SVENSK STANDARD SS-EN 50223

Fastställd	Utgåva	Sida	Ansvarig kommitté
2010-10-25	2	1 (1+48)	SEK TK 31

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Stationär utrustning för elektrostatisk applicering av brännbart flock – Säkerhetsfordringar

Stationary electrostatic application for ignitable flock material – Safety requirements

Som svensk standard gäller europastandarden EN 50223:2010. Den svenska standarden innehåller den officiella engelska språkversionen av EN 50223:2010.

Nationellt förord

Tidigare fastställd svensk standard SS-EN 50223, utgåva 1, 2002, gäller ej fr o m 2013-05-01.

ICS 29.260.20; 87.100

Denna standard är fastställd av SEK Svensk Elstandard,
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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.

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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 50223

May 2010

ICS 29.260.20; 87.100

Supersedes EN 50223:2001

English version

Stationary electrostatic application equipment for ignitable flock material - Safety requirements

Matériel fixe de projection électrostatique de flock ignitable - Exigences de sécurité

Stationäre elektrostatische Flockanlagen für entzündbaren Flock - Sicherheitsanforderungen

This European Standard was approved by CENELEC on 2010-05-01. 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, Bulgaria, Croatia, 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

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SEK Svensk Elstandard

Foreword

This European Standard was prepared by SC 31-8, Electrostatic painting and finishing equipment, of Technical Committee CENELEC TC 31, Electrical apparatus for potentially explosive atmospheres. It was submitted to the formal vote and was approved by CENELEC as EN 50223 on 2010-05-01.

This document supersedes EN 50223:2001.

The State of the Art is included in Annex ZY "*Significant changes between this European Standard and EN 50223:2001*"

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

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)	2011-05-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2013-05-01

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 Directives 2006/42/EC (see Annex ZZA) and 94/9/EC (see Annex ZZB).

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Introduction

In the process of electrostatic flock application, the flock is transported from a reservoir through an electrical field either by gravitational forces or an air stream or electrostatic forces. As the flock particles disperse due to the flock application device and/or the electric field, they are electrostatically charged by means of high voltage of some tens of kilovolts aligned and, in the form of a cloud, encased by and deposited on the grounded workpiece. They stick to those workpieces, which are covered with an adhesive layer. The adhesive is set at room temperature or by heating.

Flock particles not deposited on the workpiece (overspray) are upcast or removed by the exhaust ventilation system, by brushes or other devices into the flock recovery system.

1 Scope

1.1 This European Standard specifies requirements for automatic electrostatic flock application equipment which is designed for applying ignitable flock which may form explosive atmospheres in the flock application area. In this context a distinction is made between flock application devices which due to their type of construction comply with the requirements as laid down in EN 50050 as applicable, and those for which higher discharge energies are stipulated.

This European Standard also specifies the constructional requirements for a safe operation of the stationary equipment of flock application booths, including the electrical installations and the accessories.

This European Standard deals with all significant hazards, hazardous situations and events relevant to flock application booths, when they are used as intended and under conditions which are foreseeable as malfunction by the manufacturer (see Clause 4).

1.2 This European Standard considers four types of electrostatic flock systems. For more details, see Table 1.

1.3 This European Standard deals with those hazards occurring during stationary automatic electrostatic flocking. Among these hazards are, above all, ignition hazards of the generated explosive atmosphere and hazard to persons.

1.4 The stationary equipment dealt with in this European Standard is considered to be equipment of group II, category 3D for the use in areas with potential explosion hazards of zone 22.

1.5 In cases of hybrid mixtures, the stationary equipment dealt with in this European Standard is also considered as equipment of group II, category 3G for the use in areas with potential explosion hazard of zone 2.

1.6 This European Standard is not applicable for

- flock systems operated with AC voltage,
- the application system for liquid or pasty substances (e.g. adhesives, primer),
- the cleaning of flock application booths,
- the storage and handling of ignitable substances outside the coating plant.

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.

EN 50050:2006, *Electrical apparatus for potentially explosive atmospheres - Electrostatic hand-held spraying equipment*

EN 60079-0:2006 [1)], *Electrical apparatus for explosive gas atmospheres - Part 0: General requirements* (IEC 60079-0:2004, mod.)

