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Test laboratory for paragliders, paraglider harnesses and paraglider reserve parachutes



# Paragliders Shock- and sustained loading test

Inspection certificat number: PG\_1575.2019 revision 01 Test Report

#### Manufacturer data

Manufacturer name: Sky Paragliders a.s.
Representative: Michal Sotek
Street: Okruzni 39

Post code / place: 73911 Frydlant n.O.
Country: Czech Republic

#### Sample data

Name: Apollo 2 light

Size: XL Maximum weight in flight [kg]: 125

 Serial number:
 2359-11-1273

 Date of reception:
 27.09.2018

Test data Test Atmosphere AGL

 Place of test:
 Yverdon (airport)
 5
 [°C]

 Date of test:
 27.09.2018
 73
 RH [%]

 Inspector:
 Alain Zoller
 979.9
 [hPA]

 0.1
 Wind [m/s]

### Shock loading test result (1)

Weak link used [daN]: 1000

Visual inspection: No visible damage Results: POSITIVE

Uncertainty k=2 [%] (2) **10** 

### Weak link



Instruments	Validity	Manufacturer	s/n
Weak link	2020	Tost	n/a
Cable	2020	Rotex	n/a
Geos n° 11 Skywatch	08.05.2019	JDC elec.	22

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Inspection certificate number: PG\_1575.2019

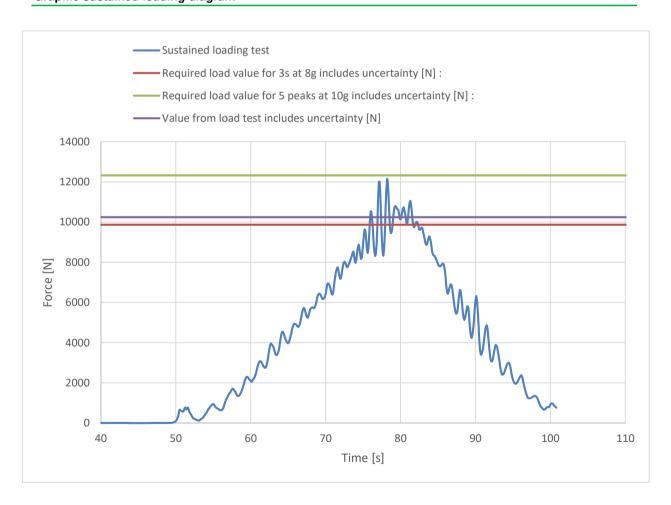
### Sustained loading test results (3)

Result: POSITIVE
Calculated max load value with 3 sec or five peaks [kg]: 130.49

### Required sustained loading test results<sup>(4)</sup>

Required load value for 3s at 8g [N]: 9810.00 Required load value for 5 peaks at 10g [N]: 12262.50 Required load value for 3s at 8g includes uncertainty [N]: 9869.23 Required load value for 5 peaks at 10g includes uncertainty [N]: 12321.73 Uncertainty K=2 [%]: 0.487

#### Graphic sustained loading diagram



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#### Detailed sustained loading test results

Calculated cumulative duration at max load [s]: 3.2

Calculated max load value duration of 3 sec. [N]:

Calculated max load value duration of 3 sec. [kg]:

Calculated max load value with five peaks [N]:

Calculated max load value with five peaks [kg]:

n/a

n/a

Calculated max load value with 3 sec or five peaks [N]: 1280.10
Calculated max load value with 3 sec or five peaks [kg]: 130.49

Instruments	Manufacturer	Type nr.	S/N
Load sensor	НВМ	1-S9M/50KN-1	31314652
Geos n°11 Skywatch	JDC	Geos nº 11	0022

The validation of this test report is given by the signature of the test manager on inspection certificate 71.8.1

Air Turquoise SA has thoroughly tested the sample of paraglider mentioned above and certifies its conformity with the standards EN 926-1:2015 chapter 4.4, 4.5 | LTF

NFL II-91/09 chapter 3

A controller is positioned on the tow vehicle in order to operate the paraglider control lines to stabilize the wing.

The speed of the vehicle is increased as gradually as possible, enabling the controller to obtain satisfactory stabilisation of the flight path of the paraglider.

When the paraglider has stabilized, the speed is increased gradually until either:

a) the measured load exceeds a load factor of eight times the maximum total weight in flight recommended by the manufacturer, for a minimum cumulative duration of 3 s; or

b) five peaks separated by at least 0,3 s are obtained above ten times the maximum total weight in flight recommended by the manufacturer, in one run.

<sup>(1)</sup> The paraglider is subjected to a shock load . Shock load is limited using a weak link according to the weight range of glider. The weak link breaks or 5 s has elapsed since the start of the shock load. The wing is then visually inspected for damage.

<sup>(2)</sup> Weak link value include the uncertainty for weight range test values / The uncertainty state is the expanded uncertainty obtained by multiplying the standard uncertainty by the coverage factor k = 2. The value of the measurand lies within the assigned range of values with a probability of 95%.

<sup>(3)</sup> The test specimen (sample) is attached to the electronic sensors on the tow vehicle.

<sup>(4)</sup> The calculated value include the value minus the uncertainty / The uncertainty stated is the expanded uncertainty obtained by multiplying the standard uncertainty by the coverage factor k = 2. The value of the measurand lies within the assigned range of values with a probability of 95%.

