SLOVENSKI STANDARD
SIST EN ISO 3744:2026

01-julij-2026

Nadomešča:
SIST EN ISO 3744:2010

Akustika - Ugotavljanje ravni moči zvočnih virov hrupa z merjenjem zvočnega tlaka - Inženirska metoda v pretežno prostem polju nad odbojno ravnino (ISO 3744:2025, vključno s popravljeno različico 2026-01)

Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering methods for an essentially free field over a reflecting plane (ISO 3744:2025, including corrected version 2026-01)

Akustik - Bestimmung der Schallleistungs- und Schallenergiepegel von Geräuschquellen aus Schalldruckmessungen - Hüllflächenverfahren der Genauigkeitsklasse 2 für ein im Wesentlichen freies Schallfeld über einer reflektierenden Ebene (ISO 3744:2025, korrigierte Fassung 2026-01)

Acoustique - Détermination des niveaux de puissance et d'énergie acoustiques émis par les sources de bruit à partir de la pression acoustique - Méthodes d'expertise pour des conditions approchant celles du champ libre sur plan réfléchissant (ISO 3744:2025, y compris version corrigée 2026-01)

Ta slovenski standard je istoveten z: **EN ISO 3744:2026**

ICS:

17.140.01	Akustična merjenja in blaženje hrupa na splošno	Acoustic measurements and noise abatement in general

SIST EN ISO 3744:2026 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 3744

March 2026

ICS 17.140.01

Supersedes EN ISO 3744:2010

English Version

Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering methods for an essentially free field over a reflecting plane (ISO 3744:2025, including corrected version 2026-01)

Acoustique - Détermination des niveaux de puissance acoustique et des niveaux d'énergie acoustique émis par les sources de bruit à partir de la pression acoustique - Méthodes d'expertise pour des conditions approchant celles du champ libre sur plan réfléchissant (ISO 3744:2025, y compris version corrigée 2026-01)

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This European Standard was approved by CEN on 13 October 2024.

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.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN ISO 3744:2026 E

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European foreword

This document (EN ISO 3744:2026) 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 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 2026, and conflicting national standards shall be withdrawn at the latest by September 2026.

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

This document supersedes EN ISO 3744:2010.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

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

Any feedback and questions on this document should be directed to the users’ national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Endorsement notice

The text of ISO 3744:2025, including corrected version 2026-01 has been approved by CEN as EN ISO 3744:2026 without any modification.

Annex ZA
(informative)

Relationship between this European Standard and the essential requirements of Directive 2006/42/EC aimed to be covered

This European Standard has been prepared under a Commission's standardization request "M/396 Mandate CEN and CENELEC for Standardisation in the field of machinery" to provide one voluntary means of conforming to essential requirements of Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast)

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

Table ZA.1 — Correspondence between this European Standard and Annex I of Directive 2006/42/EC

The relevant Essential Requirements of Directive 2006/42/EC	Clause(s)/sub-clause(s) of this EN	Remarks/Notes
1.5.8 Noise 1.7.4.2 u) and 1.7.4.3	3, 4, 5, 6, 7, 8, 9, 10, 11, Annexes A, B, C, D, E, F, G, H, I	The sound power level, determined according to this document, is one of two quantities needed to address EHSR 1.5.8 about noise reduction at design stage, EHSR 1.7.4.2 u) and EHSR 1.7.4.3 which, in turn, support the "Sell & Buy Quiet" strategy.

Table ZA.2 — Applicable standards to confer presumption of conformity as described in this Annex ZA

Column 1 Reference in Clause 2	Column 2 International Standard edition	Column 3 Title	Column 4 Corresponding European Standard edition
ISO 6926	ISO 6926:2016	Acoustics — Requirements for the performance and calibration of reference sound sources used for the determination of sound power levels	EN ISO 6926:2016
ISO 26101-1	ISO 26101-1:2021	Acoustics — Test methods for the qualification of the acoustic environment — Part 1: Qualification of free-	EN ISO 26101-1:2022

Column 1 Reference in Clause 2	Column 2 International Standard edition	Column 3 Title	Column 4 Corresponding European Standard edition
		field environments	
ISO 26101-2	ISO 26101-2:2024	Acoustics — Test methods for the qualification of the acoustic environment— Part 2: Determination of the environmental correction	EN ISO 26101-2:2024
ISO 12001	ISO 12001:1996	Acoustics — Noise emitted by machinery and equipment — Rules for the drafting and presentation of a noise test code	EN ISO 12001:2009
IEC 61260-3	IEC 61260-3:2016	Electroacoustics – Octave-band and fractional-octave-band filters – Part 3: Periodic tests	EN 61260-3:2016
IEC 61260-2	IEC 61260-2:2016	Electroacoustics - Octave-band and fractional-octave-band filters - Part 2: Pattern-evaluation tests	EN 61260-2:2016
IEC 61672-1	IEC 61672-1:2013	Electroacoustics — Sound level meters — Part 1: Specifications	EN 61672-1:2013
IEC 61672-3	IEC 61672-3:2013	Electroacoustics - Sound level meters - Part 3: Periodic tests	EN 61672-3:2013
ISO/IEC 17025	ISO/IEC 17025:2017	General requirements for the competence of testing and calibration laboratories	EN ISO/IEC 17025:2017

The documents listed in the Column 1 of Table ZA.2, in whole or in part, are normatively referenced in this document, i.e. are indispensable for its application. The achievement of the presumption of conformity is subject to the application of the edition of Standards as listed in Column 4 or, if no European Standard Edition exists, the International Standard Edition given in Column 2 of Table ZA.2.

