SLOVENSKI STANDARD
SIST ENV 926-2:2002

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Jadralno padalstvo - Jadralna padala - 2. del: Zahteve in preskusi letenja

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

Ausrüstung für Gleitschirme - Gleitschirme - Teil 2: Anforderungen und Flugprüfungen

Equipement pour le parapente - Parapentes - Partie 2: Prescriptions et essais en vol

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The period of validity of this ENV is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the ENV can be converted into a European Standard.

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

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Foreword

This European Prestandard has been prepared by Technical Committee CEN/TC 136 "Sports, playground and other recreational equipment", the secretariat of which is held by DIN.

EN 926-1 deals with the structural strength test of a paraglider under static and dynamic loads.

ENV 926-2 deals with the flight test for the qualification of a paraglider.

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

Introduction

EN 926-1 and ENV 926-2 are intended to provide a method of qualifying paragliders.

The aim of these standards is to enhance safety, thus eliminating paragliders which display unacceptable behaviour in given situations, on the basis of recognized tests set in these two standards.

1 Scope

This European Standard is applicable to paragliders of the classes "standard, performance, competition and two-seater", see table 1.

This part of EN 926 specifies a flight test method for paragliders permitting objective assessment of their behaviour.

2 Definitions

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

2.1 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]

2.2 harness: An assembly composed of straps and fabric for supporting the pilot in the seated or semirecumbent or standing position; [prEN 1651]

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

2.3 spontaneous recovery to flight: With no intervention by the pilot

2.4 pilotable flight: A flight condition in which, even if the paraglider remains partially tucked within the limit of 40 % of the wing span, the pilot shall be able to execute a 180° turn in any direction without worsening the situation.

2.5 normal flight: A flight condition in which the paraglider is fully inflated and is following a trajectory close to straight flight without any action on the part of the pilot.

2.6 controls: Primary steering and speed controls which are designated as such by the manufacturer.

2.7 action of the pilot: Any transfer of weight, action on the controls or on accessories.

2.8 trimmer: A lockable pitch adjustment system, i. e. action by the pilot is required to return it to the initial position.

2.9 accelerator: A pitch adjustment system operated by the feet (generally) and which automatically returns to the initial position when the action of the pilot stops.

NOTE: If deceleration accessories (trimmers) are fitted to a wing intended for the standard and two-seater categories, all the procedures shall be carried out in each of the extreme ("fastest" and "slowest") positions.

3 Requirements

3.1 Classification

Paragliders shall be classified according to the different performance levels as laid down in table 1.

Table 1: Classification of paragliders

Class	Description (Tested flight characteristics)	Pilot (Skill level required)
Standard	The glider shall be very stable, with high resistance to tucks and departures. It shall recover quickly from departures with no pilot input. The handling shall be easy and predictable.	For the inexperienced pilot, or for pilots looking for relaxed flying.
Performance	The glider shall be generally stable with good resistance to tucks and departures. It shall recover easily from departures from normal flight, though this may require pilot input. The handling shall be predictable.	For the experienced pilot (25 h at least), who flies regularly, and who is familiar with normal methods for avoiding and recovering from departures from normal flight. (This pilot would normally hold his national association's "Pilot certificate")
Competition	The glider shall have some inherent stability, though this may be minimal. The glider shall also have some resistance to tucks and departures, though this can be minimal. Recovery from departures from normal flight shall be possible, though this can require skilled accurate pilot input and can take time. The handling can be demanding.	For the very experienced (100 h at least) advanced pilot, who flies almost every day. This pilot will need highly developed skills at avoiding and recovering from all departures from normal flight.
Two-seater	The glider shall be generally stable, with good resistance to tucks and departures. It shall recover quickly from departures from normal flight, though this can sometimes require pilot input. The handling shall be easy and predictable.	For the experienced pilot who is trained to take passengers.

3.2 Flight characteristics

3.2.1 Inflation/take-off

When tested in accordance with 4.5.2.1, it shall be possible for the pilot to inflate/take off by following the instructions in the user's manual.

3.2.2 Landing

When tested in accordance with 4.5.2.2, it shall be possible for the pilot to land normally (on his feet) without any special procedures.

3.2.3 Speed range (with controls only)

The paraglider shall have an adequate speed range.

