SVENSK STANDARD SS-EN 61241-0

Fastställd	Utgåva	Sida	Ingår i
2007-01-15	1	1 (1+60)	SEK Område 31

Svenska Elektriska Kommissionen, SEK

Elektrisk utrustning för användning vid förekomst av brännbart damm – Del 0: Allmänna fordringar

Electrical apparatus for use in the presence of combustible dust – Part 0: General requirements

Som svensk standard gäller europastandarden EN 61241-0:2006. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61241-0:2006.

Nationellt förord

Europastandarden EN 61241-0:2006

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 61241-0[*)], First edition, 2004 - Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 50281-1-1, utgåva 1, 1999, SS-EN 50281-1-1 C1, utgåva 1, 1999 och SS-EN 50281-1-1/A1, utgåva 1, 2002, gäller ej fr o m 2008-10-01.

Denna standard SS-EN 61241-0, utgåva 1, 2007 och SS-EN 61241-1, utgåva 1, 2007 ersätter tillsammans SS-EN 50281-1-1, SS-EN 50281-1-1 C1 och SS-EN 50281-1-1/A1.

*) Se även bifogat Corrigendum, November 2005.

ICS 29.260.20

Denna standard är fastställd av Svenska Elektriska Kommissionen, SEK, som också kan lämna upplysningar om **sakinnehållet** i standarden.
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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61241-0

December 2006

ICS 29.260.20

Partly supersedes EN 50281-1-1:1998 + A1:2002

English version

Electrical apparatus for use in the presence of combustible dust
Part 0: General requirements
(IEC 61241-0:2004, modified + corrigendum Nov. 2005)

Matériels électriques pour utilisation
en présence de poussières combustibles
Partie 0: Exigences générales
(CEI 61241-0:2004, modifiée +
corrigendum nov. 2005)

Elektrische Betriebsmittel zur Verwendung
in Bereichen mit brennbarem Staub
Teil 0: Allgemeine Anforderungen
(IEC 61241-0:2004, modifiziert +
Corrigendum Nov. 2005)

This European Standard was approved by CENELEC on 2005-09-13. 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, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the 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 61241-0:2006 E

Foreword

The text of document 31H/173/FDIS, future edition 1 of IEC 61241-0, prepared by SC 31H, Apparatus for use in the presence of combustible dust, of IEC TC 31, Equipment for explosive atmospheres, was submitted to the IEC-CENELEC parallel vote.

A draft amendment, prepared by the Technical Committee CENELEC TC 31, Electrical apparatus for explosive atmospheres - General requirements, containing some common modifications to the text of document 31H/173/FDIS, was submitted to the formal vote.

The two texts were combined and approved by CENELEC as EN 61241-0 on 2005-09-13.

This standard, and the other parts within this series, was developed to align protection methods associated with electrical apparatus for use in the presence of combustible dust and those similar protection methods associated with the EN 60079 series of standards, where possible.

This European Standard, together with EN 61241-1:2004, supersedes EN 50281-1-1:1998 + corrigendum August 1999 + A1:2002.

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)	2007-07-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2008-10-01

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directive 94/9/EC. See Annex ZZ.

NOTE 1 Other EC Directives may be applicable.

NOTE 2 Subclauses, notes and annexes that are additional to those in IEC 61241-0 are prefixed with the letter Z.

Annexes ZA, ZB and ZZ have been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 61241-0:2004, with its corrigendum November 2005, was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