WARNING 1 Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

International Standard

ISO 3744

Acoustics — Determination of sound power levels of noise sources using sound pressure — Engineering methods for an essentially free field over a reflecting plane

Acoustique — Détermination des niveaux de puissance acoustique et des niveaux d'énergie acoustique émis par les sources de bruit à partir de la pression acoustique — Méthodes d'expertise pour des conditions approchant celles du champ libre sur plan réfléchissant

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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.

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 document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 43, *Acoustics,* Subcommittee SC 1, *Noise,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 211, *Acoustics,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition of ISO 3744 cancels and replaces the third edition (ISO 3744:2010), which has been technically revised.

The main changes are as follows:

— removed sound energy level determination due to lack of use and because it was highly duplicative of other text in the method,

— moved many of the special case measurement conditions and measurement parameters into Annexes to simplify the main body of the standard to focus on the basic sound power level determination method for typical sources and test environments,

— removed absolute background noise criteria and replaced with new criteria for conformity with background noise requirements,

— removed the estimation methods for K_2 from an estimation of the equivalent sound absorption area,

— instrumentation requirements revised to accommodate modern modular computerized instrumentation systems,

— requirements for the cylinder were updated to be consistent with ISO 7779,

— qualification methods for the test environment, other than the absolute comparison test, removed and moved to ISO 26101-2,

— new Annex I specifies procedures that testing laboratories can apply to reduce measurement uncertainties associated with the test method,

— measurements using a cylindrical measurement surface were clarified.

This revision does not change the basic measurement procedure for sound power level determination as specified in the 2010 version of this document. The standard deviation of reproducibility for measurements conducted in accordance with the main body of this revision remains the same as in the 2010 version. Measurements conducted in accordance with the 2010 version are expected to be equivalent to those obtained using this revision, unless the ISO 3744:2010 measurements were conducted in a test environment that was qualified using a K_2 that was calculated from an estimation of the equivalent sound absorption area, since this way to determine K_2 was removed from this revision of the document.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

This corrected version of ISO 3744:2025 incorporates the following corrections:

— Correction of formulae in Figures C.3 and C.4.

Introduction

This document is one of the series ISO 3741 to ISO 3747[2]to[6] which specify various methods for determining the sound power levels of noise sources including machinery, equipment and their sub-assemblies. General guidelines to assist in the selection are provided in ISO 3740[1]. The selection depends on the available test environment and on the precision of the sound power level values required. A noise test code can be established (see ISO 12001) for the individual noise source in order to select the appropriate sound measurement surface and microphone array from among those allowed in each member of the ISO 3741[2] to ISO 3747[6] series, and to give requirements on test unit mounting, loading and operating conditions under which the sound power levels are to be obtained. The sound power emitted by a given source into the test environment is calculated from the mean square sound pressure that is measured over a hypothetical measurement surface enclosing the source, and the area of that surface.

The methods specified in this document permit the determination of the A-weighted sound power level and optionally the sound power level in octave or 1/3-octave frequency bands.

The main body of this document specifies test environment qualification criteria, testing procedures and the associated measurement uncertainties for basic compliance with the method. Annex I specifies additional requirements that may be applied by testing laboratories to reduce measurement uncertainty. For applications where even greater accuracy is required, reference can be made to ISO 3745, ISO 3741[2] or ISO 9614[9][10][11]. If the relevant criteria for the measurement environment specified in this document are not met, it might be possible to refer to another standard from this series, or to ISO 9614[9][10][11].

This document specifies methods of accuracy grade 2 (engineering grade) as defined in ISO 12001, when the measurements are performed in a space that approximates an acoustically free field over a reflecting plane. Such an environment can be found in a specially designed room, or within industrial buildings or outdoors. Ideally, the test source should be mounted on a sound-reflecting plane located in a large open space. For sources normally installed on the floor of machine rooms, corrections are specified to account for undesired reflections from nearby objects, walls and ceiling, and for background noises.

This test method was originally issued as ISO 4872 in 1978. It was first released as ISO 3744 in 1994. A brief history of the technical requirements associated with the revisions of this test method follows.

ISO 3744:1994 required a test environment with a $K_{2f} \leq 2\,\mathrm{dB}$ in all frequency bands of interest and required measurements to be conducted in octave or one-third octave bands, with A-weighted levels being calculated from the band level data over the frequency range of interest.

ISO 3744:2010 relaxed the requirements on the test environment to require $K_{2A} \leq 4\,\mathrm{dB}$ and allowed A-weighted levels to be determined either by calculation from frequency band level measurements or by direct measurement using an A-weighted filter. These changes to the requirements for the test environment and instrumentation were made to facilitate in-situ and field sound power level determinations using equipment without proportional octave band filtering for evaluation of compliance with regulatory requirements. Round robin studies were conducted to verify that the stated measurement uncertainties associated with the method could be maintained using these requirements[18].

In addition, the 2010 revision added methods for sound energy level determination of short duration transient events, several special case sound power level determination conditions to the main body of the standard and several new measurement parameters.