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**BS EN 50223:2015**



**BSI Standards Publication**

# **Stationary electrostatic application equipment for ignitable flock material — Safety requirements**

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This British Standard is the UK implementation of EN 50223:2015. It supersedes BS EN 50223:2010 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EXL/31/-/1, Electrostatic spray guns.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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## EUROPÄISCHE NORM

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English Version

## Stationary electrostatic application equipment for ignitable flock material - Safety requirements

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

Stationäre elektrostatische Flockanlagen für entzündbaren Flock - Sicherheitsanforderungen

This European Standard was approved by CENELEC on 2015-04-13. 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 CEN-CENELEC Management Centre or to any CENELEC member.

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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## Foreword

This document (EN 50223:2015) has been prepared by CLC/SC 31-8 "Electrostatic painting and finishing equipment" from CLC/TC 31 "Electrical apparatus for potentially explosive atmospheres".

This document supersedes EN 50223:2010.

The following dates are proposed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2016-04-13
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2018-04-13

The State of the Art is included in Annex ZY "Significant changes between this European Standard and EN 50223:2010".

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

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directives 94/9/EC and 2006/42/EC, see informative Annexes ZZA and ZZB, which are an integral part of this document.

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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.

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## 1 Scope

**1.1** This European Standard specifies requirements for stationary electrostatic flock application equipment which is designed for applying ignitable flock which may form explosive atmospheres in the flock application area. For stationary electrostatic application devices for ignitable flock of type B-F, EN 50050-3 is applicable in addition to this standard.

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 three 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** This European Standard is not applicable for

- flock systems in which mixtures of solvent vapours in air occur with a concentration of > 20 % of the LEL,
- flock systems operated with AC high voltage,
- hand-held spraying equipment for ignitable flock (see EN 50050-3),
- 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 documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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, *Resilient floor coverings - Determination of the electrical resistance*

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