

This is a preview of "BS EN ISO 11200:2014". [Click here to purchase the full version from the ANSI store.](#)

BS EN ISO 11200:2014



BSI Standards Publication

**Acoustics — Noise emitted
by machinery and equipment
— Guidelines for the use
of basic standards for the
determination of emission
sound pressure levels at a work
station and at other specified
positions**

bsi.

...making excellence a habit.™

This is a preview of "BS EN ISO 11200:2014". [Click here to purchase the full version from the ANSI store.](#)

This British Standard is the UK implementation of EN ISO 11200:2014. It supersedes BS EN ISO 11200:2009 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EH/1/4, Machinery noise.

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.

© The British Standards Institution 2014.
Published by BSI Standards Limited 2014

ISBN 978 0 580 74114 2
ICS 17.140.20

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 July 2014.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

This is a preview of "BS EN ISO 11200:2014". [Click here to purchase the full version from the ANSI store.](#)

EUROPÄISCHE NORM

May 2014

ICS 17.140.20

Supersedes EN ISO 11200:2009

English Version

Acoustics - Noise emitted by machinery and equipment -
Guidelines for the use of basic standards for the determination of
emission sound pressure levels at a work station and at other
specified positions (ISO 11200:2014)

Acoustique - Bruit émis par les machines et équipements -
Guide d'utilisation des normes de base pour la
détermination des niveaux de pression acoustique
d'émission au poste de travail et en d'autres positions
spécifiées (ISO 11200:2014)

Akustik - Geräuschabstrahlung von Maschinen und Geräten
- Leitlinien zur Anwendung der Grundnormen zur
Bestimmung von Emissions-Schalldruckpegeln am
Arbeitsplatz und an anderen festgelegten Orten (ISO
11200:2014)

This European Standard was approved by CEN on 17 April 2014.

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

CEN members are the national standards bodies of 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 United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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

This is a preview of "BS EN ISO 11200:2014". [Click here to purchase the full version from the ANSI store.](#)

Foreword

This document (EN ISO 11200:2014) has been prepared by Technical Committee ISO/TC 43 "Acoustics" in collaboration with Technical Committee CEN/TC 211 "Acoustics" the secretariat of which is held by DS.

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 November 2014, and conflicting national standards shall be withdrawn at the latest by November 2014.

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 ISO 11200:2009.

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(s), 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 11200:2014 has been approved by CEN as EN ISO 11200:2014 without any modification.

This is a preview of "BS EN ISO 11200:2014". [Click here to purchase the full version from the ANSI store.](#)

Annex ZA (informative)

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

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 relevant Essential Requirements 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.

This is a preview of "BS EN ISO 11200:2014". [Click here to purchase the full version from the ANSI store.](#)

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Emission sound pressure level at work stations and other specified positions	8
4.1 Physical background.....	8
4.2 Difference between noise exposure level of persons and noise emission level.....	9
4.3 Difference between sound power level of machinery and sound pressure level.....	9
4.4 Reasons for determining the emission sound pressure level.....	9
4.5 How the source directivity is handled in the ISO 11201, ISO 11202, ISO 11203, ISO 11204 and ISO 11205 group.....	10
5 Overview of the methods offered in the ISO 11201, ISO 11202, ISO 11203, ISO 11204 and ISO 11205 group for determining the emission sound pressure level at work stations and other specified positions	11
6 Selection of the most appropriate method from the group	15
6.1 Quantities to be measured and determined.....	15
6.2 Considerations affecting choice of method.....	15
6.3 Considerations for the selection of the most appropriate method.....	18
6.4 Synopses.....	18
7 Selection of specified positions	22
8 Treatment of measurement uncertainty in ISO 11201, 11202 and 11204	22
Annex A (informative) Test site and environmental correction K_2 — Some guidance	24
Annex B (informative) Case studies	26
Bibliography	37

This is a preview of "BS EN ISO 11200:2014". [Click here to purchase the full version from the ANSI store.](#)

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. www.iso.org/directives

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received. www.iso.org/patents

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 43, *Acoustics*, Subcommittee SC 1, *Noise*.

This second edition cancels and replaces the first edition (ISO 11200:1995), which has been technically revised. It also incorporates the Technical Corrigendum ISO 11200:1995/Corr.1:1997.

This is a preview of "BS EN ISO 11200:2014". [Click here to purchase the full version from the ANSI store.](#)

Introduction

0.1 For many users of machinery and equipment, the control of noise is a major issue which requires effective exchange of acoustical information among the several parties concerned. These include the manufacturer, installer and user of the machinery or equipment. This acoustical information is obtained from measurements. The main flow of information goes from the manufacturer to the user.

These measurements are useful only if the conditions under which they are carried out are specified, if they yield defined acoustical quantities, and if they are carried out using standardized instruments.

