



SLOVENSKI STANDARD
SIST EN 1651:2002
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Jadrarno padalstvo - Pasovi - Varnostne zahteve in trdnostni preskusi

Paragliding equipment - Harnesses - Safety requirements and strength tests

Ausrüstung für das Gleitschirmfliegen - Gurtzeuge - Sicherheitstechnische Anforderungen und Prüfung der Festigkeit

Équipement pour le parapente - Harnais pour parapente - Exigences de sécurité et essais de résistance

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Paragliding equipment - Harnesses - Safety requirements and strength tests

Équipement pour le parapente - Harnais pour parapente -
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Festigkeit

This European Standard was approved by CEN on 1 April 1999.

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.

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

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

Contents

	Page
Foreword	2
1 Scope	3
2 Normative references	3
3 Definitions	3
4 Safety requirements	3
5 Strength tests	5
6 Test report	11
7 Manufacturing record	11
8 User's manual	11
9 Marking	12

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 standard is one of a package of standards on equipment for paragliding as follows:

EN 926-1

Paragliding equipment – Paragliders – Part 1: Requirements and test methods for structural strength

prENV 926-2

Paragliding equipment – Paragliders – Part 2: Requirements and flight tests

EN 1651

Paragliding equipment – Harnesses – Safety requirements and strength tests

prEN 12491

Paragliding equipment – Emergency parachute – Safety requirements and test methods

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of an identical text or by endorsement, at the latest by March 2000, and conflicting national standards shall be withdrawn at the latest by March 2000.

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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This standard is applicable only to harnesses for paragliders.

The intermediate attachment system between the harness and the paraglider does not form part of this standard.

This standard specifies safety requirements and test methods.

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 926-1

Paragliding equipment – Paragliders – Part 1: Requirements and test methods for structural strength

prEN 12491

Paragliding equipment – Emergency parachute – Safety requirements and test methods

3 Definitions

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

3.1 paraglider: Ultralight glider with no primary rigid structure, for which take-off and landing are on foot, the pilot is installed in a harness connected to the wing; [EN 926-1]

3.2 harness: An assembly composed of straps and fabric for supporting the pilot in the seated or semi-recumbent or standing position.

NOTE: The harness is attached to the wing via two rings or connectors, it can also be integral with the wing via risers.

4 Safety requirements

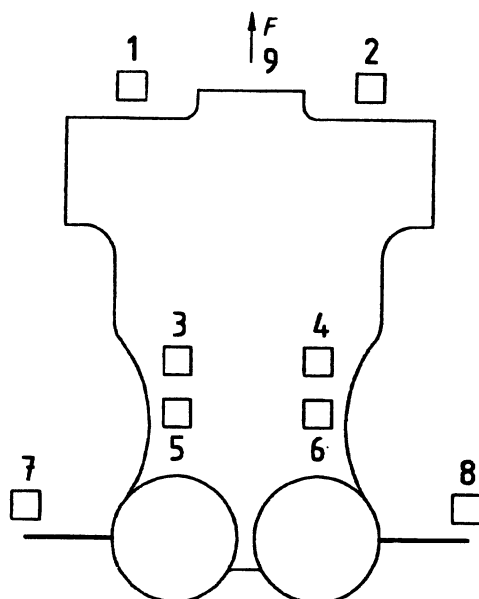
4.1 General

All free ends of the harness straps shall be finished with a folded hem making it impossible for the straps to pass through the adjustable buckles.

The harness shall be made in accordance with accepted practice for textile assemblies.

All attachment points provided on the harness (see figure 1) which are not to be used for attachment of the paraglider or emergency parachute shall be clearly marked in a contrasting colour to the main webbing.

The attachment points for the emergency parachute shall not be in a position lower than the attachment points of the paraglider and shall be positioned symmetrically on the harness.



- 1 harness attachment for emergency parachute (right)
- 2 harness attachment for emergency parachute (left)
- 3 harness attachment for paraglider riser(s) (right)
- 4 harness attachment for paraglider riser(s) (left)
- 5 harness attachment for tow release (right)
- 6 harness attachment for tow release (left)
- 7 dummy attachment to anchorage (right)
- 8 dummy attachment to anchorage (left)
- 9 dummy attachment point for F tension force applied to neck

Figure 1: Attachment points for the tests

NOTE: The numbering system for attachment points in this figure 1 is retained in all the following figures of this European Standard.

4.2 Strength requirements

4.2.1 When tested in accordance with 5.3.2.1 there shall be

- a) no rupture of any essential structural part;
- b) no rupture of the stitching of any essential structural part;
- c) no slipping of the adjustment points;
- d) no plastic deformation, and
- e) no rupture, slipping or deformation likely to result in the dummy falling out of the harness.

The rupture of the seat board is acceptable.

4.2.2 When tested in accordance with 5.3.2.2, there shall be

- a) no rupture of any essential structural part;
- b) no rupture of the stitching of any essential structural part;
- c) no rupture, slipping or deformation likely to result in the dummy falling out of the harness.

4.2.3 When tested in accordance with 5.3.2.3, there shall be

- a) no rupture of any essential structural part;
- b) no rupture of the stitching of any essential structural part;
- c) no slipping of the adjustment points;
- d) no plastic deformation;
- e) no rupture, slipping or deformation likely to result in the dummy falling out of the harness.

4.2.4 For harnesses with special emergency parachute attachment points, when tested in accordance with 5.3.2.4, there shall be

- a) no rupture of any essential structural part;
- b) no rupture of the stitching of any essential structural part;
- c) no rupture slipping or deformation likely to result in the dummy falling out of the harness.

