SLOVENSKI STANDARD
SIST EN 813:2002

01-junij-2002

Osebna varovalna oprema za zaģļ ito pred padci z viġine - Sedeġni pasovi

Personal protective equipment for prevention of falls from a height - Sit harnesses

Persönliche Schutzausrüstung zur Verhinderung von Abstürzen - Sitzgurte

Equipement de protection individuelle pour la prévention contre les chutes de hauteur - Ceintures a cuissardes

Ta slovenski standard je istoveten z: **EN 813:1997**

ICS:

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

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EUROPEAN STANDARD

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English version

Personal protective equipment for prevention of falls from a height - Sit harnesses

Equipement de protection individuelle pour la prévention contre les chutes de hauteur - Ceintures à cuissardes

Persönliche Schutzausrüstung zur Verhinderung von Abstürzen - Sitzgurte

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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CEN

European Committee for Standardization
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Contents

Foreword

This European Standard 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of an identical text or by endorsement, at the latest by August 1997, and conflicting national standards shall be withdrawn at the latest by August 1997.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association and supports essential requirements of the EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this standard.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard specifies requirements, testing, marking and instructions for use of sit harnesses for use in work positioning and restraint systems, where a low point of attachment is required. Sit harnesses are not suitable to be used for fall arrest purposes.

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.

EN 358	Personal equipment for work positioning and prevention of falls from a height - Work positioning 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 and for marking
EN 892	Mountaineering equipment - Dynamic mountaineering ropes - Safety requirements and test methods

3 Definitions

For the purposes of this standard, the following definitions apply:

3.1 Element

A part of a component or a sub-system. Ropes, webbing, attachment elements, fittings and anchorage lines are examples of elements. [EN 363:1992]

3.2 Component

A part of a system at a point of sale by the manufacturer, supplied with packaging, marking and instructions for use. Body supports and lanyards are examples of components of systems.
[EN 363:1992]

3.3 Sit harness fastening and adjustment element

Any device which enables the sit harness to be fastened and allows adjustment to be made to the sit harness to meet the fitting requirements of the wearer. Examples are buckles.

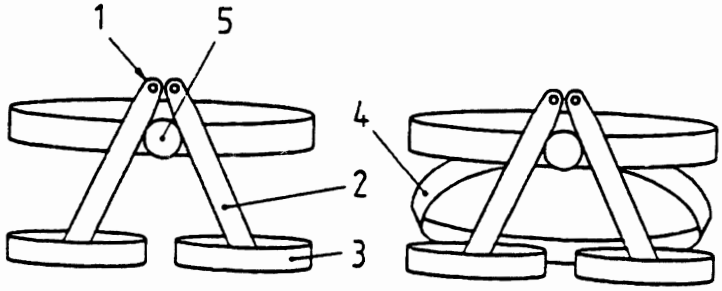
3.4 Sit harness attachment element

Those parts of the sit harness intended for the load bearing connection to other components.

3.5 Sit harness

An arrangement of straps, fittings and buckles or other elements in the form of a waist belt with a low attachment element and connecting support encircling each leg suitably arranged to support the body of a conscious person in a sitting position. Sit harnesses may be fitted with shoulder straps and/or may be incorporated into a garment. Examples of the arrangements are shown in figure 1.

Note: A sit harness may be an element of a full body harness complying with EN 361.



1 Attachment element
2 Straps connecting leg loops to waist belt
3 Leg loop
4 Sit strap
5 Fastening and adjustment element

Figure 1: Examples of sit harnesses and elements

3.6 Load bearing parts

Those parts of the sit harness intended to transmit load; examples are: attachment elements, leg loops, waist belts.

3.7 Non load bearing parts

Those parts of the sit harness intended not to transmit load; examples are: shoulder straps, accessory parts and clothing.

4 Requirements

4.1 Ergonomics

The sit harness shall be designed and manufactured so:

- that in the foreseeable conditions of use for which it is intended, the user can perform the risk related activity normally whilst enjoying appropriate protection of the highest level,

- as to preclude risks and other nuisance factors under foreseeable conditions of use,
- as to facilitate correct positioning on the user and to remain in place for the foreseeable period of use, bearing in mind ambient factors, movements to be made and postures to be adopted. For this purpose, it shall be possible to optimize sit harness adaption to the user morphology by all appropriate means, such as adequate adjustment and attachment systems or the provision of an adequate size range,
- as to be as light as possible without prejudicing design strength and efficiency,
- as not to become incorrectly adjusted without the user's knowledge under the foreseeable conditions of use.