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Manufacturer	Sky Paragliders a.s.	Certification number	F	PG_1571.2019	
Address	Okruzní 39 73911 Frýdlant nad Ostravicí Czech Republic	Flight test	0	7.03.2016	
Glider model	Apollo 2 light XS	Classification	Е	3	
Serial number	2151-11-0605	Representative	Ν	lone	
Trimmer	no	Place of test		/illeneuve	
Folding lines used	no	1 1000 01 1001	·		
1 olding lines asca	no .				
Test pilot		Light pilot under Air Turquoise supervision	C	Claude Thurnheer	
Harness		Flugsau - XX-Lite	F	lugsau - XX-Lite	
Harness to risers d	listance (cm)	40	4	40	
Distance between r	• •	40	4	.0	
Total weight in flight	• •	55		'3	
. Juli Height III Illyi	(a)		'	•	
1. Inflation/Take-off		A			
Rising behaviour		Smooth, easy and constant rising	Α	Smooth, easy and constant rising	Α
Special take off technique	e required	No	Α	No	Α
2. Landing		Α			
Special landing technique		No	Α	No	Α
3. Speed in straight flight		В			
Trim speed more than 30		Yes	Α	Yes	Α
	ontrols larger than 10 km/h	Yes	Α	Yes	Α_
Minimum speed		25 km/h to 30 km/h	В	25 km/h to 30 km/h	В
4. Control movement	42.00 (22)	Α			
Max. weight in flight up		Increasing / greater than EE am	٨	Increasing / greater than EE am	۸
Symmetric control pressu Max. weight in flight 80		Increasing / greater than 55 cm	Α	Increasing / greater than 55 cm	Α
Symmetric control pressu	-	not available	0	not available	0
Max. weight in flight gre		not available	Ü	not available	Ü
Symmetric control pressu	<del>-</del>	not available	0	not available	0
5. Pitch stability exiting		A			
Dive forward angle on exi		Dive forward less than 30°	Α	Dive forward less than 30°	Α
Collapse occurs		No	Α	No	Α
6. Pitch stability operati flight	ng controls during accelerated	Α			
Collapse occurs		No	Α	No	Α
7. Roll stability and dam	nping	<b>A</b>			
Oscillations	_	Reducing	Α	Reducing	Α
8. Stability in gentle spir		<b>A</b>		0 1 "	
Tendency to return to stra		Spontaneous exit	Α	Spontaneous exit	Α
	ully developed spiral dive	A Immediate reduction of rate of turn	۸	Immediate reduction of rate of turn	Λ
Initial response of glider ( Tendency to return to stra		Immediate reduction of rate of turn Spontaneous exit (g force decreasing, rate of turn decreasing)	A	Immediate reduction of rate of turn Spontaneous exit (g force decreasing, rate of turn decreasing)	A
Turn angle to recover nor	mal flight	Less than 720°, spontaneous recovery	Α		Α
10. Symmetric front coll	apse	В			
Approximately 30 % cho	ord	Rocking back less than 45°	Α	Rocking back less than 45°	Α

Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit Change of course	Dive forward 0° to 30° Keeping course	Α	Dive forward 0° to 30° Keeping course	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
At least 50% chord				
Entry	Rocking back less than 45°	Α	Rocking back less than 45°	Α
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in 3 s to 5 s	В
Dive forward angle on exit / Change of course	Dive forward 0° to 30° / Entering a turn of less than 90°	Α	Dive forward 0° to 30° / Keeping course	A
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
With accelerator				
Entry	Rocking back less than 45°	Α	Rocking back less than 45°	Α
Recovery	Spontaneous in 3 s to 5 s	В	Spontaneous in 3 s to 5 s	В
Dive forward angle on exit / Change of course	Dive forward 0° to 30° / Entering a turn of less than 90°	A	Dive forward 0° to 30° / Keeping course	A
Cascade occurs	No	Α	No	Α
Folding lines used	No	^	No	73
	A		140	
11. Exiting deep stall (parachutal stall)		٨	Vac	۸
Deep stall achieved	Yes	A	Yes	A
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Change of course	Changing course less than 45°	Α	Changing course less than 45°	Α
Cascade occurs	No	Α	No	Α
12. High angle of attack recovery	Α			
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Cascade occurs	No	Α	No	Α
13. Recovery from a developed full stall	A			
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Collapse	No collapse	Α	No collapse	Α
Cascade occurs (other than collapses)	No	Α	No	Α
Rocking back	Less than 45°	Α	Less than 45°	A
Line tension	Most lines tight	Α	Most lines tight	Α
14. Asymmetric collapse	В			
Small asymmetric collapse				
Change of course until re-inflation / Maximum dive forward or roll angle	Less than 90° / Dive or roll angle 15° to 45°	Α	Less than 90° / Dive or roll angle 0° to 15°	Α
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Total change of course	Less than 360°	Α	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
Large asymmetric collapse				
Change of course until re-inflation / Maximum dive forward or roll angle	Less than 90° / Dive or roll angle 15° to 45°	Α	90° to 180° / Dive or roll angle 15° to 45°	В
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Total change of course	Less than 360°	Α	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
Small asymmetric collapse with fully activated accelerator			-	
Change of course until re-inflation / Maximum dive forward or roll angle	Less than 90° / Dive or roll angle 15° to 45°	Α	Less than 90° / Dive or roll angle 15° to 45°	Α
-				
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α

Total change of course	Less than 360°	Α	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
Large asymmetric collapse with fully activated accelerator				
Change of course until re-inflation / Maximum dive forward or roll angle	90° to 180° / Dive or roll angle 15° to 45°	В	90° to 180° / Dive or roll angle 15° to 45°	В
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Total change of course	Less than 360°	Α	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
15. Directional control with a maintained asymmetric collapse	A			
Able to keep course	Yes	Α	Yes	Α
180° turn away from the collapsed side possible in 10 s	Yes	Α	Yes	Α
Amount of control range between turn and stall or spin	More than 50 % of the symmetric control travel	Α	More than 50 % of the symmetric control travel	Α
16. Trim speed spin tendency	Α			
Spin occurs	No	Α	No	Α
17. Low speed spin tendency	Α			
Spin occurs	No	Α	No	Α
18. Recovery from a developed spin	Α			
Spin rotation angle after release	Stops spinning in less than 90°	Α	Stops spinning in less than 90°	Α
Cascade occurs	No	Α	No	Α
19. B-line stall	Α			
Change of course before release	Changing course less than 45°	Α	Changing course less than 45°	Α
Behaviour before release	Remains stable with straight span	Α	Remains stable with straight span	Α
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Cascade occurs	No	Α	No	Α
20. Big ears	В			
Entry procedure	Dedicated controls	Α	Dedicated controls	Α
Behaviour during big ears	Stable flight	Α	Stable flight	Α
Recovery	Spontaneous in less than 3 s	Α	Recovery through pilot action in less than a further 3 s	В
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
21. Big ears in accelerated flight	В			
Entry procedure	Dedicated controls	A	Dedicated controls	Α
Behaviour during big ears	Stable flight	Α _	Stable flight	Α _
Recovery	Recovery through pilot action in less than a further 3 s	В	Recovery through pilot action in less than a further 3 s	В
Dive forward angle on exit	Dive forward 0° to 30°	A	Dive forward 0° to 30°	A
Behaviour immediately after releasing the accelerator while maintaining big ears	Stable flight	Α	Stable flight	Α
22. Alternative means of directional control	A	_		_
180° turn achievable in 20 s	Yes	A	Yes	A
Stall or spin occurs	No	Α	No	Α
23. Any other flight procedure and/or configuration described in the user's manual	0			
Procedure works as described	not available	0	not available	0
Procedure suitable for novice pilots	not available	0	not available	0
Cascade occurs	not available	0	not available	0