4.2.5 For harnesses with tow attachment points, when tested in accordance with 5.3.2.5, there shall be

- a) no rupture of any essential structural part;
- b) no rupture of the stitching of any essential structural part;
- c) no slipping of the adjustment points;
- d) no rupture, slipping or deformation likely to result in the dummy falling out of the harness.

4.2.6 When tested in accordance with 5.3.2.6, there shall be

- a) no rupture of any essential structural part;
- b) no rupture of the stitching of any essential structural part;
- c) no rupture, slipping or deformation likely to result in the dummy falling out of the harness.

4.2.7 When tested in accordance with 5.3.2.7, there shall be

- a) no rupture of any essential structural part;
- b) no rupture of the stitching of any essential structural part;
- c) no rupture, slipping or deformation likely to result in the dummy falling out of the harness.

4.3 Emergency parachute

If the harness comprises all or parts of an emergency parachute, this equipment shall comply with prEN 12491.

5.2.2 A measuring system recording the loads as a function of time allowing graphical output.

5.2.3 A video camera for following in close-up the effects on the harness tested.

5.3 Procedure

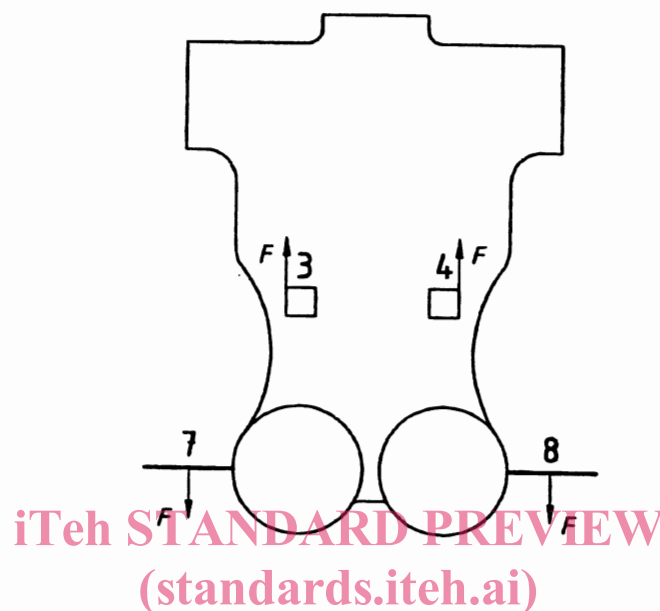
5.3.1 General

All the tests shall be filmed on video¹⁾ After the testing, a panel composed of three experts, independent of the manufacturer concerned, has the task of examining a copy of the film and of the test report. They decide whether or not to ratify the results, the chief examiner recorded during the tests.

5.3.2 Test

5.3.2.1 First test

With the dummy seated and strapped correctly in the harness anchor it by two points (see 7 and 8 in figure 3) and apply a force of 6 000 N symmetrically for 10 s to the two paraglider riser attachment points (see 3 and 4 in figure 3).



3 harness attachment for paraglider riser(s) (right)

4 harness attachment for paraglider riser(s) (left)

7 dummy attachment to anchorage (right)

8 dummy attachment to anchorage (left)

Figure 3: First and second test

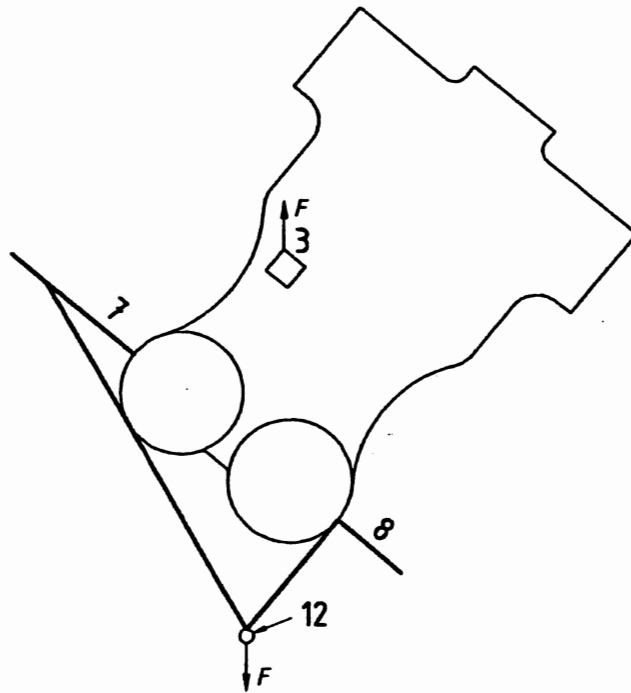
5.3.2.2 Second test

With the dummy seated and strapped correctly in the harness anchor it by two points (see 7 and 8 in figure 3) and apply a force of 15 000 N symmetrically for 5 s to the two paraglider riser attachment points (see 3 and 4 in figure 3).

¹⁾ The video films are shot in such a way as to show up any ruptures or incipient ruptures.

5.3.2.3 Third test

With the dummy seated and strapped correctly in the harness anchor it to a free running connection between points 7 and 8 and apply a force of 6 000 N for 10 s to one of the paraglider riser attachment points (see figure 4).



- 3 harness attachment for paraglider (riser(s)) (right)
- 7 dummy attachment to anchorage (right)
- 8 dummy attachment to anchorage (left)
- 12 gliding connection

Figure 4: Third test

5.3.2.4 Fourth test

With the dummy seated and strapped correctly in the harness anchor it by two points (see 7 and 8 in figure 5) and apply a force of 15 000 N symmetrically for 5 s to the two emergency parachute attachment points (see 1 and 2 in figure 5).

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