



SLOVENSKI STANDARD
SIST EN ISO 7029:2001
01-september-2001

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SIST EN 27029:1999

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Acoustics - Statistical distribution of hearing threshold as a function of age (ISO 7029:2000)

Akustik - Statistische Verteilung von Hörschwellen als eine Funktion des Alters (ISO 7029:2000))

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Acoustique - Distribution statistique des seuils d'audition en fonction de l'âge (ISO 7029:2000)

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Ta slovenski standard je istoveten z: EN ISO 7029:2000

ICS:

13.140	Vpliv hrupa na ljudi	Noise with respect to human beings
17.140.99	Drugi standardi v zvezi z akustiko	Other standards related to acoustics

SIST EN ISO 7029:2001 **en**

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 7029

May 2000

ICS 13.140

Supersedes EN 27029:1991

English version

Acoustics - Statistical distribution of hearing thresholds as a function of age (ISO 7029:2000)

Acoustique - Distribution statistique des seuils d'audition en fonction de l'âge (ISO 7029:2000)

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This European Standard was approved by CEN on 28 April 2000.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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EN ISO 7029:2000

Foreword

The text of the International Standard ISO 7029:2000 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 supersedes EN 27029:1991.

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 2000, and conflicting national standards shall be withdrawn at the latest by November 2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 7029:2000 was approved by CEN as a European Standard without any modification.

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INTERNATIONAL STANDARD

**ISO
7029**

Second edition
2000-05-01

Acoustics — Statistical distribution of hearing thresholds as a function of age

*Acoustique — Distribution statistique des seuils d'audition en fonction de
l'âge*

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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 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 7029 was prepared by Technical Committee ISO/TC 43, *Acoustics*.

This second edition cancels and replaces the first edition (ISO 7029:1984). This edition presents the same data as the first edition so does not differ technically from that. At present data are not available to extend the tables beyond the age of 70.

Annexes A to C of this International Standard are for information only.

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ISO 7029:2000(E)**Introduction**

It is well known that the sensitivity of human hearing usually falls progressively with age and that the impairment of hearing develops more rapidly for sound at high frequencies than at low frequencies. Moreover, the magnitude of this effect varies considerably among individuals.

When testing the hearing of persons markedly over 18 years of age, part of any observed hearing loss will probably be associated with age, and it is important to be aware of this when estimating the amount of hearing loss attributable to other causes under investigation.

It should be noted that a decrease in hearing ability may not necessarily be caused by ageing itself, but by many injurious influences during life time, which are not known in detail.

This International Standard is based on a thorough examination of literature data on the change of hearing with age for populations of otologically normal persons as defined herein. Distinction is made between males and females since the difference is found to be of significance in the case of older age groups. The data have been derived from investigations using pure tones transmitted to the ear from an earphone, but no evidence is known that disqualifies their use for noise band stimuli or for sound transmitted to the ear from an external sound field.

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Acoustics — Statistical distribution of hearing thresholds as a function of age

1 Scope

This International Standard provides descriptive statistics of the hearing threshold for populations of various ages. It specifies the following, for the range of audiometric frequencies from 125 Hz to 8 000 Hz and for populations of otologically normal persons of a given age within the age limits of 18 years to 70 years inclusive:

- a) the expected median value of hearing thresholds given relative to the median hearing threshold at the age of 18 years;
- b) the expected statistical distribution above and below the median value.

The data are applicable for estimating the amount of hearing loss caused by a specific agent in a population. Such a comparison is valid if the population under study consists of persons who are otologically normal except for the effect of the specific agent. Noise exposure is an example of a specific agent and for this application selected data from this International Standard are referred to as "Data Base A" in ISO 1999.

The data may also be used to assess an individual's hearing in relation to the distribution of hearing thresholds which is normal for the person's age group. However, it is not possible to determine for an individual precisely which part of an observed hearing loss is attributable to an accumulation of detrimental effects on the hearing which increase with age, and which part has been caused by other factors such as noise.

The *hearing threshold deviation* as defined herein and the *hearing threshold level* as defined in other standards (ISO 389-1, ISO 8253-1, ISO 8253-2, IEC 60645-1) express the hearing threshold of an individual or an individual ear relative to, respectively,

- a) the median hearing threshold of a population of 18-year-old persons, or
- b) a reference zero level specified in various parts of ISO 389.

To the extent that the reference zero level represents the median of the 18-year-old population, the values of the two terms will be the same.

2 Terms and definitions

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

2.1

otologically normal person

person in a normal state of health who is free from all signs or symptoms of ear disease and from obstructing wax in the ear canals, and who has no history of undue exposure to noise

NOTE This definition is the one that was used to select subjects for the data presented in this International Standard. A stricter definition of an otologically normal person is presently used in hearing threshold standards (also excluding persons with a history of exposure to potentially ototoxic drugs and familial hearing loss).