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Explosionsskyddad elektrisk materiel - Installation av utrustning för automatism sprutmålning med brandfarlig vätska

Automatic electrostatic spraying installations for flammable liquid spraying material

Som svensk standard gäller europastandarden EN 50176: 1996. Den svenska standarden innehåller den officiella engelska språkversionen av EN 50176: 1996.

ICS 87.100

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Postadress: SIS, Box 6455, 113 82 STOCKHOLM
Telefon: 08 - 610 30 00. *Telefax*: 08 - 30 77 57

Upplysningar om sakinnehållet i standarden lämnas av SEK.
Telefon: 08 - 444 14 00. *Telefax*: 08 - 444 14 30

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

EN 50176

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Descriptors: Electric equipment, projection, flammable liquid, spray gun, explosive atmosphere, definition, specification, installation, electrical characteristic, high-voltage test, safety, explosion proofing, electrostatic protection, maintenance, marking

English version

Automatic electrostatic spraying installations for flammable liquid spraying material

Installations automatiques de projection électrostatique de produit à projeter liquide inflammable

Ortsfeste elektrostatische Sprühanlagen für brennbare flüssige Beschichtungsstoffe

This European Standard was approved by CENELEC on 1996-10-01. 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). Aversion 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and 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

Foreword

This European Standard was prepared by SC 31-8, Electrostatic painting and finishing equipment, of Technical Committee CENELEC TC 31, Electrical apparatus for explosive atmospheres. It was revised taking into account the comments received during the Unique Acceptance Procedure launched in December 1993 and was submitted to a second vote (3MV). The text of this draft was approved by CENELEC as EN 50176 on 1996-10-01.

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 (dop) 1997-06-01

- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1997-06-01

Contents

Introduction

In the process of electrostatic paint spraying, liquid is converted into a mist of droplets which are directed onto a surface in order to obtain an uniform layer of the thickness and type required. The droplets are charged by means of a high voltage of the order of some tens of kilovolts so that they are attracted by and deposited on the earthed workpiece.

1 Scope

1.1 This European Standard specifies requirements for automatic electrostatic spraying installations which are used for spraying flammable liquids which may form explosive atmospheres in the spraying area. In this connection distinction is made between spraying devices which due to their type of construction comply with requirements as laid down in EN 50050:1986 as applicable, and those for which other discharge energies and/or current limits are stipulated.

it also specifies the constructional requirements for the safe operational conditions of the electrical installations including ventilation requirements. Additional requirements as to the construction of the spraying areas such as cabins, booths, etc. are dealt with in other standards, currently in preparation in CEN/TC 271.

1.2 This European Standard considers the following three broad classes of electrostatic spraying systems

Type A Systems complying with EN 50050:1986 with a discharge energy limit of 0,24 mJ (see 5.1.1)

In these systems there is no danger of either electric shock or incendive energy.

Type B Systems with a discharge energy limit in excess of 0,24 mJ but less than 350 mJ and a current limit of less than 0,7 mA (see 5.1.2)

in these systems there is no danger of electric shock but there are dangers from incendive energy.

Type C Systems with a discharge energy in excess of 350 mJ and/or a current in excess of 0,7 mA (see 5.1.3)

In these systems there are dangers of electric shock and from incendive energy.

1.3 This European Standard considers only the hazards being specific to the electrostatic characteristics of the electrostatic spraying process.

1.4 For other aspects, such as:

classification of hazardous areas for example into zones;
selection, installation and use of electrical equipment in hazardous areas;
- health hazards, for example toxic and skin effects;
cleaning of spraying areas;
- fire hazards from external sources;
storage and handling of flammable liquids outside of the electrostatic spraying installation;
- fire protection;
explosion protection systems;

where there are no harmonized European Standards then national regulations apply.

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).

EN 344	1991	Requirements and test methods for safety - Protective and occupational footwear for professional use
prEN 1127-1	1993	Safety of machinery - Fire and explosions - Part 1: Explosion prevention and protection
EN 50014	1992	Electrical apparatus for potentially explosive atmospheres General requirements
EN 50050	1986	Electrical apparatus for potentially explosive atmospheres Electrostatic hand-held spraying equipment
EN 50053	series	Requirements for the selection, installation and use of electrostatic spraying equipment for flammable materials
EN 60529	1991	Degrees of protection provided by enclosures (IP Code) (IEC 529:1989)