SVENSK STANDARD SS-EN 60079-11

Fastställd	Utgåva	Sida	Ingår i
2007-03-26	1	1 (1+119)	SEK Område 31

Svenska Elektriska Kommissionen, SEK

Explosiv atmosfär –
Del 11: Egensäkert utförande ”i”

Explosive atmospheres –
Part 11: Equipment protection by intrinsic safety "i"

Som svensk standard gäller europastandarden EN 60079-11:2007. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60079-11:2007.

Nationellt förord

Europastandarden EN 60079-11:2007

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60079-11, Fifth edition, 2006 - Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden skall användas tillsammans med SS-EN 60079-0.

Tidigare fastställd svensk standard SS-EN 50020, utgåva 5, 2002, gäller ej fr o m 2009-10-01.

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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Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

Svenska Elektriska Kommissionen, SEK, svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60079-11

January 2007

ICS 29.260.20

Supersedes EN 50020:2002

English version

Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

(IEC 60079-11:2006)

Atmosphères explosives - Partie 11: Protection de l'équipement par sécurité intrinsèque "i" (CEI 60079-11:2006 + corrigendum 2006)

Explosionsfähige Atmosphäre - Teil 11: Geräteschutz durch Eigensicherheit "i" (IEC 60079-11:2006)

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 60079-11:2007 E

Foreword

The text of document 31G/159/FDIS, future edition 5 of IEC 60079-11, prepared by SC 31G, Intrincisally safer apparatus, of IEC TC 31, Equipment for explosive atmospheres, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60079-11 on 2006-10-01.

This European Standard supersedes EN 50020:2002.

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)	2007-08-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2009-10-01

This standard supplements and modifies the general requirements of EN 60079-0:2006, except as indicated in Table 1 (see Scope).

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.

Annexes ZA and ZZ have been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 60079-11:2006 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 60079-15	NOTE	Harmonized as EN 60079-15:2005 (not modified).
IEC 61086-1	NOTE	Harmonized as EN 61086-1:2004 (not modified).

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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 60079-0 (mod)	2004	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements	EN 60079-0	2006
IEC 60079-7	–[1)]	Explosive atmospheres - Part 7: Equipment protection by Increased safety "e"	EN 60079-7	2007[2)]
IEC 60079-25	–[1)]	Electrical apparatus for explosive gas atmospheres - Part 25: Intrinsically safe systems	EN 60079-25 + corr. April	2004[2)] 2006
IEC 60079-27	–[1)]	Electrical apparatus for explosive gas atmospheres - Part 27: Fieldbus intrinsically safe concept (FISCO) and Fieldbus non-incendive concept (FNICO)	EN 60079-27	2006[2)]
IEC 60085	–[1)]	Electrical insulation - Thermal classification	EN 60085	2004[2)]
IEC 60112	–[1)]	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN 60112	2003[2)]
IEC 60127	Series	Miniature fuses	EN 60127	Series
IEC 60317-3	–[1)]	Specifications for particular types of winding wires - Part 3: Polyester enamelled round copper wire, class 155	–	–
IEC 60317-7	–[1)]	Specifications for particular types of winding wires - Part 7: Polyimide enamelled round copper wire, class 220	EN 60317-7	1994[2)]
IEC 60317-8	–[1)]	Specifications for particular types of winding wires - Part 8: Polyesterimide enamelled round copper wire, class 180	EN 60317-8	1994[2)]

[1)] Undated reference.

[2)] Valid edition at date of issue.

Publication	Year	Title	EN/HD	Year
IEC 60317-13	–[1)]	Specifications for particular types of winding wires - Part 13: Polyester or polyesterimide overcoated with polyamide-imide enamelled round copper wire, class 200	EN 60317-13	1994[2)]
IEC 60529	–[1)]	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991[2)] 1993
IEC 60664-1 + A1 + A2	1992 2000 2002	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2003
IEC 60664-3	2003	Insulation coordination for equipment within low-voltage systems - Part 3: Use of coating, potting or moulding for protection against pollution	EN 60664-3	2003
ANSI/UL 248-1	–[1)]	Low-voltage Fuses - Part 1: General requirements	–	–

CONTENTS

EXPLOSIVE ATMOSPHERES –

Part 11: Equipment protection by intrinsic safety "i"

1 Scope

This part of IEC 60079 specifies the construction and testing of intrinsically safe apparatus intended for use in an explosive gas atmosphere and for associated apparatus, which is intended for connection to intrinsically safe circuits which enter such atmospheres.

This type of protection is applicable to electrical apparatus in which the electrical circuits themselves are incapable of causing an explosion in the surrounding explosive atmospheres.

This standard is also applicable to electrical apparatus or parts of electrical apparatus located outside the explosive gas atmosphere or protected by another type of protection listed in IEC 60079-0, where the intrinsic safety of the electrical circuits in the explosive gas atmosphere may depend upon the design and construction of such electrical apparatus or parts of such electrical apparatus. The electrical circuits exposed to the explosive gas atmosphere are evaluated for use in such an atmosphere by applying this standard.