When tested in accordance with 4.5.2.3, the classes shall fulfill the following:

Standard: the difference between the maximum speed and minimum speed shall not be less than 10 km/h;

Performance: the difference between the maximum speed and minimum speed with the trimmers set to slowest position shall not be less than 10 km/h;

Competition: no speed range imposed, but it is recorded;

Two-seater: the difference between the maximum speed and minimum speed shall not be less than 12 km/h.

3.2.4 Behaviour linked with use of accessories (without using controls)

It shall be ensured that the accessories cannot cause departures from the flight envelope (tucks at high speed, "deep" stall at low speed).

When tested in accordance with 4.5.2.4 no departure from normal flight is acceptable. The overall speed range shall be calculated and recorded.

3.2.5 Pitch stability (without using accelerator) of classes standard and performance

The paraglider shall be stable in the pitch axis.

When tested in accordance with 4.5.2.5, the classes shall fulfill the following:

standard: no dive forwards more than 45°, tucks accepted, but no change of direction;

performance: no dive forwards more than 90° (horizon), tucks accepted, no change of direction greater than 90°; spontaneous recovery to "pilotable" flight.

3.2.6 Recovery from "deep" stall (using controls)

The wing shall be able to recover flight on recovery from deep stall.

When tested in accordance with 4.5.2.6, the classes shall fulfil the following:

Standard: spontaneous recovery in less than 4 s and with a dive forwards of less than 45°, no change of direction of more than 90° on either side of the initial flight axis.

Performance: spontaneous recovery in less than 4 s and with a dive forwards of less than 90° (horizon). No change of direction greater than 180° on either side of the initial flight axis.

Competition: spontaneous recovery, with a dive forwards of less than 90° (horizon). No change of direction greater than 180° on either side of the initial flight axis. If the "deep" stall stage is stable, after 4 s, the pilot intervenes in accordance with the instructions in the user's manual and shall recover to "pilotable" flight in the following 4 s without causing a cascade of incidents.

Two-seater: spontaneous recovery in less than 4 s and with a dive forwards of less than 90° (horizon). No change of direction greater than 90° on either side of the initial flight axis.

3.2.7 Recovery from "deep" stall using "B" risers slow release for classes standard and performance

The wing shall be able to recover to normal flight on recovery from deep stall. To verify the possibility of using this rapid descent method safely (if it is recommended in the user's manual) and to verify the pitch stability.

When tested in accordance with 4.5.2.7, the classes shall fulfill the following:

Standard: no dive forward of more than 45°, tucks accepted. No change of direction greater than 90° on either side of the initial flight axis and spontaneous recovery to "normal" flight.

Performance: no dive foreward of more than 90°, recovery to "pilotable" flight in the 4 s following intervention by the pilot, if necessary, without causing any cascade of incidents.

3.2.8 Recovery from deep stall using "B" risers fast release

The wing shall be able to recover to normal flight from deep stall or from the rapid descent method recommended in the user's manual. The safety of this method and the pitch stability shall be verified by using a fast release of the risers.

When tested in accordance with 4.5.2.8, the classes shall fulfill the following:

Standard: no dive forwards of more than 45°, tuck accepted if no change of direction, and spontaneous return to pilotable flight.

Performance: no dive forwards of more than 90° and return to "pilotable" flight in the 4 s after the start of the intervention by the pilot without causing a cascade of incidents.

Competition: no dive forwards of more than 90° and return to "pilotable" flight in the 4 s after the start of the intervention by the pilot.

Two-seater: the procedure is carried out in accordance with the instructions in the user's manual; if this forbids the procedure, it is not tested. Return to "pilotable" flight in the 4 s after the start of the intervention by the pilot.

3.2.9 Turning ability

The wing shall have good turning ability.

When tested in accordance with 4.5.2.9, the classes shall fulfill the following:

Standard: turn effected without transfer of weight. Total time for the manoeuvre not to exceed 18 s (the time is measured when face-on to the camera).

Performance: turn effected with transfer of weight (if necessary). Total time for the manoeuvre not to exceed 20 s (the time is measured when face-on to the camera).

Competition: turn effected with transfer of weight (if necessary). Total time for the manoeuvre not to exceed 23 s (the time is measured when face-on to the camera).

Two-seater: turn effected with transfer of weight (if necessary). Total time for the manoeuvre not to exceed 23 s (the time is measured when face-on to the camera).

