



SLOVENSKI STANDARD
SIST EN 352-3:2003

01-januar-2003

BUXca Yý U
SIST EN 352-3:1998

JUfcj UUg`i \ U!`Gd`cýbY`nU Hýj Y!" "XY.`BU` ýb]_]`nUdf]fX]Hýj `bU]bXi gff]`g_c
j Ufbcgfb` YUXc

Hearing protectors - General requirements - Part 3: Ear-muffs attached to an industrial safety helmet

Gehörschützer - Allgemeine Anforderungen - Teil 3: An Industriehelmen befestigte Kapselgehörschützer

Protecteurs individuels contre le bruit - Exigences générales - Partie 3: Serre tete montés sur casque de sécurité industriel

Ta slovenski standard je istoveten z: EN 352-3:2002

ICS:

13.340.20 Varovalna oprema za glavo Head protective equipment

SIST EN 352-3:2003 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 352-3:2003

<https://standards.iteh.ai/catalog/standards/sist/8e4d0acf-ddba-4369-87e1-8494aa2158b4/sist-en-352-3-2003>

English version

Hearing protectors - General requirements - Part 3: Ear-muffs attached to an industrial safety helmet

Protecteurs individuels contre le bruit - Exigences
générales - Partie 3: Serre tête montés sur casque de
protection pour l'industrie

Gehörschützer - Allgemeine Anforderungen - Teil 3: An
Industriehelmen befestigte Kapselgehörschützer

This European Standard was approved by CEN on 18 August 2002.

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 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 Management Centre 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, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

[SIST EN 352-3:2003](https://standards.iteh.ai/catalog/standards/sist/8e4d0acf-ddba-4369-87e1-8494aa2158b4/sist-en-352-3-2003)

<https://standards.iteh.ai/catalog/standards/sist/8e4d0acf-ddba-4369-87e1-8494aa2158b4/sist-en-352-3-2003>



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

	page
Foreword.....	3
Introduction	4
1 Scope	5
2 Normative references.....	5
3 Terms and definitions	5
4 Requirements.....	7
4.1 Sizing	7
4.2 Materials and construction	7
4.3 Performance.....	7
5 Marking	10
6 Information supplied by the manufacturer	10
6.1 General	10
6.2 Wearer information	11
6.3 Additional information	12
Annex A (informative) Uncertainty of measurement and interpretation of test results	13
Annex ZA (informative) Clauses of this European standard addressing essential requirements or other provisions of EU Directives	15
Bibliography	16

SIST EN 352-3:2003
<https://standards.iteh.ai/catalog/standards/sist/8e4d0acf-ddba-4369-87e1-8494aa2158b4/sist-en-352-3-2003>

Foreword

This document (EN 352-3:2002) has been prepared by Technical Committee CEN/TC 159, "Hearing protectors", the secretariat of which is held by SIS.

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 April 2003, and conflicting national standards shall be withdrawn at the latest by April 2003.

This document supersedes EN 352-3:1996.

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

Annex A is informative.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 352-3:2003](https://standards.iteh.ai/catalog/standards/sist/8e4d0acf-ddba-4369-87e1-8494aa2158b4/sist-en-352-3-2003)

<https://standards.iteh.ai/catalog/standards/sist/8e4d0acf-ddba-4369-87e1-8494aa2158b4/sist-en-352-3-2003>

EN 352-3:2002 (E)

Introduction

This standard for "Hearing Protectors : Ear-muffs attached to an industrial safety helmet : General requirements", sets requirements for personal hearing protection devices in relation to Directive 89/686/EEC – Personal Protective Equipment.

The particular requirement in relation to the ability of hearing protectors to reduce noise below daily limit levels is addressed in the standard by requiring the sound attenuation of the hearing protectors, measured in accordance with EN 24869-1, to be not less than a specified minimum. Further, by requiring that the measured sound attenuation be declared, the selection of suitable hearing protectors for individual circumstances may be undertaken according to established practice.

EN 352-1 deals with requirements for ear-muffs, EN 352-2 with ear-plugs, EN 352-3 with ear-muffs attached to industrial safety helmets. EN 13819 deals with testing plans common to all types of hearing protectors covered by this series of prENs, and is in two Parts; Part 1 : Physical test methods, and Part 2 : Acoustic test methods.

