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

EN 926-2 SUMMARY

WARNING: EN 926-2 is the definitive document. This simplified summary is for guidance only and must not be used for any other purpose.

Introduction

EN 926-2 describes methods for classifying the flight safety characteristics of paragliders in terms of the demands on pilot flying skills.

This summary of that standard concentrates on presenting the flight tests and requirements in a simplified format. EN 926-2 should be referred to for all supporting details.

Classification

In each test precise criteria allow the behaviour of the paraglider to be classified A, B, C, D or F.

The highest classification (ie furthest from A) obtained by the paraglider in any test is the final overall classification given.

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.

1 Flight tests

1.1 General

The behaviour of the paraglider in the programme of test manoeuvres is demonstrated by a manufacturer's pilot. If this demonstration is judged satisfactory by the test laboratory pilot, the test procedure is then carried out.

1.2 Apparatus

See 926-2 for details.

1.3 Test specimen

1.3.1 Selection

The test specimen must be complete with the user's manual in a language acceptable to the testing laboratory, ready to fly and conform in all points to the production model.

1.3.2 Conditioning

Before the flight tests begin the test specimen must first complete a sustained load test procedure (see EN 926-1, point 4.5.2) either:

a) the loads exceeds eight times the maximum total weight in flight recommended by the manufacturer, for a minimum continuous duration of 3 seconds, or with

b) five peaks obtained above five times the maximum total weight in flight recommended by the manufacturer, in one run.

1.3.3 Marking

The test specimen supplied by the manufacturer shall be clearly marked in the following way:

— markings are required on the lower surface of the canopy at 25 %, 50 % and 75 % span, starting at the leading edge, and at 50 % span, starting at the trailing edge. These positions are percentages of the flat (i.e. non-inflated) span, and are determined with the paraglider laid flat.

— markings are required on the control lines to show zero and the symmetric stall positions.

NOTE To mark zero and symmetric stall positions, it is recommended that manufacturers attach an additional reference line to each side of the paraglider, running from the B-riser to the seat of the harness, and incorporating elastic to maintain tension. Each reference line should be fitted with 2 adjustable toggles (e.g. tonkas™).

When moving the controls to a position to be marked, the pilot moves both the controls and the appropriate tonkas down. When releasing the controls again, he lets go of the tonkas (refer to the procedure in 5.5.19.4).

If the position of any of these marks obtained at the minimum weight in flight differs noticeably from the position obtained at the maximum weight in flight, the manufacturer is required to provide the test specimen with a second pair of identical control lines or reference lines, one marked for the minimum, the other one for the maximum weight in flight.

— a streamer 1 m long and 5 cm wide on one riser to help visualise the trajectory

1.4 Procedure

1.4.1 General

Two different test pilots of the testing laboratory each carry out one complete programme of the test manoeuvres, one at the minimum weight in flight declared by the manufacturer, the other one at the maximum weight in flight declared by the manufacturer.

The maximum weight in flight declared by the manufacturer shall not exceed the maximum weight in flight up to which the paraglider is in compliance with EN 926-1.

In the exceptional case that the minimum weight in flight declared by the manufacturer is less than 65 kg and the testing laboratory cannot provide a light enough test pilot, then the test programme at the minimum weight in flight is replaced by a test programme flown at the lowest weight in flight which is achievable. The manufacturer is then additionally required to demonstrate a test programme at the declared minimum weight in flight. This demonstration programme must be witnessed by a test pilot of the testing laboratory and recorded on video.

Any test weight in flight up to 125 kg must be achieved using 1 pilot.

If any test weight in flight exceeds 125 kg, this weight can be achieved using 1 or 2 pilots.

If any test weight in flight exceeds 155 kg, this weight must be achieved using 2 pilots.

All weights are subject to an acceptable tolerance of ± 2 kg.

All speeds are subject to an acceptable tolerance of ± 2 km/h.

If a test manoeuvre has not been performed in precise accordance with its procedure, the manoeuvre is repeated. (This may be due to an error of the test pilot or due to meteorological influences.)

1.4.2 Trimmers

If trimmers are fitted to a paraglider, then the complete test programme is repeated with the trimmers set both to the slowest and to the fastest position.

1.4.3 Other adjustable or removable devices

If the paraglider is equipped with other adjustable or removable devices which are not covered explicitly in this section and which may influence its flight characteristics or its control, the paraglider shall be tested in the least favourable (symmetric) configuration.

