



SLOVENSKI STANDARD
SIST EN 958:1998
01-september-1998

Gorniška oprema – Sistemi za absorpcijo energije za uporabo pri zahtevnem varovanem plezanju (via ferrata) – Varnostne zahteve in preskusne metode

Mountaineering equipment - Energy absorbing systems for use in klettersteig (via ferrata) climbing - Safety requirements and test methods

Bergsteigerausrüstung - Fangstoßdämpfer für die Verwendung auf Klettersteigen - Sicherheitstechnische Anforderungen und Prüfverfahren

Equipement d'alpinisme et d'escalade - Absorbeurs d'énergie utilisés en Via Ferrata - Exigences de sécurité et méthodes d'essai

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Ta slovenski standard je istoveten z: EN 958:1996

ICS:

97.220.40	Oprema za športe na prostem in vodne športe	Outdoor and water sports equipment
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EUROPEAN STANDARD

EN 958

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 1996

ICS 97.220.40

Descriptors: mountaineering, safety devices, accident prevention, protection against fall, shock absorbers, safety, specifications, performance tests, instructions, marking

English version

Mountaineering equipment - Energy absorbing systems for use in klettersteig (via ferrata) climbing - Safety requirements and test methods

Equipement d'alpinisme et d'escalade
Absorbeurs d'énergie utilisés en Via Ferrata -
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This European Standard was approved by CEN on 1996-06-20. 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 Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 136 "Sports, playground and other recreational 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 April 1997, and conflicting national standards shall be withdrawn at the latest by April 1997.

The text is based on UIAA-Standard N (Union Internationale des Associations d'Alpinisme), which has been prepared with international participation.

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

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 EU Directive(s).

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

Annexes A and ZA of this European Standard are informative.

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.

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1 Scope

This standard specifies safety requirements and test methods for energy absorbing systems for use in climbing on a klettersteig (via ferrata).

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 20139

Textiles – Standard atmospheres for conditioning and testing (ISO 139 : 1973)

ISO 6487

Road vehicles – Measurement techniques in impact tests – Instrumentation

3 Definitions

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

3.1 energy absorbing system: Device with two or more attachment points, used to reduce the impact force on the anchorage and on an attached climber during a fall.

3.2 braking length: Increase in the distance between the two attachment points measured at the end of the braking action.

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4 Safety requirements

4.1 Operation of the energy absorbing system

4.1.1 When tested in accordance with 5.4.1, the static force to initiate operation of the energy absorbing system shall be greater than 1,2 kN.

4.1.2 When tested in accordance with 5.4.2,

- the maximum impact force shall not exceed 6 kN, for longer than 0,2 s and shall not exceed 12 kN at any time;
- the maximum braking length shall not exceed 1 200 mm.

4.2 Strength of the energy absorbing system

When tested in accordance with 5.4.3, after being subjected to the test in accordance with 5.4.2, the energy absorbing system shall withstand a static force of 9 kN without breakage.

5 Test methods

5.1 Test sequence

The test sample shall be subjected to the tests in accordance with 5.4.1 to 5.4.3, in that order.

5.2 Conditioning and test conditions for energy absorbing systems with textile components

Condition the test samples in accordance with EN 20139. Tests may then be done outside the conditioning room, but the temperature shall be $(23 \pm 5) ^\circ\text{C}$ and the tests shall begin within 5 min of removal from conditioning room.

5.3 Apparatus

For the test in accordance with 5.4.2, the force measuring device and its associated recording equipment shall meet the following requirements in accordance with ISO 6487:

- a) the apparatus for measuring and recording the arresting impact force shall correspond with ISO 6487, channel frequency class (CFC) 30;
- b) the force transducer, in its operating position attached to the fixed point, shall not have a resonance frequency below 100 Hz;
- c) the channel amplitude class (CAC) shall be at least 20 kN;
- d) the error of the measurement of the arresting impact force (static calibration) shall be less than 1 %.

5.4 Procedure

5.4.1 Determination of the static force to initiate operation

Mount the test sample in a tensile testing machine, between the two attachment points indicated by the manufacturer.

Apply a progressively increasing force at an operating speed of 100 mm/min to 150 mm/min until the force exceeds 1,2 kN or continuous slippage occurs.

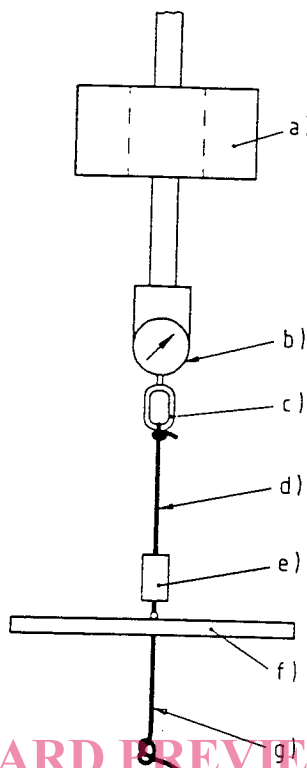
Record the maximum force.