Additional safety requirements and the associated test procedures for level-dependent ear-muffs are contained in EN 352-4, for ear-muffs with active noise reduction in prEN 352-5, for ear-muffs with audio communications in prEN 352-6 and for level-dependent ear-plugs in prEN 352-7.

The Parts of prEN 352, other than Parts 1, 2 and 3, cover the performance of functions additional to passive hearing protection. Hearing protectors which incorporate one or more of these functions are subject to the requirements and tests of each of the relevant Parts of prEN 352, including Parts 1, 2 or 3, as appropriate.

An associated standard EN 458, covers selection, use, care and maintenance of hearing protectors.

The requirements of EN 352-3 are concerned primarily with the physical and acoustic performance of the ear-muffs fitted to an industrial helmet which complies with EN 397.

The sizing requirements enable the great majority of the industrial population to be fitted satisfactorily by "medium size range" helmet mounted ear-muffs. Populations of other sizes may be accommodated by "small size range" or "large size range" helmet mounted ear-muffs, which are required to be accompanied by information regarding the range of sizes which they are designed to fit.

The standard also calls for the values of sound attenuation afforded by the helmet mounted ear-muffs (measured in accordance with EN 24869-1) in order to assist purchasers in selecting the most appropriate model for their needs. Minimum values of sound attenuation are also specified.

A maximum variability in insertion loss, measured objectively after a series of performance tests, is specified. The objective test method only facilitates the making of comparative measurements, and the insertion loss values obtained will differ from the measured sound attenuation values.

The latter, which require the helmet mounted ear-muffs to be tested whilst being worn by human test subjects, is regarded as providing the reference test method for the measurement of the acoustic performance of hearing protectors.

1 Scope

This part of the standard specifies requirements for construction, design, performance, marking and user information for ear-muffs fitted to an industrial helmet which complies with EN 397.

In particular, it specifies the sound attenuation of the helmet mounted ear-muffs, measured in accordance with EN 24869-1.

Because one model of ear-muffs designed to be attached to an industrial safety helmet can be fitted to a number of helmet models and sizes, this part of the standard sets out a series of physical and acoustic requirements for the ear-muffs when fitted to the specified model(s) or size(s) of helmet.

All requirements apply to the ear-muffs fitted to one of the specified models or sizes of helmet (the basic combination), and an abbreviated set of requirements apply to the same model of ear-muffs when fitted to the other specified models or sizes of helmet (the supplementary combinations).

Information on the range models of helmet tested with the ear-muffs, and for which the combination satisfied this standard, is required to be made available.

Ergonomic aspects are addressed by taking into account, within the requirements, the interaction between the wearer, the device and where possible the working environment in which the device is likely to be used (see Annex ZA and EN 458).

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

- SIST EN 352-3:2003
 www.standards.it
 standards@standards.it
- EN 13819-1:2002, *Hearing protectors - Testing - Part 1: Physical test methods*
- EN 13819-2:2002, *Hearing protectors - Testing - Part 2: Acoustic test methods*
- EN 397, *Industrial safety helmets*
- EN 960:1994, *Headforms for use in the testing of protective helmets*
- EN ISO 4869-2, *Acoustics - Hearing protectors - Part 2: Estimation of effective A-weighted sound pressure levels when hearing protectors are worn (ISO 4869-2:1994)*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply:

3.1

cup

hollow component which is mounted on the equivalent headband and to which a cushion and a liner are usually fitted

3.2

cup supporting arm

arm, usually of metal or plastics, attached to the safety helmet shell and designed to enable the ear-muffs' cup to fit securely around the ear by exerting pressure through the cushion. It includes the means of attachment to the safety helmet shell

3.3

cushion

deformable component, usually containing a foam plastic or fluid filling, fitted to the rim of the cup to improve the comfort and fit of the ear-muffs on the head

EN 352-3:2002 (E)**3.4****liner**

acoustically absorptive material contained within the cup which is intended to increase the attenuation of the ear-muffs at certain frequencies