1.4.4 Video and radio documentation

Certain tests have to be videoed and the test pilots comments during flight recorded.

See 926-2 for details.

1.4.5 Harness dimensions

The test pilot (and the passenger when testing in two-seater configuration) shall use a harness with a distance of 42 cm from the paraglider riser (or spreader bar) attachment points (measured from connector centrelines) perpendicular to the seat board top surface.

The horizontal distance of the paraglider riser attachment points (measured from connector centrelines) shall be set to 42 cm.

In the case of a pilot's weight of less than 50 kg the horizontal dimension is reduced to 38 cm.

In the case of a pilot's weight of more than 80 kg the horizontal dimension is increased to 46 cm.

When testing in two-seater configuration the horizontal dimension of the passenger's harness is set to the same width as the pilot's harness.

1.4.6 Ballast

Any ballast shall be tightly attached to the pilot and positioned as close as possible to the centre of gravity of a pilot sitting in the harness not carrying any ballast.

When testing in two-seater configuration any ballast carried by the passenger shall be attached following the same principles as for the pilot's ballast.

The use of water ballast is recommended for safety reasons.

1.4.7 Sitting position

Unless the test procedure states otherwise, the test pilot should adopt a normal upright sitting position with his feet perpendicularly below his knees.

1.4.8 Controls in hand

Unless the test procedure states otherwise, the controls are always held in the pilot's hands. The term 'releasing the controls' means taking all tension off the control lines.

1.4.9 Wraps

The test pilot shall never need to use wraps unless the test procedure requires this.

1.4.10 Maximum travel of the accelerator

The accelerator is considered to be fully activated when the mechanical limits of the glider are reached and further action on the accelerator does not result in a further decrease of the angle of attack.

1.4.11 Pitch angles

Measurement is of the change of angle. A straight line taken from the leading edge at the centre of the canopy to the pilot's buttocks is compared to the horizon before and after the manoeuvre.

1.4.12 Keeping course

The paraglider is considered to have kept its course throughout a test if it stays within 15 degrees either side of its original course.

1.4.13 Details of test manoeuvres to be carried out

1.4.13.1 Inflation/take-off test

This test is to find out how difficult it is to take-off with this paraglider (including checking for undesirable tendencies).

Procedure

The inflation shall take place on a slope between 10 % and 33 %.

It shall be carried out in headwinds of less than 8 km/h (measured about 1,5 m above the ground) and shall be repeated twice (to ensure the genuine behaviour is established).

The test pilot uses a normal forward launch technique (controls and A-risers in the hands, the other risers in the elbows, A-lines just tight, constant steady acceleration).

If a special take off technique is required for a paraglider then this information shall be contained in the user's manual, and these instructions shall be followed by the test pilot.

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

	Measurement and ranges	Classification
1	Rising behaviour	
	smooth, easy and constant rising	A
	overshoots, must be slowed down to avoid a front collapse	C
	hangs back	D

2	Special take off technique required	
	no	A
	yes	C

1.4.13.2 Landing test

This test is to find out how difficult it is to flare and land this glider (including checking for undesirable tendencies).

Procedure

The pilot shall make a normal landing (straight final glide at trim speed) on level ground, into a wind of less than 8 km/h (measured about 1,5 m above the ground), using the controls only.

If a special landing technique is required for a paraglider then this information shall be contained in the user's manual, and these instructions shall be followed by the test pilot.

Classification of a paraglider's behaviour in the landing test

Measurement and ranges	Classification
Special landing technique required	
no	A
yes	D

1.4.13.3 Speeds in straight flight test

This test is to ensure that the paraglider is not too slow (hands up) and an adequate speed range is achievable using the controls only (not activating the accelerator).

Procedure

Assess the trim speed in 10 s stabilised straight flight and then the minimum speed in 10 s stabilised straight flight.

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

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

	Measurement and ranges	Classification
1	Trim speed more than 30 km/h	
	yes	A
	no	F
2	Speed range using the controls larger than 10 km/h	
	yes	A
	no	F
3	Minimum speed	
	less than 25 km/h	A
	25 to 30 km/h	B

	greater than 30 km/h	D

1.4.13.4 Control movement test

This test explores the paraglider's control force and control travel.

Procedure

Check the zero position and the symmetric stall position reference marks.

The symmetric stall position is checked by stabilising the paraglider in straight flight at trim speed.