Annex ZB
(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 60034-5	2000	Rotating electrical machines Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code) - Classification	EN 60034-5	2001
IEC 60079-0 (mod)	2004	Electrical apparatus for explosive gas atmospheres Part 0: General requirements	EN 60079-0	2006
IEC 60079-7	2001	Electrical apparatus for explosive gas atmospheres Part 7: Increased safety "e"	EN 60079-7	2003
IEC 60079-11	1999	Electrical apparatus for explosive gas atmospheres Part 11: Intrinsic safety "i"	-	-
IEC 60086-1	2000	Primary batteries Part 1: General	EN 60086-1	2001
IEC 60095 (mod)	Series	Lead-acid starter batteries	EN 60095	Series
IEC 60192	2001	Low pressure sodium vapour lamps - Performance specifications	EN 60192	2001
IEC 60216-1	2001	Electrical insulating materials - Properties of thermal endurance Part 1: Ageing procedures and evaluation of test results	EN 60216-1	2001
IEC 60216-2	1990	Guide for the determination of thermal endurance properties of electrical insulating materials Part 2: Choice of test criteria	-	-
IEC 60243-1	1998	Electrical strength of insulating materials - Test methods Part 1: Tests at power frequencies	EN 60243-1	1998
IEC 60285	1993	Alkaline secondary cells and batteries - Sealed nickel-cadmium cylindrical rechargeable single cells	EN 60285 [1)]	1994

[1)] EN 60285 is superseded by EN 61951-1:2003, which is based on IEC 61951-1:2003.

Publication	Year	Title	EN/HD	Year
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 60623	2001	Secondary cells and batteries containing alkaline or other non-acid electrolytes - Vented nickel-cadmium prismatic rechargeable single cells	EN 60623	2001
IEC 60662 (mod)	1980	High pressure sodium vapour lamps	EN 60662 [2)]	1993
IEC 60947-3	1999	Low-voltage switchgear and controlgear Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units	EN 60947-3	1999
IEC 61056	Series	General purpose lead-acid batteries (valve regulated types)	EN 61056	Series
IEC 61150	1992	Alkaline secondary cells and batteries - Sealed nickel-cadmium rechargeable monobloc batteries in button cell design	EN 61150	1993
IEC 61241-1	- [3)]	Electrical apparatus for use in the presence of combustible dust Part 1: Protection by enclosures "tD"	EN 61241-1	2004 [4)]
IEC 61241-14	- [3)]	Electrical apparatus for use in the presence of combustible dust Part 14: Selection and installation	EN 61241-14	2004 [4)]
ISO 48	1994	Rubber, vulcanized or thermoplastic - Determination of hardness (hardness between 10 IRHD and 100 IRHD)	-	-
ISO 178	2001	Plastics - Determination of flexural properties	EN ISO 178	2003
ISO 179	Series	Plastics - Determination of Charpy impact properties	EN ISO 179	Series
ISO 262	1998	ISO general-purpose metric screw threads - Selected sizes for screws, bolts and nuts	-	-
ISO 273	1979	Fasteners - Clearance holes for bolts and screws	EN ISO 273	1991
ISO 286-2	1988	ISO system of limits and fits Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts	EN 20286-2	1993
ISO 527	Series	Plastics - Determination of tensile properties	EN ISO 527	Series
ISO 965	Series	ISO general-purpose metric screw threads - Tolerances	-	-

[2)] EN 60662 includes A1:1986 + A2:1987 + A3:1990 to IEC 60662 (mod).

[3)] Undated reference.

