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SIST EN 354:2002

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 354

May 2002

ICS 13.340.99

Supersedes EN 354:1992

English version

Personal protective equipment against falls from a height - Lanyards

Équipement de protection individuelle contre les chutes de
hauteur - Longes

Persönliche Schutzausrüstung gegen Absturz -
Verbindungsmittel

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.

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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document EN 354:2002 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of an identical text or by endorsement, at the latest by November 2002, and conflicting national standards shall be withdrawn at the latest by November 2002.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 354:1992. 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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EN 354:2002 (E)**1 Scope**

This European Standard specifies the requirements, test methods, marking, information supplied by the manufacturer and packaging for non-adjustable and adjustable lanyards. Lanyards conforming to this European Standard are used as connecting elements or components in fall arrest systems specified in EN 363.

Other types of lanyards are specified in EN 358.

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 362:1992, *Personal protective equipment against falls from a height – Connectors.*

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

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.*

ISO 1835, *Short link chain for lifting purposes - Grade M(4), non-calibrated, for chain slings etc.*

ISO 2232, *Round drawn wire for general purpose non-alloy steel wire ropes and for large diameter steel wire ropes – Specifications.*

3 Terms and definitions

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

3.1**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]

3.2**adjustment device**

element of a lanyard to vary its length [EN 363]

3.3**length of lanyard**

length L_1 in metres from one load bearing point to the other load bearing point measured in an unloaded, but taut condition of the lanyard [EN 363]

3.4**termination**

ready-to-use end of a lanyard. A termination may be for instance a connector, a spliced eye or a sewn loop [EN 363]

3.5

connector

connecting element or component of a fall arrest system [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

4.2.1 General

Both ends of a lanyard shall be suitably terminated. When using splices for terminating kernmantel ropes, the splice shall have a minimum length of 100 mm, and it shall be secured by whipping, or any other method which prevents the splice from coming open in use.

The length L_1 of a non-adjustable or adjustable lanyard including energy absorber - if applicable - and terminations, e. g. connectors or eyes, shall not exceed 2 m.

The ends of the adjustment part of the lanyard shall be fitted with an end stop.

All metallic elements of the lanyard with the exception of wire ropes and chains shall be protected against corrosion in accordance with EN 362.

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4.2.2 Fibre ropes and webbing

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Fibre ropes, webbing and sewing threads for lanyards shall be made from virgin filament or multifilament synthetic fibres suitable for their intended use.

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The breaking tenacity of the synthetic fibres shall be known to be at least 0,6 N/tex.

4.2.3 Wire ropes

Wire ropes for lanyards shall be made from steel, the ferrules of a termination from ductile metallic material.

Wire ropes, which are not made from stainless steel shall be galvanized in accordance with ISO 2232.

4.2.4 Chains

Chains shall conform to the requirements for at least 6 mm chains given in ISO 1835. Egg-shaped or similar end links and all connecting links shall be compatible with the chain in all respects.

NOTE After manufacture chain lanyards should be proof tested to the levels given in ISO 1834.

4.2.5 Connectors

Connectors for lanyards shall conform to EN 362.

4.3 Static strength

Lanyards made from textile material or textile lanyard elements, e.g. synthetic fibre ropes or webbing, including their textile terminations and if applicable, their adjustment device shall sustain a force of at least 22 kN without separating, tearing or rupture of any lanyard element, when tested as described in 5.1.

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Lanyards made entirely from metallic material including their metallic terminations or metallic lanyard elements, e.g. connectors or fittings, shall sustain a force of at least 15 kN without tearing or rupture of any lanyard element, when tested as described in 5.1.

4.4 Dynamic strength for lanyards with an incorporated adjustment device

When lanyards with an incorporated adjustment device are tested as described in 5.2, no rupture shall occur.

4.5 Marking and information

Marking of the lanyard shall be in accordance with clause 6.

Information shall be supplied with the lanyard in accordance with clause 7.

5 Test methods

5.1 Static strength test

5.1.1 Apparatus

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

5.1.2 Method

The static strength test shall be conducted as described in 5.2.2 of EN 364:1992.

5.2 Dynamic strength test for lanyards with an incorporated adjustment device

5.2.1 Apparatus

The dynamic strength test apparatus shall conform to 4.4.1, 4.5 and 4.6 of EN 364:1992.

5.2.2 Method

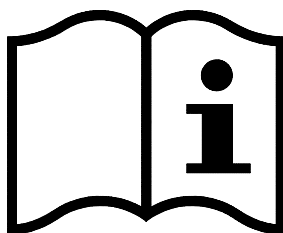
On lanyards with an incorporated adjustment device for its length, the dynamic strength test shall be conducted as described in 5.2.4 of EN 364:1992 with the following modification:

Adjust the lanyard to 60 % of its full length. To this adjusted lanyard attach a chain so that the overall length of lanyard and chain is equal to that of the lanyard when adjusted to its full length.

6 Marking

Marking on the lanyard shall conform to 2.2 of EN 365:1992 and in the 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 lanyard, a pictogram to indicate that users shall read the information supplied by the manufacturer (see figure);



- b) the model/type identification mark of the lanyard;
- c) the number of this European Standard, i.e. EN 354.

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 a lanyard including an energy absorber, terminations and connectors shall not exceed 2 m (e.g. connector plus lanyard plus energy absorber plus connector);
- b) that a lanyard without an energy absorber shall not be used in or as a fall arrest system;
- c) the characteristics required for a reliable anchor;
- d) on how to connect to a reliable anchor point, to a full body harness and to other components of a fall arrest system;
- e) on how to ensure the compatibility of any components to be used in conjunction with the lanyard, e.g. by reference to other European Standards;
- f) the material from which the lanyard is made;
- g) on limitations of the materials in the product or hazards which may affect its performance, e.g. temperature, the effect of sharp edges, chemical reagents, electrical conductivity, cutting, abrasion, UV degradation, other climatic conditions;
- h) that before and during use, consideration should be given as to how any rescue could be safely and efficiently carried out;
- i) that the product should only be used by a trained and/or otherwise competent person or the user should be under the direct supervision of such a person;
- j) on how to clean the product, including disinfection, without adverse effect;
- k) if information exists, the expected lifespan of the product (obsolescence) or how this may be determined;
- l) on how to protect the product during transportation;
- m) on the meaning of any markings on the product;
- n) the model/type identification mark of the lanyard;
- o) the number of this European Standard, i.e. EN 354.

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