Acoustics - Guidelines for noise control by enclosures and cabins

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EESTI STANDARDI EESSÕNA

Käesolev Eesti standard EVS-EN ISO 15667:2000 sisaldab Euroopa standardi EN ISO 15667:2000 ingliskeelset teksti. Käesolev dokument on jõustatud 13.10.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN ISO 15667:2000 consists of the English text of the European standard EN ISO 15667:2000. This document is endorsed on 13.10.2000 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

NATIONAL FOREWORD

Käsitlusala: This standard deals with the performance of enclosures and cabins designed for noise control. It specifies the acoustical and operational requirements which are to be agreed upon between the supplier or manufacturer and the user of such enclosures and cabins.	**Scope:** This standard deals with the performance of enclosures and cabins designed for noise control. It specifies the acoustical and operational requirements which are to be agreed upon between the supplier or manufacturer and the user of such enclosures and cabins.

ICS 17.140.99

Võtmesõnad: acoustics, enclosures, engine noise, machinery, noise (sound), noise reduction, performance, protective cabins, rules (instructions), specifications

EUROPEAN STANDARD
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English version

Acoustics

Guidelines for noise control by enclosures and cabins

(ISO 15667 : 2000)

Acoustique – Lignes directrices pour la réduc tion du bruit au moyen d'encoffrements et de cabines (ISO 15667 : 2000)

Akustik – Leitfaden für den Schallschutz durch Kapseln und Kabinen (ISO 15667 : 2000)

This European Standard was approved by CEN on 2000-05-01.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

International Standard

ISO 15667 : 2000 Acoustics – Guidelines for noise control by enclosures and cabins,

which was prepared by ISO/TC 43 'Acoustics' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 211 'Acoustics', the Secretariat of which is held by DS, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by November 2000 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 15667 : 2000 was approved by CEN as a European Standard without any modification.

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Introduction

Acoustic enclosures and cabins provide a reduction of airborne sound on the propagation path from the machine (or a set of machines) to nearby work stations or to the environment. This International Standard describes criteria which determine the acoustic performance of enclosures and cabins with consideration of operational aspects.

1 Scope

This International Standard deals with the performance of enclosures and cabins designed for noise control. It outlines the acoustical and operational requirements which are to be agreed upon between the supplier or manufacturer and the user of such enclosures and cabins. This International Standard is applicable to two types of acoustic enclosures and cabins, as follows.

a) Cabins for noise protection of operators: free-standing cabins and cabins attached to machines (e.g. vehicles, cranes).

b) Free-standing enclosures covering or housing machines: enclosures with a fraction of acoustically untreated open area of less than 10 % of the total surface are the main subject of this International Standard.

In this International Standard, emphasis is put on lightweight constructions. However, thick, massive structures as, for example, brick walls, are not excluded.

Enclosures and cabins with more than 10 % open and untreated area belong to the category of partial enclosures. They are not the subject of this International Standard.

A third type of enclosure, integrated enclosures which form a part of the machine and are firmly attached to it, is not the subject of this International Standard.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 140-3, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 3: Laboratory measurements of airborne sound insulation of building elements.*

ISO 717-1, *Acoustics — Rating of sound insulation in buildings and of building elements — Part 1: Airborne sound insulation.*

ISO 3740 series, *Acoustics — Determination of sound power levels of noise sources using sound pressure.*

ISO 9614 (all parts), *Acoustics — Determination of sound power levels of noise sources using sound intensity.*

ISO 11200 series, *Acoustics — Noise emitted by machinery and equipment.*

ISO 11546-1:1995, *Acoustics — Determination of sound insulation performance of enclosures — Part 1: Measurements under laboratory conditions (for declaration purposes).*

ISO 11546-2:1995, *Acoustics — Determination of sound insulation performance of enclosures — Part 2: Measurements* in situ *(for acceptance and verification purposes).*

ISO 11957:1996, *Acoustics — Determination of sound insulation performance of sound protecting cabins — Laboratory and* in situ *measurements.*

ISO 14163, *Acoustics — Guidelines for noise control by silencers.*

3 Terms and definitions

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

3.1
enclosure
structure covering or housing a sound source (machine) for protection of the environment from this sound source (machine)

NOTE The shape may be box-like or follow the contour of machine parts. Box-shaped enclosures consist of walls and a roof. The enclosure may have openings for doors, windows, ventilation, material flow, etc.; see Figure 4.

3.2
cabin
construction specially designed for the protection of human beings (e.g. machine operators) from environmental noise, consisting of a fully enveloping structure

NOTE 1 Adapted from ISO 11957:1996.

NOTE 2 A floor is not always a component of the cabin.

3.3
sound power insulation of the enclosure
insertion loss of the enclosure
D_W
difference between the levels of the sound powers emitted from the sound source (machine) with and without the enclosure, in one-third-octave bands or octave bands, measured according to ISO 11546-1 or ISO 11546-2

NOTE 1 The sound power insulation (or insertion loss) is expressed in decibels, dB.

NOTE 2 This spectrum of values is useful for general planning of environmental noise control for locations at some distance from the source, e.g. in the reverberant field of an industrial hall or in the neighbourhood of a plant.

3.4
weighted sound power insulation of the enclosure
$D_{W,w}$
single-number value determined in accordance with the method stated in ISO 717-1, except that the sound reduction index (or transmission loss) is replaced by the insertion loss, D_W

NOTE 1 The weighted sound power insulation is expressed in decibels, dB.

NOTE 2 The single-number value is useful for a rough comparison of different enclosures and for general acoustical planning inside buildings without detailed knowledge of the source spectrum.

NOTE 3 Adapted from ISO 11546-2:1995.