



**National Standards Authority of Ireland**

**IRISH STANDARD**

**I.S. EN 352-3:2002**

ICS 13.340.20

**HEARING PROTECTORS - GENERAL  
REQUIREMENTS - PART 3: EAR-MUFFS  
ATTACHED TO AN INDUSTRIAL SAFETY  
HELMET**

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attached to an industrial safety helmet**

Protecteurs individuels contre le bruit - Exigences  
générales - Partie 3: Serre tête montés sur casque de  
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This European Standard was approved by CEN on 18 August 2002.

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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.

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## Contents

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

## **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of an identical text or by endorsement, at the latest by April 2003, and conflicting national standards shall be withdrawn at the latest by April 2003.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.

## 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).

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

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