079-0:—, *Electrical apparatus for explosive gas atmospheres – Part 0: General requirements*

IEC 60079-7:2001, *Electrical apparatus for explosive gas atmospheres – Part 7: Increased safety "e"*

IEC 60079-11:1999, *Electrical apparatus for explosive gas atmospheres – Part 11: Intrinsic safety "i"*

IEC 60079-26:—, *Electrical apparatus for explosive gas atmospheres – Part 26: Construction, test and marking of Group II Zone 0 electrical apparatus*



IEC 60086-1, *Primary batteries – Part 1: General*

IEC 60127 (all parts), *Miniature fuses*



IEC 60243-1, *Electrical strength of insulating material – Test methods – Part 1: Tests at power frequencies*

IEC 60622, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Sealed nickel-cadmium prismatic rechargeable single cells*