SLOVENSKI STANDARD
SIST EN 354:2010

01-oktober-2010

Nadomešča:
SIST EN 354:2002

Osebna varovalna oprema za zaščito pred padci z višine - Vrvi z zaključno zanko

Personal protective equipment against falls from a height - Lanyards

Persönliche Schutzausrüstung gegen Absturz - Verbindungsmittel

Equipement de protection individuelle contre les chutes de hauteur - Longes

Ta slovenski standard je istoveten z: EN 354:2010

ICS:

13.340.60	Zaščita pred padci in zdrsi	Protection against falling and slipping

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EUROPEAN STANDARD

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ICS 13.340.60

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English Version

Personal fall protection equipment - Lanyards

Equipement de protection individuelle contre les chutes de hauteur - Longes

Persönliche Schutzausrüstung gegen Absturz - Verbindungsmittel

This European Standard was approved by CEN on 12 June 2010.

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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 CEN Management Centre has the same status as the official versions.

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Foreword

This document (EN 354:2010) has been prepared by Technical Committee CEN/TC 160 “Protection against falls from 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of an identical text or by endorsement, at the latest by January 2011, and conflicting national standards shall be withdrawn at the latest by January 2011.

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 supersedes EN 354:2002.

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.

Annex A provides details of significant technical changes between this European Standard and the previous edition EN 354:2002.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies the requirements, test methods, marking, information supplied by the manufacturer and packaging for lanyards. Lanyards conforming to this European Standard are used as connecting elements or components in personal fall protection systems (i.e. restraint systems, work positioning systems, rope access systems, fall arrest systems and rescue systems).

2 Normative references

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

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

EN 363:2008, *Personal fall protection equipment — Personal fall protection systems*

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

EN 365, *Personal protective equipment against falls from a height — General requirements for instructions for use, maintenance, periodic examination, repair, marking and packaging*

EN 892, *Mountaineering equipment — Dynamic mountaineering ropes — Safety requirements and test methods*

EN ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests (ISO 9227:2006)*

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 terms and definitions given in EN 363:2008 and the following definitions apply.

3.1
lanyard
flexible connecting element or component of a personal fall protection system with at least two terminations, with or without a length adjustment device

NOTE 1 This includes round slings.

NOTE 2 A lanyard may be made, for example, from synthetic fibre rope or webbing, wire rope or chain.

3.2
termination
part of a lanyard for connecting to other elements or components of a personal fall protection system

NOTE A termination may be, for example, a spliced eye, a sewn loop, or a metal ring.

3.3
personal fall protection system
assembly of components for protection against falls from a height, including a body holding device and an attachment system, which can be connected to a reliable anchorage point

NOTE Excludes systems for professional and private sports activities.

3.4
connector
openable device used to connect components, which enables the user to assemble a system in order to link himself/herself directly or indirectly to an anchor

3.5
length adjustment device
element of a lanyard to vary its length

3.6
lanyard length
length in meters from one load bearing point to the other load bearing point, measured in an unloaded but taut condition of the lanyard

4 Requirements

4.1 Design and ergonomics

4.1.1 Lanyards shall be made from smoothly finished materials and shall not have sharp edges or burrs that may cause injury to the user, or that may cut, abrade or otherwise cause damage to the lanyard itself.

4.1.2 When checked in accordance with 5.3.3, lanyards with a length adjustment device shall be adjustable.

4.1.3 Length adjustment devices shall not allow unintentional opening and shall not allow unintentional change in length.

4.1.4 Lanyards with a length adjustment device shall be fitted with an end stop which shall prevent unintentional detachment of the length adjustment device from the lanyard.

4.1.5 Connectors incorporated in lanyards shall conform to EN 362.

4.1.6 The lanyard length, when measured in accordance with 5.3.4, shall be within ± 5% of the length given on the marking of the lanyard.

4.2 Materials

4.2.1 Materials which may come into contact with the skin of a user shall not be known to, or suspected to, adversely affect user hygiene or health, e.g. cause irritating or sensitization effects, during normal use of the lanyard.

4.2.2 Fibre ropes, webbing and sewing threads for lanyards shall be made from virgin filament or multifilament synthetic fibres suitable for their intended use. The breaking tenacity of the synthetic fibres shall be known to be at least 0,6 N/tex.

4.2.3 Wire ropes for lanyards shall be made from steel. The ferrules of terminations shall be made from ductile metallic material. Wire ropes that are not made from stainless steel shall be galvanized in accordance with ISO 2232.