Over a period of five seconds gradually lower both controls to the symmetric stall position marks, being careful not to induce pitch oscillations.

Hold this position until the paraglider rocks back entering a full stall.

Assess the control forces throughout the procedure.

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

	Measurement and ranges				Classification
1 + 2	Symmetric control pressure	Symmetric control travel			
		max. weight in flight up to 80 kg	max. weight in flight 80 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 to 55 cm	45 to 60 cm	50 to 65 cm	C
	increasing	35 to 40 cm	35 to 45 cm	35 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 to 55 cm	45 to 60 cm	50 to 65 cm	C
	approximately constant	35 to 40 cm	35 to 45 cm	35 to 50 cm	F
	approximately constant	less than 35 cm	less than 35 cm	less than 35 cm	F
	decreasing	any distance	any distance	any distance	F

1.4.13.5 Pitch stability exiting accelerated flight test

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

This test explores whether the behaviour of the paraglider when the accelerator is quickly released.

Procedure

Stabilise the paraglider in straight flight at maximum speed.

Then abruptly release the accelerator and assess the behaviour.

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

	Measurement and ranges	Classification
1	Dive forward angle on exit	
	dive forward less than360°	A
	dive forward 30 to 60°	C
	dive forward more than 60°	F
2	Collapse occurs	
	no	A
	yes	F

1.4.13.6 Pitch stability operating controls during accelerated flight test

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

This test explores the behaviour of the paraglider after activating the controls in accelerated flight.

Procedure

Stabilise the paraglider in straight flight at maximum speed.

Activate both controls symmetrically to 25 % of the symmetric control range within 2 s.

Hold that position for 2 s.

Then slowly release both controls.

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

Measurement and ranges	Classification
Collapse occurs	
no	A
yes	F

1.4.13.7 Roll stability and damping test

This test checks that the paraglider returns to normal flight from large control input and that roll oscillations are damped.

Procedure

Induce the maximum possible roll angle achievable by quickly activating and releasing each control in turn to the symmetric stall position marks once without inducing a stall, spin or collapse. The timing of the control inputs is selected by the test pilot to maximise the roll angle.

Then observe the glider's immediate behaviour.

Classification of a paraglider's behaviour in the roll stability and damping test

Measurement and ranges	Classification
Oscillations	
reducing	A
not reducing	F

1.4.13.8 Stability in gentle spirals test

This test checks the glider's behaviour during and exiting gentle spirals.

Procedure

Stabilise the glider in straight flight at trim speed.

By use of the controls only, direct the paraglider into a gentle spiral between 3 and 5 m/s sink rate, such that the least stable behaviour (least tendency to exit the turn) is established. Maintain this sink rate for one turn.

Then release the controls over a period of 2 s and observe the paraglider's behaviour.

If the turn clearly tightens, the pilot acts to recover the glider. Otherwise the pilot waits for two turns to establish the glider's behaviour.

The pilot shall not counteract inertia effects on his body at any stage.

Classification of a paraglider's behaviour in the stability in gentle spirals test

Measurement and ranges	Classification
Tendency to return to straight flight	
spontaneous exit	A
turn remains constant	C
turn tightens	F

1.4.13.9 Behaviour in a steeply banked turn test

This test explores the glider's tendency to enter a steep spiral dive.

Procedure

Stabilise the glider in straight flight at trim speed.

Without using a counter-turn, and by steadily activating the inside control, quickly direct the paraglider into the steepest possible spiral dive achievable in two turns (without inducing a spin or a collapse).

Measure the descent rate.

The pilot shall not counteract inertia effects on his body at any stage.

The sink rate is recorded and may be published

Classification of a paraglider's behaviour in the steeply banked turn test

Measurement and ranges	Classification
Sink rate after two turns	
up to 12 m/s	A
12 to 14 m/s	A
more than 14 m/s	B

1.4.13.10 Symmetric front collapse test

This test explores the glider's behaviour and recovery from a front collapse.

If the paraglider is equipped with an accelerator, its behaviour in the symmetric front collapse test is classified both with and without its use.

Procedure

Stabilise the glider in straight flight at trim speed.

Release the controls and attach them to the risers (however, for safety reasons, the controls may be kept in the hands if the front collapse is achievable without significantly affecting the trailing edge).

Then by abruptly pulling the appropriate lines or risers, induce a symmetric front collapse over the entire leading edge with as little as possible, but at least 30 % of the centre chord affected. As soon as the collapse is achieved, let go of the lines/risers.

