



SLOVENSKI STANDARD

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Paragliding equipment - Paragliders - Part 2: Requirements and test methods for
classifying flight safety characteristics

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Ausrüstung für das Gleitschirmfliegen - Gleitschirme - Teil 2: Anforderungen und
Prüfverfahren zur Klassifizierung der sicherheitsrelevanten Flugeigenschaften

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Equipement pour le parapente - Parapentes - Partie 2: Exigences et procédures de test
pour classification des caractéristiques de sécurité en vol

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English version

Paragliding equipment - Paragliders - Part 2: Requirements and test methods for classifying flight safety characteristics

Équipement pour le parapente - Parapentes - Partie 2:
Exigences et procédures de test pour classification des
caractéristiques de sécurité en vol

Ausrüstung für das Gleitschirmfliegen - Gleitschirme - Teil
2: Anforderungen und Prüfverfahren zur Klassifizierung der
sicherheitsrelevanten Flugeigenschaften

This European Standard was approved by CEN on 3 February 2005.

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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 Central Secretariat has the same status as the official versions.

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Contents

Page

Foreword.....	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Requirements	6
4.1 Paraglider classes	6
4.2 Classification of flight characteristics	7
4.3 Failure	7
4.4 Flight characteristics	7
4.4.1 Inflation/take-off	7
4.4.2 Landing	8
4.4.3 Speeds in straight flight	9
4.4.4 Control movement	9
4.4.5 Pitch stability exiting accelerated flight	10
4.4.6 Pitch stability operating controls during accelerated flight.....	11
4.4.7 Roll stability and damping	12
4.4.8 Stability in gentle spirals	12
4.4.9 Behaviour in a steeply banked turn	13
4.4.10 Symmetric front collapse	13
4.4.11 Exiting deep stall (parachutal stall)	15
4.4.12 High angle of attack recovery	17
4.4.13 Recovery from a developed full stall	17
4.4.14 Asymmetric collapse	19
4.4.15 Directional control with a maintained asymmetric collapse	21
4.4.16 Trim speed spin tendency	21
4.4.17 Low speed spin tendency	22
4.4.18 Recovery from a developed spin	22
4.4.19 B-line stall	23
4.4.20 Big ears	24
4.4.21 Big ears in accelerated flight	26
4.4.22 Behaviour exiting a steep spiral.....	27
4.4.23 Alternative means of directional control	28
4.4.24 Any other flight procedure and/or configuration described in the user's manual	28
5 Flight tests	29
5.1 General.....	29
5.2 Apparatus	30
5.2.1 Test pilot equipment.....	30
5.2.2 Ground equipment.....	30
5.3 Test specimen	30
5.3.1 Selection	30
5.3.2 Marking	30
5.3.3 Folding lines.....	31
5.4 Test conditions	31
5.5 Procedure	31
5.5.1 General.....	31
5.5.2 Trimmers.....	32
5.5.3 Other adjustable or removable devices	32
5.5.4 Video documentation	32
5.5.5 Radio documentation	32
5.5.6 Harness dimensions.....	32
5.5.7 Ballast	33
5.5.8 Sitting position.....	33
5.5.9 Controls in hand	33
5.5.10 Wraps	33

5.5.11	Maximum travel of the accelerator	33
5.5.12	Timing when starting test measurements	33
5.5.13	Timing when exiting stalled flight conditions	33
5.5.14	Exiting developed spin rotation	33
5.5.15	Pitch angles	33
5.5.16	Keep course	34
5.5.17	Twist.....	34
5.5.18	Collapse on the opposite side	34
5.5.19	Details of test manoeuvres to be carried out	34
6	Test report.....	40
7	User's manual	41
8	Manufacturing record.....	43
9	Marking	44
Annex A (normative) Measuring suspension line lengths		45
Bibliography.....		46

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Foreword

This document (EN 926-2:2005) 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 September 2005, and conflicting national standards shall be withdrawn at the latest by September 2005.

