

## **Automatic electrostatic spraying equipment for non-flammable liquid spraying material**

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flammable liquid spraying material

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 50348:2002 sisaldab Euroopa standardi EN 50348:2001 ingliskeelset teksti.	This Estonian standard EVS-EN 50348:2002 consists of the English text of the European standard EN 50348:2001.
Käesolev dokument on jõustatud 15.10.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.	This document is endorsed on 15.10.2002 with the notification being published in the official publication of the Estonian national standardisation organisation.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

<b>Käsitlusala:</b> This European Standard specifies requirements for automatic electrostatic spraying equipment which is used for spraying non-flammable liquids which do not form explosive atmospheres in the spraying area. This applies also for paints that are classed as non-ignitable while spraying, e.g. water based paints (see annex A).	<b>Scope:</b> This European Standard specifies requirements for automatic electrostatic spraying equipment which is used for spraying non-flammable liquids which do not form explosive atmospheres in the spraying area. This applies also for paints that are classed as non-ignitable while spraying, e.g. water based paints (see annex A).
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**ICS** 87.100

**Võtmesõnad:** electrical prope, electrically- opera, electrically-operated, fire resistant materials, graphic projections, operating, projection (drawing), protective measures, safety, specification (approval), specifications, spray guns, spraying, spraying equipment, stationary

English version

**Automatic electrostatic spraying equipment for  
non-flammable liquid spraying material**

Matériel de pulvérisation  
électrostatique automatique pour  
matériau de pulvérisation liquide  
non inflammable

Ortsfeste elektrostatische  
Sprüheinrichtungen für  
nichtbrennbare flüssige  
Beschichtungsstoffe

This European Standard was approved by CENELEC on 2000-09-01. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, 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 the Technical Committee CENELEC TC 204, Safety of electrostatic painting and finishing equipment.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50348 on 2000-10-01.

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 or by endorsement | (dop) | 2002-05-01 |
| - latest date by which the national standards conflicting with the EN have to be withdrawn   | (dow) | 2003-10-01 |

Annexes designated "informative" are given for information only.  
In this standard, annex A is informative.

## Contents

	Page
Introduction.....	4
1 Scope .....	4
2 Normative references.....	5
3 Definitions.....	5
4 General requirements .....	7
5 Cleaning and maintenance of electrostatic spraying equipment .....	11
6 Instruction manual.....	11
7 Marking.....	12
8 Instruction manual .....	13
Annex A (informative) Literature .....	14

## Introduction

### Process

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 a 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 to and deposited on the earthed workpiece.

## 1 Scope

**1.1** This European Standard specifies requirements for automatic electrostatic spraying equipment which is used for spraying non-flammable liquids which do not form explosive atmospheres in the spraying area. This applies also for paints that are classed as non-ignitable while spraying, e.g. water based paints (see annex A).

In this connection a distinction is made between spraying devices which due to their type of construction comply with requirements of personnel protection, 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 equipment installations including ventilation requirements. Additional requirements as to the construction of the spraying areas such as cabins and booths, etc. are dealt with in other standards, currently in preparation in CEN/TC 271.

**NOTE** If flammable liquid spraying materials are also used in the equipment, the requirements laid down in EN 50176 for automatic electrostatic spraying equipment for flammable liquid spraying material apply; that means that the spraying areas have to be equipped accordingly.

**1.2** This European Standard considers the following types of electrostatic spraying systems:

Type B Systems with a discharge energy limit in excess of 5 mJ but less than 350 mJ and a current limit of less than 0,7 mA

In these systems there is no danger of electric shock.

Type C Systems with a discharge energy in excess of 350 mJ and/or a current in excess of 0,7 mA (see 5.1.2)

In these systems there are dangers of electric shock.

**NOTE** Type A systems complying with EN 50050:1986 are not relevant for this European Standard.

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

**1.4** For other aspects, such as:

- selection, installation and use of electrical equipment in hazardous areas;
- health hazards, for example toxic and skin effects;
- cleaning of spraying areas;
- fire hazard from external sources;
- fire protection;

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 applies (including amendments).

EN 292-2	1991	Safety of machinery - Basic concepts, general principles for design Part 2: Technical principles and specifications
EN 344	1992	Requirements and test methods for safety - Protective and occupational footwear for professional use
EN 954-1	1996	Safety of machinery - Safety related parts of control systems Part 1: General principles for design
EN 50053-3	1990	Requirements for the selection, installation and use of electrostatic spraying equipment for flammable materials Part 3: Electrostatic hand-held flock application guns with an energy limit of 0,24 mJ or 5 mJ and their associated apparatus
EN 50059	1990	Specification for electrostatic hand-held spraying equipment for non-flammable material for painting and finishing
EN 50176	1996	Automatic electrostatic spraying installations for flammable liquid spraying material
EN 50177	1996	Automatic electrostatic spraying installations for flammable coating powder
EN 60529	1991	Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)
IEC 61340-4-1	1995	Electrostatics -- Part 4: Standard test methods for specific applications -- Section 1: Electrostatic behaviour of floor coverings and installed floors

## 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 equipment**

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