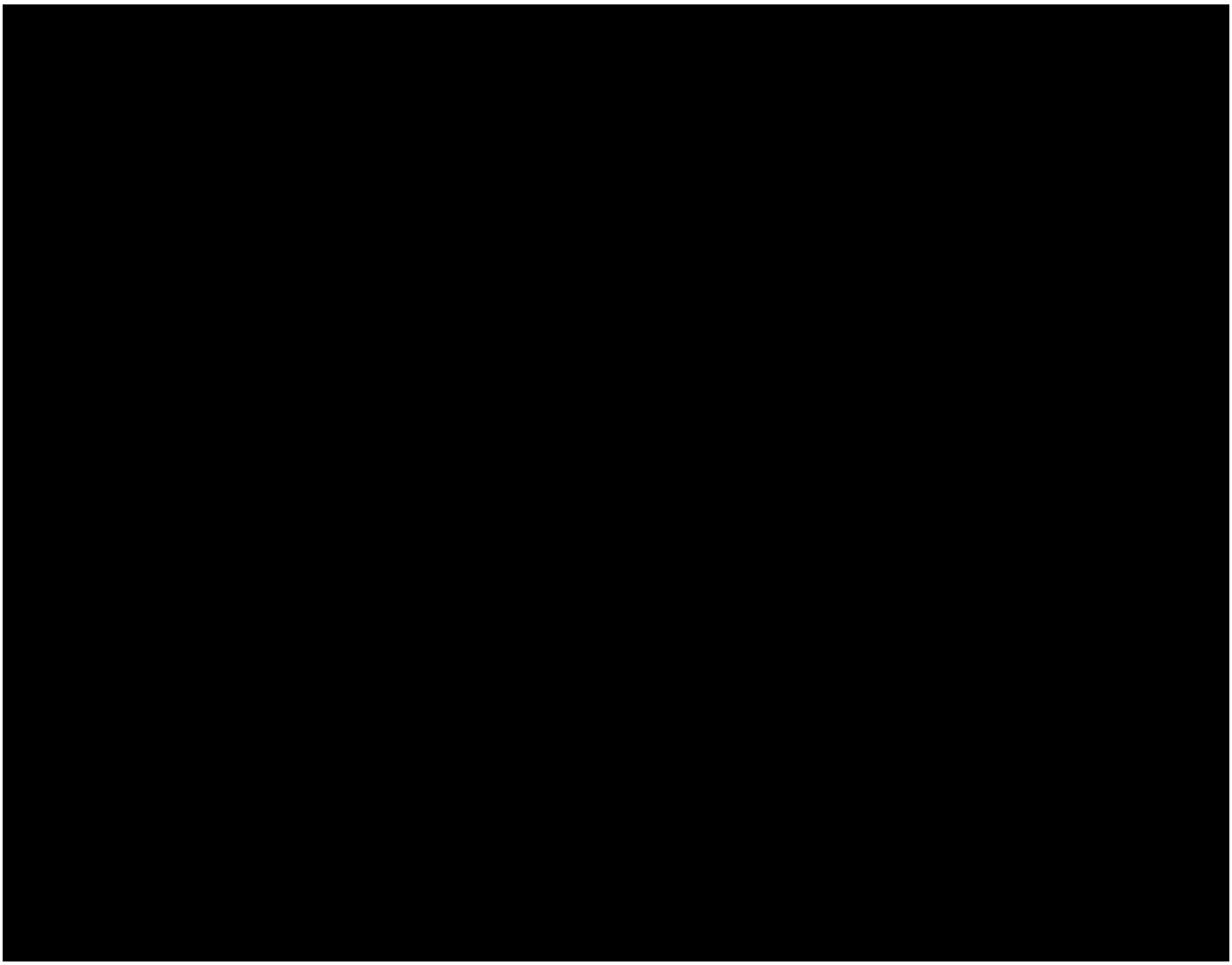
[4)] Valid edition at date of issue.

Publication	Year	Title	EN/HD	Year
ISO 1818 [5)]	1975	Vulcanized rubbers of low hardness (10 to 35 IRHD)	-	-
ISO 4014	1999	Hexagon head bolts - Product grades A and B	EN ISO 4014	2000
ISO 4017	1999	Hexagon head screws - Product grades A and B	EN ISO 4017	2000
ISO 4026	2003	Hexagon socket set screws with flat point	EN ISO 4026	2003
ISO 4027	2003	Hexagon socket set screws with cone point	EN ISO 4027	2003
ISO 4028	2003	Hexagon socket set screws with dog point	EN ISO 4028	2003
ISO 4029	2003	Hexagon socket set screws with cup point	EN ISO 4029	2003
ISO 4032	1999	Hexagon nuts, style 1 - Product grades A and B	EN ISO 4032	2000
ISO 4762	1997	Hexagon socket head cap screws	EN ISO 4762	1997 [6)]
ISO 4892	Series	Plastics - Methods of exposure to laboratory light sources	EN ISO 4892	Series

[5)] Withdrawn standard.

[6)] EN ISO 4762:1997 is superseded by EN ISO 4762:2004, which is based on ISO 4762:2004.