This document supersedes ENV 926-2:1999.

This document is one of a series of standards on equipment for paragliding as follows:

EN 926-1, *Paragliding equipment — Paragliders — Part 1: Requirements and test methods for structural strength.*

EN 926-2, *Paragliding equipment — Paragliders — Part 2: Requirements and test methods for classifying flight safety characteristics.*

EN 1651, *Paragliding equipment — Harnesses — Safety requirements and strength tests.*

EN 12491, *Paragliding equipment — Emergency parachutes — Safety requirements and test methods.*

This document includes a Bibliography.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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1 Scope

This document specifies requirements and test methods for classifying the flight safety characteristics of paragliders in terms of the demands on pilot flying skills.

This document is intended for the use of independent testing laboratories qualified for flight testing paragliders.

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 926-1, *Paragliding equipment — Paragliders — Part 1: Requirements and test methods for structural strength*

EN 966, *Helmets for airborne sports*

EN 12491, *Paragliding equipment — Emergency parachutes — Safety requirements and test methods*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

paraglider

ultralight glider with no primary rigid structure, for which take-off and landing are on foot, with the pilot (and potentially one passenger) carried in a harness (or harnesses) connected to the wing

3.2

harness

assembly composed of straps and fabric for supporting the pilot in the seated or semi-recumbent or standing position

[EN 1651:1999]

NOTE The harness is attached to the wing via two connectors; it can also be integral with the wing via risers.

3.3

emergency parachute

emergency device intended to slow the descent of a paraglider pilot in the event of an incident in flight, which is deployed by the pilot by an intentional manual action. This may be unsteered or steerable

[EN 12491:2001]

3.4

controls

primary steering and speed controls which are designated as such by the manufacturer

3.5

trimmer

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

**3.6
accelerator**
secondary pitch control mechanism operated by the feet (generally), which automatically returns to the initial position when the action of the pilot stops

**3.7
action of the pilot**
any transfer of weight, action on the controls, the accelerator or on the trimmer

**3.8
normal flight**
flight condition in which the paraglider is fully inflated and is following a trajectory close to straight flight (at a speed close to trim speed) without any action on the part of the pilot. A small number of cells may still be collapsed

**3.9
spontaneous recovery**
without any action on the part of the pilot, the paraglider returns to normal flight

**3.10
front collapse**
front collapse is considered to have occurred when the top surface is visible from the underside of the paraglider. Deformation of the leading edge is not considered to be a front collapse

**3.11
cascade**
transition from one involuntary abnormal flight condition to another involuntary abnormal flight condition

**3.12
minimum speed**
slowest airspeed maintainable without entering a deep stall or full stall

**3.13
trim speed**
airspeed of the paraglider in straight flight without activating the controls or the accelerator

**3.14
maximum speed**
airspeed of the paraglider in straight flight with the controls in the zero position and the accelerator fully activated. Maximum speed is only used when referring to gliders equipped with an accelerator

**3.15
low speed**
airspeed of the paraglider in straight flight with the controls at 50 % of travel between the zero and the symmetric stall position (i.e. 50 % of the symmetric control travel)

**3.16
weight in flight**
total weight (mass) of the pilot and his entire paragliding equipment (including the glider) ready to fly; for the purposes of this document masses are indicated in kg, rounded to the nearest integer value. The term weight may be used instead of mass

4 Requirements

4.1 Paraglider classes

The class of a paraglider is determined according to 4.2.

The class is intended to give pilots a guideline whether a paraglider is suitable for their levels of skills (see Table 1).