If the paraglider has not recovered spontaneously after 5 s or after 180° of turn (which ever happens first), the pilot acts on the controls to recover (without inducing a deliberate stall).

If the paraglider is equipped with an accelerator then the following additional test is required:

Stabilise the glider in straight flight at maximum speed.

Release the controls and attach them to the risers (however, for safety reasons, the controls may be kept in the hands if the front collapse is achievable without significantly affecting the trailing edge).

Then by abruptly pulling the appropriate lines or risers, induce a symmetric front collapse over the entire leading edge. As soon as the collapse is achieved, let go of the accelerator and the lines/risers.

If the paraglider has not recovered spontaneously after 5 s or after 180° of turn (which ever happens first), the pilot acts on the controls to recover (without inducing a deliberate stall).

Classification of a paraglider's behaviour in the symmetric front collapse test

	Measurement and ranges		Classification
1	Entry		
	rocking back less than 45°		A
	rocking back greater than 45°		C
2	Recovery		
	spontaneous in less than 3 s		A
	spontaneous in 3 to 5 s		B
	recovery through pilot action in less than a further 3 s		D
	recovery through pilot action between a further 3 to 5 s		D
	recovery through pilot action in more than a further 5 s		F
3 + 4	Dive forward angle on exit	Change of course	
	dive forward 0 to 30°	keeping course	A
	dive forward 0 to 30°	entering a turn of less than 90°	A
	dive forward 0 to 30°	entering a turn of 90 to 180°	C
	dive forward 30 to 60°	keeping course	B
	dive forward 30 to 60°	entering a turn of less than 90°	B
	dive forward 30 to 60°	entering a turn of 90 to 180°	C
	dive forward 60 to 90°	keeping course	D
	dive forward 60 to 90°	entering a turn of less than 90°	D
	dive forward 60 to 90°	entering a turn of 90 to 180°	F
	dive forward greater than 90°	keeping course	F
	dive forward greater than 90°	entering a turn of less than 90°	F
	dive forward greater than 90°	entering a turn of 90 to 180°	F
5	Cascade occurs		
	no		A
	yes		F

1.4.13.11 Exiting deep stall (parachutal stall) test

This test finds out how difficult it is to exit a deep stall with this glider (including checking for undesirable tendencies).

Procedure

Slow down the paraglider using the controls to obtain a trajectory as close as possible to the vertical without significantly changing the shape of the wins (deep stall). If a deep stall cannot be achieved due to a very long control travel, the pilot takes wraps to shorten the control lines.

If a deep stall is achieved, maintain it for 3 seconds.

Then release the controls smoothly and gradually (in about 2 s) to the zero position.

If the glider does not recover in 5 s then intervene in accordance with the user's manual.

Nb. Timing starts from the instant that the controls reach the zero position after the pilot releases them.

The glider is considered to have exited this test when it reaches its furthest forward pitching point. If there is no noticeable pitching, the glider is considered to have exited this test when the streamer on the riser reaches 45° to the horizon.

Classification of a paraglider's behaviour in the exiting deep stall (parachutal stall) test

	Measurement and ranges	Classification
1	Deep stall achieved	
	Yes	A
	No	A
2	Recovery	
	spontaneous in less than 3 s	A
	spontaneous in 3 to 5 s	C
	recovery through pilot action in less than a further 5 s	D
	recovery through pilot action in more than a further 5 s	F
3	Dive forward angle on exit	
	dive forward 0 to 30°	A
	dive forward 30 to 60°	A
	dive forward 60 to 90°	D
	dive forward greater than 90°	F
4	Change of course	
	changing course less than 45°	A
	changing course 45° or more	C
5	Cascade occurs	
	No	A
	Yes	F

1.4.13.12 High angle of attack recovery test

This test explores the glider's recovery from high angles of attack.

Procedure

Attain a trajectory as close as possible to the vertical (deep stall), without activating the controls or the accelerator, and with the minimum amount of deformation of the canopy (usually by using the minimum necessary pull-down of the B-risers).

Maintain this high condition for 3 seconds.

Then release the risers very slowly, symmetrically and continuously.

Nb. Timing starts from the instant that the controls reach the zero position after the pilot releases them.

The glider is considered to have exited this test when it reaches its furthest forward pitching point. If there is no noticeable pitching, the glider is considered to have exited this test when the streamer on the riser reaches 45° to the horizon.