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g toot .op		W = 11 0 1/00			
Manufacturer	Sky Paragliders a.s.	Certification number	F	PG_1572.2019	
Address	Okruzní 39 73911 Frýdlant nad Ostravicí Czech Republic	Flight test	2	6.02.2016	
Glider model	Apollo 2 light S	Classification	Е	3	
Serial number	02060-11-1414	Representative	_	lone	
Trimmer		Place of test		'illeneuve	
	no	Place of test	V	llierieuve	
Folding lines used	no				
Test pilot		Seiko Fukuoka	C	Claude Thurnheer	
Harness		Supair - Altiplume S	S	Supair - Altiplume M	
Harness to risers d	istance (cm)	44	4	4	
Distance between r	, ,	40	4	4	
	` '				
Total weight in fligh	it (kg)	64	8	1	
1. Inflation/Take-off		A			
Rising behaviour		Smooth, easy and constant rising	Α	Smooth, easy and constant rising	Α
Special take off technique	required	No	Α	No	Α
2. Landing		Α			
Special landing technique		No	Α	No	Α
3. Speed in straight fligh		Α			
Trim speed more than 30		Yes	Α	Yes	Α
Speed range using the co	ntrols larger than 10 km/h	Yes	Α	Yes	Α
Minimum speed		Less than 25 km/h	Α	Less than 25 km/h	Α
4. Control movement		Α			
Max. weight in flight up					•
Symmetric control pressur		Increasing / greater than 55 cm	Α	not available	0
Max. weight in flight 80	= =	nat available	0	In any action / any atom them CO any	۸
Symmetric control pressur		not available	0	Increasing / greater than 60 cm	Α
Max. weight in flight gre Symmetric control pressur	=	not available	0	not available	0
5. Pitch stability exiting		A	U	not available	U
Dive forward angle on exit	——————————————————————————————————————	Dive forward less than 30°	Α	Dive forward less than 30°	Α
Collapse occurs		No		No	Α
	ng controls during accelerated	A	Α,		, ,
Collapse occurs		No	Α	No	Α
7. Roll stability and dam	ping	Α			
Oscillations		Reducing	Α	Reducing	Α
8. Stability in gentle spir	rals	Α			
Tendency to return to stra	ight flight	Spontaneous exit	Α	Spontaneous exit	Α
9. Behaviour exiting a fu	Illy developed spiral dive	Α			
Initial response of glider (f	irst 180°)	Immediate reduction of rate of turn	Α	Immediate reduction of rate of turn	Α
Tendency to return to stra	ight flight	Spontaneous exit (g force decreasing, rate of turn decreasing)	Α	Spontaneous exit (g force decreasing, rate of turn decreasing)	Α
Turn angle to recover nor	mal flight	Less than 720°, spontaneous recovery	Α	Less than 720°, spontaneous recovery	Α
10. Symmetric front coll	apse	В			
Approximately 30 % cho	ord	Rocking back less than 45°	Α	Rocking back less than 45°	Α
Recovery		Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α

Dive forward angle on exit Change of course	Dive forward 0° to 30° Keeping course	Α	Dive forward 0° to 30° Keeping course	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No	,,	No	,,
At least 50% chord	140		NO	
	Dealing healt loss than 45°	۸	Decking book loss than 45°	٨
Entry	Rocking back less than 45°	A	Rocking back less than 45°	A
Recovery	Spontaneous in less than 3 s	Α.	Spontaneous in 3 s to 5 s	В.
Dive forward angle on exit / Change of course	Dive forward 0° to 30° / Keeping course	Α	Dive forward 0° to 30° / Keeping course	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
With accelerator				
Entry	Rocking back less than 45°	Α	Rocking back less than 45°	Α
Recovery	Spontaneous in 3 s to 5 s	В	Spontaneous in 3 s to 5 s	В
Dive forward angle on exit / Change of course	Dive forward 0° to 30° / Keeping course	Α	Dive forward 0° to 30° / Keeping course	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	^
	A		NO	
11. Exiting deep stall (parachutal stall)			W	•
Deep stall achieved	Yes	A	Yes	A
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Change of course	Changing course less than 45°	Α	Changing course less than 45°	Α
Cascade occurs	No	Α	No	Α
12. High angle of attack recovery	A			
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Cascade occurs	No	Α	No	Α
13. Recovery from a developed full stall	A			
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Collapse	No collapse	Α	No collapse	Α
Cascade occurs (other than collapses)	No	Α	No	Α
Rocking back	Less than 45°	Α	Less than 45°	Α
Line tension	Most lines tight	Α	Most lines tight	Α
14. Asymmetric collapse	В			
Small asymmetric collapse				
Change of course until re-inflation / Maximum dive forward or		Α	Less than 90° / Dive or roll angle	Α
roll angle	15° to 45°		15° to 45°	
Re-inflation behaviour	Spontaneous re-inflation		Spontaneous re-inflation	A
Total change of course	Less than 360°	Α.	Less than 360°	A
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
Large asymmetric collapse				
Change of course until re-inflation / Maximum dive forward or roll angle	Less than 90° / Dive or roll angle 15° to 45°	Α	Less than 90° / Dive or roll angle 15° to 45°	Α
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Total change of course	Less than 360°	A	Less than 360°	Α
5				
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
Small asymmetric collapse with fully activated accelerator				
Change of course until re-inflation / Maximum dive forward or roll angle	Less than 90° / Dive or roll angle	Α	Less than 90° / Dive or roll angle	Α
	15° to 45°	,,	15° to 45°	
Re-inflation behaviour		Α		Α

Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
Large asymmetric collapse with fully activated accelerator				
Change of course until re-inflation / Maximum dive forward or roll angle	90° to 180° / Dive or roll angle 15° to 45°	В	90° to 180° / Dive or roll angle 15° to 45°	В
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Total change of course	Less than 360°	Α	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
15. Directional control with a maintained asymmetric collapse	Α			
Able to keep course	Yes	Α	Yes	Α
180° turn away from the collapsed side possible in 10 s	Yes	Α	Yes	Α
Amount of control range between turn and stall or spin	More than 50 % of the symmetric control travel	Α	More than 50 % of the symmetric control travel	Α
16. Trim speed spin tendency	Α			
Spin occurs	No	Α	No	Α
17. Low speed spin tendency	A			
Spin occurs	No	Α	No	Α
18. Recovery from a developed spin	Α			
Spin rotation angle after release	Stops spinning in less than 90°	Α	Stops spinning in less than 90°	Α
Cascade occurs	No	Α	No	Α
19. B-line stall	Α			
Change of course before release	Changing course less than 45°	Α	Changing course less than 45°	Α
Behaviour before release	Remains stable with straight span	Α	Remains stable with straight span	Α
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Cascade occurs	No	Α	No	Α
20. Big ears	A			
Entry procedure	Dedicated controls	Α	Dedicated controls	Α
Behaviour during big ears	Stable flight	Α	Stable flight	Α
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
21. Big ears in accelerated flight	В			
Entry procedure	Dedicated controls	Α	Dedicated controls	Α
Behaviour during big ears	Stable flight	Α	Stable flight	Α
Recovery	Recovery through pilot action in less than a further 3 s	В	Recovery through pilot action in less than a further 3 s	В
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Behaviour immediately after releasing the accelerator while maintaining big ears	Stable flight	Α	Stable flight	Α
22. Alternative means of directional control	A			
180° turn achievable in 20 s	Yes	Α	Yes	Α
Stall or spin occurs	No	Α	No	Α
23. Any other flight procedure and/or configuration described in the user's manual	0			
Procedure works as described	not available	0	not available	0
Procedure suitable for novice pilots	not available	0	not available	0
Cascade occurs	not available	0	not available	0

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Manufacturer	Sky Paragliders a.s.	Certification number	F	PG_1573.2019	
Address	Okruzní 39 73911 Frýdlant nad Ostravicí	Flight test	1	1.11.2019	
	Czech Republic				
Glider model	Apollo 2 light M	Classification	Е	3	
Serial number	2459-11-1195	Representative	Ν	lone	
Trimmer	no	Place of test		/illeneuve	
_		riace or test	v	meneuve	
Folding lines used	no				
Test pilot		Claude Thurnheer	Δ	lain Zoller	
Harness		Supair - Altiplume S	F	lugsau - XX-Lite	
Harness to risers di	istance (cm)	44		0	
Distance between r	, ,	40		4	
	` '		-		
Total weight in fligh	it (kg)	74	9	4	
1. Inflation/Take-off		A			
Rising behaviour		Smooth, easy and constant rising	Α	Smooth, easy and constant rising	Α
Special take off technique	required	No	Α	No	Α
2. Landing		Α			
Special landing technique	required	No	Α	No	Α
3. Speed in straight fligh	t	Α			
Trim speed more than 30	km/h	Yes	Α	Yes	Α
Speed range using the con	ntrols larger than 10 km/h	Yes	Α	Yes	Α
Minimum speed		Less than 25 km/h	Α	Less than 25 km/h	Α
4. Control movement		Α			
Max. weight in flight up t	to 80 kg				
Symmetric control pressur	re / travel	Increasing / greater than 55 cm	Α	not available	0
Max. weight in flight 80 k	kg to 100 kg				
Symmetric control pressur	re / travel	not available	0	Increasing / greater than 60 cm	Α
Max. weight in flight great	ater than 100 kg				
Symmetric control pressur	e / travel	not available	0	not available	0
5. Pitch stability exiting		Α			
Dive forward angle on exit		Dive forward less than 30°	Α	Dive forward less than 30°	Α
Collapse occurs		No	Α	No	Α
<ol><li>Pitch stability operatir flight</li></ol>	ng controls during accelerated	Α			
Collapse occurs		No	Α	No	Α
7. Roll stability and dam	ping	A			
Oscillations		Reducing	Α	Reducing	Α
8. Stability in gentle spir	als	Α			
Tendency to return to stra	ight flight	Spontaneous exit	Α	Spontaneous exit	Α
9. Behaviour exiting a fu	lly developed spiral dive	Α			
Initial response of glider (f	irst 180°)	Immediate reduction of rate of turn	Α	Immediate reduction of rate of turn	Α
Tendency to return to stra	ight flight	Spontaneous exit (g force decreasing, rate of turn decreasing)	Α	Spontaneous exit (g force decreasing, rate of turn decreasing)	Α
Turn angle to recover norr	mal flight	Less than 720°, spontaneous recovery	Α	Less than 720°, spontaneous recovery	Α
10. Symmetric front colla	apse	В			
Approximately 30 % cho	rd				
Entry		Rocking back less than 45°	Α	Rocking back less than 45°	Α

Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit Change of course	Dive forward 0° to 30° Keeping course	Α	Dive forward 0° to 30° Keeping course	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
At least 50% chord				
Entry	Rocking back less than 45°	Α	Rocking back less than 45°	Α
Recovery	Spontaneous in 3 s to 5 s	В	Spontaneous in less than 3 s	Α
Dive forward angle on exit / Change of course	Dive forward 0° to 30° / Keeping course	A	Dive forward 0° to 30° / Keeping course	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
With accelerator				
Entry	Rocking back less than 45°	Α	Rocking back less than 45°	Α
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit / Change of course	Dive forward 0° to 30° / Keeping course	Α	Dive forward 0° to 30° / Keeping course	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No	77	No	, ,
	A			
11. Exiting deep stall (parachutal stall)		٨	Voc	^
Deep stall achieved	Yes	A	Yes	A
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Change of course	Changing course less than 45°	Α	Changing course less than 45°	Α
Cascade occurs	No	Α	No	Α
12. High angle of attack recovery	A			
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Cascade occurs	No	Α	No	Α
13. Recovery from a developed full stall	A			
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Collapse	No collapse	Α	No collapse	Α
Cascade occurs (other than collapses)	No	Α	No	Α
Rocking back	Less than 45°	Α	Less than 45°	Α
Line tension	Most lines tight	Α	Most lines tight	Α
14. Asymmetric collapse	B	, ,	Woot mee again	7.
·	ь			
Small asymmetric collapse	Lasa Hara 00% / Divas annull annul		Lacathan 00° / Discardant lacath	
Change of course until re-inflation / Maximum dive forward or roll angle	Less than 90° / Dive or roll angle 0° to 15°		Less than 90° / Dive or roll angle 0° to 15°	A
Re-inflation behaviour	Spontaneous re-inflation	Α.	Spontaneous re-inflation	Α .
Total change of course	Less than 360°	Α	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
Large asymmetric collapse				
Change of course until re-inflation / Maximum dive forward or roll angle	90° to 180° / Dive or roll angle 15° to 45°	В	90° to 180° / Dive or roll angle 15° to 45°	В
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Total change of course	Less than 360°	Α	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of	Α	No (or only a small number of	Α
Consepce on the opposite of the conse	collapsed cells with a spontaneous reinflation)		collapsed cells with a spontaneous reinflation)	, ,
			No	٨
Twist occurs	No	Α	No	Α
Twist occurs Cascade occurs	No No	A	No	A
Cascade occurs	No		No	
Cascade occurs Folding lines used	No		No	

Total sharps of source	Less than 360°	^	Lana than 200°	
Total change of course  Collapse on the opposite side occurs	No (or only a small number of	A A	Less than 360° No (or only a small number of	A A
Collapse on the opposite side occurs	collapsed cells with a spontaneous reinflation)	^	collapsed cells with a spontaneous reinflation)	۸
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
Large asymmetric collapse with fully activated accelerator				
Change of course until re-inflation / Maximum dive forward or roll angle	90° to 180° / Dive or roll angle 15° to 45°	В	90° to 180° / Dive or roll angle 15° to 45°	В
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Total change of course	Less than 360°	Α	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
15. Directional control with a maintained asymmetric	A			
collapse				
Able to keep course	Yes	Α	Yes	Α
180° turn away from the collapsed side possible in 10 s	Yes	Α	Yes	Α
Amount of control range between turn and stall or spin	More than 50 % of the symmetric control travel	Α	More than 50 % of the symmetric control travel	Α
16. Trim speed spin tendency	A			
Spin occurs	No	Α	No	Α
17. Low speed spin tendency	<b>A</b>			
Spin occurs	No	Α	No	Α
18. Recovery from a developed spin	Α			
Spin rotation angle after release	Stops spinning in less than 90°	Α.	Stops spinning in less than 90°	A
Cascade occurs	No	Α	No	Α
19. B-line stall	A		0, , , , , , , , , , , , , , , , , , ,	
Change of course before release	Changing course less than 45°	Α.	Changing course less than 45°	A
Behaviour before release	Remains stable with straight span	A	Remains stable with straight span	A
Recovery	Spontaneous in less than 3 s	A	Spontaneous in less than 3 s	A
Dive forward angle on exit	Dive forward 0° to 30°	A	Dive forward 0° to 30°	A
Cascade occurs	No	Α	No	Α
20. Big ears	A Dedicated controls	^	Dadianted controls	^
Entry procedure	Dedicated controls	A	Dedicated controls	A
Behaviour during big ears	Stable flight	A	Stable flight	A
Recovery Dive forward angle on exit	Spontaneous in less than 3 s Dive forward 0° to 30°	A A	Spontaneous in less than 3 s  Dive forward 0° to 30°	A
21. Big ears in accelerated flight	B	A	Dive lorward 0 to 30	Α
Entry procedure	Dedicated controls	Α	Dedicated controls	Α
Behaviour during big ears	Stable flight	A	Stable flight	A
Recovery	Recovery through pilot action in less than a further 3 s	В	Spontaneous in less than 3 s	A
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Behaviour immediately after releasing the accelerator while maintaining big ears	Stable flight	Α	Stable flight	Α
22. Alternative means of directional control	Α			
180° turn achievable in 20 s	Yes	Α	Yes	Α
Stall or spin occurs	No	Α	No	Α
23. Any other flight procedure and/or configuration described in the user's manual	0			
Procedure works as described	not available	0	not available	0
Procedure suitable for novice pilots	not available	0	not available	0
Cascade occurs	not available	0	not available	0

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Test laboratory for paragliders, paraglider harnesses and paraglider reserve parachutes



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Manufacturer	Sky Paragliders a.s.	Certification number	F	G_1574.2019	
Address	Okruzní 39 73911 Frýdlant nad Ostravicí Czech Republic	Flight test	1	4.12.2015	
Glider model	Apollo 2 light L	Classification	Е	3	
Serial number	2058-11-1242	Representative	N	lone	
Trimmer	no	Place of test		'illeneuve	
		riace or test	V	llierieuve	
Folding lines used	no				
Test pilot		Claude Thurnheer	Δ	lain Zoller	
Harness		Supair - Access M	C	in Gliders - Gingo 2 L	
Harness to risers di	istance (cm)	46	4	3	
Distance between r	• •	44	4	6	
Total weight in fligh	` '	85		08	
rotal weight in high	it (kg)	65	'	00	
1. Inflation/Take-off		A			
Rising behaviour		Smooth, easy and constant rising	Α	Smooth, easy and constant rising	Α
Special take off technique	required	No	Α	No	Α
2. Landing		Α			
Special landing technique		No	Α	No	Α
3. Speed in straight fligh		Α			
Trim speed more than 30		Yes	Α	Yes	Α
Speed range using the con	ntrols larger than 10 km/h	Yes	A	Yes	Α.
Minimum speed		Less than 25 km/h	Α	Less than 25 km/h	Α
4. Control movement	00 km	Α			
Max. weight in flight up t		not available	0	not available	0
Symmetric control pressur  Max. weight in flight 80 H		not available	U	not available	0
Symmetric control pressur	=	Increasing / greater than 60 cm	Α	not available	0
Max. weight in flight great		mercasing / greater than oo em		not available	U
Symmetric control pressur	=	not available	0	Increasing / greater than 65 cm	Α
5. Pitch stability exiting		A		more dening / greater than ee em	
Dive forward angle on exit	the contract of the contract o	Dive forward less than 30°	Α	Dive forward less than 30°	Α
Collapse occurs		No		No	Α
6. Pitch stability operating	ng controls during accelerated	Α			
Collapse occurs		No	Α	No	Α
7. Roll stability and dam	ping	A			
Oscillations		Reducing	Α	Reducing	Α
8. Stability in gentle spir	als	Α			
Tendency to return to stra	ight flight	Spontaneous exit	Α	Spontaneous exit	Α
9. Behaviour exiting a fu	lly developed spiral dive	Α			
Initial response of glider (f	irst 180°)	Immediate reduction of rate of turn	Α	Immediate reduction of rate of turn	Α
Tendency to return to stra	ight flight	Spontaneous exit (g force decreasing, rate of turn decreasing)	Α	Spontaneous exit (g force decreasing, rate of turn decreasing)	Α
Turn angle to recover norr	nal flight	Less than 720°, spontaneous recovery	Α	Less than 720°, spontaneous recovery	Α
10. Symmetric front colla	apse	В			
•					
Approximately 30 % cho	rd	Rocking back less than 45°	Α	Rocking back less than 45°	Α