4.2 Design, materials and construction

4.2.1 Materials

4.2.1.1 Webbing and yarns shall be made of continuous filament or multifilament synthetic fibre appropriate to their intended use.

4.2.1.2 Thread used for sewing shall be physically compatible in its mechanical properties with the webbing. The shade of thread shall be such as to contrast with the shade of the webbing to facilitate visual inspection.

4.2.2 Attachment elements

4.2.2.1 The sit harness shall have at least one attachment element. This shall be located at the front of the sit harness and to the centre.

4.2.2.2 If a sit harness is fitted with additional side attachment elements it shall comply with this standard and EN 358.

4.2.2.3 If a sit harness is not an element of a full body harness and is fitted with shoulder straps, attachment elements shall not be positioned on these straps.

4.2.3 Load bearing parts

4.2.3.1 It shall be visually confirmed during the suspension test specified in 5.3 which parts are load bearing parts as defined in 3.6.

4.2.3.2 The width of support, where load bearing parts impact with the body shall be a minimum of 43 mm, except in those areas of the body where this requirement would contradict the ergonomic requirements of 4.1. Typically 150° of the leg loops are load bearing parts (see figure 2).

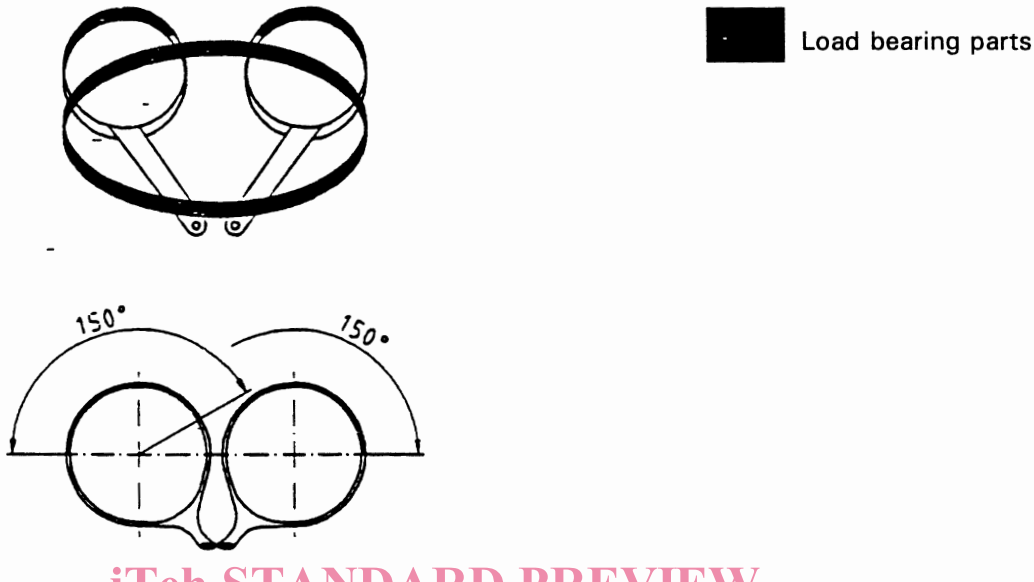


Figure 2: Example of a possible sit harness design with indicating the load bearing parts

4.2.4 Sit harness fastening and adjustment elements

4.2.4.1 Sit harness fastening and adjustment element shall be so designed and constructed that when correctly fastened any involuntary opening is prevented. If the sit harness fastening and adjustment element can be fastened or adjusted in more than one manner, each manner of fastening or adjustment shall comply with the performance requirements.

4.2.4.2 Buckles or other adjustment elements shall not slip more than 20 mm when tested as described in 5.2.

4.2.4.3 Metal parts shall be free from burrs which could cause injury.

4.2.4.4 Metal fittings shall comply with the corrosion protection requirements specified in 4.4 of EN 364:1992.

4.2.5 Visual inspection

It shall be possible to carry out a visual inspection of the sit harness including cases where it is incorporated into a garment.