3.5**ear-muffs**

hearing protector consisting of a cup to be pressed against each pinna or of a circumaural cup to be pressed against the head around each pinna. The cups may be pressed against the head with a headband or by means of a device attached to a safety helmet or other equipment

3.6**headband**

band designed to enable the ear-muffs to fit securely around the ears by exerting force against the cups and pressure through the cushions. In the case of helmet mounted ear-muffs it is deemed to be that part of the helmet mounted ear-muffs which supports the cups. It comprises the safety helmet shell and the cup support arms, and is intended to be functionally equivalent to the headband of headband ear-muffs

3.7**helmet**

headgear, primarily intended to protect the upper part of a wearer's head against injury from falling objects and which complies with the requirements of EN 397

3.8**external vertical distance**

vertical distance between the top of the test headform on which the helmet is mounted and the highest point on the outside surface of the helmet shell

3.9**insertion loss**

mean algebraic difference in decibels between the one-third octave band sound pressure level, measured by the microphone of the acoustic test fixture in a specified sound field under specified conditions, with the hearing protector absent, and the sound pressure level with the hearing protector on, with other conditions identical

<https://standards.itech.ai/catalog/standards/sist/8e4d0acf-ddba-4369-87e1-8494aa2158b4/sist-en-352-3-2003>

3.10**parking position**

position of the ear-muffs in which the cups are located above the level of the lower edge of the helmet shell, as specified by the ear-muffs manufacturer in accordance with 6.2(h) (see also 3.12)

3.11**sound attenuation**

for a given test signal, the mean difference in decibels between the threshold of hearing with and without the hearing protector in place, for a panel of test subjects

3.12**stand-by position**

position of the ear-muffs in which the cups are located below the level of the lower edge of the helmet shell and in which the cushions are held away from the side of the head or pinna (see also 3.10)

3.13**basic combination**

helmet mounted ear-muffs which includes the first or only model or size of helmet to which a given model of ear-muffs is fitted, and which will undergo all the tests in the standard (see also 3.14)

3.14**supplementary combination**

helmet mounted ear-muffs which include a model or size of helmet, (other than the helmet of the basic combination), to which is fitted the same model of ear-muffs as for the basic combination, and which will undergo an abbreviated set of tests (see also 3.13)

3.15

hygiene covers

temporary, disposable covers fitted over the cushions and intended to protect them from the effects of dirt, perspiration and cosmetics, etc

4 Requirements

4.1 Sizing

Helmet mounted ear-muffs shall be classified into three size ranges, 'Medium size range', 'Small size range' and 'Large size range'.

'Medium size range' ear-muffs shall be so classified if their adjustability complies with clause 4.3.2.2.

'Small size range' ear-muffs shall be so classified if their adjustability complies with 4.3.2.3.

'Large size range' ear-muffs shall be so classified if their adjustability complies with 4.3.2.4.

'Small size range' and 'large size range' helmet mounted ear-muffs shall be accompanied by the information specified in 6.2 i).

NOTE A model of helmet mounted ear-muffs may fall into more than one size range.

4.2 Materials and construction

iTeh STANDARD PREVIEW
(standards.iteh.ai)

4.2.1 Materials

4.2.1.1 Those parts of the ear-muffs that may come into contact with the skin shall be non-staining, soft, pliable and not known to be likely to cause skin irritation, allergic reaction or any other adverse effect on health.

4.2.1.2 All materials shall be visibly unimpaired after cleaning and disinfection by the methods specified by the manufacturer.

4.2.2 Construction

4.2.2.1 All parts of the ear-muffs and cup supporting arms shall be rounded, finished smooth and be free from sharp edges.

4.2.2.2 Ear-muffs whose cushions and/or liners are intended by the manufacturer to be replaced by the wearer shall not require the use of tools for this purpose.

4.3 Performance

4.3.1 General

The requirements specified in 4.3.2 to 4.3.12 shall be satisfied.

Helmet mounted ear-muffs shall be conditioned and tested in accordance with EN 13819-1:2002, 4.1.1, 4.1.2 and 4.1.3.

4.3.2 Sizing and adjustability

4.3.2.1 General

Sizing and adjustability shall be tested in accordance with EN 13819-1:2002, 4.2 and the following requirements satisfied, as appropriate.