SVENSK STANDARD SS-EN 50020

Fastställd	Utgåva	Sida	Ingår i
2002-09-11	5	1 (1+93)	SEK Område 31

Svenska Elektriska Kommissionen, SEK

Explosionsskyddad elektrisk materiel – Utförande med egensäkerhet

Electrical apparatus for potentially explosive atmospheres – Intrinsic safety "i"

Som svensk standard gäller europastandarden EN 50020:2002. Den svenska standarden innehåller den officiella engelska språkversionen av EN 50020:2002.

Nationellt förord

Tidigare utgiven svensk standard SS-EN 50020, utgåva 4, 1994 och SS-EN 50020 C1, utgåva 1, 1998, gäller ej fr o m 2003-06-30.

Standarden skall användas tillsammans med tidigare utgiven svensk standard SS-EN 50014, utgåva 4, 1997.

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 **EN 50020**

NORME EUROPÉENNE

EUROPÄISCHE NORM June 2002

ICS 29.260.20 Supersedes EN 50020:1994

English version

Electrical apparatus for potentially explosive atmospheres - Intrinsic safety 'i'

Matériel électrique
pour atmosphères explosibles -
Sécurité intrinsèque 'i'

Elektrische Betriebsmittel
für explosionsgefährdete Bereiche -
Eigensicherheit 'i'

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 50020:2002 E

Foreword

This European Standard was prepared by SC 31-3, Intrinsically safe apparatus and systems "i", of Technical Committee CENELEC TC 31, Electrical apparatus for explosive atmospheres.

The text of the draft was submitted to the CENELEC Unique Acceptance Procedure and was approved by CENELEC as EN 50020 on 2002-02-01.

This European Standard supersedes EN 50020:1994 and its corrigendum February 1998.

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)	2003-02-01
- latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2003-06-30

This European Standard is to be read in conjunction with EN 50014:1997, *Electrical apparatus for potentially explosive atmospheres – General requirements*, and with the third editions of the European Standards for the specific types of protection.

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1 Scope

1.1 This European Standard specifies the construction and testing of intrinsically safe apparatus, intended for use in potentially explosive atmospheres and for associated apparatus, which is intended for connection to intrinsically safe circuits which enter such atmospheres.

1.2 This European Standard supplements EN 50014 the requirements of which apply to intrinsically safe apparatus and to associated apparatus except as indicated in the following list.

If associated apparatus is protected by a type of protection listed in EN 50014, then the requirements of that method of protection together with the relevant parts of EN 50014 also apply to the associated apparatus. The list of exclusions which follows is directly applicable to associated apparatus intended for use in situations where there is no potentially hazardous atmosphere and in other circumstances should be used in combination with the requirements of the other method of protection.

Clause of EN 50014:1997		Clause excluded	
		Intrinsically safe apparatus	**Associated apparatus**
3.1	Electrical apparatus	Yes	Yes
4.2.2	Marking of maximum surface temperature	No	Yes
5.1	Maximum surface temperature	No	Yes
5.3	Surface temperature and ignition temperature	No	Yes
6.2	Enclosure opening delay	Yes	Yes
7.1.1	Definition of plastics material	No	Yes
7.1.2	Requirements of plastics material compliance	Yes	Yes
7.1.3	Verification of plastics material compliance	No	Yes
7.2	Thermal endurance	Yes	Yes
7.3	Electrostatic charges on plastics enclosures	No	Yes
7.4	Threaded holes in plastics	Yes	Yes
8.1	Light metal enclosure materials	No	Yes
8.2	Threaded holes in light metals	Yes	Yes
9	Fasteners	Yes	Yes
10	Interlocking devices	Yes	Yes
11	Bushings	Yes	Yes
12	Materials used for cementing	Yes	Yes
14	Connection facilities and terminal compartments	Yes	Yes
15	Connection facilities for earthing or bonding conductors	Yes	Yes
16	Cable and conduit entries	Yes	Yes
17 to 22	Supplementary requirements for certain electrical apparatus	Yes	Yes
23.4.3.1	Test for resistance to impact	Yes	Yes
23.4.3.2	Drop test (no prior impact test necessary)	No	Yes
23.4.3.3	Required results	No	Yes
23.4.5	Torque test for bushings	Yes	Yes
23.4.6.1	Temperature measurement	No	Yes
23.4.6.2	Thermal shock test	Yes	Yes
23.4.7.1 to 23.4.7.7	Tests on non-metallic enclosures	Yes	Yes
23.4.7.8	Insulation resistance test of parts of enclosures of plastics materials	No	Yes
Annex B	Ex cable entries	Yes	Yes