4.2.6 Dynamic performance

When tested at each front attachment element, as described in 5.1 with a test dummy of 100 kg mass according to EN 364, the sit harness shall withstand one drop test with an adjusted free fall distance of 2000 mm (the test dummy feet first) without releasing the test dummy and no load bearing element shall become detached.

4.2.7 Static strength

When tested at each front attachment element as described in 5.2 with a force of 15 kN the dummy shall not be released from the sit harness and no load bearing element shall become detached.

5 Test methods

5.1 Dynamic performance tests

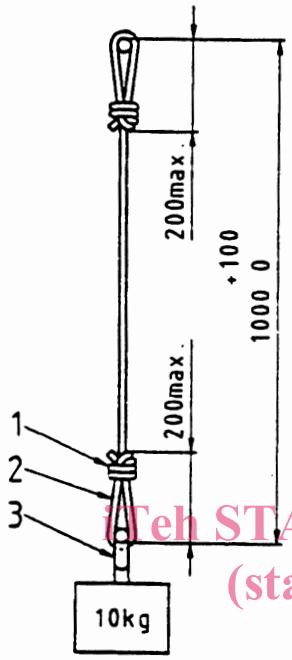
5.1.1 Apparatus

The dynamic performance test apparatus shall comply with 4.2, 4.4 and 4.6 of EN 364:1992.

5.1.2 Test method

5.1.2.1 Following the manufacturer's instructions, fit the test dummy with a sit harness and attach one end of a lanyard to the attachment element of the sit harness and the other end to the test apparatus. The lanyard shall be made from EN 892 approved single mountaineering rope of 11 mm nominal diameter with a length of (1000 $^{+100}_{0}$) mm and the length of the termination loops including the knot shall not exceed 200 mm when suspended in a (10 ± 0,5) kg mass as shown in figure 3.

Dimensions in millimetres



1 Knot
2 Termination loop
3 Attachment point

Figure 3: Lanyard for dynamic performance test

5.1.2.2 Suspend the test dummy by the upper attachment point and raise this to 1000 mm above the fixed anchorage point and at a maximum of 300 mm horizontally from the centre line. Hold it with a quick release device.

5.1.2.3 Release the test dummy without initial velocity and allow it to fall freely, the feet first fall being about 2000 mm before the lanyard takes up the tension. Observe whether the requirements of 4.2.6 are met.

5.1.2.4 Repeat the test procedures described above for each additional front attachment element of the sit harness. A new rope lanyard shall be used for each fall. A new sit harness may be used for each fall.

Dimensions in millimetres

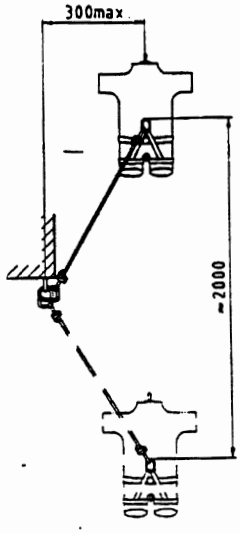


Figure 4: Dynamic performance tests

5.2 Static strength test

5.2.1 Apparatus

The static test apparatus shall comply with 4.1 and 4.2 of EN 364:1992.

5.2.2 Test method

5.2.2.1 Following the manufacturer's instructions, fit the sit harness to the test dummy.

5.2.2.2 Install the test dummy and sit harness in the test apparatus and while suspended mark the adjustment strap of any fastening and adjustment element in such a way that any slippage can be measured.

5.2.2.3 Apply a force as specified in 4.2.7, increasing gradually over a period of (2 ± 0,25) min between the attachment element of the sit harness and the lower ring of the test dummy (see figure 5).

5.2.2.4 Maintain the force for a period of 3 min.

5.2.2.5 Observe whether the requirements of 4.2.7 are met.

5.2.2.6 Measure and record any slippage of the adjustment strap(s) through the fastening and adjustment device and observe whether the requirements of 4.2.4.2 are met.

5.2.2.7 Repeat the test procedure for each front attachment element of the sit harness. A new sit harness may be used for each test.

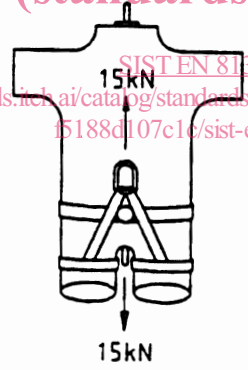


Figure 5: Static strength test of sit harness