SLOVENSKI STANDARD
SIST EN 355:2002

01-november-2002

Nadomeģ a:
SIST EN 355:1996

Osebna varovalna oprema za zaģ ito pred padci z viģine - Blaģilniki padca

Personal protective equipment against falls from a height - Energy absorbers

Persönliche Schutzausrüstung gegen Absturz - Falldämpfer

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Equipement de protection individuelle contre les chutes de hauteur - Absorbeurs d'energie

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Ta slovenski standard je istoveten z: EN 355:2002

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ICS:

13.340.60	Zaģ ita pred padci in zdrsi	Protection against falling and slipping

SIST EN 355:2002 **en**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 355

May 2002

ICS 13.340.99

Supersedes EN 355:1992

English version

Personal protective equipment against falls from a height - Energy absorbers

Equipement de protection individuelle contre les chutes de hauteur - Absorbeurs d'energie

Persönliche Schutzausrüstung gegen Absturz - Falldämpfer

This European Standard was approved by CEN on 12 March 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.

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

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Foreword

This document EN 355:2002 has been prepared by Technical Committee CEN/TC 160 "Protection against falls from a height including working belts", 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 November 2002, and conflicting national standards shall be withdrawn at the latest by November 2002.

This document supersedes EN 355:1992. This new edition contains the old text of the standard and incorporates some urgent amendments that are intended to give additional information and clarify inconsistencies. A comprehensive revision of the standard will follow at a later stage.

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.

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1 Scope

This European Standard specifies the requirements, test methods, marking, information supplied by the manufacturer and packaging for energy absorbers. Energy absorbers conforming to this European Standard are used as elements or components either integrated in a lanyard, an anchor line or a full body harness or in combination with one of them.

Combinations of an energy absorber and a lanyard are sub-systems constituting one of the fall arrest systems covered by EN 363, when combined with a full body harness specified in EN 361.

Fall arresters are specified in EN 353-1, EN 353-2 and EN 360.

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 354:2002, *Personal protective equipment against falls from a height – Lanyards.*

EN 362, *Personal protective equipment against falls from a height – Connectors.*

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EN 363:2002, *Personal protective equipment against falls from a height - Fall arrest systems.*

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EN 364:1992, *Personal protective equipment against falls from a height - Test methods.*

EN 365:1992, *Personal protective equipment against falls from a height - General requirements for instructions for use and for marking.*

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3 Terms and definitions

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

3.1
energy absorber
element or a component of a fall arrest system, which is designed to dissipate the kinetic energy developed during a fall from a height [EN 363]

3.2
lanyard
connecting element or component of a fall arrest system. A lanyard may be of synthetic fibre rope, wire rope, webbing or chain [EN 363]

3.3
length of energy absorber including a lanyard
total length L_t in metres from one load bearing point to the other load bearing point, measured in an unloaded but taut condition of the energy absorber including lanyard [EN 363]

3.4
braking force
maximum force F_{max} in kilonewtons, measured at the anchor point or the anchor line during the braking period of the dynamic performance test [EN 363]

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3.5
arrest distance
vertical distance *H* in metres, measured at the mobile load bearing point of the connecting sub-system from the initial position (onset of the free fall) to the final position (equilibrium after the arrest), excluding the displacements of the full body harness and its attachment element [EN 363]

4 Requirements

4.1 Design and ergonomics

The general requirements for the design and ergonomics are specified in 4.1 of EN 363:2002.

4.2 Materials and construction

If an energy absorber is incorporated in a lanyard (i.e. the energy absorber cannot be removed without mutilating the lanyard, or without the use of a special dedicated tool), the lanyard shall conform to 4.2 and 4.3 of EN 354:2002.

Connectors for energy absorbers shall conform to EN 362.

4.3 Static preloading

When tested as described in 5.1 the permanent extension caused by activation of the energy absorber after preloading with 2 kN shall not be greater than 50 mm.

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4.4 Dynamic performance

When tested as described in 5.2 with a rigid steel mass of 100 kg or a torso dummy of 100 kg mass, the braking force F_{max} shall not exceed 6 kN and the arrest distance H shall be $H < 2\ L_t + 1{,}75$ m, depending on the total length L_t of the energy absorber including lanyard.

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4.5 Static strength

When tested as described in 5.3 with a force of 15 kN, the fully developed energy absorber shall withstand the static strength test without tearing or rupture.

4.6 Marking and information

Marking of the energy absorber shall be in accordance with clause 6.