Classification of a paraglider's behaviour in the high angle of attack recovery test

	Measurement and ranges	Classification
1	Recovery	
	spontaneous in less than 3 s	A
	spontaneous in 3 to 5 s	C
	recovery through pilot action in less than a further 3 s	D
	recovery through pilot action in more than a further 3 s	F
2	Cascade occurs	
	No	A
	Yes	F

1.4.13.13 Recovery from a developed full stall test

This test explores the glider's behaviour when recovering from a maintained full stall (and in particular its dive forward behaviour).

Procedure

Stabilise the glider in straight flight at minimum speed.

Fully apply the controls and hold that position until the paraglider is in a maintained full stall. If a full stall cannot be achieved due to a very long control travel, the pilot takes wraps to shorten the control lines.

Release the controls slowly and symmetrically, until the canopy has approximately regained its inflated span.

Then quickly and symmetrically fully release the controls in a period of 1 s.

(If an asymmetric collapse occurs, it is assumed that the release has not been sufficiently symmetrical, and the test manoeuvre should be repeated.)

If any pitch oscillations don't die out, the controls are to be fully released when the canopy, rocking forward, arrives above the pilot.

Classification of a paraglider's behaviour in the full stall test

	Measurement and ranges	Classification
1	Dive forward angle on exit	
	dive forward 0 to 30°	A
	dive forward 30 to 60°	B
	dive forward 60 to 90°	C
	dive forward greater than 90°	F
2	Collapse	
	no collapse	A
	symmetric collapse	C
3	Cascade occurs (other than collapses)	
	No	A
	Yes	F
4	Rocking back	
	less than 45°	A
	greater than 45°	C
5	Line tension	
	most lines tight	A
	many visibly slack lines	F

1.4.13.14 Asymmetric collapse test

This test explores the glider's behaviour and recovery from an asymmetric collapse.

If the paraglider is equipped with an accelerator, its behaviour in the asymmetric collapse test is classified both with and without its use.

Procedure

Stabilise the glider in straight flight at trim speed. Release the control handle on the side to be collapsed and attach it to the riser.

Pull down the appropriate lines on one side as fast as possible to collapse the canopy asymmetrically at 45 to 50 % of the span at an angle of approximately 45 degrees relative to the longitudinal axis.

As soon as the collapse is achieved, release the lines quickly.

The pilot shall take no further action and remains passive until the glider either recovers, or changes course by more than 360°, or 5 s elapses.

If the glider has not recovered, the pilot acts to recover the glider.

The test is repeated with a collapse of 70 to 75 %. In this case the 45 degree angle should be adjusted to limit the trailing edge effects to no more than 50 %.

If the paraglider is equipped with an accelerator, the whole procedure (45 – 50 %, 70 – 75 %) shall be repeated with the accelerator fully activated.

The accelerator shall be released at the same time as the lines are released.

Nb. Timing starts from the instant that the controls reach the zero position after the pilot releases them.

Collapse on the opposite side: A collapse on the opposite side has occurred when less than 50 % of the span of the paraglider's leading edge is affected. If more than 50 % of the span is affected, this is a cascade.

Twist: A twist has occurred, when after 5 s or after a turn of 360° the pilot's position still is rotated more than 180° relative to the glider.

Classification of a paraglider's behaviour in the asymmetric collapse test

	Measurement and ranges		Classification
1 + 2	Change of course until re-inflation	Maximum dive forward or roll angle	
	less than 90°	dive or roll angle 0 to 15°	A
		dive or roll angle 15 to 45°	A
		dive or roll angle 45 to 60°	B
		dive or roll angle 60 to 90°	C
		dive or roll angle greater than 90°	D
	90 to 180°	dive or roll angle 0 to 15°	A
		dive or roll angle 15 to 45°	B
		dive or roll angle 45 to 60°	B
		dive or roll angle 60 to 90°	C
		dive or roll angle greater than 90°	D
	180 to 360°	dive or roll angle 0 to 15°	A
		dive or roll angle 15 to 45°	C
		dive or roll angle 45 to 60°	C
		dive or roll angle 60 to 90°	D
		dive or roll angle greater than 90°	F
	greater than 360°	dive or roll angle 0 to 15°	C
		dive or roll angle 15 to 45°	C
		dive or roll angle 45 to 60°	D
		dive or roll angle 60 to 90°	D
		dive or roll angle greater than 90°	F
3	Re-inflation behaviour		
	spontaneous re-inflation		A
	inflates in less than 3 s from start of pilot action		C
	inflates in 3 to 5 s from start of pilot action		D
	no re-inflation within a further 5 s		F
4	Total change of course		
	less than 90°		A
	90 to 180°		A
	180 to 360°		B
	greater than 360°		C
5	Collapse on the opposite side occurs		
	no		A
	yes, no turn reversal		C
	yes, causing turn reversal		D