Table 1 — Description of the paraglider classes

Class	Description of flight characteristics	Description of pilot skills required
A	Paragliders with maximum passive safety and extremely forgiving flying characteristics. Gliders with good resistance to departures from normal flight.	Designed for all pilots including pilots under all levels of training.
B	Paragliders with good passive safety and forgiving flying characteristics. Gliders with some resistance to departures from normal flight.	Designed for all pilots including pilots under all levels of training.
C	Paragliders with moderate passive safety and with potentially dynamic reactions to turbulence and pilot errors. Recovery to normal flight may require precise pilot input.	Designed for pilots familiar with recovery techniques, who fly "actively" and regularly, and understand the implications of flying a glider with reduced passive safety.
D	Paragliders with demanding flying characteristics and potentially violent reactions to turbulence and pilot errors. Recovery to normal flight requires precise pilot input.	Designed for pilots well practised in recovery techniques, who fly very actively, have significant experience of flying in turbulent conditions, and who accept the implications of flying such a wing.

4.2 Classification of flight characteristics

When testing in accordance with the procedures 5.5.19.1 to 5.5.19.24, various aspects of the paraglider's behaviour are measured. These measurements are classified according to 4.4.1 to 4.4.24.

The class of a paraglider according to this document is determined by the highest classification obtained (i.e. by the highest level of pilot skill required, see Table 1).

4.3 Failure

The glider has failed the test procedure if either:

- a) as a consequence of tests 5.5.19.1 to 5.5.19.24 any failure of any part or component occurs;
- b) the results of any of the tests 5.5.19.1 to 5.5.19.24 are not classified A, B, C or D.

NOTE In the classification tables in 4.4.1 to 4.4.24 the letter "F" (failed) is used to identify unacceptable behaviour.

4.4 Flight characteristics

4.4.1 Inflation/take-off

When tested in accordance with 5.5.19.1 it is found out how difficult it is to take-off with this glider (including checking for undesirable tendencies).

The behaviour of the paraglider is measured according to Table 2 and classified according to Table 3.

Table 2 — Measurements and possible ranges in the inflation/take-off test

Measurement	Ranges
Rising behaviour	Smooth, easy and constant rising
	Overshoots, shall be slowed down to avoid a front collapse
	Hangs back
Special take off technique required	No
	Yes

Table 3 — Classification of a paraglider's behaviour in the inflation/take-off test

Measurement and ranges (according to Table 2)	Classification
Rising behaviour	
Smooth, easy and constant rising	A
Overshoots, shall be slowed down to avoid a front collapse	C
Hangs back	D
Special take off technique required	
No	A
Yes	C

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4.4.2 Landing

When tested in accordance with 5.5.19.2 it is found out how difficult it is to flare and land this glider (including checking for undesirable tendencies).

The behaviour of the paraglider is measured according to Table 4 and classified according to Table 5.

Table 4 — Measurements and possible ranges in the landing test

Measurement	Ranges
Special landing technique required	No
	Yes

Table 5 — Classification of a paraglider's behaviour in the landing test

Measurement and ranges (according to Table 4)	Classification
Special landing technique required	
No	A
Yes	D

4.4.3 Speeds in straight flight

When tested in accordance with 5.5.19.3 it is made sure that the paraglider is not too slow (hands up) and an adequate speed range is achievable using the controls only (not activating the accelerator).

The behaviour of the paraglider is measured according to Table 6 and classified according to Table 7.

(The speeds recorded in this test are not to be published.)

Table 6 — Measurements and possible ranges in the speeds in straight flight test

Measurement	Ranges
Trim speed more than 30 km/h	Yes
	No
Speed range using the controls larger than 10 km/h	Yes
	No
Minimum speed	Less than 25 km/h
	25 km/h to 30 km/h
	Greater than 30 km/h

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Table 7 — Classification of a paraglider's behaviour in the speeds in straight flight test

Measurement and ranges (according to Table 6)	Classification
Trim speed more than 30 km/h	Yes
	No
Speed range using the controls larger than 10 km/h	Yes
	No
Minimum speed	Less than 25 km/h
	25 km/h to 30 km/h
	Greater than 30 km/h

4.4.4 Control movement

The paraglider shall have acceptable control force and control travel.

