

Automatic electrostatic spraying installations for flammable liquid spraying material

Automatic electrostatic spraying installations for
flammable liquid spraying material

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 50176:2002 sisaldab Euroopa standardi EN 50176:1996 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.12.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 50176:2002 consists of the English text of the European standard EN 50176:1996.</p> <p>This document is endorsed on 18.12.2002 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

<p>Käsitlusala: 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.</p>	<p>Scope: 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.</p>
---	---

ICS 87.100

Võtmesõnad: electric equipment, explosive atmosphere, flammable liquid, spray gun

ICS 87.100

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). 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, 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

No	Clause	Page
	Introduction	4
1	Scope	5
2	Normative references	6
3	Definitions	6
4	General requirements	9
5	Installation requirements	9
6	High voltage tests	14
7	Cleaning and maintenance of spraying installations	14
8	Marking	15
9	Instruction manual	16

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)

3 Definitions

For the purpose of this European Standard, the following definitions apply:

3.1 electrostatic spraying device for liquid spraying material

A device for producing, charging and depositing suspended droplets with the assistance of electric fields.

3.2 electrostatic spraying system

A system in general comprising electrostatic spraying devices, high voltage supply system and connecting cables.

3.3 automatic electrostatic spraying installation

An installation in which the spraying device is either permanently fixed or led by means of moving automatic devices (e.g. robots).