Two quantities which complement one another can be used to describe the sound emission of machinery or equipment: the sound power level and the emission sound pressure level at a specified position. The International Standards which describe the basic methods of determining the sound power level are ISO 3740,^[2] ISO 3741, ISO 3743 (all parts), ISO 3744, ISO 3745, ISO 3746 and ISO 3747 (determination from sound pressure level measurements), and ISO 9614-1, ISO 9614-2 and ISO 9614-3 (determination from sound intensity measurements). This International Standard introduces a group of five International Standards describing various methods for determining emission sound pressure levels of machinery and equipment taking into account possible situations for the source under test (mobile machine, fixed machine, various test rooms, various instrumentations, different kinds of work stations, etc.).

It is not the intention of this group of International Standards to describe procedures for measuring the occupational noise exposure of workers; for occupational noise exposure, see ISO 9612.^[4]

0.2 Emission sound pressure levels in conjunction with sound power levels are used for declaration of the noise emitted under the defined conditions, verification of declared values, comparison of the noise emitted by machinery of various types and sizes, comparison with limits specified in a purchasing contract or a regulation, engineering work to reduce the noise emission of machinery, and prediction of noise exposure at the specified positions.

Included in this group of International Standards are three, which describe procedures for measuring emission sound pressure levels directly, in different test environments (ISO 11201, ISO 11202 and ISO 11204), a fourth (ISO 11203), which gives procedures for determining emission sound pressure levels from the sound power level and a fifth (ISO 11205), which gives a procedure for determining the emission sound pressure level from measured values of the sound intensity level.

0.3 In general, these sound pressure levels are different from those which occur if the machinery or equipment operates in its installed surroundings, where the environment influences the sound pressure level at work stations or other specified positions. The selection of standards for the determination of the sound power level can, for practical reasons, have consequences on the selection of standards for the determination of the emission sound pressure level. It is preferable to make the choice of standards concurrently with respect to the two noise emission quantities.

0.4 Standards in the ISO 11201, ISO 11202, ISO 11203, ISO 11204 and ISO 11205 group are often used in practice through their reference in standardized noise test codes (see [3.25](#)). If a particular noise test code exists for a family of machinery, it is intended that it be used. For drafting a noise test code, it is recommended to be familiar with ISO 12001.^[6]

0.5 The reasons for revising the ISO 11201, ISO 11202, ISO 11203, ISO 11204 and ISO 11205 group were manifold:

- the need arose to introduce a grade 1 method into the group in order to enhance the similarity with the ISO 3741, ISO 3743 (all parts), ISO 3744, ISO 3745, ISO 3746 and ISO 3747 group of International Standards on the determination of sound power level;
- feedback from experience with the use of the group showed that the ISO 11202 method gave more precise results than initially thought, hence the introduction into ISO 11202 of the possibility to get grade 2 results;
- as source directivity plays a key role with regard to the emission sound pressure level, pragmatism led to introduce this parameter into the ISO 11202 and ISO 11204 methods;

This is a preview of "BS EN ISO 11200:2014". [Click here to purchase the full version from the ANSI store.](#)

- as measurement uncertainty was becoming a more and more central issue, the need arose to address the issue again in the light of the experience gained with the use of ISO/IEC GUIDE 98-3.

No research was carried out in order to revise the ISO 11201, ISO 11202, ISO 11203, ISO 11204 and ISO 11205 group. Only existing knowledge was used.

This is a preview of "BS EN ISO 11200:2014". Click here to purchase the full version from the ANSI store.

Acoustics — Noise emitted by machinery and equipment — Guidelines for the use of basic standards for the determination of emission sound pressure levels at a work station and at other specified positions

1 Scope

This International Standard is the frame standard introducing the basic group, ISO 11201, ISO 11202, ISO 11203, ISO 11204 and ISO 11205, on the determination of emission sound pressure levels at work stations and other specified positions. It gives guidance for:

- facilitating the writing of noise test codes;
- providing physical explanations of this noise emission quantity compared to other noise quantities (see [4.1](#) to [4.3](#));
- comparing the different measurement methods offered by the group (see [Table 1](#));
- facilitating the choice of the most appropriate method(s) in typical practical situations ([Clause 6](#)).

This International Standard is largely based on flow charts and tables. Case studies are described.

The guidance given applies to airborne sound only. It is for use in noise testing, in general, and in the preparation of noise test codes, in particular.

A standardized noise test code is intended to select standards from the ISO 11201, ISO 11202, ISO 11203, ISO 11204 and ISO 11205 group, which are the most appropriate to the machinery family it covers, and which give detailed requirements on mounting and operating conditions for the particular family, as well as the location of the work station(s) and other specified positions as prescribed in these International Standards.

The data so obtained can be used for the declaration and verification of emission sound pressure levels, e.g. as specified in ISO 4871.^[3]

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.

ISO 3741, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Precision methods for reverberation test rooms*

ISO 3743-1, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Engineering methods for small movable sources in reverberant fields — Part 1: Comparison method for a hard-walled test room*

ISO 3743-2, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Engineering methods for small, movable sources in reverberant fields — Part 2: Methods for special reverberation test rooms*

ISO 3744, *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*