Dive forward angle on exit Change of course	Dive forward 0° to 30° Keeping course	Α	Dive forward 0° to 30° Keeping course	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
At least 50% chord				
Entry	Rocking back less than 45°	Α	Rocking back less than 45°	Α
Recovery	Spontaneous in 3 s to 5 s	В	Spontaneous in less than 3 s	Α
Dive forward angle on exit / Change of course	Dive forward 0° to 30° / Keeping course	Α	Dive forward 0° to 30° / Keeping course	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
With accelerator				
Entry	Rocking back less than 45°	Α	Rocking back less than 45°	Α
Recovery	Spontaneous in 3 s to 5 s	В	Spontaneous in less than 3 s	Α
Dive forward angle on exit / Change of course	Dive forward 0° to 30° / Keeping course	Α	Dive forward 30° to 60° / Keeping course	В
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
11. Exiting deep stall (parachutal stall)	A			
Deep stall achieved	Yes	Α	Yes	Α
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Change of course	Changing course less than 45°	Α	Changing course less than 45°	Α
Cascade occurs	No	Α	No	Α
12. High angle of attack recovery	A	•		• •
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Cascade occurs	No	Α	No	Α
13. Recovery from a developed full stall	A			
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Collapse	No collapse	Α	No collapse	Α
Cascade occurs (other than collapses)	No	Α	No	Α
Rocking back	Less than 45°	Α	Less than 45°	A
Line tension	Most lines tight		Most lines tight	A
14. Asymmetric collapse	B		Wost inies tight	
Small asymmetric collapse				
Change of course until re-inflation / Maximum dive forward or roll angle	Less than 90° / Dive or roll angle 15° to 45°	Α	Less than 90° / Dive or roll angle 0° to 15°	Α
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Total change of course	Less than 360°	Α	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
Large asymmetric collapse				
Change of course until re-inflation / Maximum dive forward or roll angle	90° to 180° / Dive or roll angle 15° to 45°	В	90° to 180° / Dive or roll angle 15° to 45°	В
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Total change of course	Less than 360°	Α	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
Small asymmetric collapse with fully activated accelerator				
		^	Less than 90° / Dive or roll angle	Α
Change of course until re-inflation / Maximum dive forward or roll angle	Less than 90° / Dive or roll angle 15° to 45°	А	15° to 45°	^
		A		A

Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
Large asymmetric collapse with fully activated accelerator				
Change of course until re-inflation / Maximum dive forward or roll angle	90° to 180° / Dive or roll angle 15° to 45°	В	90° to 180° / Dive or roll angle 15° to 45°	В
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Total change of course	Less than 360°	Α	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
15. Directional control with a maintained asymmetric	A			
collapse				
Able to keep course	Yes	Α	Yes	Α
180° turn away from the collapsed side possible in 10 s	Yes	Α	Yes	Α
Amount of control range between turn and stall or spin	More than 50 % of the symmetric control travel	Α	More than 50 % of the symmetric control travel	Α
16. Trim speed spin tendency	Α			
Spin occurs	No	Α	No	Α
17. Low speed spin tendency	Α			
Spin occurs	No	Α	No	Α
18. Recovery from a developed spin	Α			
Spin rotation angle after release	Stops spinning in less than 90°	Α	Stops spinning in less than 90°	Α
Cascade occurs	No	Α	No	Α
19. B-line stall	A			
Change of course before release	Changing course less than 45°	Α	Changing course less than 45°	Α
Behaviour before release	Remains stable with straight span	Α	Remains stable with straight span	Α
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Cascade occurs	No	Α	No	Α
20. Big ears	В			
Entry procedure	Dedicated controls	Α	Dedicated controls	Α
Behaviour during big ears	Stable flight	Α	Stable flight	Α
Recovery	Recovery through pilot action in less than a further 3 s	В	Spontaneous in less than 3 s	Α
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
21. Big ears in accelerated flight	A			
Entry procedure	Dedicated controls	Α	Dedicated controls	Α
Behaviour during big ears	Stable flight	Α	Stable flight	Α
Recovery	Spontaneous in 3 s to 5 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Behaviour immediately after releasing the accelerator while maintaining big ears	Stable flight	Α	Stable flight	Α
22. Alternative means of directional control	A			
180° turn achievable in 20 s	Yes	Α	Yes	Α
Stall or spin occurs	No	Α	No	Α
23. Any other flight procedure and/or configuration described in the user's manual	Α			
Procedure works as described	Yes	Α	not available	0
Procedure suitable for novice pilots	Yes	Α	not available	0
Cascade occurs	No	Α	not available	0

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Test laboratory for paragliders, paraglider harnesses and paraglider reserve parachutes