4.2.4 Chains shall conform to the requirements for chains 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.

4.3 Terminations

4.3.1 Lanyards shall be terminated in such a manner that they can be connected to other personal fall protection equipment directly or by an appropriate connector.

4.3.2 Spliced terminations on ropes shall be secured to prevent the splice from coming open in use and the materials used for securing shall be compatible with the rope material.

4.3.3 Threads used for sewing shall be of a contrasting shade or colour in order to facilitate visual inspection.

4.3.4 When using a knot for forming a termination, the knot shall be secured so that it cannot be opened without the use of a tool. After the static strength test in accordance with 5.7, the tail end of the knot shall have a minimum length of 100 mm.

4.3.5 Ends of the lanyard shall be prevented from unravelling.

4.3.6 Eye terminations of wire rope lanyards shall not be manufactured with U-bolt clamps.

4.4 Slippage for lanyards with length adjustment device

When tested in accordance with 5.6, the slippage of the lanyard through the length adjustment device shall not be more than 50 mm.

4.5 Static strength

4.5.1 When tested in accordance with 5.7, lanyards including any textile material or textile lanyard elements, e.g. synthetic fibre ropes or webbing, shall sustain a force of at least 22 kN.

4.5.2 When tested in accordance with 5.7, lanyards made entirely of metallic elements shall sustain a force of at least 15 kN.

4.6 Dynamic strength for lanyards with a length adjustment device

When tested in accordance with 5.8, the lanyard shall retain the test mass clear of the ground. Afterwards, the same lanyard shall, when tested in accordance with 5.7.3, withstand a test force of (3 ± 0,3) kN, or an equivalent mass, applied for a period of $(3\ ^{+\,0,25}_{0})$ min.

4.7 Corrosion resistance

Lanyards with metallic elements shall be tested in accordance with 5.9. All metallic elements of the lanyard shall not show evidence of corrosion of the base metal and lanyards shall still function in accordance with 4.1.3. The presence of tarnishing and white scaling is acceptable.

NOTE 1 Care should be taken by the manufacturer not to combine different metals in such a way that there could be adverse galvanic reaction.

NOTE 2 Conformity to this requirement does not imply suitability for use in a marine environment.

4.8 Marking and information

4.8.1 Marking of lanyards shall be in accordance with Clause 6.

4.8.2 Information shall be supplied with lanyards in accordance with Clause 7.

5 Test methods

5.1 General

Carry out all tests at a temperature range of (23 ± 5) °C.

5.2 Conditioning

5.2.1 General conditioning

Store sample lanyards at a temperature of (23 ± 5) °C and a humidity of (65 ± 5) % for at least 24 h.

5.2.2 Conditioning to wet and cold

Immerse the sample lanyard in fresh water for a minimum of 1 h at a temperature of (23 ± 5) °C and then, within 90 s, place the sample lanyard in the refrigerated chamber for at least 4 h at a temperature of (-4+0/-2) °C.

5.2.3 Conditioning to very cold

If the manufacturer claims that the lanyard can be used below -30°C, condition the sample lanyard in accordance with 5.2.1. Place the sample lanyard in the refrigerated chamber for at least 2 h at the minimum temperature claimed by the manufacturer with a maximum temperature of (- 30 ± 2) °C.

5.3 Examination of design

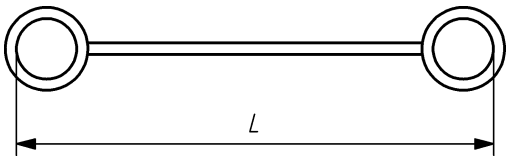
5.3.1 One unused lanyard shall be used for these examinations.

5.3.2 Verify by reference to appropriate documentation and by normal or corrected vision and/or tactile examination of the lanyard that it conforms to 4.1.1 to 4.1.5 inclusive.

5.3.3 For lanyards with a length adjustment device, verify by functional, visual and tactile examination that the length of the lanyard may be adjusted.

5.3.4 Attach one end of the sample to a suitable fixture. If the lanyard is adjustable, extend it to its maximum length. Apply a load without shock in the form of a mass of (10 ± 0,1) kg, or a corresponding force, to the other end of the lanyard. Maintain the load described above for (60 ± 15) s. Within 10 s, with the load still applied, measure the lanyard length L between the extremity load bearing points, in metres to the nearest 0,01 m (see Figure 1).

If the lanyard has more than two terminations, measure the longest length combination of terminations allowed by manufacturer.



Key

L length

Figure 1 — Measurement of the lanyard length

5.4 Examination of materials

Verify by reference to appropriate documentation and by normal or corrected vision and/or tactile examination of the lanyard that it conforms to 4.2.