When tested in accordance with 5.5.19.4 the glider's control force and control travel are measured according to Table 8 and classified according to Table 9.

Table 8 — Measurements and possible ranges in the control movement test

Measurement	Ranges		
Symmetric control pressure	Increasing		
	Approximately constant		
	Decreasing		
Symmetric control travel	Ranges, max. weight in flight up to 80 kg	Ranges, max. weight in flight 80 to 100 kg	Ranges, max. weight in flight greater than 100 kg
	Greater than 55 cm	Greater than 60 cm	Greater than 65 cm
	40 cm to 55 cm	45 cm to 60 cm	50 cm to 65 cm
	35 cm to 40 cm	35 cm to 45 cm	35 cm to 50 cm
	Less than 35 cm	Less than 35 cm	Less than 35 cm

Table 9 — Classification of a paraglider's behaviour in the control movement test

Measurement and ranges (according to Table 8)				Classification
Symmetric control pressure	Symmetric control travel			
	Max. weight in flight up to 80 kg	Max. weight in flight 80 kg to 100 kg	Max. weight in flight greater than 100 kg	
Increasing	Greater than 55 cm	Greater than 60 cm	Greater than 65 cm	A
Increasing	40 cm to 55 cm	45 cm to 60 cm	50 cm to 65 cm	C
Increasing	35 cm to 40 cm	35 cm to 45 cm	35 cm to 50 cm	D
Increasing	Less than 35 cm	Less than 35 cm	Less than 35 cm	F
Approximately constant	Greater than 55 cm	Greater than 60 cm	Greater than 65 cm	B
Approximately constant	40 cm to 55 cm	45 cm to 60 cm	50 cm to 65 cm	C
Approximately constant	35 cm to 40 cm	35 cm to 45 cm	35 cm to 50 cm	F
Approximately constant	Less than 35 cm	Less than 35 cm	Less than 35 cm	F
Decreasing	Greater than 55 cm	Greater than 60 cm	Greater than 65 cm	F
Decreasing	40 cm to 55 cm	45 cm to 60 cm	50 cm to 65 cm	F
Decreasing	35 cm to 40 cm	35 cm to 45 cm	35 cm to 50 cm	F
Decreasing	Less than 35 cm	Less than 35 cm	Less than 35 cm	F

4.4.5 Pitch stability exiting accelerated flight

This test is only required for paragliders equipped with an accelerator.

When tested in accordance with 5.5.19.5 it is checked that the paraglider returns to normal flight when the accelerator is quickly released.

The behaviour of the paraglider is measured according to Table 10 and classified according to Table 11.

Table 10 — Measurements and possible ranges in the pitch stability exiting accelerated flight test

Measurement	Ranges
Dive forward angle on exit	Dive forward less than 30°
	Dive forward 30° to 60°
	Dive forward more than 60°
Collapse occurs	Yes
	No

Table 11 — Classification of a paraglider's behaviour in the pitch stability exiting accelerated flight test

Measurement and ranges (according to Table 10)	Classification
Dive forward angle on exit	
Dive forward less than 30°	A
Dive forward 30° to 60°	C
Dive forward more than 60°	F
Collapse occurs	
No	A
Yes	F

4.4.6 Pitch stability operating controls during accelerated flight

This test is only required for paragliders equipped with an accelerator.

When tested in accordance with 5.5.19.6 the behaviour of the paraglider after activating the controls in accelerated flight is checked.

The behaviour of the paraglider is measured according to Table 12 and classified according to Table 13.

Table 12 — Measurements and possible ranges in the pitch stability operating controls during accelerated flight test

Measurement	Ranges
Collapse occurs	No
	Yes

Table 13 — Classification of a paraglider's behaviour in the pitch stability operating controls during accelerated flight test

Measurement and ranges (according to Table 12)	Classification
Collapse occurs	
No	A
Yes	F