Manufacturer	Sky Paragliders a.s.	Certification number	F	PG_1575.2019	
Address	Okruzní 39 73911 Frýdlant nad Ostado Basadolia	Flight test	1	1.04.2016	
Glider model	Czech Republic	Classification	Е	,	
	Apollo 2 light XL				
Serial number	2152-11-0639	Representative		lone 	
Trimmer	no	Place of test	٧	/illeneuve	
Folding lines used	no				
Test pilot		Claude Thurnheer	A	lain Zoller	
Harness		Niviuk - Hamak M	C	Gin Gliders - Gingo 2 L	
Harness to risers d	listance (cm)	42	4	3	
Distance between i	• •	44	4	6	
Total weight in flig	, ,	99		25	
	(3)		·		
1. Inflation/Take-off		<b>A</b>			
Rising behaviour		Smooth, easy and constant rising	Α.	Smooth, easy and constant rising	A
Special take off technique	e required	No	Α	No	Α
2. Landing		A			
Special landing technique	·	No	Α	No	Α
3. Speed in straight flight		A Van	^	Van	^
Trim speed more than 30		Yes Yes	A	Yes Yes	A
Minimum speed	ontrols larger than 10 km/h	Less than 25 km/h	A A	Less than 25 km/h	A A
4. Control movement		A	^	Less than 23 km/m	^
Max. weight in flight up	to 80 kg	^			
Symmetric control pressu		not available	0	not available	0
Max. weight in flight 80		not available	Ŭ	not available	Ü
Symmetric control pressu		Increasing / greater than 60 cm	Α	not available	0
Max. weight in flight gre		g. g. case. a.a co c			
Symmetric control pressu		not available	0	Increasing / greater than 65 cm	Α
5. Pitch stability exiting		A			
Dive forward angle on ex		Dive forward less than 30°	Α	Dive forward less than 30°	Α
Collapse occurs		No	Α	No	Α
6. Pitch stability operati flight	ing controls during accelerated	Α			
Collapse occurs		No	Α	No	Α
7. Roll stability and dam	nping	A			
Oscillations		Reducing	Α	Reducing	Α
8. Stability in gentle spi	rals	A			
Tendency to return to stra	aight flight	Spontaneous exit	Α	Spontaneous exit	Α
9. Behaviour exiting a fo	ully developed spiral dive	A			
Initial response of glider (	first 180°)	Immediate reduction of rate of turn	Α	Immediate reduction of rate of turn	Α
Tendency to return to stra	aight flight	Spontaneous exit (g force decreasing, rate of turn decreasing)	Α	Spontaneous exit (g force decreasing, rate of turn decreasing)	Α
Turn angle to recover nor	mal flight	Less than 720°, spontaneous recovery	Α	Less than 720°, spontaneous recovery	Α
10. Symmetric front col	lapse	В			
Approximately 30 % cho	ord	Rocking back less than 45°	Α	Rocking back less than 45°	Α
Recovery		Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α

Dive forward angle on exit Change of course	Dive forward 0° to 30° Keeping course	Α	Dive forward 0° to 30° Keeping course	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
At least 50% chord				
Entry	Rocking back less than 45°	Α	Rocking back less than 45°	Α
Recovery	Spontaneous in 3 s to 5 s	В	Spontaneous in less than 3 s	Α
Dive forward angle on exit / Change of course	Dive forward 0° to 30° / Keeping course	Α	Dive forward 0° to 30° / Keeping course	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
With accelerator				
Entry	Rocking back less than 45°	Α	Rocking back less than 45°	Α
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit / Change of course	Dive forward 0° to 30° / Keeping course	Α	Dive forward 30° to 60° / Keeping course	В
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
11. Exiting deep stall (parachutal stall)	A			
Deep stall achieved	Yes	Α	Yes	Α
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Change of course	Changing course less than 45°	Α	Changing course less than 45°	Α
Cascade occurs	No	Α	No	Α
12. High angle of attack recovery	A			
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Cascade occurs	No	Α	No	Α
13. Recovery from a developed full stall	A			
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Collapse	No collapse	Α	No collapse	Α
Cascade occurs (other than collapses)	No	Α	No	Α
Rocking back	Less than 45°	Α	Less than 45°	Α
Line tension	Most lines tight	Α	Most lines tight	Α
14. Asymmetric collapse	В			
Small asymmetric collapse				
Change of course until re-inflation / Maximum dive forward or roll angle	Less than 90° / Dive or roll angle 15° to 45°	Α	Less than 90° / Dive or roll angle 0° to 15°	Α
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Total change of course	Less than 360°	Α	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
Large asymmetric collapse				
Change of course until re-inflation / Maximum dive forward or roll angle	90° to 180° / Dive or roll angle 15° to 45°	В	90° to 180° / Dive or roll angle 15° to 45°	В
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Total change of course	Less than 360°	Α	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
Small asymmetric collapse with fully activated accelerator				
Change of course until re-inflation / Maximum dive forward or	L 41 000 / D':	Δ	Less than 90° / Dive or roll angle	Α
roll angle	Less than 90° / Dive or roll angle 15° to 45°	^	15° to 45°	
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Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
Large asymmetric collapse with fully activated accelerator				
Change of course until re-inflation / Maximum dive forward or roll angle	$90^{\circ}$ to $180^{\circ}$ / Dive or roll angle $15^{\circ}$ to $45^{\circ}$	В	90° to 180° / Dive or roll angle 15° to 45°	В
Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Total change of course	Less than 360°	Α	Less than 360°	Α
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α	No (or only a small number of collapsed cells with a spontaneous reinflation)	Α
Twist occurs	No	Α	No	Α
Cascade occurs	No	Α	No	Α
Folding lines used	No		No	
15. Directional control with a maintained asymmetric collapse	A			
Able to keep course	Yes	Α	Yes	Α
180° turn away from the collapsed side possible in 10 s	Yes	Α	Yes	Α
Amount of control range between turn and stall or spin	More than 50 % of the symmetric control travel	Α	More than 50 % of the symmetric control travel	Α
16. Trim speed spin tendency	Α			
Spin occurs	No	Α	No	Α
17. Low speed spin tendency	A			
Spin occurs	No	Α	No	Α
18. Recovery from a developed spin	В			
Spin rotation angle after release	Stops spinning in 90° to 180°	В	Stops spinning in 90° to 180°	В
Cascade occurs	No	Α	No	Α
19. B-line stall	A			
Change of course before release	Changing course less than 45°	Α	Changing course less than 45°	Α
Behaviour before release	Remains stable with straight span	Α	Remains stable with straight span	Α
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Cascade occurs	No	Α	No	Α
20. Big ears	В			
Entry procedure	Dedicated controls	Α	Dedicated controls	Α
Behaviour during big ears	Stable flight	Α	Stable flight	Α
Recovery	Spontaneous in 3 s to 5 s	В	Spontaneous in less than 3 s	Α
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
21. Big ears in accelerated flight	Α			
Entry procedure	Dedicated controls	Α	Dedicated controls	Α
Behaviour during big ears	Stable flight	Α	Stable flight	Α
Recovery	Spontaneous in 3 s to 5 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Behaviour immediately after releasing the accelerator while maintaining big ears	Stable flight	Α	Stable flight	Α
22. Alternative means of directional control	A			
180° turn achievable in 20 s	Yes	Α	Yes	Α
Stall or spin occurs	No	Α	No	Α
23. Any other flight procedure and/or configuration described in the user's manual	0			
Procedure works as described	not available	0	not available	0
Procedure suitable for novice pilots	not available	0	not available	0
Cascade occurs	not available	0	not available	0

