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KAASA ARVATUD LISASEADMED, MÜRAKATSE EESKIRI.  
TÄPSUSKLASSID 2 JA 3**

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

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 14462:2015 sisaldab Euroopa standardi EN 14462:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 14462:2015 consists of the English text of the European standard EN 14462:2015.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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English Version

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

Équipements de traitement de surface - Code d'essai  
acoustique pour équipements de traitement de surface, y  
compris les équipements de manutention auxiliaires -  
Classes de précision 2 et 3

Oberflächenbehandlungsgeräte - Geräuschmessverfahren  
für Oberflächenbehandlungsgeräte - einschließlich ihrer Be-  
und Entladeeinrichtungen - Genauigkeitsklassen 2 und 3

This European Standard was approved by CEN on 29 November 2014.

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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 CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## Foreword

This document (EN 14462:2015) has been prepared by Technical Committee CEN/TC 271 "Surface treatment equipment - Safety", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2015 and conflicting national standards shall be withdrawn at the latest by August 2015.

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

This document supersedes EN 14462:2005+A1:2009.

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

For relationship with EU Directive 2006/42/EC, see informative Annex ZA, which is an integral part of this document.

This document includes the following significant technical changes with respect to EN 14462:2005+A1:2009:

- integration of dry ice blasting equipment in A.1.2;
- integration of automatic electrostatic application equipment for flammable flock material (EN 50223) in A.3.1.

It augments the "C"-type safety standards prepared by CEN/TC 271. Its purpose is to provide a means of determination, declaration and verification of noise emission for the equipment within the scope of this document. The determination of noise emission values is a prerequisite for a manufacturer to assess the noise reduction obtained at the design stage.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Introduction

This noise test code gives assistance to carry out noise emission measurements and to determine values for noise declaration purposes under the Machinery Directive 2006/42/EC and provides the means for their verification. Annex D with Figure D.1 and Figure D.2 provides an overview on the noise determination procedure.

Noise emission characteristics include both emission sound pressure levels at workstations and sound power levels. The determination of these characteristics is necessary for

- manufacturers to declare the noise emitted,
- comparing the noise emitted by machines,
- purposes of noise control at the source during the design stage,
- estimation of noise exposure at the workstation(s).

Noise testing of the machinery can be done at the manufacturer's site, at the place of mounting or at any other adequate location.

## 1 Scope

This European Standard specifies standardized conditions for the determination, declaration and verification of airborne noise emission of the following surface treatment equipment:

- machinery for cleaning and pre-treatment of industrial item surfaces (see EN 12921-1, EN 12921-2, EN 12921-3, EN 12921-4);
- phosphating machinery;
- plating machinery;
- plasma surface treatment machinery;
- machinery for the supply and/or circulation of coating materials under pressure (see EN 12621, EN 12757-1);
- atomizing and spraying equipment for coating materials (see EN 1953, EN 50050-1, EN 50050-2, EN 50050-3, EN 50059, EN 50176, EN 50177, EN 50348);
- coating plants (see EN 12215, EN 12581, EN 12981, EN 13355, EN 50223);
- dryers, ovens and evaporating equipment (see EN 1539);
- thermal cleaning plants (incinerators) for exhaust gas from surface treatment plants (see EN 12753);
- dry-ice blasting equipment.

For the above surface treatment machinery, this European Standard gives provisions for the determination of

- emission sound pressure levels at workstations and/or other specified positions and
- sound power levels.

This European Standard specifies noise emission measurement methods, mounting and operating conditions that shall be used for the test. The use of this document ensures the reproducibility of the determination of the noise emission characteristics within specified limits determined by the grade of accuracy of the basic noise emission measurement method used (see Clause 4 and Clause 5). Noise emission measurement methods allowed by this document are engineering methods (grade 2) and survey methods (grade 3).

This European Standard does not apply to machines not explicitly listed in the scope:

- printing, paper converting and paper making machinery and auxiliary equipment (see EN 13023);
- abrasive blasting machinery see EN 1265.