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5.4.2 Determination of impact force and braking length

Before commencing this test, and without the test sample in position, check that the speed of the falling mass measured over a distance of $(100 \pm 0,1)$ mm in the range from 4,95 m to 5,05 m beneath the release point is $(9,9 \text{ } ^0_{-0,2})$ m/s.

Suspend the test sample from a fixed point by one of the two attachment points via a force measuring device, see example in figure 1.



- a) falling mass 80 kg (guided)
 b) force measuring device
 c) connector attached to first attachment point
 d) safety rope
 e) energy absorber system
 f) catch-plate attached to second attachment point
 g) braking rope

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Figure 1: Example of test configuration

Attach a catch-plate to the other attachment point. Measure and record the distance apart of the two attachment points of the energy absorbing system in the unloaded position.

Subject the test sample to the impact loading of a mass of $(80 \pm 0,1)$ kg falling a distance of $(5\ 000 \pm 20)$ mm. The mass shall fall under gravity, guided, onto the catch-plate of mass $(5 \pm 0,1)$ kg.

Record the force between the fixed point and the attachment point of the test sample throughout the test. Record the peak force corresponding to the impact. If the peak force exceeded 6 kN during the test, note the period of time for which this occurred.

After the falling mass has come to rest, measure the distance apart of the two attachment points of the energy absorbing system. Calculate and record the braking length.

5.4.3 Determination of static breaking force

Mount the test sample in the configuration arising at the end of the previous test between the two attachment points in a tensile testing machine.

Apply a progressively increasing force at an operating speed of (100 to 150) mm/min until the force exceeds 9 kN, or breakage occurs.

6 Information to be supplied

- a) the name or trademark of the manufacturer, importer or supplier;
- b) the number of this European Standard, i.e. EN 958;
- c) the meaning of any marks on the product;
- d) the correct use of the product;
- e) how to choose other components for use in the system;
- f) how to maintain/service the product, including a statement/drawing identifying which parts of the energy absorbing system, if any, should be readjusted or replaced after a fall or due to wear and tear;
- g) the lifespan of the product or how to assess it and which parts shall be checked and how to check for damage after a fall;
- h) the effects of chemical reagents and temperature on the product.

7 Marking

Energy absorbing systems shall be marked clearly, indelibly and durably with at least the following information:

- a) the name or trademark of the manufacturer, importer or supplier;
- b) the model name (if several models are marketed by the manufacturer).

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Annex A (informative)

Bibliography

Table A.1: List of standards on mountaineering equipment

No	Document	Title
1	EN 892	Mountaineering equipment – Dynamic mountaineering ropes – Safety requirements and test methods
2	prEN 12275	Mountaineering equipment – Connectors – Safety requirements and test methods
3	¹⁾	Mountaineering equipment – Ice-tools – Safety requirements and test methods (00136012)
4	prEN 12277	Mountaineering equipment – Harnesses – Safety requirements and test methods
5	prEN 12492	Mountaineering equipment – Safety helmets – Safety requirements and test methods
6	prEN 564	Mountaineering equipment – Accessory cord – Safety requirements and test methods
7	prEN 565	Mountaineering equipment – Tape – Safety requirements and test methods
8	prEN 566	Mountaineering equipment – Slings – Safety requirements and test methods
9	prEN 12276	Mountaineering equipment – Frictional anchors – Safety requirements and test methods
10	prEN 12270	Mountaineering equipment – Chocks – Safety requirements and test methods
11	prEN 567	Mountaineering equipment – Rope clamps – Safety requirements and test methods
12	EN 958	Mountaineering equipment – Energy absorbing systems for use in klettersteig (via ferrata) climbing – Safety requirements and test methods
13	EN 959	Mountaineering equipment – Rock anchors – Safety requirements and test methods
14	prEN 568	Mountaineering equipment – Ice anchors – Safety requirements and test methods
15	prEN 569	Mountaineering equipment – Pitons – Safety requirements and test methods
16	prEN 893	Mountaineering equipment – Crampons – Safety requirements and test methods
17	¹⁾	Mountaineering equipment – Descenders – Safety requirements and test methods (00136079)
18	prEN 12278	Mountaineering equipment – Pulleys – Safety requirements and test methods
¹⁾ In preparation		