Information shall be supplied with the energy absorber in accordance with clause 7.

5 Test methods

5.1 Static preloading test

5.1.1 Apparatus

The static preloading test apparatus shall conform to 5.3.1 of EN 364:1992.

5.1.2 Method

The static preloading test shall be conducted as described in 5.3.2 of EN 364:1992. The permanent extension shall be measured at the point of activation of the energy absorber.

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5.2 Dynamic performance test

5.2.1 Apparatus

The dynamic performance test apparatus shall conform to 4.2, 4.4, 4.5 and 4.6 of EN 364:1992.

5.2.2 Method

5.2.2.1 Energy absorber as a component

If the energy absorber is a component, the dynamic performance test shall be conducted as specified in 5.3.4.1 of EN 364:1992 with a rigid steel mass of 100 kg.

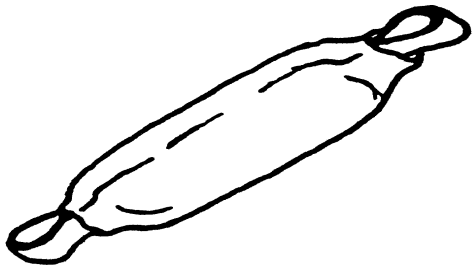

Figure 1 - Example of an energy absorber as a component

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5.2.2.2 Energy absorber integral with a lanyard

If the energy absorber is incorporated in a lanyard, the dynamic performance test shall be conducted as specified in 5.3.4.2 of EN 364:1992 with a rigid steel mass of 100 kg, raising the mass to its maximum height and without using an additional chain lanyard.

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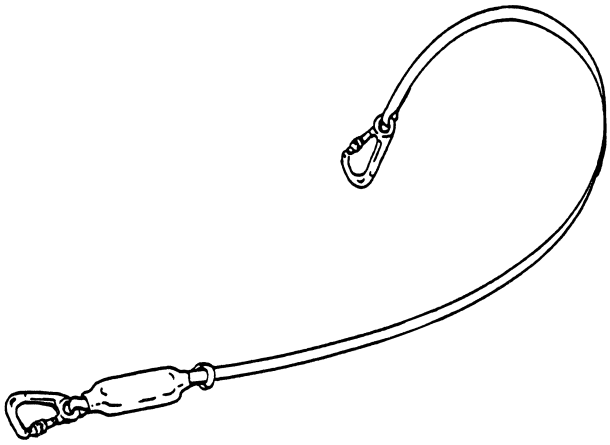

Figure 2 - Example of an energy absorber integral with a lanyard

5.2.2.3 Energy absorber integral with a full body harness

If the energy absorber is incorporated in a full body harness, the dynamic performance test shall be conducted as specified in 5.3.4.3 of EN 364:1992 with a torso dummy of 100 kg mass.

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5.3 Static strength test

5.3.1 Apparatus

The static strength test apparatus shall conform to 4.1 of EN 364:1992.

5.3.2 Method

The static strength test shall be conducted as described in 5.3.6 of EN 364:1992.

6 Marking

Marking on the energy absorber shall conform to 2.2 of EN 365:1992 and any text shall be in the languages of the country of destination. In addition to conforming to 2.2 of EN 365:1992 the marking shall include the following:

a) on the energy absorber, a pictogram to indicate that users shall read the information supplied by the manufacturer (see figure);

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b) the maximum length allowed of the energy absorber including lanyard;

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c) the model/type identification mark of the energy absorber;

d) the number of this European Standard, i.e. EN 355.

7 Information supplied by the manufacturer

The information supplied by the manufacturer shall be provided in the languages of the country of destination. It shall conform to 2.1 of EN 365:1992 and in addition shall include at least advice or information as follows:

a) that the total length of a sub-system with an energy absorber including lanyard, terminations and connectors shall not exceed 2 m (e.g. connector plus lanyard plus energy absorber plus connector);

b) the characteristics required for a reliable anchor point;

c) on how to connect to a reliable anchor point, to a full body harness and to other components of a fall arrest system;

d) on how to ensure the compatibility of any components to be used in conjunction with the energy absorber, e.g. by reference to other European Standards;

e) the necessary minimum clearance below the feet of the user, in order to avoid collision with the structure or ground in a fall from the height. With a mass of 100 kg and a fall factor two situation (worst case) the clearance is the arrest distance *H* (see 3.5) plus an extra distance of 1 m;

f) the material from which the energy absorber is made;