24. Comments of test pilot

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Classification: **B** 

In accordance with standards EN 926-1:2015, EN 926-2:2013 and LTF NFL II-91/09:

Date of issue (DMY):

Manufacturer:

Model:

Serial number:

PG\_1571.2019

22.11.2019

Sky Paragliders a.s.

Apollo 2 light XS

2151-11-0605

## Configuration during flight tests

Paraglider		Accessories	
Maximum weight in flight (kg)	73	Range of speed system (cm)	13
Minimum weight in flight (kg)	55	Speed range using brakes (km/h)	14
Glider's weight (kg)	3.2	Total speed range with accessories (km/h)	28
Number of risers	3	Range of trimmers (cm)	0
Projected area (m2)	18.9		
Harness used for testing (max weight)		Inspections (whichever happens first)	
Harness type	ABS	every 24 months or every 100 flying hours	
Harness brand	Flugsau	Warning! Before use refer to user's manual	
Harness model	XX-Lite	Person or company having presented the glider for testing: <b>sky paraglider</b>	
Harness to risers distance (cm)	40		
Distance between risers (cm)	40		

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

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Classification: **B** 

In accordance with standards EN 926-1:2015, EN 926-2:2013 and LTF NFL II-

91/09:

Date of issue (DMY):

Manufacturer:

Model:

Serial number:

PG\_1572.2019

22.11.2019

Sky Paragliders a.s.

Apollo 2 light S

2060-11-1414

## Configuration during flight tests

Paraglider		Accessories	
Maximum weight in flight (kg)	81	Range of speed system (cm)	14
Minimum weight in flight (kg)	64	Speed range using brakes (km/h)	14
Glider's weight (kg)	3.4	Total speed range with accessories (km/h)	28
Number of risers	3	Range of trimmers (cm)	0
Projected area (m2)	20.19		
Harness used for testing (max weight)		Inspections (whichever happens first)	
Harness type	ABS	every 24 months or every 100 flying hours	
Harness brand	Supair	Warning! Before use refer to user's manual	
Harness model	Altiplume	Person or company having presented the	
	М	glider for testing: sky paraglider	
Harness to risers distance (cm)	44		
Distance between risers (cm)	44		

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

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Classification: **B** 

In accordance with standards EN 926-1:2015, EN 926-2:2013 and LTF NFL II-91/09:

Date of issue (DMY):

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Manufacturer:

Model:

Serial number:

PG\_1573.2019

22.11.2019

Sky Paragliders a.s.

Apollo 2 light M

2459-11-1195

## Configuration during flight tests

Paraglider		Accessories	
Maximum weight in flight (kg)	94	Range of speed system (cm)	14
Minimum weight in flight (kg)	74	Speed range using brakes (km/h)	14
Glider's weight (kg)	3.5	Total speed range with accessories (km/h)	28
Number of risers	3	Range of trimmers (cm)	0
Projected area (m2)	21.56		
Harness used for testing (max weight)		Inspections (whichever happens first)	
Harness type	ABS	every 24 monthes or every 100 flying hours	
Harness brand	Flugsau	Warning! Before use refer to user's manual	
Harness model	XX-Lite	Person or company having presented the glider for testing: <b>None</b>	
Harness to risers distance (cm)	40		
Distance between risers (cm)	44		

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

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Classification: **B** 

In accordance with standards EN 926-1:2015, EN 926-2:2013 and LTF NFL II-

91/09:

Model:

Date of issue (DMY):

Manufacturer:

Serial number:

PG\_1574.2019

22.11.2019

Sky Paragliders a.s.

Apollo 2 light L

2058-11-1242

## Configuration during flight tests

Paraglider		Accessories	
Maximum weight in flight (kg)	108	Range of speed system (cm)	14
Minimum weight in flight (kg)	85	Speed range using brakes (km/h)	14
Glider's weight (kg)	3.7	Total speed range with accessories (km/h)	28
Number of risers	3	Range of trimmers (cm)	0
Projected area (m2)	23.03		
Harness used for testing (max weight)		Inspections (whichever happens first)	
Harness type	ABS	every 24 months or every 100 flying hours	
Harness brand	Gin Gliders	Warning! Before use refer to user's manual	
Harness model	Gingo 2 L	Person or company having presented the glider for testing: <b>None</b>	
Harness to risers distance (cm)	43		
Distance between risers (cm)	46		

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Classification: **B** 

In accordance with standards EN 926-1:2015, EN 926-2:2013 and LTF NFL II-

91/09:

Date of issue (DMY):

Manufacturer:

Model:

Serial number:

PG\_1575.2019

22.11.2019

Sky Paragliders a.s.

Apollo 2 light XL

2152-11-0639

## Configuration during flight tests

Paraglider		Accessories	
Maximum weight in flight (kg)	125	Range of speed system (cm)	16
Minimum weight in flight (kg)	99	Speed range using brakes (km/h)	14
Glider's weight (kg)	3.9	Total speed range with accessories (km/h)	28
Number of risers	3	Range of trimmers (cm)	0
Projected area (m2)	24.6		
Harness used for testing (max weight)		Inspections (whichever happens first)	
Harness type	ABS	every 24 months or every 100 flying hours	
Harness brand	Gin Gliders	Warning! Before use refer to user's manual	
Harness model	Gingo 2 L	Person or company having presented the glider for testing: <b>None</b>	
Harness to risers distance (cm)	43		
Distance between risers (cm)	46		

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23