The requirements for intrinsically safe systems are provided in IEC 60079-25. The requirements for intrinsically safe concepts for fieldbus are provided in IEC 60079-27.

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

If associated apparatus is placed in the explosive gas atmosphere, it must be protected by an appropriate type of protection listed in IEC 60079-0, and then the requirements of that method of protection together with the relevant parts of IEC 60079-0 also apply to the associated apparatus.

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

Clause or subclause of IEC 60079-0		Intrinsically safe apparatus	Associated apparatus
4.2.2	Group II – Surface temperature marking	Applies	Excluded
5.3	Maximum surface temperature	Applies	Excluded
5.4	Surface temperature and ignition temperature	Applies	Excluded
5.5	Small components	Applies	Excluded
6.3	Opening times	Excluded	Excluded
7.1.1	Applicability	Applies	Excluded
7.1.2	Specification of materials	Applies	Excluded
7.1.3*	Plastic materials	Excluded	Excluded
7.2*	Thermal endurance	Excluded	Excluded
7.3	Electrostatic charges on external non-metallic materials of enclosures	Applies	Excluded
7.3.2	Avoidance of a build-up electrostatic charge	Applies	Excluded
7.4	Threaded holes	Excluded	Excluded

Table 1 *(continued)*

Clause or subclause of IEC 60079-0		Intrinsically safe apparatus	Associated apparatus
8.1	Material composition	Applies	Excluded
8.2	Threaded holes	Excluded	Excluded
9	Fasteners	Excluded	Excluded
10	Interlocking devices	Excluded	Excluded
11	Bushings	Excluded	Excluded
12	Materials used for cementing	Excluded	Excluded
14	Connection facilities and terminal compartments	Excluded	Excluded
15	Connection facilities for earthing or bonding conductors	Excluded	Excluded
16.5	Conductor temperature	Excluded	Excluded
17	Supplementary requirements for rotating electrical machines	Excluded	Excluded
18	Supplementary requirements for switchgear	Excluded	Excluded
19	Supplementary requirements for fuses	Excluded	Excluded
20	Supplementary requirements for plugs and sockets	Excluded	Excluded
21	Supplementary requirements for luminaires	Excluded	Excluded
22	Supplementary requirements for caplights and handlights	Excluded	Excluded
23.1	Batteries	Applies	Excluded
26.4	Tests of enclosures	Applies	Excluded
26.5.1	Temperature measurement	Applies	Excluded
26.5.2	Thermal shock test	Excluded	Excluded
26.5.3	Small component ignition test	Applies	Excluded
26.6	Torque test for bushings	Excluded	Excluded
26.7*	Non-metallic enclosures or non-metallic parts of enclosures	Excluded	Excluded
26.8*	Thermal endurance to heat	Excluded	Excluded
26.9*	Thermal endurance to cold	Excluded	Excluded
26.10*	Resistance to light	Excluded	Excluded
26.11*	Resistance to chemical agents for Group I electrical apparatus	Excluded	Excluded
26.12	Earth continuity	Excluded	Excluded
26.13	Surface resistance test of parts of enclosures or non-metallic materials	Applies	Excluded
26.14	Charging tests	Applies	Excluded
26.15	Measurement of capacitance	Applies	Excluded
Annex A	Ex cable glands	Excluded	Excluded
* indicates that these requirements apply for 6.1.2a) only.			

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60079. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60079-0:2004, *Electrical apparatus for explosive gas atmospheres – Part 0: General requirements*

IEC 60079-7, *Explosive atmospheres – Part 7: Equipment protection by increased safety "e"*

IEC 60079-25, *Electrical apparatus for explosive gas atmospheres – Part 25: Intrinsically safe systems*

IEC 60079-27, *Electrical apparatus for explosive gas atmospheres – Part 27: Fieldbus intrinsically safe concept (FISCO) and Fieldbus non-incendive concept (FNICO)*

IEC 60085, *Electrical insulation – Thermal classification*

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 60317-3, *Specifications for particular types of winding wires – Part 3: Polyester enamelled round copper wire, class 155*

IEC 60317-7, *Specifications for particular types of winding wires – Part 7: Polyimide enamelled round copper wire, class 220*

IEC 60317-8, *Specifications for particular types of winding wires – Part 8: Polyesterimide enamelled round copper winding wire, class 180*

IEC 60317-13, *Specifications for particular types of winding wires – Part 13: Polyester or polyesterimide overcoated with polyamide-imide enamelled round copper wire, class 200*

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

IEC 60664-1:2002, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests* [1)]
Amendment 1 (2000)
Amendment 2 (2002)

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1) A consolidated edition 1.2 exists, that comprises IEC 60664-1 and its amendments 1 and 2.