6	Twist occurs	
	no	A
	yes	F
7	Cascade occurs	
	no	A
	yes	F

1.4.13.15 Directional control with a maintained asymmetric collapse test

This test explores the glider's directional controllability whilst affected by an asymmetric collapse (the ability to fly straight and to turn away from the collapsed side).

Procedure

Stabilise the glider in straight flight at trim speed. Release the control handle on the side to be collapsed and attach it to the riser.

Pull down the appropriate lines on one side as fast as possible to collapse the canopy asymmetrically at 45 to 50 % of the span at an angle of approximately 45 degrees relative to the longitudinal axis and hold the collapse.

Then the pilot attempts to keep course for a period of 3 s, using the control on the inflated side if necessary.

From straight flight the pilot further uses this control to turn 180° to the inflated side in a period of 10 s without involuntarily entering an abnormal flight condition. The pilot assesses the position of the control relative to the symmetric stall position mark.

Stabilise the glider in straight flight at trim speed. Release the control handle on the side to be collapsed and attach it to the riser.

Pull down the appropriate lines on one side as fast as possible to collapse the canopy asymmetrically at 45 to 50 % of the span at an angle of approximately 45 degrees relative to the longitudinal axis and hold the collapse.

Then the pilot attempts to keep course for a period of 3 s, using the control on the inflated side if necessary.

From straight flight the pilot further uses this control to establish the minimum amount of control input required to induce a stall or spin. This amount of control shall be applied in a period of 1 s. The pilot assesses the position of the control relative to the symmetric stall position mark.

The pilot shall not counteract inertia effects on his body at any stage.

Classification of a paraglider's behaviour in the directional control with a maintained asymmetric collapse test

	Measurement and ranges	Classification
1	Able to keep course	
	Yes	A
	No	F
2	180° turn away from the collapsed side possible in 10 s	
	Yes	A
	No	F
3	Amount of control range between turn and stall or spin	

	more than 50 % of the symmetric control travel	A
	25 to 50 % of the symmetric control travel	C
	less than 25 % of the symmetric control travel	D

1.4.13.16 Trim speed spin tendency test

This test explores the glider's tendency to enter a spin from trim speed.

Procedure

Stabilise the glider in straight flight at trim speed.

Then over a period of 2 s activate one control to 25 % of the symmetric control range.

Wait 20 s or until the glider has turned 360°, then over a period of 2 s further activate the same control to 50 % of the remaining range, and wait 20 s or until the glider has turned another 360°, or the glider has obviously entered a spin.

Classification of a paraglider's behaviour in the trim speed spin tendency test

Measurement and ranges	Classification
Spin occurs	
No	A
Yes	F

1.4.13.17 Low speed spin tendency test

This test explores the glider's tendency to enter a spin from low speed.

Procedure

Stabilise the glider in straight flight at low speed.

Then over a period of 2 s further activate one control to 50 % of the remaining range (i.e. to 75 % of the symmetric control travel) without releasing the other, and wait until the glider has turned 360°, or the glider has obviously entered a spin.

Classification of a paraglider's behaviour in the low speed spin tendency test

Measurement and ranges	Classification
Spin occurs	
no	A
yes	D

1.4.13.18 Recovery from a developed spin test

This test explores the glider's behaviour and recovery from a fully developed spin.

Stabilise the glider in straight flight at low speed.

Induce a spin with as little pitch and roll as possible by rapidly lowering one control to its maximum range whilst releasing the other.

Release the inside control while the glider is above the pilot after about one turn of spin rotation, inducing as little pitch and roll as possible. Assess the behaviour.

Nb. The glider is considered to have exited a developed spin when the airflow is re-attached over the full span.

Classification of a paraglider's behaviour in the recovery from a developed spin test

	Measurement and ranges	Classification
1	Spin rotation angle after release	
	stops spinning in less than 90°	A
	stops spinning in 90 to 180°	C
	stops spinning in 180 to 360°	D
	does not stop spinning within 360°	F
2	Cascade occurs	
	no	A
	yes	F

1.4.13.19 B-line stall test

This test explores the glider's behaviour and recovery from a B-line stall.

