SVENSK STANDARD SS-EN 50348

Fastställd	Utgåva	Sida	Ansvarig kommitté
2010-10-25	2	1 (1+22)	SEK TK 31

Stationär utrustning för elektrostatisk applicering av icke antändbar flytande ytbeläggning – Säkerhetsfordringar

Stationary electrostatic application equipment for non-ignitable liquid coating material – Safety requirements

Som svensk standard gäller europastandarden EN 50348:2010. Den svenska standarden innehåller den officiella engelska språkversionen av EN 50348:2010.

Nationellt förord

Tidigare fastställd svensk standard SS-EN 50348, utgåva 1, 2002, gäller ej fr o m 2012-12-01.

ICS 87.100

Denna standard är fastställd av SEK Svensk Elstandard,
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

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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 50348

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ICS 87.100

Supersedes EN 50348:2001

English version

Stationary electrostatic application equipment for non-ignitable liquid coating material - Safety requirements

Matériel fixe de projection électrostatique de produit à projeter liquide inflammable - Exigences de sécurité

Stationäre Ausrüstung zum elektrostatischen Beschichten mit nichtentzündbaren flüssigen Beschichtungsstoffen - Sicherheitsanforderungen

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 50348:2010 E

SEK Svensk Elstandard

Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 204, Safety of electrostatic painting and finishing equipment.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50348 on 2009-12-01.

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.

This European Standard supersedes EN 50348:2001.

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)	2010-12-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2012-12-01

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 2006/42/EC. See Annex ZZ.

The State of the Art is included in Annex ZY “Significant changes between this European Standard and EN 50348:2001”.

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0 Introduction

0.1 Process

During the electrostatic coating process the liquid coating material is transported to an electrostatic spraying device where it is converted to droplets by mechanical forces and by the influence of an electric field. During this atomising process the droplets are charged by high voltage of some 10 kV and a spray cloud is generated. The charged droplets are attracted by and applied to the grounded workpiece.

Droplets which are not applied to the workpiece (overspray) are removed by an extraction device or by another device.

The coated workpieces are transported to dryer, where the solvent is evaporated and a dry film of coating material is generated.

0.2 Fire hazards

0.2.1 Fire hazards can be caused by paint and varnish deposits inside the spray booth, exhaust air ducts and filters. During operation, malfunctions or electrical faults may cause ignition of these residues. This is especially true for spray booths where electrostatic coating takes place. The fast propagation of the fire leads to hazards also in adjacent areas.

0.2.2 Particular attention shall be paid to the prevention of electrostatic charges on different surfaces, which are in the vicinity of the spray cloud. This could apply to workpieces during the coating process or the reciprocating devices and the mounting parts of the spraying system, etc.

0.2.3 When spraying non-ignitable coating material, the formation of an explosive atmosphere is not likely to occur. Electrostatic application equipment for ignitable liquid coating materials and hard to ignite coating materials are covered by EN 50176.

0.3 Electric hazards

0.3.1 Electric shock (by direct or indirect contact) can be generated, for instance, by contact with

- live parts, which are not insulated for operational reasons,
- conductive parts, which are not under dangerous voltage during normal operation, but only in case of failure,
- insulated live parts whose insulation is insufficient or has been damaged due to mechanical influences.

0.3.2 Inadequate grounding may occur, for instance, due to

- faulty connections to the protective grounding system,
- a too high resistance to ground (requirement as in 5.6).

0.3.3 Hazards could occur, for instance, if hazardous malfunctions (e.g. shortcut of electronic safety circuits, of access guards to dangerous areas or of warning devices) occur due to interferences of the high voltage equipment and the components of the control and safety systems.

0.3.4 Hazardous electrostatic discharges could be generated, for instance, by non-grounded conductive components or by large insulating surfaces, especially if they are backed with conductive material.

1 Scope

1.1 This European Standard specifies the requirements for stationary electrostatic application equipment for non-ignitable liquid coating materials which do not generate an explosive atmosphere inside the spraying area. A distinction is made between spraying systems corresponding to EN 50050 and spraying systems designed for higher discharge energies and/or currents.

This European Standard also specifies the design-related requirements for a safe operation of the stationary equipment, including its electrical installations.

1.2 This European Standard considers two types of electrostatic spraying systems, see 5.1 for more details.

1.3 Noise has not been dealt with in this standard as it is not considered to be a significant hazard of stationary electrostatic application equipment for non-ignitable liquid coating material. For any other health protection, see EN 12215:2004, 5.5. For fire prevention and protection (e. g. fire hazards due to other sources), see also EN 12215:2004, 5.7.1.

This European Standard deals with all significant hazards, hazardous situations and events, which are relevant for stationary electrostatic application equipment for non-ignitable liquid coating and cleaning materials which do not generate an explosive atmosphere inside the spraying area, provided they are used as intended by the manufacturer.

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

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

EN 12215:2004, *Coating plants - Spray booths for application of organic liquid coating materials - Safety requirements*

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

EN 50059:1990, *Specification for electrostatic hand-held spraying equipment for non-flammable material for painting and finishing*

EN 50176, *Automatic electrostatic spraying installations for flammable liquid spraying material*

EN 60204-1:2006, *Safety of machinery - Electrical equipment of machines - Part 1: General requirements* (IEC 60204-1:2005, mod.)

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

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 61508-3; *Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 3: Software requirements* (IEC 61508-3)

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

EN ISO 11688-1:1998, *Acoustics - Recommended practice for the design of low-noise machinery and equipment - Part 1: Planning* (ISO/TR 11688-1:1995)

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

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

EN ISO 13849-1:2008, *Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design* (ISO 13849-1:2006)

EN ISO 20344:2004, *Personal protective equipment - Test methods for footwear* (ISO 20344:2004)