

MÄGIRONIMISVARUSTUS. LAVIINI ÕHKPATJADE  
SÜSTEEMID. OHUTUSNÕUDED JA KATSEMEETODID

Mountaineering equipment - Avalanche Airbag systems  
- Safety requirements and test methods

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 16716:2017 sisaldab Euroopa standardi EN 16716:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 16716:2017 consists of the English text of the European standard EN 16716:2017.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 15.02.2017.	Date of Availability of the European standard is 15.02.2017.
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ICS 13.340.99, 97.220.20, 97.220.40

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English Version

## Mountaineering equipment - Avalanche airbag systems - Safety requirements and test methods

Équipement d'alpinisme et d'escalade - Systèmes de  
sac gonflable anti-ensevelissement lors d'une  
avalanche - Exigences de sécurité et méthodes d'essai

Bergsteigerausrüstung - Lawinen-Airbag-Systeme -  
Sicherheitstechnische Anforderungen und  
Prüfverfahren

This European Standard was approved by CEN on 28 November 2016.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## European foreword

This document (EN 16716:2017) has been prepared by Technical Committee CEN/TC 136 “Sports, playground and other recreational facilities and equipment”, 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of an identical text or by endorsement, at the latest by August 2017, and conflicting national standards shall be withdrawn at the latest by August 2017.

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

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.

For relationship with EU Directive, 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, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## **Introduction**

This European Standard is one of a package of standards for mountaineering equipment, see Annex A.

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## 1 Scope

This European Standard specifies safety requirements and test methods for avalanche airbag systems to reduce the risk of being buried by a snow avalanche.

This European Standard does not consider personal protection against impact or cold temperature.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12277, *Mountaineering equipment — Harnesses — Safety requirements and test methods*

EN 55014-1, *Electromagnetic compatibility — Requirements for household appliances, electric tools and similar apparatus — Part 1: Emission (CISPR 14-1)*

EN 55014-2, *Electromagnetic compatibility — Requirements for household appliances, electric tools and similar apparatus — Part 2: Immunity — Product family standard (CISPR 14-2)*

EN 60335-1, *Household and similar electrical appliances — Safety — Part 1: General requirements (IEC 60335-1)*

EN 60335-2-29, *Household and similar electrical appliances — Safety — Part 2-29: Particular requirements for battery chargers (IEC 60335-2-29)*

EN 60335-2-30, *Household and similar electrical appliances — Safety — Part 2-30: Particular requirements for room heaters (IEC 60335-2-30)*

EN 60335-2-80, *Household and similar electrical appliances — Safety — Part 2-80: Particular requirements for fans (IEC 60335-2-80)*

EN 60529, *Degrees of protection provided by enclosures (IP Code) (IEC 60529)*

EN 61000-6-2, *Electromagnetic compatibility (EMC) — Part 6-2: Generic standards — Immunity for industrial environments (IEC 61000-6-2)*

EN 61000-6-3, *Electromagnetic compatibility (EMC) — Part 6-3: Generic standards — Emission standard for residential, commercial and light-industrial environments (IEC 61000-6-3)*

EN 61558-2-16, *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V — Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units (IEC 61558-2-16)*

EN 62133, *Secondary cells and batteries containing alkaline or other non-acid electrolytes — Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications (IEC 62133)*

EN ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests (ISO 9227)*

EN ISO 13849-1:2015, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2015)*

EN ISO 13934-1, *Textiles — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method (ISO 13934-1)*

EN ISO 13937-2, *Textiles — Tear properties of fabrics — Part 2: Determination of tear force of trouser-shaped test specimens (Single tear method) (ISO 13937-2)*

ISO 7000, *Graphical symbols for use on equipment — Registered symbols*

ASTM F2153, *Standard Test Method for Measurement of Backpack Capacity*

### 3 Terms and definitions

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

#### 3.1 activation system

device to initiate the deployment of the avalanche airbag system (e.g. deployment handle)

#### 3.2 airbag

part of the avalanche airbag system which changes the shape for increasing the volume of the avalanche airbag system

#### 3.3 airbag volume

volume of the fully inflated airbag which changes shape during deployment

#### 3.4 avalanche airbag system

personal protective equipment worn by the user, which reduces the probability of being buried in a snow avalanche by rapidly increasing the volume of the user in combination with the device

#### 3.5 carrying system

part of the avalanche airbag system attaching the activation system, inflating system and airbag to the user

EXAMPLE back pack, vest

#### 3.6 detachable airbag system

avalanche airbag system where the inflation system, activation system and airbag can be removed as a unit from the carrying system by the user by design

#### 3.7 fully inflated airbag

airbag inflated to a point that it achieves its intended shape and maintains that shape under its own weight

#### 3.8 inflation system

part of the avalanche airbag system which deploys the airbag after the activation system has been used

EXAMPLE Gas cylinder with venturi valve