## 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 1539, *Dryers and ovens, in which flammable substances are released — Safety requirements*

EN 1953, *Atomising and spraying equipment for coating materials — Safety requirements*

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

EN 12581, *Coating plants — Machinery for dip coating and electrodeposition of organic liquid coating materials — Safety requirements*

EN 12621, *Machinery for the supply and circulation of coating materials under pressure — Safety requirements*

EN 12753, *Thermal cleaning systems for exhaust gas from surface treatment equipment — Safety requirements*

EN 12757-1, *Mixing machinery for coating materials — Safety requirements — Part 1: Mixing machinery for use in vehicle refinishing*

EN 12921-1, *Machines for surface cleaning and pre-treatment of industrial items using liquids or vapours — Part 1: Common safety requirements*

EN 12921-2, *Machines for surface cleaning and pre-treatment of industrial items using liquids or vapours — Part 2: Safety of machines using water based cleaning liquids*

EN 12921-3, *Machines for surface cleaning and pre-treatment of industrial items using liquids or vapours — Part 3: Safety of machines using flammable cleaning liquids*

EN 12921-4, *Machines for surface cleaning and pretreatment of industrial items using liquids and vapours — Part 4: Safety of machines using halogenated solvents*

EN 12981, *Coating plants — Spray booths for application of organic powder coating material — Safety requirements*

EN 13355, *Coating plants — Combined booths — Safety requirements*

EN 50223, *Stationary electrostatic application equipment for ignitable flock material — Safety requirements*

EN ISO 3744:2010, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Engineering methods for an essentially free field over a reflecting plane (ISO 3744:2010)*

EN ISO 3746, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Survey method using an enveloping measurement surface over a reflecting plane (ISO 3746)*

EN ISO 3747, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Engineering/survey methods for use in situ in a reverberant environment (ISO 3747)*

EN ISO 4871:2009, *Acoustics — Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*

EN ISO 9614-2, *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 2: Measurement by scanning (ISO 9614-2)*

EN ISO 11201:2010, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections (ISO 11201:2010)*

EN ISO 11202, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections (ISO 11202)*

EN ISO 11204, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions applying accurate environmental corrections (ISO 11204)*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

#### 3.1

##### **emission sound pressure**

**$p$**

sound pressure, at a specified position near a noise source, when the source is in operation under specified operating and mounting conditions on a reflecting plane surface excluding the effects of background noise as well as the effects of reflections other than those from the plane or planes permitted for the purpose of the test

Note 1 to entry: Emission sound pressure is expressed in pascals.

[SOURCE: EN ISO 11201:2010, 3.2, modified]

#### 3.2

##### **emission sound pressure level**

**$L_p$**

ten times the logarithm to the base 10 of the ratio of the square of the emission sound pressure,  $p^2(t)$ , to the square of the reference sound pressure,  $p_0^2$  (the reference sound pressure is 20  $\mu\text{Pa}$ ), measured with a particular time weighting and a particular frequency weighting, selected from those defined in EN 61672-1

Note 1 to entry: Emission sound pressure level is expressed in decibels.

Note 2 to entry: The emission sound pressure level of surface treatment equipment is determined at specified positions in accordance with this document.

[SOURCE: EN ISO 11201:2010, 3.3, modified]

#### 3.3

##### **average emission sound pressure level**

**$\bar{L}_p$**

energy-average of the emission sound pressure levels  $L_p$  at several microphone positions around the machine

#### 3.4

##### **sound power**

**$W$**

rate per unit time at which airborne sound energy is radiated by a source

Note 1 to entry: Sound power is expressed in watts.

[SOURCE: EN ISO 3744:2010, 3.20, modified]

#### 3.5

##### **sound power level**

**$L_w$**

ten times the logarithm to the base 10 of the ratio of the sound power radiated by the source under test to the reference sound power, which is 1 pW ( $10^{-12}$  W)