3.2.10 Manoeuverability

It shall be possible to make a rapid turn in order to avoid a collision without departing from normal or pilotable flight.

When tested in accordance with 4.5.2.10, the classes shall fulfill the following:

Standard: no departure from normal flight.

Performance: the paraglider shall not depart from pilotable flight. Transfer of weight is permitted if indicated in the user's manual.

Competition: the paraglider shall not depart from pilotable flight or if it is the case it shall return spontaneously to "pilotable" flight at the end of the manoeuvre.

Two-seater: the paraglider shall not depart from normal flight. Transfer of weight is permitted if indicated in the user's manual.

3.2.11 Wing over – turn reversals

The paraglider shall show a high resistance to wing tip deflections/tucks during rhythmic reversals of increasing amplitudes of bank.

When tested in accordance with 4.5.2.11, the classes shall fulfill the following:

Standard: no tucks or departure from normal flight.

Performance: tucks permitted, return to normal flight in less than 90° of turn.

Competition: tucks permitted, spontaneous return to pilotable flight in less than 90° of turn.

Two-seater: no tucks or departure from normal flight.

3.2.12 Recovery from an asymmetric tuck

When tested in accordance with 4.5.2.12, the classes shall fulfill the following:

Standard: recovery to pilotable flight in less than 4 s and with a change of direction of less than 180°.

Performance: recovery to pilotable flight in less than 4 s and with a change of direction of less than 360°.

Competition: if the recovery to pilotable flight has not been attained after a 360° rotation, the pilot acts in accordance with the instructions in the user's manual and the wing shall return to pilotable flight in less than 360° and 4 s without causing a cascade of incidents.

Two-seater: recovery to pilotable flight in less than 4 s and with a change of direction of less than 360°.

3.2.13 Recovery from a maintained asymmetric tuck

When tested in accordance with 4.5.2.13, the classes shall fulfill the following:

Standard: spontaneous recovery to pilotable flight in less than 360°.

Performance: if the recovery to pilotable flight has not been attained after a 360° rotation or 4 s, the pilot intervenes in accordance with the instructions in the user's manual and the wing shall return to pilotable flight in less than 90° and 4 s after the beginning of the pilot intervention.

Competition: if the recovery to pilotable flight has not been attained after a 360° rotation, the pilot intervenes in accordance with the instructions in the use's manual and the wing shall return to pilotable flight in less than 360° and 4 s.

Two-seater: spontaneous return to pilotable flight in less than 2×360°.

3.2.14 Recovery from a spin for classes standard, performance and two-seater

When tested in accordance with 4.5.2.14, the classes shall fulfill the following:

Standard: the paraglider shall spontaneously recover to pilotable flight and can continue a rotation of less than 360° in the same direction as the spin.

Performance: the paraglider can continue in the spin for a maximum of 360° before spontaneous recovery to pilotable flight in less than 90°.

Two-seater: the paraglider shall spontaneously recover to pilotable flight and can continue a rotation of less than 2×360° in the same direction as the spin.

3.2.15 Recovery from an asymmetric stall for classes standard, performance and two-seater

When tested in accordance with 4.5.2.15, the classes shall fulfill the following:

Standard: spontaneous recovery to normal flight with no change in direction greater than 90° on either side of the initial flight axis.

Performance: if the recovery to pilotable flight has not been attained after one 180° rotation, the pilot intervenes in accordance with the instructions in the user's manual and shall recover to normal flight in at least 90° on either side of the axis at the moment of intervention.

Two-seater: if the recovery to "normal" or pilotable flight has not been attained after one 180° rotation, the pilot intervenes in accordance with the instructions in the user's manual and shall recover to normal flight in at least 90° on either side of the axis at the moment of intervention.

3.2.16 Recovery from a symmetric tuck for classes standard and performance

When tested in accordance with 4.5.2.16, the classes shall fulfill the following:

Standard: spontaneous recovery to pilotable flight within 4 s and the wing shall not dive forwards more than 45°.

Performance: if the recovery to pilotable flight has not been attained within 4 s, the pilot intervenes in accordance with the instructions in the user's manual; he shall recover to "normal" or pilotable flight within 4 s with a change in direction of less than 45° on either side of the axis of the beginning of the intervention and with a dive forwards of less than 90°.