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Standards

Irish Standard  
I.S. EN ISO 11553-3:2013

# Safety of machinery - Laser processing machines - Part 3: Noise reduction and noise measurement methods for laser processing machines and hand-held processing devices and associated auxiliary equipment (accuracy grade 2) (ISO 11553-3:2013)

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## I.S. EN ISO 11553-3:2013

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English Version

**Safety of machinery - Laser processing machines - Part 3: Noise reduction and noise measurement methods for laser processing machines and hand-held processing devices and associated auxiliary equipment (accuracy grade 2) (ISO 11553-3:2013)**

Sécurité des machines - Machines à laser - Partie 3:  
Méthodes de mesure et de réduction du bruit des machines  
à laser, des dispositifs de traitement portatifs et des  
équipements auxiliaires connexes (classe de précision 2)  
(ISO 11553-3:2013)

Sicherheit von Maschinen - Laserbearbeitungsmaschinen -  
Teil 3: Lärminderungs- und Geräuschmessverfahren für  
Laserbearbeitungsmaschinen und handgeführte  
Laserbearbeitungsgeräte sowie zugehörige  
Hilfseinrichtungen (Genauigkeitsklasse 2) (ISO 11553-  
3:2013)

This European Standard was approved by CEN on 1 March 2013.

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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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EUROPÄISCHES KOMITEE FÜR NORMUNG

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

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## **Foreword**

This document (EN ISO 11553-3:2013) has been prepared by Technical Committee ISO/TC 172 "Optics and photonics" in collaboration with Technical Committee CEN/TC 123 "Lasers and photonics" 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of an identical text or by endorsement, at the latest by September 2013, and conflicting national standards shall be withdrawn at the latest by September 2013.

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 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.

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

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.

### **Endorsement notice**

The text of ISO 11553-3:2013 has been approved by CEN as EN ISO 11553-3:2013 without any modification.

## **Annex ZA** (informative)

### **Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC**

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 2006/42/EC on machinery.

Once this standard is cited in the Official Journal of the European Union under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this standard confers, within the limits of the scope of this standard, a presumption of conformity with the Essential Requirement on noise of that Directive and associated EFTA regulations.

**WARNING** — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

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**Safety of machinery — Laser  
processing machines —**  
**Part 3:**  
**Noise reduction and noise  
measurement methods for laser  
processing machines and hand-held  
processing devices and associated  
auxiliary equipment (accuracy grade 2)**

*Sécurité des machines — Machines à laser —*

*Partie 3: Méthodes de mesure et de réduction du bruit des machines  
à laser, des dispositifs de traitement portatifs et des équipements  
auxiliaires connexes (classe de précision 2)*



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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO/IEC 11553-3 was prepared by Technical Committee ISO/TC 172, *Optics and photonics*, Subcommittee SC 9, *Electro-optical systems*, in collaboration with IEC/TC 76, *Optical radiation safety and laser equipment*.

ISO/IEC 11553 consists of the following parts, under the general title *Safety of machinery — Laser processing machines*:

- *Part 1: General safety requirements*
- *Part 2: Safety requirements for hand-held laser processing devices*
- *Part 3: Noise reduction and noise measurement methods for laser processing machines and hand-held processing devices and associated auxiliary equipment (accuracy grade 2)*

## **Introduction**

The Machinery Safety Directive issued by the Council of the EU outlines essential and mandatory requirements that must be met in order to ensure that machinery is safe. In response, CEN/CENELEC initiated a programme to produce safety standards for machines and their applications. This part of ISO/IEC 11553 is one in that series. It has been prepared as a harmonized standard to provide a means of conforming with the essential safety requirements of the Machinery Directive and associated EFTA Regulations.

This document is a type B standard as stated in ISO 12100. The provision of this document may be supplemented or modified by a type C standard.

For machines which are covered by the scope of a type C standard and which have been designed and built according to the provision of that standard, the provisions of that type C standard take precedence over the provisions of this type B standard.

It is applicable to machines using laser radiation to process materials. The purpose of this part of ISO/IEC 11553 is to prevent injuries to persons by

- listing potential hazards generated by machines containing lasers,
- specifying safety measures and verifications necessary for reducing the risk caused by specific hazardous conditions,
- providing references to pertinent standards, and
- specifying the information which is to be supplied to the users so that they can establish proper procedures and precautions.

**I.S. EN ISO 11553-3:2013**

# Safety of machinery — Laser processing machines —

## Part 3:

# Noise reduction and noise measurement methods for laser processing machines and hand-held processing devices and associated auxiliary equipment (accuracy grade 2)

## 1 Scope

This part of ISO/IEC 11553 describes the requirements to deal with noise hazards and specifies all the information necessary to carry out efficiently and under standardized conditions the determination, declaration and verification of airborne noise emission from laser processing machines and hand-held laser processing devices within the scope of ISO/IEC 11553-1 and ISO/IEC 11553-2. It specifies the safety requirements relating to noise hazards. It specifies noise measurement methods, installation and operating conditions to be used for the test, together with the information to be supplied by manufacturers of such equipment.

This part of ISO/IEC 11553 applies to those laser processing machines and hand-held laser processing devices included in the scope of ISO/IEC 11553-1 and ISO/IEC 11553-2.

Noise emission characteristics include emission sound pressure levels at work stations and the sound power level. Declared noise emission values permit comparison of laser processing machines and hand-held laser processing devices on the market.

The use of this noise test code (see [Annex A](#)) ensures the reproducibility of the determination of the characteristic noise emission values within specific limits. These limits are determined by the accuracy grade of the noise emission measuring method used. Noise emission measurements specified by this part of ISO/IEC 11553 meet the requirements of an engineering method (accuracy grade 2).

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3744, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Engineering method in an essentially free field over a reflecting plane*

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

ISO 4871, *Acoustics — Declaration and verification of noise emission values of machinery and equipment*

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

ISO 11201, *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 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*

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