Annex ZZ



CONTENTS

INTRODUCTION

Many dusts that are generated, processed, handled and stored, are combustible. When ignited they can burn rapidly and with considerable explosive force if mixed with air in the appropriate proportions. It is often necessary to use electrical apparatus in locations where such combustible materials are present, and suitable precautions must therefore be taken to ensure that all such apparatus is adequately protected so as to reduce the likelihood of ignition of the external explosive atmosphere. In electrical apparatus, potential ignition sources include electrical arcs and sparks, hot surfaces and frictional sparks.

Areas where dust, flyings and fibres in air occur in dangerous quantities are classified as hazardous and are divided into three zones according to the level of risk.

Generally, electrical safety is ensured by the implementation of one of two considerations, i.e. that electrical apparatus be located where reasonably practicable outside hazardous areas, and that electrical apparatus be designed, installed and maintained in accordance with measures recommended for the area in which the apparatus is located.

Combustible dust can be ignited by electrical apparatus in several ways:

– by surfaces of the apparatus that are above the minimum ignition temperature of the dust concerned. The temperature at which a type of dust ignites is a function of the properties of the dust, whether the dust is in a cloud or layer, the thickness of the layer and the geometry of the heat source;
– by arcing or sparking of electrical parts such as switches, contacts, commutators, brushes, or the like;
– by discharge of an accumulated electrostatic charge;
– by radiated energy (e.g. electromagnetic radiation);
– by mechanical sparking or frictional sparking or heating associated with the apparatus.

In order to avoid ignition hazards it is necessary that

– the temperature of surfaces, on which dust can be deposited, or which would be in contact with a dust cloud, is kept below the temperature limitation specified in this standard;
– any electrical sparking parts, or parts having a temperature above the temperature limit specified in IEC 61241-14
  - are contained in an enclosure which adequately prevents the ingress of dust, or
  - the energy of electrical circuits is limited so as to avoid arcs, sparks or temperatures capable to ignite combustible dust;
– any other ignition sources are avoided.

Compliance with this standard will only provide the required level of safety if the electrical apparatus is operated within its rating and is installed and maintained according to the relevant codes of practice or requirements, for example in respect of protection against over-currents, internal short-circuits, and other electrical faults. In particular, it is essential that the severity and duration of an internal or external fault be limited to values that can be sustained by the electrical apparatus without damage.

Several techniques are available for the explosion protection of electrical apparatus in hazardous areas. This standard describes the safety features of these types of explosion-protection techniques and specifies the installation procedures to be adopted. It is most important that the correct selection and installation procedures be followed to ensure the safe use of electrical apparatus in hazardous areas.

ELECTRICAL APPARATUS FOR USE IN THE PRESENCE OF COMBUSTIBLE DUST –

Part 0: General requirements

1 Scope

This part of IEC 61241 specifies general requirements for the design, construction, testing and marking of electrical apparatus protected by any recognized safeguard technique for use in areas where combustible dust may be present in quantities that could lead to a fire or explosion hazard.

This standard is supplemented or modified by the following parts of IEC 61241 concerning specific types of protection:

– Part 1: Protection by enclosures ‘tD’
– Part 2: Protection by pressurization ‘pD’ (under consideration)
– Part 11: Intrinsically safe apparatus ‘iD’
– Part 18: Protection by encapsulation ‘mD’

NOTE IEC 61241-14 gives guidance on the selection and installation of the apparatus. Apparatus within the scope of this standard may also be subjected to additional requirements in other standards – for example, IEC 60079-0.

The application of electrical apparatus in atmospheres which may contain explosive gas as well as combustible dust, whether simultaneously or separately, requires additional protective measures.

This standard does not specify requirements for safety, other than those directly related to the explosion risk.

Where the apparatus has to meet other environmental conditions, for example, protection against ingress of water and resistance to corrosion, additional methods of protection may be necessary. The method used is not to adversely affect the integrity of the enclosure.

This standard does not apply to dusts of explosives that do not require atmospheric oxygen for combustion, or to pyrophoric substances.

This standard is not applicable to electrical apparatus intended for use in underground parts of mines as well as those parts of surface installations of such mines endangered by fire damp and/or combustible dust.

This standard does not take account of any risk due to an emission of flammable or toxic gas from the dust.