This test manoeuvre is not required if the manufacturer excludes this manoeuvre in the user's manual and the B-risers are clearly marked accordingly.

Procedure

Stabilise the glider in straight flight at trim speed.

Quickly pull down the B-riser maillons symmetrically until the maillons reach the main connectors, or until a mechanical limit (e.g. interference with the accelerator or other risers) is reached.

Wait five seconds, then quickly and symmetrically fully release the risers in a period of not more than 1 s.

If a special technique for entry is required then this information must be contained in the user’s manual, and these instructions shall be followed by the test pilot.

Nb. Timing when exiting stalled flight conditions. The glider is considered to have exited this test when it reaches its furthest forward pitching point. If there is no noticeable pitching, the glider is considered to have exited this test when the streamer on the riser reaches 45° to the horizon.

Classification of a paraglider's behaviour in the B-line stall test

	Measurement and ranges	Classification
1	Change of course before release	
	changing course less than 45°	A
	changing course more than 45°	C
2	Behaviour before release	
	remains stable with straight span	A
	remains stable without straight span	C
	unstable	D
3	Recovery	
	spontaneous in less than 3 s	A
	spontaneous in 3 to 5 s	B
	recovery through pilot action in less than a further 3 s	D
	recovery through pilot action between a further 3 to 5 s	D
	recovery through pilot action in more than a further 5 s	F
4	Dive forward angle on exit	
	dive forward 0 to 30°	A
	dive forward 30 to 60°	A
	dive forward 60 to 90°	C
	dive forward greater than 90°	F
5	Cascade occurs	
	no	A
	yes	F

1.4.13.20 Big ears test

This test manoeuvre is not required if the manufacturer excludes this manoeuvre in the user's manual and the A-risers are clearly marked accordingly.

This test explores the glider's behaviour and handling during and exiting big ears.

Procedure

Stabilise the glider in straight flight at trim speed.

Collapse approximately 30 % of the span at each tip by twisting down the appropriate lines simultaneously. Note the glider's behaviour.

After at least 10 s let go both ears simultaneously.

The pilot shall take no further action and remains passive until the glider either recovers, or 5 s elapses.

If the glider has not recovered, the pilot acts to recover the glider.

If the glider is equipped with special big ears handles or if special entry or exit techniques are required, then this information shall be contained in the user's manual, and these instructions shall be followed by the test pilot.

Nb. Timing starts from the instant that the controls reach the zero position after the pilot releases them.

Classification of a paraglider's behaviour in the big ears test

	Measurement and ranges	Classification
1	Entry procedure	
	dedicated controls	A
	standard technique	A
	no dedicated controls and non-standard technique	C
2	Behaviour during big ears	
	stable flight	A
	unstable flight	C
	deep stall occurs	F
3	Recovery	
	spontaneous in less than 3 s	A
	spontaneous in 3 to 5 s	B
	recovery through pilot action in less than a further 3 s	B
	recovery through pilot action between a further 3 to 5 s	D
	recovery through pilot action in more than a further 5 s	F
4	Dive forward angle on exit	
	dive forward 0 to 30°	A
	dive forward 30 to 60°	D
	dive forward 60 to 90°	F
	dive forward greater than 90°	F

1.4.13.21 Big ears in accelerated flight test

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

This test manoeuvre is not required if the manufacturer excludes this manoeuvre in the user's manual and the A-risers are clearly marked accordingly.

This test explores the glider's behaviour and handling during and exiting big ears when using the accelerator.

Procedure

Stabilise the glider in straight flight at trim speed.

Collapse approximately 30 % of the span at each tip by twisting down the appropriate lines simultaneously.

Fully apply the accelerator and note the glider's behaviour.

After at least 10 s release the accelerator quickly, and immediately let go both ears simultaneously.

The pilot shall take no further action and remains passive until the glider either recovers, or 5 s elapses.

If the glider has not recovered, the pilot acts to recover the glider.

To evaluate the behaviour of the glider when releasing the accelerator while maintaining big ears, collapse approximately 30 % of the span at each tip by twisting down the appropriate lines simultaneously.

Fully apply the accelerator.

After at least 10 s release the accelerator quickly and note the glider's behaviour while maintaining the big ears.