EN 60204-1:2006 + A1:2009, *Safety of machinery - Electrical equipment of machines - Part 1: General requirements* (IEC 60204-1:2005 + A1:2008)

[1)] Superseded by EN 60079-0:2009 “Explosive atmospheres - Part 0: Equipment - General requirements” (IEC 60079-0:2007)

EN 60529:1991 + A1:2000, *Degrees of protection provided by enclosures (IP code)* (IEC 60529:1989 + A1:1999)

EN 61241-0:2006, *Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements* (IEC 61241-0:2004, mod. + corr. Nov. 2005)

EN 61241-10:2004, *Electrical apparatus for use in the presence of combustible dust - Part 10: Classification of areas where combustible dust are or may be present* (IEC 61241-10:2004)

EN 61340-4-1:2004, *Electrostatics - Part 4-1: Standard test methods for specific applications - Electrical resistance of floor coverings and installed floors* (IEC 61340-4-1:2003)

EN 62061:2005, *Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems* (IEC 62061:2005)

EN 619, *Continuous handling equipment and systems - Safety and EMC requirements for equipment for mechanical handling of unit loads*

EN 746-1:1997 + A1:2009, *Industrial thermoprocessing equipment - Part 1: Common safety requirements for industrial thermoprocessing equipment*

EN 953, *Safety of machinery - Guards - General requirements for the design and construction of fixed and movable guards*

EN 981, *Safety of machinery - System of auditory and visual danger and information signals*

EN 1037, *Safety of machinery - Prevention of unexpected start-up*

EN 1081:1998, *Resilient floor coverings - Determination of the electrical resistance*

EN 1127-1:2007, *Explosive atmospheres - Explosion prevention and protection – Part 1: Basic concepts and methodology*

EN 1149-5, *Protective clothing - Electrostatic properties - Part 5: Material performance and design requirements*

EN 12445*, Industrial, commercial and garage doors and gates - Safety in use of power operated doors - Test methods*

EN 12453, *Industrial, commercial and garage doors and gates - Safety in use of power operated doors – Requirements*

EN 12635, *Industrial, commercial and garage doors and gates - Installation and use*

EN 12978, *Industrial, commercial and garage doors and gates - Safety devices for power operated doors and gates - Requirements and test methods*

EN 13463-1:2009, *Non-electrical equipment for use in potentially explosive atmospheres - Part 1: Basic method and requirements*

EN 13478:2001 + A1:2008, *Safety of machinery - Fire prevention and protection*

EN 13501-1 + A1, *Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests*

EN 14373, *Explosion suppression systems*

EN 14460, *Explosion resistant equipment*

EN 14462, *Surface treatment equipment - Noise test code for surface treatment equipment including its ancillary handling equipment - Accuracy grades 2 and 3*

EN 14491, *Dust explosion venting protective systems*

EN 14797, *Explosion venting devices*

EN 14986, *Design of fans working in potentially explosive atmospheres*

EN 15089, *Explosion isolation systems*

EN ISO 12100-1:2003 + A1:2009, *Safety of machinery - Basic concepts, general principles for design – Part 1: Basic terminology, methodology* (ISO 12100-1:2003 + A1:2009)

EN ISO 12100-2:2003 + A1:2009, *Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles* (ISO 12100-2:2003 + A1:2009)

EN ISO 13849-1, *Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design* (ISO 13849-1)

EN ISO 13850, *Safety of machinery - Emergency stop - Principles for design* (ISO 13850)

EN ISO 14122-2; *Safety of machinery - Permanent means of access to machinery – Part 2: Working platforms and walkways* (ISO 14122-2)

EN ISO 14122-3; *Safety of machinery - Permanent means of access to machinery - Part 3: Stairs, stepladders and guard-rails* (ISO 14122-3)

EN ISO 14122-4; *Safety of machinery - Permanent means of access to machinery - Part 4: Fixed ladders* (ISO 14122-4)

EN ISO 20344:2004 + A1:2007, *Personal protective equipment - Test methods for footwear; Amendment 1* (ISO 20344:2004 + A1:2007)

ISO 8421-3:1989; *Fire protection - Vocabulary – Part 3: fire detection and alarm*