1.3 This standard is applicable to electrical apparatus in which the electrical circuits themselves are incapable of causing an explosion in the surrounding explosive atmosphere.

1.4 This standard is also applicable to electrical apparatus or parts of electrical apparatus located outside the potentially explosive atmosphere or protected by another type of protection listed in EN 50014, where the intrinsic safety of the electrical circuits in the potentially explosive atmosphere, may depend upon the design and construction of such electrical apparatus or parts of such electrical apparatus. The electrical circuits exposed to the potentially explosive atmosphere are evaluated for use in such an atmosphere by applying this standard.

NOTE Methods of interconnection of intrinsically safe apparatus and associated apparatus are specified in EN 50039.

1.5 Where intrinsically safe apparatus is required to be Category 1 G equipment in accordance with EN 50284 it must comply with the requirements in this standard and also comply with the relevant requirements of EN 50284. In particular 4.3, 4.4 and 4.5 impose additional requirements.

1.6 Where intrinsically safe apparatus is required to be Category M1 equipment in accordance with EN 50303 it must comply with the requirements of this standard and also comply with the relevant requirements of EN 50303.

NOTE Associated apparatus intended for interconnection to Category 1 G and Category M1 equipment only requires to comply with the requirements of "ia" associated apparatus in accordance with this standard but should be marked in accordance with the relevant Category 1 standard.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

Publication	Year	Title
EN 50014 + corr. April + A1 + A2	1997 1998 1999 1999	Electrical apparatus for potentially explosive atmospheres - General requirements
EN 50019		Electrical apparatus for potentially explosive atmospheres - Increased safety 'e'
EN 50039		Electrical apparatus for potentially explosive atmospheres - Intrinsically safe electrical systems 'i'
EN 50284	1999	Special requirements for construction, test and marking of electrical apparatus for equipment group II, Category 1 G
EN 50303	2000	Group I, Category M1 equipment intended to remain functional in atmospheres endangered by firedamp and/or coal dust
EN 60127-1		Miniature fuses - Part 1: Definitions for miniature fuses and general requirements for miniature fuse-links (IEC 60127-1)
EN 60127-2		Miniature fuses - Part 2: Cartridge fuse-links (IEC 60127-2)
EN 60127-3		Miniature fuses - Part 3: Sub-miniature fuse-links (IEC 60127-3)
EN 60317-3 + A1	1994 1998	Specifications for particular types of winding wires - Part 3: Polyester enamelled round copper wire, class 155 (IEC 60317-3:1990 + A1:1997)
EN 60317-7 + A1 + A2	1994 1997 1998	Specifications for particular types of winding wires - Part 7: Polyimide enamelled round copper wire, class 220 (IEC 60317-7:1990 + A1:1997 + A2:1997)

Publication	Year	Title
EN 60317-8 + A1 + A2	1994 1997 1998	Specifications for particular types of winding wires - Part 8: Polyesterimide enamelled round copper wire, class 180 (IEC 60317-8:1990 + A1:1997 + A2:1997)
EN 60529		Degrees of protection provided by enclosures (IP code)
HD 214 S2	1980	Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions (IEC 60112:1979)
HD 566 S1	1990	Thermal evaluation and classification of electrical insulation (IEC 60085:1984)