If the glider is equipped with special big ears handles or if special entry or exit techniques are required, then this information shall be contained in the user's manual, and these instructions shall be followed by the test pilot.

Nb. Timing starts from the instant that the controls reach the zero position after the pilot releases them.

Classification of a paraglider's behaviour in the big ears in accelerated flight test

	Measurement and ranges	Classification
1	Entry procedure	
	dedicated controls	A
	standard technique	A
	no dedicated controls and non-standard technique	C
2	Behaviour during big ears	
	stable flight	A
	unstable flight	C
	deep stall occurs	F
3	Recovery	
	spontaneous in less than 3 s	A
	spontaneous in 3 to 5 s	A
	recovery through pilot action in less than a further 3 s	B
	recovery through pilot action between a further 3 to 5 s	D
	recovery through pilot action in more than a further 5 s	F
4	Dive forward angle on exit	
	dive forward 0 to 30°	A
	dive forward 30 to 60°	D
	dive forward 60 to 90°	F
	dive forward greater than 90°	F
5	Behaviour immediately after releasing the accelerator while maintaining big ears	
	stable flight	A
	unstable flight	C
	deep stall occurs	F

1.4.13.22 Behaviour exiting a steep spiral

This test explores the glider's behaviour during and exiting from steep spirals.

Procedure

Stabilise the glider in straight flight at trim speed.

By initial use of one control only, direct the paraglider into a spiral. By use of the controls the glider is accelerated until a sink rate of 14 m/s is achieved. (If 14 m/s cannot be obtained then evaluate at the highest possible sink rate).

Then release the controls over a period of 2 s and observe the paraglider's behaviour.

If the turn clearly tightens, the pilot acts to recover the glider. Otherwise the pilot waits for three turns to establish the glider's behaviour.

The pilot shall not counteract inertia effects on his body at any stage.

The sink rate when evaluating spiral stability is recorded for documentation and information purposes.

Classification of a paraglider's behaviour in the behaviour exiting a steep spiral test

	Measurement and ranges	Classification
1	Tendency to return to straight flight	
	spontaneous exit	A
	turn remains constant	D
	turn tightens	F
2	Turn angle to recover normal flight	
	less than 720°, spontaneous recovery	A
	720 to 1 080°, spontaneous recovery	C
	with pilot action	D

1.4.13.23 Alternative means of directional control

This test checks whether the glider may be steered in case of a failure of the primary controls.

Procedure

Stabilise the glider in straight flight at trim speed.

Apply the alternative control method recommended in the user’s manual without affecting the primary controls and perform a 180° turn.

Wait for 20 s or until the turn is completed.

Classification of a paraglider's behaviour in the alternative means of directional control test

	Measurement and ranges	Classification
1	180° turn achievable in 20 s	
	yes	A
	no	F
2	Stall or spin occurs	
	no	A
	yes	F

1.4.13.24 Testing any other flight procedure and/or configuration described in the user's manual

Any other flight procedure and/or configuration described in the user's manual not covered through the tests above is tested here.

The glider should behave during and exit any normal flight procedure and/or configuration as described in the manual. No procedure should require high levels of pilot skill.

Procedure

Check whether every other flight procedure and/or configuration described in the user's manual can be flown safely.

This requirement may be satisfied by the manufacturer producing suitable and acceptable evidence (e.g. video).

Classification of a paraglider's behaviour when testing any other flight procedure and/or configuration described in the user's manual

	Measurement and ranges	Classification
1	Procedure works as described	
	yes	A
	no	F
2	Procedure suitable for novice pilots	
	yes	A
	no	C
3	Cascade occurs	
	no	A
	yes	F

2 Test report

A detailed test report is compiled and filed by the Test House, along with the test video, the manufacturing record, the user's manual and the paraglider that has undergone testing.

See 926-2 for full details.

3 User's manual

The user's manual should be supplied in English and in the majority language(s) of any country in which the paraglider is intended to be sold.

It shall include detailed information under the following key headings: general information; recommendations on the levels of pilot skills required for safe operation; dimensions, illustrations and characteristics; recommendations on all necessary piloting techniques; repair and maintenance instructions.

See 926-2 for full details.

4 Manufacturing record

A fully detailed manufacturing record shall be supplied by the manufacturer.

See 926-2 for full details.

5 Marking

The conformity of the paraglider to the requirements of this European Standard shall be stated on a stamp or label permanently fixed to the canopy, which shall include specified information.

See 926-2 for full details.

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